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EOSDIS Core System Project

Science Data Processing Segment (SDPS) Database Design and Database Schema Specifications for the ECS Project

Final

December 1995

Hughes Information Technology Systems
Upper Marlboro, MD

Science Data Processing Segment (SDPS) Database Design and Database Schema Specifications for the ECS Project

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SUBMITTED BY

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Preface

This document is a formal contract deliverable intended to be a final submittal with an approval code 1. It requires Government review and approval prior to acceptance and use. This document is under ECS contractor configuration control. Once this document is approved, Contractor approved changes are handled in accordance with Class I and Class II change control requirements described in the EOS Configuration Management Plan, and changes to this document shall be made by document change notice (DCN) or by complete revision.

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Abstract

This design document organizes and describes the metadata for the Earth Observation System Data and Information System Core System (ECS.) This includes all data that is stored as earth science metadata and other persistent data that is accessed directly or indirectly by the client. The document content is based upon the three schema approach to distributed data modeling. User views of the data are presented as the External Model, the Earth Science data as the Data (Conceptual) Model, and the Sybase Relational Tables as the Internal Model.

User views are presented in table format within the context of the client interface and the data pyramid.

The Data Model includes diagrams that graphically illustrate the relationships of classes, the attributes contained within the classes, the characteristics of the relationships between classes, and the attribute specifications (previously identified as data dictionary items.) Diagrams and specifications are products of the Interactive Development Environment (IDE) Software through Pictures (StP) Object Modeling Technique (OMT) which is a Computer Aided Software Engineering (CASE) Tool. The specifications of attributes within the earth science data model are presented in alphabetical order for cross reference from the diagrams. Classes within the diagrams are also defined.

The Internal Model is presented as Sybase Relational Tables developed with the S-Designer CASE tool.

The relationships and information among the data objects are described as they are understood and used within the Earth Science Community.

Keywords: DID 311, Database Design, Schema, Specifications, Dictionary, SDPS, Metadata, Mapping, Data Model, ESDT, CSDT, Files, Directory, Inventory, Advertising

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1. Introduction

1.1 Identification

The Database Design and Database Schema Specifications Document, Contract Data Requirement List (CDRL) Item Number 050, whose requirements are specified in Data Item Description (DID) 311/DV1, is a required deliverable under the Earth Observing System (EOS) Data and Information System (EOSDIS) Core System (ECS), Contract NAS5-60000.

1.2 Scope

The scope of the products supported through this design and specifications document is identified in the Technical Baseline for the ECS Project, August 1995 and the Release Plan Content Description for the ECS Project, May 1995. The Technical Baseline is maintained by the contractor configuration control board in accordance with ECS Technical Direction No. 11 dated December 6, 1994. This document includes specifications for data that are the creation and deletion responsibility of one or more ECS Science Data Processing Segment (SDPS) Computer Software Configuration Items (CSCIs) that are stored and managed externally from the application processing software. The Directory, Directory Characteristics, and Inventory Metadata; system persistent data; and related files organized within other controlled file system storage types (e.g. American Standard Code for Information Interchange [ASCII] or binary files, HyperText Markup Language [HTML] document files, hierarchical data format [HDF] files) are also specified in this document. Data requirements fully support the SDPS segment of Release A and include partial support for future releases through provision for extensibility and incremental development.

1.3 Purpose

The purpose of this document is to illustrate, specify, and communicate the design of ECS metadata[1] and system persistent data providing information about ECS standard data products to software developers and the Government. It is a living document that captures ECS data requirements in a logically structured format that is useful to designers, developers, and managers. This document is used to support configuration management of the stored data assets of the ECS during design and development phases of the system life-cycle and subsequent production and maintenance activities. This is a practical means of assuring the consistency of data requirements across sub-systems and releases and supporting the data standardization necessary for total system interoperability within a heterogeneous open systems environment.

1.4 Audience

System developers will use the information described in this document to implement the ECS. Unique challenges are associated with this project by virtue of its large size and tight schedule of overlapping incremental releases. The intention of this document is to bridge the diversity of

1. Metadata is defined in the Federal Geographic Data Committee Metadata Standard.

development responsibility of various organizational entities through documenting, stabilizing and communicating the data requirements in a standardized design for ECS development.

1.5 Status and Schedule

This document was first issued as a Working Paper (420-WK-001-001) prior to the SDPS Preliminary Design Review (PDR.) Comments on the working paper were incorporated to support the PDR version, delivered as 311-CD-002-002, March 1995. Since that time updates were included from formal review periods including PDR, Critical Design Review (CDR), formal and informal project and Data Modeling Working Group (DMWG) reviews, and Data Engineering processes. Future extensions and updates are anticipated for Release B Critical Design Review (CDR) and Release C IDR resulting in updated versions of this document to be released according to milestones established at that time.

This version of DID 311 has been preceded by several iterations which have undergone review during the past year. The most recent changes (i.e., since release 311-CD-002-003 August 1995) respond to ESDIS review and the data engineering process.

1.6 Organization

The document is organized in accordance with ESDIS standard format. A description of the document content follows:

- Section 1 contains the introductory material and background necessary for the reader to understand the content.
- Section 2 contains information about related documents.
- Section 3 is a data modeling overview describing the data engineering process, standards, products analyzed, product groupings, and data usage.
- Section 4 is an overview of the modeling technique used to develop the data model and specifications.
- Section 5 provides access, results, and archive views representing the user and client views of the data.
- Section 6 contains the Earth Science object model, attribute specifications, and mappings to other internal and external system components.
- Section 7 defines the internal model through database relational tables created with the S-Designer CASE tool.
- Section 8 provides a proposal for the future direction of DID 311.
- Appendix A contains specifications for Auxiliary Data.
- Appendix B contains descriptions for mandatory metadata.
- Appendix C contains product specific mappings.
- The back matter includes a list of acronyms and a glossary of terms that are used in the document.

1.6.1 Changes to Document Organization and Content Since Preliminary Design Review (PDR) in March of 1995

There had been numerous changes in document format and data model content from the prior release delivered for PDR. The format of the document was changed to provide better readability and the content was changed to respond to critique from the project, Data Modeling Working Group (DMWG) minutes, and sub-system development teams.

Data specifications were made global to two segments of the model, metadata and system persistent data (data which is stored and managed), that together represent the enterprise's database in support of ECS. The data dictionaries were modified so they could be cross-referenced to the diagrams representing the earth science metadata (conceptual or data model) and vice versa. This was accomplished to allow the reader to easily access selective information from the dictionary or the diagrams as needed.

Effort had gone into a significant reduction in the size of the document through integration of the server specific information previously contained in the PDR version of DID 311. This information was traced through cross-reference from a display mark, i.e., an asterisk "*" placed in front of the attribute name on the diagram to a truth table. The table identified attributes not considered core metadata and relates them to the server collections described in the previous release. Collections were related to the primary DAAC where the information is processed and managed.

Data names within the diagrams and dictionaries were made consistent in this version. Spaces and special characters were taken out of names to conform to naming conventions. The leading "DSS" was removed from all objects and attributes. Additionally, work was accomplished but not completed in all areas to provide consistency between:

- Data engineering and subsystem development
- Dictionaries and the graphical models
- Class and attribute names

The technical baseline changes made for Release A included support for three DAACs instead of the original four for PDR. These changes, identified in the technical baseline document, changed the SeaWIFS II instrument references on the Landsat 7 platform to the COLOR instrument on the Flight of Opportunity (FOO) platform. The Earth Resources Observation system (EROS) Data Center (EDC) products for which analysis had been incorporated in this design were postponed as a Release B requirement.

1.6.2 Changes to Document Organization and Content Since Critical Design Review (CDR) in August of 1995

There have been several changes to the document organization and data content since the version delivered for CDR.

The name of the data dictionary was changed to "data specifications" to differentiate it from the subsystem by the same name. The format of the specifications was changed to consolidate attribute information into one place, previously presented in different tables with different sorting. The content changes were a result of both internal and external inputs. Internal data analysis sessions were held for each module to clarify the model. Internal review of subsystem developer inputs was

performed as well as verification and validation of the user views. External inputs from ESDIS were also incorporated into the data model.

An effort to provide a comprehensive table which maps product specific server-level information to the data model, allows for all of the product specific information to be extracted from the data model. This information is now mapped to the attribute names in the data dictionary and data diagrams. Non core metadata attributes were identified in a table and mapped to server collections based on DAAC affiliation, science discipline and instrument further explained in the PDR version of DID311.

Naming standards were established for various types of classes. For example, 'container classes' function primarily as groupings for clarity in the modeling techniques. These classes do not have attributes and have the word 'Container' as the last word in the class name. The 'offpage' connectors was added and labeled as such to identify links to other portions of the model or to point to specifications provided elsewhere in this document. Specifically, persistent system data classes were added to the model to allow for cross-referencing between the subsystem data and the earth science data. Further analysis was completed in the area of multiplicity and reflected in the graphical model.

Consistency was addressed between the following:

- Data engineering and subsystem development
- Data dictionaries and graphical models
- Class and attribute names

The most significant changes to the graphical model were made in the Collection and Spatial Data Organization modules. The Collection module was split into a Collection and Granule view to provide improved readability. The Spatial Data Organization module, which is largely composed of FGDC inputs, was incorporated into the Collection module.

2. Related Documentation

2.1 Parent Documents

The parent document is the document from which this SDPS Database Design/Schema Specification's scope and content are derived.

194-207-SE1-001	System Design Specification for the ECS Project
304-CD-002-002	Science Data Processing Segment (SDPS) Requirements Specification for the ECS Project
423-41-01	Goddard Space Flight Center, EOSDIS Core System (ECS) Statement of Work
423-41-02	Goddard Space Flight Center, Functional and Performance Requirements Specification for the Earth Observing System Data and Information System (EOSDIS) Core System (ECS)

2.2 Applicable Documents

The following documents are referenced within this SDPS Database Design/Schema Specification, or are directly applicable, or contain policies or other directive matters that are binding upon the content of this volume. Internet links cannot be guaranteed for accuracy or currency.

205-CD-002-002	Science User's Guide and Operations Procedure Handbook for the ECS Project, Part 4: Software Developer's Guide to Preparation, Delivery, Integration and Test with ECS
305-CD-002-002	Science Data Processing Segment (SDPS) Design Specification for the ECS Project
305-CD-003-002	Communications and System Management (CSMS) Design Specification for the ECS Project, Preliminary
305-CD-004-001	Release A Overview of the SDPS and CSMS Segment System Design Specification for the ECS Project
305-CD-005-001	Release A SDPS Client Subsystem Design Specification for the ECS Project
305-CD-006-001	Release A SDPS Interoperability Subsystem Design Specification for the ECS Project
305-CD-007-001	Release A SDPS Data Management Subsystem Design Specification for the ECS Project
305-CD-008-001	Release A SDPS Data Server Subsystem Design Specification for the ECS Project
305-CD-009-001	Release A SDPS Ingest Subsystem Design Specification for the ECS Project
305-CD-010-001	Release A SDPS Planning Subsystem Design Specification for the ECS Project

305-CD-011-001	Release A SDPS Data Processing Subsystem Design Specification for the ECS Project
305-CD-012-001	Release A CSMS Segment Communications Subsystem Design Specification for the ECS Project
305-CD-013-001	Release A CSMS Segment Systems Management Subsystem Design Specification for the ECS Project
305-CD-014-001	Release A GSFC Distributed Active Archive Center Implementation for the ECS Project
305-CD-015-001	Release A LaRC Distributed Active Archive Center Implementation for the ECS Project
305-CD-016-001	Release A MSFC Distributed Active Archive Center Implementation for the ECS Project
305-CD-017-001	Release A EDC Distributed Active Archive Center Implementation for the ECS Project
305-CD-018-001	Release A Data Dictionary for Subsystem Design Specification for the ECS Project
305-CD-019-001	Release A System Monitoring and Coordination Center Implementation for the ECS Project
311-CD-003-004	Communications and System Management Segment (CSMS) Database Design and Database Schema Specification for the ECS Project
333-CD-003-002	SDP Toolkit Users Guide for the ECS Project
194-815-SI4-001	SDP Toolkit Primer for the ECS Project http://newsroom.hitc.com/sdptoolkit/primer /tkprimer.html
194-WP-902-002	[FB9402V2] ECS Science Requirements Summary, White Paper
160-TP-004-001	User Pull Analysis Notebook [for the ECS Project], Technical Paper
194-TP-287-001	Ancillary Data in the EOSDIS Core System, Technical Paper
210-TP-001-004	Technical Baseline for the ECS Project, Technical Paper

2.3 Information Documents

2.3.1 Information Documents Referenced

The following documents (or in some cases, Internet links to documents/information), although not directly applicable, amplify or clarify the information presented in this document. These references are not binding on this document. Internet links cannot be guaranteed for accuracy or currency.

410-TD-003-001	Object Modeling Technique Tutorial for the ECS Project
440-TP-003-001	Science Software Data Server Access: A Trade-off Study Analysis, Technical Paper
none	Goddard Space Flight Center, Science Data Plan for the EOS Data and Information System covering EOSDIS Version 0 and Beyond, 7/94 (http://edhs1.gsfc.nasa.gov:8001/waisdata/special/od9900203toc.html)

none	Goddard Space Flight Center Global Change Data Center; Global Change Master Directory (GCMD) @ http://gcmd.gsfc.nasa.gov/gcmdhome.html
OMB Circular A-16	Office of Management and Budget/Executive Office of the President; Revised Circular A-16: Coordination of Surveying, Mapping, and Related Spatial Data Activities
CCSDS 641.0-G-1	Consultative Committee for Space Data Systems (CCSDS) Report Concerning Space Data System Standards Parameter Value Language: A Tutorial; Green Book, 5/92

2.3.2 Information Documents Not Referenced

The following document, although not referenced herein and/or not directly applicable, does amplify or clarify the information presented in this document.

160-TP-003-001	A Science User's Guide to the EOSDIS Core System (ECS) Development Process

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3. Overview

3.1 Data Engineering Process

3.1.1 Background

The initial phase of the data model construction involved the description of the earth science data to include the identification of objects such as the ECS Data Collection; the identification of characteristics associated with the objects such as data collection name and the relationships between the identified objects. This construction was achieved by conducting a variety of interviews with individuals knowledgeable in Earth Science. These interviews produced an initial framework that was verified by the Data Modeling Working Group. This group consisted of representatives within the user community. The results of these reviews produced a descriptive model of the earth science data which served to illustrate and define the components of the Earth Science data and the relationships between the components. This description served as the framework for the data design phase of the ECS Project.

The design phase of the data model development included the identification of the views and the application of these views to the descriptive model . The purpose of this phase was to align the descriptive data model with the required functionality to produce a prescriptive model of the data. This process is illustrated and described in the following sections.

3.1.2 Description of the Data Design Process

As illustrated in Figure 3.1 the data design process consisted of a series of interrelated activities. The process began with the identification of views of the data which were derived from the requirements. There are three categories of views that were identified during this phase. The following identifies and briefly describes each of these views.

- The first is the access view. This view consists of the earth science data required to support the data access requirements, coupled with the known application support data required to complete the access transaction.
- The second view is the archive data view which consists of the definition of the data that the system is required to store in the archive. This view will consist of specifications for such objects as the instances of the Guide Documents or the ECS Granules.
- The last view is the results view which will contain a description of the data required to support the results requirements. This view may contain result screen displays.

The three views described are not independent entities. There are distinct relationships between each view. For example each access view will necessarily map to archive and results views. A specific example may be that a Browse Access View will specify the data needed to satisfy the access requirement for the Browse Product. This data will also be reflected in the archive view.

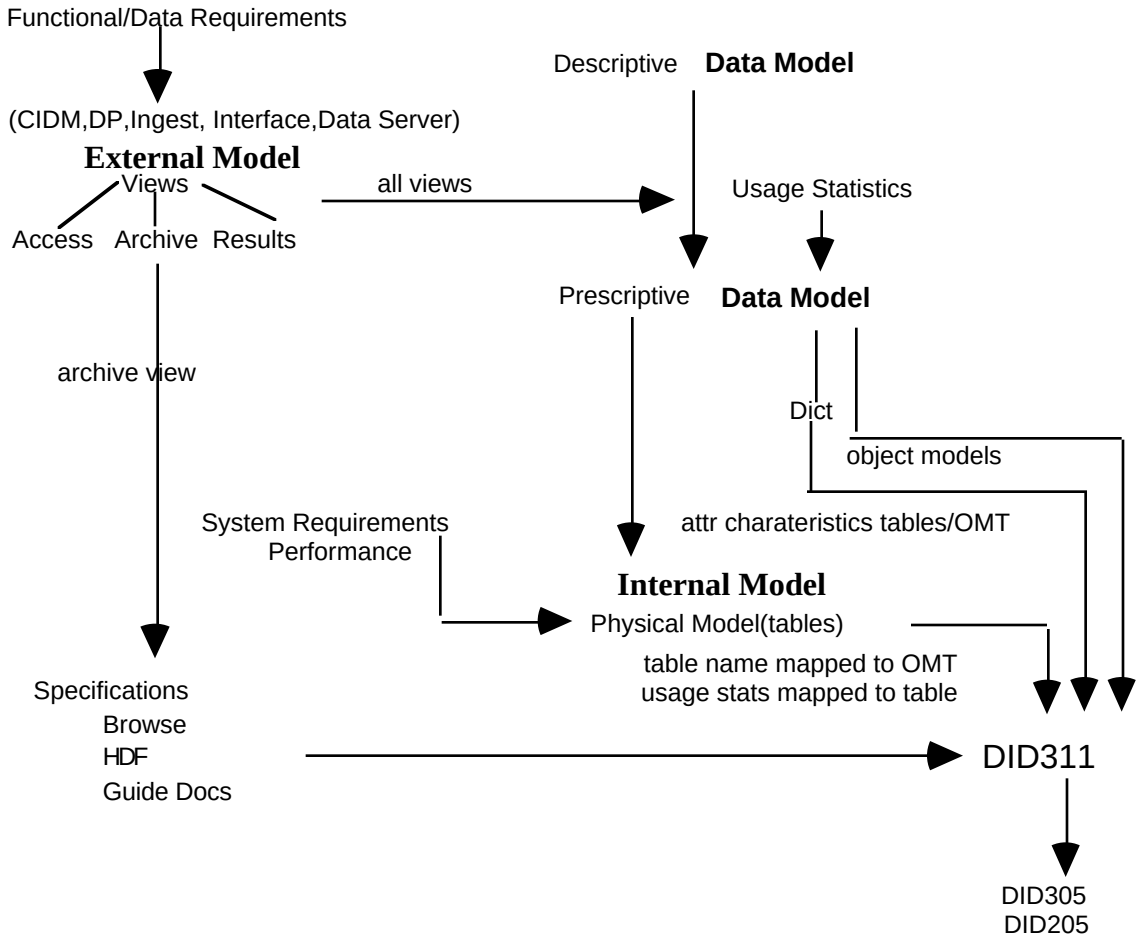

Figure 3.1. Data Design Process

There are two major reasons for the view collection and analysis activity. The first is to is verify that the descriptive model will support the view or required data. The second is to integrate the functional capabilities of the ECS Subsystems with the descriptive data model that was constructed during the previous data model development phase.

The second activity in the process was the detailed integration activity. This activity consisted of mapping the view to the descriptive data model to ensure that the model will support the view, and thus the requirement. Where inconsistencies, or omissions have occurred, or additional information was required the objects, attributes, and or relationships were added to the descriptive model. This was an iterative activity which required continual collaboration with the subsystems under development. The results of this activity produced the prescriptive data model. An additional product of this activity was the cross reference tables which identified the object classes, specifications (pointers), offpage connectors in the data model diagrams in Section 6.3 to subsystem models in DID 305, and pointers to the specifications in Section 6.4, which satisfied the identified view.

The next activity required input from the user modeling team and existing V0 Usage Statistics to support the physical modeling phase to follow. These statistics were allocated to each of the identified object classes in the prescriptive model. From this information the physical data designers can determine the optimal design.

All of the above served as input to the physical data modeling phase. This phase produced table models, if appropriate, for the prescriptive data model. A cross reference was maintained between the objects/associated attributes referenced in the object model and the tables. The interaction between the data and the functions to be performed on the data is of paramount importance. Therefore, a cross reference between the data tables and the associated OMT Model (DID 305) which supports the functions (services) will also be identified and recorded during this phase. From this last cross reference one can determine the associated CSCI and thus requirement that is being satisfied by the OMT Model.

Lastly, specifications for the archive views was developed and a reference to the specification was included in the model. This reference is reflected as a pointer attribute in the data models' associated object class. For example the Browse Object class in the data model will reflect a pointer attribute which will serve to record the specifications identifier.

3.2 Data Standards

The strategy for distributed client server technology within the open systems environment (OSE) is based upon the premise that earth science and other data is to be shared across a community of diverse users. Within this environment, data must be maintained as a tightly controlled configuration item in order to support this premise. Data also must be specified such that the majority of clients accept the definitions and specifications. It is always a challenge to please everyone where cost is a factor. There are numerous standards consortiums that can spend years establishing and optimizing a particular aspect of a specific de-jure standard. At the same time there are systems being developed and a great many users interested in having their data commonly defined and specified. For the purpose of this paper, significant effort went into the data design to define the data based upon the available standards in the community today and to please the science user community. Where data standards have been adopted, across the board consistency with those standards has not been mandated by the ECS Project. Standards are, however, to be used where they are meaningful to the Project and where they make good business sense.

This discussion of data standards is brief and limited to identifying those standards used by the design team to specify the nature and characteristics of the Earth Science data through the Data Model. The discussion is related only to data standards and not tool or specific system implementation standards. Some of these are identified in the document where they are relevant to the understanding of the material presented. There are many standards that use other standards as a basis, this too has been considered in adopting a particular standard.

There are three primary sources of standards used to describe the data within this document.

- The Content Standards for Digital Geospatial Metadata, Federal Geographic Data Committee (FGDC), June 8, 1994. Updates from current versions of this standard are anticipated to be evaluated.

- The Directory Interchange Format (DIF) for the Global Change Master Directory (GCMD), most recent edition and proposed near-term changes in the DIF as identified by the GCMD on the World Wide Web (WWW.)
- The Consultative Committee for Space Data Systems (CCSDS), the Parameter Value Language (PVL), May 1992.

Reference Section 6.4 for other details related to data standards.

3.3 Product Support Overview

The products currently archived and supported by Version 0 (V0) will be supported for Release A as identified in the Technical Baseline, June 1995. Other Release A products, also identified in the Technical Baseline, have been analyzed and their data requirements integrated into this Database Design for implementation by 12/1996 (Release A initial Operations.) The Release A database design supports data collected for V0 with enhancements for Release A products, however, the V0 client interface limits the user views of the data, i.e., the V0 client restricts user access to a subset of the actual data available. Subsequent releases will provide enhanced access mechanisms.

3.4 Release A Products

The SDPS Database Design Specifications and Database Schema was developed to support data requirements for four of the nine Distributed Active Archive Centers (DAACs). These are:

- EROS Data Center (EDC)
- Goddard Space Flight Center (GSFC)
- Langley Research Center (LaRC)
- Marshall Space Flight Center (MSFC) .

The products identified in the revised technical baseline however, do not include EDC products until Release B, therefore, they are not reflected int the following tables.

3.4.1 Version 0 Products

The products identified in Table 3-1 are extracted from the Technical Baseline for Release A. Datasets supporting V0 have been reviewed and approved by DAAC management. Some of these products will continue to be processed in 1996.

Table 3-1. Version 0 Products Supported in Release A (1 of 2)

DAAC[a]	Satellite/ Instrument/ Experiment	Data Set	SDP Product Identification[b]
GSFC	Nimbus-7/TOMS	TOMS-nimbus 7	G-26, Daygrids
GSFC	Nimbus-7/CZCS	CZCS level 1	G-11, High Resolution Raw Data
GSFC	NOAA7,9,11/ AVHRR	AVHRR Pathfinder	G-1, Daily Land Mosaic G-2, 10 Day Land Mosaic G-3, Daily Browse Product G-4, 10 Day Browse Product

Table 3-1. Version 0 Products Supported in Release A (2 of 2)

DAAC	Satellite/ Instrument/ Experiment	Data Set	SDP Product Identification
LaRC	ERBS/ NOAA9,10/ ERBE ---------- ERBS/ NOAA-9/ ERBE ---------- ERBS/ NOAA-10/ ERBE	ERBE (S-4,S 4G,S-4GN,S-8,S 9,S10N)	L-1, S4-Regional, Zonal, and Global Averages L-3, S4G-Regional, Zonal, and Global Gridded Averages L-4, S4GN-Regional, Zonal, and Global Gridded Averages (Non-scanner only algorithm) L-5, S9-Radiant Exitance and Albedo (Scanner) L-7, S10N-Radiant Exitance and Albedo (Non scanner only algorithm) L-8, S8-Processed Archival Tape ---------- L-11, S8-Processed Archival Tape ---------- L-14,S8-Processed Archival Tape
LaRC	//ISCCP	ISCCP D-x, D 1,D-2	L-48, Stage D2 Product L-49, Stage D1 Product L-50, Stage Dx Product
LaRC	ERBS//SAGE II	SAGE II level 2&3	L-33, O3 Monthly Average L-34, Cloud Occurrence L-35, Aerosol Profile L-36, H2O Profile L-37, NO2 Profile L-38, O3 Profile
MSFC	DMSP-F8/SSM/1/ Pathfinder	SSM/I Pathfinder	M-13, Antenna Temperatures M-14, Atmospheric Moisture Products M-15, Precipitation Rate Product M-48, Land Surface Products
MSFC	TIROS-N, NOAA 6,7,9,10,11,&12/ MSU/ TOVS Pathfinder C1MSU	TOVS Pathfinder	M-56, Monthly am (Ch2/3, Ch4, Ocean Precip) M-57, Monthly pm (Ch2/3, Ch4, Ocean Precip) M-58, Pentad am (Ch2/3, Ch4, Ocean Precip) M-59, Pentad pm (Ch2/3, Ch4, Ocean Precip) M-60, Daily am (Ch 2/3, Ch 4, Ocean Precip) M-61 Daily pm (Ch 2/3, Ch 4, Ocean Precip)
MSFC	Nimbus-7,/SMMR/ Pathfinder	SMMR Pathfinder	M-63, Brightness Temperature

a. Volume Approximate 1996: GSFC = 2000 GB, LaRC = 785 GB, MSFC = 152 GB
b. Product descriptions can be found in Appendix A

3.4.2 Other Release A Products

Other Release A products supported in this design specification are identified in Table 3-2. They are also extracted from the Technical Baseline for Release A, June 1995.

Table 3-2. Other Release A Products (1 of 4)[a]

DAAC	Satellite/ Instrument/ Experiment	File ID	Name
GSFC	TRMM/VIRS	VIRS_Level1A	Level 1A VIRS data
GSFC	TRMM/VIRS	VIRS_L1B-01	Level 1B Radiance
GSFC	TRMM/VIRS	VIRS_Browse	Browse Product
GSFC		TSDIS TMI and PR Data	
GSFC		TSDIS VIRS Data	
LaRC	TRMM/CERES	CER01T	Bi-Directional Scans
LaRC	TRMM/CERES	CER02T	ERBE-Like Instantaneous TOA & Surface Estimates
LaRC	TRMM/CERES	CER03aT	ERBE-Like Monthly Regional Averages (single sat)
LaRC	TRMM/CERES	CER04aT_V	Single Satellite Radiative Fluxes & Clouds (4 levels) Validation File
LaRC	TRMM/CERES	CER04aT	Single Satellite Radiative Fluxes & Clouds (4 levels)
LaRC	TRMM/CERES	CER05aT	Hourly Gridded Single Satellite Fluxes & Clouds (4 levels)
LaRC	TRMM/CERES	CER06aT	Monthly TOA & SRB Averages (single sat)
LaRC	TRMM/CERES	CER07aT	Synoptic Radiative Fluxes & Clouds (4 levels, single sat)
LaRC	TRMM/CERES	CER08aT	Monthly Regional Radiative Fluxes and Clouds (4 levels, single sat)
LaRC	TRMM/CERES	CER11T	Single Satellite Footprint, TOA & Surface Flux, Clouds
LaRC	AM/CERES	CER12T	Hourly Gridded Single Satellite TOA & Surface Fluxes/Clouds
LaRC	AM/CERES	CER12T_V	Hourly Gridded Single Satellite TOA & Surface Fluxes/Clouds
LaRC	TRMM/CERES	CER13aT	ERBE-Like Monthly Geographical Averages (single sat)
LaRC	TRMM/CERES	CER14aT	ERBE-Like Monthly Gridded Averages (single sat)
LaRC	TRMM/CERES	CER15aT	Monthly Zonal & Global Radiative Fluxes & Clouds (4 levels, single sat)
LaRC	TRMM/CERES	CER16T_P	Clear Reflectance History

Table 3-2. Other Release A Products (2 of 4)[a]

DAAC	Satellite/ Instrument/ Experiment	File ID	Name
LaRC	TRMM/CERES	CLDVALT	Internal Ancillary Data
LaRC	TRMM/CERES	CERX00aaT	Instrument Data Set
LaRC	TRMM/CERES	CERX00acT	InstrumentDataSet(SolarCalibration)
LaRC	TRMM/CERES	CERX01T	Satellite Ephemeris/Ancillary Data
LaRC	TRMM/CERES	CERX02T	ERBE-Like Daily Database
LaRC	Other	CERX06_RV	Meteorological, Ozone, & Aerosols(Validation)
LaRC	Other	CERX06_R	Meteorological, Ozone, & Aerosols
LaRC	Other	CERX06	Meteorological, Ozone, & Aerosols
LaRC	Other	CERX07	Surface Map
LaRC	Other	CERX09	ISCCP Radiances
LaRC	Other	CERX10	Aerosol Profile Data
LaRC	Other	CERX11	Ozone Profile Data
LaRC	Other	CERX12	Altitude, Temperature, Humidity
LaRC	Other	CERX13	Microwave Humidity
LaRC	Other	CERX14	Gridded ISCCP Radiances
MSFC	TRMM/VIRS	CERX05	VIRS Cloud Imager Data
MSFC	TRMM/TMI	CERX08	Microwave Water Path
MSFC	LIS	LIS00	Raw Packets
MSFC	LIS	LIS4L	LIS Level 1B, 2, and 3 products(see File Desp Table)
MSFC	Other	LISEPH-ATT	TRMM Level 0 H/K file containing TRMM Att. Data
MSFC	Other	LISEPH-ORB	TRMM Definitive and Predicted Orbit Product (from FDF)
MSFC	LIS	LIS-15DAY-FDP	LIS Level 3 15 Day Flash Density Product
MSFC	LIS	LIS-30DAY-FDP	LIS Level 3 30 Day Flash Density Product
MSFC	TRMM/TMI	TMI_Level1A	Level 1A TMI Data
MSFC	TRMM/PR	PR_Level1A	Level 1A PR Data
MSFC	TRMM/TMI	TMI_L1B-11	Level 1B TMI Brightness Temp Data
MSFC	Other	GrdRadar_L1B-51	Level 1B Ground Validation Radar Data
MSFC	Other	GrdRadar_L1C-51	Level 1C Ground Validation Radar Data
MSFC	PR	PR_L1B-21	Level 1B PR Data from TRMM Satellite
MSFC	PR	PR_L1C-21	Level 1C PR Reflectivity Data from TRMM Satellite
MSFC	TMI	TMI_PROF_L2A-12	Level 2A TMI Surf. Rainfall & Hydrometeor Profile Product

Table 3-2. Other Release A Products (3 of 4)[a]

DAAC	Satellite/ Instrument/ Experiment	File ID	Name
MSFC	PR	PR_SIGMA_L2A-21	Level 2A PR Sigma Zero (Surface reflectivity) Product
MSFC	PR	PR_QUALT_L2A-23	Level 2A PR Qualitative 2-D Surface Rainfall
MSFC	PR	PR_PROF_L2A-25	Level 2A PR Radar Range Profiles
MSFC	TMI, PR	TRMM_COMB_L2B -31	Combined TMI and PR Level 2A Surf. Rainfall & Hydrometeor Profiles
MSFC	TMI	TMI_EMISS_L3A 11	Level 3A TMI Monthly Emission-based Surf. Rainfall Product
MSFC	PR	PR_PROF_L3A-25	Level 3 Monthly PR Rainfall Structure Profiles
MSFC	PR	PR_PROF_L3A-26	Level 3 Monthly PR Accumulated Surface Rainfall (Statistical Method)
MSFC	TMI, PR	TRMM_COMB_L3B -31	Combined TMI and PR Level 3B Surf. Rainfall & Hydrometeor Profiles
MSFC	PR, VIRS. TMI and others	TRMM_COMB_L3B -42	Level 3B Combined-TRMM and GOES IR Rainfall Products
MSFC	PR, VIRS, TMI and Others	TRMM_COMB_L3B -43	Level 3B Surf. Rainfall Products (comb. of TRMM, GOES IR & SSM/I est.)
MSFC	In situ Data	GrdRadar_L2A-52i	Ground Validation Product Level 2A Rainfall Existence Product
MSFC	In situ Data	GrdRadar_L2A-53	Ground Validation Product Level 2A Single Site Surface Rainfall Product
MSFC	In situ Data	GrdRadar_L2A-54	Ground Validation Product Level 2A Conv/Stratiform Rainfall
MSFC	In situ Data	GrdRadar_L2A-55	Ground Validation Product Level 2A Single Site 3-D Reflectivity Map
MSFC	In situ Data	GrdRadar_L2A-56	Ground Validation Product, Level 2A Rain Gauge-derived Rain Rates
MSFC	In situ Data	GrdRadar_L2A-57	Ground Validation Level 2A Disdrometer (Raindrop size distrib.) Product
MSFC	In situ Data	GrdRadar_L3A-53	Ground Validation Product, 5-Day Site Rainfall Map
MSFC	In situ Data	GrdRadar_L3A-54	Ground Validation Product, Monthly Site Rainfall Map
MSFC	In situ Data	GrdRadar_L3A-55	Ground Validation Product, Monthly accum. of 3D Hydrometeor Profile Structure
MSFC	TMI	TMI-Browse	TMI Browse Product
MSFC	PR	PR -Browse	PR Browse Product

Table 3-2. Other Release A Products (4 of 4)[a]

DAAC	Satellite/ Instrument/ Experiment	File ID	Name
MSFC	TMI/ PR	TRMM_COMB_Browse	Browse Product from TMI and PR Combined
MSFC	In situ Data	GV_Browse	TRMM Ground Validation Radar Site Browse Product
		TSDIS TMI and PR Data	
		TSDIS VIRS Data at GSFC	

a. Reference the Technical Baseline, June 1995

3.5 Logical Product Groupings

Release A products had been combined by servers located at the DAACs. These server configurations and the products they will support are identified in the following paragraphs. These products were analyzed based upon the products identified in the Technical Baseline, November 1994, for Preliminary Design Review. Essentially, they represent a subset of the taxonomy of servers as described in the "Release A PDR Data Server Taxonomy", reference document number 420-TD-001-003. This information is presented to identify the products that were analyzed for these groupings and should not influence the implementors as to the allocation of data across servers and/or DAACs.

3.5.1 Goddard Space Flight Center (GSFC)

The earth science products analyzed for the GSFC logical product groupings are included in Table 3-3.

Table 3-3. GSFC Logical Product Grouping (1 of 2)

Grouping Description	Platform/ Instrument or Experiment	SPSO or SDP Product ID/*(AHWGP Product ID)*, Product Description
VIRS L0/L1	TRMM/ VIRS	• 1A-VIRS, Level 1A Radiance • 1B-01, Level 1B Radiance
TRMM Atmospheric Dynamics	TRMM/ VIRS, TMI, PR	• 2B-31, Level 2B Composite, Rainfall Structure • 3B-42, Level 3B Composit, Geostationary Calibration • 3B-43, Level 3B Composit Rain Product
	TRMM/ TMI, PR	• 3B-31, Level 3B Composite, Monthly Rainfall Structure

Table 3-3. GSFC Logical Product Grouping (2 of 2)

Grouping Description	Platform/ Instrument or Experiment	SPSO or SDP Product ID/*(AHWGP Product ID)*, Product Description
TOMS Atmospheric Composition	Nimbus-7/ TOMS	• G-26, CDTOMS Gridded Ozone • G-58, Full Resolution Data
	Meteor-3/ TOMS	• G-34, CDTOMS2 Gridded Ozone
CZCS L0/L1	Nimbus-7/ CZCS	• G-11, High Resolution Raw Data • G-12, Resampled Raw Data
AVHRR Land SFC Vegetation (Pathfinders)	NOAA7, 9, 11/ AVHRR	• G-1, Daily Land Mosaic • G-2, 10 Day Land Mosaic • G-3, Daily Browse Product • G-4, 10 Day Browse Product

3.5.2 Langley Research Center (LaRC)

The products analyzed for the LaRC logical product groupings are included in Table 3-4.

Table 3-4. LaRC Logical Product Groupings (1 of 3)

Grouping Description	Platform/ Instrument or Experiment	SPSO or SDP Product ID/*(AHWGP Product ID)*, Product Description
CERES ERP	NOAA 7, 9, 11 AEDOSI/ AVHRR	• N0037, POES-AVHRR Aerosol Optical Depth, Troposphere; POES-SBUV2 or ADEOSI-TOMS Ozone [input to CER04, 05, 06, 07, 08, 11, 12] [possibly replaced b y server 99]
	NOAA 7, 9, 11, DSMP, GOES/ AVHRR, SSM/I and VISSR	• N0079, POES-AVHRR Ice Edge, Surface Types, or GOES/POES/METEOSAT/GMS-AVHRR/VISS Snow Type, Sfc, Surface Tupes or DMSP-SSM/I Snow Type, SFC, Surface Types [SURFMAP] [input to CER09]

Table 3-4. LaRC Logical Product Groupings (2 of 3)

Grouping Description	Platform/ Instrument or Experiment	SPSO or SDP Product ID/*(AHWGP Product ID)*, Product Description
	TRMM, AM, PM/ CERES	• CER02, ERBE-Like Science Product • CER03, ERBE-Like Product • CER04, Single Satellite Cloud-Radiation Pixel Product [CRS] • CER05, Hourly Single-Satellite Flux Product [FSW] • CER06, Monthly & Regional Flux Data Product [SRBAVG] • CER07, Synoptic Cloud-Radiation Data Product [SYN] • CER08, Regional, Monthly Average Data Product [AVG] • CER10, Synoptically Interpolated Cloud & Flux Data Product [TSI] * CER11, Single Satellite TOA Fluxers, Surface Fluxes, and Cloud Properties [SSF] • CER12, Surface and TOA Fluxes [SFC]
	TRMM/ CERES	• CASTR, Static Ancillary data: CERES Atmospheric Structures
	/Other	• *(CERX09)* ISCCP Radiances • *(CERX10)* Aerosol Profile Data • *(CERX 11)* Ozone Profile Data • *(CERX 12)* Altitude, Temperature, and Humidity • N0036, DMSP-SSM/I or GOES-MSI aor POES/ HIRS2, or MSU Microwave Humidity if TMI insufficient [input toER11] • N0077, Dynamic Ancillary data: DMSP-SSM/I or GOES-MSI Microwave Liquid Water Path if TMI insufficient [input to CER04, 05, 06, 07, 08, 11, 12]
CERES L0/L1	TRMM, AM, PM/ CERES	• CER01, Bi-Directional Scan [BDS] Product • *(CERX00aa),* Instrument Data Set Cross Track Scan • *(CERX00ab)*, Instrument Data Set Rotating Azimuth Plane • *CERX00ac)*, Instrument Data Set Solar Calibration • *(CERX01)*, Satellite Ephermeris/Ancillary Data * *(CERX02)*, ERBE-like Daily Database

Table 3-4. LaRC Logical Product Groupings (3 of 3)

Grouping Description	Platform/ Instrument or Experiment	SPSO or SDP Product ID/*(AHWGP Product ID)*, Product Description
ERBE ERP	ERBS, NOAA-9, 10/ ERBE	• L-1, S4-Regional, Zonal, and Global Averages • L-3, S4G - Regional, Zonal, and Global Gridded Averages • L-4, S4GN-Regional, Zonal, and Global Averages [Non-scanner only alg] • L-5, S9-Radiant Exitance and Albedo [Scanner] • L-7, S10N-Radiant Exitance and Albedo [Non scanner only algorithm]
	ERBS/ ERBE)	• L-8, S8-Processed Archival Tape • L-10, S7-Medium/Wide FOV
	NOAA-9/ ERBE	• L-11, NOAA-9 ERBE S8 - Processed Archiv al Tape • L-13, NOAA-9 ERBE S7-Medium/Wide FOV • L-15, NOAA-9 ERBE Telemetry and Ephemeris
	NOAA-10/ ERBE	• L-14, S8 - Processed Archival Tape • L-16, S7-Medium/Wide FOV
	SRB/ ERBE	• L-43, SRB Surface Radiation Budget-Daily • L-44, SRB Surface Radiation Budget-Monthly
SAGE Atmospheric Dynamics	ERBS/ SAGE II	• L-34, Cloud Occurrence
SAGE Atmospheric Composition	AEM-2/ SAGE I	• L-28, Aerosol Profile * L-29, NO2 Profile • L-30, O3 Profile
	ERBS/ SAGE II	• L-33, O3 Monthly Averages • L-35, Aerosol Profile * L-36, H20 Profile • L-37, NO2 Profile • L-38, O3 Profile
ISCCP Atmospheric Dynamics	GOES 5-7, NOAA 7, 9, 11/ VISSR,MIR,AVHRR	• L-45, ISCCP Stage C2 Cloud Analysis • L-46, ISCCP Stage C1 Cloud Analysis • L-48, ISCCP Stage D2 Product • L-49, ISCCP Stage D1 Product • L-50, ISCCP Stage Dx Product
FIRE Land	In-Situ	• L-51, FIRE CI1 • L-53, FIRE MS • L-57, FIRE Azores Experiment (ASTEX)
GTE ABLE Atmospheric Composition	In-Situ	• L-65, Aircraft, In-Situ GTE ABLE 3A • L-66, Aircraft, In-Situ GET ABLE 3B

3.5.3 Marshall Space Flight Center (MSFC)

The products analyzed for the MSFC logical product groupings are included in Table 3-5.

Table 3-5. MSFC Logical Product Groupings (1 of 3)

Grouping Description	Platform/ Instrument or Experiment	SPSO or SDP Product ID/*(AHWGP Product ID)*, Product Description
PR Atmospheric Dynamics	TRMM/ PR	• 2A-21, Sigma Naught • 2A-23, Qualitative Products • 2A-25, Rainfall Profile • 3A-25, Monthly Structure • 3A-26, Rainfall Map
TM1 Atmospheric Dynamics	TRMM/ TMI	• 2A-12, Rainfall Structure • 3A-11, Rainfall Map
Radar Tapes Atmospheric Dynamics	In-Situ	• 2A-52, TSDIS GV Rain Existence * 2A-53,. TSDIS GV Surface Rainfall • 2A-54, TSDIS GV Rainfall Type (Conv/Strat) • 2A-55, TSDIS 3D Reflectivity • 3A-53, TSDIS GV 5-Day Rainfall Map • 3A-54, TSDIS GV Monthly Rainfall Map • 3A-55, TSDIS GV Monthly 3D Structure
LIS Atmospheric Dynamics	TRMM/ LIS	• *(LIS02),* Groups • *(LIS03), Events* • *(LIS04),* Orbit • *(LIS05),* Areas • *(LIS06),* Flashes • *(LIS07),* Background and Images • *(LIS07B),* Background Image Browse • *(LIS08),* Pulse Vector Product • *(LIS08B),* Pulse Browse • *(LIS09),* 500 kilometer Grid • *(LIS10),* 2.5 degree Grid
SSM/I Atmospheric Composition (Archive Site NSIDC)	DMSP/ SSM/I	• SI-2, Gridded Brightness Temperature (25 kilometers) • Si-3, Gridded Brightness Temperature (12.5 kilometers)
SSM/I Atmospheric Dynamics	DMSP-F8/ SSM/I Pathfinder	• M-14 & M-47, Atmospheric moisture * M-15 & M-48, Precipitation Rate
	DMSP-F10/ SSM/I Pathfinder	• M-50, Atmospheric Moisture • M-51, Precipitation Rate
	DMSP-F11/ SSM/I Pathfinder	• M-53, Atmospheric Moisture • M-54, Precipitation Rate

Table 3-5. MSFC Logical Product Groupings (2 of 3)

Grouping Description	Platform/ Instrument or Experiment	SPSO or SDP Product ID/*(AHWGP Product ID)*, Product Description
TOVS Ocean Dynamics	TIROS-N, NOAA6, 7,9,10,11,12/ MSU TOVS Pathfinder C1 MSU	(Ch2/3, Ch4, Ocean Precipitation) • M-25 & M-56, Monthly am • M-26 & M-57, Monthly pm • M-27 & M-58, Pentad am • M-28 & M-59, Pentad pm • M-29 & M-60, Daily am • M-30 & M-61, Daily pm
	TIROS-N, NOAA6, 7,9,10,11,12/ MSU TOVS Pathfinder C2 MSU	• M-62, Product
SSM/I Ocean Dynamics (Archive Site NSIDC)	DMSP/ SSM/I	• SI-1, Gridded Sea Ice Concentration, Type (25 kilometers) • SI-4, Gridded Sea Ice Concentration (EASE) • SI-5, Gridded Sea Ice Concentration (Pathfinder) • SI-6, Monthly Sea Ice Concentrations
	DMSP/ Multi	• SI-13, Gridded Sea Ice Surface Energy Fluxes
	Nimbus-7/ SMMR	• SI-9, Gridded Sea Ice Conc, Type * SI-10, Gridded Brightness Temperature (25 kilometers)
	Nimbus-5/ ESMR	• SI-8, Brightness, Temperature, and Sea Ice Concentration
SSM/I Land Aux	DMSP-F8/ SSM/I Pathfinder	• M-16 & M-49, Land Surface products
	DMSP-F10/ SSM/I Pathfinder	• M-52, Land Surface
	DMSP-F11/ SSM/I Pathfinder	• M-55, Land Surface
In-Situ Cryospheric Dynamics (Archive Site NSIDC)	In-Situ	• SI-16, Rawinsonde Ove Polar Regions • SI-17, Drifting Buoy Data; Arctic Ocean Buoy Program

Table 3-5. MSFC Logical Product Groupings (3 of 3)

Grouping Description	Platform/ Instrument or Experiment	SPSO or SDP Product ID/*(AHWGP Product ID)*, Product Description
OTD Atmospheric Dynamics	Pegasus/ LIS	* M-, OTD Area • M-, OTD Orbits • M-, OTD Vector • M-, OTD Browse • M-89, OTD Event • M-90, OTD Group • M-91, OTD Background • M-92, OTD Flash
SMMR L0/L1 (Archive Site NSIDC)	Nimbus-7/ SMMR	• SI-10, Gridded Brightness Temperature (25 kilometeres)
PR L0/L1	TRMM/ PR	• 1A-PR, Product • 1B-21, Power • 1C-21, Reflectivities
TM1 L0/L1	TRMM/ TMI	• 1A-TMI, Product • 1B-11, Brightness Temperatures
Radar Tapes L0/L1		

3.6 System Usage Statistics

User requests to each layer of the Data Pyramid (reference illustration and definition of the Data Pyramid in Section 6.5.1 and Appendix D) by DAAC were analyzed based upon scenarios[1] and a detailed report of this analysis was issued on January 18, 1995. A user "request" is any service invocation (e.g., search, order, manipulate, inspect) that is acting on data (metadata or other data.) The Level 1A to Level 4 data was updated in July 1995 with the EOSDIS Product Use Survey results. The metadata information was not updated since the survey did not target metadata. The updated distribution of requests by layer of the pyramid is projected for ECS data in the Release B time frame. A summary of this report which includes only the totals at each layer without a breakout to DAACs is included in this section.

3.6.1 Basis for Statistical Analysis

In the case where a user requests information related to a layer in the data pyramid and this request consists of very general specifications, i.e., it does not include a DAAC designation, it is assumed that the search request will be fulfilled by all DAACs and non-ECS connections. Therefore, some of the summary totals presented include replication of a single request across DAACs. The parameter lists for the data products in the Science Processing Support Office (SPSO) list and the valid key words for the V0 client were used in preparing these statistics. Other sources of

1. Reference Document Number 194-003-11-TPW, "ECS User's Scenario Notebook", June 1994.

information for this analysis were the scenario database, DAAC traffic probabilities[2], and the demographics from the Technical Baseline. Requests using temporary storage were not included because, at the time this data was analyzed, it was not known what resources would be used for algorithms executed by the user.

This analysis includes the number of deliveries in a year and requests that were made as standing orders, i.e., a request to set up an order or subscription was counted as well as each delivery that was sent to a user to fulfill a request, even though the user may not have been querying the system at that time.

3.6.2 Caveats to Methods Employed

In the case where a user requests information related to a layer in the data pyramid and this request consists of very general specifications, i.e., it does not include a DAAC designation, it is assumed that the search request will be fulfilled by all DAACs and non-ECS connections. Therefore, some of the estimates presented include replication of a single request across DAACs. The parameter lists for the data products in the Science Processing Support Office (SPSO) list and the valid key words for the V0 client were used in preparing these statistics. Other sources of information for this analysis were the scenario database, DAAC traffic probabilities[3], and the demographics from the technical baseline.

All layers of the data pyramid were accounted for except the Level 0 layer and the L0 through L4 for non-ECS data. If it was known that a data product that is not considered to be ECS data is held at an archive site then that request was accounted for as a non-ECS data request.

Each line item in the scenario database listing was analyzed. Reference the "ECS User's Scenario Notebook" June 1994, for the average number of times data/metadata is delivered per year. Level 0 data was not included since the data product list that was used with the scenarios was the SPSO list which does not include Level 0 products. Scenario number 15[4] requests are represented, however, the distribution to the layers was not taken from this scenario because the accesses estimated were representative but the distribution to the pyramid layers was not.

Scenarios represent ECS data accesses during Release B. Since there are no specific scenarios for Release A that use different access patterns related to the data pyramid levels, it was assumed that the proportions to the levels of the data pyramid are the same for all releases (this may or may not be an accurate assumption.)

3.6.3 Usage Statistics

Summary results of the analysis for ECS data usage are included in the following tables. The numeric values in the tables are the number of "requests" (as defined above) to Earth Science data.

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2. Point of Contact is Lori Tyahla, ESSI.
3. Point of Contact is Lori Tyahla, ESSI.
4. NOAA researcher studying seasonal and diurnal variation in regional lightning distribution. Scientist is Raul Lopez.

Table 3-6a. ECS Usage Estimate Totals

	Epoch 1 (1997)		Epoch 2 (Early 1998)		Epoch 3 (Early 1999)		Epoch 4 (Mid-1999)	
Pyramid Layer	**Minimum**	**Maximum**	**Minimum**	**Maximum**	**Minimum**	**Maximum**	**Minimum**	**Maximum**
Directory	181	302	5999	8342	6028	9514	6116	9719
Guide	2093	3483	69545	96686	69884	110274	70904	112652
Bible Ref.	5234	8379	157479	219100	158248	249893	160557	255281
Inventory	937	1510	29125	40517	29267	46212	29694	47208
QA States	2498	4123	81125	112854	81521	128715	82710	131491
Summa. States	1845	3057	59857	83290	60149	94996	61026	97045
Algorithm	1462	2419	47102	65533	47332	74744	48022	76355
Prod Hits	113	186	3657	5087	3674	5802	3728	5927
Browse	1758	2892	57143	79480	57423	90651	58260	92605
L4	1686	2788	54799	76186	55066	86894	55870	88768
L3	6591	10902	214261	297885	215307	339751	218448	347077
L2	9067	14999	294788	409841	296228	467442	300549	477522
L1B	1069	1768	34746	48307	34916	55096	35425	56284
L1A	517	855	16814	23376	16896	26661	17142	27236
Grand Total	**35050**	**57664**	**1126436**	**1566484**	**1131940**	**1786644**	**1148452**	**1825172**
Metadata Total	16120	26351	511030	710889	513527	810800	521018	828285

Table 3-6b. Non-ECS Usage Estimate Totals

	Epoch 1 (1997)		Epoch 2 (Early 1998)		Epoch 3 (Early 1999)		Epoch 4 (Mid 1999)	
Pyramid Layer	**Minimum**	**Maximum**	**Minimum**	**Maximum**	**Minimum**	**Maximum**	**Minimum**	**Maximum**
Directory	0	0	0	0	0	0	0	0
Guide	7	12	119	191	118	187	121	187
Biblio Ref.	6	10	96	155	95	151	98	151
Inventory	176	293	5578	8856	5572	8854	5572	8860
QA Stats	249	415	8233	13088	8237	13083	8236	13085
Summ. Stats	1029	1715	34088	54175	34073	54211	34074	54195
Algorithm	16	27	414	656	412	654	414	655
Prod Hist	45	75	1491	2369	1490	2371	1490	2370
Browse	1064	1773	36766	58454	36787	58432	36780	58440
Grand Total	2592	4320	86785	137943	86785	137943	86785	137943

3.6.4 Summary Bar Chart of Usage Statistics

Figures 3-2a and 3-2b represent summaries of the usage statistics presented in Tables 3-6a and 3-6b above.

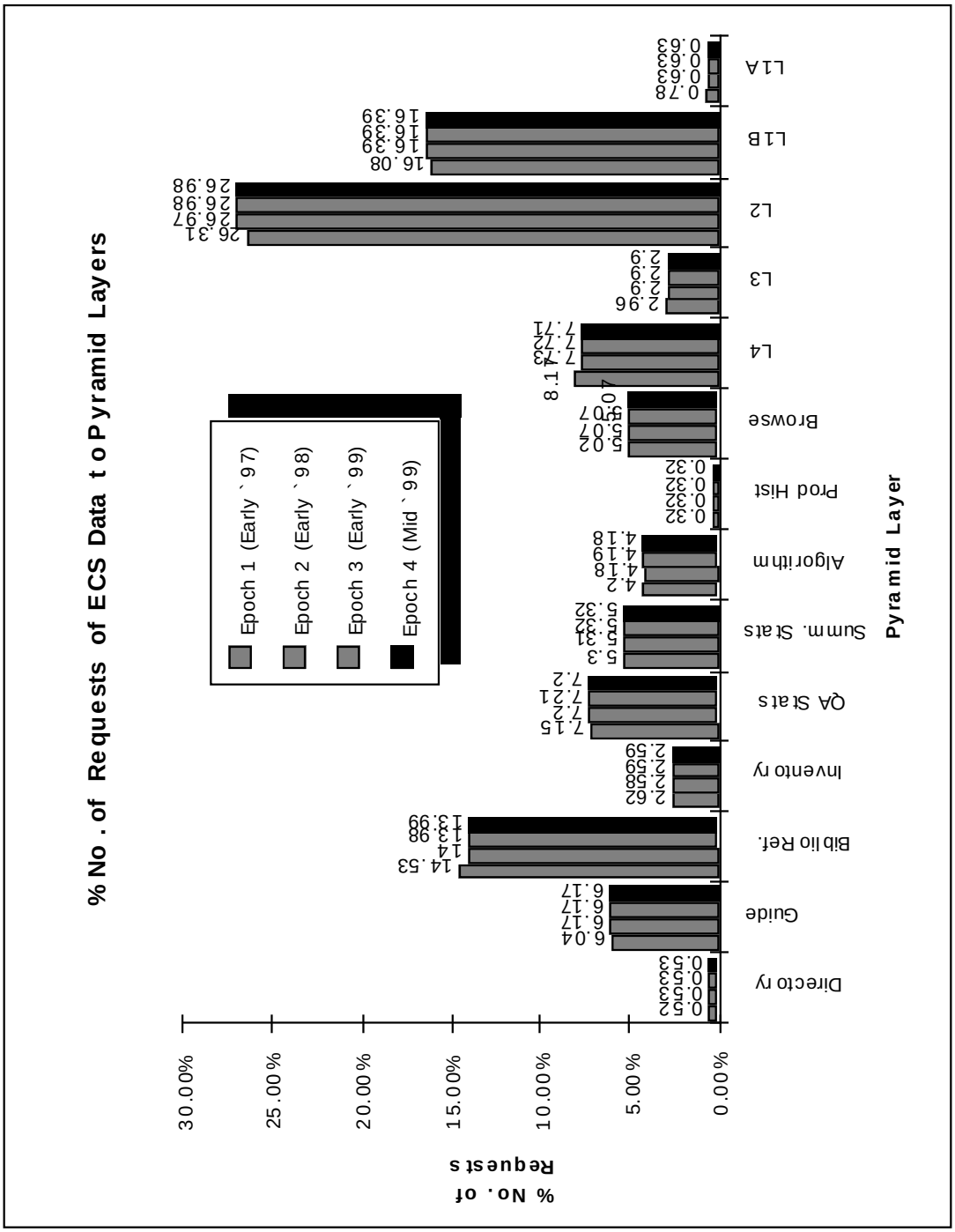

Figure 3-2a. Usage Summary for ECS Data

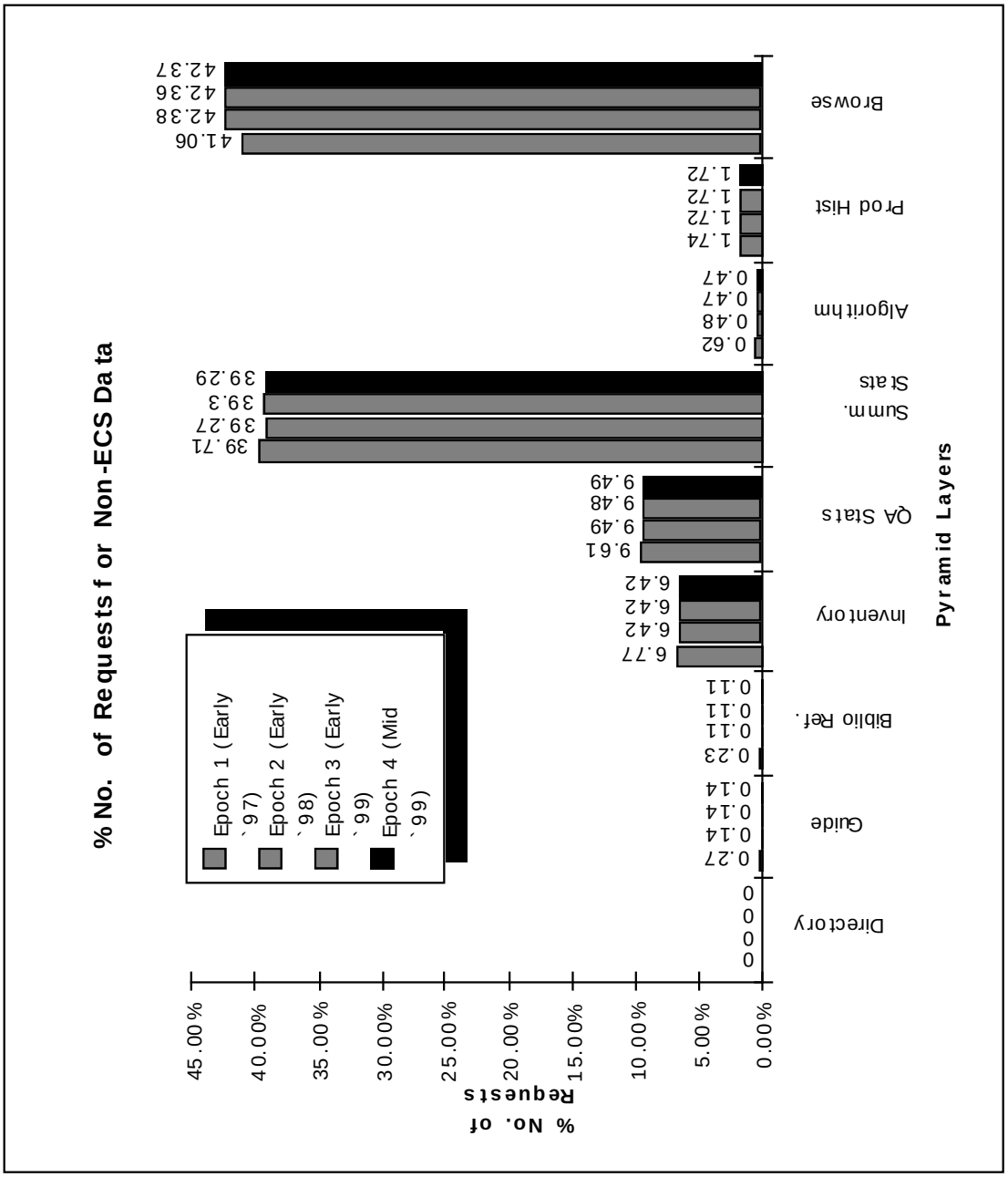

Figure 3-2b. Usage Summary for Non-ECS Data

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4. Modeling Technique

4.1 The Three Schema Approach[1]

Distributed Database Management System (DDBMS) modeling traditionally adheres to a three-schema approach to data integration. Within an enterprise, the data is identified and the relationships of the data and their specifications are logically organized using the concepts derived from the three schema approach. This provides a convenient way to convey to developers, system managers, configuration control boards, and end-users the data and functionality that are capabilities in the system. These logical models are always platform independent so that the data and software can be tailored at the time of implementation for specific hardware and software platforms.

The ECS models are developed for the object oriented environment, therefore, a somewhat modified set of models is delivered to support the relational basis for the object oriented environment, for example, the diagrams using OMT methodology are purposely left incomplete with respect to the functional aspects of the methodology. Functional models appear in DID 305. The models in this paper also take further liberties and use the term model in lieu of schema to identify the three logical entities in this modeling approach. The characterization, however, remains the same.

4.1.1 The External Model

The external model is a logical model that represents the client views of the data as the end user perceives them from the perspective of the services the system provides. These models are the user's and software windows into the database. For physical implementation, these views are further decomposed into various scenarios illustrating the query capability of the system. The External Model is in Section 5.

4.1.2 The Data Model

The data model, or conceptual model as it is more commonly known, describes the data assets of the organization illustrating the relationships among the classes of data and specifying the attributes. Through analysis, the data is classified and normalized. Normalization is a process whereby data is placed into some normal form; first through fifth, and more commonly in third normal form where: "Each attribute must be a fact about the key, the whole key, and nothing but the key[2]". The data model uses the third normal form as a standard. The Data Model is in Section 6.

4.1.3 The Internal Model

The internal model is synonymous with the physical schema design. This is the platform

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1. Reference: S. Bhalla, E. Prasad, A. Gupta, S. Madnick, *"A Framework and Comparative Study of Distributed Heterogeneous Database Management Systems"*, A.P. Sloan School of Management , MIT Industrial Liaison Program, Report # 5-45-88
2. Reference: Wiorkowski and Kull, "*DB2 Design & Development Guide*"

dependent representation of the data model that is implemented for the Sybase relational database management system. It completes the framework for the three schema approach. The schema tables presented for the Internal Model are found in Sections 7, 8, 9, and 10.

4.2 Science Community Involvement

The user community has provided guidance in the analysis of the science data and the relationships of this data through the Hughes Science Liaison Office and the various working groups. Information was verified by the working groups as described in the technical paper "A Science User's Guide to the EOSDIS Core System (ECS) Development Process", 160-TP-003-001, February 1995. Primary input was received through Government reviews and the Data Modeling Working Group (DMWG). The DMWG was formed to address issues on information architecture and modeling.

5. The External Model: User View

5.1 User Views

The ECS External Model is a collection of User Views which in the context of this document represents the Earth Science data required to satisfy a search request and provide meaningful results. This concept is further extended by the Update, Population and Archive Views. The later view represents a description of the contents of files which are not defined in the Earth Science Data Model however are represented in the data pyramid. The intent for presenting this information in DID 311 is to demonstrate that the access, results and update requirements for the Earth Science Data can be satisfied by the Earth Science Data Model. Additionally, the archive views described in Appendix A represent a description of the layers of the data pyramid which are not metadata and which have not been characterized in any formal document. These views do not represent Screen Definitions, workflows or interface functionality. The official user views as they relate to the graphical user interface can be found in DID 205 which is scheduled to be published around July 1996. The DID 205 will discuss the graphical user interfaces for Release A. The ECS System to External System views are described in the ICDs. The workflows and interface functionality will be described in the Release A as built DID 305s.

The collection of user views identified in this section represent the results of the view collection, analysis, and application tasks described in the Data Engineering Process. Two categories of views were identified, the current V0 Client interface, and specific ECS user views. The ECS User Views represent the ECS requirements which extends beyond the V0 Client requirements.

The Interoperability Subsystem is currently on the incremental track, therefore the view associated with this effort is not represented in this document. However, in analyzing the functionality associated with this CSCI and reviewing the Earth Pages development effort it was determined that the Advertisement View would largely consist of a Directory level view with associated application support data.

For Release A the Subscription View is being accommodated through the DAAC Maintenance and Operations views which can be found in DID 605. For Release B this view will be described in the user view section of the Release B CDR version of DID 311 .

5.1.1 V0 Client Access Views

The V0 Client Access views are defined as a collection of data, which may be specified by the end user, for the purpose of accessing the metadata repositories of information. The following access views depict the Earth Science attributes that are associated with the Inventory, Directory, Browse, and Guide layers of the data pyramid. Each of these data pyramid layers are represented as a table of V0 attributes mapped to the ECS Metadata Attributes and application/system data, if appropriate. Additionally, the Product Request View is also presented in a table which maps the V0 attributes to ECS Metadata attributes.

Table 5-1. Inventory Access View (1 of 2)

V0 Attribute (screen parameter)	Application/ System Data	Earth Science Metadata Attribute
Message ID	x	
Authenticator	x	
Granule Limit	x	
Browse Only	x	
Campaign		CampaignName
Data set ID		LongName
Sensor Name		SensorShortName SensorLongName
Source Name		PlatformShortName PlatformLongName or NonInstrumentShortName NonInstrumentLongName
Start Date/Time		Range Beginning Date
		Range Beginning Time
Stop Date/Time		Range Ending Date
		Range Ending Time
Start day of year	x	
Stop day of year	x	
Day night		ParameterName Parameter Value
Processing Level		ProcessingLevel ID
Parameter		TBD Waiting results of V0 valids mapping activity
SPATIAL LOCATION		
Global granules only		SpatialKeyword
Range Location (Rectangle)		
South Latitude		South Bounding Coordinate
North Latitude		North Bounding Coordinate
East longitude		East Bounding Coordinate
West longitude		West Bounding Coordinate

Table 5-1. Inventory Access View (2 of 2)

V0 Attribute (screen parameter)	Application/ System Data	Earth Science Metadata Attribute
Longitude distance	x	
Latitude distance	x	
Point Location		
Latitude		Point Latitude
Longitude		Point Longitude
Polygon Location (Four corners)		
Latitude		GRing Point Latitude
Longitude		GRing Point Longitude
		GRing PointSequenceNo
Pole included	x	
Tangent_Longitude	x	
Tangent_Latitude	x	
Map projection type		MapProjection Name

Table 5-2. Browse Request Access View (1 of 2)

V0 Attribute (screen parameter)	Application/System Data	Earth Science Metadata Attribute
Data center ID		ArchiveCenter
Browse type	x	
Message ID	x	
Authenticator	x	
BROWSE_GRANULE		
Data set ID		LongName
Granule ID		GranulePointer
CONTACT_ADDRESS		
Title	x	
Last Name	x	
First Name	x	
Middle Initial	x	
Organization	x	
Address	x	

Table 5-2. Browse Request Access View (2 of 2)

V0 Attribute (screen parameter)	Application/System Data	Earth Science Metadata Attribute
City	x	
State	x	
Zip	x	
Country	x	
Phone	x	
Fax	x	
Email	x	
USER AFFILIATION		
Category	x	
Type	x	

Table 5-3. Directory Access View

V0 Attribute (screen parameter)	Application/System Data	Earth Science Metadata Attribute
Message ID	x	
Authenticator	x	
Campaign		Campaign Name
Data set ID		Longname
Sensor Name		SensorShort Name SensorLongName
Source Name		Platform Short Name PlatformLongName NonInstrumentShortName NonInstrumentLongName
Start Date		Range Beginning Date
		Range Beginning Time
Stop Date		Range Ending Date
		Range Ending Time
Parameter		TBD Waiting results of V0 valids mapping activity

Table 5-4. Product Request Access View

V0 Attribute (screen parameter)	Application/System Data	Earth Science Metadata Attribute
Message ID	x	
Authenticator	x	
Data Center ID		ArchiveCenter
Request ID	x	
Initial User Key	x	
LINE ITEM		
Data set ID		LongName
Processing Option	x	
Media Type	x	
Media Format	x	
Est_cost	x	
Billing Id	x	
PackageID	x	
BILLING ADDRESS	x	
SHIPPING ADDRESS	x	

Table 5-5. ProjectCampaignGuide Access (V0 interface) View

V0 Attribute (screen parameter)	Application/System Data	Earth Science Metadata Attribute
Data Center ID		DataCenter
Campaign		Campaign Name

Table 5-6. DataSetGuide Access (V0 interface) View

V0 Attribute (screen parameter)	Application/System Data	Earth Science Metadata Attribute
Data Center ID		DataCenter
Campaign		Campaign Name
Sensor Name		SensorShortName Sensor LongName
Source Name		Platform ShortName Platform Long Name NonInstrumentShortName NonInstrumentLongName
Parameter		TBD Waiting results of V0 valids mapping activity
Data set ID		Longname

Table 5-7. SensorInstrumentGuide Access (V0 interface) View

V0 Attribute (screen parameter)	Application/System Data	Earth Science Metadata Attribute
Data Center ID		DataCenter
Sensor Name		SensorShortName Sensor LongName

Table 5-8. SourcePlatformGuide Access (V0 interface) View

V0 Attribute (screen parameter)	Application/System Data	Earth Science Metadata Attribute
Data Center ID		DataCenter
Source Name		Platform ShortName Platform Long Name NonInstrumentShortName NonInstrumentLongName

Table 5-9. DataCenterGuide Access (V0 interface) View

V0 Attribute (screen parameter)	Application/System Data	Earth Science Metadata Attribute
Data set ID		Longname
Data Center ID		DataCenter

5.1.2 ECS Access Views

The ECS Access Views identify the searchable metadata attributes for Production History Information, Delivered Algorithm Package, Production Plans, Algorithm Description, Processing Status, Process Errors, Resources Output, and Reference Paper. These views suggest an extension to the V0 functionality by providing access to the ECS data beyond what has been specified for V0. The following view tables identify the application/system data in addition to the Earth Science Metadata Attributes and object class required to satisfy the access request.

Table 5-10. Production History Access View (1 of 2)

V0 Attribute (screen parameter)	Application/System Data	Earth Science Metadata Attribute
Message ID	x	
Authenticator	x	
Granule Limit	x	
Browse Only	x	
Data set ID		LongName
Sensor Name		SensorShortName SensorLongName
Source Name		PlatformShortName PlatformLongName or NonInstrumentShortName NonInstrumentLongName
Start Date/Time		Range Beginning Date
		Range Beginning Time
Stop Date/Time		Range Ending Date
		Range Ending Time
Start day of year	x	
Stop day of year	x	
Day night		ParameterName Parameter Value

Table 5-10. Production History Access View (2 of 2)

V0 Attribute (screen parameter)	Application/System Data	Earth Science Metadata Attribute
Processing Level		ProcessingLevel ID
Parameter		TBD Waiting results of V0 valids mapping activity
SPATIAL LOCATION		
Global granules only		SpatialKeyword
Range Location (Rectangle)		
South Latitude		South Bounding Coordinate
North Latitude		North Bounding Coordinate
East longitude		East Bounding Coordinate
West longitude		West Bounding Coordinate
Longitude distance	x	
Latitude distance	x	
Point Location		
Latitude		Point Latitude
Longitude		Point Longitude
Polygon Location (Four corners)		
Latitude		GRing Point Latitude
Longitude		GRing Point Longitude
		GRing PointSequenceNo
Pole included	x	
Tangent_Longitude	x	
Tangent_Latitude	x	
Map projection type		MapProjection Name

Table 5-11. Algorithm Description Document Access (Release A Document Web Interface) View (1 of 2)

Application/System Data	Earth Science Object Class	Earth Science Metadata Attribute
	Document	Title
	Document	Document Version
	Document	Document Created
	Document	Document Updated
	Author	Author Name

Table 5-11. Algorithm Description Document Access (Release A Document Web Interface) View (2 of 2)

Application/System Data	Earth Science Object Class	Earth Science Metadata Attribute
	Author	Author Affiliation
x	SwDevelopmentStandard	SWDevelopmentStandardPointer
x	ProcessingFileDescription	ProcessingFileDescriptionPointer
x	SystemDescription	SystemDescriptionPointer
x	ProgrammersGuide	ProgrammersGuidePointer
x	ATBD	ATBDPointer
x	DetailedDesign	DetailedDesignPointer
x	TestPlan	TestPlanPointer
x	PerformanceTestResults	PerformanceTestResultsPointer
x	OperationsManual	OperationsManualPointer

Table 5-12. Reference Paper DocumentAccess (Release A Document Web Interface) View (1 of 2)

Application/System Data	Earth Science Object Class	Earth Science Metadata Attribute
	Document	Title
	Document	Document Version
	Document	Document Created
	Document	Document Updated
	Author	Author Name
	Author	Author Affiliation
	ReferencePaper	Reference Paper Type
	ReferencePaper	Date of Reference Paper Publication
	ReferencePaper	Reference Paper Reference
x	JournalArticle	JournalArticlePointer

Table 5-12. Reference Paper DocumentAccess (Release A Document Web Interface) View (2 of 2)

Application/System Data	Earth Science Object Class	Earth Science Metadata Attribute
	ReferencePaper	Access Instructions
	JournalArticle	Journal Article Name
x	StandAloneDocument	StandAloneDocumentPointer

Table 5-13. Production Plan Document Access (Release A Document Web Interface) View

Application/System Data	Earth Science Object Class	Earth Science Metadata Attribute
	Document	Title
	Document	Document Version
	Document	Document Created
	Document	Document Updated
	Author	Author Name
	Author	Author Affiliation
	Production Plan	DAAC Name
	Production Plan	Production Plan Start Date
	Production Plan	Production Plan End Date
	Production Plan	Production Plan Forecast
	Production Plan	Production Plan Description
x	Production Plan	Production Plan Pointer
	Production Plan	Planned Data Sets

Table 5-.14 Processing Status, or Process Errors, or Resources Report, Access View

Application/System Data	Earth Science Object Class	Earth Science Metadata Attribute
x	ProcessingResourceUsage Report	ProcessingResourceUsageReport Pointer
x	ProcessingStatusReport	ProcessingStatusReportPointer
x	ProcessingErrorReport	ProcessingErrorReportPointer
	Document	Title
	Document	Document Version
	Document	DocumentCreated
	Document	Documented Updated
	ProcessingReport	ProcessingReportType
	ProcessingReport	ProcessingReportPeriod

Table 5-15. Delivered Algorithm Package Document Access (Release A 'DAP' Web Interface) View (1 of 2)

Application/System Data	Earth Science Object Class	Earth Science Metadata Attribute
	DeliveredAlgorithmPackage	Algorithm Package Name
	DeliveredAlgorithmPackage	Algorithm Package Version
	DeliveredAlgorithmPackage	Algorithm Package Maturity Code
	DeliveredAlgorithmPackage	Algorithm Package Acceptance Date
	DeliveredAlgorithmPackage	Delivery Purpose
	Software	SWDateLast Modified
	PGEDescription	PGEName
	PGEDescription	PGEFunction
	PGEDescription	PGEIdentifier

Table 5-15. Delivered Algorithm Package Document Access (Release A 'DAP' Web Interface) View (2 of 2)

Application/System Data	Earth Science Object Class	Earth Science Metadata Attribute
	PGEVersionClass	PGEVersion
	PGEInfo	DateLast Modified
x	DeliveryContentsList	DeliveryContentsListPointer
x	ContextDiagrams	ContextDiagramsPointer
x	ChangeLog	ChangeLogPointer
x	PGEConfigFile	PGEConfigFilePointer
x	PGEErrorLog	PGEErrorLogPointer
x	CompileInfo	CompileInfoPointer
x	ProcessingDependencies	ProcessingDependenciesPointer
x	LinkandCompileScripts	LinkandCompileScriptsPointer
x	ScSWScript	ScSWScriptPointer
x	ScSWSourceCode	ScSWSourceCodePointer
x	TestScript	TestScriptPointer
x	ResultTempFile	ResultTempFilePointer
x	ResultsProductFile	ResultsProductFilePointer
x	ResultsReport	ResultsReportPointer
x	MetadataConfigurationFile	MetadataConfigurationFilePointer
x	InstrumentScienceData	InstrumentScienceDataPointer
x	InstrumentEngineeringData	InstrumentEngineering-DataPointer
x	PlatformAncillaryData	PlatformAncillaryDataPointer
x	ExternalData	ExternalDataPointer
x	CalibrationFiles	CalibrationFilesPointer
x	ProcessControlParametersan-dResourceFiles	ProcessControlParametersan-dResourceFilesPointer

5.1.3 V0 Results Views

The V0 results views are defined as the collection of data presented to the requester as a result of an access transaction. These views are expressed in the following tables. Again the V0 attribute is mapped to the Earth Science Metadata Attribute or Application/System data, if appropriate, for the Inventory, Directory, Browse and Product Results Views. The Guides View Tables identify the physical object that will be returned as a result of a guide access request.

Table 5-16. Inventory Results View (1 of 3)

V0 Attribute (screen parameter)	Application/System Data	Earth Science Metadata Attribute
Status Code	x	
Status Code Comment	x	
Number of Datasets	x	
Message ID	x	
Data Center ID		ArchiveCenter
DATASET		
Status Code	x	
MD Entry ID		ShortName
Data Set ID		Longname
Restriction		Access Constraints
Browse Product Description		BrowseDescription
Comment	x	UserCommentDocumentPointer
Campaign		CampaignName
Day_Night		ParameterName Parameter Value
Processing Level		ProcessingLevelID
Sensor Name		SensorShorName SensorLongName
Source Name		PlatformShorName PlatformLongName NonInstrumentShortName NonInstrumentLongName
Parameter		TBD Waiting results of V0 valids mapping activity
Number of Granule Hits	x	
GRANULE		
Granule ID	x	GranulePointer
Start Date/Time		Range Beginning Date
		Range Beginning Time
Stop Date/Time		Range Ending Date

Table 5-16. Inventory Results View (2 of 3)

V0 Attribute (screen parameter)	Application/System Data	Earth Science Metadata Attribute
		Range Ending Time
Browse Type	x	
Comment	x	UserCommentDocumentPointer
Package ID	x	
Parameter		ParameterName ParameterValue
Campaign		CampaignName
SensorName		SensorShorName SensorLongName
Day Night		ParameterName ParameterValue
ProcessingLevel		ProcessingLevelID
SourceName		PlatformShorName PlatformLongName NonInstrumentShortName NonInstrumentLongName
SPATIAL LOCATION		
Point Location		PointLatitude PointLongitude
Polygon Location (Four corners)		GRingPointLatitude GRingPointLongitude GRingPointSequenceNo
Range Location (Rectangle)		South Bounding Coordinate
		North Bounding Coordinate
		East Bounding Coordinate
		West Bounding Coordinate
Package		
Data Center ID		ArchiveCenter
Dataset ID		LongName
Package ID	x	
Comment	x	
Granule Count	x	
Number of Options	x	
Processing Option		
Option ID	x	
Package Size	x	
Number of Media Type	x	

Table 5-16. Inventory Results View (3 of 3)

V0 Attribute (screen parameter)	Application/System Data	Earth Science Metadata Attribute
Media Type		
Type ID	x	
Number of Media Format	x	
Media Format		
Format ID	x	
Approx Cost	x	

Table 5-17. Browse Result View (1 of 2)

V0 Attribute (screen parameter)	Application/System Data	Earth Science Metadata Attribute
MessageId	x	
Data Center ID		ArchiveCenter
StatusCode	x	
StatusCodeComment	x	
IMAGE		
Data set ID		Longname
Granule ID	x	GranulePointer
Image ID	x	BrowsePointer
Image Size		Browse Size
FTP BROWSE RESULT		
MessageId	x	
StatusCode	x	
StatusCodeComment	x	
Data Center ID		ArchiveCenter
Total File Size	x	
DAAC CONTACT ADDRESS		
Contact Name		Contact LastName
		Contact FirstName
		Contact MiddleName

Table 5-17. Browse Result View (2 of 2)

V0 Attribute (screen parameter)	Application/System Data	Earth Science Metadata Attribute
Organization		Contact Organization Name
Address		Street Address
City		City
State		State/Province
Zip		Postal Code
Country		Country
Phone		Telephone Number
		Telephone Number Type
Fax		Telephone Number
		Telephone Number Type
Email		Electronic Mail Address

Table 5-18. Directory Result View

V0 Attribute (screen parameter)	Application/System Data	Earth Science Metadata Attribute
Data Center ID		ArchiveCenter
MessageId	x	
StatusCode	x	
StatusCodeComment	x	
Number of Datasets	x	
DATASET		
Data Set ID		Longname
MD Entry ID		ShortName
Orgs Center		Contact Organization Name
		Role

Table 5-19. DataCenterGuide Result (V0 interface) View

V0 Attribute (screen parameter)	Application/System Data	Document
n/a		Data Center Guide

Table 5-20. DataSetGuide Result (V0 interface) View

V0 Attribute (screen parameter)	Application/System Data	Document
n/a		Data Set Guide

Table 5-21. SensorInstrumentGuide Result (V0 interface) View

V0 Attribute (screen parameter)	Application/System Data	Document
n/a		Sensor Instrument Guide

Table 5-22. SourcePlatformGuide Result (V0 interface) View

V0 Attribute (screen parameter)	Application/System Data	Document
n/a		Source Platform Guide

Table 5-23. ProjectCampaignGuide Result (V0 interface) View

V0 Attribute (screen parameter)	Application/System Data	Document
n/a		Project Campaign Guide

Table 5-24. Product Result(V0 Interface)View

V0 Attribute (screen parameter)	Application/System Data	Earth Science Metadata Attribute
Data Center ID		ArchiveCenter
MessageId	x	
StatusCode	x	
StatusCodeComment	x	

5.1.4 ECS Result Views

The following views represent the metadata attributes or application/system data required to satisfy the result request. The presentation of these views vary with the type of view, Production History, Algorithm Description etc., that is being described in the following tables. The Production History Result View expresses the Metadata Attributes and the application system data that will be needed to generate the result. The Delivered Algorithm Package(DAP) Result View identifies the physical objects that will be returned as a result of a DAP access. The Algorithm Description, Reference Paper and Production Plan results views identify the physical document objects that will be provided to the requesting user.

Table 5-25. Production History Result View

Application/System Data	Earth Science Metadata Attributes
x	GranulePointer (for Product Lineage)
x	AncillaryInputPointer
x	OrbitParametersPointer
	PGE Version
	PGE Name
x	ProcessingHistoryPointer

Table 5-26. Delivered Algorithm Package Results View

Application/System Data	Results
	DeliveryContentsList
	ContextDiagrams
	ChangeLog
	PGEConfigFile
	PGEErrorLog
	CompileInfo
	ProcessingDependencies
	LinkandCompileScripts
	ScSWScript
	ScSWSourceCode
	TestScript
	ResultTempFile
	ResultsProductFile
	ResultsReport
	MetadataConfigurationFile
	InstrumentScienceData
	InstrumentEngineeringData
	PlatformAncillaryData
	ExternalData
	CalibrationFiles
	TestSiteConfig
	TestSourceCode
	ProcessControlParametersandResourceFiles

Table 5-27. AlgorithmDescriptionDocument Results View

Application/System Data	Document
	SystemDescription
	ProgrammersGuide
	ATBD
	DetailedDesign
	TestPlan
	OperationsManual
	PerformanceTestResults
	SWDevelopmentStandard
	ProcessingFileDescription

Table 5-28. Reference Paper Document Results Views

Application/System Data	Document
	Journal Article
	StandAloneDocument

Table 5-29. Production Plan Document Results Views

Application/System Data	Document
	ProductionPlan

Table 5-30. Processing Status or Processing Errors, or Resource Report Document Results Views

Application/System Data	Document
	Processing Status Report
	Processing Error Report
	ProcessingResourceUsage Report

5.2 Population and Update Views

The update views are defined as the logical collection of attributes which may be changed or added by the user. There are currently four views that have been identified in this category. The first is the QA Metadata Update View which specifies the QA collection level attributes that the user may change or add to the collection. The second is the user comments which contains a reference to a document that is modifiable by the user. The Data Collection Update View is the third view. This view specifies the collection level attributes that are available to the user to modify. These views are supported by an access view which serves to locate the collection to be updated. The Delivered Algorithm Package(DAP) update view identifies the metadata attributes that the user can modify and after initial delivery or population. The access view for the DAP is defined in the above ECS Access View section. These views are expressed in the following tables as application/system data, earth science object class and earth science metadata attributes required to satisfy the type of view being described.

The population views are defined as the collection of attributes which may be added to the metadata. The distinction between the update and population view is that the collection level data does not exist in the database therefore a supporting access view is not required. The organization of these view tables is identical to the update and access view tables referenced above.

Table 5-31. QA Metadata & User Comments Update AccessView

Application/System Data	Earth Science Object Class	Earth Science Metadata Attribute
x	ECSDataGranule	GranulePointer

Table 5-32. QA Metadata Update View

Application/System Data	Earth Science Object Class	Earth Science Metadata Attribute
	QACollectionStats	ScienceQualityFlag
		OperationalQualityFlag
		AutomaticQualtiyFlag
		QualityFlagExplanation

Table 5-33. User Comments Update View

Application/System Data	Earth Science Object Class	Earth Science Metadata Attribute
x	User Comment Document	UserCommentDocumentPointer

Table 5-34. DataCollectionUpdate AccessView

Application/System Data	Earth Science Object Class	Earth Science Metadata Attribute
	CollectionDescription Class	ShortName
	CollectionDescriptionClass	VersionID
CollectionUR		

Table 5-35. DataCollectionUpdate View

Application/System Data	Earth Science Object Class	Earth Science Metadata Attribute
		All attributes listed below in the population view

Table 5-36. DataCollectionPopulation View (1 of 7)

Application/System Data	Earth Science Object Class	Earth Science Metadata Attribute
	CollectionDescription Class	ShortName
	CollectionDescriptionClass	VersionID
	Collection DescriptionClass	CollectionDescription
	CollectionDescriptionClass	LongName
	ECSCollection	StorageMedium
	ECSCollection	RevisionDate
	ECSCollection	SuggestedUsage
	ECSCollection	ProcessingCenter
	ECSCollection	ArchiveCenter
	SpatialKeywordClass	SpatialKeyword
	Discipline	DisciplineKeyword
	Topic	TopicKeyword
	ControlledParameter	ControlledParameterKeyword
	UncontrolledParameter	UncontrolledParameterKeyword
	Parameter	ParameterName
	Parameter	ParameterDescription
	Parameter	ParameterDataType
	PhysicalParameterDetails	ParameterUnitsofMeasurement
	PhysicalParameterDetails	ParameterRange
	PhysicalParameterDetails	ParameterValueAccuracy

Table 5-36. DataCollectionPopulation View (2 of 7)

Application/System Data	Earth Science Object Class	Earth Science Metadata Attribute
	PhysicalParameterDetails	ParameterValueAccuract Explanation
	PhysicalParameterDetails	ParameterMeasurement Resolution
	MultipleTypeCollection	AggregationValue
	MultipleTypeCollection	AggregationRelationship
	MultipleTypeCollection	AggregationType
	SingleTypeCollection	CitationExternalPublication
	SingleTypeCollection	CollectionState
	SingleTypeCollection	Maintenance and Update Frequency
	SingleTypeCollection	TemporalKeyword
	SingleTypeCollection	AccessConstraints
	Review	ScienceReviewStatus
	Review	ScienceReviewDate
	Review	FutureReviewDate
	ProcessingLevel	ProcessingLevelID
	Review	ProcessingLevelDescription
	Locality	LocalityType
	Locality	LocalityDescription
	QACollectionStats	ScienceQualityFlag
	QACollectionStats	Operational QualityFlag
	QACollectionStats	AutomaticQualityFlag
	QACollectionStats	QualityFlagExplanation
	CollectionTypeClass	CollectionType
	CollectionTypeClass	CollectionUse
	IndirectReferenceClass	IndirectReference
	IndirectReferenceClass	NumberofTypesofCSDT
	Contact	Role
	Contact	HoursofService

Table 5-36. DataCollectionPopulation View (3 of 7)

Application/System Data	Earth Science Object Class	Earth Science Metadata Attribute
	Contact	ContactInstructions
	Email	ElectronicMailAddress
	Telephone	TelephoneNumber
	Telephone	TelephoneNumberType
	ContactPerson	ContactJobPosition
	ContactPerson	ContactFirstName
	ContactPerson	ContactMiddleName
	ContactPerson	ContactLastName
	ContactOrganization	ContactOrganizationName
	ContactAddress	StreetAddress
	ContactAddress	City
	ContactAddress	StateProvince
	ContactAddress	PostalCode
	ContactAddress	Country
	DataOriginator	DataOriginatorShortName
	DataOriginator	DataOriginatorLongName
	Instrument	InstrumentName
	Instrument	InstrumentType
	Instrument	NumberofSensors
	Sensor	SensorType
	Sensor	SensorShortName
	Sensor	SensorLongName
	SensorCharacteristics	SensorCharacteristicName
	SensorCharacteristics	SensorCharacteristicValue
	SensorCharacteristics	SensorCharacteristicUnit
	SensorCharacteristics	SensorCharacteristicType
	FieldCampaign	CampaignProjectStartDate
	FieldCampaign	CampaignProjectStopDate
	FieldCampaign	CampaignName

Table 5-36. DataCollectionPopulation View (4 of 7)

Application/System Data	Earth Science Object Class	Earth Science Metadata Attribute
	Platform	PlatformShortName
	Platform	PlatformLongName
	PlatformCharacteristics	PlatformCharacteristicName
	PlatformCharacteristics	PlatformCharacteristicValue
	PlatformCharacteristics	PlatformCharacteristicUnit
	PlatformCharacteristics	PlatformCharacteristicType
	NonInstrument	NonInstrumentLongName
	NonInstrument	NonInstrumentShortName
	NonInstrument	NonInstrumentType
	NonInstrument	ModelName
	NonInstrument	ModelDescription
	NonInstrument	BoundaryData
	NonInstrument	DynamicStaticFlag
	Spatial	SpatialCoverageType
	AltitudeSystemDefinition	AltitudeDatumName
	AltitudeSystemDefinition	AltitudeResolution
	AltitudeSystemDefinition	AltitudeDistanceUnits
	AltitudeSystemDefinition	AltitudeEncodingMethod
	DepthSystemDefinition	DepthDatumName
	DepthSystemDefinition	DepthResolution
	DepthSystemDefinition	DepthDistanceUnits
	DepthSystemDefinition	DepthEncodingMethod
	GeodeticModel	HorizontalDatumName
	GeodeticModel	EllipsoidName
	GeodeticModel	SemiMajorAxis
	GeodeticModel	DenominatorFlatteningRatio
	GeographicCoordinateSystem	LatitudeResolution
	GeographicCoordinateSystem	LongitudeResolution
	GeographicCoordinateSystem	GeographicCoordinateUnits

Table 5-36. DataCollectionPopulation View (5 of 7)

Application/System Data	Earth Science Object Class	Earth Science Metadata Attribute
	LocalCoordinateSystem	LocalCoordinateSystem Description
	LocalCoordinateSystem	LocalGeoreferenceInformation
	PlanarCoordinateInformation	Planar DistanceUnits
	PlanarCoordinateInformation	PlanarCoordinate EncodingMethod
	DistanceBearingRepresenta-tion	DistanceResolution
	DistanceBearingRepresenta-tion	BearingResolution
	DistanceBearingRepresenta-tion	BearingUnits
	DistanceBearingRepresenta-tion	BearingReferenceDirection
	DistanceBearingRepresenta-tion	BearingReferenceMeridan
	CoordinateRepresentation	AbscisaResolution
	CoordinateRepresentation	OrdinateResolution
	MapProjection	MapProjectionName
	MapProjection	MapProjectionPointer
	LocalPlanarCoordinateSystem	LocalPlanarCoordinateSytem Description
	LocalPlanarCoordinateSystem	LocalPlanarGeoreference Information
	VerticalSpatialDomain	VerticalSpatialDomainValue
	VerticalSpatialDomain	VerticalSpatialDomainType
	OrbitCalculateSpatialDomain	OrbitalModelName
	OrbitCalculateSpatialDomain	OrbitNumber
	OrbitCalculateSpatialDomain	StartOrbitNumber
	OrbitCalculateSpatialDomain	StopOrbitNumber
	ZoneIdentifier	ZoneIdentifier
	GridCoordinateSystem	GridCoordinateSystemName

Table 5-36. DataCollectionPopulation View (6 of 7)

Application/System Data	Earth Science Object Class	Earth Science Metadata Attribute
	GRingPoint	GRingPointLatitude
	GRingPoint	GRingPointLongitude
	GRingPoint	GRingPointSequenceNo
	GRing	ExclusionGRingFlag
	BoundingRectangle	WestBoundingCoordinate
	BoundingRectangle	NorthBoundingCoordinate
	BoundingRectangle	EastBoundingCoordinate
	BoundingRectangle	SouthBoundingCoordinate
	Point	PointLatitude
	Point	PointLongitude
	Circle	CenterLatitude
	Circle	CenterLongitude
	Circle	RadiusValue
	Circle	RadiusUnits
	Temporal	TimeType
	Temporal	DateType
	Temporal	TemporalRangeType
	Temporal	PercisionofSeconds
	SingleDateTime	TimeofDay
	SingleDateTime	CalendarDate
	RegularPeriodic	PeriodName
	RegularPeriodic	Period1stDate
	RegularPeriodic	Period1stTime
	RegularPeriodic	PeriodDurationUnit
	RegularPeriodic	PeriodDurationValue
	RegularPeriodic	PeriodCycleDurationUnit
	RegularPeriodic	PeriodCycleDurationValue
	MultipleDateTimePeriod	MultipleDateName
x	DiscontinuousMultipleRange	EndsatPresentFlag

Table 5-36. DataCollectionPopulation View (7 of 7)

Application/System Data	Earth Science Object Class	Earth Science Metadata Attribute
	RangeDateTime	RangeEndingTime
	RangeDateTime	RangeEndingDate
	RangeDateTime	RangeBeginingTime
	RangeDateTime	RangeBeginningDate
x	UserCommentDocument	UserCommentDocumentPointer
	CSDTDescription	CSDT
	CSDTDescription	Implementation
	CSDTDescription	DataStructureComments
	CSDTDescription	NumberofObjects

Table 5-37. Delivered Algorithm Package Update (Release A 'DAP' Web Interface) View

Application/System Data	Earth Science Object Class	Earth Science Metadata Attribute
	DeliveredAlgorithmPackage	Algorithm Package Version
	DeliveredAlgorithmPackage	Algorithm Package Maturity code
	DeliveredAlgorithmPackage	Algorithm Package Acceptance Date
	DeliveredAlgorithmPackage	Delivery Purpose
	Software	SWDate ast modified
	PGEDescription	PGEFunction
	PGEDescription	PGEIdentifier
	PGEVersion	PGEVersion
	PGEInfo	Date last modified

Table 5-38. Delivered Algorithm Package Population View

Application/System Data	Earth Science Object Class	Earth Science Metadata Attribute
	DeliveredAlgorithmPackage	Algorithm Package Name
	DeliveredAlgorithmPackage	Algorithm Package Version
	DeliveredAlgorithmPackage	Algorithm Package Maturity code
	DeliveredAlgorithmPackage	Algorithm Package Acceptance Date
	DeliveredAlgorithmPackage	Delivery Purpose
	Software	SWDate ast modified
	PGEDescription	PGEName
	PGEDescription	PGEFunction
	PGEDescription	PGEIdentifier
	PGEVersion	PGEVersion
	PGEInfo	Date last modified

5.3 Archive Views

The archive views are defined as the logical specifications for the repositories such as the Guides, Browse Products, Delivered Algorithm Packages and ECS Products(HDF). Each of the ECS specifications identified in Appendix A describe the content of the Release A objects described in the Earth Science Data Model as a pointer reference. These pointer references in the data model suggest that a definition of the content can be found in a respective specification.

6. The Data Model: Earth Science

6.1 Object-Oriented Data Modeling

The diagrams illustrated in Sections 6.2 and 6.3 are data structures which are the products of analysis using the Interactive Development Environment (IDE) Software through Pictures (StP) Object Modeling Technique (OMT) which is a Computer Aided Software Engineering (CASE) tool. This section is an overview of the Object-Oriented methodology used by this tool to aid the reader in understanding the diagrams.

Object-Oriented methodology is a development paradigm that organizes a system as a collection of objects, each of which has data structure and behavior and which has meaning within the context of the problem that is being modeled. The methodology being used on the ECS Program is the OMT set forth by Rumbaugh, et al, in the book entitled Object-Oriented Modeling and Design. The foundation of OMT is the object model, in which the complete static structure of the system is captured in terms of graphical models.

The following material provides a tutorial on how to read an OMT object model. The tutorial is in the form of a walk-through of a sample model. Although the sample does not use all of the available notation, it uses most of the notation that will be seen in models that have been constructed for ECS. Before starting the walk-through, the following definitions should be understood.

- ***Object:*** An abstraction of something in the problem at hand, characterized by a unique name, distinct properties, and well defined behavior.
- ***Class:*** A group of objects with the same meaning, properties ***(attributes)***, behaviors ***(operations)***, and relationships ***(associations)*** with other objects.
- ***Generalization:*** Objects can be generalized into a more generic object class. For example, guides, program descriptions, and general system descriptions could be generalized into a common class called documents. The document class is then called the parent class of guides, program descriptions, and general system descriptions.
- ***Attribute:*** a named property of a class, describing data values held by each object in the class. Classes describe the data property (e.g., color). Each object holds a value (e.g., green) for each attribute defined for the class to which the object belongs.
- ***Operation:*** a part of the behavior of a class. Collectively, all of a class' operations define the things that objects of the class can do.
- ***Link:*** a physical or conceptual connection between object instances -- an instance of an ***association*** (see the next definition).
- ***Association:*** a group of links with common structure and common meaning -- a set of potential links.
- ***Aggregation:*** The model also recognizes a specific kind of relationship, called Aggregation. It indicates that objects of one class (the aggregate) are composed of objects belonging to other classes (the components).

Figure 6-1 shows this notation used in the Data Model diagrams. The rectangular boxes in the model denote classes. Each box, shown in full detail, consists of three sections. The name of the

class fills the top section, its attributes go in the middle section, and its operations in the bottom section. Sometimes in high level drawings, only the top section of the box, showing the class name is shown such as in Section 6-2. Sometimes the top and middle section of the box are shown such as in Section 6-3. A class may be the generalization of several other classes. In Figure 6-1, the "Parent Class" is the generalization of two other classes, each called a "Derived Class." Derived classes always include the attributes and operations provided by their parent classes. The diagrams, therefore, only show any additional attributes which the derived class may have.

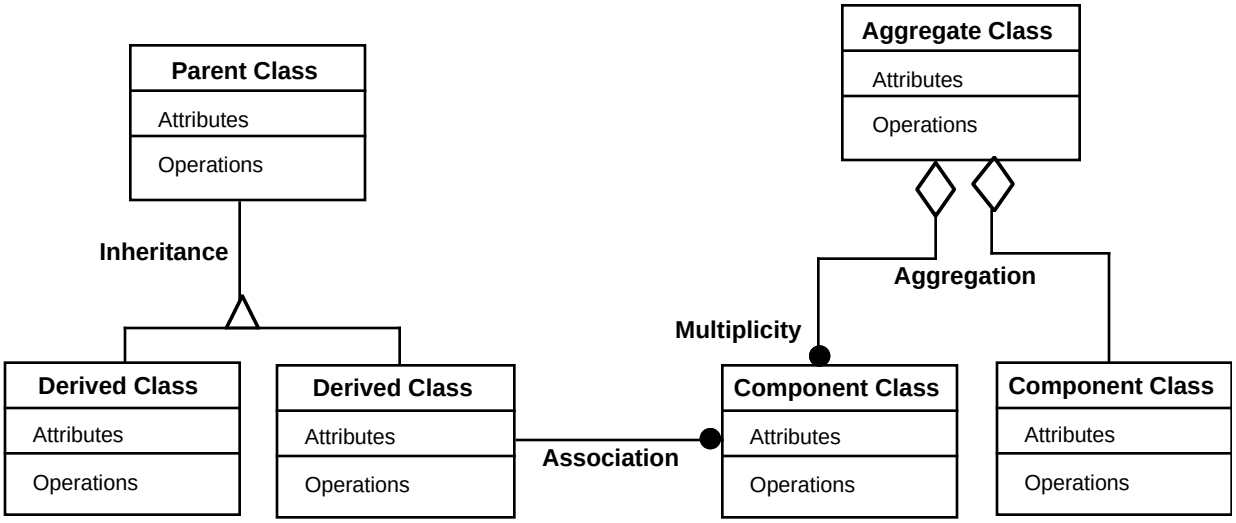

Figure 6-1. Example of an Object Model Diagram

Figure 6-1 also shows that there are two classes, each called a "Component Class", have been aggregated into another class, called the "Aggregate Class". There may be design rules which determine how many instantiations of each class an aggregate may have. This is shown by providing an indication of the "Multiplicity" in the diagram. This indicator is a circle, with or without a number attached somewhere to the class rectangle. In Figure 6-1, the left component class must occur some number of times (one, or many), the right component must occur exactly once. The black color filled circle attached to the left component indicates that the class must exist; if the circle were not black filled the class would be optional (zero or one instances). Finally, classes may have one to one relationships, indicated by simple lines (no associated circles) on the design diagrams, they are labeled with the name of the relationship, and suggest an implied multiplicity of exactly one.

The material in this Section uses only the “Object Model Diagram” which is one of three types of modeling diagrams. It is used to illustrate the classes and attributes of objects that make up the data design and how the data are related to each other. There are several other types of diagrams that are supported through the OMT -- these are described in the Technical Document 410-TD-003-001, as referenced in Section 2. Note that operations are not specified here since this is a data model only. Functionality associated with the data is shown by the off-page connectors to

subsystem classes which may be traced initially in chapters 7 through 10 of this document and then in the corresponding DID305 volumes.

6.1.1 Data Naming Convention

For the Earth Science Data Model, the data name is, in some cases, a judgment call by the data engineering group, that adheres to a set of predefined rules. Where standard guidelines are used (e.g., Federal Geographic Data Committee [FGDC], Global Change Master Directory [GCMD]) for data design and model development, the class or attribute data name is either preserved exactly as specified in the standard or a name is assigned to the data which is more closely synchronized with the ECS system and either suggested or approved by the project during design walk through and review. Some names are derived from a glossary developed for the ECS Project[1]. Other rules are included in the following list:

- Data class and attribute names are assigned to be unique within the model.
- Data class and attribute names are as descriptive as possible of the data type or content.
- Data class names that describe groupings are appended with the term “Container”.
- Attributes that represent required linkage to non-metadata classifications of data stored at various other levels of the data pyramid are appended with the term “Pointer”.
- Each word in the name is capitalized and spaces normally appearing between words are purged.
- The module name is designed to represent the super class of data within the model.
- Where class “offpage” connectors are described, the name of the offpage connector is the exact name of the referenced class.
- Names are represented as singular wherever possible, consistent with standard modeling techniques.

6.2 Context Diagram and Class Definitions

This section includes high level information about the Earth Science Data model which is subsequently defined in detail in Section 6.3.

6.2.1 Context Diagram

The context diagram (figure 6-2) illustrates the hierarchy of the superclasses of data. This high level view of the Data Model shows the relationships of the superclasses decomposed to additional levels of subordinate classes. Only those classes containing searchable attributes are included for each module. The module is a logical segment of the whole Earth Science Data Model. The relationships of the classes are preserved identically to the more detailed structures provided in Section 6.3.

The diagram was developed using the diagrams in Section 6.3. Each superclass appears in bold letters in a separate box with the related classes beneath it. Other relationships whether at the second level or beyond are described by the lines connecting the rectangles. More detailed relationships and off page connectors to subsystem functional classes are illustrated on the individual modules in Section 6.3.

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1. This glossary is maintained by the Hughes Data Management Office (DMO)

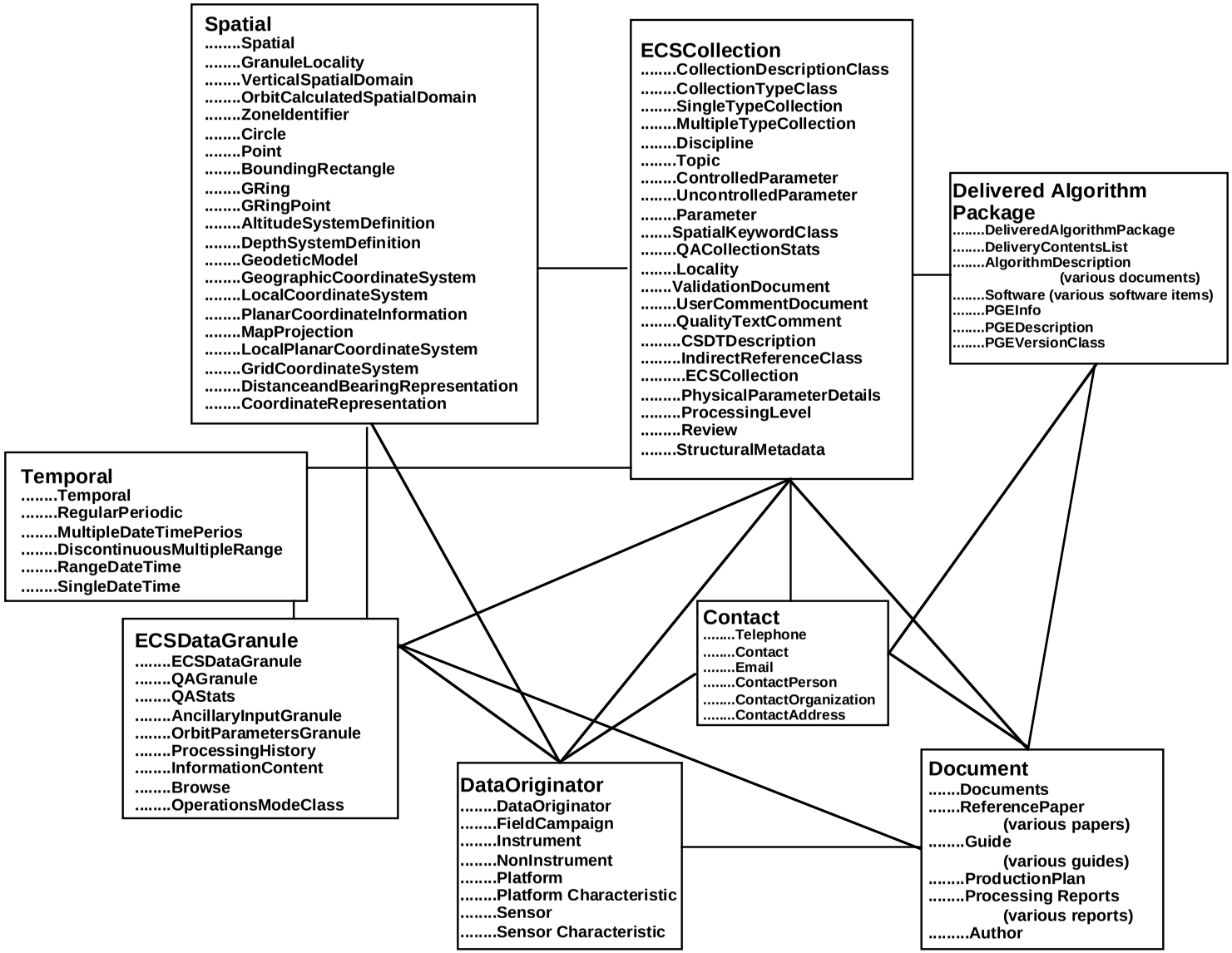

Figure 6 -2. High Level Class Diagram of the Data Model

6.2.2 Class Definitions

The following list of classes and their definitions are a product of the IDE StP/OMT CASE tool. Descriptions for all classes within the Earth Science Data Model are provided.

AITTL

Off page connector to the design component. 'Algorithm Integration and Test Tools' found in the PDPS subsystem.

ATBD

Separate specified, the algorithm theoretical baseline document for the PGE.

AlgorithmDescription

A class providing parameters for search of the documents associated with the Delivered Algorithm Package.

AltitudeSystemDefinition

The reference frame or system from which altitudes (elevations) are measured. The term 'altitude' is used instead of the common term 'elevation' to conform to the terminology in Federal Information Processing Standards 70-1 and 173.

AncillaryInputGranule

This class indicates a separate specification for ancillary data and that an association with the granule database exists.

Author

Details of the author of the document, connected to the contact module for address etc. information.

BoundingRectangle

Most collections and granules are described in these terms which are the simplest means of limiting area coverage. Defined in the same way as GCMD and FDGC. Provide limit of coverage of a data set expressed by latitude and longitude values in the order western, eastern, northern, and southern - most. For data sets that include a complete band of latitude around the Earth, the west coord = -180.0 and the east= 180.0

Browse

This class is a specification for browse products and indicates that a link exists from the associated databases. Its association with the collection indicates that it can apply to a collection as a whole while its association with a granule indicates that browse products may also occur one per granule. More complex associations with multiple collections are also possible.

CSDTDescription

see IndirectReferenceClass

CalibrationFiles

Files containing parameters, coefficients etc. most often essentially static values which control science software operation and the parameterization of algorithms (separated specified).

ChangeLog

Separately specified log of changes to the DAP.

Circle

Class used when collection or granule can be described using these attributes.

CollectionDescriptionClass

This class contains a basic description of the collection.

CollectionTypeClass

This is used to describe collections associated with this instance of a collection; i.e., the name and other details of input collections, collections associated (in science data terms) with this instance and/or collections dependent on this collection in some way.

CompileInfo

Compilation flags and other options explained in a separately specified object.

Contact

The central class in the module; linked to several other modules/classes and containing attributes occuring singly per contact. The role specifies the type of contact and serves to differentiate the use of the module for the various classes associated with it from other modules. This contact is used to provide information related to the earth science data (collections and originator). System and user profile contact information is held elsewhere.

ContactAddress

Address details.

ContactOrganization

Details of the name. This class is used optionally with ContactPerson. In some instances, ContactOrganization is the primary contact point while in others, it is ContactPerson.

ContactPerson

Details of name and position. This class is used optionally with ContactOrganization. In some instances, ContactPerson is the primary contact point while in others, it is ContactOrganization.

ContextDiagrams

Separately specified means of referencing diagrams.

ControlledParameter

This class provides the third (of 5) levels of description of the collection content. GCMD keywords are used to describe the science parameter area of the collection. A collection can conceivably cover many such parameters.

CoordinateRepresentation

The method of encoding the position of a point by measuring its distance from perpendicular reference axes (the 'coordinate pair' and 'row and column' methods).

CoordinateSystemContainer

A container class (no data content) covering the range of descriptive information held at the collection level concerning the spatial system used for each granule in the collection.

DMGWPersistentData

Off page connector to a design class found in CLS.

DataCenterGuide

This is a specification linked to the database.

DataOriginator

The institution, project, and/or mission from which the inherited classes (Instrument, FieldCampaign, and NonInstrument) are funded, administered, and/or sponsored. For example; EOS, NOAA, NASA, ESA, EUMETSAT, ISCCP, LARC.

DataSetGuide

This is a specification linked to the database.

DeliveredAlgorithmPackage

This class provides the common characteristics of the algorithms used in product generation. These characteristics include a description of the algorithm package, date, version, and generateing system characteristics for the package. Additionally, a configuration list is also contained within this object which serves to itemize each component of the algorithm delivery.

DeliveryContentsList

Separately specified listing of delivery contents.

DepthSystemDefinition

The reference frame or system from which depths are measured.

DetailedDesign

Detailed design and/or implementation documents. No specification available.

Discipline

This class provides the highest level (of 5) levels of description of the collection content. GCMD keywords are used to describe the general discipline area of the collection. A collection can conceivably cover several disciplines.

DiscontinuousMultipleRange

A flag in this class denotes that a collection which currently ends at the present is being updated on an ongoing basis. The flag is used to avoid the need for rapid collection-level update of the end date/time.

DistanceandBearingRepresentation

A method of encoding the position of a point by measuring its distance and direction (azimuth angle) from another point.

Document

The document class contains common atributes for all document types.

DpPpEphemerisData

Off page connector to a design class found in DPS and specializations of it.

DpPpPreprocessingData

Off page connector to a design class found in DPS and specializations of it.

DpPrPCF

Off page connector to a design class found in DPS.

DpPrPGE

Off page connector to a design class found in DPS.

DsDeESDTDescriptor

Off page connector to a design class found in DSS.

DsEsAlgorithmDescription

Off page connector to a design class found in Dataserver Subsystem.

DsEsESDT

Off page connector to a design class found in DSS.

DsEsGuide

Off page connector to a design class found in DSS.

DsEsProductionPlan

Off page connector to a design class found in DSS.

DsEsReferencePaper

Off page connector to a design class found in DSS.

DsMdMetadata

Off page connector to a design class found in DSS.

ECSCollection

This class provides further description of the collection. It is associated with many other collection level descriptive classes and modules.

ECSDataGranule

This class provides a focus for the descriptive attributes of an individual granule.

Email

Electronic mail address of the contact.

ExternalData

Ancillary data from sources other than the instrument in hand such as DEMs, climatologies etc. and required for testing (separately specified).

FieldCampaign

This class describes the basic attributes of a field campaign. This may be a calibration campaign in support of a remote sensing mission or a standalone collection derived from field measurement

GPolygonContainer

This class contains the G-Ring attributes of values denote the latitude and longitude of the start point of each of a set of geolocation segments, which when combined form apolygon. The minimum number of segments is 4, thus the minimum number of start points must also be 4, one for each of the segements. The sequence numbers determine how to connect the starting points to form the polygon. The exclusion ring flag is added to each polygon definition to describe whether the polygon is an 'inner' or 'outer' ring of coverage--outer rings describe the full coverage extent, while inner rings denote areas of missing coverage within the outer ring. Each set of values must contain exactly two sets of point values (one for latitude and one for longitude) and a sequence number.

GRing

This class contains the G-Ring attribute for the exclusion ring flag which is added to each polygon definition to describe whether the polygon is an 'inner' or 'outer' ring of coverage--outer rings describe the full coverage extent, while inner rings denote areas of missing coverage within the outer ring.

GRingPoint

This class contains the G-Ring attributes of values denote the latitude and longitude of the start point of each of a set of geolocation segments, which when combined form a polygon. The sequence numbers determine how to connect the starting points to form the polygon. Each set of values must contain exactly two sets of point values (one for latitude and one for longitude) and a sequence number.

GeodeticModel

Parameters for the shape of the Earth.

GeographicCoordinateSystem

The quantities of latitude and longitude which define the position of a point on the Earth's surface with respect to a reference spheriod.

GranuleLocality

Class holding attributes for locality values; generated for each granule (see class: Locality).

GridCoordinateSystem

A plane-rectangular coordinate system usually based on, and mathematically adjusted to a map projection so that geographic positions can be readily transformed to and from plane coordinates. The zone identifier can be allocated per granule; hence the class 'ZoneIdentifier'.

Guide

This class provides a key for guides covering datasets, instruments, algorithms, providers, platforms, regionalareas and subset/subsample instructions.

HorizontalCoordinateSystemContainer

A container class (no data content). The reference frame or system from which linear or rectangular quantities are measured and assigned to the position that a point occupies.

HorizontalSpatialDomainContainer

Container class (no data content) collecting related classes.

InRequestProcessData

Off page connector to a design class found in INS.

InRequestSummaryHeader

Off page connector to a design class found in INS.

IndirectReferenceClass

The class in conjunction with CSDTDescription exists to provide a description of the data organization of the product (i.e. a generalized granule description in terms of internal structure). There are many possible structures. All should be describable by one of the CSDTs (fixed domain), but the specific Implementation has an unbounded domain indicating the range at the lower structural level. A comment field is provided for explanation of the division between the object and subobject levels if this is necessary.

InformationContent

This class is used in two circumstances: 1) when the value relates to the entire collection , and 2) at the granule level to record the values of non-core attributes.

InputContainer

Container class gathering input files together (no data content).

Instrument

An instrument is formerly defined by ECS as:
'A hardware system that collects scientific or operational data.

* Hardware-integrated collection of one or more sensors contributing data of one type to an investigation.

* An integrated collection of hardware containing one or more sensors and associated controls designed to produce data on/in an observational environment'(V0 definition).

This class describes the basic attributes of an instrument which may be either:
a) the sole generator of the collection granules or
b) an input to field campaigns or non-instrument collections.
The operation mode is expected to update frequently compared to the other characteristics. Where an instrument has only one distinguishable sensor (e.g. AVHRR) then sensor and instrument are the same, and shall be named as such.

InstrumentEngineeringData

Instrument engineering data (separately specified), often level 0 content equivalent and delivered as part of the test suite.

InstrumentScienceData

Instrument data (separately specified), delivered as part of the test suite.

IoAdSubmissionIF

Off page connector to a design class found in IOS.

JournalArticle

This class defines further characteristics of the journal reference paper and indicates a further specification.

LinkandCompileScripts

Software makefile etc. (separate specification).

LocalCoordinateSystem

A description of any coordinate system that is not aligned with the surface of the Earth.

LocalPlanarCoordinateSystem

Any right-handed planar coordinate system of which the z-axis coincides with a plumb line through the origin that locally is aligned with the surface of the Earth.

Locality

This class is used at the collection level to describe the labelling of granules with compounded time/space text values and which are subsequently used to define more phenomologically-based collections. See GranuleLocality.

MapProjection

The systemeatic representation of all or part of the surface of the Earth on a plane or developable surface. ECS currently suports a number of projections which are specified separately in the MapProjectionParameters Class.

MetadataConfigurationFile

This file (separately specified) is conpleted by the data producer and contains a PVL description of the metadata produced by the science software and routinely inserted into product granule headers.

MultipleDateTimePeriod

Multiple version of SingleDateTime, generally used at the collection level.

MultipleTypeCollection

This class used only when the collection has been developed by aggregating collections using some criteria which is then recorded using the class attributes.

NonInstrument

Non-instrument is used to describe the generator of a collection which is neither directly a field campaign nor a remote sensing instrument, but is some other granule-generating process or procedure such as a model, simulation, survey, or other study.

OperationManual

Separately specified, covering procedures and maintenance.

OperationModeClass

This class describes instrument's operational modes associated with the channel, wavelength, and FOV (e.g., launch, survival, initialization, safe, diagnostic, standby, crosstrack, biaxial, solar calibration).

OrbitCalculatedSpatialDomain

Class used to describe and hold values for granules located by means of orbit parameters. Connection to class OrbitParametersGranule which is separately specified.

OrbitParametersGranule

This class indicates a separate specification for orbit data and that an association with the granule database exists.

OutputComparisonContainer

Container class gathering test output comparisons together for modeling purposes (no data content).

PGEConfigFile

A description of each delivered software file each held as a separate object.

PGEDescription

Database entries allowing a search for a particular version of a PGE.

PGEErrorLog

Reports, solutions and strategies held in a separately specified object.

PGEInfo

This class identifies the version, maturity, processing requirements and the resulting product structure and associated information.

PGEVersionClass

This class separated from PGEDescription due to its multiplicity (i.e. many PGE versions per description).

Parameter

This class is used to describe all (major) (science) parameters in the collection. This class provides for a detailed level 'data dictionary' description of the data product (i.e. content repeated in each granule). The parameter names should be unique across all collections, reflecting the uniqueness of the parameter(s) in the collection. In addition, product specific attributes can be described (i.e. attributes used to describe the collection additional to those in this model). Also, product specific attributes recorded on a granule by granule basis are described here.

The ParameterValue is used in two circumstances:
1) when the value relates to the entire collection
2) at the granule level to record the values of non-core attributes.

PerformanceTestResults

Results of performance test. No specification available.

PhysicalParameterDetails

This class is used to describe parameters in the parameter class when they are physical or geophysical in nature.

PlDataSource

PlDataTypes

Off page connector to a design class found in PLS.

PlPGE

Off page connector to a design class found in PLS.

PlPerformance

Off page connector to a design class found in PLS.

PlProductionRequest

Off page connector to a design class found in PLS.

PlResourceRequirement

Off page connector to a design class found in PLS.

PlanarCoordinateInformation

Information about the coordinate system developed on the planar surface.

PlanarCoordinateSystemContainer

There are two classes of similar name indicating that when the choice of planar systems has been chosen for description, then many possible systems could be described. The quantities of distances, or angles and angles, which define the position of a point on a reference plane to which the surface of the Earth has been projected.

PlanarCoordinateSystemsContainer

There are two classes of similar name indicating that when the choice of planar systems has been chosen for description, then many possible systems could be described. The quantities of distances, or angles and angles, which define the position of a point on a reference plane to which the surface of the Earth has been projected.

Platform

Information identifying the carrier for the instrument providing the measurements. This should be carefully distinguished both from DataOriginator and Instrument, and specify the hardware structure on which the instrument is mounted.

PlatformAncillaryData

Input data (such as control telemetry and instrument status) required for test purposes (separately specified).

PlatformCharacteristic

A self-describing set of characteristics of the platform. These are predominately physical but may be historical or other relevant characteristics.

Point

When collection or granule can be described using these attributes.

ProcessControlParametersandResourceFiles

This file (separately specified) is completed by the data producer and contains a human readable specification of the inputs, output and supports data files needed by the PGE. Data producer development of this file is required only for test purposes since ECS processes will create these data routinely from planning information.

ProcessingDependencies

This class has a separate specification covering the inputs required for processing. This is critical in the support of planning procedures.

ProcessingErrorReport

This class has a pointer to a specification for the processing error report produced by the ECS Planning Subsystem.

ProcessingFileDescription

Separately specified, details the file and record layouts for each PGE.

ProcessingHistory

The Production History class provides information about the heritage of each granule associated with the granule database. This includes the input products and granules used to generate the product. The class contains a pointer indicating that a separate specification is available and that the contents are not directly searchable. Further production history attributes are found as the ECSDataGranule class self reference which indicates that references to input granules are maintained for database use.

ProcessingLevel

A description of the processing level of the collection.

ProcessingReport

This class has searchable parameters for the processing reports produced by the ECS Planning Subsystem.

ProcessingResourceUsageReport

This class has a pointer to a specification for the processing resource usage report produced by the ECS Planning Subsystem.

ProcessingStatusReport

This class has a pointer to a specification for the processing status report produced by the ECS Planning Subsystem.

ProductionPlan

This class has searchable parameters plus a pointer to a specification for the plans produced by the ECS Planning Subsystem.

ProgrammersGuide

This is a specification linked to the database.

ProjectCampaignGuide

This is a specification linked to the database.

QACollectionStats

This class has rules which indicate that at least one flag must be set for each instance of collection and granule. For a full metadata set, all three flags must be set. In addition, any of the flags may be repeated as many times as is appropriate to record the overall quality status of the object (i.e. collection or granule), including per parameter flags.

QAGranule

This class indicates a specification for a separate file containing user specified QA information about the granule.

QAStats

This class contains measures of quality for the granule. The parameters used to set these measures are not preset and will be determined by the data producer. Each measure can occur either for the granule as a whole or for parts of it.

QualityTextComment

A specification for a document used to record details of quality measurement and other comments concerning the collection. Accessible from the collection description.

RangeDateTime

Specifying start and end date/time of a granule or collection.

ReferencePaper

The reference paper class defines the common properties of the underlying reference material, and inherits further attributes from the Document Class itself.

RegionalAreaDefinitionGuide

This is a specification linked to the database.

RegularPeriodic

Used at the collection level to describe a collection having granules which cover a regularly occuring period.

ResultTempFile

Separate specification; intermediate output file from development environment delivered for comparison with operational output.

ResultsProductFile

Separate specification; product output file from development environment delivered for comparison with operational output.

ResultsReport

Separate specification; report from development environment.

Review

This class provides for dates and status as applicable for collections which are active.

SWDevelopmentStandard

Separate specified.

ScSWScript

Software scripts etc. (separate specification).

ScSWSourceCode

The science software code file (separate specification).

Sensor

A sensor is formerly defined by ECS as:
'A device which transmits an output signal in response to a physical input stimulus (such as radiance, sound etc.). Science and engineering sensors are distinguished according to the stimuli to which they respond.'

A sensor is a component or subsystem of an instrument which has a measuring purpose distinct from other components. Packages of 'instruments' which are operated together should be regarded as multiple sensors within a single instrument (e.g. AIRS, AMSU, and MHS which make up the instrument 'Advanced Operational Sounding System'; e.g. CERES has two sensors - both scanning radiometers; one cross track and one rotating plane). Being operated together primarily means producing single collections from the (joint) data and would also often mean having combined telemetry streams and being integrated in hardware terms. Multiple electromagnetic channels on the other hand are usually considered characteristics of a single sensor. Where it is not possible to distinguish between sensor and instrument; i.e. there is only one sensor which makes up the instrument, then the same description is repeated in both sensor and instrument classes. Some sensor characteristics are expected to update frequently compared with other characteristics.

SensorCharacteristic

A self-describing set of characteristics reflecting the measurement capabilities of the sensor. Some sensor characteristics are expected to update with significantly greater frequency compared to other characteristics.

SensorInstrumentGuide

This is a specification linked to the database.

SingleDateTime

Means of encoding a single date and time for a granule occuring at that time or during the period covered by the time (e.g. one day for a single date excluding the time within the day).

SingleTypeCollection

This class provides description specific to a single as distinct from a multitype collection.

Software

A class holding the date of modification of each software item (each being specified as a separate object).

SourcePlatformGuide

This is a specification linked to the database.

Spatial

Largely a container class, but carrying an attribute indicating the general type of coverage.

SpatialDomainContainer

Container class (no data content) gathering various location measurement attributes.

SpatialKeywordClass

Provides for multiple occurances of a keyword to describe the spatial extent of the collection based on the DIF standard.

StandAloneDocument

Documents not published in journals.

StructuralMetadata

This class is specified separately. It includes a detailed PVL description of the relationship between individual CSDTs and the parameter content at the level needed to support ECS services such as subset and subsample. This specification is only filled out when the collection uses EOS-HDF.

SystemDescription

Separately specified, description of system.

Telephone

Telephone details.

Temporal

Describes the basis of the time system used in other classes.

TestPlan

Separately specified, test plan for the PGE.

TestSWContainer

Container class gathering test software together for modeling purposes (no data content).

TestScript

Separate specification; equivalent to the scripts for PGE software, but specific to the management of test software.

TestSiteConfig

Hard and software configuration of test environment. A specification is indicated which is found elsewhere.

TestSourceCode

Software additional to the science software necessary for testing (separate specification).

Topic

This class provides the second (of 5) levels of description of the collection content. GCMD keywords are used to describe the general topic area of the collection. A collection can conceivably cover several topics.

UncontrolledParameter

This class provides the fourth (of 5) levels of description of the collection content. GCMD keywords are used to describe the specific science parameter content of the collection. A collection can conceivably cover many specific parameters. New keywords may be added through a managed procedure. The keyword valids are the lowest level physical parameter terms which are normally searched by a user; i.e. a user enters a keyword which when found may connect with one or more parameters from collections.

UserCommentDocument

A specification for a document used to record user comments on the collection. It would carry a disclaimer that the comments may or may not be valid. Accessible from the collection description.

ValidationDocument

A specification for a document used to record details of validation steps used for the assessment of granule and overall collection quality. Accessible from the collection description.

VerticalCoordinateSystemContainer

A container class (no data content). The reference frame or system from which vertical distances(altitudes or depths) are measured.

VerticalSpatialDomain

Class holding attributes for vertical values as described in classes AltitudeSystemDefinition and DepthSystemDefinition.

ZoneIdentifierClass

This contains the appropriate numeric or alpha code used to identify the various zones in this grid coordinate system. See domain values of coordinate system for constraints on the zone numbers.

6.3 Earth Science Data Model: OMT Diagrams

The Earth Science Data Model consists primarily of metadata that can be mapped to the upper layers of the data pyramid (Reference Section 6.5.1.) This metadata describes the details of large amounts of data that are generally associated with the remaining levels of the data pyramid and archived in various media and format. Data other than metadata are pointed to in the diagrams (e.g., Granules for Levels 0 through 4, Documents, Algorithms, Production History, Statistics.)

The Earth Science Data Model is very large and not suited to be displayed in a single diagram; therefore, it is logically segmented into modules for the purpose of readability. The eight modules, when concatenated, represent the entire Earth Science Data Model.

Offpage connectors are included in the diagrams, as required, to allow for relationships to classes within various other modules. Offpage connectors are also used to relate the data that involve classes of data that are not in the Earth Science Data Model. Specifications for these other associated classes of data are included in Sections 7 through 10 and Appendix A. Those attributes having the term "pointer" included in the attribute name indicate that a data object is external to the metadata and a link to the data object must exist. Reference Section 6.1 to learn how to read Figures 6-3 through 6-11 and Section 6.2.1 for definitions of the classes.

In Sections 6.3.2 through 6.3.9 the various modules are defined. Following this is an OMT diagram of the module. The specifications for the attributes within each class are found in Section 6.4.

Data standards are identified in Section 3.2 and data naming conventions in Section 6.1.1 for the diagrams within the Earth Science Data Model.

6.3.2 DataOriginator Module

This module provides a structure to contain characteristics of data origin, from a higher through to a detailed level for collections. For Earth Science data, some examples of data originators are 'NASA EOS-AM CERES instrument' or 'GTE aircraft based tunable diode laser'. Both of these example will fit within the structure of this module.

The OMT diagram for the DataOriginator Module is graphically illustrated in Figure 6-3.

6.3.3 ECSCollection

A collection[2] is any logical grouping of logical or physical granules chosen by the data provider for identification, grouping, and advertisement in ECS as a collection. For a given collection multiple granules may exist. The multiple type collections have granules that may belong to more than one single type collection.

There are 5 levels of detail by which collection content can be described starting with high level keywords; i.e., Discipline -> Topic -> ControlledParameter -> UncontrolledParameter ->

2. Further definition of the nature of the collection is dependent upon ECS policy and operational procedure.

Parameter. The first four levels are derived from the Global Change Master Directory (GCMD) system, the last are ECS collection specific parameters. The combination of these five attribute values is usually unique and if physical parameter details are included, then the instance of the set will be unique.

This module is cross-referenced to both the Directory and Inventory Levels of the data pyramid.

Figure 6-4 is the ECSCollection Module OMT diagram.

6.3.4 ECSDataGranule

This is the primary module of the metadata describing the data granule which is the smallest aggregation of data that is independently managed (i.e., described, inventoried, retrievable.) Granules are managed as logical or physical entities.

Figure 6-5 is the ECSDataGranule Module OMT diagram.

6.3.5 LocalitySpatial

The spatial extent of data, of a geophysical event, of a region, or of a season are all defined using the object classes and attributes found in this module. This module is closely associated with the temporal extent. All spatial types may vary in spatial extent for a given time period. It brings together all attributes related to the spatial location of both collections and granules. Actual location values as well as descriptive parameters for these locations are included. The Spatial class contains Coordinate System and Spatial Domain containers. The Coordinate System container contains a detailed description of all types of coordinate systems which are used with products usually at Level 3 and 4 data. These attributes describe all granules within a collection and are generally recorded only at the collection level. The values related to Spatial Domain are used at both the granule and collection level.

The Federal Geographic Data Committee (FGDC) document, Content Standards for digital Geospatial Metadata, is used wherever it is applicable to ECS data requirements as a means to achieve community standardization in searching for data.

The LocalitySpatial Module is illustrated in Figure 6-6.

6.3.6 LocalityTemporal

Temporal extent of data, of a geophysical event, of a region, or of a season are all defined using the object classes and attributes found in this module. These definitions are closely associated with spatial extent data. All locality types may vary in spatial extent for a given time period. Each of the time options may be used to describe a collection while a subset is used for granules.

The FGDC document, as mentioned in Paragraph 6.3.3, is used wherever the FGDC data is consistent with the ECS data requirements to comply with community standards for searching.

The LocalityTemporal Module is illustrated in Figure 6-7.

6.3.7 Contact

The point of contact information for any of the various ECS data objects are defined using the classes and attributes in this module.

The Contact Module is illustrated in Figure 6-8.

6.3.8 Delivered Algorithm Package

This module represents algorithms generated directly from the specifications of the checklist for Algorithm Integration and Test. It is derived from requirements for items to be delivered by data producers. Its content is based directly on the DID205 sections addressing these issues. Many of these classes are non-database data objects which are necessarily connected to the database attributes but whose content is specified separately.

The DeliveredAlgorithmPackage Module is illustrated in Figure 6-9.

6.3.9 Document

Document information is populated in the metadata to support search, display, and retrieval of various documents (e.g., guide, reference papers) stored in other media. These guides and other documents describe scientific work associated with the ECS data as well as a variety of other information. Not all document metadata are included in this module, see also the Collection module. A number of pointers to other (non-database) data objects are included. There are separate specifications for these. The existence of the associations with the pointer classes indicates that database links to these objects must exist.

The Document Module is illustrated in Figure 6-10.

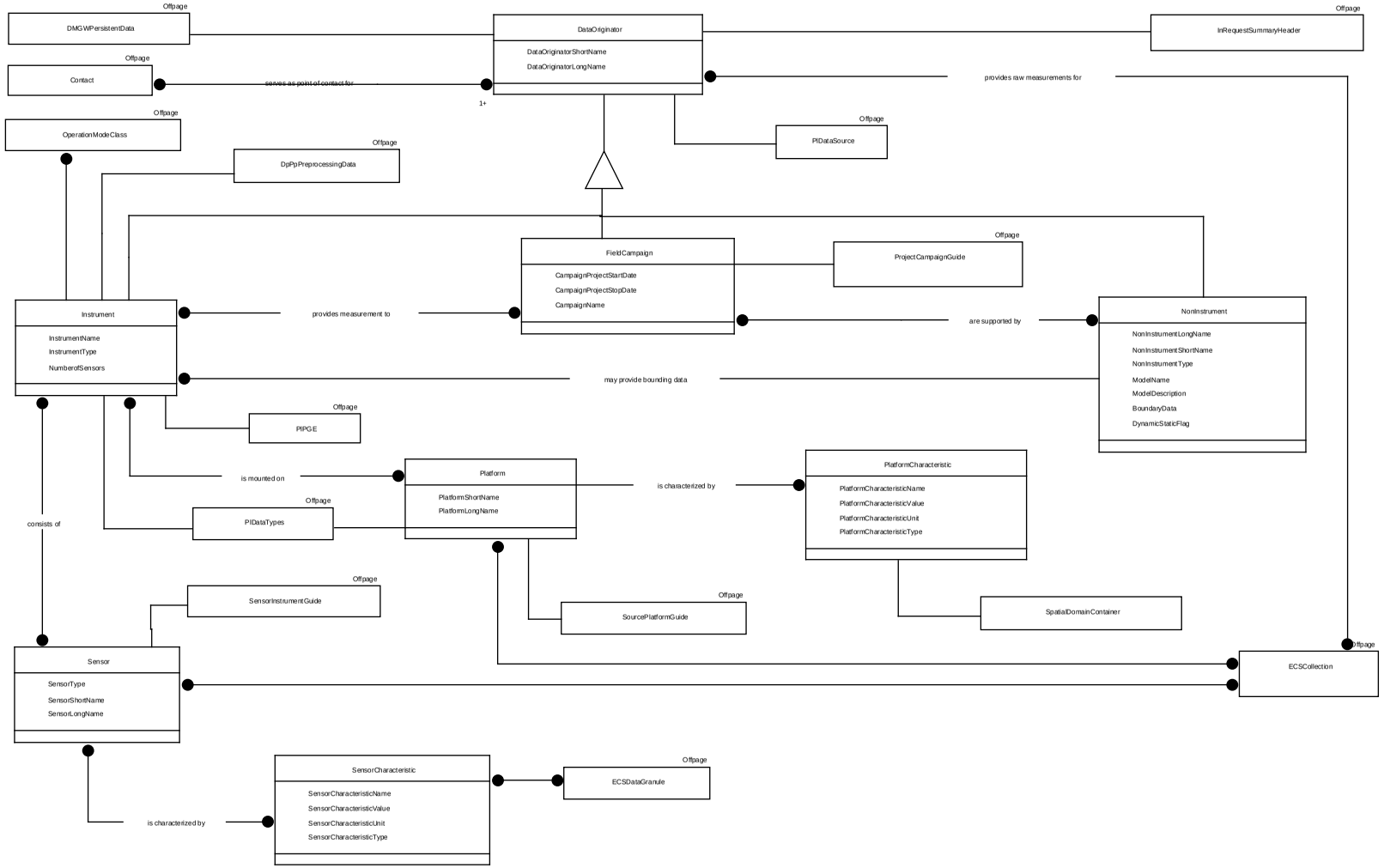

Figure 6-3. DataOriginator

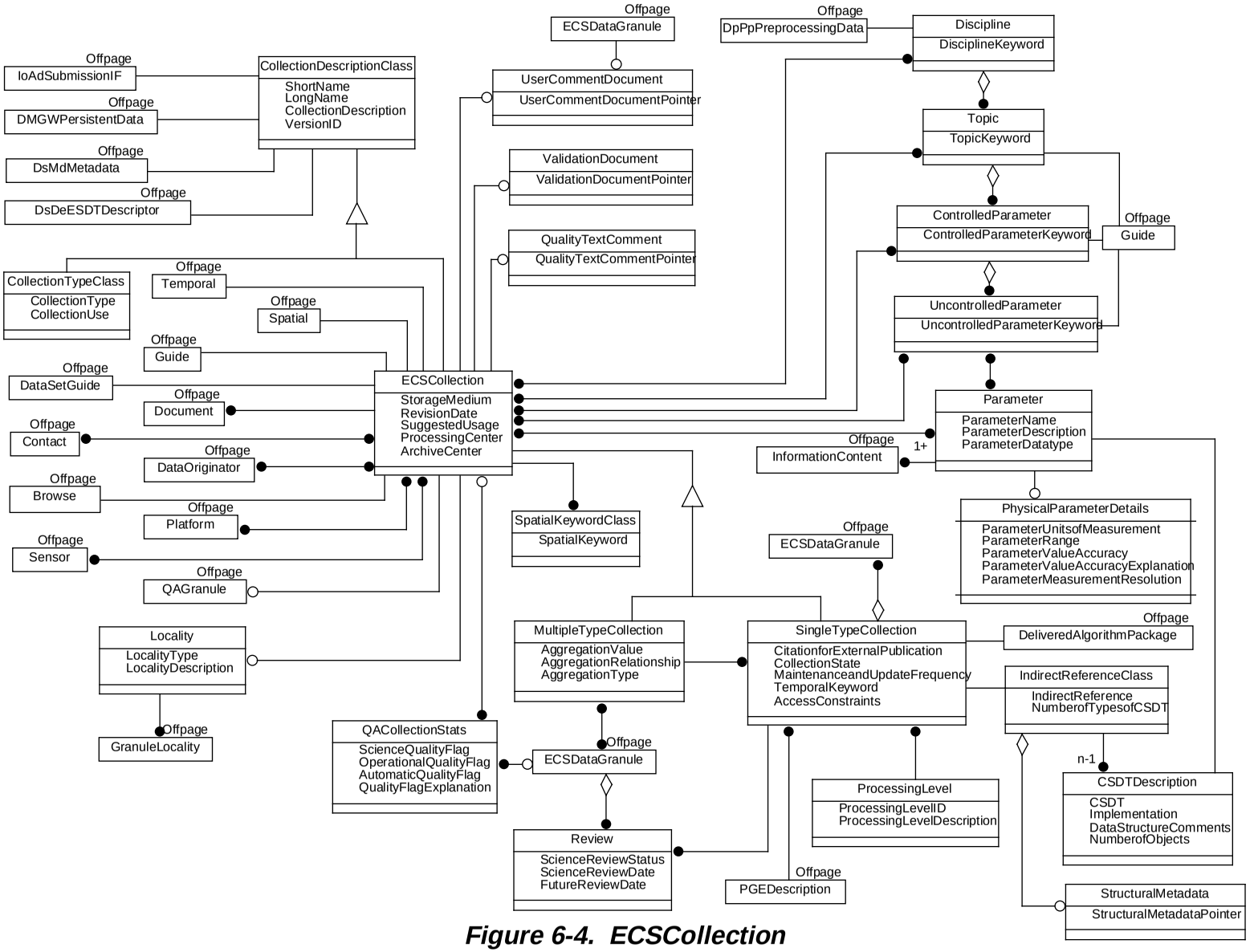

Figure 6-4. ECSCollection

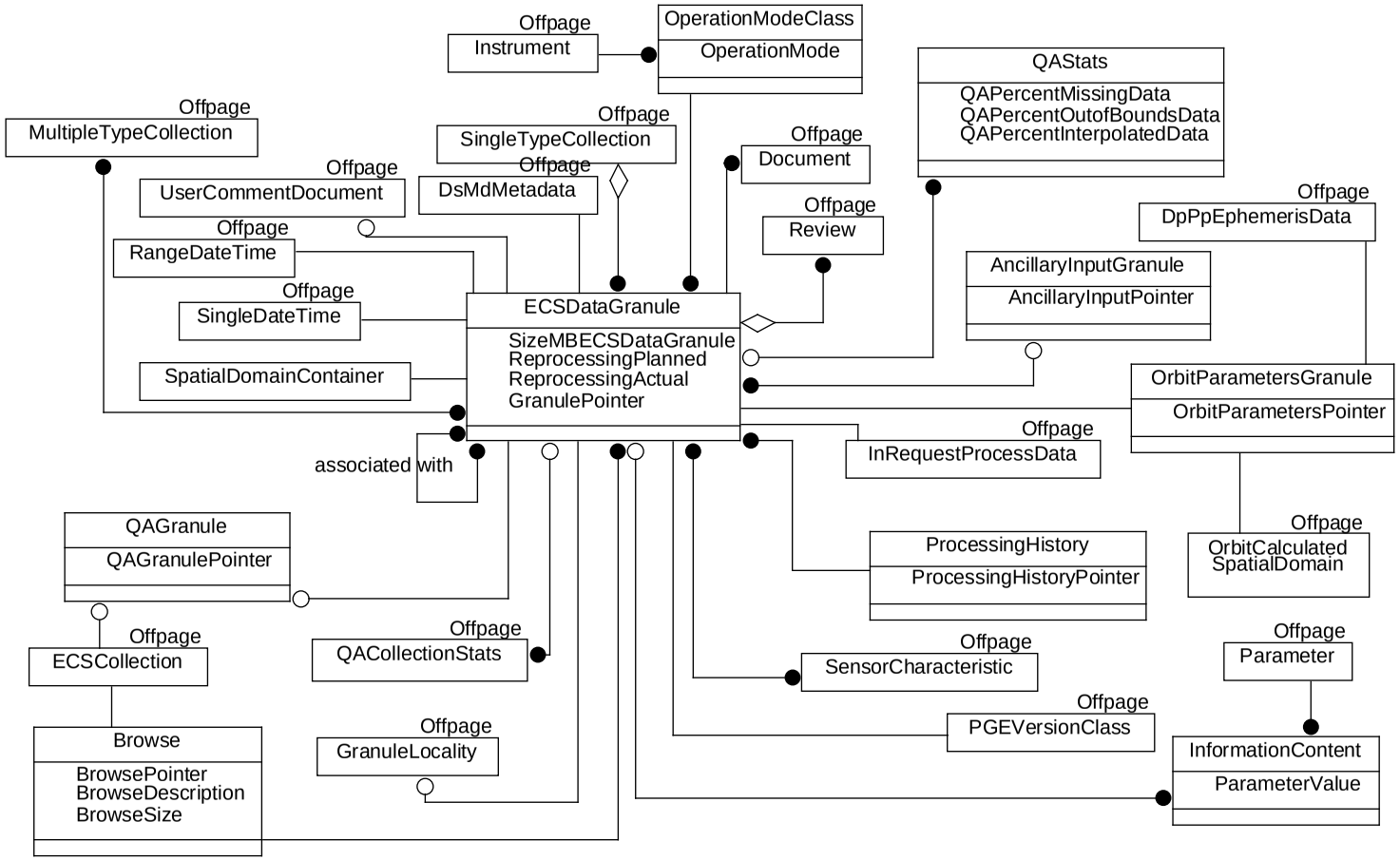

Figure 6-5. ECSDataGranule

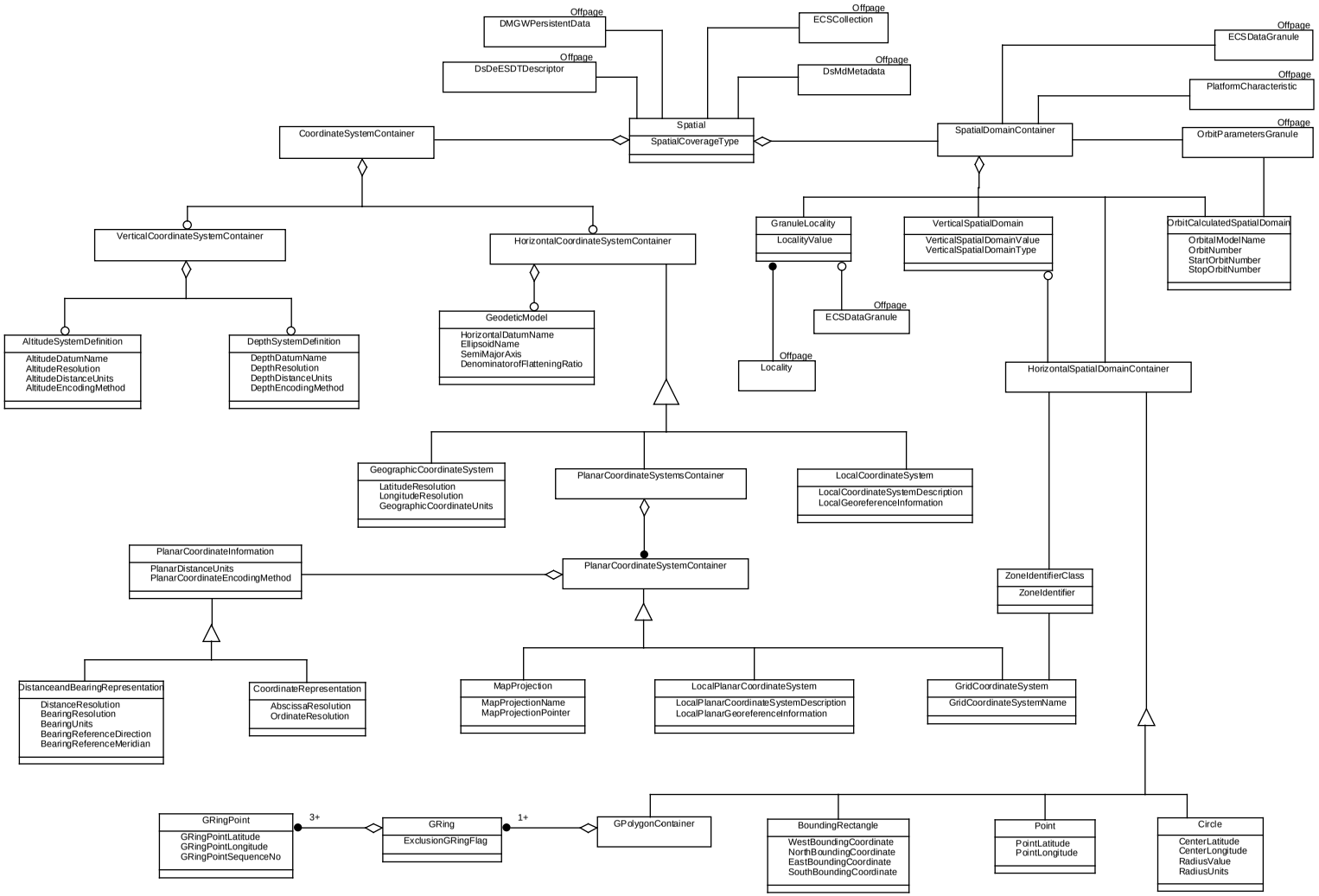

Figure 6-6. LocalitySpatial

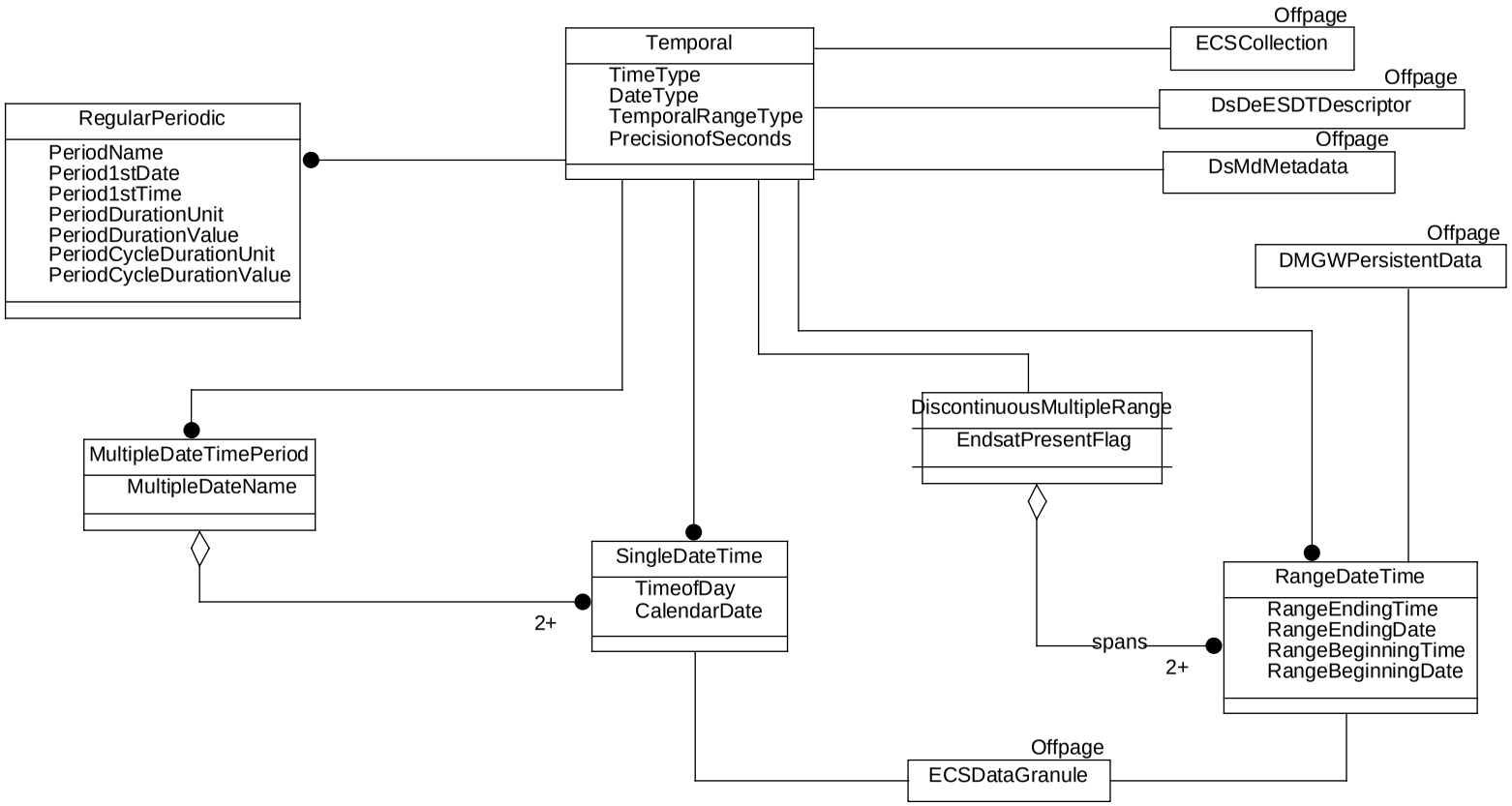

Figure 6-7. LocalityTemporal

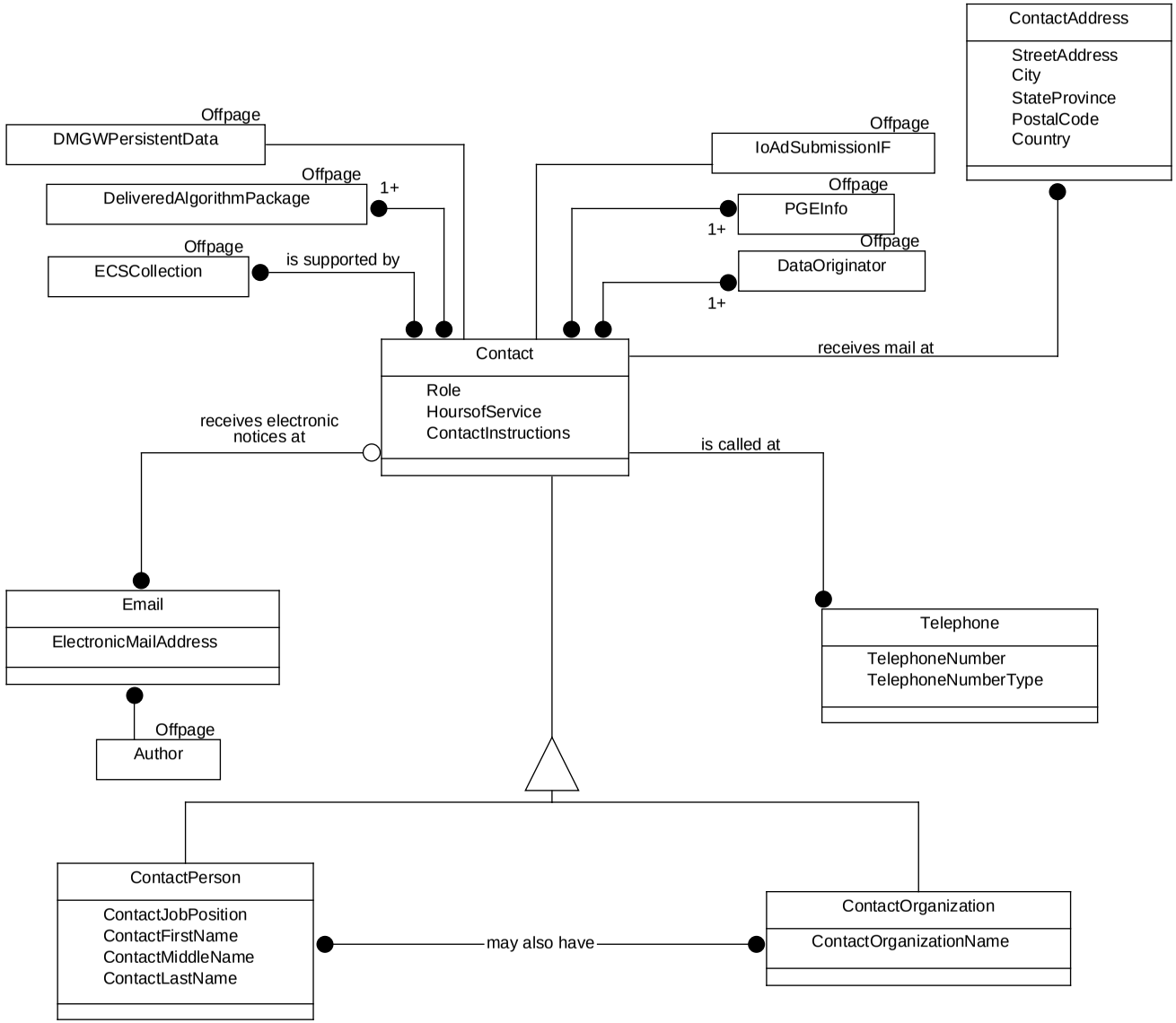

Figure 6-8. Contact

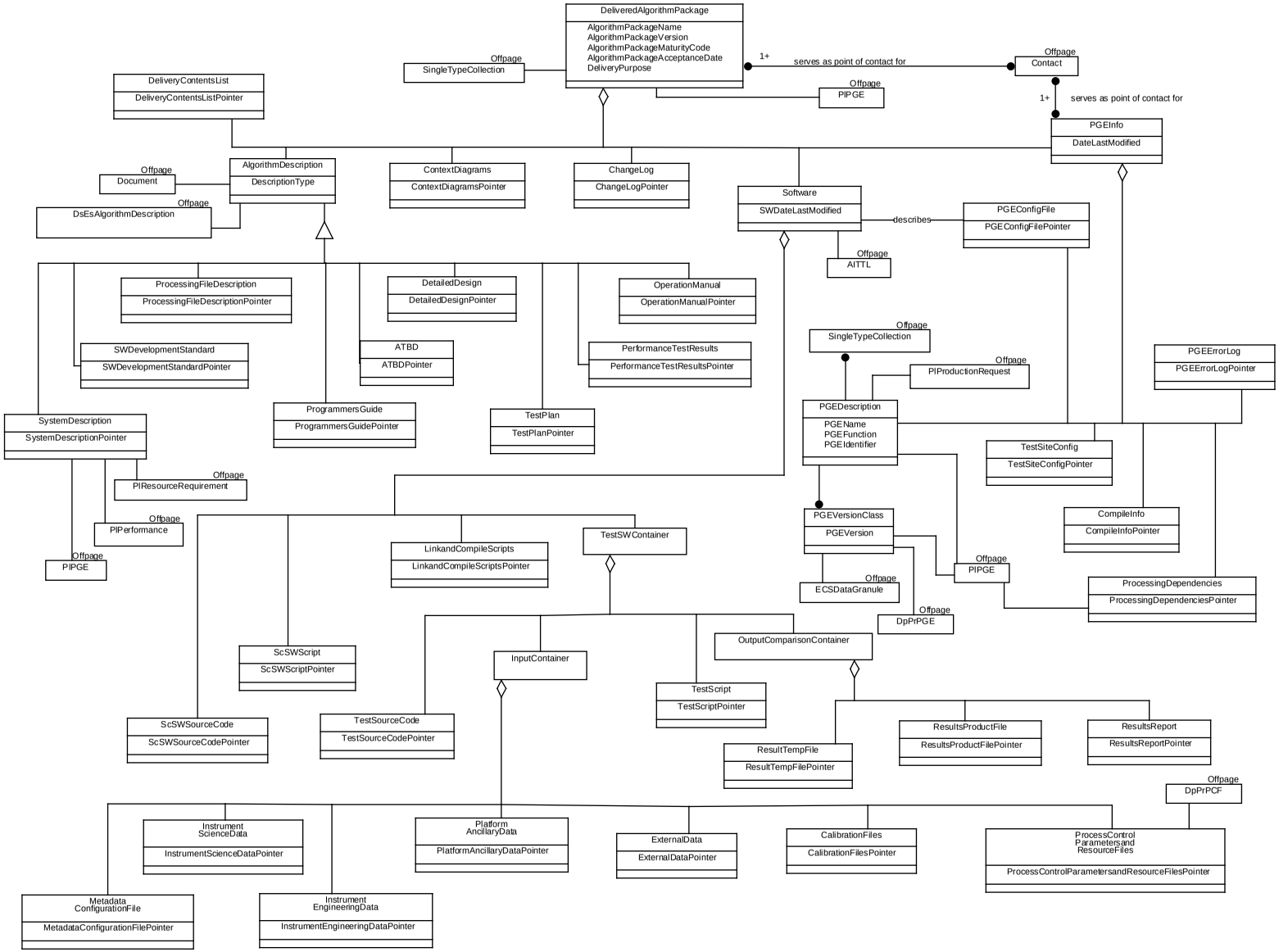

Figure 6-9. DeliveredAlgorithmPackage

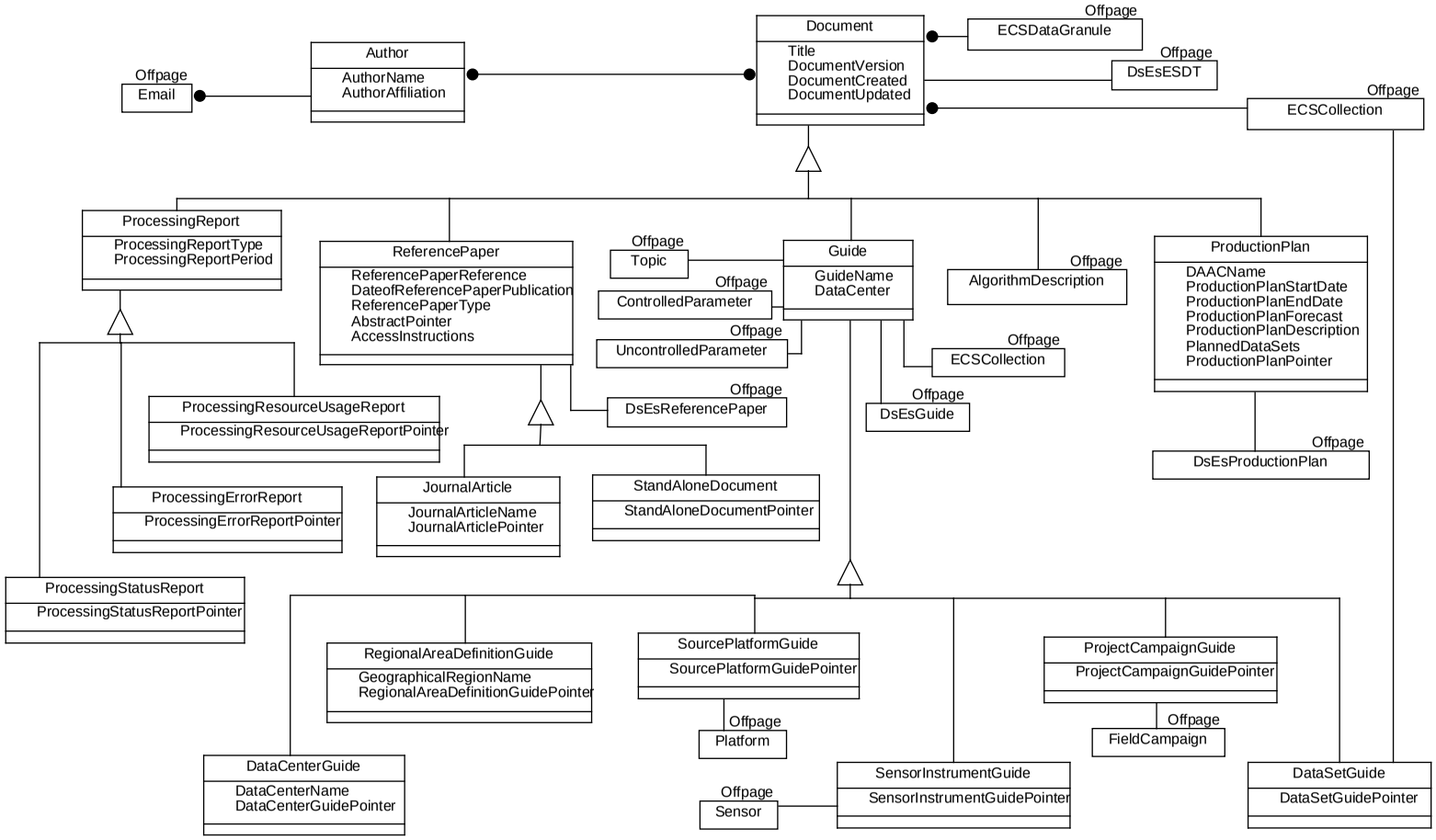

Figure 6-10. Document

6.4 Earth Science Metadata Specifications

A description of the content of the attribute specifications found within the StP/OMT CASE tool are presented in the following list. Each attribute will contain all information described however, for some attributes some information is not relevant and therefore blank. Text within single quotes is taken from the Notation Summary of the StP/OMT Release 2 documentation.

- **Module.** The name of the Diagram. The diagram represents a logical segment of the Conceptual Object Model.
- **Class.** This is the name of the object to which the attribute belongs. Class is defined as the 'group of objects that share similar or identical attributes, operations and associations with other classes'.
- **Attribute.** 'An attribute is a characteristic of a class with a set of data values held by each instance of the class'.
- **Attribute Description.** This provides a description of the attribute.
- **Content Source.** This is used for identifying the source of the data content for the attribute. This is one of the following:
  - DP Data Producer; meaning instrument team, PI or other qualified person. This source usually implies the one-time population of collection level metadata.
  - PGE Product Generation Executive; the science software which produces most of the granule level metadata.
  - PLS Planning subsystem; which provide reports and plans to the database.
  - DPS Data Processing Subsystem; which supports the integration and test of science software.
  - DSS Data Server Subsystem; which provide database pointers or references to archived data objects.
  - DAAC Distributed Active Archive Center; where operations staff assist DP in the population process.
- **Alias.** This column accommodates equivalent data with different external names (e.g., relational table name, V0 attribute name, end-user/client interface name.)
- **Domain Value.** This is the valid data values or a range of valid values (for integers) that are validated during data population or update.
- **Domain Description.** Provides essential information to understand the content of the valid values. Additionally, formation is provided when there is a product specific domain.
- **Data Type.** Type and length will be combined in a single item. Length is shown as a numeric value enclosed within parenthesis. For types "int" (short for integer), "bin" (short for binary), and "float" (short for floating point), a "+" or "-" may be added as a prefix where a signed numeric value is represented.
  - "int" for ASCII whole number. e.g., int(8) would indicate an ASCII number eight digits in length

- "float " for any ASCII number with a fractional part. e.g., float(10)(2) where "(10)(2)" would indicate a ten digit ASCII number with two decimal places.
- "bin" for a binary value. e.g., bin(1) is a binary value of length 1
- "string" for any ASCII string of alphanumeric characters having an exact length. e.g., string(80) is any stored value requiring exactly 80 characters.
- "varstring" for any ASCII string of variable length values with the maximum length of the string enclosed within the parenthesis
- "date " "YYYYMMDD" ASCII numeric format with significant zeroes embedded. Reference the FGDC guidelines, 8 June 1994, Page ix. "A.D. Era to December 31, 9999 A.D. -- Values for day and month of year, and for years, shall follow the calendar date convention (general forms of YYYY for years: YYYYMM for month of a year (with month being expressed as an integer), and YYYYMMDD for a day of the year) specified in American National Standards Institute, 1986, Representation for calendar date and ordinal date for information interchange (ANSI X3.30-1985): ...Adopted as FIPS 4-1."
- "time" Universal Time (Greenwich Mean Time.) HHMMSSSSSSZ (there is an implied decimal point after the first 2 S's.) Reference the FGDC guidelines, 8 June 1994, Page x. (Standard for Universal Time ANSI X3.51-1975.) Adopted as FIPS 59. The data is stored without the Z notation. The Z is implied and may be inserted or converted to other standard time through software execution.
- "datetime" indicates a concatenation of "data" and "time" within the same attribute.

• Units. Where applicable the units column will include the standard abbreviation from the FGDC. If the abbreviation does not exist in the FGDC, the units abbreviation is referenced from the "Webster's II new Riverside University Dictionary" (e.g., km). Where the units is not applicable to the attribute, an "NA" will appear in the units column.

• Default Values. If no value appears in this column and no constraints or domain values are indicated, the DBMS default is considered valid. The column may contain any of the following depending upon the specific constraint identified in the constraint column reflecting the business rule for the instance of the attribute:
  - null
  - Blank
  - Zeroes
  - "valids", (e.g., "Earth Science" as a valid for the attribute "DisciplineKeyword")

• Constraints. This is where other unique characteristics of the data or relationship of the data to other data are shown. Where there is indication of "not null" inserted in this column, the instance of the object within which it is contained is invalid if a value is not available.

The attribute specifications report is in alphabetic order by attribute. The report is produced through execution of a script which uses the "dataengineer" system of the StP/OMT tool as input.

Attribute: AbscissaResolution
Module Name: LocalitySpatial_v1
Class Name: CoordinateRepresentation
Attribute Description:
The (nominal) minimum distance between the 'x' or column values of two adjacent points, expressed in Planar Distance Units of measure.
Planar Distance Units of measure are units used for distances whose domain values are meters, international feet, and survey feet.
Content Source:
DP
Content Source:

Alias:

Constraints:
Abscissa Resolution > 0.0
Default Value: null
Datatype: float(7)_(3)
Units: Planar Distance Units
Domain Value:
Domain Description:

Attribute: AbstractPointer
Module Name: Document_v1
Class Name: ReferencePaper
Attribute Description:
Pointer to a specification for the reference paper article.
Content Source:
DP
Alias:

Constraints:
if abstract exists (must for all papers), this must exist.
Default Value: null
Datatype: varstring(255)
Units:
Domain Value:
Domain Description:

Attribute: AccessConstraints
Module Name: Collection_v1
Class Name: SingleTypeCollection
Attribute Description:
Restrictions and legal prerequisites for accessing the collection. These include any access constraints applied to assure the protection of privacy or intellectual property, and any special restrictions or limitations on obtaining the collection.

These restrictions differ from Use Restrictions in that they only apply to access.
Content Source:
DP; DAAC
Alias:
DIF=Summary
Constraints:

Default Value: none
Datatype: varstring(255)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: AccessInstructions
Module Name: Document_v1
Class Name: ReferencePaper
Attribute Description:
Instructions describing how to obtain electronic access to a stand-alone document. May simply be an anonymous ftp site address, or a World Wide Web homepage URL. Data Provider Sites may establish additional instruction requirements.
Content Source:
DP
Content Source:
DAAC
Alias:

Constraints:
if reference papers utilized, this must exist.
Default Value: null
Datatype: string(255)
Units: NA
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: AggregationRelationship
Module Name: Collection_v1
Class Name: MultipleTypeCollection
Attribute Description:
This attribute identifies the relationship between the aggregation attribute and its corresponding value. This relationship may be expressed as boolean operations i.e. '=, <, >, ne'
Content Source:
Data Provider
Alias:

Constraints:
If AggregationType and AggregationValue exist then AggregationRelationship must exist.
Default Value: null
Datatype: string(2)
Units: NA
Domain Value: =
Domain Description:
Equal
Domain Value: GT
Domain Description:
Greater Than
Domain Value: LT
Domain Description:
Less Than
Domain Value: NE
Domain Description:
Not Equal
Domain Value: GE
Domain Description:
Greater than or Equal
Domain Value: LE
Domain Description:
Less than or Equal

Attribute: AggregationType
Module Name: Collection_v1
Class Name: MultipleTypeCollection
Attribute Description:
This attribute will contain the criteria by which multi-type collections have been grouped. It will describe the major categorization which applies to the data therein. Possible collection groupings include: INSTRUMENT, for all data associated with a given collecting instrument such as CERES--this is a common aggregation criteria for ECS 'datasets'; PROJECT, for all data associated with a given project that may or may not be related to a single instrument, such as

FIRE--this is again a common aggregation criteria for ECS 'datasets'; PARAMETER, for all granules that reflect measurements of a single specific (or related group of specific) geophysical parameters, such as CLOUD PROPERTIES--this is often an aggregation criteria for ECS 'products'; SUPERGRANULE, for collections of granules that a data provider wishes to be orderable as a single related grouping, such as SSM/I TIME SERIES--this is a concept adopted from MSFC use; EVENT, for a predetermined/tagged set of granules that have been found to be related to a particular geophysical phenomena or event, such as MIDWEST FLOOD '93 or OZONE HOLE or MT. PINATUBO--this is a new ECS concept, also suggested by the University of Virginia Atmospheric researchers.

Content Source:
Data Provider

Alias:
DIF=General Keyword

Constraints:
If AggregationValue and AggregationRelationship exist then AggregationType must exist.

Default Value:	null
Datatype:	string(20)
Units:	NA
Domain Value:	INSTRUMENT
Domain Description:	
Domain Value:	PROJECT
Domain Description:	
Domain Value:	PARAMETER
Domain Description:	
Domain Value:	SUPERGRANULE
Domain Description:	
Domain Value:	EVENT
Domain Description:	
Domain Value:	Season
Domain Description:	
Domain Value:	Region
Domain Description:	
Domain Value:	Free Text
Domain Description:	

Attribute: AggregationValue
Module Name: Collection_v1
Class Name: MultipleTypeCollection
Attribute Description:
This attribute contains the value associated with the aggregation type. An example may be EVENT (aggregation type) = MIDWEST FLOOD '93 (aggregation value). MIDWEST FLOOD '93 would be the value associated with the event or aggregation type.
Content Source:
Data Provider
Alias:

Constraints:
If AggregationType and AggregationRelationship exist then AggregationValue must exist.
Default Value: null
Datatype: string(80)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: AlgorithmPackageAcceptanceDate
Module Name: DeliveredAlgorithmPackage_v1
Class Name: DeliveredAlgorithmPackage
Attribute Description:
This attribute specifies the date that this package version successfully passed AI&T procedures and was accepted as ECS standard algorithm.
Content Source:
Algorithm Integration and Test
Alias:

Constraints:
If Delivered Algorithm Package is utilized then AlgorithmPackageAcceptanceDate must exist.
Default Value: null
Datatype: date
Units:
Domain Value:
Domain Description:

Attribute: AlgorithmPackageMaturityCode
Module Name: DeliveredAlgorithmPackage_v1
Class Name: DeliveredAlgorithmPackage
Attribute Description:
This specifies the maturity of the algorithm package as a whole. Maturity code plus version number tells version state.
Content Source:
DP
Alias:

Constraints:
If Delivered Algorithm Package is utilized then AlgorithmPackageMaturityCode must exist.
Default Value: null
Datatype: string(10)
Units: NA
Domain Value: pre-launch
Domain Description:
preflight development code
Domain Value: preliminary
Domain Description:
EOS platform is flying development code at best; frequently changing, not stable.
Domain Value: operational
Domain Description:
production code, will change, but not frequently; preliminary validation has been done.
Domain Value: stable
Domain Description:
code stable and has been fully validated.
Domain Value: final
Domain Description:
final version of code, mission is over.

Attribute: AlgorithmPackageName
Module Name: DeliveredAlgorithmPackage_v1
Class Name: DeliveredAlgorithmPackage
Attribute Description:
This attribute is the name given to the complete delivered package submitted for algorithm integration and test.
Content Source:
DP
Alias:

Constraints:
If Delivered Algorithm Package is utilized then AlgorithmPackageName must exist.

Default Value: null
Datatype: string(80)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: AlgorithmPackageVersion
Module Name: DeliveredAlgorithmPackage_v1
Class Name: DeliveredAlgorithmPackage
Attribute Description:
This attribute specifies the version of the full package being delivered.
Content Source:
DP
Alias:

Constraints:
If Delivered Algorithm Package is utilized then AlgorithmPackageVersion must exist.
Default Value: null
Datatype: string(20)
Units: NA
Domain Value:
Domain Description:

Attribute: AltitudeDatumName
Module Name: LocalitySpatial_v1
Class Name: AltitudeSystemDefinition
Attribute Description:
The identification given to the level surface taken as the surface of reference from which altitudes are measured.
Content Source:
DP
Alias:

Constraints:
AltitudeDatumName is mandatory if AltitudeSystemDefinition class is applicable.
Default Value: null
Datatype: string(40)
Units:
Domain Value: National Geodetic Vertical Datum of 1929
Domain Description:

Domain Value: North American Vertical Datum of 1988
Domain Description:

Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: AltitudeDistanceUnits
Module Name: LocalitySpatial_v1
Class Name: AltitudeSystemDefinition
Attribute Description:
Units in which altitudes are recorded.
Content Source:
DP
Alias:
LARC_FIRE Spatial Resolution
Constraints:
LARC_FIRE Only if products=Fire-CI2-Raman-Lidar
Constraints:
AltitudeDistanceUnits is mandatory if AltitudeSystemDefinition class is applicable.
Default Value: null
Datatype: string(20)
Units:
Domain Value: meters
Domain Description:

Domain Value: feet
Domain Description:

Domain Value: millibars
Domain Description:
Used to measure pressure levels.
Domain Value: theta value
Domain Description:
Units used to measure geopotential height.
Domain Value: cloud layer
Domain Description:
For products containing atmospheric properties at several cloud layers, such as CERES data.
Domain Value: atmosphere layer
Domain Description:
e.g. troposphere, TOA, stratosphere, surface.
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: AltitudeEncodingMethod
Module Name: LocalitySpatial_v1
Class Name: AltitudeSystemDefinition
Attribute Description:
The means used to encode the altitudes.Mandatory whenever the value of Altitude Distance Units is 'atmosphere layers', to make sure that the user/reader will know how Top Of Atmosphere (TOA) is defined for this data.
Content Source:
DP
Alias:

Constraints:
AltitudeEncodingMethod is mandatory if AltitudeDistanceUnits = 'atmosphere layer'
Default Value: null
Datatype: varstring(255)
Units:
Domain Value: Implicit coordinate
Domain Description:

Domain Value: Attribute Values
Domain Description:

Domain Value: Explicit elevation coordinate included with horizontal coordinates
Domain Description:

Attribute: AltitudeResolution
Module Name: LocalitySpatial_v1
Class Name: AltitudeSystemDefinition
Attribute Description:
The minimum distance possible between two adjacent altitude values, expressed in Altitude Distance Units of measure.
Content Source:
DP
Alias:

Constraints:
Altitude Resolution > 0.0
Default Value: null
Datatype: float(var)
Units: Altitude Distance Units
Domain Value:
Domain Description:

Attribute: AncillaryInputPointer
Module Name: Granule_v1
Class Name: AncillaryInputGranule
Attribute Description:
Data model reference to ancillary input data information.
Content Source:
DSS
Alias:

Constraints:
If ancillary data exists then AncillaryInputPointer exists.
Default Value:
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: ArchiveCenter
Module Name: Collection_v1
Class Name: ECSCollection
Attribute Description:
Center where collection is archived.
Content Source:
DAAC
Alias:

Constraints:
not null
Default Value:
Datatype: string(20)
Units: NA
Domain Value: GSFC
Domain Description:
Goddard Space Flight Center
Domain Value: LaRC
Domain Description:
Langley Research Center
Domain Value: ORNL
Domain Description:
Oak Ridge National Laboratory
Domain Value: EDC
Domain Description:
EROS Data Center

Domain Value: NSIDC
Domain Description:
National Snow and Ice Data Center
Domain Value: JPL
Domain Description:
Jet Propulsion Laboratory
Domain Value: CEISIN
Domain Description:
Consortium for International Earth Science Information Network
Domain Value: Free Text
Domain Description:

Attribute: ATBDPointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: ATBD
Attribute Description:
Data model reference to the document specification.
Content Source:
DSS
Alias:

Constraints:
If ATBD exists then ATBDPointer exists.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: AuthorAffiliation
Module Name: Document_v1
Class Name: Author
Attribute Description:
The name of an agency or center with which the author of the document works for or is affiliated with.
Content Source:
DP
Alias:

Constraints:

Default Value:
Datatype: string(64)
Units: NA
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: AuthorName
Module Name: Document_v1
Class Name: Author
Attribute Description:
The name of the author of the document.
Content Source:
DP
Alias:

Constraints:

Default Value:
Datatype: string(64)
Units:
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: AutomaticQualityFlag
Module Name: Collection_v1
Class Name: QACollectionStats
Attribute Description:
The collection and granule level flag applying both generally to the whole collection and granule and specifically to parameters at both granule and collection level. When applied to parameter, the flag refers to the quality of that parameter in the collection or granule (as applicable). The parameters determining whether the flag is set are defined by the developer and documented in the Quality Flag Explanation.
Content Source:
PGE; DP
Alias:
DIF=Quality
Constraints:
One flag from QACollectionStats must exist.
Default Value:
Datatype: string(64)

Units: NA
Domain Value: pass
Domain Description:
The collection or granule (for {parameter}) has passed a specified automatic test.
Domain Value: fail
Domain Description:
The collection or granule (for {parameter name}) has failed a specified automatic test.
Domain Value: NA
Domain Description:

Attribute: BearingReferenceDirection
Module Name: LocalitySpatial_v1
Class Name: DistanceandBearingRepresentation
Attribute Description:
Direction from which the bearing is measured.
Content Source:
DP
Alias:

Constraints:

Default Value: null
Datatype: string(20)
Units:
Domain Value: North
Domain Description:

Domain Value: South
Domain Description:

Attribute: BearingReferenceMeridian
Module Name: LocalitySpatial_v1
Class Name: DistanceandBearingRepresentation
Attribute Description:
Axis from which the bearing is measured.
Content Source:
DP
Alias:

Constraints:
BearingReferenceMeridian is mandatory if DistanceandBearingRepresentation class is applicable.
Default Value:
Datatype: varstring(255)
Units:
Domain Value: Assumed
Domain Description:

Domain Value: Grid
Domain Description:

Domain Value: Magnetic
Domain Description:

Domain Value: Astronomic
Domain Description:

Domain Value: Geodetic
Domain Description:

Attribute: BearingResolution
Module Name: LocalitySpatial_v1
Class Name: DistanceandBearingRepresentation
Attribute Description:
The minimum angle measurable between two points, expressed in Bearing Units of measure.
Content Source:
DP
Alias:

Constraints:
Bearing Resolution > 0.0
Constraints:
BearingResolution is mandatory if DistanceandBearingRepresentation class is applicable.
Default Value:
Datatype: float(16)_(8)
Units: Bearing Units
Domain Value: > 0.0
Domain Description:

Attribute: BearingUnits
Module Name: LocalitySpatial_v1
Class Name: DistanceandBearingRepresentation
Attribute Description:
Units of measure used for angles.
Content Source:
DP
Alias:

Constraints:
BearingUnits is mandatory if DistanceandBearingRepresentation class is applicable.
Default Value:
Datatype: varstring(255)
Units: NA
Domain Value: Decimal degrees
Domain Description:

Domain Value: Decimal minutes
Domain Description:

Domain Value: Decimal seconds
Domain Description:

Domain Value: Degrees and decimal minutes
Domain Description:

Domain Value: Degrees, minutes, and decimal seconds
Domain Description:

Domain Value: Radians
Domain Description:

Domain Value: Grads
Domain Description:

Domain Value: Free Text
Domain Description:

Attribute: BoundaryData
Module Name: DataOriginator_v1
Class Name: NonInstrument
Attribute Description:
Data which defines the boundary conditions within which the model is valid. e.g. Bouys, ships, etc.
Content Source:
DP
Alias:

Constraints:

Default Value:
Datatype: string(40)
Units: NA
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: BrowseDescription
Module Name: Granule_v1
Class Name: Browse
Attribute Description:
Textual description of the Browse granule.
Content Source:
DP
Alias:

Constraints:

Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: BrowsePointer
Module Name: Granule_v1
Class Name: Browse
Attribute Description:
Data model specific reference to the browse file.
Content Source:
DSS
Alias:

Constraints:
If browse product exists then BrowsePointer exists.
Default Value: NA
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: BrowseSize
Module Name: Granule_v1
Class Name: Browse
Attribute Description:
Size of Browse Product in MB.
Content Source:
PGE
Alias:

Constraints:
assumed to be < 1 MB
Default Value: null
Datatype: float(5)_(3)
Units:
Domain Value: Free Numerics
Domain Description:

Attribute: CalendarDate
Module Name: LocalityTemporal_v1
Class Name: SingleDateTime
Attribute Description:
The year (and optionally month, or month and day). This attribute is used to specify a single date covered by a data collection, granule, or event. The
Content Source:
DP(collection);PGE(granule)
Alias:

Constraints:
CalendarDate is mandatory if SingleDateTime class is used.
Default Value: null
Datatype: date
Units:
Domain Value: UNKNOWN
Domain Description:
If the date is not available, the textual value 'unknown' can be entered instead of a given date.

Attribute: CalibrationFilesPointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: CalibrationFiles
Attribute Description:
Data model reference to document specification.
Content Source:
DSS
Alias:

Constraints:
If Calibration File exists then CalibrationFilesPointer must exist.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: CampaignName
Module Name: DataOriginator_v1
Class Name: FieldCampaign
Attribute Description:
The name of the field campaign or project which is responsible for providing the data.
Content Source:
DP
Alias:

Constraints:

Default Value:
Datatype: string(80)
Units: NA
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: CampaignProjectStartDate
Module Name: DataOriginator_v1
Class Name: FieldCampaign
Attribute Description:
Date when project or campaign began its data collection activity.
Content Source:
DP
Alias:

Constraints:

Constraints:
CampaignProjectStartDate < CampaignProjectStopDate
Default Value:
Datatype: date
Units:
Domain Value:
Domain Description:

Attribute: CampaignProjectStopDate
Module Name: DataOriginator_v1
Class Name: FieldCampaign
Attribute Description:
Actual or projected date when campaign or project ceases its data collection activity.
Content Source:
DP
Alias:

Constraints:
CampaignProjectStopDate > CampaignProjectStartDate
Default Value:
Datatype: date
Units:
Domain Value:
Domain Description:

Attribute: CenterLatitude
Module Name: LocalitySpatial_v1
Class Name: Circle
Attribute Description:
Latitude of center of locality.
Content Source:
DP(collection);PGE(granule)
Alias:

Constraints:
West,East,North,South Bounding Coordinate not allowed with center lat/lon
Constraints:
=> -90.0
Constraints:
<= +90.0
Default Value: null
Datatype: float(10)_(6)
Units: Decimal Degrees
Domain Value:
Domain Description:

Attribute: CenterLongitude
Module Name: LocalitySpatial_v1
Class Name: Circle
Attribute Description:
Longitude of approximate center of locality.
Content Source:
DP(collection);PGE(granule)
Alias:

Constraints:
Not to be used with West,East,North,South Bounding Coordinates.
Constraints:
<= +180.0
Constraints:
=> -180.0
Default Value: null
Datatype: float(11)_(6)
Units: Decimal Degrees
Domain Value:
Domain Description:

Attribute: ChangeLogPointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: ChangeLog
Attribute Description:
Data model reference to the document specification.
Content Source:
DSS
Alias:

Constraints:
If Change Log exists then ChangeLogPointer must exist.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: CitationforExternalPublication
Module Name: Collection_v1
Class Name: SingleTypeCollection
Attribute Description:
The recommended reference to be used when referring to this collection in publications. Its format is free text, but should include: Orginator (the name of an organization or individual that developed the data set, where Editor(s)' names are followed by (ed.) and Compiler(s)' names are followed by (comp.)); Publication date (the date of publication or release of the data set); Title (the name by which document can be referenced).
Content Source:
DP
Alias:
DIF=Entry Title, Edition, Originator, or Publication Date
Constraints:

Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: City
Module Name: Contact_v1
Class Name: ContactAddress
Attribute Description:
The city of the person or organization.
Content Source:
DP
Alias:
DIF=Address
Constraints:

Default Value: null
Datatype: string(30)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: CollectionDescription
Module Name: Collection_v1
Class Name: CollectionDescriptionClass
Attribute Description:
This attribute identifies the major emphasis of the content of the collection or granule. Some suggestions are: 'all products generated from instrument X', or 'all products containing the parameter sea surface temperature as skin temp'.
Content Source:
DP
Alias:
DIF=Directory Entry Title
Constraints:
not null
Default Value:
Datatype: varstring(255)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: CollectionState
Module Name: Collection_v1
Class Name: SingleTypeCollection
Attribute Description:
This attribute describes the state of the collection, whether it is planned but not yet existent, partially complete due to continual additions from remotely sensed data/processing/reprocessing, or is considered a complete product/dataset.
Content Source:
DP
Alias:

Constraints:

Default Value: none
Datatype: varstring(255)
Units: NA
Domain Value: Completed
Domain Description:
All currently planned collection, processing, and reprocessing are complete for this product/ dataset/collection.
Domain Value: In Work
Domain Description:
Data is currently either being collected, processed, or reprocessed for this product/dataset/ collection.

Domain Value: Planned
Domain Description:
Data has not yet been collected or processed for this product/dataset/collection, possible candidate for consideration in the collection.

Attribute: CollectionType
Module Name: Collection_v1
Class Name: CollectionTypeClass
Attribute Description:
Type of associated collection being described. Used to describe the 'geneology' of the collection in terms of other collections.
Content Source:
DP
Alias:

Constraints:
Must exist when Collection Use is used.
Default Value: null
Datatype: string(10)
Units: NA
Domain Value: Input
Domain Description:
Collection used as input or ancillary to this collection.
Domain Value: Dependent
Domain Description:
Collections which use this collection as input.
Domain Value: Science Associated
Domain Description:
Collections with which this collection is associated in science terms.

Attribute: CollectionUse
Module Name: Collection_v1
Class Name: CollectionTypeClass
Attribute Description:
Additional comments for all types of associated collections, such as the importance of the input and its use.
Content Source:

Alias:

Constraints:
Must exist when Collection Type is used.

Default Value: null
Datatype: string(500)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: CompileInfoPointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: CompileInfo
Attribute Description:
Data model reference to the document specification.
Content Source:
DSS
Alias:

Constraints:
If CompileInfo exists then CompileInfoPointer must exist.
Default Value:
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: ContactFirstName
Module Name: Contact_v1
Class Name: ContactPerson
Attribute Description:
First name of the individual which the contact role (producer, archiver, distributor,or data originator) applies. People are points of contact, rather than organizations, in cases where the association of the person to the data set is more significant than the association of the organization to the data set. They may also be included if both a single person and organization are provided as points of contact.
Content Source:
DP
Alias:
DIF= Investigator, Technical Contact, or Author
Alias:
DIF=first name
Alias:
Contact Person

Alias:
Contact Person Primary
Constraints:
DIF= Investigator, Technical Contact, or Author dependent upon domain value of Role= 'Investigator', 'Technical Contact', or 'Author'
Constraints:
Mandatory if applicable.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: ContactInstructions
Module Name: Contact_v1
Class Name: Contact
Attribute Description:
Supplemental instructions on how or when to contact the individual or organization.
Content Source:
DP
Alias:

Constraints:

Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: ContactJobPosition
Module Name: Contact_v1
Class Name: ContactPerson
Attribute Description:
The title of the individual, i.e. Team Leader, Principal Investigator.
Content Source:
DP; DAAC
Alias:
DIF=Investigator, Technical Contact, or Data Center Contact

Constraints:
DIF= Investigator, Technical Contact, or Data Center Contact dependent upon Contact(First, Middle, Last)Name.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: ContactLastName
Module Name: Contact_v1
Class Name: ContactPerson
Attribute Description:
Last name of the individual which the contact role (producer, archiver, distributor,or data originator) applies. People are points of contact, rather than organizations, in cases where the association of the person to the data set is more significant than the association of the organization to the data set. They may also be included if both a single person and organization are provided as points of contact.
Content Source:
DP
Alias:
DIF= Investigator, Technical Contact, or Author
Alias:
DIF=last name
Alias:
Contact Person
Alias:
Contact Person Primary
Constraints:
DIF=Investigator, Technical Contact, or Author dependent upon domain value of Role= 'Investigator', 'Technical Contact', or 'Author'
Constraints:
Mandatory if applicable.
Default Value:
Datatype: varstring(255)
Units:
Domain Value: Free Text
Domain Description:

Attribute: ContactMiddleName
Module Name: Contact_v1
Class Name: ContactPerson
Attribute Description:
Middle name of the individual which the contact role (producer, archiver, distributor,or data originator) applies. People are points of contact, rather than organizations, in cases where the association of the person to the data set is more significant than the association of the organization to the data set. They may also be included if both a single person and organization are provided as points of contact.
Content Source:
DP
Alias:
DIF=Investigator, Technical Contact, or Author
Alias:
DIF=middle name
Alias:
Contact Person
Alias:
Contact Person Primary
Constraints:
DIF= Investigator, Technical Contact, or Author dependent upon domain value of Role= 'Investigator', 'Technical Contact', or 'Author'
Constraints:
Mandatory if applicable.
Default Value:
Datatype: varstring(255)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: ContactOrganizationName
Module Name: Contact_v1
Class Name: ContactOrganization
Attribute Description:
The organization and the member of the organization, associated with the data set. Used in cases where the association of the organization to the data set is more significant than the association of the person to the data set.
Content Source:
DP
Alias:
Contact Organization

Alias:
Contact Organization Primary
Alias:
DIF= Originating Center
Alias:
DIF=Data Center Name
Constraints:
DIF= Data Center Name dependent upon domain value of Role='Archive'; DIF=Originating Center dependent upon domain value of Role= 'Producer'
Constraints:
Mandatory if applicable.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: ContextDiagramsPointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: ContextDiagrams
Attribute Description:
Data model reference to document specification.
Content Source:
DSS
Alias:

Constraints:
If Context Diagrams exists then ContextDiagramsPointer must exist.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: ControlledParameterKeyword
Module Name: Collection_v1
Class Name: ControlledParameter
Attribute Description:
Keyword used to describe the science parameter area of the collection. A collection can conceivably cover many such parameters.

Content Source:
DP
Alias:
DIF=Controlled Parameter
Constraints:
not null
Default Value:
Datatype: string(32)
Units: NA
Domain Value: see GCMD, Version 28B Controlled Parameter Keyword List (June 1995)
Domain Description:

Attribute: Country
Module Name: Contact_v1
Class Name: ContactAddress
Attribute Description:
The country of the address.
Content Source:
DP
Alias:
DIF=Address
Constraints:

Default Value: null
Datatype: string(10)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: CSDT
Module Name: Collection_v1
Class Name: CSDTDescription
Attribute Description:
The name of the CSDT type of data organization (data type and sub type). Computer Science Data Types are the physical storage types required to support Earth Science Data Types(ESDTs), the logical objects seen in pyramid views.
Content Source:

Alias:
Data Format
Constraints:
not null
Default Value:
Datatype: string(30)
Units: NA
Domain Value: Plain ASCII Text
Domain Description:
Free-form textual structure for storing labels or long descriptions for display.
Domain Value: RTF Formatted ASCII Text
Domain Description:
Formatted text for transfer in Rich Text Format.
Domain Value: HTML Formatted ASCII Text
Domain Description:
Formatted text for transfer in HyperText Markup Language.
Domain Value: PS Formatted ASCII Text
Domain Description:
Formatted text for transfer in Postscript.
Domain Value: PDF Formatted ASCII Text
Domain Description:
Formatted text for transfer in Portable Document Format.
Domain Value: Binary ACSII Text
Domain Description:
Text and graphics document in document processing application proprietary format.
Domain Value: P=V Metadata
Domain Description:
'Label=Value' where label is a field name and value is either a single value or list of values.
Domain Value: Standard Science Data Table
Domain Description:
Binary and/or ASCII tabular data.
Domain Value: Indexed Science Data Table
Domain Description:
Binary and/or ASCII tabular data which includes indices to other data objects.
Domain Value: Image
Domain Description:
2D raster data type.
Domain Value: n-Dim Array of Records
Domain Description:
Binary n-dimensional array of cells that consist of records. A record can consist of multiple fields of varying type such as integar, floating point and string.
Domain Value: n-Dim Array of Scalars
Domain Description:
Binary n-dimensional array of cells that consist of scalars of a single type. (e.g., one of 8-, 16- or 32-bit signed or unsigned integers; or 32- or 64-bit floating point). Can be conceptually viewed as an instantiation of the Array of Records where each record is a single field.

Domain Value: Projected Grid
Domain Description:
Data which has been projected and binned into a rectangular grid using a known methodology. Metadata seuch as projection name, projection limits, and geometry are included in order to identify geo-location and coverage of grid cells.
Domain Value: Structured Grid
Domain Description:
Data which has been projected and binned into a non-rectilinear data structure using a known methodology. Metadata such as projection name, projection limits, and geometry are included in order to identify geo-location and coverage of data structure cells.
Domain Value: Simple Swath
Domain Description:

Domain Value: Complex Swath
Domain Description:
Created by a sensor making N observations in the across-track direction. The along-track direction causes the footprint to form a ribbon of M scans along the subnadir track. The data forms an array of observations N by M by L (where L is the number of spectral band values taken for each observation time). An additional array of geo-location or observation time data is provided at a resolution equal or lower than the observations. The Complex Swath may have observations of varying resolution.
Domain Value: Standard Point
Domain Description:
Data made up of records and fields with some set of fields constituting a point location. Fields can be of any type. The location fields, taken together, can be considered the 'location record'. Metadata constituting 'header' data which applies to the entire table is included.
Domain Value: Indexed Point
Domain Description:
Data made up of records and fields with some set of fields constituting a point location. Fields can be of any type including pointers. The location fields, taken together, can be considered the 'location record.' Some fields may be repeated for a set of observations; these fields may be separated as part of a 'header', table which would include pointers, offsets, and counts to the repeating data table or tables.
Domain Value: Structure
Domain Description:
Group of datatypes. e.g. HDF Vgroup

Attribute: DAACName
Module Name: Document_v1
Class Name: ProductionPlan
Attribute Description:
The name of the Distributed Active Archive Center which is responsible for the production plan.
Content Source:
DAAC

Alias:

Constraints:

Default Value:
Datatype: string(8)
Units: NA
Domain Value: GSFC
Domain Description:
Goddard Space Flight Center
Domain Value: JPL
Domain Description:
Jet Propulsion Laboratory
Domain Value: LaRC
Domain Description:
Langley Research Center
Domain Value: NSIDC
Domain Description:
National Snow and Ice Data Center
Domain Value: EDC
Domain Description:
Eros Data Center
Domain Value: ORNL
Domain Description:
Oak Ridge National Laboratory
Domain Value: ASF
Domain Description:
Alaska SAR Facility
Domain Value: CIESIN
Domain Description:
Consortium for International Earth Science Information Network

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Attribute: DataCenter
Module Name: Document_v1
Class Name: Guide
Attribute Description:
The data center supporting the information for which the guide is applicable.
Content Source:
DAAC
Alias:

Constraints:

Default Value: null
Datatype: string(8)
Units: NA
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: DataCenterGuidePointer
Module Name: Document_v1
Class Name: DataCenterGuide
Attribute Description:
Pointer to a specification for the Data Center Guide.
Content Source:
DAAC
Alias:

Constraints:
If DataCenterGuide exists then DataCenterGuidePointer exists.
Default Value:
Datatype: string(255)
Units:
Domain Value:
Domain Description:

Attribute: DataCenterName
Module Name: Document_v1
Class Name: DataCenterGuide
Attribute Description:
Contains the name of the Data Center guide document.
Content Source:
DAAC
Alias:

Constraints:

Default Value:
Datatype: string(64)
Units:
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: DataOriginatorLongName
Module Name: DataOriginator_v1
Class Name: DataOriginator
Attribute Description:
The full expansion of the short name of the originator (institution, project, and/or mission) providing measurements for the data collection. Names are often compounds of several types of originators.
Content Source:
DP
Alias:

Constraints:

Default Value:
Datatype: string(80)
Units: NA
Domain Value: free text
Domain Description:
This attribute is unbounded.

Attribute: DataOriginatorShortName
Module Name: DataOriginator_v1
Class Name: DataOriginator
Attribute Description:
The short name or abbreviation of the originator (institution, project, and/or mission) providing measurements for the data collection. Names are often compounds of several types of originators.
Content Source:
DP
Alias:

Constraints:

Default Value:
Datatype: string(20)
Units: NA
Domain Value: free text
Domain Description:
This attribute is unbounded.
Domain Value: NASA
Domain Description:
National Aeronautics and Space Administration
Domain Value: NOAA

Domain Description:
National Oceanic and Atmospheric Administration
Domain Value: UARS
Domain Description:
Upper Atmospheric Research Satellite
Domain Value: DMSP
Domain Description:
Defense Meteorological Satellite Program
Domain Value: MCSST
Domain Description:

Domain Value: NOS/NGS
Domain Description:

Domain Value: ERBE
Domain Description:
Earth Radiation Budget Experiment
Domain Value: FIRE
Domain Description:
First ISCCP Regional Experiment
Domain Value: GTE
Domain Description:

Domain Value: ISCCP
Domain Description:
International Satellite Cloud Climatology Experiment
Domain Value: SAGE1
Domain Description:
Stratospheric Aerosol and Gas Experiment 1
Domain Value: SAGE2
Domain Description:
Stratospheric Aerosol and Gas Experiment 2
Domain Value: SAM2
Domain Description:

Domain Value: SRB
Domain Description:

Domain Value: TOGA COARE
Domain Description:
Tropical Ocean Global Atmosphere Coupled Ocean-Atmosphere Response Experiment
Domain Value: GPCP
Domain Description:
Global Precipitation --- Project
Domain Value: LEADS ARI

Domain Description:
Leads Advanced Research Initiative
Domain Value: IABP
Domain Description:
International Artic Bouy Program
Domain Value: GDSIDB
Domain Description:
Global Digital Sea Ice Data Bank
Domain Value: CDIAC
Domain Description:

Domain Value: TOPEX/POSEIDON
Domain Description:
Ocean Topography Experiment
Domain Value: NASA WVP
Domain Description:
NASA Water Vapor Project
Domain Value: NOAA/NASA Pathfinder
Domain Description:
Pathfinder

Attribute: DataSetGuidePointer
Module Name: Document_v1
Class Name: DataSetGuide
Attribute Description:
Pointer to a specification for the DataSet Guide.
Content Source:
DSS
Alias:

Constraints:
If DataSetGuide exists then DataSetGuidePointer exists.
Default Value:
Datatype: string(255)
Units:
Domain Value:
Domain Description:

Attribute: DataStructureComments
Module Name: Collection_v1
Class Name: CSDTDescription
Attribute Description:
A free text field for the user to add comments clarifying the data organization parameters.
Content Source:

Alias:
Data Format
Constraints:

Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: DateLastModified
Module Name: DeliveredAlgorithmPackage_v1
Class Name: PGEInfo
Attribute Description:
Date when PGE Information was last modified.
Content Source:
DP
Alias:

Constraints:
If Delivered Algorithm Package is utilized then DateLastModified must exist.
Default Value: null
Datatype: date
Units:
Domain Value:
Domain Description:

Attribute: DateofReferencePaperPublication
Module Name: Document_v1
Class Name: ReferencePaper
Attribute Description:
Contains the date of formal/informal publication of the reference paper.

Content Source:
DP
Alias:

Constraints:
if reference papers utilized, this must exist.
Default Value: null
Datatype: date
Units: NA
Domain Value:
Domain Description:

Attribute: DateType
Module Name: LocalityTemporal_v1
Class Name: Temporal
Attribute Description:
This attribute specifies the type of date represented by the value in the date attributes of the temporal subclasses.
Content Source:
DP
Alias:

Constraints:

Default Value:
Datatype: string(10)
Units:
Domain Value: JULIAN
Domain Description:
See CERES ATBD for description of true Julian date system to be used in identifying their data, to be consistent with predecessor ERBE data.
Domain Value: GREGORIAN
Domain Description:
Standard calendar dates using B.C., A.D. years, and January 1 through December 31 month and day delineation.

Attribute: DeliveryContentsListPointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: DeliveryContentsList
Attribute Description:
Data model reference to document specification.

Content Source:
DSS
Alias:

Constraints:
If Delivery Contents List exists then DeliveryContentsListPointer must exist.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value:
Domain Description:

Attribute: DeliveryPurpose
Module Name: DeliveredAlgorithmPackage_v1
Class Name: DeliveredAlgorithmPackage
Attribute Description:
This attribute describes the purpose of the delivery e.g., an initial release, modification, etc.
Content Source:
DP
Alias:

Constraints:
If Delivered Algorithm Package is utilized then DeliveryPurpose must exist.
Default Value: null
Datatype: string(20)
Units: NA
Domain Value: Free Text
Domain Description:

Domain Value: Initial Delivery
Domain Description:

Domain Value: Early Delivery
Domain Description:

Domain Value: Engineering Modification
Domain Description:

Domain Value: Operational
Domain Description:

Domain Value: Enhancement

Domain Description:

Domain Value: SW Patch
Domain Description:

Attribute: DenominatorofFlatteningRatio
Module Name: LocalitySpatial_v1
Class Name: GeodeticModel
Attribute Description:
The denominator of the ratio of the difference between the equatorial and polar radii of the ellipsoid when the numerator is set to 1.
Content Source:
DP
Alias:

Constraints:
DenominatorofFlatteningRatio > 0.0
Constraints:
DenominatorofFlatteningRatio is mandatory if GeodeticModel class is applicable.
Default Value:
Datatype: float(5)_(1)
Units: NA
Domain Value:
Domain Description:

Attribute: DepthDatumName
Module Name: LocalitySpatial_v1
Class Name: DepthSystemDefinition
Attribute Description:
The identification given to surface of reference from which depths are measured.
Content Source:
DP
Alias:

Constraints:
DepthDatumName is mandatory if DepthSystemDefinition class is applicable.
Default Value: null
Datatype: string(80)
Units:
Domain Value: Local Surface

Domain Description:

Domain Value: Chart datum; datum for sounding reduction
Domain Description:

Domain Value: Lowest astronomical tide
Domain Description:

Domain Value: Highest astronomical tide
Domain Description:

Domain Value: Mean low water
Domain Description:

Domain Value: Mean high water
Domain Description:

Domain Value: Mean sea level
Domain Description:

Domain Value: Land survey datum
Domain Description:

Domain Value: Mean low water springs
Domain Description:

Domain Value: Mean high water springs
Domain Description:

Domain Value: Mean low water neap
Domain Description:

Domain Value: Mean high water neap
Domain Description:

Domain Value: Mean lower low water
Domain Description:

Domain Value: Mean lower low water springs
Domain Description:

Domain Value: Mean higher high water
Domain Description:

Domain Value: Mean higher low water

Domain Description:

Domain Value: Mean lower high water
Domain Description:

Domain Value: Spring tide
Domain Description:

Domain Value: Tropic lower low water
Domain Description:

Domain Value: Neap tide
Domain Description:

Domain Value: High water
Domain Description:

Domain Value: Higher high water
Domain Description:

Domain Value: Low water
Domain Description:

Domain Value: Low-water datum
Domain Description:

Domain Value: Lowest low water
Domain Description:

Domain Value: Lower low water
Domain Description:

Domain Value: Lowest normal low water
Domain Description:

Domain Value: Mean tide level
Domain Description:

Domain Value: Indian spring low water
Domain Description:

Domain Value: High-water full and charge
Domain Description:

Domain Value: Low-water full and charge

Domain Description:

Domain Value: Columbia River datum
Domain Description:

Domain Value: Gulf Coast low water datum
Domain Description:

Domain Value: Equatorial springs low water
Domain Description:

Domain Value: Approximate lowest astronomical tide
Domain Description:

Domain Value: No correction
Domain Description:

Attribute: DepthDistanceUnits
Module Name: LocalitySpatial_v1
Class Name: DepthSystemDefinition
Attribute Description:
Units in which depths are recorded.
Content Source:
DP
Alias:

Constraints:
DepthDistanceUnits are mandatory if DepthSystemDefinition class is applicable.
Default Value: null
Datatype: string(20)
Units:
Domain Value: meters
Domain Description:

Domain Value: feet
Domain Description:

Domain Value: fathoms
Domain Description:

Attribute: DepthEncodingMethod
Module Name: LocalitySpatial_v1
Class Name: DepthSystemDefinition
Attribute Description:
The means used to encode depths.
Content Source:
DP
Alias:

Constraints:
DepthEncodingMethod is mandatory if DepthSystemDefinition class is applicable.
Default Value: null
Datatype: varstring(255)
Units:
Domain Value: Explicit depth coordinate included with horizontal coordinates
Domain Description:

Domain Value: Implicit coordinate
Domain Description:

Domain Value: Attribute Values
Domain Description:

Attribute: DepthResolution
Module Name: LocalitySpatial_v1
Class Name: DepthSystemDefinition
Attribute Description:
The minimum distance possible between two adjacent depth values, expressed in depth distance units of measure.
Content Source:
DP
Alias:

Constraints:
Depth Resolution > 0.0
Constraints:
DepthResolution is mandatory if DepthSystemDefinition class is applicable.
Default Value: null
Datatype: float(var)
Units: Depth Distance Units
Domain Value: > 0.0
Domain Description:

Attribute: DescriptionType
Module Name: DeliveredAlgorithmPackage_v1
Class Name: AlgorithmDescription
Attribute Description:
Contains the type of algorithm description.
Content Source:
DPS
Alias:

Constraints:

Default Value: null
Datatype: string(64)
Units: NA
Domain Value: System Description
Domain Description:

Domain Value: Processing File Description
Domain Description:

Domain Value: ATBD
Domain Description:

Domain Value: Test Plan
Domain Description:

Domain Value: Operations Manual
Domain Description:

Domain Value: SW Development Standard
Domain Description:

Domain Value: Programmers Guide
Domain Description:

Domain Value: Detailed Design
Domain Description:

Domain Value: Performance Test Results
Domain Description:

Domain Value: Free Text
Domain Description:

Attribute: DetailedDesignPointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: DetailedDesign
Attribute Description:
Data model reference to document specification.
Content Source:
DSS
Alias:

Constraints:
If Detailed Design Document exists then DetailedDesignPointer must exist.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value:
Domain Description:

Attribute: DisciplineKeyword
Module Name: Collection_v1
Class Name: Discipline
Attribute Description:
Keyword used to describe the general discipline area of the collection. A collection can conceivably cover several disciplines.
Content Source:
DP
Alias:
DIF=Discipline Keywords
Constraints:
not null
Default Value:
Datatype: string(24)
Units: NA
Domain Value: Earth Science
Domain Description:

Domain Value: Socio-Economics
Domain Description:

Domain Value: Space Science
Domain Description:

Attribute: DistanceResolution
Module Name: LocalitySpatial_v1
Class Name: DistanceandBearingRepresentation
Attribute Description:
The minimum distance measurable between two points, expressed in Planar Distance Units of measure.
Content Source:
DP
Alias:

Constraints:
DistanceResolution is mandatory if DistanceandBearingRepresentation class is applicable.
Constraints:
DistanceResolution > 0.0
Default Value:
Datatype: float(7)_(3)
Units: Planar Distance Units
Domain Value:
Domain Description:

Attribute: DocumentCreated
Module Name: Document_v1
Class Name: Document
Attribute Description:
The date on which the document was created.
Content Source:
DP
Alias:

Constraints:
mandatory for all documents
Default Value: null
Datatype: datetime
Units: NA
Domain Value:
Domain Description:

Attribute: DocumentUpdated
Module Name: Document_v1
Class Name: Document
Attribute Description:
The date on which the document was last revised or updated.
Content Source:
DP
Alias:

Constraints:
mandatory for all documents
Default Value: null
Datatype: datetime
Units: NA
Domain Value:
Domain Description:

Attribute: DocumentVersion
Module Name: Document_v1
Class Name: Document
Attribute Description:
The version or revision level of the document.
Content Source:
DP
Alias:

Constraints:
mandatory for all documents
Default Value: null
Datatype: string(8)
Units: NA
Domain Value:
Domain Description:

Attribute: DynamicStaticFlag
Module Name: DataOriginator_v1
Class Name: NonInstrument
Attribute Description:
A flag indicating if the noninstrument data is produced by static or dynamic analysis.
Content Source:
DP

Alias:

Constraints:

Default Value: null
Datatype: string(10)
Units: NA
Domain Value: Static
Domain Description:

Domain Value: Dynamic
Domain Description:

Attribute: EastBoundingCoordinate
Module Name: LocalitySpatial_v1
Class Name: BoundingRectangle
Attribute Description:
Eastern-most coordinate of the limit of coverage expressed in longitude.
Content Source:
DP(collection);PGE(granule)
Alias:

Constraints:
EastBoundingCoordinate not null for collection only.
Constraints:
EastBoundingCoordinate => -180.0
Constraints:
EastBoundingCoordinate <= +180.0
Default Value:
Datatype: float(11)_(6)
Units: decimal degrees
Domain Value:
Domain Description:

Attribute: ElectronicMailAddress
Module Name: Contact_v1
Class Name: Email
Attribute Description:
The address of the electronic mailbox of the organization or individual. The address, following NASA Global Change Master Directory format, should be of the form 'network name>network

address'. Examples of network names are NSN, SPAN, telemail, ARPANET, and Internet. Examples of network addresses are NSSDCA::NG, MIKEMARTIN/NASA, MMARTIN@JPL.MILVAX, or mikem@eos.hitc.com.
Content Source:
DP
Alias:
Email address
Alias:
DIF=email
Constraints:

Default Value:
Datatype: varstring(255)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: EllipsoidName
Module Name: LocalitySpatial_v1
Class Name: GeodeticModel
Attribute Description:
Identification given to established representation of the Earth's shape.
Content Source:
DP
Alias:

Constraints:
EllipsoidName is mandatory if GeodeticModel class is applicable.
Default Value:
Datatype: varstring(255)
Units:
Domain Value: Clarke 1866
Domain Description:

Domain Value: Geodetic Reference System 80
Domain Description:

Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: EndsatPresentFlag
Module Name: LocalityTemporal_v1
Class Name: DiscontinuousMultipleRange
Attribute Description:
This attribute will denote that a data collection which covers, temporally, a discontinuous range, currently ends at the present date. This way, the granules which comprise the data collection that are continuously being added to inventory need not update the data collection metadata for each one. Note that MODIS granules may be added several thousand times a day, making the update of the data collection metadata impractical.
Content Source:
DSS
Alias:

Constraints:

Default Value: n
Datatype: string(1)
Units:
Domain Value: n
Domain Description:
No, does not end at present time.
Domain Value: y
Domain Description:
Yes, does end at present time.

Attribute: ExclusionGRingFlag
Module Name: LocalitySpatial_v1
Class Name: GRing
Attribute Description:
Flag which determines if the coordinates represent the Outer or Exclusion G-Ring.
Content Source:
PGE(granule); DP(collection)
Alias:

Constraints:
ExclusionGRingFlag is mandatory if GRing class is applicable.
Default Value: null
Datatype: string(1)
Units:
Domain Value: Y
Domain Description:
Value denotes latitude or longitude of the starting point of arc of an inner (exclusion) G-Ring.
Domain Value: N

Domain Description:
Value denotes the latitude or longitude of the starting point of an arc of an outer G-Ring.

Attribute: ExternalDataPointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: ExternalData
Attribute Description:
Data model reference to document specification.
Content Source:
DSS
Alias:

Constraints:
If External Data exists then ExternalDataPointer must exist.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: FutureReviewDate
Module Name: Collection_v1
Class Name: Review
Attribute Description:
Date of next planned QA peer review.
Content Source:
DP
Alias:
DIF=Future Review Date
Constraints:

Default Value: null
Datatype: date
Units: NA
Domain Value:
Domain Description:

Attribute: GeographicalRegionName
Module Name: Document_v1
Class Name: RegionalAreaDefinitionGuide
Attribute Description:
Contains a name for the geographical region the Regional Area Definition Guide applies to. Example values could be:
Nile Delta
Sahel Zone
Missippi Valley
Sudanian Zone
Amazon Basin
Grand Canyon
Content Source:
DP
Alias:

Constraints:
if class utilized, this must exist.
Default Value: null
Datatype: string(64)
Units:
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: GeographicCoordinateUnits
Module Name: LocalitySpatial_v1
Class Name: GeographicCoordinateSystem
Attribute Description:
Units of measure used for the latitude and longitude resolution values. For lat, a 2 digit decimal number from 0-90; for lon, a 3 digit decimal number from 0-180. + or absence of - for values north of equator or values west of prime meridian; - for all others.
Content Source:
DP
Alias:

Constraints:
km (GSFC_TOMS_ATMOS_COMP)
Constraints:
GeographicCoordinateUnits are mandatory if GeographicCoordinateSystem class is applicable.
Default Value: null
Datatype: string(80)
Units:

Domain Value: Decimal Degrees
Domain Description:

Domain Value: Decimal Minutes
Domain Description:

Domain Value: Degrees and Decimal Minutes
Domain Description:

Domain Value: Radians
Domain Description:

Domain Value: Grads
Domain Description:

Domain Value: Decimal Seconds
Domain Description:

Domain Value: Degrees, Minutes and Decimal Seconds
Domain Description:

Attribute: GranulePointer
Module Name: Granule_v1
Class Name: ECSDataGranule
Attribute Description:
Pointer to granule specification.
Content Source:

Alias:

Constraints:
not null
Default Value:
Datatype: varstring(255)
Units: NA
Domain Value:
Domain Description:

Attribute: GridCoordinateSystemName
Module Name: LocalitySpatial_v1
Class Name: GridCoordinateSystem
Attribute Description:
Name of the Grid Coordinate System.
Content Source:
DP
Alias:

Constraints:
If GridCoordinateSystem is used, zone identifier must be used.
Default Value: null
Datatype: varstring(255)
Units:
Domain Value: Universal Transverse Mercator
Domain Description:
Requires UTM zone number, 1-60 for Northern Hemisphere, -60 to -1 for Southern Hemisphere.
Domain Value: Universal Polar Stereographic
Domain Description:
Requires UPS zone identifier, 'A','B','Y','Z'.
Domain Value: State Plane Coordinate System 1927
Domain Description:
Requires SPCS zone identifier; four digit numeric codes based on the North American Datum of 1927 are found in FIPS 70-1 (Federal Information Processing Standard).
Domain Value: State Plane Coordinate System 1983
Domain Description:
Requires SPCS zone identifier; four-digit codes based on North American Datum of 1983 are found in NOAA Manual NOS NGS 5.
Domain Value: ARC Coordinate System
Domain Description:
Requires ARC system zone identifier 1-18.
Domain Value: Other Grid System
Domain Description:
Requires description in lieu of zone identifier which includes name, parameters and values, and citation of the specification for the algorithms that describe the mathematical relationship between the Earth and the coordinates of the grid system.

Attribute: GRingPointLatitude
Module Name: LocalitySpatial_v1
Class Name: GRingPoint
Attribute Description:
The latitude of a point of the G-ring.
Content Source:
DP(collection);PGE(granule)

Alias:

Constraints:
GRingPointLatitude <= +90.0
Constraints:
GRingPointLatitude is mandatory if GRingPoint class is applicable.
Constraints:
-90.0 <= GRingPointLatitude.
Default Value: null
Datatype: float(10)_(6)
Units: Decimal Degrees
Domain Value:
Domain Description:

Attribute: GRingPointLongitude
Module Name: LocalitySpatial_v1
Class Name: GRingPoint
Attribute Description:
The longitude of a point of the G-Ring.
Content Source:
DP(collection);PGE(granule)
Alias:

Constraints:
GRingPointLongitude <= +180.0
Constraints:
GRingPointLongitude is mandatory if GRingPoint class is applicable.
Constraints:
-180.0 <= GRingPointLongitude
Default Value: null
Datatype: float(11)_(6)
Units: Decimal Degrees
Domain Value:
Domain Description:

Attribute: GRingPointSequenceNo
Module Name: LocalitySpatial_v1
Class Name: GRingPoint
Attribute Description:
Value denotes the numerical sequence position of a G-Ring point.

Content Source:
DP(collection);PGE(granule)
Alias:

Constraints:
GRingPointSequenceNo is mandatory if GRingPoint class is applicable.
Default Value: null
Datatype: string(20)
Units:
Domain Value:
Domain Description:

Attribute: GuideName
Module Name: Document_v1
Class Name: Guide
Attribute Description:
The name of the guide document.
Content Source:
DAAC
Alias:

Constraints:

Default Value: null
Datatype: string(64)
Units: NA
Domain Value: Regional Area Definition Guide
Domain Description:

Domain Value: Data Center Guide
Domain Description:

Domain Value: Project Campaign Guide
Domain Description:

Domain Value: Source Platform Guide
Domain Description:

Domain Value: Data Set Guide
Domain Description:

Domain Value: Project Subsetting Guide

Domain Description:

Domain Value: Sensor Instrument Guide
Domain Description:

Domain Value: Free Text
Domain Description:

Attribute: HorizontalDatumName
Module Name: LocalitySpatial_v1
Class Name: GeodeticModel
Attribute Description:
The identification given to the reference system used for defining the coordinates of points.
Content Source:
DP
Alias:

Constraints:
HorizontalDatumName is mandatory if GeodeticModel class is applicable.
Default Value:
Datatype: string(30)
Units:
Domain Value: North American Datum of 1927
Domain Description:

Domain Value: North American Datum of 1983
Domain Description:

Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: HoursofService
Module Name: Contact_v1
Class Name: Contact
Attribute Description:
Time period when individuals can speak to the organization or individuals.
Content Source:
DAAC
Alias:

Constraints:

Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value:
Domain Description:

Attribute: Implementation
Module Name: Collection_v1
Class Name: CSDTDescription
Attribute Description:
The name of the implemented form of the CSDT (standard formats, industry standards etc.), including lowest level object description.
Content Source:

Alias:

Constraints:
not null
Default Value:
Datatype: varstring(100)
Units: NA
Domain Value: HDF
Domain Description:
HDF-EOS Datatypes for implementation: HDF Attribute, HDF Attributes, HDF Vdata, HDF (RIS8, RIS24), HDF SDS, SDS with attributes, multiple HDF SDSs, multiple Vdatas.
Domain Value: NMC GRIB
Domain Description:

Domain Value: CCSDS
Domain Description:
Consultative Committee for Space Data Systems establishes variety of standard formats e.g. time, telemetry packages, metadata etc.
Domain Value: VPF
Domain Description:
VPF Topology Level(0,1,2,3); Type (Node, Edge, Face, Text).
Domain Value: SDTS
Domain Description:
'Point', 'Entity point', 'Label point', 'Area point', 'Node, planar graph', 'Node, network', 'String', 'Link', 'Complete chain', 'Area chain', 'Network chain, planar graph', 'Network chain, nonplanar graph', 'Circular arc, three point center', 'Elliptical arc', 'Uniform B-spline', 'Piecewise Bezier',

'Ring with mixed composition', 'Ring composed of strings', 'Ring composed of chains', 'Ring composed of arcs', 'G-polygon', 'GT-polygon composed of rings', 'GT-polygon composed of chains', 'Universe polygon composed of rings', 'Universe polygon composed of chains', 'Void polygon composed of rings', 'Void polygon composed of chains'
Domain Value: Free Text
Domain Description:

Attribute: IndirectReference
Module Name: Collection_v1
Class Name: IndirectReferenceClass
Attribute Description:
Name of object by which data are organized. Name is the ESDT related or other local name other than the formal CSDT reference.
i.e. 2.5 degree bins for CERES, 5 degree bins for CERES, and source packets for level 0.
Content Source:

Alias:

Constraints:

Default Value: null
Datatype: varstring(100)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: InstrumentEngineeringDataPointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: InstrumentEngineeringData
Attribute Description:
Data model reference to document specification.
Content Source:
DSS
Alias:

Constraints:
If Instrument Engineering Data exists then InstrumentEngineeringDataPointer must exist.
Default Value: null
Datatype: varstring(255)
Units: NA

Domain Value: NA
Domain Description:
NA

Attribute: InstrumentName
Module Name: DataOriginator_v1
Class Name: Instrument
Attribute Description:
The long or full name by which the instrument is known.
Content Source:
DP
Alias:

Constraints:
InstrumentName must exist if Instrument class is used.
Default Value:
Datatype: string(80)
Units: NA
Domain Value: Active Cavity Radiometer Irradiance Monitor
Domain Description:

Domain Value: Atmospheric Infrared Sounder
Domain Description:

Domain Value: Microwave Humidity Sounder
Domain Description:

Domain Value: Advanced Microwave Sounding Unit
Domain Description:

Domain Value: Advanced Spaceborne Thermal Emission and Reflection Radiometer
Domain Description:

Domain Value: Clouds and the Earth's Radiant Energy System
Domain Description:

Domain Value: Doppler Orbitography and Radiopositioning Integrated by Satellite
Domain Description:

Domain Value: Altimetry Microwave Radiometer
Domain Description:

Domain Value: Solid-State Altimeter
Domain Description:

Domain Value: EOS Ocean Color Instrument
Domain Description:

Domain Value: Earth Observing Scanning Polarimeter
Domain Description:

Domain Value: Enhanced Thematic Mapper Plus
Domain Description:

Domain Value: Geoscience Laser Altimeter System
Domain Description:

Domain Value: High Resolution Dynamics Limb Sounder
Domain Description:

Domain Value: Lightening Imaging Sensor
Domain Description:

Domain Value: Multi-frequency Imaging Microwave Radiometer
Domain Description:

Domain Value: Multiangle Imaging SpectroRadiometer
Domain Description:

Domain Value: Microwave Limb Sounder
Domain Description:

Domain Value: Moderate-Resolution Imaging Spectroradiometer
Domain Description:

Domain Value: Measurements of Pollution in the Troposphere
Domain Description:

Domain Value: Ozone Dynamics Ultraviolet Spectrometer
Domain Description:

Domain Value: Stratospheric Aerosol and Gas Experiment III
Domain Description:

Domain Value: SeaWinds
Domain Description:

Domain Value: Solar Stellar Irradiance Comparision Experiment
Domain Description:

Domain Value: Tropospheric Emission Spectrometer
Domain Description:

Domain Value: free text
Domain Description:
This attribute is unbounded.

Attribute: InstrumentScienceDataPointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: InstrumentScienceData
Attribute Description:
Data model reference to document specification.
Content Source:
DSS
Alias:

Constraints:
If Instrument Science Data exists then InstrumentScienceDataPointer must exist.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value:
Domain Description:

Attribute: InstrumentType
Module Name: DataOriginator_v1
Class Name: Instrument
Attribute Description:
Specifies the type or principal characterization of collection instrument.
Content Source:
DP
Alias:

Constraints:

Default Value:
Datatype: string(20)
Units: NA

Domain Value: imager
Domain Description:

Domain Value: limb sounder
Domain Description:

Domain Value: microwave sounder
Domain Description:

Domain Value: altimeter
Domain Description:

Domain Value: drifting bouy
Domain Description:

Domain Value: moored bouy
Domain Description:

Domain Value: rain guage
Domain Description:

Domain Value: radar
Domain Description:

Domain Value: spectrometer
Domain Description:

Domain Value: radiometer
Domain Description:

Domain Value: polarimeter
Domain Description:

Domain Value: laser altimeter
Domain Description:

Domain Value: radar altimeter
Domain Description:

Domain Value: CCD array detector
Domain Description:

Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: JournalArticleName
Module Name: Document_v1
Class Name: JournalArticle
Attribute Description:
The name of the journal article.
Content Source:
DP
Alias:

Constraints:
must exist if article does.
Default Value: null
Datatype: string(80)
Units: NA
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: JournalArticlePointer
Module Name: Document_v1
Class Name: JournalArticle
Attribute Description:
Data Model reference to Journal Article Specification.
Content Source:
DSS
Alias:

Constraints:
if journal article exists, this must exist.
Default Value: null
Datatype: varstring(80)
Units: NA
Domain Value:
Domain Description:

Attribute: LatitudeResolution
Module Name: LocalitySpatial_v1
Class Name: GeographicCoordinateSystem
Attribute Description:
The minimum difference between two adjacent latitude values expressed in Geographic Coordinate Units of measure.

Content Source:
DP
Alias:

Constraints:
LatitudeResolution > 0.0
Constraints:
LatitudeResolution is mandatory if GeographicCoordinateSystem class is applicable.
Default Value: null
Datatype: float(var)
Units: Geographic Coordinate Units
Domain Value:
Domain Description:

Attribute: LinkandCompileScriptsPointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: LinkandCompileScripts
Attribute Description:
Data model reference to document specification.
Content Source:
DSS
Alias:

Constraints:
If Link and Compile Scripts exists then LinkandCompilePointer must exist.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: LocalCoordinateSystemDescription
Module Name: LocalitySpatial_v1
Class Name: LocalCoordinateSystem
Attribute Description:
A description of the coordinate system and its orientation to the surface of the Earth.
Content Source:
DP
Alias:

Constraints:
LocalCoordinateSystemDescription is mandatory if LocalCoordinateSystem class is applicable.
Default Value: null
Datatype: varstring(255)
Units:
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: LocalGeoreferenceInformation
Module Name: LocalitySpatial_v1
Class Name: LocalCoordinateSystem
Attribute Description:
A description of the information provided to register the local system to the Earth (e.g. control points, satellite ephemeral data, inertial navigation data).
Content Source:
DP
Alias:

Constraints:
LocalGeoreferenceInformation is mandatory if LocalCoordinateSystem class is applicable.
Default Value: null
Datatype: varstring(255)
Units:
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: LocalityDescription
Module Name: Collection_v1
Class Name: Locality
Attribute Description:
This attribute provides the rationale behind including this locality definition in ECS. It should include the area of Earth Science research that requires such a definition, a description of what the locality represents in general terms, and a brief description or reference to a description of the method used as the source of the definition.
Content Source:
DP
Alias:

Constraints:
must exist if locality type does.

Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: LocalityType
Module Name: Collection_v1
Class Name: Locality
Attribute Description:
Type of entity for which space/time extent is defined. Spatial and temporal domain will be used to define coverage of the data granule; or to define the varying spatial extent over time, of some geophysical event/ phenomena eg. Midwest Flood of 93, or of certain seasons throughout the world, eg. monsoon season, or spring. It may be used to define the spatial and/or temporal extent of a 'region', be it geophysical or geopolitical in nature. The value is applied at the granule level.
Content Source:
DP
Alias:

Constraints:
mandatory if class is applicable and if granule locality is used.
Default Value: null
Datatype: string(20)
Units:
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: LocalityValue
Module Name: LocalitySpatial_v1
Class Name: GranuleLocality
Attribute Description:
Provides name which spatial/temporal entity is known. This could change on a granule by granule basis. This attribute is paralleled by the AggregationType which applies at the collection level although locality has a more restricted usage. Several locality measures could be included in each granule.
Content Source:
PGE
Alias:

Constraints:

Default Value: null
Datatype: string(80)
Units: NA
Domain Value: Canada/R
Domain Description:
Regional Canadian sites.
Domain Value: Cryos
Domain Description:
Cryosphere.
Domain Value: Land
Domain Description:
Global land surface.
Domain Value: Land/Cryo
Domain Description:
Land Ice and Snow regions.
Domain Value: Land/L
Domain Description:
Local land sites.
Domain Value: Land/R
Domain Description:
Regional land sites.
Domain Value: Limb
Domain Description:
Limb sounding.
Domain Value: Local
Domain Description:
Local sites.
Domain Value: Ocean/Cryo
Domain Description:
Regions with sea ice.
Domain Value: Ocean/I
Domain Description:
Ocean with Case I sediments.
Domain Value: Ocean/II
Domain Description:
Ocean with Case II sediments.
Domain Value: Ocean/L
Domain Description:
Local oceanic sites.
Domain Value: Ocean/R
Domain Description:
Regional oceanic sites.
Domain Value: Ocean/S
Domain Description:
Southern Ocean.

Domain Value: Ocean/SA
Domain Description:
Southern & Eastern North Atlantic.
Domain Value: Polar
Domain Description:
Latitudes > 60 degrees N & S.
Domain Value: Tropic
Domain Description:
Zonal Band 35 degrees N to 35 degrees S.
Domain Value: Wetlands
Domain Description:
Global wetlands.

Attribute: LocalPlanarCoordinateSystemDescription
Module Name: LocalitySpatial_v1
Class Name: LocalPlanarCoordinateSystem
Attribute Description:
A description of the local planar coordinate system.
Content Source:
DP
Alias:

Constraints:
LocalPlanarCoordinateSystemDescription is mandatory if LocalPlanarCoordinateSystem class is applicable.
Default Value: null
Datatype: varstring(255)
Units:
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: LocalPlanarGeoreferenceInformation
Module Name: LocalitySpatial_v1
Class Name: LocalPlanarCoordinateSystem
Attribute Description:
A description of the information provided to register the local planar system to the Earth (e.g. control points, satellite ephemeral data, inertial navigation data)
Content Source:
DP
Alias:

Constraints:
LocalPlanarGeoreferenceinformation is mandatory if LocalPlanarCoordinateSystem class is applicable.
Default Value: null
Datatype: varstring(255)
Units:
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: LongitudeResolution
Module Name: LocalitySpatial_v1
Class Name: GeographicCoordinateSystem
Attribute Description:
The minimum difference between two adjacent longitude values expressed in Geographic Coordinate Units of measure.
Content Source:

Alias:

Constraints:
LongitudeResolution > 0.0
Constraints:
LongitudeResolution is mandatory if GeographicCoordinateSystem class is applicable.
Default Value: null
Datatype: float(var)
Units: Geographic Coordinate Units
Domain Value: > 0.0
Domain Description:
Longitude resolution.

Attribute: LongName
Module Name: Collection_v1
Class Name: CollectionDescriptionClass
Attribute Description:
This attribute will identify the long name associated with the collection. This includes dataset name/product name. This is the reference name used in describing the scientific contents of the data collection; it is not the 'id' of the data. The existing SPSO product names provide a start point.
Content Source:
DP
Alias:
dataset name, product name

Alias:
DIF=Directory Entry Title
Constraints:
not null
Constraints:
must be unique
Default Value:
Datatype: string(80)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: MaintenanceandUpdateFrequency
Module Name: Collection_v1
Class Name: SingleTypeCollection
Attribute Description:
The frequency with which changes and additions are made to the collection after the initial dataset begins to be collected/processed.
Content Source:
DP
Alias:

Constraints:
not null
Default Value:
Datatype: string(80)
Units: NA
Domain Value: Continually
Domain Description:
The collection is updated more frequently than once a day.
Domain Value: Daily
Domain Description:
The collection is updated once per day, every day.
Domain Value: Weekly
Domain Description:
The collection is updated once per week.
Domain Value: Monthly
Domain Description:
The collection is updated once per calendar month.
Domain Value: Annually
Domain Description:
The collection is updated once per year; the first date of update is usually one year after the first date of receipt of data from this collection's source.

Domain Value: Unknown
Domain Description:

Domain Value: As Needed
Domain Description:
The collection is updated as determined by the Principal Investigator or according to on-demand requests from end users.
Domain Value: Irregular
Domain Description:
The collection is updated on an unscheduled but periodic basis.
Domain Value: None Planned
Domain Description:
The collection is complete and therefore will not be updated further.
Domain Value: Free Text
Domain Description:

Attribute: MapProjectionName
Module Name: LocalitySpatial_v1
Class Name: MapProjection
Attribute Description:
The name of the systematic representation of all or part of the surface of the Earth on a plane or developable surface.
Content Source:
DP
Alias:

Constraints:
MapProjectionName is mandatory if MapProjection class is applicable.
Default Value:
Datatype: string(80)
Units:
Domain Value: Polar Stereographic
Domain Description:
Requires same parameters as those for Albers Conical Equal Area.
Domain Value: Space Oblique Mercator
Domain Description:
Requires same parameters as those for Albers Conical Equal Area, plus the Landsat Satellite Number and the Path Number reflecting the orbit of the Landsat satellite.
Domain Value: Transverse Mercator
Domain Description:
Requires same parameters as those for Albers Conical Equal Area.
Domain Value: Interrupted Goode Homolosine

Domain Description:
A pseudocylindrical composite derived from the Sinusoidal and Mollweide projections.
Domain Value: potential: Albers Conical Equal Area
Domain Description:
Requires standard parallel, longitude and scale factor of central meridian, latitude/longitude and scale factor of projection origin, false easting and northing, scale factor at equator & center line, height of perspective point above the surface, latitude/longitude of projection center, oblique line azimuth (angle+lat of origin), oblique line point(lat/lon), straight vertical longitude from pole.
Domain Value: potential: Equirectangular
Domain Description:
Requires same parameters as those for Albers Conical Equal Area.
Domain Value: potential: Lambert Azimuthal Equal Area
Domain Description:
Requires same parameters as those for Albers Conical Equal Area.
Domain Value: potential: Sinusoidal
Domain Description:
Requires same parameters as those for Albers Conical Equal Area.

Attribute: MapProjectionPointer
Module Name: LocalitySpatial_v1
Class Name: MapProjection
Attribute Description:
This is a Data Modeling Reference to a map projection.
Content Source:
DSS
Alias:

Constraints:

Default Value:
Datatype: varstring(255)
Units: NA
Domain Value:
Domain Description:

Attribute: MetadataConfigurationFilePointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: MetadataConfigurationFile
Attribute Description:
Data model reference to document specification.
Content Source:
DSS

Alias:

Constraints:
If Metadata Configuration File exists then MetadataConfigurationFilePointer must exist.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: ModelDescription
Module Name: DataOriginator_v1
Class Name: NonInstrument
Attribute Description:
A description of the model used to produce the noninstrument data. e.g.
Content Source:
DP
Alias:

Constraints:

Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: ModelName
Module Name: DataOriginator_v1
Class Name: NonInstrument
Attribute Description:
The name of the model used to produce model results for noninstrument data. e.g.
ModelName='Global 1'
Content Source:
DP
Alias:

Constraints:

Default Value: null

Datatype: string(20)
Units: NA
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: MultipleDateName
Module Name: LocalityTemporal_v1
Class Name: MultipleDateTimePeriod
Attribute Description:
The name of the collection of discrete date/time events.
e.g. 'LIS 10/93 series'
Content Source:
DP
Alias:

Constraints:

Default Value: null
Datatype: string(30)
Units:
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: NonInstrumentLongName
Module Name: DataOriginator_v1
Class Name: NonInstrument
Attribute Description:
The full name of the noninstrument providing data.
Content Source:
DP
Alias:

Constraints:

Default Value: null
Datatype: string(80)
Units: NA
Domain Value: free text
Domain Description:
This attribute is unbounded.

Domain Value: Data Assimilation Model
Domain Description:

Attribute: NonInstrumentShortName
Module Name: DataOriginator_v1
Class Name: NonInstrument
Attribute Description:
The acronym, abbreviation, or short name by which the noninstrument is commonly known.
Content Source:
DP
Alias:

Constraints:
If NonInstrument exists then NonInstrumentShortName exists.
Default Value: null
Datatype: string(20)
Units: NA
Domain Value: free text
Domain Description:
This attribute is unbounded.
Domain Value: DAM
Domain Description:
Data Assimilation Model

Attribute: NonInstrumentType
Module Name: DataOriginator_v1
Class Name: NonInstrument
Attribute Description:
The type of noninstrument data being provided.
Content Source:

Alias:

Constraints:

Default Value: null
Datatype: string(20)
Units: NA
Domain Value: Predictive Forecast
Domain Description:
Predictive Forecast

Domain Value: Published Papers
Domain Description:
Published Papers

Attribute: NorthBoundingCoordinate
Module Name: LocalitySpatial_v1
Class Name: BoundingRectangle
Attribute Description:
Northern-most coordinate of the limit of coverage expressed in latitude.
Content Source:
DP(collection);PGE(granule)
Alias:

Constraints:
NorthBoundingCoordinate not null for collection only.
Constraints:
NorthBoundingCoordinate <= +90.0
Constraints:
NorthBoundingCoordinate => -90.0
Constraints:
NorthBoundingCoordinate => SouthBoundingCoordinate
Default Value:
Datatype: float(10)_(6)
Units: decimal degrees
Domain Value:
Domain Description:

Attribute: NumberofObjects
Module Name: Collection_v1
Class Name: CSDTDescription
Attribute Description:
Number of this type of CSDT in each data granule (if variable, then provide that from the most populous granule in the collection).
i.e. 5 SDSs, 23 GRIB records.
Content Source:

Alias:

Constraints:

Default Value: null

Datatype: int(3)
Units: NA
Domain Value:
Domain Description:

Attribute: NumberofSensors
Module Name: DataOriginator_v1
Class Name: Instrument
Attribute Description:
The number of sensors carried by the instrument.
Content Source:
DP
Alias:

Constraints:
NumberofSensors => 1
Default Value:
Datatype: int(2)
Units: NA
Domain Value:
Domain Description:

Attribute: NumberofTypesofCSDT
Module Name: Collection_v1
Class Name: IndirectReferenceClass
Attribute Description:
Number of different types of CSDT in each data granule or product (if variable, then provide that from the most populous granule in the collection).
Content Source:

Alias:

Constraints:
not null
Default Value:
Datatype: int(1)
Units: NA
Domain Value:
Domain Description:

Attribute: OperationalQualityFlag
Module Name: Collection_v1
Class Name: QACollectionStats
Attribute Description:
The collection or granule level flag applying both generally to the collection or granule and specifically to parameters at the granule level. When applied to parameter, the flag refers to the quality of that parameter in the collection or granule (as applicable). The parameters determining whether the flag is set are defined by the developers and documented in the QualityFlagExplanation.
Content Source:
DAAC
Alias:
DIF=Quality
Constraints:
One flag from QACollectionStats must exist.
Default Value:
Datatype: string(20)
Units: NA
Domain Value: passed
Domain Description:
The collection or granule (for {parameter name}) has passed a specified operational test.
Domain Value: failed
Domain Description:
The collection or granule (for {parameter name}) has failed a specified operational test.
Domain Value: being investigated
Domain Description:
The collection or granule (for {parameter name}) is being investigated using an operational test tool.
Domain Value: not being investigated
Domain Description:
The collection or granule (for {parameter name}) is not being investigated using an operational test tool.
Domain Value: NA
Domain Description:

Attribute: OperationManualPointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: OperationManual
Attribute Description:
Data model reference to document specification.
Content Source:
DSS

Alias:

Constraints:
If Operation Manual exists then OperationManualPointer must exist.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: OperationMode
Module Name: Granule_v1
Class Name: OperationModeClass
Attribute Description:
Mode of operation of the instrument. Each instrument will have 1 to n modes which may be static for the collection, or change on a granule-by-granule basis. (e.g. domains: launch, survival, initialization, safe, diagnostic, roll, tilt, standby, routine, test, calibration).
Content Source:
DP(collection);PGE(granule)
Alias:

Constraints:

Default Value: null
Datatype: string(20)
Units: NA
Domain Value:
Domain Description:

Attribute: OrbitalModelName
Module Name: LocalitySpatial_v1
Class Name: OrbitCalculatedSpatialDomain
Attribute Description:
The reference to the orbital model to be used to calculate the geolocation of this data in order to determine global spatial extent.
Content Source:
DP
Alias:

Constraints:
ObritModelName is mandatory if OrbitCalculatedSpatialDomain class is applicable.

Default Value:
Datatype: string(80)
Units:
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: OrbitNumber
Module Name: LocalitySpatial_v1
Class Name: OrbitCalculatedSpatialDomain
Attribute Description:
The orbit number to be used in calculating the spatial extent of this data.
Content Source:
PGE
Alias:

Constraints:
constraints should be provided per satellite
Constraints:
OrbitNumber is mandatory if OrbitCalculatedSpatialDomain class is applicable.
Constraints:
Orbitnumber > 0
Default Value:
Datatype: int(5)
Units:
Domain Value:
Domain Description:

Attribute: OrbitParametersPointer
Module Name: Granule_v1
Class Name: OrbitParametersGranule
Attribute Description:
Data model reference to the orbit parameter information.
Content Source:
DSS
Alias:

Constraints:
Orbit file must exist if OrbitParametersPointer is used.
Default Value: null
Datatype: varstring(255)

Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: OrdinateResolution
Module Name: LocalitySpatial_v1
Class Name: CoordinateRepresentation
Attribute Description:
The (nominal) minimum distance between the 'y' or row values of two adjacent points, expressed in Planar Distance Units of measure. Planar Distance Units of measure are units for distances whose domain values are meters, international feet, and survey feet.
Content Source:
DP
Alias:

Constraints:
Ordinate Resolution > 0.0
Default Value: null
Datatype: float(7)_(3)
Units: Planar Distance Units
Domain Value:
Domain Description:

Attribute: ParameterDatatype
Module Name: Collection_v1
Class Name: Parameter
Attribute Description:
Data type of parameter.
Content Source:
DP
Alias:

Constraints:
If ParameterName exists then ParameterDatatype must exist.
Default Value: null
Datatype: string(10)
Units: NA
Domain Value: float
Domain Description:

Domain Value: int
Domain Description:

Domain Value: string
Domain Description:

Domain Value: varstring
Domain Description:

Domain Value: date
Domain Description:

Domain Value: time
Domain Description:

Domain Value: datetime
Domain Description:

Domain Value: special
Domain Description:

Attribute: ParameterDescription
Module Name: Collection_v1
Class Name: Parameter
Attribute Description:
This attribute provides a description for the parameter.
Content Source:
DP
Alias:
DIF=Summary
Constraints:
If ParameterName exists then ParameterDescription must exist.
Default Value: null
Datatype: string(255)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: ParameterMeasurementResolution
Module Name: Collection_v1
Class Name: PhysicalParameterDetails
Attribute Description:
This attribute will be used to identify the smallest unit increment to which the parameter value is measured.
Content Source:
DP
Alias:
DIF=Summary
Constraints:

Default Value: null
Datatype: string(30)
Units: {parameter} units of measurement
Domain Value:
Domain Description:

Attribute: ParameterName
Module Name: Collection_v1
Class Name: Parameter
Attribute Description:
This attribute identifies the label which is used to reference characteristics of the object,(collection or granule) which are collection-, granule-, or site-specific, thus are not in the core standard. The implementation of this logical model will use the information populating this class to build collection-specific schemas at each LIM, and the LIM services will use it to decompose and recompose queries on these non-core attributes.
i.e. cloud assessment, bands acquired, bands used, elevation, instrument to target distance.
Content Source:
DP
Alias:
DIF=Uncontrolled Keyword
Constraints:
Unique with respect to ParameterDescription and PhysicalParameterDetails.
Constraints:
If ParameterDescription exists then ParameterName must exist.
Default Value: null
Datatype: string(30)
Units:
Domain Value: Free Text
Domain Description:

Attribute: ParameterRange
Module Name: Collection_v1
Class Name: PhysicalParameterDetails
Attribute Description:
This attribute provides maximum and minimum value of parameter over whole collection.
Content Source:
DP
Alias:
DIF=Summary
Constraints:

Default Value:
Datatype: string(10)
Units: NA
Domain Value:
Domain Description:

Attribute: ParameterUnitsofMeasurement
Module Name: Collection_v1
Class Name: PhysicalParameterDetails
Attribute Description:
The standard units of measurement for a non-core attribute.
AVHRR: Units of Geophysical Parameter=Units of Geophysical Parameter
Content Source:
DP
Alias:
DIF=Summary
Constraints:
If ParameterValue exists then ParameterUnitsofMeasurement exist.
Default Value: null
Datatype: string(20)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: ParameterValue
Module Name: Granule_v1
Class Name: InformationContent
Attribute Description:
The values that can be assigned to a parameter name used at collection and granule level.

The datatype for this attribute is the value of the attribute ParameterDatatype.
The unit for this attribute is the value of the attribute ParameterUnitsofMeasurement.
Content Source:
DP(collection); PGE(granule)
Alias:

Constraints:
If ParameterValue exists then the class Parameter must exist.
Constraints:
If parameter is physical then units must exist.
Default Value:
Datatype:
Units:
Domain Value: Free Text
Domain Description:
Other values at the collection and granule level.

Attribute: ParameterValueAccuracy
Module Name: Collection_v1
Class Name: PhysicalParameterDetails
Attribute Description:
An estimate of the accuracy of the assignment of attribute value. i.e. AVHRR: Measurement Error or Precision=Measurement error or precision of a data product parameter. This can be specified in percent or the units with which the parameter is measured.
Content Source:
DP
Alias:
DIF=Summary
Constraints:

Default Value: null
Datatype: string(30)
Units: {parameter} units of measurement
Domain Value:
Domain Description:

Attribute: ParameterValueAccuracyExplanation
Module Name: Collection_v1
Class Name: PhysicalParameterDetails
Attribute Description:
This defines the method used for determining the Parameter Value Accuracy that is given for this non core attribute.

Content Source:
DP
Alias:
DIF=Summary
Constraints:

Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value:
Domain Description:

Attribute: PerformanceTestResultsPointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: PerformanceTestResults
Attribute Description:
Data model reference to document specification.
Content Source:
DSS
Alias:

Constraints:
If Performance Test Results exist then PerformanceTestResultsPointer must exist.
Default Value:
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: Period1stDate
Module Name: LocalityTemporal_v1
Class Name: RegularPeriodic
Attribute Description:
This attribute provides the date of the first occurrence of this regularly occurring period which is relevant to the collection, granule, or event coverage.
Content Source:
DP
Alias:

Constraints:
Period1stDate is mandatory if RegularPeriodic class is used.
Default Value: null
Datatype: date
Units: Gregorian calendar date
Domain Value:
Domain Description:

Attribute: Period1stTime
Module Name: LocalityTemporal_v1
Class Name: RegularPeriodic
Attribute Description:
This attribute denotes the time of the first occurrence of this regularly occurring period which is relevant to the collection, granule, or event coverage.
Content Source:
DP
Alias:

Constraints:
Period1stTime is mandatory if RegularPeriodic class is used.
Default Value: null
Datatype: time
Units: UTC HH:MM.SS
Domain Value:
Domain Description:

Attribute: PeriodCycleDurationUnit
Module Name: LocalityTemporal_v1
Class Name: RegularPeriodic
Attribute Description:
The unit specification of the period cycle duration.
e.g. the RegularPeriodic event 'Spring-North Hemi' might have a
PeriodDurationUnit='month'
PeriodDurationValue=3.0
PeriodCycleDurationUnit='year'
PeriodCycleDurationValue='1.0
indicating that Spring-North Hemi lasts for 3.0 months and has a cycle duration of 1 year.

Example values include:
decade,
year,
month,
week,
day,
hour,
minute,
second,
microsecond,
millisecond
Content Source:
DP
Alias:

Constraints:
PeriodCycleDurationUnit is mandatory if RegularPeriodic class is used.
Default Value: null
Datatype: string(15)
Units:
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: PeriodCycleDurationValue
Module Name: LocalityTemporal_v1
Class Name: RegularPeriodic
Attribute Description:
The number of PeriodCycleDurationUnits in the period cycle.
e.g. the RegularPeriodic event 'Spring-North Hemi' might have a PeriodDurationUnit='month'
PeriodDurationValue=3.0
PeriodCycleDurationUnit='year'
PeriodCycleDurationValue='1.0
indicating that Spring-North Hemi lasts for 3.0 months and has a cycle duration of 1.0 year.
The unit for this attribute is the value of the attribute PeriodCycleDurationUnit.
Content Source:
DP
Alias:

Constraints:
PeriodCycleDurationValue is mandatory if RegularPeriodic class is used.
Constraints:
PeriodCycleDurationValue > 0.0 if used.

Default Value: null
Datatype: float(7)_(3)
Units:
Domain Value:
Domain Description:

Attribute: PeriodDurationUnit
Module Name: LocalityTemporal_v1
Class Name: RegularPeriodic
Attribute Description:
The unit specification for the period duration.
Example values include:
decade,
year,
month,
week,
day,
hour,
minute,
second,
microsecond,
millisecond
Content Source:
DP
Alias:

Constraints:
PeriodDurationUnit is mandatory if RegularPeriodic class is used.
Default Value: null
Datatype: string(15)
Units:
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: PeriodDurationValue
Module Name: LocalityTemporal_v1
Class Name: RegularPeriodic
Attribute Description:
The number of PeriodDurationUnits in the RegularPeriodic period.
e.g. the RegularPeriodic event 'Spring-North Hemi' might have a PeriodDurationUnit='month'

PeriodDurationValue=3.0
PeriodCycleDurationUnit='year'
PeriodCycleDurationValue='1.0
indicating that Spring-North Hemi lasts for 3.0 months and has a cycle duration of 1.0 year.
The unit for the attribute is the value of the attribute PeriodDurationValue.
Content Source:
DP
Alias:

Constraints:
PeriodDurationValue > 0.0 if used.
Constraints:
PeriodDurationValue is mandatory if RegularPeriodic class is used.
Default Value: null
Datatype: float(7)_(3)
Units:
Domain Value:
Domain Description:

Attribute: PeriodName
Module Name: LocalityTemporal_v1
Class Name: RegularPeriodic
Attribute Description:
The name given to the recurring time period.
e.g. 'spring - north hemi.'
Content Source:
DP
Alias:

Constraints:
PeriodName is mandatory if RegularPeriodic class is used.
Default Value: null
Datatype: string(30)
Units:
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: PGEConfigFilePointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: PGEConfigFile
Attribute Description:
Data model reference to document specification.
Content Source:
DSS
Alias:

Constraints:
If PGE Configuration File exists then PGEConfigFilePointer exists.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: PGEErrorLogPointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: PGEErrorLog
Attribute Description:
Data model reference to document specification.
Content Source:
DSS
Alias:

Constraints:
If PGE Error Log exists then PGEErrorLogPointer must exist.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: PGEFunction
Module Name: DeliveredAlgorithmPackage_v1
Class Name: PGEDescription
Attribute Description:
Function(s) performed by PGE.

Content Source:
DP
Alias:

Constraints:
If Delivered Algorithm Package is utilized then PGEFunction must exist.
Default Value: null
Datatype: string(80)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: PGEIdentifier
Module Name: DeliveredAlgorithmPackage_v1
Class Name: PGEDescription
Attribute Description:
Each PGE is to have a unique identifier assigned by the SDPS/W developer. This unique identifier may be one component of a longer name that includes instrument acronym, PGE version number, and release date.
Content Source:
DP; DAAC
Alias:

Constraints:
If Delivered Algorithm Package is utilized then PGEIdentifier exists.
Default Value: null
Datatype: string(10)
Units:
Domain Value:
Domain Description:

Attribute: PGEName
Module Name: DeliveredAlgorithmPackage_v1
Class Name: PGEDescription
Attribute Description:
Name of Product Generation Executive.
Content Source:
DP
Alias:

Constraints:
If Delivered Algorithm Package is utilized then PGEName exists.
Default Value: null
Datatype: string(20)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: PGEVersion
Module Name: DeliveredAlgorithmPackage_v1
Class Name: PGEVersionClass
Attribute Description:
Version of PGE, updated whenever code or any static is input in the Delivered Algorithm Package.
Content Source:
DP
Alias:

Constraints:
If Delivered Algorithm Package is utilized then PGEVersion must exist.
Default Value: null
Datatype: float(5)_(2)
Units: NA
Domain Value:
Domain Description:

Attribute: PlanarCoordinateEncodingMethod
Module Name: LocalitySpatial_v1
Class Name: PlanarCoordinateInformation
Attribute Description:
The means used to represent horizontal positions in the planar coordinate system.
Content Source:
DP
Alias:

Constraints:
PlanarCoordinateEncodingMethod is mandatory if map projection, grid coordinate system, or local planar coordinate system is used.
Default Value: null
Datatype: varstring(80)

Units:
Domain Value: coordinate pair
Domain Description:
Will require description of encoding method in 'Coordinate Representation' in terms of abscissa and ordinate resolutions.
Domain Value: distance and bearing
Domain Description:
Will require encoding method description using 'Distance and Bearing Representation', in terms of distance resolution, bearing resolution, bearing units, bearing reference direction, and bearing reference meridian.
Domain Value: row and column
Domain Description:
Will require encoding method description using 'Coordinate Representation', in terms of abscissa and ordinate resolutions.

Attribute: PlanarDistanceUnits
Module Name: LocalitySpatial_v1
Class Name: PlanarCoordinateInformation
Attribute Description:
Units of measure used for planar coordinate description distances.
Content Source:
DP
Alias:

Constraints:
PlanarDistanceUnits are mandatory if map projection, grid coordinate system, or local planar coordinate system is used.
Default Value: null
Datatype: varstring(80)
Units:
Domain Value: meters
Domain Description:

Domain Value: international feet
Domain Description:

Domain Value: survey feet
Domain Description:

Domain Value: Free Text
Domain Description:

Attribute: PlannedDataSets
Module Name: Document_v1
Class Name: ProductionPlan
Attribute Description:
Copy of content of line 5 of Production Plans; containing collection ShortName to be produced.
Content Source:
PLS
Alias:

Constraints:

Default Value:
Datatype: varstring(255)
Units:
Domain Value:
Domain Description:

Attribute: PlatformAncillaryDataPointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: PlatformAncillaryData
Attribute Description:
Data model reference to document specification.
Content Source:
DSS
Alias:

Constraints:
If Platform Ancillary Data exists then PlatformAncillaryDataPointer must exist.
Default Value:
Datatype: varstring(255)
Units: NA
Domain Value:
Domain Description:

Attribute: PlatformCharacteristicName
Module Name: DataOriginator_v1
Class Name: PlatformCharacteristic
Attribute Description:
The name of the particular platform characteristic being described. An example instance of a PlatformCharacteristic might appear like:

PlatformCharacteristicName='LaunchDate',
PlatformCharacteristicValue='June 1998',
PlatformCharacteristicUnit='NA',
PlatformCharacteristicType='date'

Example values might include:
launch date,
stop date,
mission objectives,
platform number
Content Source:
DP
Alias:

Constraints:

Default Value: null
Datatype: string(80)
Units: NA
Domain Value: free text
Domain Description:
This attribute is unbounded.

Attribute: PlatformCharacteristicType
Module Name: DataOriginator_v1
Class Name: PlatformCharacteristic
Attribute Description:
The type of the characteristic value being used to describe the platform. e.g.
PlatformCharacteristicName='LaunchDate',
PlatformCharacteristicValue='June 1998',
PlatformCharacteristicUnit='NA',
PlatformCharacteristicType='date'
Content Source:
DP
Alias:

Constraints:

Default Value: null
Datatype: string(20)
Units: NA
Domain Value: string
Domain Description:

Domain Value: date
Domain Description:

Domain Value: float
Domain Description:

Domain Value: int
Domain Description:

Attribute: PlatformCharacteristicUnit
Module Name: DataOriginator_v1
Class Name: PlatformCharacteristic
Attribute Description:
The unit of measurement used in the value to characterize the platform.
Content Source:
DP
Alias:

Constraints:

Default Value: null
Datatype: string(20)
Units: NA
Domain Value: free text
Domain Description:
This attribute is unbounded.

Attribute: PlatformCharacteristicValue
Module Name: DataOriginator_v1
Class Name: PlatformCharacteristic
Attribute Description:
The value of the named platform characteristic being described.
PlatformCharacteristicName='LaunchDate',
PlatformCharacteristicValue='June 1998',
PlatformCharacteristicUnit='NA',
PlatformCharacteristicType='date'
The datatype for this attribute is the value of the attribute PlatformCharacteristicType.
The unit for this attribute is the value of the attribute PlatformCharacteristicUnit.
Content Source:
DP

Alias:

Constraints:

Default Value: null
Datatype:
Units:
Domain Value:
Domain Description:

Attribute: PlatformLongName
Module Name: DataOriginator_v1
Class Name: Platform
Attribute Description:
The long or expanded short name assigned to the platform carrying the instrument(s). This typically will be equivalent to the domain description for the PlatformShortName.
Content Source:
DP
Alias:

Constraints:

Default Value: null
Datatype: string(80)
Units: NA
Domain Value: free text
Domain Description:
This attribute is unbounded.

Attribute: PlatformShortName
Module Name: DataOriginator_v1
Class Name: Platform
Attribute Description:
The acronym, abbreviation, or short name assigned to the platform carrying the instrument(s).
Content Source:
DP
Alias:

Constraints:

Default Value: null

Datatype: string(20)
Units: NA
Domain Value: free text
Domain Description:
This attribute is unbounded.
Domain Value: NOAA-6
Domain Description:

Domain Value: NOAA-7
Domain Description:

Domain Value: NOAA-8
Domain Description:

Domain Value: NOAA-9
Domain Description:

Domain Value: NOAA-10
Domain Description:

Domain Value: NOAA-11
Domain Description:

Domain Value: NOAA-12
Domain Description:

Domain Value: NOAA-14
Domain Description:

Domain Value: LandSat
Domain Description:

Domain Value: LandSat-1
Domain Description:

Domain Value: LandSat-2
Domain Description:

Domain Value: LandSat-3
Domain Description:

Domain Value: LandSat-4
Domain Description:

Domain Value: LandSat-5

Domain Description:

Domain Value: Aircraft
Domain Description:

Domain Value: Lear
Domain Description:

Domain Value: Nimbus
Domain Description:

Domain Value: Nimbus-7
Domain Description:

Domain Value: UARS
Domain Description:

Domain Value: DMSP
Domain Description:

Domain Value: TOPEX/Poseidon
Domain Description:

Domain Value: DMSP-F10
Domain Description:

Domain Value: GOES-3
Domain Description:

Domain Value: GOES-W
Domain Description:

Domain Value: ERBS
Domain Description:
Earth Radiation Budget Satellite
Domain Value: Ship
Domain Description:

Domain Value: Ground station
Domain Description:

Domain Value: ER-2 Aircraft
Domain Description:

Domain Value: C131 Aircraft

Domain Description:

Domain Value: C130B Aircraft
Domain Description:

Domain Value: Lear Aircraft
Domain Description:

Domain Value: Citation Aircraft
Domain Description:

Domain Value: KingAir Aircraft
Domain Description:

Domain Value: Sabreliner Aircraft
Domain Description:

Domain Value: Electra Aircraft
Domain Description:

Domain Value: C130 Aircraft
Domain Description:

Domain Value: Tower
Domain Description:

Domain Value: METEOSAT-2
Domain Description:

Domain Value: METEOSAT-3
Domain Description:

Domain Value: METEOSAT-4
Domain Description:

Domain Value: METEOSAT-5
Domain Description:

Domain Value: GMS-1
Domain Description:

Domain Value: GMS-2
Domain Description:

Domain Value: GMS-3

Domain Description:

Domain Value: GMS-4
Domain Description:

Domain Value: GOES-4
Domain Description:

Domain Value: GOES-5
Domain Description:

Domain Value: GOES-6
Domain Description:

Domain Value: GOES-7
Domain Description:

Domain Value: AEM-2
Domain Description:

Domain Value: GEOSAT
Domain Description:

Domain Value: Bouy
Domain Description:

Domain Value: DMSP-F8
Domain Description:

Domain Value: DMSP-F11
Domain Description:

Domain Value: Radiosonde network
Domain Description:

Domain Value: DMSP-F12
Domain Description:

Domain Value: DMSP-F13
Domain Description:

Domain Value: TIROS-N
Domain Description:

Domain Value: GOES

Domain Description:

Domain Value: GMS
Domain Description:

Domain Value: METEOSAT
Domain Description:

Domain Value: Balloon
Domain Description:

Domain Value: Nimbus-5
Domain Description:

Domain Value: Seasat
Domain Description:
Sea Satellite
Domain Value: Observatory
Domain Description:

Domain Value: Research vessel
Domain Description:

Domain Value: Flask Sampling Network
Domain Description:

Domain Value: Open-top Growth Chamber
Domain Description:

Domain Value: Station network
Domain Description:

Attribute: PointLatitude
Module Name: LocalitySpatial_v1
Class Name: Point
Attribute Description:
A single latitudinal coordinate value.
Content Source:
DP(collection);PGE(granule)
Alias:

Constraints:
PointLatitude is mandatory if Point class is applicable.

Constraints:
PointLatitude => -90.0
Constraints:
PointLatitude <= +90.0
Default Value: null
Datatype: float(10)_(6)
Units: Decimal Degrees
Domain Value:
Domain Description:

Attribute: PointLongitude
Module Name: LocalitySpatial_v1
Class Name: Point
Attribute Description:
A single longitudinal coordinate point.
Content Source:
DP(collection);PGE(granule)
Alias:
Decimal Degrees
Constraints:
PointLongitude is mandatory if Point class is applicable.
Constraints:
PointLongitude => -180.0
Constraints:
PointLongitude <= +180.0
Default Value: null
Datatype: float(11)_(6)
Units:
Domain Value:
Domain Description:

Attribute: PostalCode
Module Name: Contact_v1
Class Name: ContactAddress
Attribute Description:
The zip or other postal code of the address.
Content Source:
DP; DAAC
Alias:
DIF=Postal Code

Constraints:

Default Value: null
Datatype: string(20)
Units: NA
Domain Value:
Domain Description:

Attribute: PrecisionofSeconds
Module Name: LocalityTemporal_v1
Class Name: Temporal
Attribute Description:
The precision (position in number of places to right of decimal point) of seconds used in measurement.
Content Source:
DP
Alias:

Constraints:
PrecisionofSeconds => 0
Default Value: 0
Datatype: int(6)
Units:
Domain Value:
Domain Description:

Attribute: ProcessControlParametersandResourceFilesPointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: ProcessControlParametersandResourceFiles
Attribute Description:
Data model reference to document specification.
Content Source:
DSS
Alias:

Constraints:
If Process Control Parameters and Resource Files exist then its pointer must exist.
Default Value:
Datatype: varstring(255)
Units: NA

Domain Value: NA
Domain Description:
NA

Attribute: ProcessingCenter
Module Name: Collection_v1
Class Name: ECSCollection
Attribute Description:
Center where collection was or is being processed. i.e. name of DAAC or SCF.
Content Source:
DP; DAAC
Alias:

Constraints:

Default Value: null
Datatype: string(20)
Units: NA
Domain Value: GSFC
Domain Description:
Goddard Space Flight Center
Domain Value: MSFC
Domain Description:
Marshall Space Flight Center
Domain Value: LaRC
Domain Description:
Langley Research Center
Domain Value: ORNL
Domain Description:
Oak Ridge National Laboratory
Domain Value: EDC
Domain Description:
EROS Data Center
Domain Value: NSIDC
Domain Description:
National Snow and Ice Data Center
Domain Value: JPL
Domain Description:
Jet Propulsion Laboratory
Domain Value: CEISIN
Domain Description:
Consortium for International Earth Science Information Network
Domain Value: Free Text
Domain Description:

Attribute: ProcessingDependenciesPointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: ProcessingDependencies
Attribute Description:
Data model reference to document specification.
Content Source:
DP
Alias:

Constraints:

Default Value:
Datatype: varstring(255)
Units:
Domain Value:
Domain Description:

Attribute: ProcessingErrorReportPointer
Module Name: Document_v1
Class Name: ProcessingErrorReport
Attribute Description:
Data model reference to Processing Error Report specification.
Content Source:
PLS
Alias:

Constraints:

Default Value:
Datatype: varstring(255)
Units:
Domain Value:
Domain Description:

Attribute: ProcessingFileDescriptionPointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: ProcessingFileDescription
Attribute Description:
Data model reference to document specification.
Content Source:
DSS

Alias:

Constraints:
If Processing File Description exists then ProcessingFileDescriptionPointer must exist.
Default Value:
Datatype: varstring(255)
Units: NA
Domain Value:
Domain Description:

Attribute: ProcessingHistoryPointer
Module Name: Granule_v1
Class Name: ProcessingHistory
Attribute Description:
Data model reference to the granule level processing history file.
Content Source:
DSS
Alias:

Constraints:
Processing history log must exist.
Default Value:
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: ProcessingLevelDescription
Module Name: Collection_v1
Class Name: ProcessingLevel
Attribute Description:
This attribute provides a set of characteristics that can be combined to define science processing levels which do not conform to the standards found in ProcessingLevelID.
Content Source:
DP
Alias:

Constraints:

Default Value: null

Datatype: string(80)
Units: NA
Domain Value: RAW
Domain Description:
raw measurements
Domain Value: CNTS
Domain Description:
converted to counts
Domain Value: RADCORR
Domain Description:
radiometrically corrected
Domain Value: 1BRAD
Domain Description:
Level 1B radiances
Domain Value: GEOQUANT
Domain Description:
counts converted to geophysical quantities
Domain Value: GEOLOC
Domain Description:
geolocated
Domain Value: GRID
Domain Description:
gridded
Domain Value: Sensor Measurements
Domain Description:

Domain Value: Radiometric Counts
Domain Description:

Domain Value: Telemetry Data
Domain Description:

Domain Value: Level 1B Radiances
Domain Description:

Domain Value: Geophysical Quantities at the sensor resolution or geolated
Domain Description:

Attribute: ProcessingLevelID
Module Name: Collection_v1
Class Name: ProcessingLevel

Attribute Description:
This attribute reflects the classification of the science data processing level, which defines in general terms the characteristics of the output of the processing performed.
Content Source:
DP
Alias:

Constraints:

Default Value:
Datatype: string(6)
Units: NA
Domain Value: 0
Domain Description:
Raw instrument data at original resolution, time ordered, with duplicate packets removed.
Domain Value: 1A
Domain Description:
Level 0 data, which may have been reformatted or transformed reversibly, located to a coordinate system, and packaged with needed ancillary and engineering data.
Domain Value: 1B
Domain Description:
Radiometrically corrected and calibrated data in physical units at full instrument resolution as acquired.
Domain Value: 2
Domain Description:
Retrieved environmental variables (e.g., ocean wave height, soil moisture, ice concentration) at the same location and similar resolution as the Level 1 source data.
Domain Value: 3
Domain Description:
Data or retrieved environmental variables that have been spatially and/or temporally resampled (i.e., derived from Level 1 or Level 2 data products). Such resampling may include averaging and compositing.
Domain Value: 4
Domain Description:
Model output and/or variables derived from lower level data which are not directly measured by the instruments. For example, new variables based upon a time series of Level 2 or Level 3 data.
Domain Value: Not Available
Domain Description:

Domain Value: Not Applicable
Domain Description:
Under review by AHWGP

Attribute: ProcessingReportPeriod
Module Name: Document_v1
Class Name: ProcessingReport
Attribute Description:
Period of processing report.
Content Source:
PLS
Alias:

Constraints:

Default Value:
Datatype: int(2)
Units: days
Domain Value: 90
Domain Description:

Domain Value: 30
Domain Description:

Domain Value: 7
Domain Description:

Domain Value: 3
Domain Description:

Domain Value: 1
Domain Description:

Attribute: ProcessingReportType
Module Name: Document_v1
Class Name: ProcessingReport
Attribute Description:
Type of processing report supplied by Planning Subsystem.
Content Source:
PLS
Alias:

Constraints:

Default Value:
Datatype: string(10)

Units:
Domain Value: Status
Domain Description:

Domain Value: Error
Domain Description:

Domain Value: Resource Usage
Domain Description:

Attribute: ProcessingResourceUsageReportPointer
Module Name: Document_v1
Class Name: ProcessingResourceUsageReport
Attribute Description:
Data model reference to the Processing Resource Usage Report specification.
Content Source:
PLS
Alias:

Constraints:

Default Value:
Datatype: varstring(255)
Units:
Domain Value:
Domain Description:

Attribute: ProcessingStatusReportPointer
Module Name: Document_v1
Class Name: ProcessingStatusReport
Attribute Description:
Data model reference to the Processing Status Report specification.
Content Source:
PLS
Alias:

Constraints:

Default Value:
Datatype: varstring(255)

Units:
Domain Value:
Domain Description:

Attribute: ProductionPlanDescription
Module Name: Document_v1
Class Name: ProductionPlan
Attribute Description:
The description of the production plan.
Content Source:
PLS
Alias:

Constraints:

Default Value:
Datatype: varstring(255)
Units: NA
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: ProductionPlanEndDate
Module Name: Document_v1
Class Name: ProductionPlan
Attribute Description:
The ending date for which the production plan is applicable.
Content Source:
PLS
Alias:

Constraints:

Default Value:
Datatype: datetime
Units:
Domain Value:
Domain Description:

Attribute: ProductionPlanForecast
Module Name: Document_v1
Class Name: ProductionPlan
Attribute Description:
The span of time within the plan (measured in days). i.e. the forecast horizon within the production plan.
Content Source:
PLS
Alias:

Constraints:

Default Value:
Datatype: int(3)
Units: days
Domain Value:
Domain Description:

Attribute: ProductionPlanPointer
Module Name: Document_v1
Class Name: ProductionPlan
Attribute Description:
Pointer to a specification for the plans produced by the ECS Planning Subsystem.
Content Source:
DSS
Alias:

Constraints:
must exist for all ECS-produced products.
Default Value:
Datatype: varstring(255)
Units:
Domain Value:
Domain Description:

Attribute: ProductionPlanStartDate
Module Name: Document_v1
Class Name: ProductionPlan
Attribute Description:
The beginning date for which the production plan is applicable.

Content Source:
PLS
Alias:

Constraints:
must exist for all ECS-produced products.
Default Value:
Datatype: datetime
Units:
Domain Value:
Domain Description:

Attribute: ProgrammersGuidePointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: ProgrammersGuide
Attribute Description:
Data model reference to document specification.
Content Source:
DSS
Alias:

Constraints:
If Programmers Guide exists then ProgrammersGuidePointer must exist.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: ProjectCampaignGuidePointer
Module Name: Document_v1
Class Name: ProjectCampaignGuide
Attribute Description:
Pointer to a specification for the Project Campaign Guide.
Content Source:

Alias:

Constraints:
if guide exists, this must exist

Default Value: null
Datatype: string(255)
Units:
Domain Value:
Domain Description:

Attribute: QAGranulePointer
Module Name: Granule_v1
Class Name: QAGranule
Attribute Description:
Data model reference to QA Granule specifics.
Content Source:
DSS
Alias:

Constraints:
If QAGranule exists then QAGranulePointer must exist.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: QAPercentInterpolatedData
Module Name: Granule_v1
Class Name: QAStats
Attribute Description:
Granule level (also for {parameter}) % interpolated data.
Content Source:
PGE
Alias:

Constraints:

Default Value: null
Datatype: int(3)
Units: %
Domain Value: 0-100
Domain Description:

Attribute: QAPercentMissingData
Module Name: Granule_v1
Class Name: QAStats
Attribute Description:
Granule level (also for {parameter}) % missing data.
Content Source:
PGE
Alias:

Constraints:

Default Value: null
Datatype: int(3)
Units: %
Domain Value: 0-100
Domain Description:

Attribute: QAPercentOutofBoundsData
Module Name: Granule_v1
Class Name: QAStats
Attribute Description:
Granule level (also for {parameter}) % out of bounds data.
Content Source:
PGE
Alias:

Constraints:
mandatory
Default Value:
Datatype: int(3)
Units: %
Domain Value: 0-100
Domain Description:

Attribute: QualityFlagExplanation
Module Name: Collection_v1
Class Name: QACollectionStats
Attribute Description:
A text explanation of the criteria used to set each quality flag; including thresholds or other criteria.

Content Source:
DP
Alias:
DIF=Quality
Constraints:

Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: QualityTextCommentPointer
Module Name: Collection_v1
Class Name: QualityTextComment
Attribute Description:
Data model reference to collection level pointer to Quality Text Comment document.
Content Source:
DSS
Alias:

Constraints:
If QualityText exists then QualityTextCommentPointer exists.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: RadiusUnits
Module Name: LocalitySpatial_v1
Class Name: Circle
Attribute Description:
The unit of measurement describing the distance from the center of spatial extent or coverage to the furthest point covered by the spatial extent of the locality used to determine a circular region representing general extent or coverage.
Content Source:
DP(collection);PGE(granule)
Alias:

Constraints:

Default Value: null
Datatype: string(10)
Units:
Domain Value:
Domain Description:

Attribute: RadiusValue
Module Name: LocalitySpatial_v1
Class Name: Circle
Attribute Description:
The distance from the center of spatial extent or coverage to the furthest point covered by the spatial extent of the locality, stated in RadiusUnits, used to determine a circular region representing general extent or coverage.
Content Source:
DP(collection);PGE(granule)
Alias:

Constraints:

Default Value: null
Datatype: float(var)
Units: RadiusUnits
Domain Value:
Domain Description:

Attribute: RangeBeginningDate
Module Name: LocalityTemporal_v1
Class Name: RangeDateTime
Attribute Description:
The year (and optionally month, or month and day) when the temporal coverage period being described began.
Content Source:
DP(collection);PGE(granule)
Alias:
Start Date
Constraints:
RangeBeginningDate is mandatory if RangeDateTime class is used.
Default Value: null

Datatype: date
Units:
Domain Value:
Domain Description:

Attribute: RangeBeginningTime
Module Name: LocalityTemporal_v1
Class Name: RangeDateTime
Attribute Description:
The first hour (and optionally minute, or minute and second) of the temporal coverage period being described.
Content Source:
DP(collection);PGE(granule)
Alias:

Constraints:
RangeBeginningTime is mandatory if RangeDateTime class is used.
Default Value: null
Datatype: time
Units: UTC
Domain Value:
Domain Description:

Attribute: RangeEndingDate
Module Name: LocalityTemporal_v1
Class Name: RangeDateTime
Attribute Description:
The last year (and optionally month, or month and day) of the temporal coverage period being described.
GSFC AVHRR This date represents the end date of the latest granule contained in the product.

MM/DD/YY format is product-specific for: sage_atmos_dyn, sage_atmos_comp, erbe_erp

MMDDYYYY format is product-specific for: LARC_FIRE, LARC_GTE
Content Source:
DP(collection);PGE(granule)
Alias:

Constraints:
RangeEndingDate is mandatory if RangeDateTime class is used.

Default Value: null
Datatype: date
Units:
Domain Value: UNKNOWN
Domain Description:
The value 'UNKNOWN' should be used whenever the ending date has not been provided and it is known that it is NOT the present.
Domain Value: PRESENT
Domain Description:
The domain value 'PRESENT' should be used whenever the ending date is variable because the data collection is still being collected, or because the event is still occurring. It should not be used for granule periodicity.
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: RangeEndingTime
Module Name: LocalityTemporal_v1
Class Name: RangeDateTime
Attribute Description:
The last hour (and optionally minute, or minute and second) of the temporal coverage period being described for granule or collection.
Content Source:
DP(collection);PGE(granule)
Alias:

Constraints:
RangeEndingTime is mandatory if RangeDateTime class is used.
Default Value: null
Datatype: time
Units: UTC
Domain Value: UNKNOWN
Domain Description:
The value 'UNKNOWN' must be used when the ending date/time of the temporal coverage period is not specified and is known NOT to be the present.
Domain Value: PRESENT
Domain Description:
The domain value 'PRESENT' will be used whenever the ending date is variable because the data collection is still being collected, or the event is still occurring. It should not be used for granule periodicity.

Attribute: ReferencePaperReference
Module Name: Document_v1
Class Name: ReferencePaper
Attribute Description:
Contains the unique ID of the Reference Paper as issued by publisher, such as 'NOS NSG 5', or 'JPL Publication 91-29'.
Content Source:
DP
Alias:

Constraints:
if reference papers utilized, this must exist.
Default Value: null
Datatype: string(20)
Units:
Domain Value:
Domain Description:

Attribute: ReferencePaperType
Module Name: Document_v1
Class Name: ReferencePaper
Attribute Description:
Contains the type of reference paper.
Content Source:
DP
Alias:

Constraints:
if reference papers utilized, this must exist.
Default Value: null
Datatype: string(40)
Units:
Domain Value: StandAlone Document
Domain Description:

Domain Value: Journal Article
Domain Description:

Domain Value: Free Text
Domain Description:

Attribute: RegionalAreaDefinitionGuidePointer
Module Name: Document_v1
Class Name: RegionalAreaDefinitionGuide
Attribute Description:
Pointer to a specification for the Regional Area Definition Guide.
Content Source:
DSS
Alias:

Constraints:
if guide exists, this must exist.
Default Value: null
Datatype: string(255)
Units:
Domain Value:
Domain Description:

Attribute: ReprocessingActual
Module Name: Granule_v1
Class Name: ECSDataGranule
Attribute Description:
Granule level, stating what reprocessing has been performed on this granule.
Content Source:
PGE
Alias:

Constraints:
Constrained to number of times reprocessed.
Default Value: not reprocessed
Datatype: string(20)
Units: NA
Domain Value: processed once
Domain Description:

Domain Value: reprocessed once
Domain Description:

Domain Value: reprocessed twice
Domain Description:

Domain Value: Free Text
Domain Description:

Attribute: ReprocessingPlanned
Module Name: Granule_v1
Class Name: ECSDataGranule
Attribute Description:
Granule level, stating what reprocessing may be performed on this granule.
Content Source:
PGE
Alias:

Constraints:

Default Value: null
Datatype: string(20)
Units: NA
Domain Value: no further update anticipated
Domain Description:

Domain Value: further update is anticipated
Domain Description:

Domain Value: further update anticipated using enhanced PGE
Domain Description:

Domain Value: Free Text
Domain Description:

Attribute: ResultsProductFilePointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: ResultsProductFile
Attribute Description:
Data model reference to document specification.
Content Source:
DSS
Alias:

Constraints:
If Results Product File exists then ResultsProductFilePointer must exist.

Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: ResultsReportPointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: ResultsReport
Attribute Description:
Data model reference to document specification.
Content Source:
DSS
Alias:

Constraints:
If Results Report exists then ResultsReportPointer must exist.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: ResultTempFilePointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: ResultTempFile
Attribute Description:
Data model reference to document specification.
Content Source:
DSS
Alias:

Constraints:
If Result Temp File exists then ResultTempFile must exist.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: RevisionDate
Module Name: Collection_v1
Class Name: ECSCollection
Attribute Description:
Represents the date and possibly the time that this directory entry was created or the latest date and time of its modification or update.
Content Source:
DP
Alias:

Constraints:

Default Value:
Datatype: string(20)
Units:
Domain Value:
Domain Description:

Attribute: Role
Module Name: Contact_v1
Class Name: Contact
Attribute Description:
Classification of individuals who are associated with a given data set.
Content Source:
DP
Alias:

Constraints:
Mandatory if contact is used.
Default Value:
Datatype: string(16)
Units: NA
Domain Value: Archive
Domain Description:

Domain Value: Producer
Domain Description:

Domain Value: Distributor
Domain Description:

Domain Value: DataOriginator
Domain Description:

Attribute: ScienceQualityFlag
Module Name: Collection_v1
Class Name: QACollectionStats
Attribute Description:
Collection or granule level flag applying both generally to the whole collection or granule, and specifically to parameters. When applied to parameter, the flag refers to the quality of that parameter in the collection or granule (as applicable). The parameters determining whether the flag is set are defined by the developers and documented in the Quality Flag Explanation.
Content Source:
DP(Collection); PGE(granule)
Alias:
DIF=Quality
Constraints:
One flag from QACollectionStats must exist.
Default Value:
Datatype: string(20)
Units: NA
Domain Value: N/A
Domain Description:

Domain Value: passed
Domain Description:
The collection or granule (for {parameter}) has passed a specified science test.
Domain Value: failed
Domain Description:
The collection or granule (for {parameter name}) has failed a specified science test.
Domain Value: being investigated
Domain Description:
The collection or granule (for {parameter}) is being investigated by an expert.
Domain Value: not being investigated
Domain Description:
The collection or granule (for {parameter name}) is not being investigated by an expert.

Attribute: ScienceReviewDate
Module Name: Collection_v1
Class Name: Review
Attribute Description:
Date of last QA peer review.
Content Source:
DP
Alias:
DIF=Science Review Date
Constraints:

Default Value: null
Datatype: date
Units: NA
Domain Value:
Domain Description:

Attribute: ScienceReviewStatus
Module Name: Collection_v1
Class Name: Review
Attribute Description:
Type of Review which occurred on the 'Science Review Date'
Content Source:
DP
Alias:

Constraints:

Default Value: null
Datatype: string(20)
Units: NA
Domain Value: QA within Software
Domain Description:
From QA Approach Draft Version 3: 'Within the science team algorithm processing software, initial QA can be 'built in' during the routine processing/generation of the data. The QA defined here should be written by science team personnel, incorporated within the science processing algorithm, and performed at the DAAC that is processing the data. This QA would be completely automated and be performed on the data as they are being processed. Newly developed techniques, such as artificial intelligence, may be applied within this step.'
Domain Value: QA at DAACs
Domain Description:
From QA Approach Draft Version 3: 'In general, the DAAC's QA role would be to ensure that the data are generated within the quality specifications defined by the science teams. An additional role of the DAAC is to ensure the integrity of the data--i.e., that data are not corrupted in the transfer, archival, or retrieval process. ...'
Domain Value: QA at SCF
Domain Description:
From QA Approach Draft Version 3: 'Portions of the data products would be examined at the SCFs...This effort would most likely include human analysis and be done possibly in the timeframe of 1 week to a month [after production]. Techniques such as trend analysis of the data may be done at this step, as well as a more robust statistical analysis and visual analysis.'
Domain Value: QA by data consumers

Domain Description:
From QA Approach Draft Version 3: 'As data products are utilized by the users, another level of QA will take place. Certain errors within the data may be discovered only through an intense analysis of the data....It should be noted that a significant volume of the QA results of this step...[will be found] in journal articles or conference papers (flags within the metadata...make the user aware that these QA results/discussions exist).'
Domain Value: None
Domain Description:
The status must be set, and cannot default to having been completed. None also applies to those data which are ingested from external sources and are not known to have been subjected to any form of quality assurance, or have quality ratings for which the definitions are not available.

Attribute: ScSWScriptPointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: ScSWScript
Attribute Description:
Data model pointer to document specification.
Content Source:
DSS
Alias:

Constraints:
If Science Software Script exists then ScSWScriptPointer must exist.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: ScSWSourceCodePointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: ScSWSourceCode
Attribute Description:
Data model reference to document specification.
Content Source:
DSS
Alias:

Constraints:
If Science Software Source Code exists then ScSWSourceCodePointer exists.
Default Value: null

Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: SemiMajorAxis
Module Name: LocalitySpatial_v1
Class Name: GeodeticModel
Attribute Description:
Radius of the equatorial axis of the ellipsoid.
Content Source:
DP
Alias:

Constraints:
SemiMajorAxis > 0.0
Constraints:
SemiMajorAxis mandatory if GeodeticModel class is applicable.
Default Value:
Datatype: float(8)_(3)
Units: KM
Domain Value:
Domain Description:

Attribute: SensorCharacteristicName
Module Name: DataOriginator_v1
Class Name: SensorCharacteristic
Attribute Description:
The name of the characteristic which describes a single aspect of a sensor.
Content Source:
DP
Content Source:
PGE(rapid changes)
Alias:

Constraints:

Default Value: null
Datatype: string(80)
Units: NA

Domain Value: ChannelSpectrumStart
Domain Description:
Contains the minimum wavelength of the spectral range of the channel.
Domain Value: ChannelSpectrumEnd
Domain Description:
Contains the maximum wavelength of the spectral range of the channel. :
Domain Value: ChannelCenterWavelength
Domain Description:
Contains the center wavelength of the spectral range of the channel.
Domain Value: ChannelQuality
Domain Description:
A textual description of the current state of this channel on this detector, reflecting the degree of degradation and its impact on resolution or measurement accuracies. The author's name should be listed for accountability and the date written for user reference.
Domain Value: ChannelDataAccuracy
Domain Description:

Domain Value: free text
Domain Description:
This attribute is unbounded.

Attribute: SensorCharacteristicType
Module Name: DataOriginator_v1
Class Name: SensorCharacteristic
Attribute Description:
The datatype of the sensor characteristic.
Content Source:
DP
Alias:

Constraints:

Default Value: null
Datatype: string(20)
Units: NA
Domain Value: date
Domain Description:

Domain Value: int
Domain Description:

Domain Value: string
Domain Description:

Domain Value: float
Domain Description:

Attribute: SensorCharacteristicUnit
Module Name: DataOriginator_v1
Class Name: SensorCharacteristic
Attribute Description:
The unit of measurement of the SensorCharacteristicValue associated with a particular sensor characteristic.
Content Source:
DP
Alias:

Constraints:

Default Value: null
Datatype: string(20)
Units: NA
Domain Value: micrometer
Domain Description:

Domain Value: nanometer
Domain Description:

Domain Value: nautical mile
Domain Description:

Domain Value: megahertz
Domain Description:

Domain Value: gigahertz
Domain Description:

Domain Value: free text
Domain Description:
This attribute is unbounded.

Attribute: SensorCharacteristicValue
Module Name: DataOriginator_v1
Class Name: SensorCharacteristic

Attribute Description:
The value associated with a particular sensor characteristic. e.g. for
SensorCharacteristicName='ChannelSpectrumStart',
SensorCharacteristicValue='0.4',
SensorCharacteristicUnit='micrometers',
SensorCharacteristicType=''
The datatype for this attribute is the value of the attribute SensorCharacteristicType.
The unit for this attribute is the value of the attribute SensorCharacteristicUnit.
Content Source:
DP
Alias:

Constraints:

Default Value: null
Datatype:
Units:
Domain Value:
Domain Description:

Attribute: SensorInstrumentGuidePointer
Module Name: Document_v1
Class Name: SensorInstrumentGuide
Attribute Description:
Pointer to a specification for the Sensor Instrument guide.
Content Source:
DSS
Alias:

Constraints:
if guide exists, this must exist.
Default Value: null
Datatype: string(255)
Units:
Domain Value:
Domain Description:

Attribute: SensorLongName
Module Name: DataOriginator_v1
Class Name: Sensor
Attribute Description:
The long or full name by which the sensor is commonly known. This typically will be equivalent to the Domain Description for the SensorShortName.
Content Source:
DP
Alias:

Constraints:

Default Value: null
Datatype: string(80)
Units: NA
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: SensorShortName
Module Name: DataOriginator_v1
Class Name: Sensor
Attribute Description:
The acronym, abbreviation, or short name by which the sensor is commonly known.
Content Source:
DP
Alias:

Constraints:

Default Value: null
Datatype: string(20)
Units: NA
Domain Value: AVHRR
Domain Description:
Advanced Very High Resolution Radiometer
Domain Value: MSS
Domain Description:
MultiSpectral Scanner
Domain Value: TM
Domain Description:
Thematic Mapper
Domain Value: TIMS

Domain Description:

Domain Value: NS001
Domain Description:

Domain Value: TMS
Domain Description:

Domain Value: TOMS
Domain Description:
Total Ozone Mapping Spectrometer
Domain Value: HRDI
Domain Description:

Domain Value: ISAMS
Domain Description:
Improved Stratospheric and Mesospheric Sounder
Domain Value: SOLSTICE
Domain Description:
Solar Stellar Irradiance Comparison Experiment
Domain Value: SUSIM
Domain Description:

Domain Value: CLAES
Domain Description:
Cryogenic Limb Array Etalon Spectrometer
Domain Value: HALOE
Domain Description:

Domain Value: PEM HEPS
Domain Description:

Domain Value: PEM MEPS
Domain Description:

Domain Value: PEM AXIS
Domain Description:

Domain Value: CZCS
Domain Description:
Coastal Zone Color Scanner
Domain Value: HIRS/2
Domain Description:
High-Resolution Infrared Sounder 2
Domain Value: MSU

Domain Description:
Microwave Sounding Unit
Domain Value: SSM/I
Domain Description:
Special Sensor Microwave/Imager
Domain Value: ERBE-Nonscanner
Domain Description:

Domain Value: LIDAR
Domain Description:

Domain Value: MAS
Domain Description:

Domain Value: ERBE-Scanner
Domain Description:

Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: SensorType
Module Name: DataOriginator_v1
Class Name: Sensor
Attribute Description:
The type or defining characteristic of the sensor being described.
Content Source:
DP
Alias:

Constraints:

Default Value: null
Datatype: string(40)
Units: NA
Domain Value: active cavity radiometer
Domain Description:

Domain Value: array grating spectrometer
Domain Description:

Domain Value: passive microwave radiometer
Domain Description:

Domain Value: multispectral imaging radimeter
Domain Description:

Domain Value: radar altimeter
Domain Description:

Domain Value: tri-frequency microwave radiometer
Domain Description:

Domain Value: dual-frequency radar altimeter
Domain Description:

Domain Value: eight-channel opto-mechanical scanner
Domain Description:

Domain Value: Whiskbroome scanning radiometer
Domain Description:

Domain Value: laser altimeter
Domain Description:

Domain Value: infrared limb sounder
Domain Description:

Domain Value: broadband scanning radiometer
Domain Description:

Domain Value: free text
Domain Description:
This attribute is unbounded.

Attribute: ShortName
Module Name: Collection_v1
Class Name: CollectionDescriptionClass
Attribute Description:
This name will identify the short name associated with the collection or granule. This includes the ECS Technical Baseline product names, i.e. CER02, MOD12, etc. This is the official reference name used in identifying the contents of the data collection.
Content Source:
DP
Alias:

Constraints:
not null

Constraints:
must be unique
Default Value:
Datatype: string(8)
Units: NA
Domain Value:
Domain Description:

Attribute: SizeMBECSDataGranule
Module Name: Granule_v1
Class Name: ECSDataGranule
Attribute Description:
The size attribute will indicate the volume of data contained in the granule.
Content Source:
PGE
Alias:

Constraints:
not null
Constraints:
mandatory for granule
Default Value:
Datatype: float(10)_(3)
Units: MBytes
Domain Value:
Domain Description:

Attribute: SourcePlatformGuidePointer
Module Name: Document_v1
Class Name: SourcePlatformGuide
Attribute Description:
Pointer to a specification for the SourcePlatform Guide.
Content Source:

Alias:

Constraints:
if guide exists, this must exist.
Default Value: null
Datatype: string(255)

Units:
Domain Value:
Domain Description:

Attribute: SouthBoundingCoordinate
Module Name: LocalitySpatial_v1
Class Name: BoundingRectangle
Attribute Description:
Southern-most coordinate of the limit of coverage expressed in latitude.
Content Source:
DP(collection);PGE(granule)
Alias:

Constraints:
SouthBoundingCoordinate not null for collection only.
Constraints:
SouthBoundingCoordinate => -90.0
Constraints:
SouthBoundingCoordinate <= +90.0
Constraints:
SouthBoundingCoordinate <= NorthBoundingCoordinate
Default Value:
Datatype: float(10)_(6)
Units: decimal degrees
Domain Value:
Domain Description:

Attribute: SpatialCoverageType
Module Name: LocalitySpatial_v1
Class Name: Spatial
Attribute Description:
This attribute denotes whether the locality/coverage requires horizontal, vertical, or both in the spatial domain and coordinate system definitions.
Content Source:
DP
Alias:

Constraints:
LARC_ISCCP All Products (ISCCP & SRB)
Constraints:
LARC_FIRE All products except CI2_RAMAN_Lidar

Default Value:
Datatype: string(10)
Units:
Domain Value: HORIZ&VERT
Domain Description:

Attribute: SpatialKeyword
Module Name: Collection_v1
Class Name: SpatialKeywordClass
Attribute Description:
This attribute specifies a word or phrase which serves to summarize the spatial regions covered by the collection. It may be repeated if several regions are covered. This often occurs when a collection is described as covering some large region, and several smaller subregions within that region.
Content Source:
DP
Alias:
Location, Location Keyword
Alias:
DIF=Location Keywords
Constraints:

Default Value:
Datatype: string(10)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: StandAloneDocumentPointer
Module Name: Document_v1
Class Name: StandAloneDocument
Attribute Description:
Data Model Reference to a Stand-Alone Document.
Content Source:
DSS
Alias:

Constraints:
if guide exists, this must exist.
Default Value: null

Datatype: string(255)
Units:
Domain Value:
Domain Description:

Attribute: StartOrbitNumber
Module Name: LocalitySpatial_v1
Class Name: OrbitCalculatedSpatialDomain
Attribute Description:
Orbit number at start of data collection.
Content Source:
PGE
Alias:

Constraints:
StartOrbitNumber is mandatory if OrbitCalculatedSpatialDomain class is applicable.
Default Value:
Datatype: int(8)
Units: NA
Domain Value:
Domain Description:

Attribute: StateProvince
Module Name: Contact_v1
Class Name: ContactAddress
Attribute Description:
The state or province of the address.
Content Source:
DP
Alias:
DIF=Address
Constraints:

Default Value: null
Datatype: string(20)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: StopOrbitNumber
Module Name: LocalitySpatial_v1
Class Name: OrbitCalculatedSpatialDomain
Attribute Description:
Orbit number at end of data collection.
Content Source:
PGE
Alias:

Constraints:
StopOrbitNumber is mandatory if OrbitCalculatedSpatialDomain class is applicable.
Default Value:
Datatype: int(8)
Units: NA
Domain Value:
Domain Description:

Attribute: StorageMedium
Module Name: Collection_v1
Class Name: ECSCollection
Attribute Description:
The quantity and type of medium on which the distributed data are stored.
Content Source:

Alias:
DIF=Storage Medium
Constraints:

Default Value: null
Datatype: string(30)
Units: NA
Domain Value: magnetic tapes
Domain Description:

Domain Value: optical disks
Domain Description:

Domain Value: magnetic disk
Domain Description:

Domain Value: microfilm reels
Domain Description:

Domain Value: microfiche slides
Domain Description:

Domain Value: hardcopy plots
Domain Description:

Domain Value: 35 mm slides
Domain Description:

Domain Value: Free Text
Domain Description:

Attribute: StreetAddress
Module Name: Contact_v1
Class Name: ContactAddress
Attribute Description:
An address line for the address, used for mailing or physical addresses of organizations or individuals who serve as points of contact.
Content Source:
DP; DAAC
Alias:
Address
Constraints:

Default Value: null
Datatype: string(80)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: StructuralMetadataPointer
Module Name: Collection_v1
Class Name: StructuralMetadata
Attribute Description:
Data model reference to the structural metadata.
Content Source:

Alias:

Constraints:

Default Value:
Datatype: varstring(255)
Units: NA
Domain Value:
Domain Description:

Attribute: SuggestedUsage
Module Name: Collection_v1
Class Name: ECSCollection
Attribute Description:
This attribute describes how this collection or granule may be best used to support earth science/ global change research.
Content Source:
DP
Alias:

Constraints:

Default Value: null
Datatype: varstring(500)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: SWDateLastModified
Module Name: DeliveredAlgorithmPackage_v1
Class Name: Software
Attribute Description:
Date when the software was last modified.
Content Source:
DP
Alias:

Constraints:
Mandatory if any modification made.
Default Value: null
Datatype: date
Units:
Domain Value:
Domain Description:

Attribute: SWDevelopmentStandardPointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: SWDevelopmentStandard
Attribute Description:
Data model reference to document specification.
Content Source:
DSS
Alias:

Constraints:
If SW Development Standard exists then SWDevelopmentStandardPointer must exists.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: SystemDescriptionPointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: SystemDescription
Attribute Description:
Reference to the document specification.
Content Source:
DSS
Alias:

Constraints:
If System Description exists then SystemDescriptionPointer exists.
Default Value:
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: TelephoneNumber
Module Name: Contact_v1
Class Name: Telephone
Attribute Description:
Number of org or indiv who is point of contact. The general format of the number includes country, area, and STD codes, as required for the full telephone number. Multi-extensions should be single entries rather than part of a single entry text.

Content Source:
DAAC; DP
Alias:
DIF=phone
Constraints:
Phone is dependent upon TelephoneNumberType='Facsimile', 'TDD/TTY', 'Voice'
Default Value:
Datatype: string(23)
Units: NA
Domain Value:
Domain Description:

Attribute: TelephoneNumberType
Module Name: Contact_v1
Class Name: Telephone
Attribute Description:
The type of telephone number being provided in this instance of the phone number, in order to reach the organization or individual who serves as a point of contact. Voice number is used to speak to the org or individual, the TDD/TTY number which hearing-impaired can converse with org or indiv., or the fa(x)csimile number of the org's or indiv.
Content Source:
DAAC; DP
Alias:
Contact Voice Telephone
Alias:
Contact TDD/TTY Telephone
Alias:
Contact Facsimile Telephone
Constraints:

Default Value: null
Datatype: string(10)
Units: NA
Domain Value: Voice
Domain Description:

Domain Value: TDD/TTY
Domain Description:

Domain Value: Facsimile
Domain Description:

Attribute: TemporalKeyword
Module Name: Collection_v1
Class Name: SingleTypeCollection
Attribute Description:
This attribute specifies a word or phrase which serves to summarize the temporal characteristics referenced in the collection.
i.e. Monthly Composite, Annual Mean.
Content Source:
DP
Alias:

Constraints:

Default Value: null
Datatype: string(10)
Units: NA
Domain Value: Free Text
Domain Description:

Attribute: TemporalRangeType
Module Name: LocalityTemporal_v1
Class Name: Temporal
Attribute Description:
This attribute tells the system and ultimately the end user how temporal coverage is specified for the collection, granule, or event.
Content Source:
DP
Alias:

Constraints:

Default Value:
Datatype: string(20)
Units:
Domain Value: PERIODIC
Domain Description:
Regularly occurring periods of equal time
Domain Value: POINT IN TIME
Domain Description:
A single date and time, usually used for in-situ measurements.
Domain Value: CONTINUOUS RANGE
Domain Description:
A single continuous range of time with a discrete start date time and stop date time.

Domain Value: DISCONTINUOUS MULTIPLE RANGE
Domain Description:
A span of time with irregular temporal coverage gaps, requiring the use of multiple start/stop datetime pairs to denote the complete coverage
Domain Value: MULTIPLE POINT IN TIME
Domain Description:
Multiple occurences of single date and time points.

Attribute: TestPlanPointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: TestPlan
Attribute Description:
Data model reference to document specification.
Content Source:
DSS
Alias:

Constraints:
If Test Plan exists then TestPlanPointer exists.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: TestScriptPointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: TestScript
Attribute Description:
Data model reference to document specification.
Content Source:
DSS
Alias:

Constraints:
If Test Script exists then TestScriptPointer exists.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: TestSiteConfigPointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: TestSiteConfig
Attribute Description:
Data model reference to document specification.
Content Source:
DSS
Alias:

Constraints:
If Test Site Config exists then TestSiteConfigPointer exists.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: TestSourceCodePointer
Module Name: DeliveredAlgorithmPackage_v1
Class Name: TestSourceCode
Attribute Description:
Data model reference to document specification.
Content Source:
DSS
Alias:

Constraints:
If Test Source Code exists then TestSourceCodePointer exists.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: TimeofDay
Module Name: LocalityTemporal_v1
Class Name: SingleDateTime
Attribute Description:
The hour (and optionally minute, or minute and second) of the day. This attribute is used to specify a single point in time covered by a data collection, granule, or event. In the GSFC_CZCS collection this would reflect the Pass_time which is the time of the first scan of the scene.

Content Source:
DP(collection);PGE(granule)
Alias:

Constraints:
TimeofDay is mandatory if SingleDateTime class is used.
Default Value: null
Datatype: time
Units: UTC
Domain Value: UNKNOWN
Domain Description:
If the time of day is not available to specify temporal coverage, the value 'unknown' will be provided.

Attribute: TimeType
Module Name: LocalityTemporal_v1
Class Name: Temporal
Attribute Description:
This attribute provides the time system which the values found in temporal subclasses represent.
Content Source:
DP
Alias:

Constraints:

Default Value:
Datatype: string(10)
Units:
Domain Value: UTC
Domain Description:
Coordinated Universal Time
Domain Value: UT
Domain Description:
Universal Time
Domain Value: LOCAL
Domain Description:
Denotes local time, often used for point or in-situ data.
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: Title
Module Name: Document_v1
Class Name: Document
Attribute Description:
The full title of the document.
Content Source:
DP
Alias:

Constraints:
manditory for all documents
Default Value: null
Datatype: string(255)
Units: NA
Domain Value: free text
Domain Description:
this attribute is unbounded.

Attribute: TopicKeyword
Module Name: Collection_v1
Class Name: Topic
Attribute Description:
Keyword used to describe the general topic area of the collection. A collection can conceivably cover several topics.
Content Source:
DP
Alias:
DIF=Topic
Constraints:
not null
Default Value:
Datatype: string(32)
Units: NA
Domain Value: ATMOSPHERIC SCIENCE
Domain Description:

Domain Value: BIOSPHERE
Domain Description:

Domain Value: CHARGED PARTICLES
Domain Description:

Domain Value: HYDROSPHERE

Domain Description:

Domain Value: LAND SURFACE
Domain Description:

Domain Value: OCEAN SCIENCE
Domain Description:

Domain Value: PALEOSCIENCE
Domain Description:

Domain Value: RADIANCE AND IMAGERY
Domain Description:

Domain Value: SOLAR RADIATION
Domain Description:

Domain Value: SOLID EARTH
Domain Description:

Domain Value: TRANSIENT PHENOMENA
Domain Description:

Attribute: UncontrolledParameterKeyword
Module Name: Collection_v1
Class Name: UncontrolledParameter
Attribute Description:
Keyword used to describe the specific science parameter content of the collection. A collection can conceivably cover many specific parameters. The keyword valids are the lowest level physical parameter terms which are normally searched by a user; i.e. a user enters a keyword which when found may commect with one or more parameters from collections. The keywords are also the lowest level words which describe product content without being the server specific measurement (held in Parameter class). While there is a controlled list of these parameters held by GCMD, additions can be made by an as yet unspecified configuration control process.
Content Source:
DP
Alias:

Constraints:
not null
Default Value:
Datatype: string(80)

Units: NA
Domain Value: see GCMD, Version 28B Uncontrolled Parameter Keyword List (June 1995)
Domain Description:

Domain Value: Free Text
Domain Description:

Attribute: UserCommentDocumentPointer
Module Name: Collection_v1
Class Name: UserCommentDocument
Attribute Description:
Data model reference to userfile containing user comments.
Content Source:
DSS
Alias:

Constraints:
User comment document must exist.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: NA
Domain Description:
NA

Attribute: ValidationDocumentPointer
Module Name: Collection_v1
Class Name: ValidationDocument
Attribute Description:
Data model reference to Validation Document.
Content Source:
DSS
Alias:

Constraints:
Validation document must exist.
Default Value: null
Datatype: varstring(255)
Units: NA
Domain Value: NA

Domain Description:
NA

Attribute: VersionID
Module Name: Collection_v1
Class Name: CollectionDescriptionClass
Attribute Description:
Version identifier of the data collection.
Content Source:
DP
Alias:

Constraints:
not null
Constraints:
should all default to 1
Default Value: none
Datatype: varstring(255)
Units: NA
Domain Value:
Domain Description:

Attribute: VerticalSpatialDomainType
Module Name: LocalitySpatial_v1
Class Name: VerticalSpatialDomain
Attribute Description:
This attribute describes the type of the area of vertical space covered by the locality.
Content Source:
DP(collection);PGE(granule)
Alias:

Constraints:

Default Value:
Datatype: string(10)
Units:
Domain Value: varstring
Domain Description:

Domain Value: float
Domain Description:

Domain Value: int
Domain Description:

Attribute: VerticalSpatialDomainValue
Module Name: LocalitySpatial_v1
Class Name: VerticalSpatialDomain
Attribute Description:
This attribute describes the extent of the area of vertical space covered by the locality. Must be accompanied by an Altitude Encoding Method description.
The datatype for this attribute is the value of the attribute VerticalSpatialDomainType.
The unit for this attribute is the value of either DepthDistanceUnits or AltitudeDistanceUnits.
Content Source:
DP(collection);PGE(granule)
Alias:

Constraints:

Default Value: null
Datatype:
Units:
Domain Value: TOA
Domain Description:
Top of Atmosphere.
Domain Value: SFC
Domain Description:
Surface of ocean or land, regardless of topography.
Domain Value: Cloud
Domain Description:
Any cloud layers found.
Domain Value: Tropos
Domain Description:
Troposphere. Must be accompanied by Altitude Encoding Method description. (default: 0 to 10 km).
Domain Value: Atmos
Domain Description:
Troposphere + stratosphere. Must be accompanied by Altitude Encoding Method description. (default: SFC to 30km).
Domain Value: Stratos
Domain Description:
Stratosphere. Must be accompanied by Altitude Encoding Method description. (default: 10 to 30 km).
Domain Value: Ex

Domain Description:
Exosphere. Must be accompanied by Altitude Encoding Method description. (default: 700km).
Domain Value: Mid-Atmos
Domain Description:
Upper troposphere to mesopause. Must be accompanied by Altitude Encoding Method description. (default: 10 to 120 km).
Domain Value: Near_SFC
Domain Description:
Near surface layer (within boundary layer). Must be accompanied by Altitude or Depth Encoding Method Description. (default: SFC to +-1km).
Domain Value: Plume_col
Domain Description:
Vertical extent of volcanic eruption plume. Must be accompanied by Altitude Encoding Method Description for this volcanic eruption.
Domain Value: Plume_top
Domain Description:
Top of volcanic eruption plume. Must be accompanied by Altitude Encoding Method Description for this volcanic eruption.
Domain Value: Sub_SFC
Domain Description:
Layers immediately beneath land surface.
Domain Value: TOO
Domain Description:
Top Of Ocean (oceanic mixed layer).

Attribute: WestBoundingCoordinate
Module Name: LocalitySpatial_v1
Class Name: BoundingRectangle
Attribute Description:
Western-most coordinate of the limit of coverage expressed in longitude.
Content Source:
DP(collection);PGE(granule)
Alias:

Constraints:
WestBoundingCoordinate not null for collection only.
Constraints:
WestBoundingCoordinate => -180.0
Constraints:
WestBoundingCoordinate <= +180.0
Default Value:
Datatype: float(11)_(6)
Units: decimal degrees

Domain Value:
Domain Description:

Attribute: ZoneIdentifier
Module Name: LocalitySpatial_v1
Class Name: ZoneIdentifierClass
Attribute Description:
The appropriate numeric or alpha code used to identify the various zones in this grid coordinate system. See domain values of coordinate system for constraints on the zone numbers.
Content Source:
DP(collection);PGE(granule)
Alias:

Constraints:
See FGDC 6/8/94
Constraints:
mandatory if grid coordinate system is used.
Default Value: null
Datatype: varstring(64)
Units:
Domain Value: Universal Transverse Mercator
Domain Description:
1 <= UTM Zone Number <= 60 for the northern hemisphere;
-60 <= UTM Zone Number <= - 1 for the southern hemisphere.
Domain Value: Universal Polar Stereographic
Domain Description:
A, B, Y, Z are domain values for UPS Zone identifier.
Domain Value: State Plane Coordinate System 1927
Domain Description:
Domain values for identifier of the SPCS zone are four digit numeric codes and codes for State Plane Coordinate Systems.
Domain Value: State Plane Coordinate System 1983
Domain Description:

Domain Value: ARC Coordinate System
Domain Description:
1 <= ARC System Zone Identifier <= 18
Domain Value: Other Grid System
Domain Description:

6.5 Earth Science Data Model Cross References to Other Models and Systems

Tables are presented to map data classes and attributes from the Earth Science Data Model to various internal and external entities which ECS must support.

6.5.1 Earth Science Data Model Classes Mapped to the Data Pyramid

The data pyramid, as illustrated in Figure 6-11, is a method familiar to the Science Community for visualizing the multi-layered aspects of earth science and related data. The various levels of the pyramid are intended to correspond to various levels of abstraction, aggregation, or synthesis of data, and the narrowing towards the top is meant to reflect the generally decreasing amounts of data at each layer.

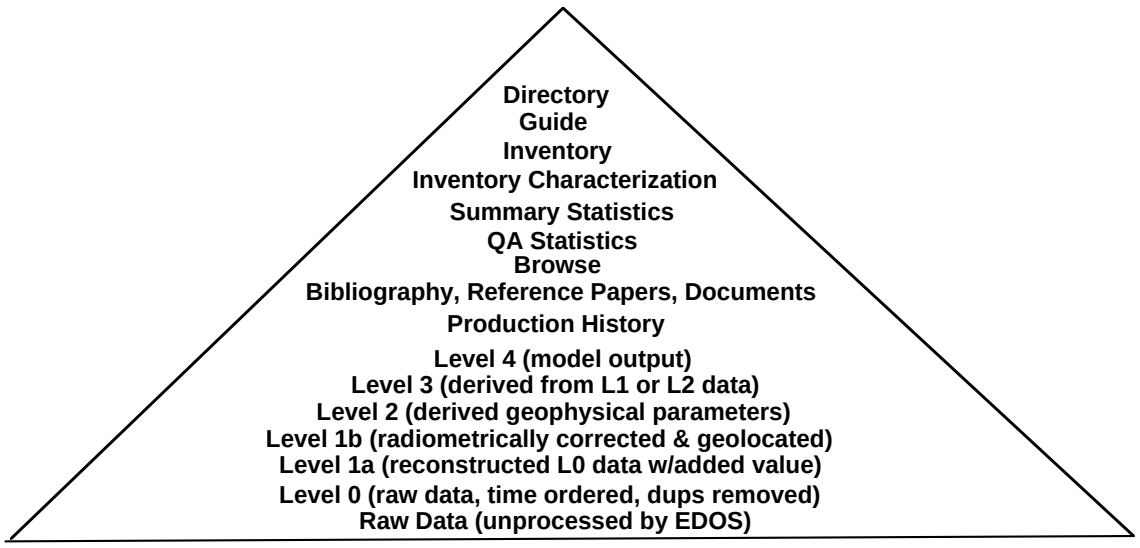

Figure 6-11. Data Pyramid

Key: Level Definitions:

- **Raw data**. Data in their original packets, as received from the observer, unprocessed by EDOS.
- **Level 0**. Raw instrument data at original resolution, time ordered, with duplicate packets removed.
- **Level 1a**. Reconstructed unprocessed instrument data at full resolution, time referenced, and annotated with ancillary information, including radiometric and geometric calibration coefficients and georeferencing parameters (i.e. platform ephemeris) computed and appended, but not applied to Level 0 data.

- **Level 1b.** Radio metrically corrected and geolocated Level 1a data that have been processed to sensor units.
- **Level 2**. Derived geophysical parameters at the same resolution and location as the Level 1 data.
- **Level 3**. Geophysical parameters that have been spatially and/or temporally re-sampled (i.e., derived from Level 1 or Level 2 data).
- **Level 4**. Model output and/or results of lower level data that are not directly derived by the instruments.

Data Levels 1 through 4 are defined in the EOS Data Panel Report and are consistent with the definitions in the Committee on Data Management and Computation and Earth Science and Applications Data System.

- **Production History**. A record of each step in the creation of a product.
- **Delivered Algorithm Packages**. The full content of data and information deli by a data producer during the process of standard product Algorithm Integration & Test, including all elements defined as minimum content within the Science User's Guide
- **Bibliographic Reference, Papers**. A record of the use of data products, documentation on generating algorithms, and other reference material.
- **Browse.** Subsets of a larger data set generated for the purpose of allowing rapid interrogation of the larger data set by the potential user.
- **QA Statistics**. Quality indicators associated with an individual data product including drop-outs, data gaps, out-of-range values, etc.
- **Summary Statistics**. The set of statistical representations of individual data products, summarizing values over a set of granule instances of the product, such as min/max values, means, standard deviations, etc.
- **Inventory Characterization.** Enhanced content-based metadata describing granules or aggregations of granules (phenomenology data bases, super-granules, feature tags, etc.)
- **Inventory.** A uniform set of descriptions of granules from one or more data sets with information required to select and obtain a subset of those granules.
- **Guide.** Documents containing the detailed description of a number of data sets and related entities including information suitable for making a determination of the nature of each data set and its potential usefulness for a specific application.
- **Directory**. A collection of uniform descriptions that summarize the contents of a large number of data sets. The directory includes Advertising which is basic information about new and existing products, availability of collections, access, and other high-level information.

Table 6-1 maps the Classes in the Earth Science Data Model to the Data Pyramid. Estimated usage statistics are also provided. The columns used in Table 6-1 include the following:

- "Data Pyramid". The data pyramid layer mapping for the segment of data shown in the "Module" column.

- "Module". The Earth Science Data Model segment within which the "Class" may be found.
- "Class". The data class from the Earth Science Data Model.
- "Estimated Usage": This is additional information that represents a daily average number of requests developed using the 1999 maximum projections for usage from the data analysis reported in Section 3.6.3. The estimates in the aforementioned analysis was divided by 365 to obtain a daily average which is projected to all classes within the corresponding pyramid layer.

Table 6-1 Earth Science Data Model Mapped to the Data Pyramid (1 of 6)

Data Pyramid	Module	Class	Estimated Usage
Algorithm	DeliveredAlgorithmPackage	ATBD	210
Algorithm	DeliveredAlgorithmPackage	AlgorithmDescription	210
Algorithm	DeliveredAlgorithmPackage	CalibrationFiles	210
Algorithm	DeliveredAlgorithmPackage	ChangeLog	210
Algorithm	DeliveredAlgorithmPackage	CompileInfo	210
Algorithm	DeliveredAlgorithmPackage	ContextDiagrams	210
Algorithm	DeliveredAlgorithmPackage	DeliveredAlgorithmPackage	210
Algorithm	DeliveredAlgorithmPackage	DeliveryContentsList	210
Algorithm	DeliveredAlgorithmPackage	DetailedDesign	210
Algorithm	DeliveredAlgorithmPackage	ExternalData	210
Algorithm	DeliveredAlgorithmPackage	InstrumentEngineeringData	210
Algorithm	DeliveredAlgorithmPackage	InstrumentScienceData	210
Algorithm	DeliveredAlgorithmPackage	LinkandCompileScripts	210
Algorithm	DeliveredAlgorithmPackage	MetadataConfigurationFile	210
Algorithm	DeliveredAlgorithmPackage	OperationManual	210
Algorithm	DeliveredAlgorithmPackage	PGEConfigFile	210
Algorithm	DeliveredAlgorithmPackage	PGEDescription	210
Algorithm	DeliveredAlgorithmPackage	PGEErrorLog	210
Algorithm	DeliveredAlgorithmPackage	PGEInfo	210

Table 6-1 Earth Science Data Model Mapped to the Data Pyramid (2 of 6)

Data Pyramid	Module	Class	Estimated Usage
Algorithm	DeliveredAlgorithmPackage	PGEVersion	210
Algorithm	DeliveredAlgorithmPackage	PerformanceTestResults	210
Algorithm	DeliveredAlgorithmPackage	PlatformAncillaryData	210
Algorithm	DeliveredAlgorithmPackage	ProcessControlParametersandResourceFiles	210
Algorithm	DeliveredAlgorithmPackage	Processing Dependencies	210
Algorithm	DeliveredAlgorithmPackage	ProcessingFileDescription	210
Algorithm	DeliveredAlgorithmPackage	ProgrammersGuide	210
Algorithm	DeliveredAlgorithmPackage	ResultTempFile	210
Algorithm	DeliveredAlgorithmPackage	ResultsProductFile	210
Algorithm	DeliveredAlgorithmPackage	ResultsReport	210
Algorithm	DeliveredAlgorithmPackage	SWDevelopmentStandard	210
Algorithm	DeliveredAlgorithmPackage	ScSWScript	210
Algorithm	DeliveredAlgorithmPackage	ScSWSourceCode	210
Algorithm	DeliveredAlgorithmPackage	Software	210
Algorithm	DeliveredAlgorithmPackage	SystemDescription	210
Algorithm	DeliveredAlgorithmPackage	TestPlan	210
Algorithm	DeliveredAlgorithmPackage	TestScript	210
Algorithm	DeliveredAlgorithmPackage	TestSiteConfig	210
Algorithm	DeliveredAlgorithmPackage	TestSourceCode	210
Browse	Granule	Browse	254
Directory	Collections	CollectionDescriptionClass	27
Directory	Collections	CollectionTypeClass	27
Directory	Collections	ControlledParameter	27
Directory	Collections	Discipline	27
Directory	Collections	ECSCollection	27
Directory	Collections	MultipleTypeCollection	27

Table 6-1 Earth Science Data Model Mapped to the Data Pyramid (3 of 6)

Data Pyramid	Module	Class	Estimated Usage
Directory	Collections	Parameter	27
Directory	Collections	PhysicalParameterDetails	27
Directory	Collections	ProcessingLevel	27
Directory	Collections	Review	27
Directory	Collections	SingleTypeCollection	27
Directory	Collections	SpatialKeywordClass	27
Directory	Collections	Topic	27
Directory	Collections	UncontrolledParameter	27
Directory	Collections	UserCommentDocument	27
Directory	Contact	Contact	27
Directory	Contact	ContactAddress	27
Directory	Contact	ContactOrganization	27
Directory	Contact	ContactPerson	27
Directory	Contact	Email	27
Directory	Contact	Telephone	27
Directory	Collection	IndirectReferenceClass	27
Directory	DataOriginator	DataOriginator	27
Directory	DataOriginator	FieldCampaign	27
Directory	DataOriginator	Instrument	27
Directory	DataOriginator	NonInstrument	27
Directory	DataOriginator	Platform	27
Directory	DataOriginator	PlatformCharacteristic	27
Directory	DataOriginator	Sensor	27
Directory	LocalitySpatial	AltitudeSystemDefinition	27
Directory	LocalitySpatial	CoordinateRepresentation	27
Directory	LocalitySpatial	DepthSystemDefinition	27
Directory	LocalitySpatial	DistanceandBearingRepresentation	27

Table 6-1 Earth Science Data Model Mapped to the Data Pyramid (4 of 6)

Data Pyramid	Module	Class	Estimated Usage
Directory	LocalitySpatial	GeodeticModel	27
Directory	LocalitySpatial	GeographicCoordinateSystem	27
Directory	LocalitySpatial	GridCoordinateSystem	27
Directory	LocalitySpatial	LocalCoordinateSystem	27
Directory	LocalitySpatial	LocalPlanarCoordinateSystem	27
Directory	Collection	Locality	27
Directory	LocalitySpatial	MapProjection	27
Directory	LocalitySpatial	PlanarCoordinateInformation	27
Directory	LocalityTemporal	RegularPeriodic	27
Directory	LocalityTemporal	Temporal	27
Directory/ inventory	DataOriginator	SensorCharacteristic	157
Directory/ inventory	LocalitySpatial	BoundingRectangle	157
Directory/ inventory	LocalitySpatial	Circle	157
Directory/ inventory	LocalitySpatial	GRing	157
Directory/ inventory	LocalitySpatial	GRingPoint	157
Directory/ inventory	LocalitySpatial	OrbitCalculatedSpatialDomain	157
Directory/ inventory	LocalitySpatial	Point	157
Directory/ inventory	LocalitySpatial	Spatial	157
Directory/ inventory	LocalitySpatial	VerticalSpatialDomain	157
Directory/ inventory	LocalitySpatial	ZoneIdentifier	157
Directory/ inventory	LocalityTemporal	DiscontinuousMultipleRange	157

Table 6-1 Earth Science Data Model Mapped to the Data Pyramid (5 of 6)

Data Pyramid	Module	Class	Estimated Usage
Directory/ inventory	LocalityTemporal	MultipleDateTimePeriod	157
Directory/ inventory	LocalityTemporal	RangeDateTime	157
Directory/ inventory	LocalityTemporal	SingleDateTime	157
Guide	Document	DataCenterGuide	309
Guide	Document	DataSetGuide	309
Guide	Document	Guide	309
Guide	Document	ProjectCampaignGuide	309
Guide	Document	ProjectSubsettingGuide	309
Guide	Document	RegionalAreaDefinitionGuide	309
Guide	Document	SensorInstrumentGuide	309
Guide, Algorithm, Reference Paper	Document	Author	1219
Guide, Algorithm, Reference Paper	Document	Document	1219
Inventory	Granule	AncillaryInputGranule	301
Inventory	Granule	OrbitParametersGranule	301
Inventory	Granule	QAGranule	301
Inventory	Granule	ECSDataGranule	301
Inventory	Granule	InformationContent	301
Inventory	LocalitySpatial	GranuleLocality	301
Inventory	Collections	ECSListofCollections	301
Inventory	Collections	StructuralMetadata	

Table 6-1 Earth Science Data Model Mapped to the Data Pyramid (6 of 6)

Data Pyramid	Module	Class	Estimated Usage
Production History	Granule	ProcessingHistory	301
Inventory	Granule	OperationMode	157
Guide, Algorithm, Reference Paper	Document	ProductionPlan	1219
QA data statistics	Collections	QACollectionStats	361
QA data statistics	Granule	QAStats	361
QA data statistics	Collections	QualityTextComment	361
QA data statistics	Collections	ValidationDocument	361
Reference paper	Document	JournalArticle	700
Reference paper	Document	ReferencePaper	700
Reference paper	Document	RegionalAreaDefinitionGuide	700
Reference paper	Document	SensorInstrumentGuide	700
Reference paper	Document	SourcePlatformGuide	700
Reference paper	Document	StandAloneDocument	700

6.5.2 Global Change Master Directory (GCMD) Directory Interchange Format (DIF) Mapping

"The Global Change Master Directory (GCMD) is a comprehensive source of information about Earth science, environmental, biosphere, climate, and global change data holdings available to the scientific community throughout the world. The GCMD is the American Coordinating Node of the

Committee on Earth Observation Satellites International Directory Network (CEOS IDN) and is a component of the Global Change Data and Information System (GCDIS)." [3]

Message abstract[4]*:* "The Consultative Committee for Space Data Systems (CCSDS) sponsored an International Master directory Workshop (IMDW) to explore the possibility of establishing a CCSDS effort to develop international standards facilitating the locating and retrieval of space and earth science data needed by researchers." ... "Participants concluded that agencies and customers would benefit through the development of international standards facilitating common services for the locating and retrieval of space and earth science data."

Directory Interchange Format (DIF)[5]: The Data Interchange Format (DIF) supports the GCMD. The DIF can be looked at as a de-facto standard for world-wide users of the GCMD. It is used to create directory entries which describe a group of data. A DIF consists of a collection of data entities which describe the "available " and "planned" products. Twenty-five primary data entities are defined in the GCMD documentation for the DIF. Some of the entities are text fields (field is the term used by the GCMD system), others require the designation of valid (domain) values. Some of the data entities describe groups (classes) containing fields (attributes.)

References include:

- Master Directory System Documentation from the WWW (http://gcmd.gsfc.nasa.gov/)
  - Master Directory Documentation
  - GCMD to FGDC mapping
- DIF Format Manual, Version 4.1, April 1993
- DIF Mappings contained in the Core Metadata Standard Technical Paper (Reference Appendix E).

The Minimum Required DIF Fields: The skinny DIF is a DIF which consists of only the required DIF fields. Skinny DIFs are put into a directory to alert users of the existence of a particular data set, and may be modified at a later time. The required DIF fields for the skinny DIF include the following information:

- Directory Entry Identifier
- Directory Entry Title
- Discipline Keywords (The proposed DIF change to the organization of keywords will use the valids "Earth Science", "Socio-Economics", and "Space Science" only. The GCMD is in the process of deleting all entries dealing with other disciplines.)
- Topic (New)
- Controlled Parameter (New)
- Uncontrolled Keywords (New)
- Data Center (Group)

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3. Reference: Global Change Master Directory Overview, WWW
4. Reference: MSG 94N72164*# Issue 21 Category 82 RPT #: NASA-TM-101821 NAS 1.15:101821 CCSDS-D10.O-Y-1 91/05/00 105 Pages NASA restricted. "Report on CCSDS International Master Directory Workshop.)
5. Source is documentation on the WWW

- Data Center Name
- Dataset ID (Not required)
- Contact Person (Group)
    - -- last name
    - -- first name (Not required)
    - -- middle name (Not required)
    - -- email
    - -- phone
    - -- Address (Group)
        - Address (Text field not decomposed)

- Originating Center
- Summary (Paragraph of free text)

Note: The length of the Summary paragraph is recommended to be approximately 500 words dependent upon the product being described. The following list of information content is to be used as a checklist when preparing the descriptive summary.

- Discussion of the parameters measured by the data (e.g., accuracy, precision)
- Statements of time, spatial resolution, coverage, and frequency of updates to the data set (e.g., monthly addition of newly processed data or acquisition of additional coverage)
- Data processing level
- A discussion of ancillary data sets needed for processing
- The similarities and differences of the data to other closely-related data sets,
- Ordering information unique to this data set
- Sensor and source information unique to this particular data set
- Other information needed for a user to determine the applicability of the data set and what the user would need in order to process this data.
- Product type (raw, sensor data record)
- Processing/sampling (gridded, binned, swath, algorithms used
- Volume (total volume) a.k.a. Storage Media (qualified for specifying distribution media)
- Distribution media (e.g., CD-ROM, disk, magnetic tape) a.k.a. Storage Media (qualified for specifying distribution media)
- Number of media (e.g., set of 4 CD-ROMs) a.k.a. Storage Media (qualified for specifying distribution media)
- Data formats (e.g., UNIX compatible, ASCII, HDF, TAR)
- Read Software (if available)
- Date available (include only if not available at time of writing)
- Documentation (e.g., user guides)

- Distribution restrictions (include only if data is restricted)
- Other pertinent information (not covered by this list)

Other DIF Fields: The remaining DIF fields include the following:

- Start Date
- Stop Date
- Sensor Name
- Source Name
- Investigator
- Technical Contact
- Author
- Campaign or Project Name
- Distribution Media
- Location Keywords

New DIF Fields : Proposed keyword changes will include several new fields. The titles of these fields are subject to change however the valids will remain the same as indicated in the current proposed keyword list. In the proposed DIF keyword structure the Location Keywords field remains essentially the same with update including the addition of new location valids.

- General Keywords (other keywords)
- Coverage
- Revision Date
- Science Review Date
- Future Review Date
- Reference
- Quality
- Aggregation Flag (This flag is set when the ECS class “MultipleTypeCollection” is being described.)

The following tables contain the DIF mappings. They are used by the subsystem developers to implement advertising and distribution functions. Tables 6-2 and 6-3 are identical with Table 6-2 alphabetically ordered by Earth Science Data Model attribute and Table 6-3 is alphabetically ordered by DIF Field.

Table 6-2. Earth Science Data Model Attributes Mapped to the GCMD/DIF (1 of 5)

Earth Science Data Model Attributes	GCMD/DIF Field
AccessConstraints	Summary*
AggregationType	General Keyword
AlgorithmPackageAcceptanceDate	Summary*
AlgorithmPackageIntendedOperatingSystem	Summary*
AlgorithmPackageName	Summary*
AlgorithmPackageVersion	Summary*
AltitudeResolution	Altitude Resolution
AutomaticQualityFlag	Quality
CampaignName	Campaign or Project
CitationforExternalPublication	Title Edition Originator Publication Date
City	Address (Required)
CollectionDescription	Directory Entry Title (Required) (This DIF field is composed of two ECS Data Model attributes: LongName + Description)
ContactFirstName	first name (Required) Investigator, Technical Contact, Author (Dependent upon domain value of Role= “Investigator”, “Technical Contact”, or “Author”)
ContactJobPosition	Investigator, Technical Contact, Data Center Contact (Dependency is Contact Name)
ContactLastName	last name (Required) Investigator, Technical Contact, Author (dependent upon domain value of Role= “Investigator”, “Technical Contact”, or “Author”)

Table 6-2. Earth Science Data Model Attributes Mapped to the GCMD/DIF (2 of 5)

Earth Science Data Model Attributes	GCMD/DIF Field
ContactMiddleName	middle name (Required) Investigator, Technical Contact, Author (dependent upon domain value of Role= “Investigator”, “Technical Contact”, or “Author”)
ContactOrganizationName	Data Center Name (Required) (Dependent upon domain value of Role= “Archive”) Originating Center (Dependent upon domain value of Role= “Producer”)
ControlledParameterKeyword	Controlled Parameter
Country	Address (Required)
DataCenterName	Data Center Name (Required)
DateofReferencePaperPublication	Summary*
DepthResolution	Depth Resolution
DocumentAccessInstructions	Summary*
EastBoundingCoordinate	Coverage
ElectronicMailAddress	email
FutureReviewDate	Future Review Date
GeographicalRegionName	General Keyword
GuideName	Summary*
InstrumentName	Source Name *and* Sensor Name
InstrumentType	Summary*
LatitudeResolution	Latitude Resolution
LocalityName	Location Keywords (Depends upon LocalityType)
LocalityType	Location Keywords
LongitudeResolution	Longitude Resolution

Table 6-2. Earth Science Data Model Attributes Mapped to the GCMD/DIF (3 of 5)

Earth Science Data Model Attributes	GCMD/DIF Field
LongName	Directory Entry Title (Required) (This DIF field is composed of two ECS Data Model attributes: LongName + CollectionDescription)
DistributionMedium	Storage Medium
NonInstrumentLongName	Source Name
NonInstrumentShortName	Source Name
NonInstrumentType	Summary*
NorthBoundingCoordinate	Coverage
NumberofCollections	Summary*
NumberofSensors	Summary*
OperationalQualityFlag	Quality
OperationMode	Summary*
ParameterDescription	Summary*
ParameterGroupKeyword	Discipline Keywords (Required)
ParameterMeasurementResolution	Summary*
ParameterName	Uncoltrolled Keyword
ParameterRange	Summary*
ParameterTopicKeyword	Topic *(Formerly Parameter Measured or Parameter Keyword)* (Required)
ParameterUnitsofMeasurement	Summary*
ParameterValue	Controlled Keyword
ParameterValueAccuracy	Summary*
ParameterValueAccuracyExplanation	Summary*
PlatformLongName	Source Name
PlatformShortName	Source Name
PostalCode	Postal Code (Required)
QualityFlagExplanation	Quality

Table 6-2. Earth Science Data Model Attributes Mapped to the GCMD/DIF (4 of 5)

Earth Science Data Model Attributes	GCMD/DIF Field
RangeBeginningDate	Start Date
RangeBeginningTime	Start Date
RangeEndingDate	Stop Date
RangeEndingTime	Stop Date
ReferencePaperID	Reference
RevisionDate	Revision Date
ScienceQualityFlag	Quality
ScienceReviewDate	Science Review Date
SensorCharacteristicName	Summary*
SensorCharacteristicType	Summary*
SensorCharacteristicUnit	Summary*
SensorCharacteristicValue	Summary*
SensorLongName	Sensor Name
SensorShortName	Sensor Name
ShortName	Directory Entry Identifier (Required)
ShortName	Dataset ID (Part of required group “Data Center” that is as a decomposed attribute optional by itself)
SouthBoundingCoordinate	Coverage
SpatialCoverageType	Location Keywords
SpatialKeyword	Location Keywords
StateProvince	Address (Required)
SuggestedUsage	Summary*
TelephoneNumber	phone (Required) (Depends upon TelephoneNumberType= “Facsimile”, “TDD/TTY”, “Voice”)
VersionID	Directory Entry Identifier (Required)

Table 6-2. Earth Science Data Model Attributes Mapped to the GCMD/DIF (5 of 5)

Earth Science Data Model Attributes	GCMD/DIF Field
VersionID	Dataset ID (Part of required group "Data Center" that is as a decomposed attribute optional by itself)
WestBoundingCoordinate	Coverage

* Summary is a required DIF "Field" however: the information suggested to be included is dependent upon the data being described and the availability of the data.

Table 6-3. GCMD/DIF Mapped to the Earth Science Data Model Attributes (1 of 5)

GCMD/DIF Field	Earth Science Data Model Attributes
Address (Required)	City
Address (Required)	Country
Address (Required)	StateProvince
Altitude Resolution	AltitudeResolution
Campaign or Project	CampaignName
Controlled Keyword	ParameterValue
Controlled Parameter	ControlledParameterKeyword
Coverage	EastBoundingCoordinate
Coverage	NorthBoundingCoordinate
Coverage	SouthBoundingCoordinate
Coverage	WestBoundingCoordinate
Data Center Name (Required) (Dependent upon domain value of Role= "Archive") Originating Center (Dependent upon domain value of Role= "Producer")	ContactOrganizationName
Data Center Name (Required)	DataCenterName

Table 6-3. GCMD/DIF Mapped to the Earth Science Data Model Attributes (2 of 5)

GCMD/DIF Field	Earth Science Data Model Attributes
Dataset ID (Part of required group “Data Center” that is as a decomposed attribute optional by itself)	ShortName
Dataset ID (Part of required group “Data Center” that is as a decomposed attribute optional by itself)	VersionID
Depth Resolution	DepthResolution
Directory Entry Identifier (Required)	ShortName
Directory Entry Identifier (Required)	VersionID
Directory Entry Title (Required) (This DIF field is composed of two ECS Data Model attributes: LongName + Description)	CollectionDescription
Directory Entry Title (Required) (This DIF field is composed of two ECS Data Model attributes: LongName + CollectionDescription)	LongName
Discipline Keywords (Required)	ParameterGroupKeyword
email	ElectronicMailAddress
first name (Required) Investigator, Technical Contact, Author (Dependent upon domain value of Role= “Investigator”, “Technical Contact”, or “Author”)	ContactFirstName
Future Review Date	FutureReviewDate
General Keyword	AggregationType
General Keyword	GeographicalRegionName
Investigator, Technical Contact, Data Center Contact (Dependency is Contact Name)	ContactJobPosition
last name (Required) Investigator, Technical Contact, Author (dependent upon domain value of Role= “Investigator”, “Technical Contact”, or “Author”)	ContactLastName

Table 6-3. GCMD/DIF Mapped to the Earth Science Data Model Attributes (3 of 5)

GCMD/DIF Field	Earth Science Data Model Attributes
Latitude Resolution	LatitudeResolution
Location Keywords (Depends upon LocalityType)	LocalityName
Location Keywords	LocalityType
Location Keywords	SpatialCoverageType
Location Keywords	SpatialKeyword
Longitude Resolution	LongitudeResolution
middle name (Required) Investigator, Technical Contact, Author (dependent upon domain value of Role= “Investigator”, “Technical Contact”, or “Author”)	ContactMiddleName
phone (Required) (Depends upon TelephoneNumberType= “Facsimile”, “TDD/TTY”, “Voice”)	TelephoneNumber
Postal Code (Required)	PostalCode
Quality	AutomaticQualityFlag
Quality	OperationalQualityFlag
Quality	QualityFlagExplanation
Quality	ScienceQualityFlag
Reference	ReferencePaperID
Revision Date	RevisionDate
Science Review Date	ScienceReviewDate
Sensor Name	SensorLongName
Sensor Name	SensorShortName
SensorName	InstrumentName
Source Name	InstrumentName
Source Name	NonInstrumentLongName
Source Name	NonInstrumentShortName

Table 6-3. GCMD/DIF Mapped to the Earth Science Data Model Attributes (4 of 5)

GCMD/DIF Field	Earth Science Data Model Attributes
Source Name	PlatformLongName
Source Name	PlatformShortName
Start Date	RangeBeginningDate
Start Date	RangeBeginningTime
Stop Date	RangeEndingDate
Stop Date	RangeEndingTime
Storage Medium	DistributionMedium
Summary*	AccessConstraints
Summary*	AlgorithmPackageAcceptanceDate
Summary*	AlgorithmPackageIntendedOperatingSystem
Summary*	AlgorithmPackageName
Summary*	AlgorithmPackageVersion
Summary*	DateofReferencePaperPublication
Summary*	DocumentAccessInstructions
Summary*	GuideName
Summary*	InstrumentType
Summary*	NonInstrumentType
Summary*	NumberofCollections
Summary*	NumberofSensors
Summary*	OperationMode
Summary*	ParameterDescription
Summary*	ParameterMeasurementResolution
Summary*	ParameterRange
Summary*	ParameterUnitsofMeasurement
Summary*	ParameterValueAccuracy
Summary*	ParameterValueAccuracyExplanation

Table 6-3. GCMD/DIF Mapped to the Earth Science Data Model Attributes (5 of 5)

GCMD/DIF Field	Earth Science Data Model Attributes
Summary*	SensorCharacteristicName
Summary*	SensorCharacteristicType
Summary*	SensorCharacteristicUnit
Summary*	SensorCharacteristicValue
Summary*	SuggestedUsage
Title Edition Originator Publication Date	CitationforExternalPublication
Topic *(Formerly Parameter Measured or Parameter Keyword)* (Required)	ParameterTopicKeyword
Uncoltrolled Keyword	ParameterName

* Summary is a required DIF "Field" however: the information is suggested to be included is dependent upon the data being described and the availability of the data.

7. The Internal Model: Data Server Subsystem

7.1 Data Server Subsystem Description

This subsystem has the responsibility for storing Earth Science and related data in a persistent fashion, providing search and retrieval access to this data, and supporting the administration of the data and the supporting hardware devices and software products. Other subsystems can access it directly or via the data management subsystem (if they need assistance with distributed searching). As part of its retrieval function, the subsystem also includes the capabilities needed to distribute bulk data via electronic file transfer or physical media. (Reference Technical Paper 19400436TP.)

The Data Server subsystem provides for persistent and temporary storage of the various data types that ECS is required to archive and provide accessibility to data and support the administration of the data. Towards this goal the following database tables have been designed and developed. Additionally, a cross reference table which serves to trace the Data Server Subsystem Design to the Earth Science Model is also provided below.

7.2 Relational Tables

The following tables represent the Dataserver Subsystem persistent data design for Release A. Each relational table is being described in this section. The description includes attribute names, types, and keys if appropriate.

Table 7-1. Data Server Relational Tables

Name : DsMdCollectionsDataOriginaXRef

Code : DsMdCollectionsDataOriginaXRef

Label :

Number :

Source :

Column Name	Code	Type	P	M
collectionId	collectionId	ID	Y	Y
dataOriginatorShortName	dataOriginatorShortName	char(10)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
xdataCollectionId	Y	Y	Y		collectionId	ASC
xdataOriginatorShortName	Y	Y	Y		dataOriginatorShortName	ASC

Reference To	Primary Key	Foreign Key
DsMdDataOriginator	dataOriginatorShortName	dataOriginatorShortName

Name : DsMdContactDataOriginatorXRef

Code : DsMdContactDataOriginatorXRef

Label :

Number :

Source :

Column Name	Code	Type	P	M
contactId	contactId	char(10)	Y	Y
dataOriginatorShortName	dataOriginatorShortName	char(10)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
DsMdContact_PK	Y	Y	Y		contactId	ASC
DsMdContact_FK1	Y	Y			dataOriginatorShortName	ASC

Reference To	Primary Key	Foreign Key
DsMdDataOriginator	dataOriginatorShortName	dataOriginatorShortName

Name : DsMdDataOriginator

Code : DsMdDataOriginator

Label :

Number :

Source :

Column Name	Code	Type	P	M
dataOriginatorShortName	dataOriginatorShortName	char(20)	Y	Y
dataOriginatorLongName	dataOriginatorLongName	char(80)		

Index Code	P	F	U	C	Column Code	Sort
DsMdDataOriginator_PK	Y		Y		dataOriginatorShortName	ASC

Referenced By	Foreign Key	Primary Key
DsMdCollectionsDataOriginaXRef	dataOriginatorShortName	dataOriginatorShortName
DsMdNonInstrument	dataOriginatorShortName	dataOriginatorShortName
DsMdInstrument	dataOriginatorShortName	dataOriginatorShortName
DsMdFieldCampaign	dataOriginatorShortName	dataOriginatorShortName
DsMdContactDataOriginatorXRef	dataOriginatorShortName	dataOriginatorShortName

Name : DsMdFieldCampaign

Code : DsMdFieldCampaign

Label :

Number :

Source :

Column Name	Code	Type	P	M
dataOriginatorShortName	dataOriginatorShortName	char(20)	Y	Y
campaignProjectStartDate	campaignProjectStartDate	datetime	Y	Y
campaignProjectStopDate	campaignProjectStopDate	datetime	Y	Y
fieldCampaignName	fieldCampaignName	char(80)		

Index Code	P	F	U	C	Column Code	Sort
DsMdFieldCampaign_PK	Y		Y		dataOriginatorShortName	ASC
					campaignProjectStartDate	ASC
					campaignProjectStopDate	ASC

Reference To	Primary Key	Foreign Key
DsMdDataOriginator	dataOriginatorShortName	dataOriginatorShortName

Referenced By	Foreign Key	Primary Key
DsMdInstrumentFieldCampaiXRef	dataOriginatorShortName	dataOriginatorShortName
	campaignProjectStartDate	campaignProjectStartDate
	campaignProjectStopDate	campaignProjectStopDate
DsMdNonInstruFieldCampaiXRef	dataOriginatorShortName	dataOriginatorShortName
	campaignProjectStartDate	campaignProjectStartDate
	campaignProjectStopDate	campaignProjectStopDate

Name : DsMdInstrument

Code : DsMdInstrument

Label :

Number :

Source :

Column Name	Code	Type	P	M
dataOriginatorShortName	dataOriginatorShortName	char(20)	Y	Y
instrumentType	instrumentType	char(20)	Y	Y
numberOfSensors	numberOfSensors	smallint		

Index Code	P	F	U	C	Column Code	Sort
DsMdInstrumentType_PK	Y		Y		dataOriginatorShortName	ASC
					instrumentType	ASC

Reference To	Primary Key	Foreign Key
DsMdDataOriginator	dataOriginatorShortName	dataOriginatorShortName

Referenced By	Foreign Key	Primary Key
DsMdInstrumentFieldCampaiXRef	instrumentType	instrumentType
	dataOriginatorShortName	dataOriginatorShortName
DsMdInstrumentPlatformXRef	dataOriginatorShortName instrumentType	dataOriginatorShortName instrumentType
DsMdInstrumentSensorXRef	dataOriginatorShortName instrumentType	dataOriginatorShortName instrumentType
DsMdOperationMode	dataOriginatorShortName instrumentType	dataOriginatorShortName instrumentType

Name : DsMdInstrumentFieldCampaiXRef

Code : DsMdInstrumentFieldCampaiXRef

Label :

Number :

Source :

Column Name	Code	Type	P	M
dataOriginatorShortName	dataOriginatorShortName	char(20)	Y	Y
campaignProjectStartDate	campaignProjectStartDate	datetime	Y	Y
campaignProjectStopDate	campaignProjectStopDate	datetime	Y	Y
instrumentType	instrumentType	char(20)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
canMakeUseOf_PK	Y	Y	Y		dataOriginatorShortName	ASC
					campaignProjectStartDate	ASC
					campaignProjectStopDate	ASC
					instrumentType	ASC

Reference To	Primary Key	Foreign Key
DsMdInstrument	instrumentType dataOriginatorShortName	instrumentType dataOriginatorShortName
DsMdFieldCampaign	dataOriginatorShortName campaignProjectStartDate campaignProjectStopDate	dataOriginatorShortName campaignProjectStartDate campaignProjectStopDate

Name : DsMdInstrumentPlatformXRef

Code : DsMdInstrumentPlatformXRef

Label :

Number :

Source :

Column Name	Code	Type	P	M
dataOriginatorShortName	dataOriginatorShortName	char(20)	Y	Y
instrumentType	instrumentType	char(20)	Y	Y
platformShortName	platformShortName	char(20)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
isMountedOn_PK	Y	Y	Y		dataOriginatorShortName	ASC
					instrumentType	ASC
					platformShortName	ASC

Reference To	Primary Key	Foreign Key
DsMdPlatform	platformShortName	platformShortName
DsMdInstrument	dataOriginatorShortName instrumentType	dataOriginatorShortName instrumentType

Name : DsMdInstrumentSensorXRef

Code : DsMdInstrumentSensorXRef

Label :

Number :

Source :

Column Name	Code	Type	P	M
dataOriginatorShortName	dataOriginatorShortName	char(20)	Y	Y
instrumentType	instrumentType	char(20)	Y	Y
sensorType	sensorType	char(40)	Y	Y
sensorShortName	sensorShortName	char(20)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
hasAnArrayof_PK	Y	Y	Y		dataOriginatorShortName	ASC
					instrumentType	ASC
					sensorType	ASC
					sensorShortName	ASC

Reference To	Primary Key	Foreign Key
DsMdSensor	sensorType sensorShortName	sensorType sensorShortName
DsMdInstrument	dataOriginatorShortName instrumentType	dataOriginatorShortName instrumentType

Name : DsMdNonInstruFieldCampaiXRef

Code : DsMdNonInstruFieldCampaiXRef

Label :

Number :

Source :

Column Name	Code	Type	P	M
dataOriginatorShortName	dataOriginatorShortName	char(10)	Y	Y
campaignProjectStartDate	campaignProjectStartDate	datetime	Y	Y
campaignProjectStopDate	campaignProjectStopDate	datetime	Y	Y
nonInstrumentShortName	nonInstrumentShortName	char(20)	Y	Y
nonInstrumentType	nonInstrumentType	char(20)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
canMakeUseOf_PK2	Y	Y	Y		dataOriginatorShortName	ASC
					campaignProjectStartDate	ASC
					campaignProjectStopDate	ASC
					nonInstrumentShortName	ASC
					nonInstrumentType	ASC

Reference To	Primary Key	Foreign Key
DsMdFieldCampaign	dataOriginatorShortName campaignProjectStartDate campaignProjectStopDate	dataOriginatorShortName campaignProjectStartDate campaignProjectStopDate
DsMdNonInstrument	dataOriginatorShortName nonInstrumentShortName	dataOriginatorShortName nonInstrumentShortName

Name : DsMdNonInstrument

Code : DsMdNonInstrument

Label :

Number :

Source :

Column Name	Code	Type	P	M
dataOriginatorShortName	dataOriginatorShortName	char(20)	Y	Y
nonInstrumentShortName	nonInstrumentShortName	char(20)	Y	Y
nonInstrumentLongName	nonInstrumentLongName	char(80)		
nonInstrumentType	nonInstrumentType	char(20)		
modelName	modelName	char(20)		
modelDescription	modelDescription	varchar(255)		
boundaryData	boundaryData	char(40)		
dynamicStaticFlag	dynamicStaticFlag	char(10)		

Index Code	P	F	U	C	Column Code	Sort
DsMdNonInstrument_PK	Y		Y		dataOriginatorShortName	ASC
					nonInstrumentShortName	ASC

Reference To	Primary Key	Foreign Key
DsMdDataOriginator	dataOriginatorShortName	dataOriginatorShortName

Referenced By	Foreign Key	Primary Key
DsMdNonInstruFieldCampaiXRef	dataOriginatorShortName	dataOriginatorShortName
	nonInstrumentShortName	nonInstrumentShortName

Name : DsMdOperationMode

Code : DsMdOperationMode

Label :

Number :

Source :

Column Name	Code	Type	P	M
dataOriginatorShortName	dataOriginatorShortName	char(20)	Y	Y
instrumentType	instrumentType	char(20)	Y	Y
operationMode	operationMode	char(20)	Y	Y
granuleId	granuleId	ID		

Reference To	Primary Key	Foreign Key
DsMdInstrument	dataOriginatorShortName instrumentType	dataOriginatorShortName instrumentType

Name : DsMdPlatform

Code : DsMdPlatform

Label :

Number :

Source :

Column Name	Code	Type	P	M
platformShortName	platformShortName	char(20)	Y	Y
platformLongName	platformLongName	char(80)		

Index Code	P	F	U	C	Column Code	Sort
DsMdPlatform_PK	Y		Y		platformShortName	ASC

Referenced By	Foreign Key	Primary Key
DsMdPlatformCharacteristic	platformShortName	platformShortName
DsMdInstrumentPlatformXRef	platformShortName	platformShortName

Name : DsMdPlatformCharacteristic

Code : DsMdPlatformCharacteristic

Label :

Number :

Source :

Column Name	Code	Type	P	M
platformCharacteristicName	platformCharacteristicName	char(80)	Y	Y
platformShortName	platformShortName	char(20)	Y	Y
platformCharacteristicValue	platformCharacteristicValue	char(20)	Y	Y
platformCharacteristicUnit	platformCharacteristicUnit	char(20)	Y	Y
platformCharacteristicType	sensorCharacteristicType2	char(20)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
DsMdPlatformCharacteristic_PK	Y		Y		platformCharacteristicName	ASC
DsMdPlatformCharacteristic_FK1		Y			platformShortName	ASC

Reference To	Primary Key	Foreign Key
DsMdPlatform	platformShortName	platformShortName

Name : DsMdSensor

Code : DsMdSensor

Label :

Number :

Source :

Column Name	Code	Type	P	M
sensorType	sensorType	char(40)	Y	Y
sensorShortName	sensorShortName	char(20)	Y	Y
sensorLongName	sensorLongName	char(80)		

Index Code	P	F	U	C	Column Code	Sort
DsMdSensor_PK	Y		Y		sensorType	ASC
					sensorShortName	ASC

Referenced By	Foreign Key	Primary Key
DsMdSensorMode	sensorType sensorShortName	sensorType sensorShortName
DsMdInstrumentSensorXRef	sensorType sensorShortName	sensorType sensorShortName

Name : DsMdSensorCharacteristic

Code : DsMdSensorCharacteristic

Label :

Number :

Source :

Column Name	Code	Type	P	M
sensorCharacteristicName	sensorCharacteristicName	char(20)	Y	Y
sensorCharacteristicValue	sensorCharacteristicValue	smallint	Y	Y
sensorCharacteristicUnit	sensorCharacteristicUnit	char(20)	Y	Y
sensorCharacteristicType	sensorCharacteristicType	char(20)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
DsMdSensorCharacteristic_PK	Y		Y		sensorCharacteristicName	ASC

Referenced By	Foreign Key	Primary Key
DsMdSensorMode	sensorCharacteristicName	sensorCharacteristicName
DsMdSensorCharacteristicXref	sensorCharacteristicName sensorCharacteristicValue sensorCharacteristicUnit sensorCharacteristicType	sensorCharacteristicName sensorCharacteristicValue sensorCharacteristicUnit sensorCharacteristicType

Name : DsMdSensorCharacteristicXref

Code : DsMdSensorCharacteristicXref

Label :

Number :

Source :

Column Name	Code	Type	P	M
sensorCharacteristicName	sensorCharacteristicName	char(20)	Y	Y
sensorCharacteristicValue	sensorCharacteristicValue	smallint	Y	Y
sensorCharacteristicUnit	sensorCharacteristicUnit	char(20)	Y	Y
sensorCharacteristicType	sensorCharacteristicType	char(20)	Y	Y
sensorType	sensorType	char(40)	Y	Y
sensorShortName	sensorShortName	char(20)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
DsMdSensorCharacteristic_PK2	Y		Y		sensorCharacteristicName	ASC

Reference To	Primary Key	Foreign Key
DsMdSensorCharacteristic	sensorCharacteristicName sensorCharacteristicValue sensorCharacteristicUnit sensorCharacteristicType	sensorCharacteristicName sensorCharacteristicValue sensorCharacteristicUnit sensorCharacteristicType

Name : DsMdSensorMode

Code : DsMdSensorMode

Label :

Number :

Source :

Column Name	Code	Type	P	M
sensorType	sensorType	char(20)	Y	Y
sensorShortName	sensorShortName	char(10)	Y	Y
sensorCharacteristicName	sensorCharacteristicName	char(20)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
hasSensorCharacteristics_PK	Y	Y	Y		sensorType	ASC
					sensorShortName	ASC
					sensorCharacteristicName	ASC

Reference To	Primary Key	Foreign Key
DsMdSensorCharacteristic	sensorCharacteristicName	sensorCharacteristicName
DsMdSensor	sensorType sensorShortName	sensorType sensorShortName

Name : DsMdDAPCollectionsXRef

Code : DsMdDAPCollectionsXRef

Label :

Number :

Source :

Column Name	Code	Type	P	M
collectionId	collectionId	ID	Y	Y
algorithmPackageName	algorithmPackageName	char(80)	Y	Y
algorithmPackageVersion	algorithmPackageVersion	char(6)	Y	Y
algorithmPackageMaturityCode	algorithmPackageMaturityCode	char(20)	Y	Y
algorithmPackageAcceptanceDate	algorithmPackageAcceptanceDate	datetime	Y	Y
deliveryPurpose	deliveryPurpose	char(255)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
RELATION_43_PK	Y	Y	Y		collectionId	ASC
					algorithmPackageName	ASC
					algorithmPackageVersion	ASC
					algorithmPackageMaturityCode	ASC

Reference To	Primary Key	Foreign Key
DsMdDeliveredAlgorithmPackage	algorithmPackageName algorithmPackageVersion algorithmPackageMaturityCode	algorithmPackageName algorithmPackageVersion algorithmPackageMaturityCode

Name : DsMdDAPContactXRef

Code : DsMdDAPContactXRef

Label :

Number :

Source :

Column Name	Code	Type	P	M
algorithmPackageName	algorithmPackageName	char(80)	Y	Y
algorithmPackageVersion	algorithmPackageVersion	char(6)	Y	Y
algorithmPackageMaturityCode	algorithmPackageMaturityCode	char(20)	Y	Y
algorithmPackageAcceptanceDate	algorithmPackageAcceptanceDate	datetime	Y	Y
deliveryPurpose	deliveryPurpose	char(255)	Y	Y
contactId	contactId	ID	Y	Y

Index Code	P	F	U	C	Column Code	Sort
RELATION_45_PK	Y	Y	Y		algorithmPackageName	ASC
					algorithmPackageVersion	ASC
					algorithmPackageMaturityCode	ASC

Reference To	Primary Key	Foreign Key
DsMdDeliveredAlgorithmPackage	algorithmPackageName	algorithmPackageName
	algorithmPackageVersion	algorithmPackageVersion
	algorithmPackageMaturityCode	algorithmPackageMaturityCode

Name : DsMdDAPContactXRef2

Code : DsMdDAPContactXRef2

Label :

Number :

Source :

Column Name	Code	Type	P	M
contactId	contactId	ID	Y	Y
algorithmPackageName	algorithmPackageName	char(80)		
algorithmPackageVersion	algorithmPackageVersion	char(6)		
algorithmPackageMaturityCode	algorithmPackageMaturityCode	char(20)		
algorithmPackageAcceptanceDate	algorithmPackageAcceptanceDate	datetime		
deliveryPurpose	deliveryPurpose	char(255)		

Name : DsMdDAPDocumentXRef

Code : DsMdDAPDocumentXRef

Label :

Number :

Source :

Column Name	Code	Type	P	M
documentId	documentId	ID	Y	Y
algorithmPackageName	algorithmPackageName	char(80)	Y	Y
algorithmPackageVersion	algorithmPackageVersion	char(6)	Y	Y
algorithmPackageMaturityCode	algorithmPackageMaturityCode	char(20)	Y	Y
algorithmPackageAcceptanceDate	algorithmPackageAcceptanceDate	datetime	Y	Y
deliveryPurpose	deliveryPurpose	char(255)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
RELATION_44_PK	Y	Y	Y		documentId	ASC
					algorithmPackageName	ASC
					algorithmPackageVersion	ASC
					algorithmPackageMaturityCode	ASC

Reference To	Primary Key	Foreign Key
DsMdDeliveredAlgorithmPackage	algorithmPackageName algorithmPackageVersion algorithmPackageMaturityCode	algorithmPackageName algorithmPackageVersion algorithmPackageMaturityCode

Name : DsMdDeliveredAlgorithmPackage

Code : DsMdDeliveredAlgorithmPackage

Label :

Number :

Source :

Column Name	Code	Type	P	M
algorithmPackageName	algorithmPackageName	char(80)	Y	Y
algorithmPackageVersion	algorithmPackageVersion	char(6)	Y	Y
algorithmPackageMaturityCode	algorithmPackageMaturityCode	char(20)	Y	Y
algorithmPackageAcceptanceDate	algorithmPackageAcceptanceDate	datetime	Y	Y
dateSWLastModified	dateSWLastModified	datetime		
datePGELastModified	datePGELastModified	datetime		
deliveryPurpose	deliveryPurpose	char(255)	Y	Y
historySummary	historySummary	char(255)		
resolvedProblemReportFilenam	resolvedProblemReportFilenam	char(80)		
unresolvedProblemReportFilenam	unresolvedProblemReportFilenam	char(80)		
deliveryContentListPointer	deliveryContentListPointer	varchar(255)		
descriptionType	descriptionType	char(64)		
contextDiagramPointer	contextDiagramPointer	varchar(255)		
changeLogPointer	changeLogPointer	varchar(255)		
systemDescriptionPointer	systemDescriptionPointer	varchar(255)		
piResourceRequirement	piResourceRequirement	varchar(255)		
swDevelopmentStandardPointer	swDevelopmentStandardPointer	varchar(255)		
processingFileDescPointer	processingFileDescPointer	varchar(255)		
programmersGuidePointer	programmersGuidePointer	varchar(255)		
atbdPointer	atbdPointer	varchar(255)		
detailedDesignPointer	detailedDesignPointer	varchar(255)		
testPlanPointer	testPlanPointer	varchar(255)		
performanceTestResultsPointer	performanceTestResultsPointer	varchar(255)		
operationManualPointer	operationManualPointer	varchar(255)		
sOfSWSourceCodePointer	sOfSWSourceCodePointer	varchar(255)		
sOfSWScriptPointer	sOfSWScriptPointer	varchar(255)		
linkAndCompileScriptPointer	linkAndCompileScriptPointer	varchar(255)		
testSourceCodePointer	testSourceCodePointer	varchar(255)		
testScriptPointer	testScriptPointer	varchar(255)		
resultTempFilePointer	resultTempFilePointer	varchar(255)		
resultProductFilePointer	resultProductFilePointer	varchar(255)		
resultReportPointer	resultReportPointer	varchar(255)		
metadataConfigFilePointer	metadataConfigFilePointer	varchar(255)		
instrumentScienceDataPointer	instrumentScienceDataPointer	varchar(255)		

Column Name	Code	Type	P	M
instrumentEngineeerDataPointer	instrumentEngineeerDataPointer	varchar(255)		
platformAncillaryDataPointer	platformAncillaryDataPointer	varchar(255)		
externalDataPointer	externalDataPointer	varchar(255)		
calibrationQualityPointer	calibrationQualityPointer	varchar(255)		
calibrationFilesPointer	calibrationFilesPointer	varchar(255)		
processContParmResFilesPointer	processContParmResFilesPointer	varchar(255)		
pgeConfigFilePointer	pgeConfigFilePointer	varchar(255)		
pgeName	pgeName	char(20)		
pgeFunction	pgeFunction	char(80)		
pgeIdentifier	pgeIdentifier	varchar(255)		
testSiteConfigPointer	testSiteConfigPointer	varchar(255)		
compileInfoPointer	compileInfoPointer	varchar(255)		
processingDependiciesPointer	processingDependiciesPointer	varchar(255)		
pgeErrorLogPointer	pgeErrorLogPointer	varchar(255)		
documentId	documentId	ID		

Index Code	P	F	U	C	Column Code	Sort
DsMdDeliveredAlgorithmPacka_PK	Y		Y		algorithmPackageName	ASC
					algorithmPackageVersion	ASC
					algorithmPackageMaturityCode	ASC

Referenced By	Foreign Key	Primary Key
DsMdDAPContactXRef	algorithmPackageName algorithmPackageVersion algorithmPackageMaturityCode	algorithmPackageName algorithmPackageVersion algorithmPackageMaturityCode
DsMdDAPDocumentXRef	algorithmPackageName algorithmPackageVersion algorithmPackageMaturityCode	algorithmPackageName algorithmPackageVersion algorithmPackageMaturityCode
DsMdDAPCollectionsXRef	algorithmPackageName algorithmPackageVersion algorithmPackageMaturityCode	algorithmPackageName algorithmPackageVersion algorithmPackageMaturityCode
DsMdPGEVersion	algorithmPackageName algorithmPackageVersion algorithmPackageMaturityCode algorithmPackageAcceptanceDate deliveryPurpose	algorithmPackageName algorithmPackageVersion algorithmPackageMaturityCode algorithmPackageAcceptanceDate deliveryPurpose

Name : DsMdPGEVersion

Code : DsMdPGEVersion

Label :

Number :

Source :

Column Name	Code	Type	P	M
algorithmPackageName	algorithmPackageName	char(80)	Y	Y
algorithmPackageVersion	algorithmPackageVersion	char(6)	Y	Y
algorithmPackageMaturityCode	algorithmPackageMaturityCode	char(20)	Y	Y
algorithmPackageAcceptanceDate	algorithmPackageAcceptanceDate	datetime	Y	Y
deliveryPurpose	deliveryPurpose	char(255)	Y	Y
granuleId	granuleId	ID	Y	Y
PGEVersion	PGEVersion	float	Y	Y

Reference To	Primary Key	Foreign Key
DsMdDeliveredAlgorithmPackage	algorithmPackageName algorithmPackageVersion algorithmPackageMaturityCode algorithmPackageAcceptanceDate deliveryPurpose	algorithmPackageName algorithmPackageVersion algorithmPackageMaturityCode algorithmPackageAcceptanceDate deliveryPurpose

Name : DsDoStandAloneDocument

Code : DsDoStandAloneDocument

Label :

Number :

Source :

Column Name	Code	Type	P	M
publicationDate	publicationDate	datetime	Y	Y
referencePaperID	referencePaperID	char(20)	Y	Y
referencePaperType	referencePaperType	char(20)	Y	Y
documentId	documentId	ID	Y	Y
documentName	documentName	char(80)	Y	Y
documentFormat	documentFormat	char(80)	Y	Y
documentAccessInstructions	documentAccessInstructions	char(255)		Y

Referenced By	Foreign Key	Primary Key
DsMdDocument	documentId	documentId

Name : DsDoStandAloneDocument2

Code : DsDoStandAloneDocument2

Label :

Number :

Source :

Column Name	Code	Type	P	M
publicationDate	publicationDate	datetime	Y	Y
referencePaperID	referencePaperID	char(20)	Y	Y
referencePaperType	referencePaperType	char(20)	Y	Y
documentId	documentId	ID	Y	Y
documentName	documentName	char(80)	Y	Y
documentFormat	documentFormat	char(80)	Y	Y
documentAccessInstructions	documentAccessInstructions	char(255)		Y

Name : DsMdATBD

Code : DsMdATBD

Label :

Number :

Source :

Column Name	Code	Type	P	M
documentId	documentId	ID	Y	Y
descriptionType	descriptionType	char(64)	Y	Y
atbdPointer	atbdName	char(64)		

Reference To	Primary Key	Foreign Key
DsMdDocument	documentId	documentId

Name : DsMdAuthor

Code : DsMdAuthor

Label :

Number :

Source :

Column Name	Code	Type	P	M
authorName	authorName	char(64)	Y	Y
authorAffiliation	authorAffiliation	char(64)		

Reference To	Primary Key	Foreign Key
DsMdDocumentAuthorXRef	authorName	authorName

Name : DsMdCollectionsDocumentXRef

Code : DsMdCollectionsDocumentXRef

Label :

Number :

Source :

Column Name	Code	Type	P	M
collectionId	collectionId	ID	Y	Y
documentId	documentId	ID	Y	Y

Index Code	P	F	U	C	Column Code	Sort
DsMdECSDataCollection_PK	Y	Y	Y		collectionId	ASC

Referenced By	Foreign Key	Primary Key
DsMdDocument	collectionId	collectionId

Name : DsMdCSDT

Code : DsMdCSDT

Label :

Number :

Source :

Column Name	Code	Type	P	M
documentId	documentId	ID	Y	Y
name	name	char(40)		Y
type	type	char(40)		Y

Index Code	P	F	U	C	Column Code	Sort
xName			Y		name	ASC
					type	ASC

Referenced By	Foreign Key	Primary Key
DsMdDocument	documentId	documentId

Name : DsMdCSDT2

Code : DsMdCSDT2

Label :

Number :

Source :

Column Name	Code	Type	P	M
documentId	documentId	ID	Y	Y
name	name	char(40)		Y
type	type	char(40)		Y

Index Code	P	F	U	C	Column Code	Sort
xName2			Y		name	ASC
					type	ASC

Name : DsMdDataCentreGuide

Code : DsMdDataCentreGuide

Label :

Number :

Source :

Column Name	Code	Type	P	M
documentId	documentId	ID	Y	Y
guideName	guideName	char(64)	Y	Y
dataCenter	dataCenter	char(8)	Y	Y
dataCentreName	dataCentreName	char(64)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
xDocumentId	Y		Y		documentId	ASC
					dataCentreName	ASC

Reference To	Primary Key	Foreign Key
DsMdDocument	documentId	documentId

Name : DsMdDetailedDesign

Code : DsMdDetailedDesign

Label :

Number :

Source :

Column Name	Code	Type	P	M
documentId	documentId	ID	Y	Y
descriptionType	descriptionType	char(64)	Y	Y
detailedDesignPointer	detailedDesignPointer	char(64)		

Reference To	Primary Key	Foreign Key
DsMdDocument	documentId	documentId

Name : DsMdDocument

Code : DsMdDocument

Label :

Number :

Source :

Column Name	Code	Type	P	M
documentId	documentId	ID	Y	Y
collectionId	collectionId	char(10)		Y
documentTitle	documentTitle	char(255)	Y	Y
documentVersion	documentVersion	char(8)	Y	Y
documentCreated	documentCreated	datetime	Y	Y
documentUpdated	documentUpdated	datetime	Y	Y

Index Code	P	F	U	C	Column Code	Sort
xDocumentId		Y	Y		collectionId	ASC

Reference To	Primary Key	Foreign Key
DsMdCSDT	documentId	documentId
DsMdCollectionsDocumentXRef	collectionId	collectionId
DsDoStandAloneDocument	documentId	documentId
DsMdReferencePaper	documentId	documentId
DsMdGranulesDocumentXRef	documentId	documentId

Referenced By	Foreign Key	Primary Key
DsMdRegionalAreaDefnGuide	documentId	documentId
DsMdGuide	documentId	documentId
DsMdProjSubsetInstrumentGuide	documentId	documentId
DsMdProjectCampaignGuide	documentId	documentId
DsMdSensorPlatformGuide	documentId	documentId

Referenced By	Foreign Key	Primary Key
DsMdSourcePlatformGuide	documentId	documentId
DsMdDataCentreGuide	documentId	documentId
DsMdSystemDescription	documentId	documentId
DsMdProcessingFileDescription	documentId	documentId
DsMdATBD	documentId	documentId
DsMdTestPlan	documentId	documentId
DsMdOperationsManual	documentId	documentId
DsMdSWDevelopmentStandard	documentId	documentId
DsMdProgrammersGuide	documentId	documentId
DsMdPerformanceTestResults	documentId	documentId
DsMdDetailedDesign	documentId	documentId

Name : DsMdDocumentAuthorXRef

Code : DsMdDocumentAuthorXRef

Label :

Number :

Source :

Column Name	Code	Type	P	M
authorName	authorName	char(64)	Y	Y
authorAffiliation	authorAffiliation	char(64)		
documentTitle	documentTitle	char(255)		
documentVersion	documentVersion	char(8)		
documentCreated	documentCreated	datetime		
documentUpdated	documentUpdated	datetime		

Referenced By	Foreign Key	Primary Key
DsMdAuthor	authorName	authorName

Name : DsMdGranulesDocumentXRef

Code : DsMdGranulesDocumentXRef

Label :

Number :

Source :

Column Name	Code	Type	P	M
granuleId	granuleId	ID	Y	Y
documentId	documentId	ID	Y	Y

Index Code	P	F	U	C	Column Code	Sort
DsMdECSDataCollection_PK2	Y	Y	Y		granuleId	ASC

Referenced By	Foreign Key	Primary Key
DsMdDocument	documentId	documentId

Name : DsMdGuide

Code : DsMdGuide

Label :

Number :

Source :

Column Name	Code	Type	P	M
documentId	documentId	ID	Y	Y
guideName	guideName	char(64)	Y	Y
dataCenter	dataCenter	char(8)	Y	Y
guidePointer	guidePointer	char(255)	Y	Y
sensorShortName	sensorShortName	char(64)		
platformShortName	platformShortName	char(64)		
campaignName	campaignName	char(64)		
storageStrategy	storageStrategy	char(64)		
dataCenterName	dataCenterName	char(64)		
geographicalRegionalname	geographicalRegionalName	char(64)		

Index Code	P	F	U	C	Column Code	Sort
xDocumentId	Y	Y	Y		documentId	ASC

Reference To	Primary Key	Foreign Key
DsMdDocument	documentId	documentId

Name : DsMdOperationsManual

Code : DsMdOperationsManual

Label :

Number :

Source :

Column Name	Code	Type	P	M
documentId	documentId	ID	Y	Y
descriptionType	descriptionType	char(64)	Y	Y
operationsManualPointer	operationsManualPointer	char(64)		

Reference To	Primary Key	Foreign Key
DsMdDocument	documentId	documentId

Name : DsMdPerformanceTestResults

Code : DsMdPerformanceTestResults

Label :

Number :

Source :

Column Name	Code	Type	P	M
documentId	documentId	ID	Y	Y
descriptionType	descriptionType	char(64)	Y	Y
performanceTestResultsPointer	performanceTestResultsPointer	char(64)		

Reference To	Primary Key	Foreign Key
DsMdDocument	documentId	documentId

Name : DsMdProcessingFileDescription

Code : DsMdProcessingFileDescription

Label :

Number :

Source :

Column Name	Code	Type	P	M
documentId	documentId	ID	Y	Y
descriptionType	descriptionType	char(64)	Y	Y
processingFileDescripPointer	processingFileDescripPointer	char(64)		

Reference To	Primary Key	Foreign Key
DsMdDocument	documentId	documentId

Name : DsMdProductionPlan

Code : DsMdProductionPlan

Label :

Number :

Source :

Column Name	Code	Type	P	M
documentId	documentId	ID	Y	Y
DAACName	DAACName	char(8)	Y	Y
productionPlanStartDate	productionPlanStartDate	datetime	Y	Y
productionPlanEndDate	productionPlanEndDate	datetime	Y	Y
productionPlanForecast	productionPlanForecast	datetime	Y	Y
productionPlanDescription	productionPlanDescription	varchar(255)	Y	Y
plannedDataSetsPointer	plannedDataSetsPointer	varchar(255)		
productionPlanPointer	productionPlanPointer	varchar(255)		

Name : DsMdProgrammersGuide

Code : DsMdProgrammersGuide

Label :

Number :

Source :

Column Name	Code	Type	P	M
documentId	documentId	ID	Y	Y
descriptionType	descriptionType	char(64)	Y	Y
programmersGuidePointer	programmersGuidePointer	char(64)		

Reference To	Primary Key	Foreign Key
DsMdDocument	documentId	documentId

Name : DsMdProjectCampaignGuide

Code : DsMdProjectCampaignGuide

Label :

Number :

Source :

Column Name	Code	Type	P	M
documentId	documentId	ID	Y	Y
guideName	guideName	char(64)	Y	Y
dataCenter	dataCenter	char(8)	Y	Y
campaignName	campaignName	char(64)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
xDocumentId	Y		Y		documentId	ASC
					campaignName	ASC

Reference To	Primary Key	Foreign Key
DsMdDocument	documentId	documentId

Name : DsMdProjSubsetInstrumentGuide

Code : DsMdProjSubsetInstrumentGuide

Label :

Number :

Source :

Column Name	Code	Type	P	M
documentId	documentId	ID	Y	Y
guideName	guideName	char(64)	Y	Y
dataCenter	dataCenter	char(8)	Y	Y
storageStrategy	storageStrategy	char(255)	Y	Y
formatName	formatName	char(64)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
xDocumentId	Y		Y		documentId	ASC
					storageStrategy	ASC
					formatName	ASC

Reference To	Primary Key	Foreign Key
DsMdDocument	documentId	documentId

Name : DsMdReferencePaper

Code : DsMdReferencePaper

Label :

Number :

Source :

Column Name	Code	Type	P	M
referencePaperReference	referencePaperReference	char(20)	Y	Y
dateReferencePaperPublication	dateReferencePaperPublication	datetime	Y	Y
referencePaperType	referencePaperType	char(40)	Y	Y
documentId	documentId	ID	Y	Y
abstractPointer	abstractPointer	char(255)	Y	Y
accessInstructions	accessInstructions	char(255)		
journalArticleName	journalArticleName	char(80)		

Index Code	P	F	U	C	Column Code	Sort
DsGeScienceSoftwareArchPac_FK1	Y	Y			documentId	ASC

Referenced By	Foreign Key	Primary Key
DsMdDocument	documentId	documentId

Name	:	DsMdRegionalAreaDefnGuide
Code	:	DsMdRegionalAreaDefnGuide
Label	:	
Number	:	
Source	:	

Column Name	Code	Type	P	M
documentId	documentId	ID	Y	Y
guideName	guideName	char(64)	Y	Y
dataCenter	dataCenter	char(8)	Y	Y
geographicalRegionName	geographicalRegionName	char(64)	Y	Y
geographicalRegionLocation	geographicalRegionLocation	char(64)		
geographicalNormalWeather	geographicalNormalWeather	char(255)		
geographicalRegionTopography	geographicalRegionTopography	char(255)		
geographicalRegionVegetation	geographicalRegionVegetation	char(255)		
geographicalRegionLandUseCover	geographicalRegionLandUseCover	char(255)		

Index Code	P	F	U	C	Column Code	Sort
xDocumentId	Y		Y		documentId	ASC
					geographicalRegionName	ASC

Reference To	Primary Key	Foreign Key
DsMdDocument	documentId	documentId

Name : DsMdSensorPlatformGuide

Code : DsMdSensorPlatformGuide

Label :

Number :

Source :

Column Name	Code	Type	P	M
documentId	documentId	ID	Y	Y
guideName	guideName	char(64)	Y	Y
dataCenter	dataCenter	char(8)	Y	Y
sensorName	sensorName	char(64)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
xDocumentId	Y		Y		documentId	ASC
					sensorName	ASC

Reference To	Primary Key	Foreign Key
DsMdDocument	documentId	documentId

Name : DsMdSourcePlatformGuide

Code : DsMdSourcePlatformGuide

Label :

Number :

Source :

Column Name	Code	Type	P	M
documentId	documentId	ID	Y	Y
guideName	guideName	char(64)	Y	Y
dataCenter	dataCenter	char(8)	Y	Y
sourceName	sourceName	char(64)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
xDocumentId	Y		Y		documentId	ASC
					sourceName	ASC

Reference To	Primary Key	Foreign Key
DsMdDocument	documentId	documentId

Name : DsMdSWDevelopmentStandard

Code : DsMdSWDevelopmentStandard

Label :

Number :

Source :

Column Name	Code	Type	P	M
documentId	documentId	ID	Y	Y
descriptionType	descriptionType	char(64)	Y	Y
swDevlopmentStandardPointer	swDevlopmentStandardPointer	char(64)		

Reference To	Primary Key	Foreign Key
DsMdDocument	documentId	documentId

Name : DsMdSystemDescription

Code : DsMdSystemDescription

Label :

Number :

Source :

Column Name	Code	Type	P	M
documentId	documentId	ID	Y	Y
descriptionType	descriptionType	char(64)	Y	Y
systemDescriptionPointer	systemDescriptionPointer	char(64)		

Reference To	Primary Key	Foreign Key
DsMdDocument	documentId	documentId

Name : DsMdTestPlan

Code : DsMdTestPlan

Label :

Number :

Source :

Column Name	Code	Type	P	M
documentId	documentId	ID	Y	Y
descriptionType	descriptionType	char(64)	Y	Y
testPlanPointer	testPlanPointer	char(64)		

Reference To	Primary Key	Foreign Key
DsMdDocument	documentId	documentId

Name : DsMdType

Code : DsMdType

Label :

Number :

Source :

Column Name	Code	Type	P	M
typeId	typeId	char(40)	Y	Y
typeName	typeName	char(64)		Y

Index Code	P	F	U	C	Column Code	Sort
xDsMdType			Y		typeId	ASC
					typeName	ASC

Name : DsMdType2

Code : DsMdType2

Label :

Number :

Source :

Column Name	Code	Type	P	M
typeId	typeId	char(40)	Y	Y
typeName	typeName	char(64)		Y

Index Code	P	F	U	C	Column Code	Sort
xDsMdType2			Y		typeId	ASC
					typeName	ASC

Name : CSDTDescription

Code : CSDTDescription

Label :

Number :

Source :

Column Name	Code	Type	P	M
CSDT	CSDT	TBD		
implementation	implementation	TBD		
numberOfObjects	numberOfObjects	TBD		
dataStructureComments	dataStructureComments	TBD		

Name : DsMdAncillaryInputGranule

Code : DsMdAncillaryInputGranule

Label :

Number :

Source :

Column Name	Code	Type	P	M
ancillaryInputGranuleId	ancillaryInputGranuleId	ID	Y	Y
ancillaryInputPointer	ancillaryInputPointer	char(255)		Y

Referenced By	Foreign Key	Primary Key
DsMdGranules	ancillaryInputGranuleId	ancillaryInputGranuleId

Name : DsMdAttributeTableXref

Code : DsMdAttributeTableXref

Label :

Number :

Source :

Column Name	Code	Type	P	M
attributeName	attributeName	char(32)	Y	Y
productName	productName	char(80)	Y	Y
tableName	tableName	char(32)	Y	Y
columnName	columnName	char(32)		Y

Name : DsMdBrowsePackage

Code : DsMdBrowsePackage

Label :

Number :

Source :

Column Name	Code	Type	P	M
browseId	browseId	ID	Y	Y
browsePointer	browsePointer	char(255)		Y
browseDescription	browseDescription	varchar(255)		
browseSize	browseSize	int		

Referenced By	Foreign Key	Primary Key
DsMdGranules	browseId	browseId
DsMdCollections	browseId	browseId

Name : DsMdColAggregationCriteria

Code : DsMdColAggregationCriteria

Label :

Number :

Source :

Column Name	Code	Type	P	M
collectionId	collectionId	ID	Y	Y
aggregationAttribute	aggregationAttribute	char(20)	Y	Y
aggregationRelationship	aggregationRelationship	char(2)	Y	Y
aggregationValue	aggregationValue	char(80)	Y	Y
aggregationType	aggregationType	char(10)		Y

Reference To	Primary Key	Foreign Key
DsMdCollections	collectionId	collectionId

Name : DsMdCollectionContactXref

Code : DsMdCollectionContactXref

Label :

Number :

Source :

Column Name	Code	Type	P	M
collectionId	collectionId	ID	Y	Y
contactId	contactId	ID	Y	Y

Reference To	Primary Key	Foreign Key
DsMdContact	contactId	contactId

Name : DsMdCollectionGranuleXref

Code : DsMdCollectionGranuleXref

Label :

Number :

Source :

Column Name	Code	Type	P	M
collectionId	collectionId	ID	Y	Y
granuleId	granuleId	ID	Y	Y

Reference To	Primary Key	Foreign Key
DsMdCollections	collectionId	collectionId
DsMdGranules	granuleId	granuleId

Name : DsMdCollections

Code : DsMdCollections

Label :

Number :

Source :

Column Name	Code	Type	P	M
collectionId	collectionId	ID	Y	Y
pgeId	pgeId	ID		
browseId	browseId	ID		
dapId	dapId	ID		
shortName	shortName	char(10)		Y
longName	longName	char(80)		Y
collectionDescription	collectionDescription	char(255)		Y
suggestedUsage	suggestedUsage	char(255)		Y
citationForExternalPublication	citationForExternalPublication	char(255)		Y
temporalKeyword	temporalKeyword	char(80)		Y
maintenanceUpdateFrequency	maintenanceUpdateFrequency	char(15)		Y
accessConstraints	accessConstraints	char(255)		Y
processingLevel	processingLevel	char(6)		Y
generationDate	generationDate	datetime		Y
storageMedium	storageMedium	char(30)		
revisionDate	revisionDate	datetime		
versionId	versionId	char(255)		
packageId	packageId	char(60)		
archiveCenter	archiveCenter	char(20)		
processingCenter	processingCenter	char(20)		
collectionState	collectionState	TBD		
lastUpdateDateTime	lastUpdateDateTime	datetime		Y
logicalDataServerName	logicalDataServerName	char(60)		Y
primaryCollectionFlag	primaryCollectionFlag	char(1)		Y

Reference To	Primary Key	Foreign Key
DsMdProcessingLevels	processingLevel	processingLevel
DsMdBrowsePackage	browseId	browseId

Referenced By	Foreign Key	Primary Key
DsMdSpatialKeywords	collectionId	collectionId
DsMdColAggregationCriteria	collectionId	collectionId

Referenced By	Foreign Key	Primary Key
DsMdReview	reviewId	collectionId
DsMdCollectionGranuleXref	collectionId	collectionId
DsMdGranules	primaryCollectionId	collectionId
DsMdQaCollectionStats	referenceId	collectionId
DsMdUserCommentDocument	collectionId	collectionId
DsMdValidationDocument	collectionId	collectionId
DsMdQualityTextComment	collectionId	collectionId
DsMdCollFloatInfoContent	collectionId	collectionId
DsMdCollStringInfoContent	collectionId	collectionId
DsMdIndirectReferenceClass	collectionId	collectionId
DsMdDsplnTpcsCntrlPrmtrs	collectionId	collectionId
DsMdCollectionType	collectionId	collectionId

Name : DsMdCollectionType

Code : DsMdCollectionType

Label :

Number :

Source :

Column Name	Code	Type	P	M
collectionId	collectionId	ID		
CollectionType	CollectionType	char(10)		
CollectionUse	CollectionUse	varchar(500)		

Reference To	Primary Key	Foreign Key
DsMdCollections	collectionId	collectionId

Name : DsMdCollFloatInfoContent

Code : DsMdCollFloatInfoContent

Label :

Number :

Source :

Column Name	Code	Type	P	M
collectionId	collectionId	ID	Y	Y
parameterName	parameterName	char(30)	Y	Y
parameterValue	parameterValue	float	Y	Y

Reference To	Primary Key	Foreign Key
DsMdCollections	collectionId	collectionId
DsMdParameters	ParameterName	parameterName

Name : DsMdCollIntegerInfoContent

Code : DsMdCollIntegerInfoContent

Label :

Number :

Source :

Column Name	Code	Type	P	M
collectionId	granuleId	ID	Y	Y
parameterName	parameterName	char(30)	Y	Y
parameterValue	parameterValue	integer	Y	Y

Reference To	Primary Key	Foreign Key
DsMdParameters	ParameterName	parameterName

Name : DsMdCollStringInfoContent

Code : DsMdCollStringInfoContent

Label :

Number :

Source :

Column Name	Code	Type	P	M
collectionId	collectionId	ID	Y	Y
parameterName	parameterName	char(30)	Y	Y
parameterValue	parameterValue	varchar(255)	Y	Y

Reference To	Primary Key	Foreign Key
DsMdCollections	collectionId	collectionId
DsMdParameters	ParameterName	parameterName

Name : DsMdContact

Code : DsMdContact

Label :

Number :

Source :

Column Name	Code	Type	P	M
contactId	contactId	ID	Y	Y
role	role	char(16)		Y
hoursOfService	hoursOfService	varchar(255)		Y
contactInstructions	contactInstructions	varchar(255)		Y

Referenced By	Foreign Key	Primary Key
DsMdContactAddress	contactId	contactId
DsMdTelephoneNumbers	contactId	contactId
DsMdEmailAddress	contactId	contactId
DsMdContactPersons	contactId	contactId
DsMdContactOrganizations	contactId	contactId
DsMdDapContactXref	contactId	contactId
DsMdCollectionContactXref	contactId	contactId
DsMdGranuleContactXref	contactId	contactId

Name : DsMdContactAddress

Code : DsMdContactAddress

Label :

Number :

Source :

Column Name	Code	Type	P	M
contactId	contactId	ID	Y	Y
sequenceNumber	sequenceNumber	int	Y	Y
streetAddress	streetAddress	char(80)		Y
city	city	char(30)		Y
stateProvince	stateProvince	char(30)		Y
postalCode	postalCode	char(20)		Y
country	country	char(10)		Y
addressType	addressType	char(30)		Y

Reference To	Primary Key	Foreign Key
DsMdContact	contactId	contactId

Name : DsMdContactOrganizations

Code : DsMdContactOrganizations

Label :

Number :

Source :

Column Name	Code	Type	P	M
contactId	contactId	ID	Y	Y
organizationName	organizationName	varchar(255)		Y

Reference To	Primary Key	Foreign Key
DsMdContact	contactId	contactId

Referenced By	Foreign Key	Primary Key
DsMdPersonOrganizationXref	organizationId	contactId

Name : DsMdContactPersons

Code : DsMdContactPersons

Label :

Number :

Source :

Column Name	Code	Type	P	M
contactId	contactId	ID	Y	Y
contactFirstName	contactFirstName	varchar(255)		Y
contactMiddleName	contactMiddleName	varchar(255)		Y
contactLastName	contactLastName	varchar(255)		Y
jobPosition	jobPosition	varchar(255)		

Reference To	Primary Key	Foreign Key
DsMdContact	contactId	contactId

Referenced By	Foreign Key	Primary Key
DsMdPersonOrganizationXref	personId	contactId

Name : DsMdDapContactXref

Code : DsMdDapContactXref

Label :

Number :

Source :

Column Name	Code	Type	P	M
dapId	dapId	ID	Y	Y
contactId	contactId	ID	Y	Y

Reference To	Primary Key	Foreign Key
DsMdContact	contactId	contactId

Name : DsMdDsplnTpcsCntrlPrmtrs

Code : DsMdDsplnTpcsCntrlPrmtrs

Label :

Number :

Source :

Column Name	Code	Type	P	M
collectionId	collectionId	ID	Y	Y
disciplineKeyword	disciplineKeyword	char(24)	Y	Y
topicKeyword	topicKeyword	char(32)	Y	Y
controlledParameterKeyword	controlledParameterKeyword	char(32)	Y	Y
unControlledParameterKeyword	unControlledParameterKeyword	char(80)	Y	Y
parameterName	parameterName	char(30)	Y	Y

Reference To	Primary Key	Foreign Key
DsMdCollections	collectionId	collectionId

Name : DsMdEmailAddress

Code : DsMdEmailAddress

Label :

Number :

Source :

Column Name	Code	Type	P	M
contactId	contactId	ID	Y	Y
emailAddress	emailAddress	varchar(255)	Y	Y

Reference To	Primary Key	Foreign Key
DsMdContact	contactId	contactId

Name : DsMdGranuleContactXref

Code : DsMdGranuleContactXref

Label :

Number :

Source :

Column Name	Code	Type	P	M
granuleId	granuleId	ID	Y	Y
contactId	contactId	ID	Y	Y

Reference To	Primary Key	Foreign Key
DsMdContact	contactId	contactId

Name : DsMdGranuleInputs

Code : DsMdGranuleInputs

Label :

Number :

Source :

Column Name	Code	Type	P	M
granuleId	granuleId	ID	Y	Y
inputGranule	inputGranule	ID	Y	Y

Reference To	Primary Key	Foreign Key
DsMdGranules	granuleId	granuleId

Name : DsMdGranules

Code : DsMdGranules

Label :

Number :

Source :

Column Name	Code	Type	P	M
granuleId	granuleId	ID	Y	Y
primaryCollectionId	primaryCollectionId	ID		Y
browseId	browseId	ID		Y
productionHistoryId	productionHistoryId	ID		
qaGranuleId	qaGranuleId	ID		
ancillaryInputGranuleId	ancillaryInputGranuleId	ID		
orbitParametersGranuleId	orbitParametersGranuleId	ID		
sizeMBECDataGranule	sizeMBECDataGranule	int		Y
pgeVersion	pgeVersion	float		Y
pgeId	pgeId	ID		Y
lastUpdateDateTime	lastUpdateDateTime	datetime		Y
reprocesssingActual	reprocesssingActual	char(20)		Y
reprocessingPlanned	reprocessingPlanned	char(20)		Y
radiusOfGranuleFromCenter	radiusOfGranuleFromCenter	float		
producersGranuleIdentifier	producersGranuleIdentifier	char(80)		
granuleVersionIdentifier	granuleVersionIdentifier	char(10)		
operationMode	operationMode	char(20)		Y
westBoundingCoordinate	westBoundingCoordinate	float		Y
northBoundingCoordinate	northBoundingCoordinate	float		Y
eastBoundingCoordinate	eastBoundingCoordinate	float		Y
southBoundingCoordinate	southBoundingCoordinate	float		Y
rangeBeginningDateTime	rangeBeginningDateTime	datetime		Y
rangeEndingDateTime	rangeEndingDateTime	datetime		Y
singleDateTime	singleDateTime	datetime		
localityValue	localityValue	varchar(80)		

Reference To	Primary Key	Foreign Key
DsMdCollections	collectionId	primaryCollectionId
DsMdProductionHistory	productionHistoryId	productionHistoryId
DsMdBrowsePackage	browseId	browseId
DsMdAncillaryInputGranule	ancillaryInputGranuleId	ancillaryInputGranuleId

Reference To	Primary Key	Foreign Key
DsMdOrbitParametersGranule	orbitParametersGranuleId	orbitParametersGranuleId

Referenced By	Foreign Key	Primary Key
DsMdQaStats	granuleId	granuleId
DsMdCollectionGranuleXref	granuleId	granuleId
DsMdGranuleInputs	granuleId	granuleId
DsMdGranuleVersions	currentGranuleId	granuleId
DsMdNonScienceData	granuleId	granuleId
DsMdReview	reviewId	granuleId
DsMdQaCollectionStats	referenceId	granuleId
DsMdGrIntegerInfoContent	granuleId	granuleId
DsMdGrStringInfoContent	granuleId	granuleId
DsMdGrFloatInfoContent	granuleId	granuleId

Name : DsMdGranuleVersions

Code : DsMdGranuleVersions

Label :

Number :

Source :

Column Name	Code	Type	P	M
currentGranuleId	currentGranuleId	ID	Y	Y
currentVersion	currentVersion	char(10)		Y
previousGranuleId	previousGranuleId	ID		Y
previousVersion	previousVersion	char(10)		Y

Reference To	Primary Key	Foreign Key
DsMdGranules	granuleId	currentGranuleId

Name : DsMdGrFloatInfoContent

Code : DsMdGrFloatInfoContent

Label :

Number :

Source :

Column Name	Code	Type	P	M
granuleId	granuleId	ID	Y	Y
parameterName	parameterName	char(30)	Y	Y
parameterValue	parameterValue	float	Y	Y

Reference To	Primary Key	Foreign Key
DsMdGranules	granuleId	granuleId
DsMdParameters	ParameterName	parameterName

Name : DsMdGrIntegerInfoContent

Code : DsMdGrIntegerInfoContent

Label :

Number :

Source :

Column Name	Code	Type	P	M
granuleId	granuleId	ID	Y	Y
parameterName	parameterName	char(30)	Y	Y
parameterValue	parameterValue	integer	Y	Y

Reference To	Primary Key	Foreign Key
DsMdGranules	granuleId	granuleId
DsMdParameters	ParameterName	parameterName

Name : DsMdGrStringInfoContent

Code : DsMdGrStringInfoContent

Label :

Number :

Source :

Column Name	Code	Type	P	M
granuleId	granuleId	ID	Y	Y
parameterName	parameterName	char(30)	Y	Y
parameterValue	parameterValue	varchar(255)	Y	Y

Reference To	Primary Key	Foreign Key
DsMdGranules	granuleId	granuleId
DsMdParameters	ParameterName	parameterName

Name : DsMdIdentifier

Code : DsMdIdentifier

Label :

Number :

Source :

Column Name	Code	Type	P	M
lastIdentifer	lastIdentifer	numeric(8)	Y	Y

Name : DsMdIndirectReferenceClass

Code : DsMdIndirectReferenceClass

Label :

Number :

Source :

Column Name	Code	Type	P	M
collectionId	collectionId	ID	Y	Y
indirectReference	indirectReference	TBD		
numberOfTypesOfCSDT	numberOfTypesOfCSDT	TBD		

Reference To	Primary Key	Foreign Key
DsMdCollections	collectionId	collectionId

Name : DsMdNonScienceData

Code : DsMdNonScienceData

Label :

Number :

Source :

Column Name	Code	Type	P	M
granuleId	granuleId	ID	Y	Y
internalFileName	internalFileName	char(80)	Y	Y
checkSum	checkSum	integer		Y
dataType	dataType	char(10)		Y
archive	archive	char(32)		Y
size	size	integer		Y

Reference To	Primary Key	Foreign Key
DsMdGranules	granuleId	granuleId

Name : DsMdOrbitParametersGranule

Code : DsMdOrbitParametersGranule

Label :

Number :

Source :

Column Name	Code	Type	P	M
orbitParametersGranuleId	orbitParametersGranuleId	ID	Y	Y
orbitParametersPointer	orbitParametersPointer	char(255)		Y

Referenced By	Foreign Key	Primary Key
DsMdGranules	orbitParametersGranuleId	orbitParametersGranuleId

Name : DsMdParameters

Code : DsMdParameters

Label :

Number :

Source :

Column Name	Code	Type	P	M
ParameterName	ParameterName	char(30)	Y	Y
description	description	varchar(255)		Y
datatype	datatype	char(10)		Y
unitsOfMeasure	unitsOfMeasure	char(20)		
range	range	char(10)		
valueAccuracy	valueAccuracy	char(30)		
valueAccuracyExplanation	valueAccuracyExplanation	varchar(255)		
measurementResolution	measurementResolution	char(30)		

Referenced By	Foreign Key	Primary Key
DsMdCollIntegerInfoContent	parameterName	ParameterName
DsMdCollFloatInfoContent	parameterName	ParameterName
DsMdCollStringInfoContent	parameterName	ParameterName
DsMdGrIntegerInfoContent	parameterName	ParameterName
DsMdGrStringInfoContent	parameterName	ParameterName
DsMdGrFloatInfoContent	parameterName	ParameterName

Name : DsMdPersonOrganizationXref

Code : DsMdPersonOrganizationXref

Label :

Number :

Source :

Column Name	Code	Type	P	M
personId	personId	ID	Y	Y
organizationId	organizationId	ID	Y	Y

Reference To	Primary Key	Foreign Key
DsMdContactPersons	contactId	personId
DsMdContactOrganizations	contactId	organizationId

Name : DsMdProcessingLevels

Code : DsMdProcessingLevels

Label :

Number :

Source :

Column Name	Code	Type	P	M
processingLevel	processingLevel	char(6)	Y	Y
processingLevelDescription	processingLevelDescription	char(10)		Y
processingLocation	processingLocation	char(80)		

Referenced By	Foreign Key	Primary Key
DsMdCollections	processingLevel	processingLevel

Name : DsMdProductDbXref

Code : DsMdProductDbXref

Label :

Number :

Source :

Column Name	Code	Type	P	M
productName	productName	char(60)	Y	Y
dbName	dbName	char(60)	Y	Y
startDate	startDate	datetime		Y
endDate	endDate	datetime		Y

Name : DsMdProductionHistory

Code : DsMdProductionHistory

Label :

Number :

Source :

Column Name	Code	Type	P	M
productionHistoryId	productionHistoryId	ID	Y	Y
productionHistoryPointer	productionHistoryPointer	char(255)		Y

Referenced By	Foreign Key	Primary Key
DsMdGranules	productionHistoryId	productionHistoryId

Name : DsMdQaCollectionStats

Code : DsMdQaCollectionStats

Label :

Number :

Source :

Column Name	Code	Type	P	M
referenceId	referenceId	ID	Y	Y
scienceQualityFlag	scienceQualityFlag	char(20)	Y	Y
operationalQualityFlag	operationalQualityFlag	char(20)	Y	Y
automaticQualityFlag	automaticQualityFlag	char(20)	Y	Y
qualityFlagExplanation	qualityFlagExplanation	varchar(255)		Y

Reference To	Primary Key	Foreign Key
DsMdCollections	collectionId	referenceId
DsMdGranules	granuleId	referenceId

Name : DsMdQaGranule

Code : DsMdQaGranule

Label :

Number :

Source :

Column Name	Code	Type	P	M
qaGranuleId	qaGranuleId	ID	Y	Y
qaGranuleUR	qaGranuleUR	char(255)		Y

Reference To	Primary Key	Foreign Key

Name : DsMdQaStats

Code : DsMdQaStats

Label :

Number :

Source :

Column Name	Code	Type	P	M
granuleId	granuleId	ID	Y	Y
qaPercentMissingData	qaPercentMissingData	float	Y	Y
qaPercentOutOfBoundsData	qaPercentOutOfBoundsData	float	Y	Y
qaPercentInterpolatedData	qaPercentInterpolatedData	float	Y	Y

Reference To	Primary Key	Foreign Key
DsMdGranules	granuleId	granuleId

Name : DsMdQualityTextComment

Code : DsMdQualityTextComment

Label :

Number :

Source :

Column Name	Code	Type	P	M
qualityTextID	qualityTextID	ID	Y	Y
collectionId	collectionId	ID		Y
qualityTextPointer	qualityTextPointer	char(255)		Y

Reference To	Primary Key	Foreign Key
DsMdCollections	collectionId	collectionId

Name : DsMdReview

Code : DsMdReview

Label :

Number :

Source :

Column Name	Code	Type	P	M
reviewId	reviewId	ID	Y	Y
scienceReviewDate	scienceReviewDate	datetime	Y	Y
scienceReviewStatus	scienceReviewStatus	char(20)		Y
futureReviewDate	futureReviewDate	datetime		

Reference To	Primary Key	Foreign Key
DsMdCollections	collectionId	reviewId
DsMdGranules	granuleId	reviewId

Name : DsMdSpatialKeywords

Code : DsMdSpatialKeywords

Label :

Number :

Source :

Column Name	Code	Type	P	M
collectionId	collectionId	ID	Y	Y
spatialKeyword	spatialKeyword	char(80)	Y	Y

Reference To	Primary Key	Foreign Key
DsMdCollections	collectionId	collectionId

Name : DsMdStructuralMetadata

Code : DsMdStructuralMetadata

Label :

Number :

Source :

Column Name	Code	Type	P	M
structuralMetadataPointer	structuralMetadataPointer	TBD		

Name : DsMdTelephoneNumbers

Code : DsMdTelephoneNumbers

Label :

Number :

Source :

Column Name	Code	Type	P	M
contactId	contactId	ID	Y	Y
telephoneNumber	telephoneNumber	char(23)	Y	Y
telephoneNumberType	telephoneNumberType	char(10)		Y

Reference To	Primary Key	Foreign Key
DsMdContact	contactId	contactId

Name : DsMdUserCommentDocument

Code : DsMdUserCommentDocument

Label :

Number :

Source :

Column Name	Code	Type	P	M
userCommentDocumentID	userCommentDocumentID	char(10)	Y	Y
collectionId	collectionId	ID		Y
userCommentDocumentPointer	userCommentDocumentPointer	char(255)		Y

Reference To	Primary Key	Foreign Key
DsMdCollections	collectionId	collectionId

Name : DsMdValidationDocument

Code : DsMdValidationDocument

Label :

Number :

Source :

Column Name	Code	Type	P	M
validationDocumentId	validationDocumentId	ID	Y	Y
collectionId	collectionId	ID		Y
ValidationDocumentPointer	ValidationDocumentPointer	char(255)		Y

Reference To	Primary Key	Foreign Key
DsMdCollections	collectionId	collectionId

Name : DsMdAltitudeSystemDefinition

Code : DsMdAltitudeSystemDefinition

Label :

Number :

Source :

Column Name	Code	Type	P	M
altitudeDatumName	altitudeDatumName	char(40)		
altitudeResolution	altitudeResolution	float		
altitudeDistanceUnits	altitudeDistanceUnits	char(20)		
altitudeEncodingMethod	altitudeEncodingMethod	varchar(255)		
localityID	localityID	ID	Y	Y

Index Code	P	F	U	C	Column Code	Sort
xDsMdAltitudeSystemDefinition	Y	Y	Y		localityID	ASC

Reference To	Primary Key	Foreign Key
DsMdSpatial	localityID	localityID

Name : DsMdBoundingRectangle

Code : DsMdBoundingRectangle

Label :

Number :

Source :

Column Name	Code	Type	P	M
westBoundingCoordinate	westBoundingCoordinate	float		
northBoundingCoordinate	northBoundingCoordinate	float		
eastBoundingCoordinate	eastBoundingCoordinate	float		
southBoundingCoordinate	southBoundingCoordinate	float		
localityID	localityID	ID	Y	Y

Index Code	P	F	U	C	Column Code	Sort
xDsMdBoundingRectangle	Y	Y	Y		localityID	ASC

Reference To	Primary Key	Foreign Key
DsMdSpatial	localityID	localityID

Name : DsMdCircle

Code : DsMdCircle

Label :

Number :

Source :

Column Name	Code	Type	P	M
centerLatitude	centerLatitude	float		
centerLongitude	centerLongitude	float		
radiusUnits	radiusUnits	varchar(80)		
radiusValue	radiusValue	float		
localityID	localityID	ID	Y	Y

Index Code	P	F	U	C	Column Code	Sort
xDsMdCircle	Y	Y	Y		localityID	ASC

Reference To	Primary Key	Foreign Key
DsMdSpatial	localityID	localityID

Name : DsMdDepthSystemDefinition

Code : DsMdDepthSystemDefinition

Label :

Number :

Source :

Column Name	Code	Type	P	M
depthDatumName	depthDatumName	char(80)		
depthResolution	depthResolution	float		
depthDistanceUnits	depthDistanceUnits	char(20)		
depthEncodingMethod	depthEncodingMethod	varchar(255)		
localityID	localityID	ID	Y	Y

Index Code	P	F	U	C	Column Code	Sort
xDsMdDepthSystemDefinition	Y	Y	Y		localityID	ASC

Reference To	Primary Key	Foreign Key
DsMdSpatial	localityID	localityID

Name : DsMdGeodeticModel

Code : DsMdGeodeticModel

Label :

Number :

Source :

Column Name	Code	Type	P	M
horizontalDatumName	horizontalDatumName	char(30)		
ellipsoidName	ellipsoidName	varchar(255)		
semiMajorAxis	semiMajorAxis	float		
denominatorOfFlatteningRatio	denominatorOfFlatteningRatio	float		
localityID	localityID	ID	Y	Y

Index Code	P	F	U	C	Column Code	Sort
xDsMGeodeticModel	Y	Y			localityID	ASC

Reference To	Primary Key	Foreign Key
DsMdSpatial	localityID	localityID

Name : DsMdGeographicCoordinateSystem

Code : DsMdGeographicCoordinateSystem

Label :

Number :

Source :

Column Name	Code	Type	P	M
latitudeResolution	latitudeResolution	float		
longitudeResolution	longitudeResolution	float		
geographicCoordinateUnits	geographicCoordinateUnits	char(80)		
localityID	localityID	ID	Y	Y

Index Code	P	F	U	C	Column Code	Sort
xDsMdGeographicCoordinateSyste	Y	Y	Y		localityID	ASC

Reference To	Primary Key	Foreign Key
DsMdSpatial	localityID	localityID

Name : DsMdGranuleLocality

Code : DsMdGranuleLocality

Label :

Number :

Source :

Column Name	Code	Type	P	M
localityValue	localityValue	char(20)		
localityID	localityID	ID	Y	Y

Reference To	Primary Key	Foreign Key
DsMdSpatial	localityID	localityID

Name : DsMdGridCoordinateSystem

Code : DsMdGridCoordinateSystem

Label :

Number :

Source :

Column Name	Code	Type	P	M
planarCoordinateEncodingMeth	planarCoordinateEncodingMeth	varchar(80)	Y	Y
planarDistanceUnits	planarDistanceUnits	varchar(80)	Y	Y
gridCoordinateSystemName	gridCoordinateSystemName	varchar(255)		
localityID	localityID	ID	Y	Y
zoneIdentifier	zoneIdentifier	varchar(10)		

Index Code	P	F	U	C	Column Code	Sort
xDsMdGridCoordinateSystem	Y	Y	Y		planarCoordinateEncodingMeth	ASC
					planarDistanceUnits	ASC
					localityID	ASC

Reference To	Primary Key	Foreign Key
DsMdPlanarCoordinateSystem	planarCoordinateEncodingMeth	planarCoordinateEncodingMeth
	planarDistanceUnits	planarDistanceUnits
	localityID	localityID

Name : DsMdGRing

Code : DsMdGRing

Label :

Number :

Source :

Column Name	Code	Type	P	M
gRingNo	gRingNo	int	Y	Y
exclusionGRingFlag	exclusionGRingFlag	char(1)		
localityID	localityID	ID	Y	Y

Index Code	P	F	U	C	Column Code	Sort
xDsMdGRing	Y		Y		localityID	ASC
					gRingNo	ASC

Reference To	Primary Key	Foreign Key
DsMdSpatial	localityID	localityID

Referenced By	Foreign Key	Primary Key
DsMdgRingPoint	localityID	localityID
	gRingNo	gRingNo

Name : DsMdgRingPoint

Code : DsMdgRingPoint

Label :

Number :

Source :

Column Name	Code	Type	P	M
gRingPointLatitude	gRingPointLatitude	float		
gRingPointLongitude	gRingPointLongitude	float		
gRingPointSequenceNo	gRingPointSequenceNo	smallint		
localityID	localityID	ID	Y	Y
gRingNo	gRingNo	int	Y	Y

Index Code	P	F	U	C	Column Code	Sort
xDsMdGRingPoint	Y	Y	Y		localityID	ASC
					gRingNo	ASC

Reference To	Primary Key	Foreign Key
DsMdGRing	localityID	localityID
	gRingNo	gRingNo

Name : DsMdLocalCoordinateSystem

Code : DsMdLocalCoordinateSystem

Label :

Number :

Source :

Column Name	Code	Type	P	M
localCoordinateSystemDesc	localCoordinateSystemDesc	varchar(255)		
localGeoreferenceInformation	localGeoreferenceInformation	varchar(255)		
localityID	localityID	ID	Y	Y

Index Code	P	F	U	C	Column Code	Sort
xDsMdLocalCoordinateSystem	Y	Y	Y		localityID	ASC

Reference To	Primary Key	Foreign Key
DsMdSpatial	localityID	localityID

Name : DsMdLocality

Code : DsMdLocality

Label :

Number :

Source :

Column Name	Code	Type	P	M
localityID	localityID	ID	Y	Y
localityType	localityType	char(20)		Y
localityName	localityName	char(80)		
description	description	char(255)		
localityAuthor	localityAuthor	char(20)		
spatialLocalityType	spatialLocalityType	char(10)		Y
temporalLocalityType	temporalLocalityType	char(20)		Y

Index Code	P	F	U	C	Column Code	Sort
xDsMdLocality	Y		Y		localityID	ASC

Referenced By	Foreign Key	Primary Key
DsMdSpatial	localityID	localityID

Name : DsMdLocalPlanarCoordinateSyste

Code : DsMdLocalPlanarCoordinateSyste

Label :

Number :

Source :

Column Name	Code	Type	P	M
planarCoordinateEncodingMeth	planarCoordinateEncodingMeth	varchar(80)	Y	Y
planarDistanceUnits	planarDistanceUnits	varchar(80)	Y	Y
localPlanarCoordinateSystemDes	localPlanarCoordinateSystemDes	varchar(255)		
localPlanarGeoreferenceInformaa	localPlanarGeoreferenceInformaa	varchar(255)		
localityID	localityID	ID	Y	Y

Index Code	P	F	U	C	Column Code	Sort
xDsMdLocalPlanarCoordinateSyst	Y	Y	Y		planarCoordinateEncodingMeth	ASC
					planarDistanceUnits	ASC
					localityID	ASC

Reference To	Primary Key	Foreign Key
DsMdPlanarCoordinateSystem	planarCoordinateEncodingMeth	planarCoordinateEncodingMeth
	planarDistanceUnits	planarDistanceUnits

Name : DsMdMapProjection

Code : DsMdMapProjection

Label :

Number :

Source :

Column Name	Code	Type	P	M
planarCoordinateEncodingMeth	planarCoordinateEncodingMeth	varchar(80)	Y	Y
planarDistanceUnits	planarDistanceUnits	varchar(80)	Y	Y
mapProjectionName	mapProjectionName	varchar(80)		
standardParallel	standardParallel	float		
longitudeOfCentralMeridian	longitudeOfCentralMeridian	float		
latitudeOfProjectionOrigin	latitudeOfProjectionOrigin	float		
falseEasting	falseEasting	float		
falseNorthing	falseNorthing	float		
heightOfPerspPointAboveSur	heightOfPerspPointAboveSur	float		
longitudeOfProjectionCenter	longitudeOfProjectionCenter	float		
latitudeOfProjectionCenter	latitudeOfProjectionCenter	float		
scaleFactorAtEquator	scaleFactorAtEquator	float		
scaleFactorAtCenterLine	scaleFactorAtCenterLine	float		
azimuthalAngle	azimuthalAngle	float		
azimuthalMeasurePointLongitude	azimuthalMeasurePointLongitude	float		
obliqueLineLatitude	obliqueLineLatitude	float		
obliqueLineLongitude	obliqueLineLongitude	float		
straightVertLongitudeFromPole	straightVertLongitudeFromPole	float		
scaleFactorAtProjectionOrigin	scaleFactorAtProjectionOrigin	float		
landsatNumber	landsatNumber	smallint		
pathNumber	pathNumber	smallint		
scaleFactorAtCentralMeridian	scaleFactorAtCentralMeridian	float		
otherProjectionDefintion	otherProjectionDefintion	char(255)		
localityID	localityID	ID	Y	Y

Index Code	P	F	U	C	Column Code	Sort
DSMDMAPPROJECTION_FK1	Y	Y			planarCoordinateEncodingMeth	ASC
					planarDistanceUnits	ASC

Reference To	Primary Key	Foreign Key
DsMdPlanarCoordinateSystem	planarCoordinateEncodingMeth	planarCoordinateEncodingMeth
	planarDistanceUnits	planarDistanceUnits
	localityID	localityID

Name : DsMdOrbitCalculatedSpatial

Code : DsMdOrbitCalculatedSpatial

Label :

Number :

Source :

Column Name	Code	Type	P	M
orbitModelName	orbitModelName	char(80)		
orbitNumber	orbitNumber	smallint		
pathNumber	pathNumber	smallint		
startOrbitNumber	startOrbitNumber	smallint		
lastOrbitNumber	lastOrbitNumber	smallint		
localityID	localityID	ID	Y	Y

Index Code	P	F	U	C	Column Code	Sort
xDsMdOrbitCalculatedSpatial	Y	Y	Y		localityID	ASC

Reference To	Primary Key	Foreign Key
DsMdSpatial	localityID	localityID

Name : DsMdPlanarCoordinateSystem

Code : DsMdPlanarCoordinateSystem

Label :

Number :

Source :

Column Name	Code	Type	P	M
planarCoordinateEncodingMeth	planarCoordinateEncodingMeth	varchar(80)	Y	Y
planarDistanceUnits	planarDistanceUnits	varchar(80)	Y	Y
abscissaResolution	abscissaResolution	float		
ordinateResolution	ordinateResolution	float		
distanceResolution	distanceResolution	float		
bearingResolution	bearingResolution	float		
bearingUnits	bearingUnits	varchar(255)		
bearingReferenceDirection	bearingReferenceDirection	varchar(255)		
bearingReferenceMeridian	bearingReferenceMeridian	varchar(255)		
localityID	localityID	ID	Y	Y

Index Code	P	F	U	C	Column Code	Sort
xDsMdPlanarCorodinateSystem	Y		Y		planarCoordinateEncodingMeth	ASC
					planarDistanceUnits	ASC
					localityID	ASC

Reference To	Primary Key	Foreign Key
DsMdSpatial	localityID	localityID

Referenced By	Foreign Key	Primary Key
DsMdMapProjection	planarCoordinateEncodingMeth	planarCoordinateEncodingMeth
	planarDistanceUnits	planarDistanceUnits
	localityID	localityID
DsMdLocalPlanarCoordinateSyste	planarCoordinateEncodingMeth	planarCoordinateEncodingMeth
	planarDistanceUnits	planarDistanceUnits
DsMdGridCoordinateSystem	planarCoordinateEncodingMeth	planarCoordinateEncodingMeth
	planarDistanceUnits	planarDistanceUnits
	localityID	localityID

Name : DsMdPoint

Code : DsMdPoint

Label :

Number :

Source :

Column Name	Code	Type	P	M
pointLatitude	pointLatitude	float		
pointLongitude	pointLongitude	float		
localityID	localityID	ID	Y	Y

Index Code	P	F	U	C	Column Code	Sort
xDsMdPoint	Y	Y	Y		localityID	ASC

Reference To	Primary Key	Foreign Key
DsMdSpatial	localityID	localityID

Name : DsMdSpatial

Code : DsMdSpatial

Label :

Number :

Source :

Column Name	Code	Type	P	M
localityID spatialCoverageType	localityID spatialCoverageType	ID char(10)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
xDsMdSpatial	Y	Y			localityID	ASC

Reference To	Primary Key	Foreign Key
DsMdLocality	localityID	localityID

Referenced By	Foreign Key	Primary Key
DsMdGeodeticModel	localityID	localityID
DsMdAltitudeSystemDefinition	localityID	localityID
DsMdDepthSystemDefinition	localityID	localityID
DsMdGRing	localityID	localityID
DsMdOrbitCalculatedSpatial	localityID	localityID
DsMdBoundingRectangle	localityID	localityID
DsMdCircle	localityID	localityID
DsMdPoint	localityID	localityID
DsMdLocalCoordinateSystem	localityID	localityID
DsMdGeographicCoordinateSystem	localityID	localityID
DsMdPlanarCoordinateSystem	localityID	localityID
DsMdGranuleLocality	localityID	localityID

Name : DsMdVerticalSpatialDomain

Code : DsMdVerticalSpatialDomain

Label :

Number :

Source :

Column Name	Code	Type	P	M
verticalSpatialDomainValue	verticalSpatialDomainValue	char(20)		
verticalSpatialDomainType	verticalSpatialDomainType	char(20)		
localityId	localityId	ID	Y	Y

Name : DsMdDiscontinuousMultipleRange

Code : DsMdDiscontinuousMultipleRange

Label :

Number :

Source :

Column Name	Code	Type	P	M
endsAtPresentFlag	endsAtPresentFlag	char(8)		
localityID	localityID	ID	Y	Y

Index Code	P	F	U	C	Column Code	Sort
xDsMdDiscontinousMultipleRa nge	Y	Y	Y		localityID	ASC

Reference To	Primary Key	Foreign Key
DsMdTemporal	localityID	localityID

Referenced By	Foreign Key	Primary Key
DsMdRangeDateTime	localityID	localityID

Name : DsMdLocality

Code : DsMdLocality

Label :

Number :

Source :

Column Name	Code	Type	P	M
localityID	localityID	ID	Y	Y
localityType	localityType	char(20)		Y
localityName	localityName	char(80)		
description	description	char(255)		
localityAuthor	localityAuthor	char(20)		
spatialLocalityType	spatialLocalityType	char(10)		Y
temporalLocalityType	temporalLocalityType	char(20)		Y

Index Code	P	F	U	C	Column Code	Sort
xDsMdLocality	Y		Y		localityID	ASC

Referenced By	Foreign Key	Primary Key
DsMdTemporal	localityID	localityID

Name : DsMdMultipleDateTime

Code : DsMdMultipleDateTime

Label :

Number :

Source :

Column Name	Code	Type	P	M
localityID	localityID	ID	Y	Y
multipleDateName	multipleDateName	char(30)		

Index Code	P	F	U	C	Column Code	Sort
xDsMdMultipleDateTime	Y	Y	Y		localityID	ASC

Reference To	Primary Key	Foreign Key
DsMdTemporal	localityID	localityID

Referenced By	Foreign Key	Primary Key
DsMdSingleDateTime	localityID	localityID
DsMdSingleDateTime	localityID	localityID

Name : DsMdRangeDateTime

Code : DsMdRangeDateTime

Label :

Number :

Source :

Column Name	Code	Type	P	M
beginningTime	beginningTime	datetime	Y	Y
beginningDate	beginningDate	datetime	Y	Y
endingTime	endingTime	datetime	Y	Y
endingDate	endingDate	datetime	Y	Y
localityID	localityID	ID	Y	Y

Index Code	P	F	U	C	Column Code	Sort
xDsMdRangeDateTime	Y		Y		localityID	ASC
					beginningDate	ASC
					beginningTime	ASC
					endingDate	ASC
					endingTime	ASC

Reference To	Primary Key	Foreign Key
DsMdDiscontinuousMultipleRange	localityID	localityID
DsMdTemporal	localityID	localityID

Name : DsMdRegularPeriodic

Code : DsMdRegularPeriodic

Label :

Number :

Source :

Column Name	Code	Type	P	M
periodName	periodName	char(30)		
periodDurationValue	periodDurationValue	float		
periodDurationUnit	periodDurationUnit	char(10)		
period1stDate	period1stDate	datetime		
period1stTime	period1stTime	datetime		
periodCycleDurationValue	periodCycleDurationValue	float		
periodCycleDurationUnit	periodCycleDurationUnit	char(15)		
localityID	localityID	ID	Y	Y

Index Code	P	F	U	C	Column Code	Sort
xDsMdRegularPeriod	Y	Y	Y		localityID	ASC

Reference To	Primary Key	Foreign Key
DsMdTemporal	localityID	localityID

Name : DsMdSingleDateTime

Code : DsMdSingleDateTime

Label :

Number :

Source :

Column Name	Code	Type	P	M
timeOfDay	timeOfDay	datetime	Y	Y
calenderDate	calenderDate	datetime	Y	Y
localityID	localityID	ID	Y	Y

Index Code	P	F	U	C	Column Code	Sort
xDsMdSingleDateTime	Y		Y		localityID	ASC
					calenderDate	ASC
					timeOfDay	ASC

Reference To	Primary Key	Foreign Key
DsMdMultipleDateTime	localityID	localityID
DsMdTemporal	localityID	localityID
DsMdMultipleDateTime	localityID	localityID

Name : DsMdTemporal

Code : DsMdTemporal

Label :

Number :

Source :

Column Name	Code	Type	P	M
localityID	localityID	ID	Y	Y
timeType	timeType	char(10)		Y
dateType	dateType	char(10)		Y
temporalRangeType	temporalRangeType	char(20)		Y
precisionOfSeconds	precisionOfSeconds	smallint		

Index Code	P	F	U	C	Column Code	Sort
xDsMdTemporal	Y	Y	Y		localityID	ASC

Reference To	Primary Key	Foreign Key
DsMdLocality	localityID	localityID

Referenced By	Foreign Key	Primary Key
DsMdSingleDateTime	localityID	localityID
DsMdRegularPeriodic	localityID	localityID
DsMdRangeDateTime	localityID	localityID
DsMdDiscontinuousMultipleRange	localityID	localityID
DsMdMultipleDateTime	localityID	localityID

7.3 Cross Reference Table for Traceability

The following cross reference table identifies the objects and attributes for the Dataserver Subsystem's persistent data as indicated in the DID305 volume dated July 1995. If appropriate each of the attributes were mapped to the associated DID311 attributes and further to the physical database table names and attributes reflected in the above section. This mapping demonstrates where and how the data in the earth science data model is being used to support the functionality expressed in DID305. Further it identifies the supporting data that will be required to satistify the functionality described in the associated CSCI. The TBD notations found throughout this table will be resolved by 5/96.

Table 7-2. Data Server Persistent Data Cross Reference Table(1 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
TBD	TBD	DsDbAccess	DsDbAccess	myAssociations		
TBD	TBD	DsDbAccess	DsDbAccess	myDBConnections		
TBD	TBD	DsDbAccess	DsDbAccess	myDatabase		
TBD	TBD	DsDbAccess	DsDbAccess	myForeighKeys		
TBD	TBD	DsDbAccess	DsDbAccess	myIndexableColumns		
TBD	TBD	DsDbAccess	DsDbAccess	myLocation		
TBD	TBD	DsDbAccess	DsDbAccess	myObjectIdentifier		
TBD	TBD	DsDbAccess	DsDbAccess	myObjectType		
TBD	TBD	DsDbAccess	DsDbAccess	myPersistenceType		
TBD	TBD	DsDbAccess	DsDbAccess	myPrimaryKey		
TBD	TBD	DsDbAccess	DsDbAccess	myStuff		
TBD	TBD	DsDdDistRequestS	DsDdDistRe-questS	myAbortFlag		
TBD	TBD	DsDdDistRequestS	DsDdDistRe-questS	myDistFormat		
TBD	TBD	DsDdDistRequestS	DsDdDistRe-questS	myDistList		
TBD	TBD	DsDdDistRequestS	DsDdDistRe-questS	myMedia		
TBD	TBD	DsDdDistRequestS	DsDdDistRe-questS	myPriority		
TBD	TBD	DsDdDistRequestS	DsDdDistRe-questS	myRequestId		
TBD	TBD	DsDdDistRequestS	DsDdDistRe-questS	mySize		
TBD	TBD	DsDdDistRequestS	DsDdDistRe-questS	myState		

Table 7-2. Data Server Persistent Data Cross Reference Table(2 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
TBD	TBD	DsDdDistRequestS	DsDdDistRe-questS	myTimeOfSubmission		
TBD	TBD	DsDdDistRequestS	DsDdDistRe-questS	myUserInfo		
TBD	TBD	DsDdDistList	DsDdDistList	myDistFile		
ASCII File	TBD	DsDeESDTDescriptor	DsDeCoreValid	myName	ECS Earth Sci-ence Model	277 Attributes
ASCII File	TBD	DsDeESDTDescriptor	DsDeCoreValid	myType	(Dictionary Infor∞ mation)	
ASCII File	TBD	DsDeESDTDescriptor	DsDeCoreValid	myValid	(Dictionary Infor∞ mation)	
TBD	TBD	DsSbSubscription	DsSbEvent	myCategory		
TBD	TBD	DsSbSubscription	DsSbEvent	myDescription		
TBD	TBD	DsSbSubscription	DsSbEvent	myEventID		
TBD	TBD	DsSbSubscription	DsSbEvent	myName		
ASCII File	TBD	DsSdESDTMetamod-el	DsDeESDTDe-scriptor	myStaticMetadata	Earth Science Model	all collection level parameters
ASCII File	TBD	DsSdESDTMetamod-el	DsDeESDTDe-scriptor	myStatus		
ASCII File	TBD	DsSdESDTMetamod-el	DsDeESDTDe-scriptor	ourCoreValids		
ASCII File	TBD	DsSdESDTMetamod-el	DsDeESDTDe-scriptor	myProductMetadata-Configuration	InformationCon-tent	ParameterValue

Table 7-2. Data Server Persistent Data Cross Reference Table(3 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
ASCII File	TBD	DsSdESDTMetamod-el	DsDeESDTDe-scriptor	mySciencePrame-ters	CollectionDe-scriptionClass ECSDataGranule QAStats QAGranule QACollection-Stats OrbitParameters-Granule AncillaryInput-Granule GranuleLocality Browse InformationCon-tent SensorCharacter-istic VerticalSpatialDo-main OrbitCalculatedS-	Shortname InputPointer AncillaryInput-Pointer AutomaticQuality-Flag OperationalQuali-tyFlag ScienceQuality-Flag QualityFlagExpla-nation AutomaticQuality-Flag OperationalQuali-tyFlag ScienceQuality-Flag QAPercentInter-polatedData
ASCII File	TBD	DsSdESDTMetamod-el	DsDeESDTDe-scriptor	myType	CollectionDe-scriptionClass	ShortName
ASCII File	TBD	DsSdESDTMetamod-el	DsDeESDTDe-scriptor	myValids		
ASCII File	TBD	DsSdESDTMetamod-el	DsDeESDTDe-scriptor	myAdvertisedServices		
ASCII File	TBD	DsSdESDTMetamod-el	DsDeESDTDe-scriptor	myCoreMetadataCon∞figuration		
ASCII File	TBD	DsSdESDTMetamod-el	DsDeESDTDe-scriptor	myDataDictionaryInfo	Earth Science Model	Valid domains and ranges for all parameters
ASCII File	TBD	DsSdESDTMetamod-el	DsDeESDTDe-scriptor	myEvents		

Table 7-2. Data Server Persistent Data Cross Reference Table(4 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
TBD	TBD	DsSrScienceServer	DsSrConnection	myLog		
TBD	TBD	DsSrScienceServer	DsSrConnection	myLoggingFlag		
TBD	TBD	DsSrScienceServer	DsSrConnection	myStatus		
TBD	TBD	DsSrScienceServer	DsSrConnection	myTimeOut		
TBD	TBD	DsSrScienceServer	DsSrConnection	myTimeoutInterval		
TBD	TBD	DsSrScienceServer	DsSrWorkingCol-lection	myESDTs		
TBD	TBD	DsSrScienceServer	DsSrWorkingCol-lection	myStatus		
ASCII File	TBD	DsCnConfiguration	DsCnConfigura-tion Class	myFile		
TBD	TBD	DsDbWrapper	DsDbAttribute-ToTableVector-Class	myAttributeToTa-bleVector		
TBD	TBD	DsDbWrapper	DsDbGranule-ToDbVectorClass	myGranuleToDBVec-tor		
TBD	TBD	DsDoESDT	DsEsReference-Paper	myScienceData	JournalArticle	JournalArti∞ clePointer
DsMdDocu-ment	Title			myReferencePaper-Name	Document	Title
DsMdReferen-cePaper	referencepap-erType			myDsEsReferencePa-perType	ReferencePaper	ReferencePaper∞ Type
TBD	TBD		DsGe-BrowseProduct Class	myArchive	Browse	BrowsePoint-er(Specification)
TBD	TBD			myInterfaceConfigList		
TBD	TBD			myType	CollectionDecrip-tionClass	ShortName
TBD	TBD			myUR		

Table 7-2. Data Server Persistent Data Cross Reference Table(5 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
TBD	TBD			mySize	Browse	BrowseSize
TBD	TBD			myMetadata	Browse	BrowsePointer BrowseDescrip∞ tion BrowseSize
TBD	TBD		DsGeECSDataP-roduct Class	myAlgorithmUR		
TBD	TBD			myPGE	PGEInfo	PGEPoint∞ er(Specification)
TBD	TBD			mySSAP		
TBD	TBD			mySummaryList		
TBD	TBD		DsGeESDT class	mySize	ECSDataGranule	SizeMBECSData-Granule
TBD	TBD			myUR		
TBD	TBD			myMetadata	ECSEarth-ScienceDataMod∞ el	277 Attributes
TBD	TBD			myType	CollectionDecrip-tionClass	ShortName
TBD	TBD			myInterfaceConfigList		
TBD	TBD			myArchive	ECSDataGranule Browse	GranulePoint-er(Specification) BrowsePoint∞ er(Specification)
File	TBD		DsGeESDTDy-namicLibrary Class	myDLLFileName		
N/A	N/A			MyNewFunction		
N/A	N/A			myTypeID		

Table 7-2. Data Server Persistent Data Cross Reference Table(6 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
N/A	N/A		DsGeESDTWrap-per Class	myDll		
N/A	N/A			myESDT		
TBD	TBD		DsGeScienceDa-ta Class	myBrowseList	Browse	BrowsePointer
TBD	TBD			myProductHistory	ProductionHistory	ProductionHisto∞ ryPointer(Specifi∞ cation)
TBD	TBD			myQaStatistics	QACollectionSta-tistics QAStats	AutomaticQuality∞ Flag Operation-alQualityFlag ScienceQuality-Flag Quality-FlagExplanation AutomaticQuality-Flag OperationalQuali∞ tyFlag ScienceQuality-Flag QAPercentInter∞ polatedData QAPercentMiss∞ ingData QAPercentOutof-BoundsData
TBD	TBD			myReferencePapers	JournalArticle	JournalArti∞ clePointer
TBD	TBD		DsGeSummary Product Class	myGranuleList		
TBD	TBD		DsGeTypeID	myCode		
TBD	TBD		DsGeTypeID	myName	CollectionDe-scriptionClass	ShortName

Table 7-2. Data Server Persistent Data Cross Reference Table(7 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
TBD	TBD		DsGeTypeID	myVersion		GranuleVersion-Identifier
TBD	TBD		DsMdMetadata	myID		
N/A	N/A			myNonscienceMeta∞data		
TBD	TBD			myType		
TBD	TBD			myUpdatedAttributes		
DsMdAncil-laryInputGran-ule	ancillaryInput-Pointer			myScienceMetadata	AncillaryInput-Granule	AncillaryInput∞Pointer
DsMd-BrowsePack-age	browseDe-scription				Browse	BrowseDescrip-tion
DsMd-BrowsePack∞age	browsePointer				Browse	BrowsePointer
DsMd-BrowsePack∞age	browseSize				Browse	BrowseSize
DsMdCollec-tions	collectionDe-scription				CollectionDe-scriptionClass	CollectionDe∞scription
DsMdCollec-tions	longName				CollectionDe-scriptionClass	LongName
DsMdCollec-tions	shortName				CollectionDe-scriptionClass	ShortName
DsMdCollec-tions	versionId				CollectionDe-scriptionClass	VersionId
DsMdCollec-tionType	collectionType				CollectionType	CollectionType

Table 7-2. Data Server Persistent Data Cross Reference Table(8 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DsMdCollec-tionType	collectionUse				CollectionType	CollectionUse
DsMdDsplnT-pcsCntrl-Prmtrs	controlledPar-ameterKey-word				ControlledParam-eter	ControlledParam∞ eterKeyword
DsMdDsplnT-pcsCntrl-Prmtrs	disciplineKey-word				Discipline	DisciplineKey∞ word
DsMdCollec-tions	archiveCenter				ECSCollection	ArchiveCenter
DsMdCollec-tions	generation-Date				ECSCollection	GenerationDate
DsMdCollec-tions	processing-Center				ECSCollection	ProcessingCenter
DsMdCollec-tions	revisionDate				ECSCollection	RevisionDate
DsMdCollec-tions	storageMedi-um				ECSCollection	StorageMedium
DsMdCollec-tions	suggeste-dUsage				ECSCollection	SuggestedUsage
TBD	TBD				ECSDataGranule	GranulePointer
DsMdGran-ules	granuleVer-sionIdentifier				ECSDataGranule	GranuleVersion∞ Identifier
DsMdGran-ules	producers-GranuleIdenti-fier				ECSDataGranule	ProducersGran∞ uleIdentifier
DsMdGran-ules	radiusOfGran-ulefromCenter				ECSDataGranule	RadiusOfGran∞ ulefromCenter
DsMdGran-ules	reprocessin-gActual				ECSDataGranule	ReprocessingAc-tual

Table 7-2. Data Server Persistent Data Cross Reference Table(9 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DsMdGranules	reprocessingPlanned				ECSDataGranule	Reprocessing∞ Planned
DsMdGranules	sizeMBECSDataGranule				ECSDataGranule	SizeMBECSDataGranule
DsMdCollStringInfoContent	parameterValue				InformationContent	ParameterValue
DsMdCollFloatInfoContent	parameterValue					
DsMdCollIntegerInfoContent	parameterVal∞ue					
DsMdGrStringInfoContent	parameterValue					
DsMdGrFloatInfoContent	parameterValue					
DsMdGrIntegerInfoContent	parameterVal∞ue					
DsMdColAggregationCriteria	aggregationRelationship				MultiTypeCollection	AggregationRela∞tionship
DsMdColAggregationCriteria	aggregationType				MultiTypeCollection	AggregationType
DsMdColAggregationCriteria	aggregationValue				MultiTypeCollection	AggregationValue

Table 7-2. Data Server Persistent Data Cross Reference Table(10 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DsMdOrbitParametersGranule	orbitParametersPointer				OrbitParameters-Granule	OrbitParameter∞ sPointer
DsMdParameters	dataType				Parameter	Parameter∞ DataType
DsMdParameters	description				Parameter	ParameterDe∞ scription
DsMdParameters	parameter-Name				Parameter	ParameterName
DsMdParameters	measurementResolution				PhysicalParameterDetails	ParameterMea∞ surementResolu∞ tion
DsMdParameters	range				PhysicalParameterDetails	ParameterRange
DsMdParameters	unitsOfMeasurement				PhysicalParameterDetails	ParameterUnit∞ sOfMeasurement
DsMdParameters	valueAccuracy				PhysicalParameterDetails	ParameterValue∞ Accuracy
DsMdParameters	valueAccuracyExplanation				PhysicalParameterDetails	ParameterValue∞ AccuracyExpla∞ nation
DsMdProcessingLevels	processingLevelDescription				ProcessingLevel	ProcessingLevel∞ Description
DsMdProcessingLevels	processingLevel				ProcessingLevel	ProcessingLev∞ elID
DsMdProductionHistory	productionHistoryPointer				ProductionHistory	ProductionHistoryPointer
DsMdQACollectionStats	automatic-QualityFlag				QACollection-Stats	AutomaticQuality∞ Flag

Table 7-2. Data Server Persistent Data Cross Reference Table(11 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DsMdQACol-lectionStats	operation-alQualityFlag				QACollection-Stats	OperationalQuali∞ tyFlag
DsMdQACol-lectionStats	qualityFlagEx-planation				QACollection-Stats	QualityFlagExpla∞ nation
DsMdQACol-lectionStats	scienceQuali-tyFlag				QACollection-Stats	ScienceQuality∞ Flag
TBD	TBD				QAGranule	QAGranulePoint∞ er
DsMdQAStats	qaPercentInt-erpolatedData				QAStats	QAPercentInter-polatedData
DsMdQAStats	qaPercent-MissingData				QAStats	QAPercentMiss∞ ingData
DsMdQAStats	qaPer-centOutOf-BoundsData				QAStats	QAPercentOutof-BoundsData
DsMdQuality-TextComment	qualityText-Pointer				QualityTextCom-ment	QualityTextCom-mentPointer
DsMdReview	futureReview-Date				Review	FutureReview∞ Date
DsMdReview	scienceRe-viewDate				Review	ScienceReview∞ Date
DsMdReview	scienceRe-viewStatus				Review	ScienceReview-Status
DsMdCollec-tions	accessCon-straints				SingleTypeCol-lection	AccessCon∞ straints
DsMdCollec-tions	citationforEx-ternalPublica-tion				SingleTypeCol-lection	CitationforExter∞ nalPublication
DsMdCollec-tions	collectionState				SingleTypeCol-lection	CollectionState

Table 7-2. Data Server Persistent Data Cross Reference Table(12 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DsMdCollections	maintenanceUpdateFrequency				SingleTypeCollection	MaintenanceUpdateFrequency
DsMdCollections	packageId				SingleTypeCollection	PackageID
DsMdCollections	temporalKeyword				SingleTypeCollection	TemporalKeyword
DsMdSpatialKeywords	spatialKeyword				SpatialKeywordClass	SpatialKeyword
DsMdDsplnTpcsCntrlPrmtrs	topicKeyword				Topic	TopicKeyword
DsMdDsplnTpcsCntrlPrmtrs	uncontrolledParameterKeyword				UncontrolledParameter	UncontrolledParameterKeyword
DsMdUserCommentDocument	userCommentDocumentPointer				UserCommentDocument	UserCommentDocumentPointer
DsMdValidationDocument	validationDocumentPointer				ValidationDocument	ValidationDocumentPointer
DsMdContact	contactInstructions				Contact	ContactInstructions
DsMdContact	hoursofService				Contact	HoursofService
DsMdContact	role				Contact	Role
DsMdContactAddress	addressType				ContactAddress	AddressType
DsMdContactAddress	city				ContactAddress	City

Table 7-2. Data Server Persistent Data Cross Reference Table(13 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DsMdContactAddress	country				ContactAddress	Country
DsMdContactAddress	postalCode				ContactAddress	PostalCode
DsMdContactAddress	stateProvince				ContactAddress	StateProvince
DsMdContactAddress	streetAddress				ContactAddress	StreetAddress
DsMdContactOrganizations	contactOrganizationName				ContactOrganization	ContactOrganizationName
DsMdContactPersons	contactFirstName				ContactPerson	ContactFirstName
DsMdContactPersons	contactJobPosition				ContactPerson	ContactJobPosition
DsMdContactPersons	contactLastName				ContactPerson	ContactLastName
DsMdContactPersons	contactMiddleName				ContactPerson	ContactMiddleName
DsMdEmailAddress	emailAddress				Email	ElectronicMailAddress
DsMdTelephoneNumbers	telephoneNumber				Telephone	TelephoneNumber
DsMdTelephoneNumbers	telephoneNumberType				Telephone	TelephoneNumberType
CSDTDescription	CSDT				CSDTDescription	CSDT
CSDTDescription	dataStructureComments				CSDTDescription	DataStructureComments

Table 7-2. Data Server Persistent Data Cross Reference Table(14 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
CSDTDescrip-tion	implementa-tion				CSDTDescription	Implementation
CSDTDescrip-tion	numberOfOb-jects				CSDTDescription	NumberofObjects
DsMdIndirec-tReference-Class	indirectRefer-ence				IndirectRefer-enceClass	IndirectReference
DsMdIndirec-tReference-Class	number-OfType-sOfCSDT				IndirectRefer-enceClass	NumberofType∞ sofCSDT
DsMdStruc-turalMetadata	structural-Meta-dataPointer				StructuralMetada-ta	StructuralMeta∞ dataPointer
CSDTDescrip-tion	CSDT				CSDTDescription	CSDT
CSDTDescrip-tion	DataStruc-tureCom-ments				CSDTDescription	DataStruc∞ tureComments
CSDTDescrip-tion	Implementa-tion				CSDTDescription	Implementation
CSDTDescrip-tion	NumberofOb-jects				CSDTDescription	NumberofObjects
DsMdData-Originator	dataOrigina-torLongName	DsMdMetadata	DsMdMetadata	myScienceMetadata	DataOriginator	DataOriginator-LongName
DsMdField-Campaign	campaign-ProjectStart-Date	DsMdMetadata	DsMdMetadata	myScienceMetadata	FieldCampaign	CampaignProject-StartDate
DsMdField-Campaign	campaign-ProjectStop-Date	DsMdMetadata	DsMdMetadata	myScienceMetadata	FieldCampaign	CampaignProject-StopDate

Table 7-2. Data Server Persistent Data Cross Reference Table(15 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DsMdField-Campaign	fieldcampaign-Name	DsMdMetadata	DsMdMetadata	myScienceMetadata	FieldCampaign	CampaignName
DsMdInstru-ment	instrument-Type	DsMdMetadata	DsMdMetadata	myScienceMetadata	Instrument	InstrumentType
DsMdInstru-ment	numberofSen-sors	DsMdMetadata	DsMdMetadata	myScienceMetadata	Instrument	NumberofSen-sors
TBD	TBD	DsMdMetadata	DsMdMetadata	myScienceMetadata	Instrument	InstrumentName
DsMdNonIn-strument	modelDescrip-tion	DsMdMetadata	DsMdMetadata	myScienceMetadata	NonInstrument	ModelDescription
DsMdNonIn-strument	modelName	DsMdMetadata	DsMdMetadata	myScienceMetadata	NonInstrument	ModelName
DsMdNonIn-strument	nonInstru-mentLong-Name	DsMdMetadata	DsMdMetadata	myScienceMetadata	NonInstrument	NonInstrument∞ LongName
DsMdNonIn-strument	nonInstru-mentShort-Name	DsMdMetadata	DsMdMetadata	myScienceMetadata	NonInstrument	NonInstrument∞ ShortName
DsMdNonIn-strument	nonInstru-mentType	DsMdMetadata	DsMdMetadata	myScienceMetadata	NonInstrument	NonInstrument∞ Type
DsMdOpera-tionMode	operation-Mode	DsMdMetadata	DsMdMetadata	myScienceMetadata	OperationMode	OperationMode
DsMdPlatform	platformShort-Name	DsMdMetadata	DsMdMetadata	myScienceMetadata	Platform	PlatformShort-Name
DsMdPlatform	platformLong-Name	DsMdMetadata	DsMdMetadata	myScienceMetadata	Platform	PlatformLong∞ Name
DsMdPlat-formCharac-teristic	platformChar-acteristicValue	DsMdMetadata	DsMdMetadata	myScienceMetadata	PlatformCharac-teristic	PlatformCharac∞ teristicValue
DsMdPlat-formCharac-teristic	platformChar-acteris-ticName	DsMdMetadata	DsMdMetadata	myScienceMetadata	PlatformCharac-teristic	PlatformCharac∞ teristicName

Table 7-2. Data Server Persistent Data Cross Reference Table(16 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DsMdPlat-formCharac-teristic	platformChar-acteristicUnit	DsMdMetadata	DsMdMetadata	myScienceMetadata	PlatformCharac-teristic	PlatformCharac∞ teristicUnit
DsMdSensor	sensorShort-Name	DsMdMetadata	DsMdMetadata	myScienceMetadata	Sensor	SensorShort-Name
DsMdSensor	sensorType	DsMdMetadata	DsMdMetadata	myScienceMetadata	Sensor	SensorType
DsMdSensor	sensorLong-Name	DsMdMetadata	DsMdMetadata	myScienceMetadata	Sensor	SensorLong-Name
DsMdSensor-Characteristic	sensorChar-acteristicValue	DsMdMetadata	DsMdMetadata	myScienceMetadata	SensorCharacter-istic	SensorCharacter-isticValue
DsMdSensor-Characteristic	sensorChar-acteris-ticName	DsMdMetadata	DsMdMetadata	myScienceMetadata	SensorCharacter-istic	SensorCharacter-isticName
DsMdSensor-Characteristic	sensorChar-acteristicType	DsMdMetadata	DsMdMetadata	myScienceMetadata	SensorCharacter-istic	SensorCharacter-isticType
DsMdSensor-Characteristic	sensorChar-acteristicUnit	DsMdMetadata	DsMdMetadata	myScienceMetadata	SensorCharacter-istic	SensorCharacter-isticUnit
DsMdDeliv-eredAlgorithm-Package	atbdPointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	ATBD	ATBDPointer
DsMdDeliv-eredAlgorithm-Package	description-Type	DsMdMetadata	DsMdMetadata	myScienceMetadata	AlgorithmDescrip-tion	DescriptionType
DsMdDeliv-eredAlgorithm-Package	calibrationFile-sPointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	CalibrationFiles	CalibrationFile∞ sPointer
DsMdDeliv-eredAlgorithm-Package	calibra-tionQuality-Pointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	CalibrationFiles	CalibrationFile-sPointer

Table 7-2. Data Server Persistent Data Cross Reference Table(17 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DsMdDeliv-eredAlgorithm-Package	changeLog-Pointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	ChangeLog	ChangeLogPoint∞er
DsMdDeliv-eredAlgorithm-Package	compileIn-foPointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	CompileInfo	CompileInfoPoint∞er
DsMdDeliv-eredAlgorithm-Package	contextDia-gramsPointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	ContextDiagrams	ContextDiagram-sPointer
DsMdDeliv-eredAlgorithm-Package	agorithmPack-ageAccep-tanceDate	DsMdMetadata	DsMdMetadata	myScienceMetadata	DeliveredAlgorith-mPackage	AlgorithmPack∞ageAcceptance-Date
DsMdDeliv-eredAlgorithm-Package	algorithm-PackageMatu-rityCode	DsMdMetadata	DsMdMetadata	myScienceMetadata	DeliveredAlgorith-mPackage	AlgorithmPack∞ageMaturityCode
DsMdDeliv-eredAlgorithm-Package	algorithm-Package-Name	DsMdMetadata	DsMdMetadata	myScienceMetadata	DeliveredAlgorith-mPackage	AlgorithmPacka∞geName
DsMdDeliv-eredAlgorithm-Package	algorithm-PackageVer-sion	DsMdMetadata	DsMdMetadata	myScienceMetadata	DeliveredAlgorith-mPackage	AlgorithmPacka∞geVersion
DsMdDeliv-eredAlgorithm-Package	deliveryPur-pose	DsMdMetadata	DsMdMetadata	myScienceMetadata	DeliveredAlgorith-mPackage	DeliveryPurpose
DsMdDeliv-eredAlgorithm-Package	deliveryCon-tentsListPoint-er	DsMdMetadata	DsMdMetadata	myScienceMetadata	DeliveryCon-tentsList	DeliveryCon∞tentsListPointer
DsMdDeliv-eredAlgorithm-Package	detailed-DesignPointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	DetailedDesign	DetailedDesign∞Pointer
DsMdDeliv-eredAlgorithm-Package	external-DataPointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	ExternalData	External-DataPointer

Table 7-2. Data Server Persistent Data Cross Reference Table(18 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DsMdDeliv-eredAlgorithm-Package	instrument-Engineering-DataPointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	InstrumentEngi-neeringData	InstrumentEngi∞ neering-DataPointer
DsMdDeliv-eredAlgorithm-Package	instrument-Science-DataPointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	Instrument-ScienceData	Instrument∞ Science-DataPointer
DsMdDeliv-eredAlgorithm-Package	linkandCom-pileScript-sPointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	LinkandCompile-Scripts	LinkandCompile∞ ScriptsPointer
DsMdDeliv-eredAlgorithm-Package	metadataCon-figurationFile-Pointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	MetadataConfigu-rationFile	MetadataConfigu∞ rationFilePointer
DsMdDeliv-eredAlgorithm-Package	operationMan-ualPointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	OperationManual	OperationManu-alPointer
TBD	TBD	DsMdMetadata	DsMdMetadata	myScienceMetadata	PGEConfigFile	PGEConfigFile-Pointer
TBD	TBD	DsMdMetadata	DsMdMetadata	myScienceMetadata	PGEDescription	PGEFunction
TBD	TBD	DsMdMetadata	DsMdMetadata	myScienceMetadata	PGEDescription	PGEIdentifier
TBD	TBD	DsMdMetadata	DsMdMetadata	myScienceMetadata	PGEDescription	PGEName
TBD	TBD	DsMdMetadata	DsMdMetadata	myScienceMetadata	PGEErrorLog	PGEErrorLog-Pointer
TBD	TBD	DsMdMetadata	DsMdMetadata	myScienceMetadata	PGEInfo	DateLastModified
DsMdPGEV-ersion	PGEVersion	DsMdMetadata	DsMdMetadata	myScienceMetadata	PGEVersion	PGEVersion
DsMdDeliv-eredAlgorithm-Package	performan-ceTestResult-sPointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	PerformanceT-estResults	PerformanceT∞ estResultsPointer
DsMdDeliv-eredAlgorithm-Package	platformAncil-laryDataPoint-er	DsMdMetadata	DsMdMetadata	myScienceMetadata	PlatformAncillary-Data	PlatformAncillary∞ DataPointer

Table 7-2. Data Server Persistent Data Cross Reference Table(19 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DsMdDeliv-eredAlgorithm-Package	processContl-ParResFile-sPointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	ProcessControl-Parametersan-dResourceFiles	ProcessControl∞ Parametersan-dResourceFilesP ointer
DsMdDeliv-eredAlgorithm-Package	processing-FileDescrip-tionPointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	ProcessingFile-Description	ProcessingFile∞ DescriptionPoint-er
DsMdDeliv-eredAlgorithm-Package	programmers-GuidePointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	Programmers-Guide	Programmers∞ GuidePointer
DsMdDeliv-eredAlgorithm-Package	resultTemp-FilePointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	ResultTempFile	ResultTempFile-Pointer
DsMdDeliv-eredAlgorithm-Package	resultsPro-ductFilePoint-er	DsMdMetadata	DsMdMetadata	myScienceMetadata	ResultsProduct-File	ResultsProduct∞ FilePointer
DsMdDeliv-eredAlgorithm-Package	resultsReport-Pointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	ResultsReport	ResultsReport-Pointer
DsMdDeliv-eredAlgorithm-Package	swDevelop-mentStan-dardPointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	SWDevelopment-Standard	SWDevelopment∞ StandardPointer
DsMdDeliv-eredAlgorithm-Package	sOFSWScript-Pointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	ScSWScript	ScSWScriptPoint-er
DsMdDeliv-eredAlgorithm-Package	sOFSW-SourceCode-Pointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	ScSWSource-Code	ScSWSource∞ CodePointer
DsMdDeliv-eredAlgorithm-Package	dateSWLast-Modified	DsMdMetadata	DsMdMetadata	myScienceMetadata	Software	DateLastModified

Table 7-2. Data Server Persistent Data Cross Reference Table(20 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DsMdDeliv-eredAlgorithm-Package	systemDe-scriptionPoint-er	DsMdMetadata	DsMdMetadata	myScienceMetadata	SystemDescrip-tion	SystemDescrip∞ tionPointer
DsMdDeliv-eredAlgorithm-Package	testPlanPoint-er	DsMdMetadata	DsMdMetadata	myScienceMetadata	TestPlan	TestPlanPointer
DsMdDeliv-eredAlgorithm-Package	testScript-Pointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	TestScript	TestScriptPointer
DsMdDeliv-eredAlgorithm-Package	testSiteCon-figPointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	TestSiteConfig	TestSiteConfig∞ Pointer
DsMdDeliv-eredAlgorithm-Package	testSource-CodePointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	TestSourceCode	TestSourceCode∞ Pointer
DsMdAuthor	authorAffilia-tion	DsMdMetadata	DsMdMetadata	myScienceMetadata	Author	AuthorAffiliation
DsMdAuthor	authorName	DsMdMetadata	DsMdMetadata	myScienceMetadata	Author	AuthorName
DsMdGuide	guidePointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	DataCenterGuide	DataCenter-GuidePointer
DsMdGuide	dataCenter-Name	DsMdMetadata	DsMdMetadata	myScienceMetadata	DataCenterGuide	DataCenterName
DsMdGuide	guidePointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	DataSetGuide	DataSetGuide-Pointer
DsMdDocu-ment	documentCre-ated	DsMdMetadata	DsMdMetadata	myScienceMetadata	Document	DocumentCreat∞ ed
DsMdDocu-ment	documentUp-dated	DsMdMetadata	DsMdMetadata	myScienceMetadata	Document	DocumentUpdat∞ ed
DsMdDocu-ment	documentVer-sion	DsMdMetadata	DsMdMetadata	myScienceMetadata	Document	DocumentVersion

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Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DsMdDocu-ment	title	DsMdMetadata	DsMdMetadata	myScienceMetadata	Document	Title
DsMdGuide	dataCenter	DsMdMetadata	DsMdMetadata	myScienceMetadata	Guide	DataCenter
DsMdGuide	guideName	DsMdMetadata	DsMdMetadata	myScienceMetadata	Guide	GuideName
DsMdReferen-cePaper	journalArticle-Name	DsMdMetadata	DsMdMetadata	myScienceMetadata	JournalArticle	JournalArticleNa-me
TBD	TBD	DsMdMetadata	DsMdMetadata	myScienceMetadata	JournalArticle	JournalArti∞ clePointer
DsMdProduc-tionPlan	DAACName	DsMdMetadata	DsMdMetadata	myScienceMetadata	ProductionPlan	DAACName
DsMdProduc-tionPlan	planned-DataSet∞ sPointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	ProductionPlan	PlannedDataSets
DsMdProduc-tionPlan	productionP-lanDescription	DsMdMetadata	DsMdMetadata	myScienceMetadata	ProductionPlan	ProductionPlanD∞ escription
DsMdProduc-tionPlan	production-PlanEndDate	DsMdMetadata	DsMdMetadata	myScienceMetadata	ProductionPlan	Production∞ PlanEndDate
DsMdProduc-tionPlan	production-PlanPointer	DsMdMetadata	DsMdMetadata	myScienceMetadata	ProductionPlan	ProductionPlan∞ Pointer
DsMdProduc-tionPlan	production-PlanStartDate	DsMdMetadata	DsMdMetadata	myScienceMetadata	ProductionPlan	ProductionPlan-StartDate
TBD	TBD	DsMdMetadata	DsMdMetadata	myScienceMetadata	ProjectCampaign-Guide	ProjectCampaign-GuidePointer
TBD	TBD	DsMdMetadata	DsMdMetadata	myScienceMetadata	ProjectSubset-tingGuide	FormatName
DsMdGuide	storageStrate-gy	DsMdMetadata	DsMdMetadata	myScienceMetadata	ProjectSubset-tingGuide	StorageStrategy
DsMdReferen-cePaper	abstractPoint-er	DsMdMetadata	DsMdMetadata	myScienceMetadata	ReferencePaper	AbstractPointer

Table 7-2. Data Server Persistent Data Cross Reference Table(22 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DsMdReferencePaper	accessInstructions	DsMdMetadata	DsMdMetadata	myScienceMetadata	ReferencePaper	AccessInstructions
DsMdReferencePaper	dateofReferencePaperPublication	DsMdMetadata	DsMdMetadata	myScienceMetadata	ReferencePaper	DateofReferencePaperPublication
DsMdReferencePaper	referencePaperReference	DsMdMetadata	DsMdMetadata	myScienceMetadata	ReferencePaper	ReferencePaperReference
DsMdReferencePaper	referencePaperType	DsMdMetadata	DsMdMetadata	myScienceMetadata	ReferencePaper	ReferencePaperType
DsMdGuide	gegraphicalRegionName	DsMdMetadata	DsMdMetadata	myScienceMetadata	RegionalAreaDefinitionGuide	GegraphicalRegionName
TBD	TBD	DsMdMetadata	DsMdMetadata	myScienceMetadata	RegionalAreaDefinitionGuide	RegionalAreaDefinitionGuidePointer
TBD	TBD	DsMdMetadata	DsMdMetadata	myScienceMetadata	SensorInstrumentGuide	SensorInstrumentGuidePointer
TBD	TBD	DsMdMetadata	DsMdMetadata	myScienceMetadata	SourcePlatformGuide	SourcePlatformGuidePointer
TBD	TBD	DsMdMetadata	DsMdMetadata	myScienceMetadata	StandAloneDocument	StandAloneDocumentPointer
DsMdAltitudeSystemDefinition	altitudeDatumName	DsMdMetadata	DsMdMetadata	myScienceMetadata	AltitudeSystemDefinition	AltitudeDatumName
DsMdAltitudeSystemDefinition	altitudeDistanceUnits	DsMdMetadata	DsMdMetadata	myScienceMetadata	AltitudeSystemDefinition	AltitudeDistanceUnits
DsMdAltitudeSystemDefinition	altitudeEncodingMethod	DsMdMetadata	DsMdMetadata	myScienceMetadata	AltitudeSystemDefinition	AltitudeEncodingMethod

Table 7-2. Data Server Persistent Data Cross Reference Table(23 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DsMdAltitude-SystemDefini-tion	altitudeReso-lution	DsMdMetadata	DsMdMetadata	myScienceMetadata	AltitudeSystem-Definition	AltitudeResolu-tion
DsMdBound-ingRectangle	eastBounding-Coordinate	DsMdMetadata	DsMdMetadata	myScienceMetadata	BoundingRectan-gle	EastBoundingCo∞ ordinate
DsMdBound-ingRectangle	northBound-ingCoordinate	DsMdMetadata	DsMdMetadata	myScienceMetadata	BoundingRectan-gle	NorthBounding∞ Coordinate
DsMdBound-ingRectangle	southBound-ingCoordinate	DsMdMetadata	DsMdMetadata	myScienceMetadata	BoundingRectan-gle	SouthBounding∞ Coordinate
DsMdBound-ingRectangle	WestBound-ingCoordinate	DsMdMetadata	DsMdMetadata	myScienceMetadata	BoundingRectan-gle	WestBounding∞ Coordinate
DsMdCircle	centerLatitude	DsMdMetadata	DsMdMetadata	myScienceMetadata	Circle	CenterLatitude
DsMdCircle	centerLongi-tude	DsMdMetadata	DsMdMetadata	myScienceMetadata	Circle	CenterLongitude
DsMdCircle	radiusValue	DsMdMetadata	DsMdMetadata	myScienceMetadata	Circle	RadiusValue
DsMdPlanar-Coordinate-System	abscissaRes-olution	DsMdMetadata	DsMdMetadata	myScienceMetadata	CoordinateRepre-sentation	AbscissaResolu-tion
DsMdPlanar-Coordinate-System	ordinateReso-lution	DsMdMetadata	DsMdMetadata	myScienceMetadata	CoordinateRepre-sentation	OrdinateResolu-tion
DsMdDepth-SystemDefini-tion	depthDatum-Name	DsMdMetadata	DsMdMetadata	myScienceMetadata	DepthSystemDef-inition	DepthDatum-Name
DsMdDepth-SystemDefini-tion	depthDistan-ceUnits	DsMdMetadata	DsMdMetadata	myScienceMetadata	DepthSystemDef-inition	DepthDistance-Units
DsMdDepth-SystemDefini-tion	depthEncod-ingMethod	DsMdMetadata	DsMdMetadata	myScienceMetadata	DepthSystemDef-inition	DepthEncoding-Method

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Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DsMdDepth-SystemDefini-tion	depthResolu-tion	DsMdMetadata	DsMdMetadata	myScienceMetadata	DepthSystemDef-inition	DepthResolution
DsMdPlanar-Coordinate-System	bearingRefer-enceDirection	DsMdMetadata	DsMdMetadata	myScienceMetadata	DistanceandBear-ingRepresenta-tion	BearingRefer-enceDirection
DsMdPlanar-Coordinate-System	bearingRefer-enceMeridian	DsMdMetadata	DsMdMetadata	myScienceMetadata	DistanceandBear-ingRepresenta-tion	BearingReferenc-eMeridian
DsMdPlanar-Coordinate-System	bearingReso-lution	DsMdMetadata	DsMdMetadata	myScienceMetadata	DistanceandBear-ingRepresenta-tion	BearingResolu-tion
DsMdPlanar-Coordinate-System	bearingUnits	DsMdMetadata	DsMdMetadata	myScienceMetadata	DistanceandBear-ingRepresenta-tion	BearingUnits
DsMdPlanar-Coordinate-System	distanceReso-lution	DsMdMetadata	DsMdMetadata	myScienceMetadata	DistanceandBear-ingRepresenta-tion	DistanceResolu-tion
DsMdGRing	exclusion-GRingFlag	DsMdMetadata	DsMdMetadata	myScienceMetadata	GRing	ExclusionGRing-Flag
DsMdGRing-Point	gRingPoint-Latitude	DsMdMetadata	DsMdMetadata	myScienceMetadata	GRingPoint	GRingPointLati-tude
DsMdGRing-Point	gRingPoint-Longitude	DsMdMetadata	DsMdMetadata	myScienceMetadata	GRingPoint	GRingPointLongi-tude
DsMdGRing-Point	gRingPointSe-quenceNo	DsMdMetadata	DsMdMetadata	myScienceMetadata	GRingPoint	GRingPointSe∞ quenceNo
DsMdGeodet-icModel	denominator-ofFlattenin-gRatio	DsMdMetadata	DsMdMetadata	myScienceMetadata	GeodeticModel	Denominatorof∞ FlatteningRatio
DsMdGeodet-icModel	ellipsoidName	DsMdMetadata	DsMdMetadata	myScienceMetadata	GeodeticModel	EllipsoidName

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Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DsMdGeodeticModel	horizontalDatumName	DsMdMetadata	DsMdMetadata	myScienceMetadata	GeodeticModel	HorizontalDatum∞Name
DsMdGeodeticModel	semiMajorAxis	DsMdMetadata	DsMdMetadata	myScienceMetadata	GeodeticModel	SemiMajorAxis
DsMdGeographicCoordinateSystem	geographicCoordinateUnits	DsMdMetadata	DsMdMetadata	myScienceMetadata	GeographicCoordinateSystem	GeographicCoor∞dinateUnits
DsMdGeographicCoordinateSystem	latitudeResolution	DsMdMetadata	DsMdMetadata	myScienceMetadata	GeographicCoordinateSystem	LatitudeResolu∞tion
DsMdGeographicCoordinateSystem	longitudeResolution	DsMdMetadata	DsMdMetadata	myScienceMetadata	GeographicCoordinateSystem	LongitudeResolu∞tion
DsMdGranuleLocality	localityValue	DsMdMetadata	DsMdMetadata	myScienceMetadata	GranuleLocality	LocalityValue
DsMdGridCoordinateSystem	gridCoordinateSystemName	DsMdMetadata	DsMdMetadata	myScienceMetadata	GridCoordinateSystem	GridCoordinate∞SystemName
DsMdLocalCoordinateSystem	localCoordinateSystemDescription	DsMdMetadata	DsMdMetadata	myScienceMetadata	LocalCoordinateSystem	LocalCoordinateSystemDescription
DsMdLocalCoordinateSystem	localGeoreferenceInformation	DsMdMetadata	DsMdMetadata	myScienceMetadata	LocalCoordinateSystem	LocalGeoreferenceInformation
TBD	TBD	DsMdMetadata	DsMdMetadata	myScienceMetadata	LocalPlanarCoordinateSystem	LocalPlanarCoor∞dinateSystemDescription
TBD	TBD	DsMdMetadata	DsMdMetadata	myScienceMetadata	LocalPlanarCoordinateSystem	LocalPlanarGeo∞referenceInformation
DsMdLocality	Description	DsMdMetadata	DsMdMetadata	myScienceMetadata	Locality	LocalityDescrip∞tion

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Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DsMdLocality	localityType	DsMdMetadata	DsMdMetadata	myScienceMetadata	Locality	LocalityType
DsMdMap-Projection	mapProjec-tionName	DsMdMetadata	DsMdMetadata	myScienceMetadata	MapProjection	MapProjection-Name
DsMdMap-Projection	standardPar-allel	DsMdMetadata	DsMdMetadata	myScienceMetadata	MapProjection	MapProjection-Pointer
DsMdMap-Projection	longitudeOf-CentralMeridi-an	DsMdMetadata	DsMdMetadata	myScienceMetadata	MapProjection	MapProjection-Pointer
DsMdMap-Projection	latitudeOf-ProjectionOri-gin	DsMdMetadata	DsMdMetadata	myScienceMetadata	MapProjection	MapProjection-Pointer
DsMdMap-Projection	falseEasting	DsMdMetadata	DsMdMetadata	myScienceMetadata	MapProjection	MapProjection-Pointer
DsMdMap-Projection	falseNorthing	DsMdMetadata	DsMdMetadata	myScienceMetadata	MapProjection	MapProjection-Pointer
DsMdMap-Projection	heightOfPesp-Point-AboveSur	DsMdMetadata	DsMdMetadata	myScienceMetadata	MapProjection	MapProjection-Pointer
DsMdMap-Projection	longitudeOf-Projection-Center	DsMdMetadata	DsMdMetadata	myScienceMetadata	MapProjection	MapProjection-Pointer
DsMdMap-Projection	latitudeOf-Projection-Center	DsMdMetadata	DsMdMetadata	myScienceMetadata	MapProjection	MapProjection-Pointer
DsMdMap-Projection	scaleFactor-AtEquator	DsMdMetadata	DsMdMetadata	myScienceMetadata	MapProjection	MapProjection-Pointer
DsMdMap-Projection	scaleFactorAt-CenterLine	DsMdMetadata	DsMdMetadata	myScienceMetadata	MapProjection	MapProjection-Pointer
DsMdMap-Projection	azimuthAngle	DsMdMetadata	DsMdMetadata	myScienceMetadata	MapProjection	MapProjection-Pointer

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Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DsMdMap-Projection	azimuth-alMeasure-PointLongitude	DsMdMetadata	DsMdMetadata	myScienceMetadata	MapProjection	MapProjection-Pointer
DsMdMap-Projection	oblique-LineLatitude	DsMdMetadata	DsMdMetadata	myScienceMetadata	MapProjection	MapProjection-Pointer
DsMdMap-Projection	oblique-LineLongitude	DsMdMetadata	DsMdMetadata	myScienceMetadata	MapProjection	MapProjection-Pointer
DsMdMap-Projection	straightVert-Longitude-FromPole	DsMdMetadata	DsMdMetadata	myScienceMetadata	MapProjection	MapProjection-Pointer
DsMdMap-Projection	scaleFactorAt-ProjectionOri-gin	DsMdMetadata	DsMdMetadata	myScienceMetadata	MapProjection	MapProjection-Pointer
DsMdMap-Projection	landsatNum-ber	DsMdMetadata	DsMdMetadata	myScienceMetadata	MapProjection	MapProjection-Pointer
DsMdMap-Projection	pathNumber	DsMdMetadata	DsMdMetadata	myScienceMetadata	MapProjection	MapProjection-Pointer
DsMdMap-Projection	scaleFactorAt-CentralMeridi-an	DsMdMetadata	DsMdMetadata	myScienceMetadata	MapProjection	MapProjection-Pointer
DsMdMap-Projection	otherProjec-tionDefinition	DsMdMetadata	DsMdMetadata	myScienceMetadata	MapProjection	MapProjection∞ Pointer
DsMdOr-bitCalculated-Spatial	orbitNumber	DsMdMetadata	DsMdMetadata	myScienceMetadata	OrbitCalculatedS-patialDomain	OrbitNumber
DsMdOr-bitCalculated-Spatial	orbitalModel-Name	DsMdMetadata	DsMdMetadata	myScienceMetadata	OrbitCalculatedS-patialDomain	OrbitalModel∞ Name
DsMdOr-bitCalculated-Spatial	pathNumber	DsMdMetadata	DsMdMetadata	myScienceMetadata	OrbitCalculatedS-patialDomain	PathNumber

Table 7-2. Data Server Persistent Data Cross Reference Table(28 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DsMdOrbitCalculatedSpatial	startOrbitNumber	DsMdMetadata	DsMdMetadata	myScienceMetadata	OrbitCalculatedSpatialDomain	StartOrbitNumber
DsMdOrbitCalculatedSpatial	stopOrbitNumber	DsMdMetadata	DsMdMetadata	myScienceMetadata	OrbitCalculatedSpatialDomain	StopOrbitNumber
DsMdPlanarCoordinateSystem	planarCoordinateEncodingMethod	DsMdMetadata	DsMdMetadata	myScienceMetadata	PlanarCoordinateInformation	PlanarCoordinateEncodingMethod
DsMdPlanarCoordinateSystem	planarDistanceUnits	DsMdMetadata	DsMdMetadata	myScienceMetadata	PlanarCoordinateInformation	PlanarDistanceUnits
DsMdPoint	pointLatitude	DsMdMetadata	DsMdMetadata	myScienceMetadata	Point	PointLatitude
DsMdoint	pointLongitude	DsMdMetadata	DsMdMetadata	myScienceMetadata	Point	PointLongitude
DsMdSpatial	spatialCoverageType	DsMdMetadata	DsMdMetadata	myScienceMetadata	Spatial	SpatialCoverage∞Type
DsMdVerticalSpatialDomain	verticalSpatialDomainValue	DsMdMetadata	DsMdMetadata	myScienceMetadata	VerticalSpatialDomain	VerticalSpatialDomainValue
TBD	TBD	DsMdMetadata	DsMdMetadata	myScienceMetadata	ZoneIdentifier	ZoneIdentifier
DsMdDiscontinuousMultipleRange	endsatPresentFlag	DsMdMetadata	DsMdMetadata	myScienceMetadata	DiscontinuousMultipleRange	EndsatPresent∞Flag
DsMdMultipleDateTime	multipleDateName	DsMdMetadata	DsMdMetadata	myScienceMetadata	MultipleDateTimePeriod	MultipleDateName
DsMdRangeDateTime	beginningDate	DsMdMetadata	DsMdMetadata	myScienceMetadata	RangeDateTime	RangeBeginningDate
DsMdRangeDateTime	beginningTime	DsMdMetadata	DsMdMetadata	myScienceMetadata	RangeDateTime	RangeBeginningTime

Table 7-2. Data Server Persistent Data Cross Reference Table(29 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DsMdRange-DateTime	endingDate	DsMdMetadata	DsMdMetadata	myScienceMetadata	RangeDateTime	RangeEnding-Date
DsMdRange-DateTime	endingTime	DsMdMetadata	DsMdMetadata	myScienceMetadata	RangeDateTime	RangeEnding-Time
DsMdRegular-Periodic	period1stDate	DsMdMetadata	DsMdMetadata	myScienceMetadata	RegularPeriodic	Period1stDate
DsMdRegular-Periodic	period1stTime	DsMdMetadata	DsMdMetadata	myScienceMetadata	RegularPeriodic	Period1stTime
DsMdRegular-Periodic	periodCycle-DurationUnit	DsMdMetadata	DsMdMetadata	myScienceMetadata	RegularPeriodic	PeriodCycleDura-tionUnit
DsMdRegular-Periodic	periodCycle-DurationValue	DsMdMetadata	DsMdMetadata	myScienceMetadata	RegularPeriodic	PeriodCycleDura-tionValue
DsMdRegular-Periodic	periodDuratio-nUnit	DsMdMetadata	DsMdMetadata	myScienceMetadata	RegularPeriodic	PeriodDuration-Unit
DsMdRegular-Periodic	periodDura-tionValue	DsMdMetadata	DsMdMetadata	myScienceMetadata	RegularPeriodic	PeriodDuration-Value
DsMdRegular-Periodic	periodName	DsMdMetadata	DsMdMetadata	myScienceMetadata	RegularPeriodic	PeriodName
DsMdSingle-DateTime	calendarDate	DsMdMetadata	DsMdMetadata	myScienceMetadata	SingleDateTime	CalendarDate
DsMdSingle-DateTime	timeofDay	DsMdMetadata	DsMdMetadata	myScienceMetadata	SingleDateTime	TimeofDay
DsMdTempo-ral	dateType	DsMdMetadata	DsMdMetadata	myScienceMetadata	Temporal	DateType
DsMdTempo-ral	precisionof-Seconds	DsMdMetadata	DsMdMetadata	myScienceMetadata	Temporal	PrecisionofSec∞onds
DsMdTempo-ral	temporal-RangeType	DsMdMetadata	DsMdMetadata	myScienceMetadata	Temporal	TemporalRange∞Type
DsMdTempo-ral	timeType	DsMdMetadata	DsMdMetadata	myScienceMetadata	Temporal	TimeType

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Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
TBD	TBD		DsNsProduction-HistoryClass	mySize		
TBD	TBD			myUR		
TBD	TBD			myMetadata		
TBD	TBD			myType		
TBD	TBD			myInterface		
TBD	TBD			myArchive	ProductionHistory	ProductionHisto∞ ryPointer(Specifi∞ cation)
TBD	TBD		DsNsScience-SoftwareClass	myBinaryList		
TBD	TBD			myGranuleList	ECSDataGranule	GranulePointer
TBD	TBD			myHostList		
TBD	TBD			mySourceCode		
TBD	TBD		DsSbCallBack-timerClass	myCallbackFunction		
TBD	TBD		DsSbEventClass	myCategory		
TBD	TBD			myDescription		
TBD	TBD			myEventID		
TBD	TBD			myName		
N/A	N/A		DsSbEv-entHandlerClass	none		
TBD	TBD		DsSbRegis-teredEventClass	myEventID		
TBD	TBD		DsSbSubscrip-tionClass	none		
TBD	TBD		DsSbTimerClass	myInternal		

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Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
TBD	TBD		DsSd24BitImage Class			
TBD	TBD		DsSd8BitImageCl ass			
TBD	TBD		DsSdCSDTClass	mycompressionType		
TBD	TBD			myDate		
TBD	TBD			myformat	CSDTDescription	CSDT Implementation
TBD	TBD			mypermissions		
TBD	TBD			mysize		
TBD	TBD			myVersionNo.		
TBD	TBD		DsSdGridClass	myArrayLabels		
TBD	TBD			myCompression		
TBD	TBD			mydimension	StructuralMetada-ta	StructuralMeta∞ dataPointer
TBD	TBD			myGeodphysicalPa-rameters	StructuralMetada-ta	StructuralMeta-dataPointer
TBD	TBD			myGridType	CSDTDescription	CSDT Implementation
TBD	TBD			myName		
TBD	TBD			myResolution	StructuralMetada-ta	StructuralMeta∞ dataPointer
TBD	TBD		DsSdImageClass	myBitDepth		
TBD	TBD			myImageType		
TBD	TBD			myLength	StructuralMetada-ta	StructuralMeta∞ dataPointer
TBD	TBD			myName		

Table 7-2. Data Server Persistent Data Cross Reference Table(32 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
TBD	TBD			myResolution	StructuralMetada-ta	StructuralMeta∞ dataPointer
TBD	TBD			myWidth	StructuralMetada-ta	StructuralMeta∞ dataPointer
TBD	TBD		DsSdPointClass	mySize	StructuralMetada-ta	StructuralMeta-dataPointer
TBD	TBD			mylabels	StructuralMetada-ta	StructuralMeta∞ dataPointer
TBD	TBD			mylocation		
TBD	TBD			myname		
TBD	TBD			myresolution	StructuralMetada-ta	StructuralMeta∞ dataPointer
TBD	TBD			mytimer		
TBD	TBD			myvector		
TBD	TBD		DsSdSwathClass	myCompression	StructuralMetada-ta	StructuralMeta-dataPointer
TBD	TBD			myDimensions	StructuralMetada-ta	StructuralMeta∞ dataPointer
TBD	TBD			myLabels	StructuralMetada-ta	StructuralMeta∞ dataPointer
TBD	TBD			myLocation		
TBD	TBD			myName		
TBD	TBD			myOrbitRepresenta-tion	OrbitCalculatedS-patialDomain	OrbitModelName
TBD	TBD			mySize	ECSDataGranule	SizeMBECSData-Granule
TBD	TBD			mySwathType	StructuralMetada-ta	StructuralMeta∞ dataPointer

Table 7-2. Data Server Persistent Data Cross Reference Table(33 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
TBD	TBD			myName		
TBD	TBD		DsSrCommand-Class	myInfor		
TBD	TBD		DsSrCommand-BaseClass	myInfo		
TBD	TBD		DsSrConnection-Class	myLog		
TBD	TBD			myLoggingFlag		
TBD	TBD			myStatus		
TBD	TBD			myTimeOut		
TBD	TBD			myTimeOutInternal		
TBD	TBD		DsSrRequest-Class	myInfo		
TBD	TBD			mySubmittedRequest		
TBD	TBD		DsSrRequest-BaseClass	myInfo		
TBD	TBD			mySubmittedRequest		
TBD	TBD		DsSrServerClass	myConnectionThresh∞old		
TBD	TBD			mySystemLog		
TBD	TBD		DsSrSession-Class	myLog		
TBD	TBD			myLoggingFlag		
TBD	TBD			myStatus		
TBD	TBD			myTimeOut		
TBD	TBD			myTimeOutInternal		

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Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
TBD	TBD		DsSrWorkingCol-lectionClass	myESDT's		
TBD	TBD			myStatus		
ASCII File	TBD	DsDoCSDT	DsCdASCII	myAscii_Type		
ASCII File	TBD	DsDoCSDT	DsCdCSDT	myFormat		
ASCII File	TBD			myMimeType		
ASCII File	TBD			myMimeVersion		
ASCII File	TBD			myPermissions		
ASCII File	TBD			mySize		
ASCII File	TBD			myType		
ASCII File	TBD			myVersion		
ASCII File	TBD	DsDoCSDT	DsCdHTML	myHTMLVersion		
ASCII File	TBD	DsDoCSDT	DsCdPDF	myPDFVersion		
ASCII File	TBD	DsDoCSDT	DsCdPostScript	myPostscriptVersion		
ASCII File	TBD	DsDoCSDT	DsCdRTF	myRTFVersion		
ASCII File	TBD	DsDoDocumentServ-er	DsDoServer	myServerName		
ASCII File	TBD			myServerVersion		
ASCII File	TBD			mySystemLog		
ASCII File	TBD	DsDoESDT	DsEsAlgorithm-Description-TypeID	myTypeID		
ASCII File	TBD	DsDoESDT	DsEsAlgorithm-Description	myDsEsAlgdescTyID		
ASCII File	TBD			myDsEsScienceSoft∞wPkg		

Table 7-2. Data Server Persistent Data Cross Reference Table(35 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DsMdDocu-ment	documentCre-ated	DsDoESDT	DsEsESDTClass	myDocumentCreated	Document	DocumentCreat-ed
DsMdDocu-ment	documentUp-dated			myDocumentedUp-dated	Document	DocumentUpdat∞ ed
DsMdDocu-ment	documentVer-sion			myDocumentVersion	Document	DocumentVersion
TBD	TBD			myDsCdCSDT		
TBD	TBD			myDsEsTypeID		
TBD	TBD			myFilePath		
TBD	TBD			myTemplateName		
TBD	TBD			myTemplateVersion		
TBD	TBD			myURL		
DsMdData-CenterGuide	dataCenter	DsDoESDT	DsEsGuideClass	myDataCenter	Guide	DataCenter
DsMdCSDT	type			myDsEsGuideTypeID		
DsMdCSDT	name			myGuideName	Guide	GuideName
DsMdCSDT	type	DsDoESDT	DsEsGuide-TypeIDClass	myTypeID		
DsMdProduc-tionPlan	DAACName	DsDoESDT	DsEsProduction-PlanClass	myDAAC	ProductionPlan	DAACName
TBD	TBD			myDsEsProdPlTyID		
DsMdProduc-tionPlan	EndDatePro-ductionPlan			myEndDate	ProductionPlan	Production∞ PlanEndDate
DsMdProduc-tionPlan	ForecastPro-ductionPlan			myForcast	ProductionPlan	ProductionPlan∞ Forecast
DsMdProduc-tionPlan	StartDatePro-ductionPlan			myStartDate	ProductionPlan	ProductionPlan-StartDate

Table 7-2. Data Server Persistent Data Cross Reference Table(36 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
TBD	TBD	DsDoESDT	DsEsProduction-PlanTypeIDClass	myTypeID		
TBD	TBD	DsDoESDT	DsEsReference-Paper-TypeIDClass	myTypeID		
TBD	TBD	DsDoESDT	Ds-EsTypeIDClass	myTypeID		
ASCII File	TBD	DsDoDocumentServ-er	DsSvServerClass	myHostAddress		
ASCII File	TBD			myIPNumber		
ASCII File	TBD			myPortNumber		
ASCII File	TBD			myProtocolName		
ASCII File	TBD			myProtocalVersion		
ASCII File	TBD			mySecurityProtocal		
ASCII File	TBD			mySecurityProtocol-Version		
TBD	TBD	dsst	DsStFileDirecto-ryClass	myDirectoryFileName		
TBD	TBD	dsst	DsStReservation-Class	myEndTime		
TBD	TBD			myPriority		
TBD	TBD			myrequestor		
TBD	TBD			myreservationRef		
TBD	TBD			myResourceType		
TBD	TBD			mySize		
TBD	TBD			myStartTime		
TBD	TBD			mySubmitTime		

Table 7-2. Data Server Persistent Data Cross Reference Table(37 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
TBD	TBD	dsst	DsStResource-Class	myMediaSize		
TBD	TBD			myPriority		
TBD	TBD			myResourceName		
TBD	TBD			myStatus		
TBD	TBD	dsst	DsStResourceM-anagerClass	myFreeResources		
TBD	TBD			myMaxResources		
TBD	TBD			myReservedResourc∞es		
TBD	TBD			myResourceType		
TBD	TBD	dsst	DsStResource-QueueClass	myCurrentQueued		
TBD	TBD	dsst		myMaxSize		
TBD	TBD	dsst	DsStResource-ScheduleClass	$myScheduleConfig		
TBD	TBD	dsst		myEndDate		
TBD	TBD	dsst		myPoolName		
TBD	TBD	dsst		myScheduleFileName		
TBD	TBD	dsst		myStartDate		
TBD	TBD	dsst	DsStStagingDis-kClass	myAvailableSpace		
TBD	TBD			myMaxSize		
TBD	TBD			myPathname		
TBD	TBD			mySize		

Table 7-2. Data Server Persistent Data Cross Reference Table(38 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
TBD	TBD	dsst	DsStStagingMon-itorClass	$myCacheConfig		
TBD	TBD			myFreeCache		
TBD	TBD			myHighWaterMark		
TBD	TBD			myLowWaterMark		
TBD	TBD			myMaxSize		
TBD	TBD			mySleepTime		
TBD	TBD	dsst	DsStStorageRe-sourceClass	None		
N/A	N/A		DsStTapeClass	myBlockCount		
N/A	N/A			myBlockSize		
N/A	N/A			myCapacity		
N/A	N/A			myNextBlock		
N/A	N/A			myRemainingBlocks		
TBD	TBD	dsst	DsStStaging-DataListClass	myCurrentSize		
TBD	TBD	dsst		myNextElement		
TBD	TBD	dsst		myTotalSize		
TBD	TBD	dsst	DsStPullList	myCurrentSize		
TBD	TBD	dsst		myNextElement		
TBD	TBD	dsst		myTotalSize		
TBD	TBD	dsst	DsStPullMonitor-Class	$myCacheConfig		
TBD	TBD			myConfirmTimeOut		
TBD	TBD			myFreeCache		
TBD	TBD			myHighWaterMark		

Table 7-2. Data Server Persistent Data Cross Reference Table(39 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
TBD	TBD			myLowWaterMark		
TBD	TBD			myMaxSize		
TBD	TBD			myNumberFiles		
TBD	TBD			mySleepTime		
TBD	TBD		GINotification-Class	None		
TBD	TBD		DsDdDataItme-Class	myCompressionSize		
TBD	TBD			myID		
TBD	TBD			myUncompression-Size		
TBD	TBD			myWhetherCom∞pressed		
TBD	TBD		DsDdDistFile-Class	myPath		
TBD	TBD		DsDdDistList-Class	none		
TBD	TBD		DsDdDistRe-questsClass	myAbortFlag		
TBD	TBD			myDistFormat		
TBD	TBD			myDistList		
TBD	TBD			myMedia		
TBD	TBD			myPriority		
TBD	TBD			myRequestProcessor		
TBD	TBD			mySize		
TBD	TBD			myState		
TBD	TBD			myTimeofSubmission		

Table 7-2. Data Server Persistent Data Cross Reference Table(40 of 40)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
TBD	TBD			myUserInfo		
TBD	TBD		DsDdmediaClass	myDateCreated		
TBD	TBD			myDistributionList		
TBD	TBD			myFileListPtr.		
TBD	TBD		DsDdRequest-ListClass	None		
TBD	TBD		DsDdShippingLa-belClass	myDesignatedPrinter		
TBD	TBD			myFileLocation		
TBD	TBD			myUserInfo		
TBD	TBD					
TBD	TBD			myRequestID		

8. The Internal Model: Client, Interoperability, and Data Management (CIDM) Subsystem

8.1 Client, Interoperability, and Data Management (CIDM) Subsystem Description

The SDPS client subsystem provides a collection of components through which user's access the services and data available in ECS and other systems interoperable with ECS. The client subsystem also includes the services needed to interface an application (e.g., a science algorithm) with ECS, e.g., for data access or to make use of ECS provided toolkits. It consists of a Scientist Workbench and a Desktop Component. The Scientist Workbench contains various tools an example of which is to search ECS for data, retrieve and view search results, display scientific articles and guide documents, support direct access to data objects. The desktop provides convenient methods for organizing the user interface objects, and setting the interface preferences. (Reference from Technical Paper 19400436TP.)

In general, support for the communication between SDPS clients and services is provided by CSMS. Any additional functions which SDPS may require to support the interoperation of its components form part of the SDPS Interoperability Subsystem. This primarily involves the Advertising Service which advertises service offerings. SDPS is architected as a collection of distributed applications. The use the functions of the Interoperability Subsystem (and CSMS) to cooperate with each other. (Reference from Technical Paper 19400436TP.)

The Data Management Subsystem is responsible for supporting the location, search, and access of data and service objects made available in the SDPS. The components of the subsystem decouple the location, search, and access functions from the components performing the data server and client interface functions, in order to accommodate the anticipated variety of users' search and access needs, and to provide a growth path as capabilities evolve. The subsystem includes distributed search and retrieval functions called the Distributed Information Management (DIM) functions; components, which act as each site's gateway into its Earth Science databases, called the Local Information Management (LIM) functions; and a Data Dictionary function which uses can access to obtain explanations of available data. (Reference from Technical Paper 19400436TP.)

The Interoperability subsystem is on the incremental track. Therefore, the data design for this subsystem is not being represented in this document.

8.2 Relational Tables

The following tables represent the CIDM Subsystems persistent data design for Release A. Each physical database table is being described in this section. The description includes attribute names, types and keys if appropriate. These tables differ in format from the other subsystems because this subsystem does not use the S-Designer CASE tool to develop it's design. The tables are in Sybase Table format.

Table 8.1. CIDM Relational Tables

Physical Data Model	**Table Card**
CIDM Relational Model	**DMGWBOUNDINGCOORDINATES**

Name : DmGwBoundingCoordinates

Code : DMGWBOUNDINGCOORDINATES

Label :

Number :

Source : Entity DMGWBOUNDINGCOORDINATES

Column Name	Code	Type	P	M
CollectionId	COLLECTIONID	char(10)	Y	Y
NorthBoundingCoordinate	NORTHBOUNDINGCOORDINATE	numeric(5,3)		
SouthBoundingCoordinate	SOUTHBOUNDINGCOORDINATE	numeric(5,3)		
EastBoundingCoordinate	EASTBOUNDINGCOORDINATE	numeric(6,3)		
WestBoundingCoordinate	WESTBOUNDINGCOORDINATE	numeric(6,3)		

Physical Data Model	Table Card
CIDM Relational Model	DMGWCOLLECTIONPARAMETERS

Name : DmGwCollectionParameters

Code : DMGWCOLLECTIONPARAMETERS

Label :

Number :

Source : Entity DMGWCOLLECTIONPARAMETERS

Column Name	Code	Type	P	M
CollectionId	COLLECTIONID	char(10)	Y	Y
ParameterName	PARAMETERNAME	char(10)	Y	Y

Physical Data Model	Table Card
CIDM Relational Model	DMGWCOLLECTIONSENSORPLATFORM

Name : DmGwCollectionSensorPlatform

Code : DMGWCOLLECTIONSENSORPLATFORM

Label :

Number :

Source : Entity DMGWCOLLECTIONSENSORPLATFORM

Column Name	Code	Type	P	M
CollectionId	COLLECTIONID	char(10)	Y	Y
SensorName	SENSORNAME	char(20)	Y	Y
PlatformName	PLATFORMNAME	char(20)	Y	Y

Physical Data Model	Table Card
CIDM Relational Model	DMGWDATACOLLECTION

Name : DmGwDataCollection

Code : DMGWDATACOLLECTION

Label :

Number :

Source : Entity DMGWDATACOLLECTION

Column Name	Code	Type	P	M
CollectionId	COLLECTIONID	char(10)	Y	Y
CollectionDesc	COLLECTIONDESC	varchar(255)		
ProcessingLevel	PROCESSINGLEVEL	char(6)		
LocalityName	LOCALITYNAME	char(80)		
StartDate	STARTDATE	datetime		
StopDate	STOPDATE	datetime		
GcmdEntryId	GCMDENTRYID	char(32)		
OriginatingCenter	ORIGINATINGCENTER	varchar(255)		
FTPBrowseAvailable	FTPBROWSEAVAILABLE	char(5)		
IntegratedBrowseAvailable	INTEGRATEDBROWSEAVAILABLE	char(5)		
ProductFTPAvailable	PRODUCTFTPAVAILABLE	char(15)		
AccessConstraints	ACCESSCONSTRAINTS	varchar(255)		
DayNightFlag	DAYNIGHTFLAG	char(1)		
GlobalCoverage	GLOBALCOVERAGE	char(5)		
CollectionName	COLLECTIONNAME	char(80)	Y	Y

Physical Data Model	Table Card
CIDM Relational Model	DMGWFIELDCAMPAIGN

Name : DmGwFieldCampaign

Code : DMGWFIELDCAMPAIGN

Label :

Number :

Source : Entity DMGWFIELDCAMPAIGN

Column Name	Code	Type	P	M
CollectionId	COLLECTIONID	char(10)		
CampaignName	CAMPAIGNNAME	char(20)		

Physical Data Model	Table Card
CIDM Relational Model	DMGWGRANULEIDURMAP

Name : DmGwGranuleIdURMap

Code : DMGWGRANULEIDURMAP

Label :

Number :

Source : Entity DMGWGRANULEIDURMAP

Column Name	Code	Type	P	M
GranuleId	GRANULEID	char(25)	Y	Y
UR	UR	char(60)		
ResultTimeStamp	RESULTTIMESTAMP	datetime		

Physical Data Model	Table Card
CIDM Relational Model	DMGWMAP

Name : DmGwMap

Code : DMGWMAP

Label :

Number :

Source : Entity DMGWMAP

Column Name	Code	Type	P	M
V0Value	V0VALUE	char(80)	Y	Y
ECSValue	ECSVALUE	char(80)	Y	Y
ValueType	VALUETYPE	char(20)		

Physical Data Model	Table Card
CIDM Relational Model	DMGWSTATUSCODEMAP

Name : DmGwStatusCodeMap

Code : DMGWSTATUSCODEMAP

Label :

Number :

Source : Entity DMGWSTATUSCODEMAP

Column Name	Code	Type	P	M
ECSStatusCode	ECSSTATUSCODE	char(15)	Y	Y
V0StatusCode	VOSTATUSCODE	int		

Physical Data Model	Table Card
CIDM Relational Model	DMGWV0STATUSMESSAGE

Name : DmGwV0StatusMessage

Code : DMGWV0STATUSMESSAGE

Label :

Number :

Source : Entity DMGWV0STATUSMESSAGE

Column Name	Code	Type	P	M
StatusCode	STATUSCODE	int	Y	Y
StatusMessage	STATUSMESSAGE	varchar(255)		

Physical Data Model	Table Card
CIDM Relational Model	DMGWV0REQUESTS

Name : GwV0Requests

Code : GWV0REQUESTS

Label :

Number :

Source : Entity GWV0REQUESTS

Column Name	Code	Type	P	M
MessageId	MESSAGEID	char(30)	Y	Y
Status	STATUS	int		

8.3 Cross Reference Table for Traceability

The following cross reference table identifies the objects and attributes for the CIDM Subsystem's persistent data as indicated in the DID305 volume dated July 1995. If appropriate each of the attributes were mapped to the associated DID311 attributes and further to the physical database table names and attributes reflected in the above section. This mapping demonstrates where and how the data in the earth science data model is being used to support the functionality expressed in DID305. Further it identifies the supporting data that will be required to satistify the functionality described in the associated CSCI. The TBD notations found throughout this table will be resolved by 5/96.

8-2. DataManagement Persistent Data Cross Reference Table

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 Object Class Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DmGwDataC-ollection	EastBoundingCo-ordinate	DMGWPersis-tentData	DmGwBounding-Coordinates	EastBoundingCo-ordinate	BoundingRectangle	EastBoundingCo-ordinate
DmGwDataC-ollection	NorthBounding-Coordinate	DMGWPersis-tentData	DmGwBounding-Coordinates	NorthBounding-Coordinate	BoundingRectangle	NorthBounding-Coordinate
DmGwDataC-ollection	SouthBounding-Coordinate	DMGWPersis-tentData	DmGwBounding-Coordinates	SouthBounding-Coordinate	BoundingRectangle	SouthBounding-Coordinate
DmGwDataC-ollection	WestBounding-Coordinate	DMGWPersis-tentData	DmGwBounding-Coordinates	WestBounding-Coordinate	BoundingRectangle	WestBounding-Coordinate
DmGwDataC-ollection	AccessCon-straints	DMGWPersis-tentData	DmGwDataCol-lection	AccessCon-straints	SingleTypeCollection	AccessCon-straints
DmGwDataC-ollection	CollectionDesc	DMGWPersis-tentData	DmGwDataCol-lection	CollectionDe-scription	CollectionDescrip-tionClass	CollectionDe-scription
DmGwDataC-ollection	CollectionId	DMGWPersis-tentData	DmGwDataCol-lection	CollectionName	CollectionDescrip-tionClass	ShortName
TBD	TBD	DMGWPersis-tentData	DmGwDataCol-lection	DayNightFlag	TBD	TBD
DmGwDataC-ollection	FtpBrowseAvail-able	DMGWPersis-tentData	DmGwDataCol-lection	FtpBrowseAvail-able		
DmGwDataC-ollection	GcmdEntryId	DMGWPersis-tentData	DmGwDataCol-lection	GcmdEntryId	CollectionDescrip-tionClass	ShortName+Ver-sionID
DmGwDataC-ollection	Integrated-BrowseAvailable	DMGWPersis-tentData	DmGwDataCol-lection	Integrated-BrowseAvailable		
DmGwDataC-ollection	GlobalCoverage	DMGWPersis-tentData	DmGwDataCol-lection	LocalityName	Spatial Keyword-Class	Spatial Keyword
DmGwDataC-ollection	OriginatingCenter	DMGWPersis-tentData	DmGwDataCol-lection	OriginatingCenter	Contact ContactOrganization	Contact Organi-zationName+ Role
DmGwDataC-ollection	ProcessingLevel	DMGWPersis-tentData	DmGwDataCol-lection	ProcessingLevel	Processing Level	Processing Lev-elID

8-2. DataManagement Persistent Data Cross Reference Table

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 Object Class Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DmGwDataC-ollection	ProductFtpAvail-able	DMGWPersis-tentData	DmGwDataCol-lection	ProductFtpAvail-able		
DmGwDataC-ollection	StartDate	DMGWPersis-tentData	DmGwDataCol-lection	StartDate	RangeDAteTime	RangeBeginning-Date RangeBeginning-Time
DmGwDataC-ollection	StopDate	DMGWPersis-tentData	DmGwDataCol-lection	StopDate	RangeDAteTime	RangeEnding-Date RangeEnding-Time
DmGwDataC-ollection	CampaignName	DMGWPersis-tentData	DmGwFieldCam-paign	CampaignName	FieldCampaign	CampaignName
TBD	TBD	DMGWPersis-tentData	DmGwGeophysi-calParameter	Parameter	TBD	TBD
DmGwGran-uleURMap	ResultTimestamp	DMGWPersis-tentData	DmGwGranuleU-RMap	ResultTimestamp		
DmGwMap	ECSValue	DMGWPersis-tentData	DmGwPlatform-Map	ECSValue		
DmGwMap	V0Value	DMGWPersis-tentData		V0Value		
DmGw Map	ECSValue	DMGWPersis-tentData	DmGwSensor Map	ECSValue		
DmGw Map	V0Value	DMGWPersis-tentData		V0Value		
DmGwCollec-tionSensor-Platform	PlatformName	DMGWPersis-tentData	DmGwSensor-Platform	PlatformName	Platform or NonIn-strument	PlatformShort-Name and Plat-formLongName or NonInstrument-ShortName and NonInstrument-LongName

8-2. DataManagement Persistent Data Cross Reference Table

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 Object Class Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DmGwSensor-Platform	SensorName	DMGWPersis-tentData	DmGwSensor-Platform	SensorName	Sensor	SensorShort-Name and Sen-sorLongName
DmGwV0Requests	MessageId	DMGWPersis-tentData	DmGwV0Requests	MessageId		
DmGwV0Requests	Status	DMGWPersis-tentData	DmGwV0Requests	Status		
DmGwV0StatusMessage	StatusCode	DMGWPersis-tentData	DmGwV0StatusMessage	StatusCode		
DmGwV0StatusMessage	StatusMessage	DMGWPersis-tentData	DmGwV0StatusMessage	StatusMessage		

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9. The Internal Model: Planning and Data Processing (PDPS) Subsystems

9.1 Planning and Data Processing Subsystem (PDPS) Description

The Planning Subsystem supports the operations staff in developing a production plan based on a locally defined strategy, reserving the resources to permit the plan to be achieved and the implementation of the plan as data and processing requests are received. It also allows the site operations staff to negotiate on a common basis with other provider sites and EOSDIS System Management (CSMS) if any change to their production plan causes conflict with other provider site plans (e.g., where dependencies between processing algorithms cannot be fulfilled.) This subsystem provides the functions needed to pre-plan routine data processing, schedule ad hoc processing, and dispatch and manage processing requests. The subsystem provides access to the data production schedules at each site, and provides management functions for handling deviations from the schedule to operations and science users. (Reference Technical Paper 19400436TP.)

The Data Processing Subsystem is responsible for managing, queuing, and executing processes on the processing resources at a provider site. Requests for processing are submitted from the Planning Subsystem, which in turn have been triggered by data arrival or user request (Data Server) or through Planning itself (e.g., reprocessing.) The data processing subsystem provides the functions needed to execute all processing requests in a fully automated fashion according to a pre-planned schedule. The subsystem allocates processing resources to requests according to priority and within the scheduling parameters set by the plan. It stages and de-stages data, and re-allocates resources to balance processing load. It offers interfaces to operations users to manage processes, schedules, resources, and resource allocations; and makes processing status and history available to operations and science users. (Reference Technical Paper 19400436TP.)

The data required to achieve these functions are the subject of this section.

9.2 Relational Tables

The following tables represent the .PDPS Subsystem's persistent data design for Release A. Each database table is being described in this section. The description includes attribute names, types and keys if appropriate.

Table 9-1. Planning Relational Tables

Model_4	**ACTIVITY**

Name : ACTIVITY

Code : ACTIVITY

Label :

Number :

Source :

Column Name	Code	Type	P	M
plan_id	PLAN_ID	char(12)	Y	Y
activity_id	ACTIVITY_ID	char(20)	Y	Y
predicted_start	PREDICTED_START	datetime		
predicted_stop	PREDICTED_STOP	datetime		

Index Code	P	F	U	C	Column Code	Sort
ACTIVITY_PK	Y		Y		PLAN_ID	ASC
					ACTIVITY_ID	ASC

Reference To	Primary Key	Foreign Key
PLAN	PLAN_ID	PLAN_ID
PLAN_METADATA	PLAN_ID	PLAN_ID

Referenced By	Foreign Key	Primary Key
GROUND_EVENT	PLAN_ID	PLAN_ID
	ACTIVITY_ID	ACTIVITY_ID
GROUND_EVENT_RESOURCE_EXPLOSIO	PLAN_ID	PLAN_ID
	ACTIVITY_ID	ACTIVITY_ID

Name : APPLICATION

Code : APPLICATION

Label :

Number :

Source :

Options:
print
'
'
print
'Creating
Table
APPLICATION.....'
print
'
'

Column Name	Code	Type	P	M
application_id	APPLICATION_ID	char(20)	Y	Y
application_name	APPLICATION_NAME	varchar(18)		
major_version_id	MAJOR_VERSION_ID	varchar(5)		
minor_version_id	MINOR_VERSION_ID	varchar(5)		

Index Code	P	F	U	C	Column Code	Sort
APPLICATION_PK	Y		Y		APPLICATION_ID	ASC

Name : COMPUTER_LIST_EXPLOSION

Code : COMPUTER_LIST_EXPLOSION

Label :

Number :

Source :

Column Name	Code	Type	P	M
resource_id	RESOURCE_ID	char(20)	Y	Y
computer_list_id	COMPUTER_LIST_ID	char(20)	Y	Y
disk_list_id	DISK_LIST_ID	char(20)		Y

Index Code	P	F	U	C	Column Code	Sort
COMPUTER_LIST_EXPLOSION_PK	Y		Y		RESOURCE_ID	ASC
					COMPUTER_LIST_ID	ASC

Reference To	Primary Key	Foreign Key
RESOURCE_MASTER	RESOURCE_ID	RESOURCE_ID

Physical Data Model Model_4	Table Card DATA_PROCESSING_REQUEST

Name : DATA_PROCESSING_REQUEST

Code : DATA_PROCESSING_REQUEST

Label :

Number :

Source :

Column Name	Code	Type	P	M
dpr_id	DPR_ID	char(12)	Y	Y
input_instance_list_id	INPUT_INSTANCE_LIST_ID	char(12)		Y
output_instance_list_id	OUTPUT_INSTANCE_LIST_ID	char(20)		Y
priority	PRIORITY	char(1)		
predicted_start	PREDICTED_START	datetime		
actual_start	ACTUAL_START	datetime		
pge_run_state	PGE_RUN_STATE	varchar(12)		

Index Code	P	F	U	C	Column Code	Sort
DATA_PROCESSING_REQUEST_FK1					INPUT_INSTANCE_LIST_ID	ASC
					OUTPUT_INSTANCE_LIST_ID	ASC
DATA_PROCESSING_REQUEST_PK	Y		Y		DPR_ID	ASC

Reference To	Primary Key	Foreign Key
DATA_TYPE_GRANULE	INPUT_INSTANCE_LIST_ID	INPUT_INSTANCE_LIST_ID

Referenced By	Foreign Key	Primary Key
DPR_DATA_LIST_EXPL	DPR_ID	DPR_ID

Physical Data Model Model_4	Table Card DATA_SOURCE_MASTER

Name : DATA_SOURCE_MASTER

Code : DATA_SOURCE_MASTER

Label :

Number :

Source :

Column Name	Code	Type	P	M
data_type_id	DATA_TYPE_ID	char(20)	Y	Y
prediction_method	PREDICTION_METHOD	varchar(20)	Y	Y
supplier_name	SUPPLIER_NAME	varchar(30)		

Index Code	P	F	U	C	Column Code	Sort
DATA_SOURCE_MASTER_PK	Y		Y		DATA_TYPE_ID	ASC
					PREDICTION_METHOD	ASC

Referenced By	Foreign Key	Primary Key
DATA_TYPE_GRANULE	DATA_TYPE_ID	DATA_TYPE_ID
OUTPUT_DATA_YIELD	DATA_TYPE_ID	DATA_TYPE_ID
ROUTINE_ARRIVAL	ROUTINE_ID	PREDICTION_METHOD
SCHEDULED_ARRIVAL	SCHEDULED_ID	PREDICTION_METHOD
PREDICTED_ARRIVAL	PREDICTED_ID	PREDICTION_METHOD

Name : DATA_TYPE_GRANULE

Code : DATA_TYPE_GRANULE

Label :

Number :

Source :

Column Name	Code	Type	P	M
input_instance_list_id	INPUT_INSTANCE_LIST_ID	char(12)	Y	Y
data_type_id	DATA_TYPE_ID	char(12)		Y
universal_reference	UNIVERSAL_REFERENCE	varchar(80)		
esdt_parm_vals	ESDT_PARM_VALS	varchar(80)		
stoptime	STOPTIME	datetime		
starttime	STARTTIME	datetime		
availability	AVAILABILITY	char(1)		
availability_actual	AVAILABILITY_ACTUAL	char(1)		
availability_predicted	AVAILABILITY_PREDICTED	char(1)		

Index Code	P	F	U	C	Column Code	Sort
DATA_TYPE_GRANULE_PK	Y		Y		INPUT_INSTANCE_LIST_ID	ASC
DATA_TYPE_GRANULE_FK1		Y			DATA_TYPE_ID	ASC

Reference To	Primary Key	Foreign Key
DATA_SOURCE_MASTER	DATA_TYPE_ID	DATA_TYPE_ID
DATA_TYPE_MASTER	DATA_TYPE_ID	DATA_TYPE_ID

Referenced By	Foreign Key	Primary Key
DATA_PROCESSING_REQUEST	INPUT_INSTANCE_LIST_ID	INPUT_INSTANCE_LIST_ID
DPR_DATA_LIST_EXPL	INPUT_INSTANCE_LIST_ID	INPUT_INSTANCE_LIST_ID

Name : DATA_TYPE_LIST_EXPL

Code : DATA_TYPE_LIST_EXPL

Label :

Number :

Source :

Column Name	Code	Type	P	M
pge_id	PGE_ID	char(20)	Y	Y
data_type_list_id	DATA_TYPE_LIST_ID	char(20)	Y	Y
data_type_list_id_item	DATA_TYPE_LIST_ID_ITEM	char(6)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
DATA_TYPE_LIST_EXPL_PK	Y		Y		PGE_ID	ASC
					DATA_TYPE_LIST_ID	ASC
					DATA_TYPE_LIST_ID_ITEM	ASC

Reference To	Primary Key	Foreign Key
INPUT_DATA_SPECS	PGE_ID DATA_TYPE_LIST_ID	PGE_ID DATA_TYPE_LIST_ID
PGE_PERFORMANCE	PGE_ID	PGE_ID

Physical Data Model Model_4	Table Card DATA_TYPE_MASTER

Name : DATA_TYPE_MASTER

Code : DATA_TYPE_MASTER

Label :

Number :

Source :

Column Name	Code	Type	P	M
data_type_id	DATA_TYPE_ID	char(12)	Y	Y
data_type_description	DATA_TYPE_DESCRIPTION	varchar(12)		
data_type_name	DATA_TYPE_NAME	varchar(12)		
data_type_logical_id	DATA_TYPE_LOGICAL_ID	char(12)		
esdt_parm_list	ESDT_PARM_LIST	varchar(12)		
subscription_file	SUBSCRIPTION_FILE	varchar(12)		
subscription_queue	SUBSCRIPTION_QUEUE	varchar(12)		
ur_string	UR_STRING	varchar(12)		
catalogue_value	CATALOGUE_VALUE	varchar(12)		
instrument_name	INSTRUMENT_NAME	varchar(12)		
satellite_name	SATELLITE_NAME	char(12)		
nominal_size	NOMINAL_SIZE	int		
dynamic_flag	DYNAMIC_FLAG	char(1)		

Index Code	P	F	U	C	Column Code	Sort
DATA_TYPE_MASTER_PK	Y		Y		DATA_TYPE_ID	ASC

Referenced By	Foreign Key	Primary Key
PRODUCTS_CATALOGUE	DATA_TYPE_ID	DATA_TYPE_ID
DATA_TYPE_GRANULE	DATA_TYPE_ID	DATA_TYPE_ID

Name : DPR_DATA_LIST_EXPL

Code : DPR_DATA_LIST_EXPL

Label :

Number :

Source :

Column Name	Code	Type	P	M
dpr_id	DPR_ID	char(20)	Y	Y
input_instance_list_id	INPUT_INSTANCE_LIST_ID	char(20)	Y	Y
output_instance_list_id	OUTPUT_INSTANCE_LIST_ID	CHAR(20)	Y	Y
dpr_instance_list_id_item	DPR_INSTANCE_LIST_ID_ITEM	CHAR(20)		

Index Code	P	F	U	C	Column Code	Sort
DPR_DATA_LIST_EXPL_PK	Y		Y		DPR_ID	ASC
					INPUT_INSTANCE_LIST_ID	ASC
					OUTPUT_INSTANCE_LIST_ID	ASC

Reference To	Primary Key	Foreign Key
DATA_PROCESSING_REQUEST	DPR_ID	DPR_ID
DATA_TYPE_GRANULE	INPUT_INSTANCE_LIST_ID	INPUT_INSTANCE_LIST_ID

Physical Data Model Model_4	Table Card GROUND_EVENT

Name : GROUND_EVENT

Code : GROUND_EVENT

Label :

Number :

Source :

Column Name	Code	Type	P	M
ground_event_id	GROUND_EVENT_ID	char(20)	Y	Y
resource_list_id	RESOURCE_LIST_ID	char(20)	Y	Y
plan_id	PLAN_ID	char(20)	Y	Y
activity_id	ACTIVITY_ID	char(20)	Y	Y
ground_event_name	GROUND_EVENT_NAME	varchar(40)		
ground_event_description	GROUND_EVENT_DESCRIPTION	varchar(40)		
ground_event_start	GROUND_EVENT_START	datetime		
ground_event_end	GROUND_EVENT_END	datetime		
ground_event_duration	GROUND_EVENT_DURATION	float		
ground_event_priority	GROUND_EVENT_PRIORITY	float		
ground_event_template_flag	GROUND_EVENT_TEMPLATE_FLAG	char(1)		

Index Code	P	F	U	C	Column Code	Sort
GROUND_EVENT_PK	Y		Y		GROUND_EVENT_ID	ASC
					RESOURCE_LIST_ID	ASC
					PLAN_ID	ASC
					ACTIVITY_ID	ASC

Reference To	Primary Key	Foreign Key
ACTIVITY	PLAN_ID ACTIVITY_ID	PLAN_ID ACTIVITY_ID
PLAN_METADATA	PLAN_ID	PLAN_ID

Name : GROUND_EVENT_RESOURCE_EXPLOSION

Code : GROUND_EVENT_RESOURCE_EXPLOSION

Label :

Number :

Source :

Column Name	Code	Type	P	M
ground_event_id	GROUND_EVENT_ID	char(20)	Y	Y
resource_list_id	RESOURCE_LIST_ID	char(20)	Y	Y
plan_id	PLAN_ID	char(20)	Y	Y
activity_id	ACTIVITY_ID	char(20)	Y	Y
resource_id	RESOURCE_ID	char(20)		

Index Code	P	F	U	C	Column Code	Sort
GROUND_EVENT_RESOURCE_EXPLO_PK	Y		Y		GROUND_EVENT_ID	ASC
					RESOURCE_LIST_ID	ASC
					PLAN_ID	ASC
					ACTIVITY_ID	ASC
GROUND_EVENT_RESOURCE_EXPL_FK1		Y			RESOURCE_ID	ASC

Reference To	Primary Key	Foreign Key
ACTIVITY	PLAN_ID	PLAN_ID
	ACTIVITY_ID	ACTIVITY_ID
RESOURCE_MASTER	RESOURCE_ID	RESOURCE_ID

Name : INPUT_DATA_SPECS

Code : INPUT_DATA_SPECS

Label :

Number :

Source :

Column Name	Code	Type	P	M
pge_id	PGE_ID	char(20)	Y	Y
data_type_list_id	DATA_TYPE_LIST_ID	char(20)	Y	Y
logical_id	LOGICAL_ID	char(20)		
command_string	COMMAND_STRING	varchar(80)		
data_type_req	DATA_TYPE_REQ	varchar(80)		

Index Code	P	F	U	C	Column Code	Sort
INPUT_DATA_SPECS_PK	Y		Y		PGE_ID	ASC
					DATA_TYPE_LIST_ID	ASC

Reference To	Primary Key	Foreign Key
PGE_MASTER	PGE_ID	PGE_ID
PGE_PERFORMANCE	PGE_ID	PGE_ID

Referenced By	Foreign Key	Primary Key
OUTPUT_DATA_YIELD	PGE_ID	PGE_ID
	DATA_TYPE_LIST_ID	DATA_TYPE_LIST_ID
DATA_TYPE_LIST_EXPL	PGE_ID	PGE_ID
	DATA_TYPE_LIST_ID	DATA_TYPE_LIST_ID

Physical Data Model Model_4	Table Card OUTPUT_DATA_YIELD

Name : OUTPUT_DATA_YIELD

Code : OUTPUT_DATA_YIELD

Label :

Number :

Source :

Column Name	Code	Type	P	M
pge_id	PGE_ID	char(20)	Y	Y
data_type_list_id	DATA_TYPE_LIST_ID	char(20)	Y	Y
data_type_id	DATA_TYPE_ID	char(20)	Y	Y
logical_id	LOGICAL_ID	char(20)		
yield	YIELD	smallint		

Index Code	P	F	U	C	Column Code	Sort
OUTPUT_DATA_YIELD_PK	Y	Y	Y		PGE_ID	ASC
					DATA_TYPE_LIST_ID	ASC
					DATA_TYPE_ID	ASC

Reference To	Primary Key	Foreign Key
DATA_SOURCE_MASTER	DATA_TYPE_ID	DATA_TYPE_ID
INPUT_DATA_SPECS	PGE_ID DATA_TYPE_LIST_ID	PGE_ID DATA_TYPE_LIST_ID
PGE_MASTER	PGE_ID	PGE_ID
PGE_PERFORMANCE	PGE_ID	PGE_ID

Physical Data Model Model_4	Table Card PGE_DETAIL_DATA

Name : PGE_DETAIL_DATA

Code : PGE_DETAIL_DATA

Label :

Number :

Source :

Column Name	Code	Type	P	M
pge_id	PGE_ID	char(20)	Y	Y
pge_data_id	PGE_DATA_ID	char(20)	Y	Y
primary_data_source	PRIMARY_DATA_SOURCE	char(30)		
input_data_id	INPUT_DATA_ID	varchar(20)		
instances_per_pgerun	INSTANCES_PER_PGERUN	int		

Index Code	P	F	U	C	Column Code	Sort
PGE_DETAIL_DATA_PK	Y		Y		PGE_ID	ASC
					PGE_DATA_ID	ASC

Reference To	Primary Key	Foreign Key
PGE_MASTER	PGE_ID	PGE_ID
PGE_PERFORMANCE	PGE_ID	PGE_ID

Physical Data Model Model_4	Table Card PGE_DETAIL_ORBIT

Name : PGE_DETAIL_ORBIT

Code : PGE_DETAIL_ORBIT

Label :

Number :

Source :

Column Name	Code	Type	P	M
pge_id	PGE_ID	char(20)	Y	Y
pge_orbit_id	PGE_ORBIT_ID	char(20)	Y	Y
satellite_id	SATELLITE_ID	char(20)		
orbits_per_pgerun	ORBITS_PER_PGERUN	float		

Index Code	P	F	U	C	Column Code	Sort
PGE_DETAIL_ORBIT_PK	Y		Y		PGE_ID	ASC
					PGE_ORBIT_ID	ASC

Reference To	Primary Key	Foreign Key
PGE_MASTER	PGE_ID	PGE_ID
PGE_PERFORMANCE	PGE_ID	PGE_ID

Physical Data Model Model_4	Table Card PGE_DETAIL_PARAMETERS

Name : PGE_DETAIL_PARAMETERS

Code : PGE_DETAIL_PARAMETERS

Label :

Number :

Source :

Column Name	Code	Type	P	M
pge_id	PGE_ID	char(20)	Y	Y
pge_parameter_id	PGE_PARAMETER_ID	char(20)	Y	Y
pge_parameter_logical_id	PGE_PARAMETER_LOGICAL_ID	char(20)		
pge_parameter_name	PGE_PARAMETER_NAME	varchar(20)		
pge_parameter_default	PGE_PARAMETER_DEFAULT	varchar(20)		
description	DESCRIPTION	varchar(40)		

Index Code	P	F	U	C	Column Code	Sort
PGE_DETAIL_PARAMETERS_PK	Y		Y		PGE_ID	ASC
					PGE_PARAMETER_ID	ASC

Reference To	Primary Key	Foreign Key
PGE_MASTER	PGE_ID	PGE_ID
PGE_PERFORMANCE	PGE_ID	PGE_ID

Physical Data Model Model_4	Table Card PGE_DETAIL_RESREQS

Name : PGE_DETAIL_RESREQS

Code : PGE_DETAIL_RESREQS

Label :

Number :

Source :

Column Name	Code	Type	P	M
pge_id	PGE_ID	char(20)	Y	Y
resource_id	RESOURCE_ID	char(20)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
PGE_DETAIL_RESREQS_PK	Y	Y	Y		PGE_ID	ASC
					RESOURCE_ID	ASC

Reference To	Primary Key	Foreign Key
RESOURCE_MASTER	RESOURCE_ID	RESOURCE_ID
PGE_MASTER	PGE_ID	PGE_ID
PGE_PERFORMANCE	PGE_ID	PGE_ID

Physical Data Model Model_4	Table Card PGE_DETAIL_TIME

Name : PGE_DETAIL_TIME

Code : PGE_DETAIL_TIME

Label :

Number :

Source :

Column Name	Code	Type	P	M
pge_id	PGE_ID	char(20)	Y	Y
pge_time_id	PGE_TIME_ID	char(20)	Y	Y
processing_boundary	PROCESSING_BOUNDARY	float		
processing_period	PROCESSING_PERIOD	float		
time_units	TIME_UNITS	varchar(20)		
time_units_per_pgerun	TIME_UNITS_PER_PGERUN	float		

Index Code	P	F	U	C	Column Code	Sort
PGE_DETAIL_TIME_PK	Y		Y		PGE_ID	ASC
					PGE_TIME_ID	ASC

Reference To	Primary Key	Foreign Key
PGE_MASTER	PGE_ID	PGE_ID
PGE_PERFORMANCE	PGE_ID	PGE_ID

Physical Data Model Model_4	Table Card PGE_MASTER

Name : PGE_MASTER

Code : PGE_MASTER

Label :

Number :

Source :

Column Name	Code	Type	P	M
pge_id	PGE_ID	char(20)	Y	Y
pge_name	PGE_NAME	varchar(20)		
pge_input_type_list_id	PGE_INPUT_TYPE_LIST_ID	varchar(10)		
pge_output_type_list_id	PGE_OUTPUT_TYPE_LIST_ID	varchar(10)		
pge_test_operational	PGE_TEST_OPERATIONAL	char(1)		
pge_schedule_type	PGE_SCHEDULE_TYPE	char(1)		

Index Code	P	F	U	C	Column Code	Sort
PGE_MASTER_PK	Y		Y		PGE_ID	ASC

Referenced By	Foreign Key	Primary Key
PGE_DETAIL_RESREQS	PGE_ID	PGE_ID
INPUT_DATA_SPECS	PGE_ID	PGE_ID
OUTPUT_DATA_YIELD	PGE_ID	PGE_ID
PGE_DETAIL_DATA	PGE_ID	PGE_ID
PGE_DETAIL_ORBIT	PGE_ID	PGE_ID
PGE_DETAIL_PARAMETERS	PGE_ID	PGE_ID
PGE_DETAIL_TIME	PGE_ID	PGE_ID

Name : PGE_PERFORMANCE

Code : PGE_PERFORMANCE

Label :

Number :

Source :

Column Name	Code	Type	P	M
pge_id	PGE_ID	char(20)	Y	Y
cpu_time	CPU_TIME	float		
elapsed_time	ELAPSED_TIME	float		
shared_memory	SHARED_MEMORY	float		
max_memory	MAX_MEMORY	float		
faults	FAULTS	float		
swaps	SWAPS	float		
block_input_operation	BLOCK_INPUT_OPERATION	float		
block_output_operation	BLOCK_OUTPUT_OPERATION	float		
run_cpu_time	RUN_CPU_TIME	float		
run_elapsed	RUN_ELAPSED	float		
run_shared_memory	RUN_SHARED_MEMORY	float		
run_max_memory	RUN_MAX_MEMORY	float		
run_page_faults	RUN_PAGE_FAULTS	float		
run_swaps	RUN_SWAPS	float		
run_block_in_operation	RUN_BLOCK_IN_OPERATION	float		
run_block_out_operation	RUN_BLOCK_OUT_OPERATION	float		

Index Code	P	F	U	C	Column Code	Sort
PGE_PERFORMANCE_PK	Y		Y		PGE_ID	ASC

Referenced By	Foreign Key	Primary Key
PGE_DETAIL_RESREQS	PGE_ID	PGE_ID
INPUT_DATA_SPECS	PGE_ID	PGE_ID
OUTPUT_DATA_YIELD	PGE_ID	PGE_ID
DATA_TYPE_LIST_EXPL	PGE_ID	PGE_ID
PGE_DETAIL_DATA	PGE_ID	PGE_ID
PGE_DETAIL_ORBIT	PGE_ID	PGE_ID
PGE_DETAIL_PARAMETERS	PGE_ID	PGE_ID
PGE_DETAIL_TIME	PGE_ID	PGE_ID

Physical Data Model Model_4	Table Card PLAN

Name : PLAN

Code : PLAN

Label :

Number :

Source :

Column Name	Code	Type	P	M
plan_id	PLAN_ID	char(12)	Y	Y
plan_name	PLAN_NAME	varchar(20)		
plan_description	PLAN_DESCRIPTION	varchar(30)		
plan_end	PLAN_END	datetime		
plan_start	PLAN_START	datetime		
plan_active_status	PLAN_ACTIVE_STATUS	char(1)		

Index Code	P	F	U	C	Column Code	Sort
PLAN_PK	Y		Y		PLAN_ID	ASC

Referenced By	Foreign Key	Primary Key
ACTIVITY	PLAN_ID	PLAN_ID

Physical Data Model Model_4	Table Card PLAN_METADATA

Name : PLAN_METADATA

Code : PLAN_METADATA

Label :

Number :

Source :

Column Name	Code	Type	P	M
plan_id	PLAN_ID	char(20)	Y	Y
plan_metadata_datasets	PLAN_METADATA_DATASETS	varchar(20)		
plan_metadata_description	PLAN_METADATA_DESCRIPTION	char(18)		
plan_metadata_forecast	PLAN_METADATA_FORECAST	char(18)		
plan_metadata_end	PLAN_METADATA_END	datetime		
plan_metadata_start	PLAN_METADATA_START	datetime		
plan_metadata_daac	PLAN_METADATA_DAAC	char(4)		

Index Code	P	F	U	C	Column Code	Sort
PLAN_METADATA_PK	Y		Y		PLAN_ID	ASC

Referenced By	Foreign Key	Primary Key
ACTIVITY	PLAN_ID	PLAN_ID
GROUND_EVENT	PLAN_ID	PLAN_ID

Name : PREDICTED_ARRIVAL

Code : PREDICTED_ARRIVAL

Label :

Number :

Source :

Column Name	Code	Type	P	M
predicted_id	PREDICTED_ID	char(20)	Y	Y
tbd_item_1	TBD_ITEM_1	varchar(18)		
tbd_item_2	TBD_ITEM_2	varchar(18)		
tbd_item_3	TBD_ITEM_3	varchar(18)		

Index Code	P	F	U	C	Column Code	Sort
PREDICTED_ARRIVAL_PK	Y	Y	Y		PREDICTED_ID	ASC

Reference To	Primary Key	Foreign Key
DATA_SOURCE_MASTER	PREDICTION_METHOD	PREDICTED_ID

Physical Data Model Model_4	Table Card PRODUCTION_REQUEST

Name : PRODUCTION_REQUEST

Code : PRODUCTION_REQUEST

Label :

Number :

Source :

Column Name	Code	Type	P	M
production_request_id	PRODUCTION_REQUEST_ID	char(20)	Y	Y
pge_identifier	PGE_IDENTIFIER	char(20)		
production_request_priority	PRODUCTION_REQUEST_PRIORITY	int		
product_description	PRODUCT_DESCRIPTION	varchar(25)		
output_data_type_id	OUTPUT_DATA_TYPE_ID	char(20)		
request_start_time	REQUEST_START_TIME	datetime		
request_stop_time	REQUEST_STOP_TIME	datetime		

Index Code	P	F	U	C	Column Code	Sort
PRODUCTION_REQUEST_FK1					OUTPUT_DATA_TYPE_ID	ASC
PRODUCTION_REQUEST_PK	Y		Y		PRODUCTION_REQUEST_ID	ASC

Name : PRODUCTS_CATALOGUE

Code : PRODUCTS_CATALOGUE

Label :

Number :

Source :

Column Name	Code	Type	P	M
output_data_type_id	DATA_TYPE_ID	char(20)	Y	Y
product_name	PRODUCT_NAME	varchar(15)		
product_description	PRODUCT_DESCRIPTION	varchar(60)		

Index Code	P	F	U	C	Column Code	Sort
PRODUCTS_CATALOGUE_PK	Y	Y	Y		DATA_TYPE_ID	ASC

Reference To	Primary Key	Foreign Key
DATA_TYPE_MASTER	DATA_TYPE_ID	DATA_TYPE_ID

Name : RESOURCE_DETAIL_DISK

Code : RESOURCE_DETAIL_DISK

Label :

Number :

Source :

Column Name	Code	Type	P	M
resource_id	RESOURCE_ID	char(20)	Y	Y
computer_list_id	COMPUTER_LIST_ID	char(20)	Y	Y
disk_list_id	DISK_LIST_ID	char(20)		Y
disk_list_item	DISK_LIST_ITEM	varchar(15)		
block_size	BLOCK_SIZE	int		
partition_size	PARTITION_SIZE	int		
system_allocation	SYSTEM_ALLOCATION	int		
user_allocation	USER_ALLOCATION	int		
device_id	DEVICE_ID	char(20)		

Index Code	P	F	U	C	Column Code	Sort
RESOURCE_DETAIL_DISK_PK	Y		Y		RESOURCE_ID	ASC
					COMPUTER_LIST_ID	ASC

Reference To	Primary Key	Foreign Key
RESOURCE_MASTER	RESOURCE_ID	RESOURCE_ID

Name : RESOURCE_DETAIL_STRING

Code : RESOURCE_DETAIL_STRING

Label :

Number :

Source :

Column Name	Code	Type	P	M
resource_id	RESOURCE_ID	char(20)	Y	Y
computer_list_id	COMPUTER_LIST_ID	char(20)	Y	Y
computer_list_description	COMPUTER_LIST_DESCRIPTION	varchar(25)		

Index Code	P	F	U	C	Column Code	Sort
RESOURCE_DETAIL_STRING_PK	Y		Y		RESOURCE_ID	ASC
					COMPUTER_LIST_ID	ASC

Reference To	Primary Key	Foreign Key
RESOURCE_MASTER	RESOURCE_ID	RESOURCE_ID

Name : RESOURCE_MASTER

Code : RESOURCE_MASTER

Label :

Number :

Source :

Column Name	Code	Type	P	M
resource_id	RESOURCE_ID	char(20)	Y	Y
resource_name	RESOURCE_NAME	char(20		
string	STRING	varchar(25)		Y
computer	COMPUTER	varchar(25)		
operating_system	OPERATING_SYSTEM	varchar(25)		
cpus	CPUS	varchar(20)		
diskspace	DISKSPACE	int		

Index Code	P	F	U	C	Column Code	Sort
RESOURCE_MASTER_PK	Y		Y		RESOURCE_ID	ASC

Referenced By	Foreign Key	Primary Key
GROUND_EVENT_RESOURCE_EXPLOSIO	RESOURCE_ID	RESOURCE_ID
PGE_DETAIL_RESREQS	RESOURCE_ID	RESOURCE_ID
RESOURCE_DETAIL_STRING	RESOURCE_ID	RESOURCE_ID
COMPUTER_LIST_EXPLOSION	RESOURCE_ID	RESOURCE_ID
RESOURCE_DETAIL_DISK	RESOURCE_ID	RESOURCE_ID

Name : ROUTINE_ARRIVAL

Code : ROUTINE_ARRIVAL

Label :

Number :

Source :

Column Name	Code	Type	P	M
routine_id	ROUTINE_ID	char(20)	Y	Y
boundary	BOUNDARY	float		
period	PERIOD	float		
delay	DELAY	float		

Index Code	P	F	U	C	Column Code	Sort
ROUTINE_ARRIVAL_PK	Y	Y	Y		ROUTINE_ID	ASC

Reference To	Primary Key	Foreign Key
DATA_SOURCE_MASTER	PREDICTION_METHOD	ROUTINE_ID

Physical Data Model Model_4	Table Card SCHEDULED_ARRIVAL

Name : SCHEDULED_ARRIVAL

Code : SCHEDULED_ARRIVAL

Label :

Number :

Source :

Column Name	Code	Type	P	M
scheduled_id	SCHEDULED_ID	char(20)	Y	Y
tbd_item1	TBD_ITEM1	char(18)		
tbd_item2	TBD_ITEM2	char(18)		

Index Code	P	F	U	C	Column Code	Sort
SCHEDULED_ARRIVAL_PK	Y	Y	Y		SCHEDULED_ID	ASC

Reference To	Primary Key	Foreign Key
DATA_SOURCE_MASTER	PREDICTION_METHOD	SCHEDULED_ID

Name : USER_RIGHTS

Code : USER_RIGHTS

Label :

Number :

Source :

Column Name	Code	Type	P	M
user_id	USER_ID	char(7)	Y	Y
user_name	USER_NAME	varchar(40)		
user_proc_name	USER_PROC_NAME	char(20)		
user_priveleges_code	USER_PRIVELEGES_CODE	varchar(7)		
user_sybase_group_code	USER_SYBASE_GROUP_CODE	char(20)		

Index Code	P	F	U	C	Column Code	Sort
USER_RIGHTS_PK	Y		Y		USER_ID	ASC

Table 9-2. Data Processing Relational Tables

Physical Data Model Model_5	Table Card DATA_MAP

Name : DATA_MAP

Code : DATA_MAP

Label : Data Map

Number :

Source :

Column Name	Code	Type	P	M
data_map_id	DATA_MAP_ID	int	Y	Y
data_map_ur_id	DATA_MAP_UR_ID	char(7)	Y	Y
data_map_location	DATA_MAP_LOCATION	varchar(80)		
number_of_usesy	NUMBER_OF_USES	int		
data_map_status	DATA_MAP_STATUS	int		
data_map_machine	DATA_MAP_MACHINE	varchar(20)		

Index Code	P	F	U	C	Column Code	Sort
DATA_MAP_PK	Y		Y		DATA_MAP_ID	ASC
					DATA_MAP_UR_ID	ASC

Physical Data Model Model_5	Table Card EXECUTABLE

Name : EXECUTABLE

Code : EXECUTABLE

Label : Represents PGE Execution

Number :

Source :

Column Name	Code	Type	P	M
pge_id	PGE_ID	varchar(20)	Y	Y
exec_id	EXEC_ID	int	Y	Y
exec_name	EXEC_NAME	varchar(60)		
exec_level	EXEC_LEVEL	int		
exec_permission	EXEC_PERMISSION	char(10)		
exec_shell	EXEC_SHELL	varchar(10)		

Index Code	P	F	U	C	Column Code	Sort
EXECUTABLE_PK	Y		Y		PGE_ID	ASC
					EXEC_ID	ASC

Reference To	Primary Key	Foreign Key
PGE	PGE_ID	PGE_ID
PCF	PGE_ID	PGE_ID
PCF	PGE_ID	PGE_ID

Physical Data Model Model_5	Table Card PCF

Name : PCF

Code : PCF

Label :

Number :

Source :

Column Name	Code	Type	P	M
pge_id	PGE_ID	varchar(20)	Y	Y
pcf_name	PCF_NAME	varchar(60)		
pcf_location	PCF_LOCATION	varchar(240)		
pcf_permission	PCF_PERMISSION	char(10)		

Index Code	P	F	U	C	Column Code	Sort
PCF_PK	Y		Y		PGE_ID	ASC

Reference To	Primary Key	Foreign Key
PGE	PGE_ID	PGE_ID

Referenced By	Foreign Key	Primary Key
EXECUTABLE	PGE_ID	PGE_ID
EXECUTABLE	PGE_ID	PGE_ID

Physical Data Model Model_5	Table Card PGE

Name : PGE

Code : PGE

Label : Production Generation Executable

Number :

Source :

Column Name	Code	Type	P	M
pge_id	PGE_ID	varchar(20)	Y	Y
pge_state	PGE_STATE	int		
pge_commands	PGE_COMMANDS	varchar(120)		
pge_environment	PGE_ENVIRONMENT	varchar(240)		
pge_shell	PGE_SHELL	varchar(30)		

Index Code	P	F	U	C	Column Code	Sort
PGE_PK	Y		Y		PGE_ID	ASC

Referenced By	Foreign Key	Primary Key
EXECUTABLE	PGE_ID	PGE_ID
PCF	PGE_ID	PGE_ID

Name : RESOURCE_MASTER

Code : RESOURCE_MASTER

Label : Master table for Data Processing Resoruces

Number :

Source :

Column Name	Code	Type	P	M
resource_id	RESOURCE_ID	int	Y	Y
resource_name	RESOURCE_NAME	varchar(60)		
resource_state	RESOURCE_STATE	int		
resource_type	RESOURCE_TYPE	varchar(15)		

Index Code	P	F	U	C	Column Code	Sort
RESOURCE_MASTER_PK	Y		Y		RESOURCE_ID	ASC

Referenced By	Foreign Key	Primary Key
RSC_STRING	RESOURCE_ID	RESOURCE_ID
RSC_COMPUTER	RESOURCE_ID	RESOURCE_ID
RSC_DISK_PARTITION	RESOURCE_ID	RESOURCE_ID

Name : RSC_COMPUTER

Code : RSC_COMPUTER

Label : List of Computers

Number :

Source :

Column Name	Code	Type	P	M
resource_id	RESOURCE_ID	char(7)	Y	Y
computer_id	COMPUTER_ID	int	Y	Y
disk_partition_id	DISK_PARTITION_ID	char(7)		
computer_name	COMPUTER_NAME	varchar(60)		
cpu_allocation	CPU_ALLOCATION	int		
operating_sys	OPERATING_SYS	varchar(60)		
per_process_ram	PER_PROCESS_RAM	int		
total_ram	TOTAL_RAM	int		
total_cpu	TOTAL_CPU	int		
max_disk_space	MAX_DISK_SPACE	int		
per_process_cpu	PER_PROCESS_CPU	int		

Index Code	P	F	U	C	Column Code	Sort
RSC_COMPUTER_PK	Y		Y		RESOURCE_ID	ASC
					COMPUTER_ID	ASC

Reference To	Primary Key	Foreign Key
RESOURCE_MASTER	RESOURCE_ID	RESOURCE_ID
RSC_DISK_PARTITION	DISK_PARTITION_ID	DISK_PARTITION_ID
RSC_STRING	RESOURCE_ID	RESOURCE_ID

Physical Data Model Model_5	Table Card RSC_DISK_ALLOCATION

Name : RSC_DISK_ALLOCATION

Code : RSC_DISK_ALLOCATION

Label : Disk Allocation

Number :

Source :

Column Name	Code	Type	P	M
disk_allocation_id	DISK_ALLOCATION_ID	CHAR(7)	Y	Y
disk_allocation_type	DISK_ALLOCATION_TYPE	int		
disk_allocation_path	DISK_ALLOCATION_PATH	varchar(240)		
disk_allocation_size	DISK_ALLOCATION_SIZE	int		
disk_allocation_user	DISK_ALLOCATION_USER	varchar(40)		

Index Code	P	F	U	C	Column Code	Sort
RSC_DISK_ALLOCATION_PK	Y		Y		DISK_ALLOCATION_ID	ASC

Reference To	Primary Key	Foreign Key
RSC_DISK_PARTITION	ALLOCATION_ID	DISK_ALLOCATION_ID

Name : RSC_DISK_PARTITION

Code : RSC_DISK_PARTITION

Label : Disk information associated with a computer

Number :

Source :

Column Name	Code	Type	P	M
resource_id	RESOURCE_ID	char(7)	Y	Y
disk_partition_id	DISK_PARTITION_ID	int	Y	Y
allocation_id	ALLOCATION_ID	char(7)	Y	Y
partition_size	PARTITION_SIZE	int		
block_size	BLOCK_SIZE	int		
user_allocation	USER_ALLOCATION	int		
sys_allocation	SYS_ALLOCATION	int		

Index Code	P	F	U	C	Column Code	Sort
RSC_DISK_PARTITION_PK	Y		Y		DISK_PARTITION_ID	ASC

Reference To	Primary Key	Foreign Key
RESOURCE_MASTER	RESOURCE_ID	RESOURCE_ID

Referenced By	Foreign Key	Primary Key
RSC_COMPUTER	DISK_PARTITION_ID	DISK_PARTITION_ID
RSC_DISK_ALLOCATION	DISK_ALLOCATION_ID	ALLOCATION_ID

Name : RSC_STRING

Code : RSC_STRING

Label : This resource string is has a group of computers and disks

Number :

Source :

Column Name	Code	Type	P	M
resource_id	RESOURCE_ID	char(7)	Y	Y
string_id	STRING_ID	int	Y	Y
string_name	STRING_NAME	varchar(60)		
computer_id	COMPUTER_ID	char(7)		

Index Code	P	F	U	C	Column Code	Sort
RSC_STRING_PK	Y		Y		RESOURCE_ID	ASC
					STRING_ID	ASC

Reference To	Primary Key	Foreign Key
RESOURCE_MASTER	RESOURCE_ID	RESOURCE_ID

Referenced By	Foreign Key	Primary Key
RSC_COMPUTER	RESOURCE_ID	RESOURCE_ID

9.3 Cross Reference Tables for Traceability

The following cross reference table identifies the objects and attributes for the PDPS Subsystem's persistent data as indicated in the DID305 volume dated July 1995. If appropriate each of the attributes were mapped to the associated DID311 attributes and further to the relational table names and attributes reflected in the above section. This mapping demonstrates where and how the data in the earth science data model is being used to support the functionality expressed in DID305. Further it identifies the supporting data that will be required to satistify the functionality described in the associated CSCI. The TBD notations found throughout this table will be resolved by 5/96.

9-3. Planning Persistent Data Cross Reference Table(1 of 9)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Class Name	DID 305 Attribute Name	DID 311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
TBD	TBD	PlanActivation	PlActivePlan	ScheduledEnd-Time		
TBD	TBD	PlanActivation	PlActivePlan	ScheduledStart-Time		
ACTIVITY	predicted_start	PlanActivation	PlActivity	myPredictedStart		
ACTIVITY	predicted_stop	PlanActivation	PlActivity	myPredictedStop		
TBD	TBD	PlanActivation	PlActivity	myPriority		
APPLICATION	major_version_id	DBMSProxyAgent	PlApplication	myMajorVersionId		
APPLICATION	minor_version_id	DBMSProxyAgent	PlApplication	myMinorVersionId		
APPLICATION	application_name	DBMSProxyAgent	PlApplication	myName		
RESOURCE_ MASTER	diskspace	ResourceManage ment	PlComputer	myMaxDiskSpace		
RESOURCE_ MASTER	cpus	ResourceManage ment	PlComputer	myCPUs		
COMPUTER_L IST_EXPLOSI ON	disk_list_id	ResourceManage ment	PlComputer	myDiskList		
RESOURCE_ MASTER	operating_system	ResourceManage ment	PlComputer	myOperatingSys tem		
RESOURCE_ MASTER	TBD	ResourceManage ment	PlComputer	myPerProcess-Ram		
RESOURCE_ MASTER	TBD	ResourceManage ment	PlComputer	myTotalRam		
DATA_PROCE SSING_REQU EST	actual_start	ProductionRe quest	PlDPR	myActualStart		
DATA_PROCE SSING_REQU EST	pge_run_state	ProductionRe quest	PlDPR	myCompletion-State		

9-3. Planning Persistent Data Cross Reference Table(2 of 9)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Class Name	DID 305 Attribute Name	DID 311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DATA_PROCESSING_REQUEST	input_instance_list_id	ProductionRequest	PlDPR	myInputDataInstanceList		
DATA_PROCESSING_REQUEST	output_instance_list_id	ProductionRequest	PlDPR	myOutputDataInstanceList		
DATA_PROCESSING_REQUEST	dpr_id	ProductionRequest	PlDPR	myPGEJobID		
DATA_PROCESSING_REQUEST	predicted_start	ProductionRequest	PlDPR	myPredictedStart		
DATA_PROCESSING_REQUEST	priority	ProductionRequest	PlDPR	myPriority		
DATA_TYPE_GRANULE	availability_actual	ProductionRequest	PlDataGranule	myActualAvailability		
DATA_TYPE_GRANULE	availability	ProductionRequest	PlDataGranule	myAvailability		
DATA_TYPE_GRANULE	esdt_parm_vals	ProductionRequest	PlDataGranule	myESDTParmVals	various	various
DATA_TYPE_GRANULE	availability_predicted	ProductionRequest	PlDataGranule	myPredictedAvailability		
DATA_TYPE_GRANULE	starttime	ProductionRequest	PlDataGranule	myStartTime		
DATA_TYPE_GRANULE	stoptime	ProductionRequest	PlDataGranule	myStopTime		
DATA_TYPE_GRANULE	universal_reference	ProductionRequest	PlDataGranule	myUR		
PGE_DETAIL_DATA	input_data_id	PGEProfile	PlDataScheduled	myInputDataId		
PGE_DETAIL_DATA	instances_per_pgerun	PGEProfile	PlDataScheduled	myNoOfInstances-PerPgeRun		

9-3. Planning Persistent Data Cross Reference Table(3 of 9)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Class Name	DID 305 Attribute Name	DID 311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
PGE_DETAIL_DATA	primary_data_source	PGEProfile	PlDataScheduled	myPrimaryData-Source		
DATA_SOURCE_MASTER	prediction_method	ProductionRequest	PlDataSource	myPredicted-Method		
DATA_SOURCE_MASTER	supplier_name	ProductionRequest	PlDataSource	mySupplierName	DataOriginator	DataOriginator-ShortName
DATA_TYPE_MASTER	catalogue_value	PGEProfile	PlDataType	myCatalogueCategory		
DATA_TYPE_MASTER	ur_string	PGEProfile	PlDataType	myDServURString		
DATA_TYPE_MASTER	data_type_description	PGEProfile	PlDataType	myDescription		
DATA_TYPE_MASTER	dynamic_flag	PGEProfile	PlDataType	myDynamicFlag		
DATA_TYPE_MASTER	esdt_parm_list	PGEProfile	PlDataType	myESDTParmList	various	various
DATA_TYPE_MASTER	instrument_name	PGEProfile	PlDataType	myInstrument-Name	Instrument	InstrumentName
DATA_TYPE_MASTER	data_type_logical_id	PGEProfile	PlDataType	myLogicalID		
DATA_TYPE_MASTER	data_type_name	PGEProfile	PlDataType	myName		
DATA_TYPE_MASTER	nominal_size	PGEProfile	PlDataType	myNominalSize		
DATA_TYPE_MASTER	TBD	PGEProfile	PlDataType	myQASubscription		
DATA_TYPE_MASTER	satellite_name	PGEProfile	PlDataType	mySatelliteName	Platform	PlatformShort-Name
DATA_TYPE_MASTER	subscription_file	PGEProfile	PlDataType	mySubscription-File		
DATA_TYPE_MASTER	subscription_queue	PGEProfile	PlDataType	mySubscription-Queue		

9-3. Planning Persistent Data Cross Reference Table(4 of 9)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Class Name	DID 305 Attribute Name	DID 311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
INPUT_DATA_SPECS	command_string	PGEProfile	PlDataTypeReq	myCommand-String		
INPUT_DATA_SPECS	data_type_req	PGEProfile	PlDataTypeReq	myDataTypeReq		
INPUT_DATA_SPECS	logical_id	PGEProfile	PlDataTypeReq	myLogicalID		
TBD	TBD	PGEProfile	PlDataTypeReq	myQAThreshold		
RESOURCE_DETAIL_DISK	block_size	ResourceManagement	PlDiskPartition	myBlockSize		
RESOURCE_DETAIL_DISK	device_id	ResourceManagement	PlDiskPartition	myDeviceID		
RESOURCE_DETAIL_DISK	partition_size	ResourceManagement	PlDiskPartition	myPartitionSize		
RESOURCE_DETAIL_DISK	system_allocation	ResourceManagement	PlDiskPartition	mySysAllocation		
RESOURCE_DETAIL_DISK	user_allocation	ResourceManagement	PlDiskPartition	myUserAllocation		
GROUND_EVENT	ground_event_description	PlanActivation	PlGroundEvent	myDescription		
GROUND_EVENT	ground_event_duration	PlanActivation	PlGroundEvent	myDuration		
GROUND_EVENT	ground_event_name	PlanActivation	PlGroundEvent	myName		
GROUND_EVENT	ground_event_priority	PlanActivation	PlGroundEvent	myPriority		
GROUND_EVENT	ground_event_temp_flag	PlanActivation	PlGroundEvent	myTemplateFlag		
GROUND_EVENT	ground_event_end	PlanActivation	PlGroundEvent	myWinEndTime		
GROUND_EVENT	ground_event_start	PlanActivation	PlGroundEvent	myWinStartTime		

9-3. Planning Persistent Data Cross Reference Table(5 of 9)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Class Name	DID 305 Attribute Name	DID 311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
OUTPUT_DATA_YIELD	TBD	PGEProfile	PlOutputYield	myCommand-String		
OUTPUT_DATA_YIELD	logical_id	PGEProfile	PlOutputYield	myLogicalID		
OUTPUT_DATA_YIELD	yield	PGEProfile	PlOutputYield	myYield		
PGE_MASTER	pge_input_type_list_id	ProductionRequest	PlPGE	myInput-DataTypeList	ProcessingDependencies	ProcessingDependenciesPointer
DATA_TYPE_MASTER	instrument_name	ProductionRequest	PlPGE	myInstrument	Instrument	InstrumentName
PGE_MASTER	pge_output_type_list_id	ProductionRequest	PlPGE	myOutput-DataTypeList	ProcessingDependencies	ProcessingDependenciesPointer
PGE_MASTER	pge_name	ProductionRequest	PlPGE	myPGEName	PGEDescription	PGEName
TBD	TBD	ProductionRequest	PlPGE	myPGEVersion	PGEVersion	PGEVersion
TBD	TBD	ProductionRequest	PlPGE	myPlatform	Platform	PlatformShort-Name
PGE_MASTER	pge_test_operational	ProductionRequest	PlPGE	myTestOperational	DeliveredAlgorithmPackage	DeliveryPurpose
PGE_PERFORMANCE	elapsed_time	PGEProfile	PlPerformance	myElapsedTime	SystemDescription	SystemDescriptionPointer
PGE_PERFORMANCE	max_memory	PGEProfile	PlPerformance	myMaxMemory-Use	SystemDescription	SystemDescriptionPointer
PGE_PERFORMANCE	block_input_operation	PGEProfile	PlPerformance	myNoOfBlockInOper	SystemDescription	SystemDescriptionPointer

9-3. Planning Persistent Data Cross Reference Table(6 of 9)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Class Name	DID 305 Attribute Name	DID 311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
PGE_PERFORMANCE	block_output_operation	PGEProfile	PlPerformance	myNoOfBlocOutOper	SystemDescription	SystemDescriptionPointer
PGE_PERFORMANCE	faults	PGEProfile	PlPerformance	myNoOfPage-Faults	SystemDescription	SystemDescriptionPointer
PGE_PERFORMANCE	swaps	PGEProfile	PlPerformance	myNoOfSwaps	SystemDescription	SystemDescriptionPointer
PGE_PERFORMANCE	cputime	PGEProfile	PlPerformance	myPGECPUTime	SystemDescription	SystemDescriptionPointer
PGE_PERFORMANCE	run_elapsed	PGEProfile	PlPerformance	myRunElapsed-Time		
PGE_PERFORMANCE	run_max_memory	PGEProfile	PlPerformance	myRunMaxMemoryUse		
PGE_PERFORMANCE	run_block_in_operation	PGEProfile	PlPerformance	myRunNoOfBlock-InOper		
PGE_PERFORMANCE	run_block_out_operation	PGEProfile	PlPerformance	myRunNoOfBlock-OutOper		
PGE_PERFORMANCE	run_page_faults	PGEProfile	PlPerformance	myRunNoOfPage-Faults		
PGE_PERFORMANCE	run_swaps	PGEProfile	PlPerformance	myRunNoSwaps		
PGE_PERFORMANCE	run_cpu_time	PGEProfile	PlPerformance	myRun-NoPGECPUTime		
PGE_PERFORMANCE	run_shared_memory	PGEProfile	PlPerformance	myRunShared-MemoryUse		
PGE_PERFORMANCE	shared_memory	PGEProfile	PlPerformance	mySharedMemoryUse		
PLAN	plan_active_status	PlanActivation	PlPlan	myActiveStatus		
PLAN	plan_description	PlanActivation	PlPlan	myDescription		

9-3. Planning Persistent Data Cross Reference Table(7 of 9)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Class Name	DID 305 Attribute Name	DID 311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
PLAN	plan_end	PlanActivation	PlPlan	myEndTime		
PLAN	plan_name	PlanActivation	PlPlan	myPlanName		
PLAN	plan_start	PlanActivation	PlPlan	myStartTime		
PRODUCTION_REQUEST	request_start_time	ProductionRequest	PlProductionRequest	myDataCollection-StartTime		
PRODUCTION_REQUEST	request_stop_time	ProductionRequest	PlProductionRequest	myDataCollection-StopTime		
PRODUCTION_REQUEST	output_data_type_id	ProductionRequest	PlProductionRequest	myOutput-DataType		
PRODUCTION_REQUEST	pge_identifier	ProductionRequest	PlProductionRequest	myPGEIdentifier	PGEDescription	PGEIdentifier
PRODUCTION_REQUEST	production_request_priority	ProductionRequest	PlProductionRequest	myPriority		
RESOURCE_MASTER	resource_id	ResourceManagement	PlResource	myID		
RESOURCE_MASTER	resource_name	ResourceManagement	PlResource	myName		
RESOURCE_MASTER	computer	ProductionPlanning	PlResourceRequirement	myComputer	SystemDescription	SystemDescriptionPointer
RESOURCE_MASTER	diskspace	ProductionPlanning	PlResourceRequirement	myDiskSpace	SystemDescription	SystemDescriptionPointer
RESOURCE_MASTER	cpus	ProductionPlanning	PlResourceRequirement	myNCPUs	SystemDescription	SystemDescriptionPointer
RESOURCE_MASTER	operating_system	ProductionPlanning	PlResourceRequirement	myOperatingSystem	SystemDescription	SystemDescriptionPointer

9-3. Planning Persistent Data Cross Reference Table(8 of 9)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Class Name	DID 305 Attribute Name	DID 311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
RESOURCE_ MASTER	string	ProductionPlan ning	PlResourceRe quirement	myString	SystemDescription	SystemDescrip tionPointer
ROUTINE_AR RIVAL	boundary	ProductionRe quest	PlRoutineArrival	myDataBoundary		
ROUTINE_AR RIVAL	period	ProductionRe quest	PlRoutineArrival	myDataPeriod		
ROUTINE_AR RIVAL	delay	ProductionRe quest	PlRoutineArrival	myDelay		
TBD	TBD	ResourceManage ment	PlString	myComputerList		
PGE_DETAIL_ TIME	processing_bound ary	PGEProfile	PlTimeScheduled	myAcquisition-ProcessingBound ary		
PGE_DETAIL_ TIME	processing_period	PGEProfile	PlTimeScheduled	myAcquisition-ProcessingPeriod		
PGE_DETAIL_ TIME	time_units_per_pg erun	PGEProfile	PlTimeScheduled	myNoOfTime-UnitsPerPgeRun		
PGE_DETAIL_ TIME	time_units	PGEProfile	PlTimeScheduled	myTimeUnits		
TBD	TBD	ProductionRe quest	PlUser	myProdReqProc		
TBD	TBD	ProductionRe quest	PlUser	myProdSchPriv		
TBD	TBD	ProductionRe quest	PlUser	myRescManPriv		
TBD	TBD	ProductionRe quest	PlUser	myUserName		
PGE_DETAIL_ PARAMETERS	pge_parameter_d efault	ProductionRe quest	PlUserParameters	myDefaultValue		
PGE_DETAIL_ PARAMETERS	description	ProductionRe quest	PlUserParameters	myDescription		

9-3. Planning Persistent Data Cross Reference Table(9 of 9)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Class Name	DID 305 Attribute Name	DID 311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
PGE_DETAIL_PARAMETERS	pge_parameter_logical_id	ProductionRequest	PlUserParameters	myLogicalID		
PGE_DETAIL_PARAMETERS	pge_parameter_name	ProductionRequest	PlUserParameters	myName		

10. The Internal Model: Ingest Subsystem

10.1 Ingest Subsystem Description

A provider site within EOSDIS will normally need to ingest a wide variety of data types to support the services it wishes to offer. These data may be delivered through a wide variety of interfaces (network file transfer, machine-to-machine transfer, media, hard copy etc.) This interface heterogeneity and the need to support extensibility and new data and interfaces as algorithms and provider functionality changes, is handled within the Ingest Subsystem. The subsystem deals with the initial reception of all data received at an EOSDIS facility and triggers subsequent archiving and processing of the data. It makes data ingest processing status available for access by users and programs, and reports processing failures as exceptions so they can be handled through intervention by operations or science users. (Reference Technical Paper 19400436TP.)

To support these processes the following relational tables have been developed. Additionally, a traceability table which maps the Ingest Subsystem DID305 design objects to the 311 Earth Science Data is also provided in Section 10.3.

10.2 Relational Tables

The following tables represent the Ingest Subsystem's persistent data design for Release A. Each relational table is being described in this section. The description includes attribute names, types and keys if appropriate.

10.3 Cross Reference Table for Traceability

The following cross reference table identifies the objects and attributes for the Ingest Subsystem's persistent data as indicated in the DID305 volume dated July 1995. If appropriate each of the attributes were mapped to the associated DID311 attributes and further to the physical database table names and attributes reflected in the above section. This mapping demonstrates where and how the data in the earth science data model is being used to support the functionality expressed in DID305. Further it identifies the supporting data that will be required to satisfy the functionality described in the associated CSCI. The TBD notations found throughout this table will be resolved by 5/96.

Table 10-1. Ingest Relational Tables

Physical Data Model Model_2	Table Card InDTT

Name : DataTypeTemplate

Code : InDTT

Label :

Number :

Source :

Column Name	Code	Type	P	M
DataType	DataType	char(50)	Y	Y

Physical Data Model Model_2	Table Card InEDPT

Name : ExternalDataProviderThreshold

Code : InEDPT

Label :

Number :

Source :

Column Name	Code	Type	P	M
ExternalDataProvider	ExternalDataProvider	char(10)	Y	Y
IngestPriority	IngestPriority	int		
VolumeThreshold	VolumeThreshold	integer		Y
MaximumRequests	MaximumRequests	integer		
RetryThreshold	RetryThreshold	int		

Name : FileTypeTemplate

Code : InFTT

Label :

Number :

Source :

Column Name	Code	Type	P	M
FileClass	FileClass	char(20)		Y
FileType	FileType	char(40)	Y	Y
MaxNum	MaxNum	int		Y
MetadataSpecialization	MetadataSpecialization	char(40)		Y
MetadataTargetName	MetadataTargetName	char(40)		
MinNum	MinNum	int		
RequiredFlag	RequiredFlag	char(10)		
ScienceSpecialization	ScienceSpecialization	char(40)		
ScienceTargetName	ScienceTargetName	char(40)		
SourceMCF	SourceMCF	char(40)		
ArchivalFlag	ArchivalFlag	char(10)		
DataType	DataType	char(50)	Y	Y

Physical Data Model Model_2	Table Card InRSD

Name : InRequestSummaryData

Code : InRSD

Label : Persistent Data for each Data Type in a request

Number :

Source :

Column Name	Code	Type	P	M
DataGranuleID	DataGranuleID	varchar(50)	Y	Y
DataType	DataType	varchar(50)	Y	Y
RequestID	RequestID	char(40)		Y
DataGranuleVolume	DataGranuleVolume	integer		
FinalStatus	FinalStatus	char(20)		

Physical Data Model Model_2	Table Card InPT

Name : PollingThreshold

Code : InPT

Label :

Number :

Source :

Column Name	Code	Type	P	M
ExternalDataProvider	ExternalDataProvider	char	Y	Y
PollingTimer	PollingTimer	smalldatetime		Y

Physical Data Model Model_2	Table Card InRI

Name : RequestInfo

Code : InRI

Label :

Number :

Source :

Column Name	Code	Type	P	M
RequestID	RequestID	char(40)		Y
DANSeqNum	DANSeqNum	integer		Y
SessionID	SessionID	integer		

Physical Data Model Model_2	Table Card InRPD

Name : RequestProcessData

Code : InRPD

Label :

Number :

Source :

Column Name	Code	Type	P	M
DataDescriptor	DataDescriptor	char(10)		
DataGranuleID	DataGranuleID	char(50)	Y	Y
DataGranuleState	DataGranuleState	char(20)		Y
DataVersion	DataVersion	int		Y
DataType	DataType	varchar(50)	Y	Y
RequestID	RequestID	char(40)	Y	Y

Name : RequestProcessHeader

Code : InRPH

Label : Information on each Client Request

Number : 1

Source :

Column Name	Code	Type	P	M
RequestID	RequestID	char(40)	Y	Y
RequestPriority	RequestPriority	int		
RequestState	RequestState	char(10)		
SequenceID	SequenceID	integer		Y
SessionID	SessionID	integer		Y
ExpirationDateTime	ExpirationDateTime	timestamp		
ExternalDataProvider	ExternalDataProvider	char(10)		Y
IngestType	IngestType	char(20)		Y
TotalDataVolume	TotalDataVolume	integer		
PercentComplete	PercentComplete	float		

Name : RequestSummaryHeader

Code : InRSH

Label : History of Request Information

Number :

Source :

Column Name	Code	Type	P	M
RequestID	RequestID	char(40)	Y	Y
ExternalDataProvider	ExternalDataProvider	char(10)		Y
Mission	Mission	varchar(255)		
ProcessingEndDateTime	ProcessingEndDateTime	timestamp		
ProcessingStartDateTime	ProcessingStartDateTime	timestamp		
AggregateLength	AggregateLength	integer		
TotalDataGranule	TotalDataGranule	integer		Y
TotalFileCount	TotalFileCount	integer		
IngestType	IngestType	char(20)		Y

Physical Data Model Model_2	Table Card InSI

Name : SessionInfo

Code : InSI

Label :

Number :

Source :

Column Name	Code	Type	P	M
ClientID	ClientID	char(40)		Y
SessionID	SessionID	integer	Y	Y

Physical Data Model Model_2	Table Card InSMCF

Name : SourceMCF

Code : InSMCF

Label :

Number :

Source :

Column Name	Code	Type	P	M
DataType	DataType	char(50)	Y	Y
FileType	FileType	char(40)		Y
VersionNumber	VersionNumber	int		Y

Name : SystemThreshold

Code : InST

Label :

Number :

Source :

Column Name	Code	Type	P	M
IngestRequestThreshold	IngestRequestThreshold	integer		Y
IngestVolumeThreshold	IngestVolumeThreshold	integer		Y

10.3 Cross Reference Table for Traceability

The following cross reference table identifies the objects and attributes for the Ingest Subsystem's persistent data as indicated in the DID305 volume dated July 1995. If appropriate each of the attributes were mapped to the associated DID311 attributes and further to the physical database table names and attributes reflected in the above section. This mapping demonstrates where and how the data in the earth science data model is being used to support the functionality expressed in DID305. Further it identifies the supporting data that will be required to satisfy the functionality described in the associated CSCI. The TBD notations found throughout this table will be resolved by 5/96.

Table 10-2. Ingest Data Cross Reference Table(1 of 6)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attrubute Name
RequestProcessData	DataDescriptor	InRequestProcessData	InRequestProcessData	myDataDescriptor	Instrument Sensor	InstrumentName SensorShortName SensorLongName
RequestProcessData	DataGranuleID	InRequestProcessData	InRequestProcessData	myDataGranuleID		
RequestProcessData	DataGranuleState	InRequestProcessData	InRequestProcessData	myDataGranuleState		
RequestProcessData	DataVersion	InRequestProcessData	InRequestProcessData	myDataVersion		
RequestProcessData	RequestId	InRequestProcessData	InRequestProcessData	myRequestId		
RequestProcessHeader	ExpirationDateTime	InRequestProcessHeader	InRequestProcessHeader	myExpirationDateTime		
RequestProcessHeader	RequestID	InRequestProcessHeader	InRequestProcessHeader	myRequestID		
RequestProcessHeader	RequestPriority	InRequestProcessHeader	InRequestProcessHeader	myRequestPriority		
RequestProcessHeader	RequestState	InRequestProcessHeader	InRequestProcessHeader	myRequestState		
RequestProcessHeader	SequenceID	InRequestProcessHeader	InRequestProcessHeader	mySequenceID		
RequestProcessHeader	SessionID	InRequestProcessHeader	InRequestProcessHeader	mySessionID		
InRequestSummaryData	DataGranuleID	InRequestSummaryData	InRequestSummaryData	myDataGranuleID		

Table 10-2. Ingest Data Cross Reference Table(2 of 6)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attrubute Name
InRequest-SummaryData	DataGranuleVol-ume	InRequestSum-maryData	InRequestSum-maryData	myDataGranu-leVolume		
InRequest-SummaryData	DataType	InRequestSum-maryData	InRequestSum-maryData	myDataType	CollectionDe-scriptionClass	ShortName
InRequest-SummaryData	FinalStatus	InRequestSum-maryData	InRequestSum-maryData	myFinalStatus		
InRequest-SummaryData	RequestID	InRequestSum-maryData	InRequestSum-maryData	myRequestID		
RequestSum-maryHeader	AggregateLength	InRequestSum-maryHeader	InRequestSum-maryHeader	myAggregate-Length		
RequestSum-maryHeader	ExternalDataPro-vider	InRequestSum-maryHeader	InRequestSum-maryHeader	myExternal-DataProvider	Contact ContactPerson ContactOrganiz ation	Role First,Middle,Last-Name ContactOrganiza-tionName
RequestSum-maryHeader	Mission	InRequestSum-maryHeader	InRequestSum-maryHeader	myMission	DataOriginator	DataOriginator ShortName
RequestSum-maryHeader	Processin-gEndDateTime	InRequestSum-maryHeader	InRequestSum-maryHeader	myProcessin-gEndDateTime		
RequestSum-maryHeader	ProcessingStart-DateTime	InRequestSum-maryHeader	InRequestSum-maryHeader	myProcessing-StartDateTime		
RequestSum-maryHeader	RequestID	InRequestSum-maryHeader	InRequestSum-maryHeader	myRequestID		
RequestSum-maryHeader	TotalDataGran-ules	InRequestSum-maryHeader	InRequestSum-maryHeader	myTotalData-Granules		

Table 10-2. Ingest Data Cross Reference Table(3 of 6)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attrubute Name
RequestSum-maryHeader	TotalFileCount	InRequestSum-maryHeader	InRequestSum-maryHeader	myTotalFileCount		
External-DataProvider-Threshold	VolumeThreshold	In_Ingest_Main_Object_Model	InExternalDataP-roviderThreshold	myVolumeTh-reshold		
External-DataProvider-Threshold	ExternalDataPro-vider	In_Ingest_Main_Object_Model	InExternalDataP-roviderThreshold	myExternal-DataProvider	Contact ContactPerson ContactOrganiz ation	Role First,Middle,Last-Name ContactOrganiza-tionName
External-DataProvider-Threshold	IngestPriority	In_Ingest_Main_Object_Model	InExternalDataP-roviderThreshold	myIngestPriority		
External-DataProvider-Threshold	MaximumRe-quests	In_Ingest_Main_Object_Model	InExternalDataP-roviderThreshold	myMaximumRe-quests		
External-DataProvider-Threshold	RetryThreshold	In_Ingest_Main_Object_Model	InExternalDataP-roviderThreshold	myRetryThresh-old		
Sys-temThreshold	IngestRequest-Threshold	In_Ingest_Main_Object_Model	InSystemThresh-old	myIngestRe-questThreshold		
Sys-temThreshold	IngestVolumeTh-reshold	In_Ingest_Main_Object_Model	InSystemThresh-old	myIngestVolu-meThreshold		
TBD	TBD	In_Ingest_Prepro cessing	InDataTypeTem-plate	myFileTypeArray		
DataType-Template	DataType	In_Ingest_Prepro cessing	InDataTypeTem-plate	myDataType	CollectionDe-scriptionClass	ShortName

Table 10-2. Ingest Data Cross Reference Table(4 of 6)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attrubute Name
FileTypeTem-plate	FileClass	In_Ingest_Prepro cessing	InFileTypeTem-plate	myFileClass		
FileTypeTem-plate	FileType	In_Ingest_Prepro cessing	InFileTypeTem-plate	myFileType		
FileTypeTem-plate	MaxNum	In_Ingest_Prepro cessing	InFileTypeTem-plate	myMaxNum		
FileTypeTem-plate	MetadataSpecial-ization	In_Ingest_Prepro cessing	InFileTypeTem-plate	myMetadataSpe-cialization		
FileTypeTem-plate	MetadataTarget-Name	In_Ingest_Prepro cessing	InFileTypeTem-plate	myMetadataTar-getName		
FileTypeTem-plate	MinNum	In_Ingest_Prepro cessing	InFileTypeTem-plate	myMinNum		
FileTypeTem-plate	RequiredFlag	In_Ingest_Prepro cessing	InFileTypeTem-plate	myRequiredFlag		
FileTypeTem-plate	ScienceSpecial-ization	In_Ingest_Prepro cessing	InFileTypeTem-plate	myScienceSpe-cialization		
FileTypeTem-plate	ScienceTarget-Name	In_Ingest_Prepro cessing	InFileTypeTem-plate	myScienceTar-getName		
FileTypeTem-plate	SourceMCF	In_Ingest_Prepro cessing	InFileTypeTem-plate	mySourceMCF		
FileTypeTem-plate	ArchivalFlag	In_Ingest_Prepro cessing	InFileTypeTem-plate	myArchivalFlag		
FileTypeTem-plate	DataType	In_Ingest_Prepro cessing	InFileTypeTem-plate	myDataType	CollectionDe-scriptionClass	ShortName
SourceMCF	VersionNumber	In_Ingest_Prepro cessing	InSourceMCF	myVersionNum-ber		

Table 10-2. Ingest Data Cross Reference Table(5 of 6)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attrubute Name
SourceMCF	DataType	In_Ingest_Preprocessing	InSourceMCF	myDataType	CollectionDescriptionClass	ShortName
SourceMCF	FileType	In_Ingest_Preprocessing	InSourceMCF	myFileType		
PollingThreshold	PollingTimer	In_Ingest_Request_Processing_Object_Model	InPollingThreshold	myPollingTimer		
RequestInfo	RequestId	In_Ingest_Session_Manager_Object_Model	InRequestInfo	RequestId		
RequestInfo	DANSeqNum	In_Ingest_Session_Manager_Object_Model	InRequestInfo	DANSeqNum		
SessionInfo	SessionID	In_Ingest_Session_Manager_Object_Model	InSessionInfo	SessionID		
SessionInfo	ClientID	In_Ingest_Session_Manager_Object_Model	InSessionInfo	ClientID		
TBD	TBD	In_Ingest_Session_Object_Model	InHistoryLog	myEventEntry		
TBD	TBD	In_Ingest_Session_Object_Model	InHistoryLog	myLogName		
TBD	TBD	In_Ingest_Session_Object_Model	InHistoryLog	myEntryCounter		
TBD	TBD	In_Ingest_Session_Object_Model	InRequestList	myListTail		

Table 10-2. Ingest Data Cross Reference Table(6 of 6)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attrubute Name
TBD	TBD	In_Ingest_Session_Object_Model	InRequestList	myCurrentPointer		
TBD	TBD	In_Ingest_Session_Object_Model	InRequestList	myListCounter		
TBD	TBD	In_Ingest_Session_Object_Model	InRequestList	myListHead		

11. Future Direction

11.1 Approach for Concluding Release A Analysis

This document represents a snapshot in time specifically the Release A CDR time frame. As a result many ongoing activities which have transpired from July until now have not been represented in this document. The primary reason for excluding the most current data analysis activities such as completed data designs, and System Management attribute mappings is because many changes have occurred since July which could not be accurately mapped to this snapshot. However, the following represents a brief discussion of each outstanding task followed by a schedule for concluding and presenting this information. This schedule is consistent with the Release A and B system development activities.

11.2 Description of Remaining Tasks

Identification of Changes since Release A CDR - The purpose of this task is to provide an updated cross reference of the Release A persistent data which is consistent with the current design. This task will incorporate the changes in the system persistent data design for each subsystem into the appropriate cross reference table. The results of this task will provide a cross reference from the as built data design to the data model.

Map V0 valids for Parameter to data model - The purpose for this task is to converge on a single set of valids if possible which will satisfy both the GCMD and V0 requirements. If it is determined that this cannot be achieved then appropriate adjustments to the data model will be made. This task is a number one priority for Release A. The results will be documented in the as built Release A document.

Complete Data Dictionary entries - As of this publication eight attributes require source of content, six require domains, twenty six domain descriptions, forty one default values, and seven units. These attributes will be analyzed, and entries determine and recorded in the Earth Science Data Model's data dictionary.

Mapping System Management Data - The purpose of this task is to understand and further document the relationships between the Earth Science and the System Management Data. The results of this task will be represented in a cross reference table which indicates the persistent data for each subsystem and the corresponding systems management data where appropriate. This task will be conducted for both Release A and Release B

Completion of Table Designs - The purpose of this task is to provide a complete physical database design for each persistent data object within each subsystem. This task will collect the table designs which are in progress and map the results to the subsystems persistent data objects and attributes. The results of this task will be provided in the asbuilt design for Release A and the CDR version of DID311 for Release B.

Revised Specifications - The purpose for this task is to revise the specifications that are currently being reviewed by the DMWG(Data Modeling Working Group). The revisions will be reflected in the Release B CDR version of DID311

Data Flow Development - The purpose of this task is to illustrate the flow of data at a high level within and across subsystems for the purpose of identifying the source and target of the data in addition to ensuring that data is not being lost in the transformations or interfaces. These flows will concentrate on the data rather than the detail description of the transformations which occur in the processes and are described in the subsystems design specifications.. The data flows represented in this task primarily provide a high level illustration of the data and it's usage within the subsystems. These flows will primarily serve as input to the next task.

Identify and resolve the data redundancies across subsystems - The purpose of this task is to identify and resolve if necessary the data that is stored redundantly across subsystems. This will be achieved by analyzing the data flows previously constructed and the cross reference tables to determine if redundancies exist, and if so, establish the need for this to occur. The results of this task will be provided in the Release B CDR version of DID311

11.3 Preliminary Schedule

The following identifies each task, which was described above, with the anticipated beginning dates. Further, the specific document which will contain the results is also indicated.

Table 11-1. Remaining Tasks Schedule (1 of 2)

Task	Begin Date	Recording Document
Identification of Changes Since Release A CDR	December 1995	As Built Release A Document
Map V0 valids for parameter to data model	December 1995	As Built Release A Document Release B CDR version DID311
Complete Data Dictionary Entries	December 1995	As Built Release A Document Release B CDR version DID311
Mapping System Management Data Release A Release B	December 1995 December 1995	As Built Release A Document Release B CDR version DID311

Table 11-1. Remaining Tasks Schedule (2 of 2)

Task	Begin Date	Recording Document
Completion of Table Designs Release A Release B	December 1995 January 1996	As Built Release A Document Release B CDR version DID311
Revised Specifications Release B	December 1995	Release B CDR version DID311
Data Flows which depict flow of data throughout the subsystems	January 1996	
Identification and resolution of data redundancies across subsystems Release A Release B	February 1996	As Built Release A Document Release B CDR version DID311

11.4 Release B Analysis

The Release B analysis effort will concentrate on two major tasks, in addition to the tasks specified above, the collection and analysis of Release B products and the identification, analysis and application of Release B User Views. It is anticipated that these efforts will reveal the majority of unique characteristics inherent in the Release B Data.

The analysis of Release B products will serve to verify that the current Earth Science model includes characteristics which accommodate the Release B data. The approach for collecting and analyzing this information will include the participation of the Release B DAACS. The intent is to attempt to map a subset of Release B data to the existing Earth Science Model represented in this document. The purpose is to ensure that the model will accommodate any unique characteristics of the Release B data. The role of the Release B DAACS will be to identify the appropriate collection of Release B data that should be mapped and further to assist in the mapping exercise. This strategy will assist the ECS analyst in verifying the data model for Release B and the DAAC representative in understanding the ECS Data Model and it's application to the DAAC's data.

The Release B User Views will be developed in concert with the Release B Development Team. This activity will provide a collection of Release B user Views which were constructed as a result of analyzing the Release B functionality and constructing the access and results views. These

views will then be applied to the Earth Science Data Model and appropriate adjustments made, if required.

The current results of Release B Analysis are reflected in the Interim Data Analysis Results for Release B White Paper, dated December 1995.

Appendix A. Auxiliary and Data Specifications

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A.1 Auxiliary Data Specifications for Collections

These specifications relate to the classes in the data model containing pointers. These pointers indicate archived data objects to which database connections exist. The specifications in this appendix cover one and sometimes two aspects of each object; namely the CSDT and the generic content of the object. The CSDT is indicated in every case while for archive objects under direct ECS control, the content is also indicated. Thus for example, guide documents are specified in both senses while science products only in the first; the content (in this latter case) being developed by EOSDIS instrument teams.

N.B. Some of the CSDT designations are interim only since there are outstanding design issues relating to whether some specifications should manifest in database (CSDT = access table) or as archive objects (all other CSDT types).

Most of these data are documents in ASCII text (the basic CSDT). The exact formats supported at release A will be RTF, PDF, plain text, HTML and postscript. At release B, WordPerfect, Microsoft Word, Interleaf and Framemaker will also be supported.

A.1.1 Reference Papers

A.1.1.1 Abstract Specification

At release A, the abstract will be expected as part of the document itself. At release B, the abstract will be formatted in HTML to allow screen presentation of the text. The abstract will be limited to *500* words (TBC) or less.

A.1.1.2 Journal Article Specification

Journal Articles are expected to be in one of the formats (excluding HTML) as allowed for releases A and B. The content of these papers is not prescribed by ECS.

A.1.1.3 Stand Alone Document Specification

Other documents are expected to be in one of the formats (excluding HTML) as allowed for releases A and B. The content of these papers is not prescribed by ECS.

A.1.2 Guide

At release A, all guides will be stored and presented as HTML formatted documents. This supports the required functionality. At release B, the full range of ASCII text formats will be supported (see A-1 above).

Most of these guides are taken directly form the Version 0 standards.

A.1.2.1 Regional Area Definition Guide

This guide will not be implemented until release B, and only then when a more complete outline of the content has been generated and agreed by the DMWG. The current draft outline of the content is as follows:

Objective: This information describes a region of particular scientific interest for which ECS data has been collected or generated. It may be particularly relevant in describing regions covered by multi-type collections. In this instance, the data set guides describing the collections used to form the multi-type collection are superseded by the aggregation criteria.

Sections (for each region):

name of region
location
climate
topography
vegetation cover
land use

A.1.2.2 Data Center Guide Specification

This specification is contained in appendix A of the V0 Guide Document Creation Manual October 1995, available at http://harp.gsfc.nasa.gov:1729/eosdis_documents/guideshells.html.

A.1.2.3 Projects/Campaigns Guide Outline Specification

This specification is contained in Appendix B of the V0 Guide Document Creation Manual October 1995, available at http://harp.gsfc.nasa.gov:1729/eosdis_documents/guideshells.html.

A.1.2.4 Source Platform Guide Specification

This specification is contained in Appendix C of the V0 Guide Document Creation Manual October 1995, available at http://harp.gsfc.nasa.gov:1729/eosdis_documents/guideshells.html.

A.1.2.5 Sensor Instrument Guide Specification

This specification is contained in Appendix D of the V0 Guide Document Creation Manual October 1995, available at http://harp.gsfc.nasa.gov:1729/eosdis_documents/guideshells.html.

A.1.2.6 Data Set Guide Specification

This specification is contained in Appendix E of the V0 Guide Document Creation Manual October 1995, available at http://harp.gsfc.nasa.gov:1729/eosdis_documents/guideshells.html.

A.1.3 Map Projection Parameters

These parameters may be implemented within a document/text object but may also or alternately exist in (CSDT =) access tables. The projections are described in BNF.

The requirements for the support of these projections is derived from requirements on the SDP toolkit. *Some further analysis of projections and parameters is required.*

Space_Oblique_Mercator_(Landsat) =

Semi_Major_Axis +
    Semi_Minor_Axis +
    Landsat_Number +
    Path_Number +
    False_Easting +
    False_Northing

Space_Oblique_Mercator_(general) =

Semi_Major_Axis +
    Semi_Minor_Axis +
    IncAng+
    AscLong+
    False_Easting +
    False_Northing +
    PSRev +
    LRat +
    PFlag

Polar_Stereographic =

Semi_Major_Axis +
    Semi_Minor_Axis +
    Straight_Vertical_Longitude_from_Pole +
    Standard_Parallel +
    False_Easting +
    False_Northing

Universal_Transverse_Mercator =

UTM_Zone_Number +
    Transverse_Mercator

Transverse_Mercator =

Semi_Major_Axis +
    Semi_Minor_Axis +
    Scale_Factor_at_Central_Meridian +
    Longitude_of_Central_Meridian +
    Latitude_of_Projection_Origin +

False_Easting +
False_Northing

Interrupted Goodes Homolosine =
Sphere

There follows definitions of the attributes for each projection.

Sphere Radius of reference sphere.
Type: real
Domain: > 0

Semi_Major_Axis
Semi-major axis of ellipsoid
Type: real
Domain: > 0

Semi_Minor_Axis
Semi-minor axis of the ellipsoid
Type: real
Domain: > 0 but <= Semi_Major_Axis

IncAng
Inclination of orbit at ascending node, counter-clockwise from equator (general SOM)
Type: real
Domain: 0 < IncAng < pi

AscLong
Longitude of ascending orbit at equator (general SOM)
Type: real
Domain:-pi < AscLong < +pi

PSRev
Period of satellite revolution in minutes (general SOM)
Type: real
Domain: free real

LRat
Landsat ratio to compensate for confusion at northern end of orbit.
Type: real
Domain: general SOM, -- use 0.5201613

PFlag
End of path flag for Landsat: 0 = start of path, 1=end of path
(general SOM)
Type: integer
Domain: 0 or 1

Longitude of Central Meridian

The line of longitude at the center of a map projection generally used as the basis for constructing the projection.

Type: real

Domain: -pi <= Longitude of Central Meridian <= +pi

Latitude of Projection Origin

Latitude chosen as the origin of rectangular coordinates for a map projection.

Type: real

Domain: -pi/2 <= Latitude of Projection Origin <= +pi/2

False Easting

The value added to all 'x' values in the rectangular coordinates for a map projection. This value frequently is assigned to eliminate negative numbers.

Expressd in the unit of measure identified in Planar Coordinate Units.

Type: real

Domain: free real

False Northing

The value added to all 'y' values in the rectangular coordinates for a map projection. This value frequently is assigned to eliminate negative numbers. Expressed in the unit of measure identified in Planar Coordinate Units.

Type: real

Domain: free real

Straight Vertical Longitude from Pole

Longitude to be oriented straight up from the North or South Pole.

Type: real

Domain: -pi/2 <= Straight Vertical Longitude from Pole <= +pi/2

Scale Factor at Central Meridian

A multiplier for reducing a distance obtained from a map by computation or scaling to the actual distance along the central meridian.

Type: real

Domain: Scale Factor at Central Meridian > 0.0

Other parameter definitions TBD.

A.1.4 Additional Text Records

These addition specifications are conceived as being free text; giving the user and/or the producer the freedom to include more or less text in several topic areas. However, implementation in database (CSDT = access tables) is conceivable in the first two cases, and desirable for the User Comment Document, especially for the granule related comments.

A.1.4.1 User Comment Document

This document is used to record user comments on the collection and potentially on each individual granule. It would carry a disclaimer that the comments may or may not be valid. Instances are accessible from the collection and the granule.

There is no prescribed outline content for this document.

A.1.4.2 Quality text Comment

This document is used to record details of quality measurement and other comments concerning the collection. It is accessible from the collection description.

There is no prescribed outline content for this document although it is expected that explanation the means by which quality flags were set at both collection and granule level will be included.

A.1.4.3 Validation Document

This document is used to record details of validation steps used for the assessment of granule and overall collection quality. It is accessible from the collection description.

There is no prescribed outline content for this document.

A.2 Planning Reports and Production History

These are outputs from the planning and data processing subsystems respectively. All are produced in human readable ASCII text as simple files (i.e. documents), and all are retrievable from a user interface.

A.2.1 Planning Reports

There are fours types of planning report covering processing status, error, resource usage and production plans. These specifications are currently shown as straw men only. *Full specifications will be developed during the first quarter of 1996.*

A.2.1.1 Processing Status Report

Description: The status of production requests (PRs) for a specified instrument and a specified period. PRs are included in the report if they had Data Processing Requests (DPRs) run during the reporting time period, or if the PRs are currently active within the DAAC plan. The reporting periods for which status is determined are 1 day (current) and 3, 7, 30 and 90 days in the past. The 1, 3, 7 day the reports are updated daily, while the 30, 90 day reports are updated weekly. There is one set of reports per instrument per DAAC.

for each processing status report the attributes describing the report are:

StatusReportingPeriod	one of 1,3,7,30 or 90 days
StatusReportDate	date of this report

Instrument	instrument identification

for each production request within the report the attributes describing the production request are:

ProductionRequestId	identification of the production request
ProductionRequestStatus	from PlProductionRequest
DataCollectionStartTime	from PlProductionRequest
DataCollectionStopTime	from PlProductionRequest
PGEName	from PlPGE
Priority	from PlProductionRequest
DateOfRequest	from PlProductionRequest

for each production request within the report the attributes characterizing the processing status are:

EarliestDateAwaitingProcessing	The data processing period of the earliest processed DPR within the PR
LatestDateHavingBeenProcessed	The data processing period of the latest processed DPR within the PR
NumberOfDPRs	The number of DPRs for the PR
RunDPRs	The number of sucessful run DPRs in the PR
FailedDPRs	The number of failed run DPRs in the PR
WaitingDPRs	The number of un-run DPRs in the PR

A.2.1.2 Processing Errors Report

Description: The error status from all failed DPRs during one day grouped by PR, and summaries for the preceding 3, 7, 30 and 90 days. This report is produced produced daily. There is one of these reports per instrument per DAAC.

for each processing error report, the attributes describing the report are:

ErrorReportDate	date of this report
Instrument	instrument identification

for each production request within the report the attributes describing the production request are:

ProductionRequestId	identification of the production request
ProductionRequestStatus	from PlProductionRequest
DataCollectionStartTime	from PlProductionRequest

DataCollectionStopTime	from PlProductionRequest
PGEName	from PlPGE
Priority	from PlProductionRequest
DateOfRequest	from PlProductionRequest

for each failed DPRs within the PR the attributes are:

DPR	from PlDPR
CompletionStatus	from PlDPR
ErrorMessage	*needs new class*
ReRunSuccessfully	*needs new class*

for each error completion status a historic summary:

CompletionStatus	
Period	1, 3, 7, 30, 90 day summary
NumberOfOccurancesInPeriod	the number of failed DPRs within the period

A.2.1.3 Resource Usage Report

Description: This report summarizes the resourse usage for the day. In addition, comparisons for the average of resource usage from the sucessfull DPRs for the preceding 7 and 30 days are also produced daily.

ResourceReportDate	date of this report
Instrument	instrument identification

for each PGE run during that day the report includes:

PGEName	from PlPGE
PGEVersion	from PlPGE

aken from AI&T:

ElapsedTime	from PlPerformance
MaxMemoryUse	from PlPerformance
NoOfBlockInOper	from PlPerformance
NoOfBlocOutOper	from PlPerformance
NoOfPageFaults	from PlPerformance
NoOfSwaps	from PlPerformance

PGECPUTime from PlPerformance

SharedMemoryUse from PlPerformance

7 day average:

ElapsedTime from PlPerformance

MaxMemoryUse from PlPerformance

NoOfBlockInOper from PlPerformance

NoOfBlocOutOper from PlPerformance

NoOfPageFaults from PlPerformance

NoOfSwaps from PlPerformance

PGECPUTime from PlPerformance

SharedMemoryUse from PlPerformance

30 day average:

ElapsedTime from PlPerformance

MaxMemoryUse from PlPerformance

NoOfBlockInOper from PlPerformance

NoOfBlocOutOper from PlPerformance

NoOfPageFaults from PlPerformance

NoOfSwaps from PlPerformance

PGECPUTime from PlPerformance

SharedMemoryUse from PlPerformance

A.2.1.4 Production Plans

Published Production Plan

DAAC Name = LaRC

Plan Name = Default

Plan Comments = Nothing Special

Plan Period = 10/01/96, 10/31/96

Plan Products = CERES_BDS, CERES_IES,

Production Requests

ROUTINE_CERES_SUB1, PGE, start_time, stop_time, priority

ROUTINE_CERES_SUB2, PGE, start_time, stop_time, priority

ROUTINE_CERES_SUB3, PGE, start_time, stop_time, priority

Product Schedule

Data Type = CERES_BDS, PGE_VERSION
Granule = START_TIME, STOP_TIME, predicted_time, actual_time
Granule = START_TIME, STOP_TIME, predicted_time, actual_time
Granule = START_TIME, STOP_TIME, predicted_time, actual_time
Granule = START_TIME, STOP_TIME, predicted_time, actual_time
Granule = START_TIME, STOP_TIME, predicted_time, actual_time

Data Type = CERES_IES, PGE_VERSION
Granule = START_TIME, STOP_TIME, predicted_time, actual_time
Granule = START_TIME, STOP_TIME, predicted_time, actual_time

PGE Schedule

PGE Type = CERES Subsystem 1, PGE_VERSION
DPR = START_TIME, STOP_TIME, predicted_time, actual_time
DPR = START_TIME, STOP_TIME, predicted_time, actual_time
DPR = START_TIME, STOP_TIME, predicted_time, actual_time
DPR = START_TIME, STOP_TIME, predicted_time, actual_time

PGE Type = CERES Subsystem 1, PGE_VERSION
DPR = START_TIME, STOP_TIME, predicted_time, actual_time

A.2.2 Production History

This specification exists in draft format only, expressed as logical requirements for attribute level information. *The full specification will be developed during the first quarter of 1996.*

An external view for these attributes is presented elsewhere in this document. That view indicates that the attributes below are returned in 2 objects (this is driven by ease of placement and storage of attribute values during processing); a set of URs or IDs related to lineage and a log file containing all other attribute values. The latter object (the log file) is the archive object pointed to in the granules module. The URs/IDs are a combination of the AncillaryInputgranule ID and the ECSDataGranule self reference which are not explicit in the module. The specification below covers both of these objects or elements of the external view.

At release A, the external view will be files only. At release B, it is expected that further analysis and display tools will be available at the client which will expand the scope of the external view (see System Design Specification - 207-CD-001-001; Section 4.4.3.10, pages 4-62 through 4-64).

A.2.2.1 Data Lineage

GRANULE ID -- data lineage will be available at the GRANULE level

INPUT GRANULE IDs -- list of all granules serving as direct input; should this be in terms of the granule, or the PGE which was used to generate it?

ANCILLARY DATA GRANULE IDs -- list of all granules serving as indirect or ancillary input; additional identification of this data desired? (e.g. dataset/product name, source, etc.?)

A.2.2.2 Product Processing History

RUN TIME PARAMETERS -- actual values; should be in P=V format?

OPERATOR INPUTS TO PROCESSING STREAM -- actual values, if any; should be in P=V format?

REPROCESSING STATUS -- as defined in Core metadata: PRIOR, NONE; PRIOR, SCHEDULED; CURRENT, NONE; MISSION OVER, NONE. See 311-CD-002-001, pages 4-43, 4-44 for definitions

QA FLAG INDICATORS -- flags indicating quality of the PROCESSING OF the Data Processing Request, rather than the quality of the data

List of Data Server Subsystem Services affecting content -- examples include compression routine(s) applied if lossy, preprocessing which has permanently affected content (reprojection, regridding), or any pre-archive routines applied for subsequent access/subsetting.

The following items could be options available if desired:

TEST DATA FILE IDs -- as used during Algorithm Integration and Test; other information on the test data needed?

CALIBRATION DATA IDs -- as used at any time in product's history that affects this granule's content

EPHEMERIS DATA ID -- if applicable

QA STATISTICS PRODUCT REFERENCE -- if exists

QA PARAMETER/VALUE PAIRS -- list of all that exist; should include ability to access system dictionary to explain meaning of each QA parameter; see 311-CD-002-001, pages 4-42, 4-43 for definitions of current QA options (which will be added to as AM instrument teams provide input)

LINK TO DELIVERED ALGORITHM PACKAGE CONTENT -- with the ability to browse through DAP documentation, PGE information, guides, scripts, configuration files, and so on. See 311-CD-002-001, page 4-2 for a graphical representation of Delivered Algorithm Package content; all of these items would be browsable given this link. Note that this includes ATBDs, as part of Documents.

LINK TO ALGORITHM GUIDE -- a direct link to the guide(s) for this PGE

DATE&TIME GENERATED -- preference as to date/time format?
Portion of Merged Product Profile and DPR History:

Granule Profile --as noted above, includes:
PRODUCT GENERATION DATE
PRODUCT GENERATION SIZE
PRODUCT LOCATION (URL of data server location)

REPROCESSED DATA INDICATOR -- telling if this is reprocessed data

PGE(s) USED -- as noted above, includes (identifier, collection, version, series, instance)

SCRIPT(s) USED

Resource Usage -- as noted above, includes
- PLANNED RUN-TIMES
- ACTUAL RUN-TIMES
- SELECTED RESOURCES (hardware platforms, tape drives, disk storage, ephemeris)
- PLANNED CPU CONSUMPTION
- ACTUAL CPU CONSUMPTION
- PLANNED MEMORY CONSUMPTION
- ACTUAL MEMORY CONSUMPTION

RUN-TIME PARAMETERS USED

Data Quality Info:
- QA STATISTICS PRODUCT REFERENCE -- if exists
- QA PARAMETER/VALUE PAIRS -- list of all that exist; should include ability to access system dictionary to explain meaning of each QA parameter; see 311-CD-002-001, pages 4-42, 4-43 for definitions of current QA options (which will be added to as AM instrument teams provide input)

DataProcessingRequestProductionHistory content -- as noted above, contains:
- QUALITY FLAG INDICATORS -- quality of the process of filling this request

CHANGES TO PROCESSING SPECS -- as noted above, includes:
- CHANGE IN RESOURCES SELECTED
- CHANGE IN CPU UTILIZATION
- ALTERNATE INPUT DATA USED
- REASON(S) FOR DELAY IN PROCESSING
- CHANGES ENTERED BY OPERATOR
- DESCENDENT DPRs CANCELLED DUE TO THIS DPR

Compile information per PGE -- for example,
- COMPILER NAME AND VERSION
- COMPILE/LINK PARAMETERS
- COMPILED ON HARDWARE/OPERATING SYSTEM

QUALITY FLAG INDICATORS -- quality of the process of filling this request

CHANGES TO PROCESSING SPECS -- as noted above, includes
- CHANGE IN RESOURCES SELECTED
- CHANGE IN CPU UTILIZATION
- ALTERNATE INPUT DATA USED
- REASON(S) FOR DELAY IN PROCESSING
- CHANGES ENTERED BY OPERATOR
- DESCENDENT DPRs CANCELLED DUE TO THIS DPR

STATUS LOG FILE(S) -- as noted in section 3, content of log files is producer-specific

USER LOG FILES(S)

REPORT LOG FILE(S)

Resource Usage -- as noted above, includes

PLANNED RUN-TIMES
ACTUAL RUN-TIMES
SELECTED RESOURCES (hardware platforms, tape drives, disk storage, ephemeris)
PLANNED CPU CONSUMPTION
ACTUAL CPU CONSUMPTION
PLANNED MEMORY CONSUMPTION
ACTUAL MEMORY CONSUMPTION

Data Quality Info:

QA STATISTICS PRODUCT REFERENCE -- if exists
QA PARAMETER/VALUE PAIRS -- list of all that exist; should include ability to access system dictionary to explain meaning of each QA parameter; see 311-CD-002-001, pages 4-42, 4-43 for definitions of current QA options (which will be added to as AM instrument teams provide input)

A.3 Delivered Algorithm Package

The delivered algorithm package is mostly specified in DID205 Science User's Guide Volume 4. Most sections below reference parts of that document. Implementation is either as text (options as section 1 above), or as P=V metadata, science data tables etc. Many smaller specifications may be contained within the delivery memo/delivery contents statement.

A.3.1 Delivery Contents List Specification

A document. See Section 6.3.1 of Science Users Guide (205-CD-002-002).

A.3.2 Context Diagram Specification

If electronic, then should occur as a figure within one of the accepted document/text types.

A.3.3 Change Log Specification

TBD.

A.3.4 System Description Specification

A document; see Appendix C.1 of Science Users Guide (205-CD-002-002).

A.3.5 SW Development Standard Specification

A document; 'Data Production Software and Science Computing Facility Standard and Guidelines' (ESDIS Goddard document 423 - 16 - 01; 2/15/95)

A.3.6 Processing File Description Specification

A document. See Appendix C.3 of Science Users Guide (205-CD-002-002).

A.3.7 Programming Guide Specification

A document; 'Data Production Software and Science Computing Facility Standard and Guidelines' (ESDIS Goddard document 423 - 16 - 01; 2/15/95).

A.3.8 ATBD Specification

Document. *It appears that there is no control template for the content of this document.*

A.3.9 Detailed Design Specification

Document. Instrument team specified

A.3.10 Test Plan Specification

Document. see Appendix C.4 of Science Users Guide (205-CD-002-002).

A.3.11 Test Site Config Specification

Document. see Section 6.3.2.5 of Science Users Guide (205-CD-002-002).

A.3.12 Compile Info Specification

Document. see Section 6.3.2.6 of Science Users Guide (205-CD-002-002).

A.3.13 Performance Test Results Specification

Document. Instrument team specified as per test requirements.

A.3.14 Operations Manual Specification

Document. see Appendix C.2 of the Science Users Guide (205-CD-002-002)

A.3.15 ScSW Source Code Specification

Document. Instrument team specified against ATDB and using SW Development Standard Specification

A.3.16 Test Source Code Specification

Document. Instrument team specified as per test requirements.

A.3.17 PGE error log Specification

Document. see Section 6.3.1.5 of Science Users Guide (205-CD-002-002).

A.3.18 ScSW Script Specification

Document. Instrument team specified as per ScSw requirements.

A.3.19 Link and Compile Script Specification

Document. Instrument team specified as per ScSw requirements.

A.3.20 Test Script Specification

Document. Instrument team specified as per test requirements

A.3.21 Result Temp File Specification

Instrument team specified as per test requirements

A.3.22 Result Product File Specification

Instrument team specified as per test requirements

A.3.23 Results Report Specification

Instrument team specified as per test requirements

A.3.24 Metadata Configuration File Specification

Document. see Appendix J8 of the Toolkit Users Guide (333–CD–003–002).

A.3.25 Instrument Science Data Specification

Instrument team specified as per test requirements

A.3.26 Instrument Engineering Data Specification

Instrument team specified as per test requirements

A.3.27 Platform Ancillary Data Specification

Instrument team specified as per test requirements

A.3.28 External Data Specification

Instrument team specified as per test requirements. See Section A-4.2.3 below.

A.3.29 Calibration Files Specification

Instrument team specified as per test requirements. See Section A-4.2.3 below.

A.3.30 Process Control Parameter and Resource File Specification

Document. see Appendix C.1.4. of the Toolkit Users Guide (333–CD–003–002).

A.3.31 PGE Config File

Document. see Section 6.3.2.9 of Science Users Guide (205-CD-002-002)

A.3.32 Processing Dependencies

Document. see Section 6.3.2.11 of Science Users Guide (205-CD-002-002). *Additional specification is required to bring this into line with planning subsystem requirements.*

A.4 Auxiliary and Data Specifications for Granules

A.4.1 Science Output Specifications

All science outputs utilize one or more of the recognized CSDTs implemented using the HDF-EOS standard. The white paper 'Draft HDF-EOS Primer for Version 1 EOSDIS' of April 1995 (175-WP-001-001) is the most recent controlled version of this specification and is available on the EDHS. Chapter 3 of that document provides an outline data specification for the various HDF-EOS data types.

A.4.1.1 Granule

It is expected that science product granule will be produced predominantly in one of the geolocated HDF-EOS types referenced in A-4.1. Swath specific information is found in The HDF-EOS Swath Concept White Paper (170-WP-003-001), December 1995, available on EDHS.

A.4.1.1.1 Structural Metadata

The metadata written into the HDF-EOS products during processing support later services such as display, subset and subsample. These metadata are described as structural and must be supplied by the instrument teams as a part of the full development of HDF-EOS. The metadata itself may be supplied in a similar fashion to that in the MCF (document in ODL).

The current thinking is found in a draft document 'Use of Metadata in HDF-EOS files' (170-WP-002-001) December 1995 available on EDHS.

A.4.1.2 QA Granule

It is expected that the QA granules, produced alongside regular science product granules, will also be in HDF-EOS. Predominant use of non-geolocated CSDT types is expected, although there is no constraint on HDF-EOS type or content or the QA granule. No separate specification for this type is being prepared outside of the science granule HDF-EOS specification.

Note that the summary statistics 'layer' of the data pyramid is, where applicable, included in this type.

A.4.1.3 Browse

Browse products will be produced in HDF-EOS using specified types and metadata. A separate specification for this type of product is being prepared. Information describing the EOSDIS Browse delivery package will soon be available in White Paper 170-WP-004-001.

A.4.2 Input Specifications

There is a wide range of such inputs in terms both of CSDT type and content. CSDTs are indicated. Where ECS is providing the detailed content, this is specified.

A.4.2.1 Level 0 Data for EOS instrument.

At release A, level 0 data will arrive at ECS from SDPF for the processing of LIS and CERES higher level products. The format if the incoming data is SFDU headers plus binary data set; both in CCSDS defined structures. This is described in the SDPF to TRMM ICD (560-203.103) which is in draft, last updated in March 1995.

At release B, level 0 data for all EOS-AM instrument will arrive at ECS from EDOS. The format is as described in the ICD between the EDOS and the EOC, GSFC, LaRC and DAACs (560-ICD-EDOS/EGS, June 30, 1995).

A.4.2.2 Other Incoming Data

Level 0 data ingested into ECS from the LandSat7 system is detailed in the Interface Control Document Between EOSDIS Core System (ECS) and the Landsat 7 System (209-CD-013-002), October 1995 (available on EDHS).

Level 1A and 1B data ingested from ASTER is detailed in the Interface Control Document Between EOSDIS Core System (ECS) and ASTER Ground Data System (209-CD-002-002) of September 1995 (available on EDHS).

Data incoming from the TRMM besides the CERES and LIS level; i.e. the level 1A and higher level products from the PR, TMI and VIR are detailed in the ICD Between ECS and TRMM Science Data and Information System (TSDIS) (209-CD-007-002) of July 1995 (available on EDHS).

Data incoming from ASF includes level 0 data from several (non-ECS) synthetic aperture radars and is detailed in the Interface Control Document Between EOSDIS Core System (ECS) and the Alaska SAR (Synthetic Aperture Radar) Facility (ASF) Distributed Active Archive Center (DAAC) for the ECS Project (209-CD-021-001) of October 1995 (available on EDHS).

A.4.2.3 Static Ancillary

It is anticipated that static ancillary data will come from two sources; namely the instrument teams themselves who will deliver files with the algorithm package itself and secondly, the SDP toolkit ancillary data tools also include a set of commonly used data sets.

Static data delivered by instrument teams may have any recognized CSDT. Content is not prescribed (see Section A-3.28, A-3.29 above).

Data delivered with the SDP toolkit for release A is for the most part in a simple binary format. The coastline database comes in VPF. Further details of the content of these data sets is found in Appendix D of the Toolkit Users Guide (333–CD–003–002); notably Table D-1.

A.4.2.4 Dynamic Ancillary

Most dynamic ancillary data will be available in native formats to instrument team PGEs. Selected data sets; those used by many processing chains, are preprocessed into standard formats (EOS-HDF) for ready access and portability. Orbit files are one such data set and the others specified below are the NOAA inputs.

A.4.2.4.1 Orbit Parameters Specification

The orbit parameters file is used in the data processing subsystem to support the geolocation tools. The data are also available to PGEs using other toolkit tools. The file is implemented in two formats: an HDF Vdata and native binary.

At release A, an incoming orbit file enters the systems once per day and contains data for that same period. The data are processed into the content below; one incoming file becomes one implemented file in the DPS. Some new metadata essential for the operation of tools are created.

The content is as follows (draft):

```
EphemerisHeader repeated once in each file.
    EcTChar  fileName[128];       // Filename of ephemeris dataset.
    EcTReal  startTime;   // Ephemeris dataset starttime, secTAI93.
    EcTReal  endTime;     // Ephemeris dataset endtime, secTAI93.
    EcTInt   nRecords;    // Number of ephemeris records.
    EcTInt   dataType;    // 1=ephemeris, 2=attitude.
    EcTInt   nOrbits;     // Number of orbits spanned.
    EcTReal  keplerElements[6]; // Keplerian elements at epoch.
    EcTReal  keplerEpoch;       // Epoch of Keplerian elements, secTAI93.
    EcTChar  Spares[300];       // Pad to 512 bytes.

EphemerisRecord; repeated for each minute of the day (c. 86000 per day)
    EcTReal  time;        // Number of seconds, secTAI93.
    EcTInt   orbitNumber;// Orbit number.
    EcTReal  xPos;        // X component of position vector, meters.
    EcTReal  yPos;        // Y component of position vector, meters.
    EcTReal  zPos;        // Z component of position vector, meters.
    EcTReal  xVel;        // X component of velocity vector, meters/sec.
    EcTReal  yVel;        // Y component of velocity vector, meters/sec.
    EcTReal  zVel;        // Z component of velocity vector, meters/sec.
    EcTInt   qaFlag;      // Data quality summary flag.

DpTEphemerisMetadata; additional metadata, repeated per orbit (c. 14 per day).
    EcTInt   orbitNumber;// Orbit number.
    EcTChar  orbitStartTime[26];// Orbit start time, asciiUTC.
    EcTChar  orbitDownTime[26];       // Orbit down-crossing time, asciiUTC.
    EcTReal  orbitDownLongitude;      // Orbit down-crossing longitude, radians.
```

The release B orbit file has yet to be developed.

A.4.2.4.2 NOAA inputs

A.4.2.4.2.1 Introduction

Amongst the dynamic ancillary data, some NOAA data are being ingested and prepared by ECS for use by instrument teams. What follows specifies the format of the files available to instrument teams.

The format of most incoming NOAA data is specified in the Interface Control Document Between the EOSDIS Core System (ECS) and the National Oceanic and Atmospheric Administration (NOAA) Affiliated Data Center (209-CD-006-003) of October 1995 (available on EDHS). Of these data sets, the NOAA Sea Ice Master Map products is being pre-processed to HDF-EOS. All other data sets are left in native format to which instrument teams must interface directly. The NOAA NMC data is incoming from NOAA NMC via the GSFC DAAC. This is detailed in the ICD Between the ECS and the GSFC DAAC for the ECS Project (209-CD-008`002) of July 95 (available on EDHS).

The NMC data are being developed first (see below); while other NOAA products will be developed during later phases in preparation for release A.

A.4.2.4.2.2 Pre-processing Formats

The ancillary data preprocessing function is able to pre-process any incoming NMC GRIB file. The actual content of the prepared files will depend on the ingested set which is specified in the GSFC ICD referenced above.

After pre-processing, the GRIB record will be put into EOS-HDF format. The precise details of this format are still under investigation, and therefor this section is still subject to change.

EOS-HDF builds upon the standard HDF libraries. Particularly, it allows data to be inserted in three new forms; swath, point and grid. For the pre-processing of GRIB, only the latter of these needs to be considered. In addition to the data, metadata must be included to allow functionality within ECS. For storage, all of the metadata will be written in PVL as an attribute (or group of attributes), while the data will be stored in Science Data Sets (SDS's).

In designing the actual format of the data, a number of factors have been considered. These are:

- ≠ GRIB data is already converted to HDF by the SeaWIFS group, albeit in a limited fashion. Since this group is already familiar with their version of GRIB in HDF format, departures from this format for the ADPP output product should be limited within the constraints laid down by EOS-HDF. That is the SeaWIFS format will be maintained wherever possible, unless EOS-HDF sets down other limitations making this impractical.
- ≠ There is a need to minimize the number of SDS's in a single file since a large number of these will dramatically increase file access time.
- ≠ The metadata needs to be written as attributes in 3 distinct groups; core metadata (covering collection and granule level information to allow insertion into the data server), product specific metadata (containing information which is related to a particular product

and is not general across products) and structural metadata (containing information on the layout of the file).

- ≠ The requirements of the ingest sub-system to produce a single output file and associated metadata file. While ingest can deal with one file in, many out, the design only allows for a single output metadata file.

Much of the problem in designing the output format lies in the relating of record specific information to a particular SDS. Much of the metadata which is considered granule level, such as the geolocation information and level information are specific for each record and are not inherent to the whole file. Since, however, these attributes MUST appear in the core metadata, it is very difficulty to relate this information back to the SDS's once the data is reformatted. The logical place to put this data for GRIB is in the structural metadata, which describes each SDS. However, some geolocation information needs to be put in the core. It is proposed to put in the maximum extent of coverage in the core metadata and the actual coverage for a particular SDS in the structural metadata. For other information which is relevant at the collection level (such as projection), it will be necessary to use the word "various" (or something similar) in the core metadata, and place that for a specific SDS again in the structural metadata.

In order to minimize the number of SDS's it is proposed that they all be three dimensional. An SDS will then contain all of the information for a specific parameter on a specific grid, but covering various atmospheric levels (see Figure A-5.1). This should give between a 50% to 75% reduction in the number of SDS's compared with the number of GRIB records in the original file. Greater reduction could be achieved by placing all of the information for a particular grid in a single three dimensional SDS (achieving between 80% and 95% reduction), but it is felt that this would put too much information into the structural metadata.

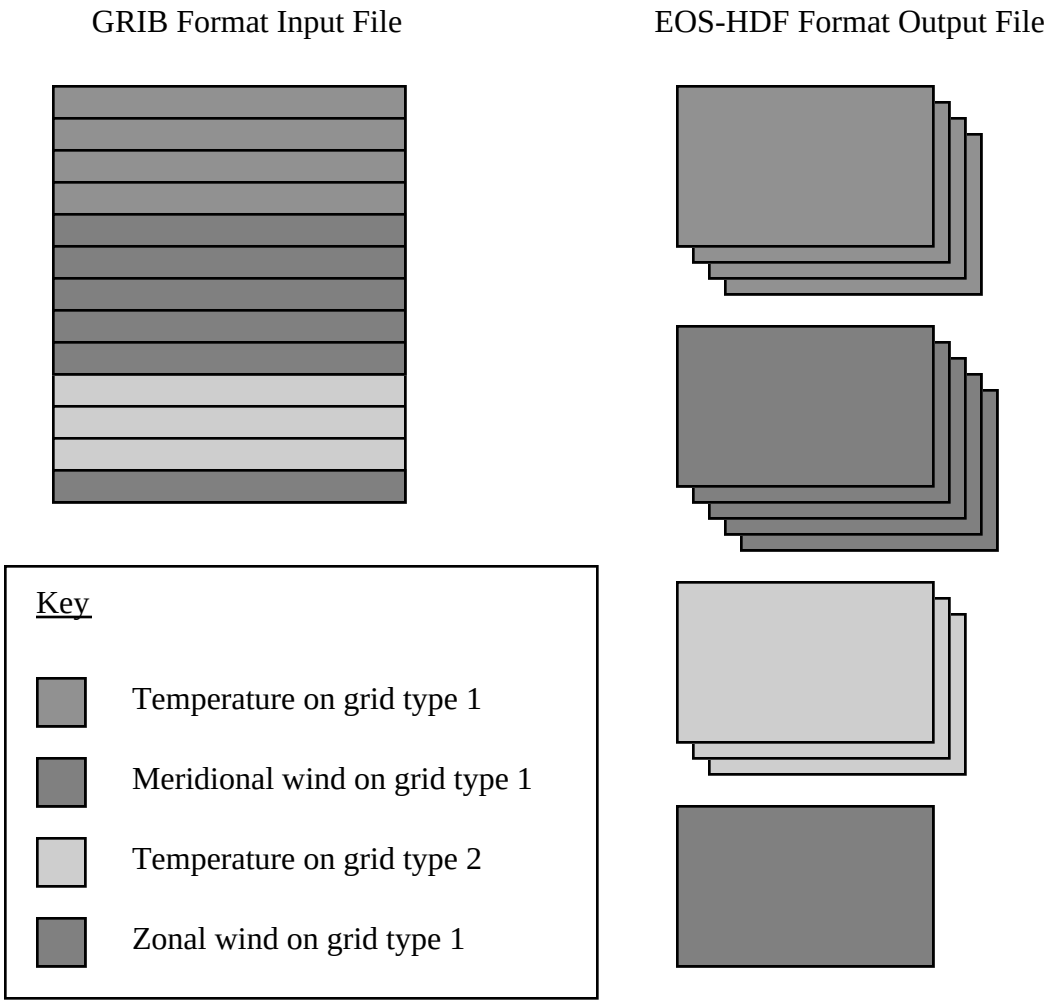

Figure A-5.1 Mapping of GRIB Formatted Records to HDF Science Data Sets

Thus a single HDF file would be composed of the following:

- Core metadata as an HDF attribute (named coremetadata.0..9)
- Product specific metadata as an HDF attribute (named productspecific.0..9)
- Structural metadata as an HDF attribute (named structuralmetadata.0..9)
- A number of SDS's

All of the metadata will be in PVL, written as an HDF attribute. It will be described by the use of configuration files. These configuration files will be written in ODL (Object Description Language). Proposed files for each of the types of metadata are presented in Appendices A to C of this document. The core metadata fields will be defined in DID311, but the examples given are based on a document provided for Internal Review. The structural metadata is also preliminary and is currently under review by the team developing EOS-HDF. For more information on ODL, refer to the SDP Toolkit 5 Users Guide for the ECS Project (333-CD-003-002). The final format is shown diagrammatically in Figure A-5.2. This shows the format of an EOS-HDF file with 8 SDS's with varying Z levels. In the structural metadata group, there would be 8 groups of structural metadata, one per SDS.

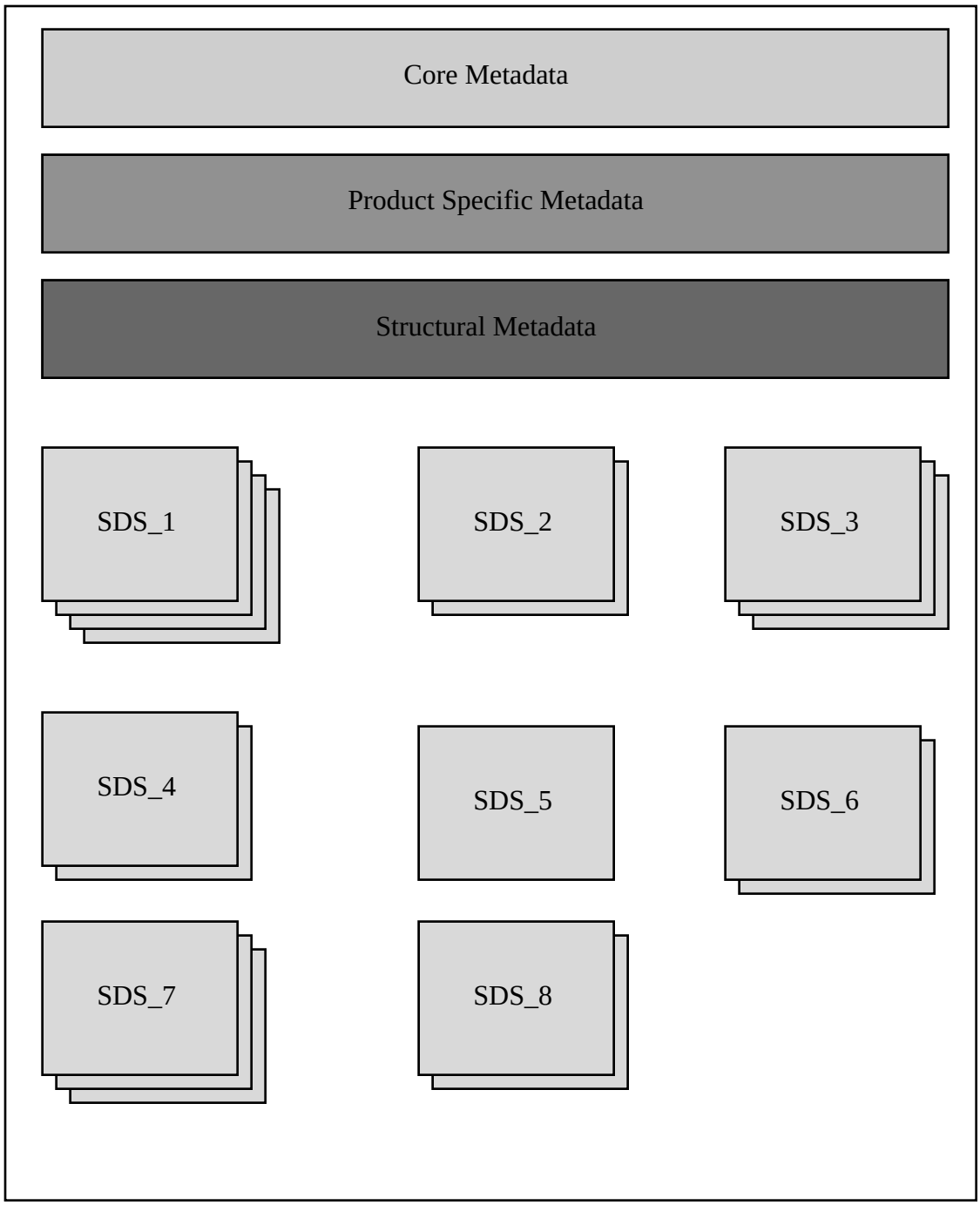

Figure A-5.2. Graphic Depiction of the Format of the Output EOS-HDF Data File

An important point which should be clarified for the structural metadata is how record specific data is related to a particular SDS. A number of assumptions have been made concerning the implementation in EOS-HDF. It is assumed that a single label can be applied to an HDF SDS. This label will uniquely identify an SDS. It is intended that a label associated with a particular SDS will be a standard abbreviation derived from ON-388, suffixed with _N (N=1..N). This suffix is to allow for the case where one parameter is represented on two different grids. Thus if we have two SDS's containing temperature data on two different grids, then these SDS's would have the labels TMP_1 and TMP_2. This gives easy information regarding the datatype presented in an SDS. The remaining metadata associated with an SDS is then associated with the SDS using the ODL GROUP and OBJECT structures. Each SDS in the output file is a group, and one of the objects within that group is the label. Each group has the generic name SDS_N (N=1..N). The remaining objects describe the metadata associated with an SDS, such as the projection, bounding co-ordinates (and other geolocation information) and axis labels. The only real point of note is the labels associated with the z-dimension. If the original GRIB format file contains 3 records containing geopotential height on the same grid but at different atmospheric levels, these records would be put into a single SDS as described above. Within the metadata associated with the group, a number of labels associated with the z dimension have been specified. This utilizes the idea of having a class associated with an object. It allows a group to have a number of the same object specified within a group (in this case the object is called ZDimensionLabel). However, currently the SDP Toolkit which will be used for this work does not support dynamic values of classes. Therefor it is necessary to define a maximum number of atmospheric levels. This has been set to 50 for the purposes of this work. From an analysis of a number of NMC GRIB format files, this appears to be ample at the current time. Thus we now have structural metadata which identifies the number of SDS's in the output file, and associates metadata for the SDS. A user can then identify a particular SDS they are interested in by specifying the parameter name, projection, co-ordinates and an atmospheric level. As an example, consider a GRIB file containing 3 records of relative humidity at 750hPa, 500hPa and at the tropopause. A subset of the filled structural metadata written in PVL might look like the following.

```
GROUP = SDS_1;
     SDS_LABEL = "R H";
     XDimensionSize = 65;
     XDimensionLabel = "Longitude";
     YDimensionSize = 65
     YDimensionLabel = "Latitude";
     ZDimensionSize = 3;
     ZDimensionLabel.class1 = "750 hPa atmospheric level";
     ZDimensionLabel.class2 = "500 hPa atmospheric level";
     ZDimensionLabel.class3 = "Tropopause";
     Projection = "Polar Stereographic";
     LatitudeofFirstGridPoint = 0;
     LongitudeofFirstGridPoint = 240000;
     GridOrientation = 0;
     XDirectionGridLength = 381;
     YDirectionGridLength = 381;
```

```
   ProjectionCenter = 1;
END_GROUP = SDS_1;
```

A.4.3 User Comment Document

See A-1.4.1. above.

Appendix B. Mandatory Metadata

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B.1 Introduction

This appendix specifies the metadata which are mandatory for different categories of product managed by ECS. The metadata attributes are taken directly from the data dictionary in the first part of this document.

The specification of mandatory metadata has been approached, with impetus from the DMWG meeting of summer 1995, in terms of 3 categories of data product; those having full, intermediate and limited requirements for services. This is done in recognition of the fact that to demand a full set of attributes for all data collections in ECS is unnecessary and possibly very costly for migrated data sets. Equally, to make all or most attributes optional would allow the possibility of having valuable data set not fully described and therefore inadequately documented and serviced (see Table B.1 following for a summary from DMWG meeting).

The categories of data product in relation to the amount of level of metadata support required are defined as follows:

Full level of metadata is required for products generated within EOSDIS (e.g. levels 1-4).

Intermediate level of metadata is required for products generated outside of EOSDIS but used within EOSDIS (ancillary, level 0, campaign, LandSat 7, TRMM). It could also be applied to V0 data sets migrated to ECS and reformatted to HDF-EOS.

Limited level of metadata is applied to all other (e.g. V0 data sets migrated with no format or other change).

The approach to specifying which individual attributes should be mandatory is to have the standard list of all 'core' attributes for all 3 categories but changing the status of attributes for each class of product. The status of each attribute may be mandatory, mandatory if applicable or optional; and attribute status is progressively tightened the as we move from limited to full. This means that , for example, a data set in the 'limited' class can have all metadata - but it need have only a bare minimum.

Inputs to the decision of the status of attributes comes from four sources:

- the status of GCMD/DIF attributes (where used).
- the status of FGDC attributes (where used).
- the need to provide attributes which support certain services.
- engineering judgment as to the suitability of attribute within each class.

The major service is the sophistication of the search and the amount of supporting metadata which can be retrieved. However, two other services are significant:

1) subset/subsample/display of products requires structural metadata plus map projection information.
2) navigation from displayed granules to related data objects require the maintenance of links in the metadata to these objects.

Table B.1 Summary of DMWG Meeting Defining Guidance for Levels of Metadata by View/Pyramid Layer

"PYRAMID" Service	**Full Set of Attributes to Provide Material for Service**	**Intermediate**	**Limited**
Directory (Searchable collection)	DIF+ ≤125 from core	DIF	DIF
Guide Documentation	V0 Guide + Other Docs (ATBDS) (Excluding docs in other services)	V0 Guide set of attributes on-line	Data producer provided documentation - h/c?
Inventory Locality Parameter Source Inv characteristic Contract	Full searchable parameters from CMS.	V0 system level V0 IMS populated valids	DIF - i.e. no inv
	Inventory - DAAC/Instrument specific of V0 IMS (local)	Inventory - DAAC/Instrument specific of V0 IMS (local)	
Algorithm	All CMD DAP module content	Source code and documents (external?)	None or minimum document description
Product History	Text + granule level as per CMS module (?)	Textual description at collection level	None
QA	Granule level - full? (history) Bob Lutz	Granule level - No history (sys level)	Collection level or none
Summary Stats	? see QA	?	None
Browse	Granule level	Sample for whole collection	None
Reference paper	List + document content on line	List of citations on-line	None
Levels 0 - n Granule Manipulation	Services applicable to HDF-EOS	V0 services	None

The Table B.2 indicates at a high level the services supported by groups of metadata attributes. This applies to both release A and B.

Table B.2 High level Association Between Metadata and Services

Service	Metadata Modules (Classes) Required
temporal search (granule level)	Temporal
spatial search (granule level)	Spatial
search on other granule characteristics	Granule, DataOriginator
temporal search (collection levels)	Temporal, Spatial (SpatialKeywordClass)
spatial search (collection level)	Spatial
search on other collection characteristics	Collection, DataOriginator, DataOrganization Delivered Algorithm Package
subset/subsample/display	Spatial (Map Projection), Collection (StructuralMetadata)
documentation	Document, Collection, DataOriginator, Spatial, Temporal, Contact
navigation between data types	...various pointers...

Further details of services are found in the summary tables and in individual sections.

B.2 Interpretation of Information

The notation used in the body of this appendix is Bacchus normal form (BNF). Section B.7 of this appendix describes how to read it. The BNF usage is taken directly from the FGDC standard in terms both of the syntax and, where FGDC attributes are used, the production rules themselves for attribute selection.

The attributes in **bold**, both in the summary tables (Section B.3) and in the BNF (Sections B.4, B.5 and B.6) indicate compound definitions which are decomposed further in the compound definitions (Section B.6).

All attributes ending with the term ...Pointer implies to a data object further specified in Appendix A rather than an individual attribute. The data producer has responsibility in most cases to produce the content of the instance of the data object pointed to. Pointers themselves provide navigation out of the database to the archived data objects.

Explanatory notes are in italics.

These lists refer to the population of metadata, rather than the distribution.

Those attributes added by ECS relate mostly to the navigation needs.

B.3 Summary Tables

This section presents a summary of Sections B.4 and B.5 showing for collection and granule levels, the 3 categories, sources of population and services. Details to an individual attribute level are found in the BNF statements in Dections 4.0 through 6.0. The tables use only the highest level

BNF attributes and classes. The lower level breakdowns of class/compound definitions are not represented in tabular form because of the loss of structure and the fact that the lower level BNF classes do not change status between categories; i.e. the change in attribute status is at the highest level only.

Table B.3 Summary Status of Collection Level Attributes (1 of 2)

Attribute	Source	Limited	Inter-mediate	Full	Service Provided
LongName	producer (3)	mandatory	mandatory	mandatory	search/retrieve (1)
ShortName	producer	mandatory	mandatory	mandatory	search/retrieve
VersionID	producer	mandatory	mandatory	mandatory	search/retrieve
CollectionDescription	producer	mandatory	mandatory	mandatory	search/retrieve
BoundingRectangle	producer	mandatory	mandatory	mandatory	spatial search
Temporal	producer	mandatory	mandatory	mandatory	temporal search
Archive Center	DAAC (4)	mandatory	mandatory	mandatory	search/retrieve
Processing Center	DAAC	if applicable	if applicable	mandatory	search/retrieve
Contact	producer	mandatory	mandatory	mandatory	retrieve
MaintenanceandUpdateFrequency	producer	mandatory	mandatory	mandatory	search/retrieve
DisciplineKeyword	producer	mandatory	mandatory	mandatory	search/retrieve
TopicKeyword	producer	mandatory	mandatory	mandatory	search/retrieve
ControlledParameterKeyword	producer	mandatory	mandatory	mandatory	search/retrieve
UncontrolledParameterKeyword	producer	mandatory	mandatory	mandatory	search/retrieve
Parameter	producer	optional	mandatory	mandatory	search/retrieve
CitationforExternalPublication	producer	if applicable	if applicable (7)	if applicable	retrieve
CollectionType + CollectionUse	producer	if applicable	if applicable	if applicable	search/retrieve

Table B.3 Summary Status of Collection Level Attributes (2 of 2)

Attribute	Source	Limited	Inter-mediate	Full	Service Provided
LocalityType + LocalityDescription	producer	if applicable	if applicable	if applicable	retrieve
Browse	producer/DSS (5)	if applicable	if applicable	if applicable	retrieve
RevisionDate	producer	if applicable	if applicable	if applicable	search/retrieve
AccessConstraints	producer	if applicable	if applicable	if applicable	retrieve
MultiTypeCollection	producer	if applicable	if applicable	if applicable	search/retrieve
ProcessingLevelID+ProcessingLevelDescription	producer	optional	if applicable	mandatory	search/retrieve
QACollectionStats	producer	optional	mandatory	mandatory	search/retrieve
Review	producer	optional	if applicable	if applicable	search/retrieve
SuggestedUsage	producer	optional	optional	optional	retrieve
CollectionState	producer	optional	mandatory	mandatory	search/retrieve
SpatialKeyword	producer	optional	mandatory	mandatory	search/retrieve
TemporalKeyword	producer	optional	mandatory	mandatory	search/retrieve
DataOrganization(6)	producer	optional	if applicable	mandatory	retrieve/subset/subsample/display of granule (2)
DataOriginator	producer	optional	mandatory	mandatory	search/retrieve
DeliveredAlgorithmPackage	producer	optional	if applicable	mandatory	retrieve
Guide	producer	optional	mandatory	mandatory	search/retrieve
ReferencePaper	producer	optional	if applicable	mandatory	search/retrieve
Spatial	producer	optional	if applicable	if applicable	spatial search
StorageMedium	producer	optional	optional	optional	retrieve
EndsatPresentFlag	DSS	if applicable	if applicable	if applicable	retrieve
AdvertismentPointer	DSS/producer	mandatory	mandatory	mandatory	navigate
QualitytextCommentPointer	DSS/producer	if applicable	if applicable	if applicable	navigate
UserCommentDocumentPointer	DSS/producer	if applicable	if applicable	if applicable	navigate
ValidationDocumentPointer	DSS/producer	if applicable	if applicable	if applicable	navigate

Notes:
(1) search/retrieve means that the attribute is used to search for the collection and that the collection information is retrieved.
(2) this metadata supports granule level services but is held at the collection level.
(3) producer means the data producer, most often being the IT or PI involved with the instrument processing software and algorithms; but could be other knowledgeable people.
(4) DAAC in this context means operational staff at the DAAC who assist in setting up the metadata and documents.
(5) DSS is data server subsystem and means that this subsystem provides the data object pointers (probably URs or URLs) which attached the database tables to the archive.
(6) some sensor characteristics change rapidly and are updated routinely by the PGE rather than the producer.
(7) 'if applicable' means 'mandatory if applicable' in line with FGDC definitions.

Table B.4 Summary of Granule Level Attributes

Attribute	Source	Limited	Inter-mediate	Full	Service Provided
Shortname	producer	optional	mandatory	mandatory	none
InputPointer	PGE(1)	optional	optional	mandatory	lineage of product granule
AncillaryInputPointer	PGE	optional	optional	if applicable	lineage of product granule
QACollectionStats	PGE	optional	optional	mandatory	search/retrieve
ReprocessingActual	PGE	optional	optional	mandatory	search/retrieve
ReprocessingPlanned	PGE	optional	optional	mandatory	search/retrieve
SizeMBECSDataGranule	PGE	optional	mandatory	mandatory	retrieve
QAStats	PGE	optional	optional	mandatory	search/retrieve
SpatialDomainContainer	PGE	optional	mandatory	mandatory	spatial search
[**RangeDateTime** | **SingleDateTime**] (2)	PGE	optional	mandatory	mandatory	temporal search
ParameterValue	PGE	optional	if applicable	if applicable	search/retrieve of product specific
BrowsePointer	DSS/producer	optional	if applicable	if applicable	navigate to browse (4)
QAGranulePointer	DSS/producer	optional	if applicable	if applicable	navigate to QA file (4)
ProcessingHistoryPointer	DSS/DPS (3)	optional	optional	mandatory	navigate to processing history file (4)
GranulePointer	DSS/producer	optional	mandatory	mandatory	navigate to product granule itself (4)
OrbitParametersPointer	DSS/DPS	optional	optional	if applicable	navigate to file used in processing (4)

Notes**:**
(1) PGE is the product generation executive - processing software/algorithms generating the product granules.
(2) BNF - an 'or' showing that one or the other time attribute must be used.
(3) provides pointer / provides content. DPS is data processing subsystem which manages PGEs as well as orbit files and the generation of the processing history file.
(4) the pointer is found in the inventory record and provides a means of retrieving the archived object.

B.4 Collection Level Metadata Specification

The following defines the production rules for the population of the ECS metadata for collections deemed to require limited, intermediate and full metadata content.

B.4.1 Metadata Requirement for Products in Limited Class

The aim here is to provide minimum cataloging of product data sets while maintaining a reasonable level of service. The 'skinny DIF' is used as a baseline for mandatory attributes to which is added limited time and space measures.

Services available on a collection having these attributes populated would be:

Service	Attributes/classes/modules used
spatial search	**BoundingRectangle**
keyword search	discipline, topic, controlled and uncontrolled keywords
temporal search	**Temporal**
search on other attributes	names, center etc.
Navigation	..Pointers

Other attributes provide descriptive information.

collection metadata (limited) =
LongName + *this first set mandatory in all categories*
ShortName +
VersionID +
CollectionDescription +
BoundingRectangle +
Temporal +
Archive Center +
0{Processing Center}1 + *if applicable but grouped with archive center.*
Contact + *for archive center.*
MaintenanceandUpdateFrequency +
DisciplineKeyword +
TopicKeyword +
ControlledParameterKeyword +
UncontrolledParameterKeyword +
(**Parameter**) + *optional but grouped here with other keywords.*

this set mandatory if applicable
0{CitationforExternalPublication}1 +
0{CollectionType + CollectionUse}n +
0{LocalityType + LocalityDescription}1 + used *with granule level locality value.*
0{**Browse**}n +
0{RevisionDate}n +
0{AccessConstraints}1 +

0{**MultiTypeCollection**}1 + *usually for multi-type collections.*

this set optional
(ProcessingLevelID+ProcessingLevelDescription) +
(**QACollectionStats**) +
(**Review**) +
(SuggestedUsage) +
(CollectionState) +
(SpatialKeyword) +
(TemporalKeyword) +
(**DataOrganization**) +
(**DataOriginator**)+
(**DeliveredAlgorithmPackage**) +
(**Guide**) +
(**ReferencePaper**) +
(**Spatial**) +
(StorageMedium)

The following metadata attributes are provided by the ECS system and relate to the collection.

0{EndsatPresentFlag}1 +

AdvertismentPointer+

0{QualitytextCommentPointer}n + *QA policy driven*

0{UserCommentDocumentPointer}1 +

0{ValidationDocumentPointer}1 *QA policy driven*

B.4.2 Metadata Requirement for Products in Intermediate Class

The aim here is to provide substantial cataloging of product data sets (especially when taken with intermediate granule level attributes) and a full set of services. The DIF is used as a baseline for mandatory attributes.

Services available on a collection having these attributes populated would be:

Service	Attributes/classes/modules used
spatial search	**Spatial** module
keyword search	discipline, topic, controlled and uncontrolled keywords
temporal search	**Temporal** module, temporal keyword
search on other attributes	names, center, originator, status, processing level & **QACollectionStats**
guide information	**Guide**
subset/subsample/display of granules	**DataOrganization**(Structural)
Navigation	..Pointers

Other attributes provide descriptive information.

collection metadata (intermediate) =

this set mandatory

LongName +
ShortName +
VersionID +
CollectionDescription +
BoundingRectangle +
Temporal +
Archive Center +
0{Processing Center}1 + *if applicable but grouped with archive center.*
Contact +
MaintenanceandUpdateFrequency +
DisciplineKeyword +
TopicKeyword +
ControlledParameterKeyword +
UncontrolledParameterKeyword +
Parameter + *mandatory*

(this set mandatory for intermediate)

QACollectionStats +
CollectionState +
1{SpatialKeyword}n +
1{TemporalKeyword}n +
Guide +
DataOriginator +

this set mandatory if applicable

0{CitationforExternalPublication}1 +
0{CollectionType + CollectionUse}n +
0{LocalityType + LocalityDescription}1 + *with granule level locality value.*
0{**Browse**}n +
0{RevisionDate}n +
0{AccessConstraints}1 +
0{**MultiTypeCollection**}1 + *usually for multi-type collections.*

(this set mandatory if applicable for intermediate case)

0{ProcessingLevelID+ProcessingLevelDescription}1 +
0{**Review**}n +
0{**Spatial**}n +
0{**DeliveredAlgorithmPackage**}1 +
0{**ReferencePaper**}1 +
0{**DataOrganization**}1+ *applicable for HDF formatted files.*

(*optional)*

(SuggestedUsage) +
(StorageMedium)

The following metadata attributes are provided by the ECS system and relate to the collection.

0{EndsatPresentFlag}1 +

0{QualitytextCommentPointer}n + *QA policy driven*

0{UserCommentDocumentPointer}1 +

0{ValidationDocumentPointer}1 *QA policy driven*

B.4.3 Metadata Requirement for Products in Full Class

The aim here is to provide maximum cataloging of product data sets (especially when taken with full granule level attributes) and a comprehensive set of services. All attributes applicable at the collection level from the core set are used.

Services available on a collection having these attributes populated would be:

Service	Attributes/classes/modules used
spatial search	**Spatial** module
keyword search	discipline, topic, controlled and uncontrolled keywords and collection specific parameters
temporal search	**Temporal** module, temporal keyword
search on other attributes	names, center, originator, status, processing level & **QACollectionStats**
guide information	**Guide**
retrieval of delivered algorithm package	**DeliveredAlgorithmPackage**
reference paper search and retrieval	**ReferencePaper**
data organization search and retrieval.	**DataOrganization**
subset/subsample/display of granules	**DataOrganization**(Structural)
Navigation	..Pointers

Other attributes provide descriptive information.

collection metadata (full) =

this set mandatory for all cases

LongName +
ShortName +
VersionID +
CollectionDescription +
BoundingRectangle +
Temporal +
Archive Center +
Processing Center
Contact +

MaintenanceandUpdateFrequency +
DisciplineKeyword +
TopicKeyword +
ControlledParameterKeyword +
UncontrolledParameterKeyword +
Parameter +

(this set mandatory for intermediate)

QACollectionStats +
CollectionState +
1{SpatialKeyword}n +
1{TemporalKeyword}n +
Guide +
DataOriginator +

(mandatory for full case)

DataOrganization +
ReferencePaper +
DeliveredAlgorithmPackage +
ProcessingLevelID+ProcessingLevelDescription +

this set mandatory if applicable in all cases

0{CitationforExternalPublication}1 +
0{CollectionType + CollectionUse}n +
0{LocalityType + LocalityDescription}1 + *with granule level locality value.*
0{**Browse**}n +
0{RevisionDate}n +
0{AccessConstraints}1 +
0{**MultiTypeCollection**}1 + *usually for multi-type collections.*

(mandatory if applicable for intermediate case)

0{**Review**}n +
0{**Spatial**}n +

(no additional mandatory if applicable for full case)

(*optional)*

(SuggestedUsage) +
(StorageMedium)

The following metadata attributes are provided by the ECS system and relate to the collection.

ProductionPlan

0{EndsatPresentFlag}1 +

0{QualitytextCommentPointer}n + *QA policy driven*

0{UserCommentDocumentPointer}1 +

0{ValidationDocumentPointer}1 *QA policy driven*

B.5 Granule Level Metadata

B.5.1 Metadata Requirement for Products in Limited Class

All attribute applicable to granules are optional for products in the limited class. This means that inventory records need not exist for these data sets.

granule metadata (limited) =
(Shortname)+
(SizeMBECSDataGranule) +
(**SpatialDomainContainer)** +
([**RangeDateTime** | **SingleDateTime**])+
0(SensorCharacteristicValue)n +
(AncillaryInputPointer) +
0(InputPointer)n + *see note*
(**QACollectionStats) +**
(ReprocessingActual) +
(ReprocessingPlanned) +
(QAStats) +
1(ParameterValue)n *product specific attributes described at collection level*

Note ; this attribute does not appear in the dictionary. It is derived from the self reference on ECSDataGranule.

B.5.2 Metadata Requirement for Products in Intermediate Class

For products in the intermediate class, a basic set of granule level attributes must be provided. Services available related to these metadata are search on time and space using whatever space measurement is provided. All client end searches are translated in the Data Server subsystem to the spatial data type appropriate to the collection. Pointers provide navigation out of the database into archive data objects.

granule metadata (intermediate) =
mandatory
Shortname +
SizeMBECSDataGranule +
SpatialDomainContainer +
[**RangeDateTime** | **SingleDateTime**] +
optional
0(SensorCharacteristicValue)n +

(AncillaryInputPointer) +
0(InputPointer)n + *self reference in model referring to granule inputs*
(**QACollectionStats) +**
(ReprocessingActual) +
(ReprocessingPlanned) +
(QAStats) +
1(ParameterValue)n *product specific attributes described at collection level*

provided by ECS in inventory record for each granule (mostly if applicable).

0{BrowsePointer}1+ *points to browse granule produced with product granule*
0{QAGranulePointer}1 + *points to QA granule produced with product granule*
0{ProcessingHistoryPointer}1 *points to PH file recorded during processing (ECS supplied)*
GranulePointer *points to product granule*
0{OrbitParametersPointer}1 *points to orbit parms file used in product generation*

Special note: for ancillary data processed to a new format inside ECS, **QAStats** and **QACollectionStats** are mandatory**.**

B.5.3 Metadata Requirement for Products in Full Class

For products in the full class, a significant suite of attributes is required. Services available related to these metadata are search on time and space using whatever space measurement is provided. All client end searches are translated in the Data Server Subsystem to the spatial data type appropriate to the collection. Search and retrieval of production history, browse, QA files, orbit parameter files, inputs and ancillary inputs are all allowed. Interrogation of inventoried QA measures and reprocessing status is allowed. Pointers provide navigation out of the database into archive data objects.

granule metadata (full) =

mandatory
ShortName +
1{InputPointer}n + *self reference in model referring to granule inputs*
0{AncillaryInputPointer}1 + *this attributes points to dynamic ancillary data*
QACollectionStats +
ReprocessingActual +
ReprocessingPlanned +
SizeMBECSDataGranule +
QAStats +
SpatialDomainContainer +
[**RangeDateTime** | **SingleDateTime**]+
optional

0(SensorCharacteristicValue)n +
(1{ParameterValue}n) *product specific attributes described at collection level*

provided by ECS in inventory record for each granule (mostly mandatory).

0{BrowsePointer}1+ *points to browse granule produced with product granule*
0{QAGranulePointer}1 + *points to QA granule produced with product granule*
ProcessingHistoryPointer + *points to PH file recorded during processing (ECS supplied)*
GranulePointer + *points to product granule*
OrbitParametersPointer *points to orbit parms file used in product generation*

B.5.4 Metadata Requirement for Browse Products

Browse granules are assumed to be produced alongside regular product granules. The attribute set required for browse products are not distinguished between product categories.

granule metadata (browse) =
Shortname +
BrowseDescription +
BrowseSize +
SpatialDomainContainer + *taken from granule*
[**RangeDateTime** | **SingleDateTime**] + *taken from granule*

The browse granule is assumed to be generated alongside the regular product granule. Hence the following will be available in the inventory and accessible with the browse.

GranulePointer
BrowsePointer
0{QAGranulePointer}1 *points to QA granule produced with product granule*

B.6 Compound Definitions

The following are BNF definitions of the attributes classes or groups shown in boldface in Sections B.4 and B.5.

Browse =
BrowsePointer +
BrowseDescription +
BrowseSize

Parameter =
1{ParameterName +
ParameterDescription +

0{ParameterValue}1+*if relevant to whole collection*
ParameterDataType +
0{**PhysicalParameterDetails}1**}n

Parameter class could be used as a means of documenting all parameters in the product - i.e. a distillation of the data product specification for the collection. This would provide a highly focused search starting with discipline through topic, controlled and uncontrolled parameter (all GCMD fixed domain) to parameter.

PhysicalParameterDetails =
ParameterMeasurementResolution +
ParameterUnitsofMeasurement +
ParameterRange +
(ParameterValueAccuracy) +
(ParameterValueAccuracyExplanation)

MultiTypeCollection =
AggregationType +
AggregationRelationship +
AggregationValue

QACollectionStats =
[AutomaticQualityFlag |
OperationalQualityFlag |
ScienceQualityFlag] +
QualityFlagExplanation +
0{1{AutomaticQualityFlag}n +
1{OperationalQualityFlag}n+
1{ScienceQualityFlag}n}1

QAStats =
0{QAPercentInterpolatedData}n +
0{QAPercentMissingData}n +
1{QAPercentOutofBoundsData}n +

Review =
0{FutureReviewDate}1 +
0{ScienceReviewDate + ScienceReviewStatus}n +

DataOriginator =
DataOriginatorShortName +
DataOriginatorLongName +
[**FieldCampaign** |
NonInstrument |
Instrument]+
0{FieldCampaign}n +
0{NonInstrument}n +
0{Instrument}n

FieldCampaign =
CampaignName +
CampaignProjectStartDate +
CampaignProjectStopDate

Instrument = InstrumentName +
InstrumentType +
0{OperationMode}n +
NumberofSensors +
0{Platform}n +
0{Sensor}n

Noninstrument = NonInstrumentLongName +
NonInstrumentShortName +
NonInstrumentType +
0{ModelName}1+
0{ModelDescription}1 +
0{BoundaryData}1 +
0{DynamicStaticFlag}1

Platform = PlatformShortName +
PlatformLongName +
0{PlatformCharacteristicName +
PlatformCharacteristicUnit +
PlatformCharacteristicValue +
PlatformCharacteristicType}n

Sensor = SensorLongName +
SensorShortName +
SensorType +
0{SensorCharacteristicName +
SensorCharacteristicType +
SensorCharacteristicUnit +
SensorCharacteristicValue}n

rapid change in sensor characteristics is possible and allowed for through connection with inventory level database.

DeliveredAlgorithmPackage =
AlgorithmPackageAcceptanceDate +
AlgorithmPackageMaturityCode +
AlgorithmPackageVersion +
AlgorithmPackageName +
Delivery Purpose +
DateLastModified +
PGEInfo +
Software +

PGEInfo = DateLastModified +
PGEName +
PGEIdentifier +
PGEFunction +
1{PGEVersion}n +
DeliveryContentListPointer +
0{**AlgorithmDescription** +
0{ContextDiagramsPointer}1 +
ChangeLogPointer +
CompileInfoPointer +
TestSiteConfigPointer +
PGEConfigFilePointer +
0{PGEErrorLogPointer}1

AlgorithmDescription = DescriptionType +
1(**Document** +
Author)9 +
(ProgrammersGuidePointer) +
(SystemDescriptionPointer) +
ATBDPointer + *mandatory*
(SWDevelopmentStandardPointer) +
(ProcessingFileDescriptionPointer) +
(DetailedDesignPointer) +
(TestPlanPointer) +
(PerformanceTestResultsPointer) +
(OperationsManualPointer)

Document = DocumentCreated +
DocumentUpdated +
DocumentVersion +
Title

Author = Author Name +
AuthorAffiliation +
Contact

Contact = 0{**ContactPerson**}1 +
0{ContactJobPosition}1 +
0{ContactOrganizationName}1 +
(ContactInstructions) +
(HoursofService) +
Role +
1{**ContactAddress**}n +
0{ElectronicMailAddress}n +
0{TelephoneNumberType +
TelephoneNumber}n

ContactPerson = ContactFirstName+
ContactMiddleName +
ContactLastName
ContactAddress =
0{AddressType}n +
City +
StateProvince +
PostalCode +
(Country)

Software = ScSwSourceCodePointer +
ScSwScriptPointer +
LinkandCompileScriptPointer +
0{**TestSWContainer**}1

TestSWContainer = TestSourceCodePointer +
InputContainer +
TestScriptPointer +
(OutputComparisonContainer)

InputContainer = MetadataConfigurationFilePointer +
ProcessControlParametersandResourceFilePointer +
(InstrumentScienceDataPointer) +
(InstrumentEngineeringDataPointer) +
(PlatformAncillaryDataPointer) +
(ExternalDataPointer) +
(CalibrationFilesPointer)
first two of these mandatory

OutputComparisonContainer = ResultsTempFilePointer +
ResultsProductFilePointer +
ResultsReportPointer

Guide =
Document +
Author +
DataCenter + *set by DAAC staff*
GuideName +
DataSetGuidePointer +
0{DataCenterGuidePointer}1 + *mandatory if one does not already exist*
0{ProjectCampaignGuidePointer}1 + *mandatory if one does not already exist*
0{SensorInstrumentGuidePointer }1 + *mandatory if one does not already exist*
0{SourcePlatformGuidePointer}1 + *mandatory if one does not already exist*
(RegionalAreaDefinitionGuidePointer)

ReferencePaper =
Document +
Author +

DateofReferencePaperPublication +
ReferencePaperreference +
ReferencePaperType +
AbstractPointer +
AccessInstructions +
[StandAloneDocumentPointer |
JournalArticleName + JournalArticlePointer]

ProductionPlan = *provided by the ECS system*
DAACName +
Description +
ProductionPlan EndDate +
ProductionPlan StartDate +
ProductionPlan Forecast +
ProductionPlan Description +
PlannedDataSets +
ProductionPlanPointer

Spatial =
SpatialCoverageType **+**
SpatialDomainContainer +
0{VerticalSpatialDomainType}1 +
OrbitalModelName +
CoordinateSystem

SpatialDomainContainer =
[**1{Point}n** |
GPolygonContainer |
1{Circle}n |
OrbitCalculatedSpatialDomain |
BoundingRectangle] +

one of these must be used . The search services within ECS are not dependent on the spatial type used since translators from the type used to gpolygon (in which searches are framed) will be incorporated (e.g. PGE calculated bounding rectangle to gpolyon). However, search accuracy will depend on the suitability and accuracy of the spatial type chosen to represent the granules in any one collection.

(0{ZoneIdentifier}n) +
0{VerticalSpatialDomainValue}n +
(0{LocalityValue}n)

these are additional spatial statments which are optional and additional to the basic choice otfspatial descriptors.

CoordinateSystem = 1{HorizontalCoordinateSystem}n +
0{VerticalCoordinateSystem}n

HorizontalCoordinateSystem = [GeographicCoordinateSystem |
1{PlanarCoordinateSystem}n |
LocalCoordinateSystem] +
0{GeodeticModel}1

GeodeticModel = DenominatorofFlatteningRatio +
EllipsoidName +
0{HorizontalDatumName}1+
SemiMajorAxis

GeographicCoordinateSystem =
LongitudeResolution +
LatitudeResolution +
GeographicCoordinateUnits

PlanarCoordinateSystem =
[**MapProjection** |
GridCoordinateSystem | **LocalPlanarCoordinateSystem**] +
PlanarCoordinateInformation

MapProjection = MapProjectionName +
MapProjectionPointer
the parameters in this spec. must be filled out as applicable. They are used to support the subset/subsample and display services.

GridCoordinateSystem =
GridCoordinateSystemName

LocalPlanarCoordinateSystem =
LocalPlanarCoordinateSystemDescription +
LocalPlanarGeoreferenceInformation

PlanarCoordinateInformation =
PlanarCoordinateEncodingMethod +
PlanarDistanceUnits +
[**CoordinateRepresentation** |
DistanceandBearingRepresentation]

CoordinateRepresentation =
AbscissaResolution +
OrdinateResolution

Distance&BearingRepresentation =
BearingReferenceMeridian
BearingResolution
BearingUnits
DistanceResolution
BearingReferenceDirection

LocalCoordinateSystem =
LocalCoordinateSystemDescription +
LocalGeoreferenceInformation

VerticalCoordinateSystem = AltitudeSystemDefinition +
DepthSystemDefinition

AltitudeSystemDefinition = AltitudeDatumName +
AltitudeDistanceUnits +
AltitudeEncodingMethod +
1{AltitudeResolution}n

DepthSystemDefinition = DepthDatumName +
DepthDistanceUnits +
DepthEncodingMethod +
1{DepthResolution}n

BoundingRectangle = EastBoundingCoordinate +
NorthBoundingCoordinate +
SouthBoundingCoordinate +
WestBoundingCoordinate

Circle = Center latitude +
Center longitude +
RadiusValue +
RadiusUnits

GPolygonContainer = 1{**Polygon** + ExclusionGRingFlag}n

Polygon =
3{GRingPointSequenceNo + GRingPointLatitude + GRingPointLongitude}n

Point = PointLatitude + PointLongitude

OrbitCalculatedSpatialDomain = 0{PathNumber}1 +
[OrbitNumber |
StartOrbitNumber +
StopOrbitNumber]

Temporal =
0{MultipleDateName}1 +
DateType +
TemporalRangeType +
TimeType +
PrecisionofSeconds +
[**RangeDateTime** | **RegularPeriodic** | **SingleDateTime**]

RangeDateTime = RangeBeginningDate +
RangeBeginningTime +
RangeEndingDate +
RangeEndingTime

RegularPeriodic = PeriodName +
Period1stDate +
Period1stTime +
PeriodCycleDurationUnit +
PeriodCycleDurationValue +
PeriodDurationUnit +
PeriodDurationValue

SingleDateTime = CalendarDate +
TimeofDay

DataOrganization =
0{IndirectReference}1 +
NumberOfTypesOfCSDT +
1{CSDT + Implementation + NumberOfObjects +
(DataStructureComments)}NumberOfTypesOfCSDT +
StructuralMetadataPointer

the object pointed to contained the structural metadata specification which must be filled out by each producer for their products. This is not part of DB and will probably be implemented as a PVL driven input to granules (c.f. MCF) so that each granule contains the structural metadata to allow services to be performed.

B.7 Explanation of BNF

Production Rules

A production rule specifies the relationship between a compound element, and data elements and other (lower-level) compound elements. Each production rule has a left side (identifier) and a right side (expression) connected by the symbol "=", meaning that the term on the left side is replaced by or produces the term on the right side. Terms on the right side are either other compound elements or individual data elements. By making substitutions using matching terms in the production rules, one can explain higher-level concepts using data elements.

The symbols used in the production rules have the following meaning:

Symbol	Meaning
=	is replaced by, produces, consists of
+	and
[|]	selection-select one term from the list of enclosed terms (exclusive or). Terms are separated by "|".
m{}n	iteration - the term(s) enclosed is(are) repeated from "m" to "n" times.
()	optional - the term(s) enclosed is(are) optional

Examples:

a=b+c "a consists of b and c"
a=[b|c] "a consists of one of b or c"
a=4{b}6 "a consists of four to six occurrences of b"
a=b+(c) "a consists of b and optionally c"

Interpreting the production rules:

- The terms bounded by parentheses, "(" and ")", are optional and are provided at the discretion of the data producer. If a producer chooses to provide information enclosed by parentheses, the producer shall follow the production rules for the enclosed information. For example, if the producer decides to provide the optional information described in the term:

  (a+b+c)

  the producer shall provide a and b and c. Only for terms bounded by parentheses does the producer have the discretion of deciding whether or not to provide the information.

- The variation among the ways in which geospatial data are produced and distributed, the fact that all geospatial data do not have the same characteristics, and the issue that all details of data sets that are in work or are planned may not be decided, caused the need to express the concept of "mandatory if applicable". This concept means that if the data set exhibits (or, for data sets that are in work or planned, it is known that the data set will exhibit) a defined characteristic, then the producer shall provide the information needed to describe that characteristic. This concept is described by the production rules:

  0{ term }1

  or 0{ term }n

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Appendix C. Product Specific Data

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C.1 Introduction

Tables C-1, C-2a and C-2b contain product specific metadata mapped to the core ECS metadata. The product specific metadata are grouped against servers previously established (see Section 3.5 of this document). This means that groups of products similar in science terms are grouped and assumed to require similar product specific attributes. The analysis from which these product specific attributes were derived was undertaken during 1994/5 and consisted of an analysis of release A products from CERES, LIS etc.

There are three stages to this product specific work:

1.≠ attributes derived from early release A product analysis and used in core model development

2.≠ attributes derived from later release A product analysis to validate the model, provide server specific domains and alias information and define server specific search attributes

3.≠ attributes derived from release B work to further validate the model, provide server specific domains and alias information and define server specific search attributes

This appendix represents the outcome of the first and second of these activities.

The product specific attributes are mapped in two distinct senses. First where metadata were analyzed for purposes of constructing the core metadata set and therefore map directly to core attributes (but often with different names), and secondly attributes which were judged sufficiently specific to warrant designation as non-core attributes

C.1.1 Mapping to Core Attributes (C-1)

The work done with release A and Version 0 product in constructing the model is reflected through the mapping of certain domains and aliases to the core attributes. Table C-1 shows these. Where a domain exists, this indicates that server utilizes this attribute. It also indicates that the attribute is server specific in respect of the domain which then overrides the core domain range (if one exists). This does not however imply that the server (and the products within the server) do not use other core attributes (this is determined by the mandatory set - see appendix B of this document). The mapping of these values enables implementers to build suitable server specific constraints into the implemented tables.

C.1.2 Non Core Attributes (C-2)

Attributes derived from the analysis of these same products which did not warrant the addition of a core attribute are contained in the parameter class of the data model. This is a self describing class used to capture attributes and attribute values of several types. Parameter class can be used for:

- ≠ capturing the names, descriptions and data types of attributes which are to be used in addition to core attributes to search for the collection or instances of the granule. There are two caveats:

  a≠ Where the attribute has a value covering the entire collection, the value is included at some point with this collection metadata. Where the attribute applies to each granule (e.g. average sea surface temperature of each granule) then the value is supplied with other granule values.

  b≠ If the attribute is physical or geophysical, then this is described in the PhysicalParameterDetails Class.

- ≠ capturing the names, descriptions and data types of the content of the collection (i.e. generic granule content). This provides a data product description in metadata attribute form. Caveat 'a' above does not apply while caveat 'b' does.

Table C-2 contains attributes of the first type explained above (additional search capability) only. Additional to the attribute set (parameter name, data type, etc.) is a statement of the server to which the attribute set belongs. Also included is a statement of whether the attribute value is being supplied with each granule or at the collection level. This enables the implementers to build suitable table structures on a server by server basis as is appropriate.

C.2 Mapping of Server Specific Domains and Aliases to the Core Model (C-1)

This table is organized such that alternate pages contain the same server set while the attribute set advances every two pages. This enables the reader to view information for any one attribute by examing two consecutive pages and alternatively to view all information for one server by viewing alternate pages.

Table C-1. Mapping of Server Specific Domains and Aliases (1 of 10)

ATTRIBUTE	MODULE	CLASS	EDC_LANDSAT_LAND_SFC_VEG domain	EDC_LANDSAT_LAND_SFC_VEG alias	GSFC_TOMS_COMP domain	GSFC_TOMS_COMP alias	GSFC_AVHRR_LAND_SFC_VEG domain	GSFC_AVHRR_LAND_SFC_VEG alias	GSFC_TRMM domain	GSFC_TRMM alias	GSFC_VIRS_L0_L1 domain	GSFC_VIRS_L0_L1 alias	GSFC_CZCS_L0/L1 domain	GSFC_CZCS_L0/L1 alias	LARC_CERES_ERP domain	LARC_CERES_ERP alias	LARC_CERES_L0_L1 domain	LARC_CERES_L0_L1 alias	LARC_ERBE_ERP domain	LARC_ERBE_ERP alias	LARC_SCCP domain	LARC_SCCP alias	LARC_GTE domain	LARC_GTE alias	LARC_FIRE domain	LARC_FIRE alias	LARC_SAGE_ATMOS_DYN domain	LARC_SAGE_ATMOS_DYN alias	LARC_SAGE_ATMOS_COMP domain	LARC_SAGE_ATMOS_COMP alias
AccessConstraints						Access Level Required to Order Granule		Access Level Required to Order Granule																						
Collections_IDR	Collections_V1	SingleTypeCollection																												
AddressType	Contact_IDR	ContactAddress																				Guide								
Aggregation Type	Collections_V1	MultipleTypeCollection						General Parameter Category														Guide								
AlgorithmPackageName	DeliveredAlgorithmPackage_IDR	DeliveredAlgorithmPackage								Algorithm ID		Algorithm ID																		
AlgorithmPackageVersion	DeliveredAlgorithmPackage_IDR	DeliveredAlgorithmPackage								Algorithm Version		Algorithm Version																		
AltitudeDistanceUnits	LocalitySpatial_IDR	AltitudeSystemDefinition																			Kilometres				Meters	Spatial Resolution	Kilometers		Kilometers	
AltitudeResolution	LocalitySpatial_IDR	AltitudeSystemDefinition																			250				75		1		1	
NorthBoundingCoordinate	LocalitySpatial_IDR	BoundingRectangle																			90		0		45.99		80		80	
																									38					
CalendarDate	LocalityTemporal_IDR	SingleDateTime		Acquisition Date				Granule Revision date		Recording Date		Recording date		Pass time																
								Data product Revision date		Processing date		Processing date																		
ContactPerson	ContactFirstName	Contact_IDR						Guid		Name		Name							Guide		Guide							Guide		Guide
ContactInstructions	Contact_IDR	Contact		Operator Id				Guid											Guide		Guide							Guide		Guide
ContactJobPosition	Contact_IDR	ContactPerson						Guide											Guide									Guide		Guide
ContactLastName	Contact_IDR	ContactPerson						Guide		Name		Name							Guide		Guide							Guide		Guide
Contact_IDR	ContactPerson	ContactMiddleName						Guide		Name		Name							Guide		Guide							Guide		Guide
ContactOrganizationName	Contact_IDR	ContactOrganization						Guide		Organization		Organization							Guide		Guide							Guide		Guide
Country	Contact_IDR	ContactAddress						Guide											Guide		Guide							Guide		Guide

Table C-1. Mapping of Server Specific Domains and Aliases (2 of 10)

ATTRIBUTE	MSFC_LIS alias	MSFC_V0 domain	MSFC_V0 alias	MSFC_SMMR_L0_I1 domain	MSFC_SMMR_L0_I1 alias	MSFC_TSDIS domain	MSFC_TSDIS alias	MSFC_PR_L0_L1 domain	MSFC_PR_L0_L1 alias	MSFC_RADARS_L0_L1 domain	MSFC_RADARS_TAPES_L0_L1 alias	MSFC_RADAR_TMI_L0_L1 domain	MSFC_RADAR_TMI_L0_L1 alias	MSFC_PR_ATMOS_DYN domain	MSFC_PR_ATMOS_DYN alias	MSFC_TMI_ATMOS_DYN domain	MSFC_TMI_ATMOS_DYN alias	MSFC_LIS_ATMOS_DYN domain	MSFC_LIS_ATMOS_DYN alias	MSFC_SSMI_LAND_AUX domain	MSFC_SSMI_LAND_AUX alias	MSFC_TOVS_OCEAN_DYN domain	MSFC_TOVS_OCEAN_DYN alias	MSFC_SSMI_INSITU_ATMOS_DYN domain	MSFC_SSMI_INSITU_ATMOS_DYN alias	MSFC_SSMI_ATMOS_COMP domain	MSFC_SSMI_ATMOS_COMP alias	MSFC_SSMI_ATMOS_DYN domain	MSFC_SSMI_ATMOS_DYN alias
AccessConstraints			Restricted_Comments		Restricted_Comments																								
Collections_IDR																													
AddressType																													
AggregationType																													
AlgorithmPackageName							Algorithm ID		Algorithm ID		Algorithm ID																		
AlgorithmPackageVersion							Algorithm Version		Algorithm Version		Algorithm Version		Algorithm Version																
AltitudeDistanceUnits																													
AltitudeResolution																													
NorthBoundingCoordinate																													
CalendarDate							Recording Date	Recording Date			Recording Date		Recording date																
							Processing Date	Processing Date			Processing Date		Processing date																
ContactPerson			Contact		Contact		Name		Name		Name		Name																
ContactInstructions																													
ContactJobPosition																													
ContactLastName			Contact		Contact		Name		Name		Name		Name																
Contact_IDR			Contact		Contact		Name		Name		Name		Name																
ContactOrganizationName							Organization		Organization		Organization		Organization																
Country																													

Table C-1. Mapping of Server Specific Domains and Aliases (3 of 10)

ATTRIBUTE	MODULE	CLASS	EDC_LANDSAT_LAND_SFC_VEG domain	EDC_LANDSAT_LAND_SFC_VEG alias	GSFC_TOMS_ATMOS_COMP domain	GSFC_TOMS_ATMOS_COMP alias	GSFC_AVHRR_LAND_SFC_VEG domain	GSFC_AVHRR_LAND_SFC_VEG alias	GSFC_TRMM domain	GSFC_TRMM alias	GSFC_VIRS_L0_L1 domain	GSFC_VIRS_L0_L1 alias	GSFC_CZCS_L0/L1 domain	GSFC_CZCS_L0/L1 alias	LARC_CERES_ERP domain	LARC_CERES_ERP alias	LARC_CERES_L0_L1 domain	LARC_CERES_L0_L1 alias	LARC_ERBE_ERP domain	LARC_ERBE_ERP alias	LARC_ISCCP domain	LARC_ISCCP alias	LARC_GTE domain	LARC_GTE alias	LARC_FRE domain	LARC_FRE alias	LARC_SAGE_ATMOS_DYN domain	LARC_SAGE_ATMOS_DYN alias	LARC_SAGE_ATMOS_COMP domain	LARC_SAGE_ATMOS_COMP alias
EastBoundingCoordinate	**LocalitySpatial_IDR**	**BoundingRectangle**																			180		0		60.83 95.01 95.38 95.35		180		180	**LocalitySpatial_IDR**
ElectronicMailAddress	**Contact_IDR**	**Email**						Guide														Guide								**Contact_IDR**
GeographicCoordinateUnits	**LocalitySpatial_IDR**	**GeographicCoordinateSystem**			Degrees Kilometers	Spatial_Resolution													Degrees	Unit	Degrees	Unit	Degrees	Unit	Degrees	Unit	Degrees	Unit	Degrees	**LocalitySpatial_IDR**
HoursofService	**Contact_IDR**	**Contact**						Guide												Guide	Guide							Guide		**Contact_IDR**
IndirectReference	**DataOrganization_IDR**	**IndirectReferenceClass**																			2.5, 5, degree bins. Source packets for level 0.									**DataOrganization_IDR**
LocalityDescription	**LocalitySpatial_IDR**	**Locality**																			Coverage									**LocalitySpatial_IDR**
LocalityType	**LocalitySpatial_IDR**	**Locality**			Coverage		Coverage						Coverage		Coverage		Coverage		Coverage				Coverage		Coverage		Coverage Season		Coverage Event	**LocalitySpatial_IDR**
LocalityValue	**LocalitySpatial_IDR**	**GranuleLocality**			Global None Constrained Orbital	Geographic Flag	G C O	Geographic Flag					Global Ocean Constrained Orbital Name Costal North America	Geographic Flag Spatial Desc	Swath Regional				Regional	Global Flag		Global Flag		_Global Flag		Global Flag	Winter Spring Summer Autumn Y= Yes	_Temporal Resolution Global Flag	Sunrise Sunset	**LocalitySpatial_IDR**
LongitudeResolution	**LocalitySpatial_IDR**	**GeographicCoordinateSystem**																				Granule Longitude		Granule Longitude		Granule Longitude		_Granule Longitude		**LocalitySpatial_IDR**
NorthBoundingCoordinate	**LocalitySpatial_IDR**	**BoundingRectangle**																			90		0		45.99 38		80		80	**LocalitySpatial_IDR**
OperationMode	**DataOriginator_IDR**	**OperationMode**							Number of Scans		Number of Scans		Number of Scans																	**DataOriginator_IDR**

Table C-1. Mapping of Server Specific Domains and Aliases (4 of 10)

ATTRIBUTE	MSFC_LIS domain	MSFC_LIS alias	MSFC_V0 domain	MSFC_V0 alias	MSFC_SMMR_L0_I1 domain	MSFC_SMMR_L0_I1 alias	MSFC_TSDIS domain	MSFC_TSDIS alias	MSFC_PR_L0_L1 domain	MSFC_PR_L0_L1 alias	MSFC_RADARS_L0_L1 domain	MSFC_RADARS_L0_L1 alias	MSFC_RADAR_TMI_L0_L1 domain	MSFC_RADAR_TMI_L0_L1 alias	MSFC_PRATMOS_DYN domain	MSFC_PRATMOS_DYN alias	MSFC_TMI_ATMOS_DYN domain	MSFC_TMI_ATMOS_DYN alias	MSFC_LISATMOS_DYN domain	MSFC_LISATMOS_DYN alias	MSFC_SSMI_LAND_AUX domain	MSFC_SSMI_LAND_AUX alias	MSFC_TOVS_OCEAN_DYN domain	MSFC_TOVS_OCEAN_DYN alias	MSFC_SSMI_INSITU_ATMOS_DYN domain	MSFC_SSMI_INSITU_ATMOS_DYN alias	MSFC_SSMI_ATMOS_COMP domain	MSFC_SSMI_ATMOS_COMP alias	MSFC_SSMI_ATMOS_DYN domain	MSFC_SSMI_ATMOS_DYN alias
EastBoundingCoordinate																														
ElectronicMailAddress								Email Address																						
GeographicCoordinateUnits																														
HoursofService																														
IndirectReference																														
LocalityDescription				Location																										
LocalityType																														
LocalityValue				Location																										
LongitudeResolution																														
NorthBoundingCoordinate																														
OperationMode									Number of Scans		Number of Scans		Number of Scans																	

Table C-1. Mapping of Server Specific Domains and Aliases (5 of 10)

ATTRIBUTE	MODULE	CLASS	EDC_LANDSAT_LAND_SFC_VEG	EDC_LANDSAT_LAND_SFC_VEG	GSFC_TOMS_ATMOS_COMP	GSFC_TOMS_ATMOS_COMP	GSFC_AVHRR_LAND_SFC_VEG	GSFC_AVHRR_LAND_SFC_VEG	GSFC_TRMM	GSFC_TRMM	GSFC_VIRS_L0_L1	GSFC_VIRS_L0_L1	GSFC_CZCS_L0/L1	GSFC_CZCS_L0/L1	LARC_CERES_ERP	LARC_CERES_ERP	LARC_CERES_L0_L1	LARC_CERES_L0_L1	LARC_ERBE_ERP	LARC_ERBE_ERP	LARC_ISCCP	LARC_ISCCP	LARC_GTE	LARC_GTE	LARC_FIRE	LARC_FIRE	LARC_SAGE_ATMOS_DYN	LARC_SAGE_ATMOS_DYN	LARC_SAGE_ATMOS_COMP	LARC_SAGE_ATMOS_COMP
			domain	alias	domain	alias	domain	alias	domain	alias	domain	alias	domain	alias	domain	alias	domain	alias	domain	alias	domain	alias	domain	alias	domain	alias	domain	alias	domain	alias
Period1stTime	LocalityTemporal_IDR	RegularPeriodic		First PCD Major Time Frame																										
PeriodName	LocalityTemporal_IDR	RegularPeriodic																									Winter Spring Summer Autumn Monthly			
PlanarDistanceUnits	LocalitSpatial_IDR	PlanarCoordinateSystem			degrees kilometres														degrees		degrees		degrees		degrees		degrees		degrees	
PlatformLongName	DataOriginator_IDR	Platform																												Definition
PointLatitude	LocalitySpatial_IDR	Point																							37.1 37.01					
PostalCode	Contact_IDR	ContactAddress						Guide												Guide	Guide							Guide		Guide
ProcessingCenter	ContactAddress Collections_V1	ECS_Collection	EDC		GSFC		GSFC		GSFC		GSFC		GSFC		LARC		LARC		LARC		LARC		LARC		LARC		LARC		LARC	
ProcessingLevelDescription	Collections_V1	ProcessingLevel								Product Type ID										ERBE_ERP Description		Description		Description		Description		Description		Description
ProcessingLevelID	Collections_V1	ProcessingLevel			3					Processing Level		Processing Level		Processing Level			0 1		2 3	Processing Level	3	Processing Level	2	Processing Level	2	Processing Level		Processing Level		Processing Level
RangeDateTime	RangeBeginningDateLocalityTemporal_IDR	LocalityTemporal_IDR				Data Product Start Date Granule Start Date		Granule Start Date Data Product Start Date		Temporal Coverage Coverage Date		Temporal Coverage Coverage Date		Begin Date						Dataset Start Time Granule Start/Stop Time		Dataset Start Time		Dataset Start Time Granule Start/Stop Time		Dataset Start Time Granule Start/Stop Time		Dataset Start Time Granule Start/Stop Time		Dataset Start Time Granule Start/Stop Time
RangeBeginningTime	LocalityTemporal_IDR	RangeDateTime		First Scan Time						Start Date Temporal Coverage		Start Date Temporal Coverage		_Begin Date										NA		NA		N/A		N/A

Table C-1. Mapping of Server Specific Domains and Aliases (6 of 10)

ATTRIBUTE	MSFC_LIS domain	MSFC_LIS alias	MSFC_V0 domain	MSFC_V0 alias	MSFC_SMMR_L0_I1 domain	MSFC_SMMR_L0_I1 alias	MSFC_TSDIS domain	MSFC_TSDIS alias	MSFC_PR_L0_L1 domain	MSFC_PR_L0_L1 alias	MSFC_RADARS_TAPES_L0_L1 domain	MSFC_RADARS_TAPES_L0_L1 alias	MSFC_RADAR_TMI_L0_L1 domain	MSFC_RADAR_TMI_L0_L1 alias	MSFC_PR_ATMOS_DYN domain	MSFC_PR_ATMOS_DYN alias	MSFC_TMI_ATMOS_DYN domain	MSFC_TMI_ATMOS_DYN alias	MSFC_LIS_ATMOS_DYN domain	MSFC_LIS_ATMOS_DYN alias	MSFC_SSMI_LAND_AUX domain	MSFC_SSMI_LAND_AUX alias	MSFC_TOVS_OCEAN_DYN domain	MSFC_TOVS_OCEAN_DYN alias	MSFC_SSMI_INSITU_ATMOS_DYN domain	MSFC_SSMI_INSITU_ATMOS_DYN alias	MSFC_SSMI_ATMOS_COMP domain	MSFC_SSMI_ATMOS_COMP alias	MSFC_SSMI_ATMOS_DYN domain	MSFC_SSMI_ATMOS_DYN alias
Period1stTime																														
PeriodName																														
PlanarDistanceUnits																														
PlatformLongName PointLatitude																														
PostalCode ProcessingCenter	MSFC		MSFC		MSFC		MSFC		MSFC		MSFC		MSFC		MSFC		MSFC		MSFC		MSFC		MSFC		MSFC		MSFC		MSFC	
ProcessingLevelDescription				Proc_level		Proc_Level		Product Type ID		Product Type ID		Product Type ID		Product Type ID																
ProcessingLevelID								Processing Level		Processing Level		Processing Level		Processing Level																
RangeDateTime								Temporal Coverage		Temporal Coverage		Temporal Coverage		Temporal Coverage																
								Coverage Dates		Temporal Coverage		Coverage Dates		Coverage Dates																
								Start Date		Temporal Coverage		MSFC_RADAR_TAPES_L0_L Start Date		Start Date																
RangeBeginningTime								Temporal Coverage		Temporal Coverage		Temporal Coverage		Temporal Coverage																

Table C-1. Mapping of Server Specific Domains and Aliases (7 of 10)

ATTRIBUTE	MODULE	CLASS	EDC_LANDSAT_LAND_SFC_VEG domain	EDC_LANDSAT_LAND_SFC_VEG alias	GSFC_TOMS_ATMOS_COMP domain	GSFC_TOMS_ATMOS_COMP alias	GSFC_AVHRR_LAND_SFC_VEG domain	GSFC_AVHRR_LAND_SFC_VEG alias	GSFC_TRMM domain	GSFC_TRMM alias	GSFC_VIRS_L0_L1 domain	GSFC_VIRS_L0_L1 alias	GSFC_CZCS_L0/L1 domain	GSFC_CZCS_L0/L1 alias	LARC_CERES_ERP domain	LARC_CERES_ERP alias	LARC_CERES_L0_L1 domain	LARC_CERES_L0_L1 alias	LARC_ERBE_ERP domain	LARC_ERBE_ERP alias	LARC_SCCP domain	LARC_SCCP alias	LARC_GTE domain	LARC_GTE alias	LARC_FIRE domain	LARC_FIRE alias	LARC_SAGE_ATMOS_DYN domain	LARC_SAGE_ATMOS_DYN alias	LARC_SAGE_ATMOS_COMP domain	LARC_SAGE_ATMOS_COMP alias
										Start Time		Start Time										NA								
RangeEndingDate	LocalityTemporal_IDR	RangeDateTime				End Date of Data Product								End Date					MM/DD/YY	Dataset Stop Time		Dataset Stop Time	MMDDYYY	Dataset Stop Time	MMDDYYY	Dataset Stop Time	MM/DD/YY	Stop Time	MM/DD/YY	Stop Time
						End Date of Granule														Granule Start/Stop Time		Granule Start/ Stop Time				Granule Start/Stop Time				
																								Granule Start/ Stop Time							
RangeEndingTime	LocalityTemporal_IDR	RangeDateTime		Last Scan Time						Temporal Coverage Stop Time		Temporal Coverage Stop Time		End Date										NA		NA		N/A		N/A
Role	Contact_IDR	Contact						Guide		Responsible Team		Responsible Team								Guide		Guide						Guide		Guide
										Investigator		Investigator																		
										Quality Certification Comment		Quality Certification Comment																		
ScienceReviewStatus	Collections_V1	Review				Granule Validity Flag																								
SensorCharacteristicName	DataOriginator_IDR	SensorCharacteristic							Channel DataAccuracy		Channel DataAccuracy																			
SizeMBECSDataGranule	Collections_V1	ECSDataGranule				Granule Size				Granule Size		Granule Size		Granule Size																
SouthBoundingCoordinate	LocalitySpatial_IDR	BoundingRectangle																			90		84		22.84		80		80	
																									35.65					
SpatialCoverageType	LocalitySpatial_IDR	Spatial			Horizontal								Horizontal		Horizontal		Horizontal		Horizontal		Vertical & Horizontal Horizontal		Horizontal		Horizontal		Horizontal		Horizontal	
SpatialKeyword	Collections_V1	SpatialKeywordClass																												
StateProvince	Contact_IDR	ContactAddress						Guide												Guide		Guide						Guide		Guide

Table C-1. Mapping of Server Specific Domains and Aliases (8 of 10)

ATTRIBUTE	MSFC_LIS domain	MSFC_LIS alias	MSFC_V0 domain	MSFC_V0 alias	MSFC_SMMR_L0_I1 domain	MSFC_SMMR_L0_I1 alias	MSFC_TSDIS domain	MSFC_TSDIS alias	MSFC_PR_L0_L1 domain	MSFC_PR_L0_L1 alias	MSFC_RADARS_L0_L1 domain	MSFC_RADARS_L0_L1 alias	MSFC_RADAR_TMI_L0_L1 domain	MSFC_RADAR_TMI_L0_L1 alias	MSFC_PR_ATMOS_DYN domain	MSFC_PR_ATMOS_DYN alias	MSFC_TMI_ATMOS_DYN domain	MSFC_TMI_ATMOS_DYN alias	MSFC_LIS_ATMOS_DYN domain	MSFC_LIS_ATMOS_DYN alias	MSFC_SSMI_LAND_AUX domain	MSFC_SSMI_LAND_AUX alias	MSFC_TOVS_OCEAN_DYN domain	MSFC_TOVS_OCEAN_DYN alias	MSFC_SSMI_INSITU_ATMOS_DYN domain	MSFC_SSMI_INSITU_ATMOS_DYN alias	MSFC_SSMI_ATMOS_COMP domain	MSFC_SSMI_ATMOS_COMP alias	MSFC_SSMI_ATMOS_DYN domain	MSFC_SSMI_ATMOS_DYN alias
		Start Time start day						Start Time		Start Time		Start Time		Start Time																
RangeEndingDate		stop time						Coverage Dates		Coverage Dates		Coverage Dates		Stop Date																
								Temporal Coverage		Temporal Coverage		Temporal Coverage		Coverage Dates																
										Stop Date		Stop Date		Temporal Coverage Stop Date																
RangeEndingTime								Temporal Coverage Stop Time		Temporal Coverage Stop Time		Temporal Coverage Stop Time		Temporal Coverage Stop Time																
Role								Responsible Team		Responsible Team		Responsible Team		Responsible Team																
								Investigator		Investigator		Investigator		Investigator																
ScienceReviewStatus								Quality Certification Comment		Quality Certification Comment		Quality Certification Comment		Quality Certification Comment																
SensorCharacteristicName							Channel DataAccuracy		Channel DataAccuracy		Channel DataAccuracy		Channel DataAccuracy																	
SizeMBECSDataGranule				Byte Size		Byte Size		Granule Size		Granule Size		Granule Size		Granule Size																
SouthBoundingCoordinate																														
SpatialCoverageType																														
SpatialKeyword StateProvince									Tropical Region						Tropical Region				Global		Global		Over the Ocean		Conus					

Table C-1. Mapping of Server Specific Domains and Aliases (9 of 10)

ATTRIBUTE	MODULE	CLASS	EDC_LANDSAT_LAND_SFC_VEG domain	EDC_LANDSAT_LAND_SFC_VEG alias	GSFC_TOMS_ATMOS_COMP domain	GSFC_TOMS_ATMOS_COMP alias	GSFC_AVHRR_LAND_SFC_VEG domain	GSFC_AVHRR_LAND_SFC_VEG alias	GSFC_TRMM domain	GSFC_TRMM alias	GSFC_VIRS_L0_L1 domain	GSFC_VIRS_L0_L1 alias	GSFC_CZCS_L0/L1 domain	GSFC_CZCS_L0/L1 alias	LARC_CERES_ERP domain	LARC_CERES_ERP alias	LARC_CERES_L0_L1 domain	LARC_CERES_L0_L1 alias	LARC_ERBE_ERP domain	LARC_ERBE_ERP alias	LARC_ISCCP domain	LARC_ISCCP alias	LARC_GTE domain	LARC_GTE alias	LARC_FIRE domain	LARC_FIRE alias	LARC_SAGE_ATMOS_DYN domain	LARC_SAGE_ATMOS_DYN alias	LARC_SAGE_ATMOS_COMP domain	LARC_SAGE_ATMOS_COMP alias
StreetAddress	**Contact_IDR**	**ContactAddress**						Guide												Guide		Guide						Guide		Guide
SuggestedUsage	**Collections_V1**	**ECSCollection**																												
TelephoneNumber	**Contact_IDR**	**Telephone**						Guide												Guide		Guide						Guide		Guide
TelephoneNumberType	**Contact_IDR**	**Telephone**						Guide												Guide		Guide						Guide		Guide
TemporalKeyword	**Collections_V1**	**SingleTypeCollection**											October 30 1978 - June 22 1986 6 Day repeat cycle																	
TimeofDay	**LocalityTemporal_IDR**	**SingleDateTime**		Scene Center Time						Temporal Coverage		Temporal Coverage		PassTime																
VerticalSpatialDomainValue	**LocalitySpatial_IDR**	**VerticalSpatialDomain**													Pressure_Levels		Satellitealtitude													
WestBoundingCoordinate	**LocalitySpatial_IDR**	**BoundingRectangle**																			180		167		120.5		180		180	
																									97.16					

Table C-1. Mapping of Server Specific Domains and Aliases (10 of 10)

ATTRIBUTE	MSFC_LIS domain	MSFC_LIS alias	MSFC_V0 domain	MSFC_V0 alias	MSFC_SMMR_L0_I1 domain	MSFC_SMMR_L0_I1 alias	MSFC_TSDIS domain	MSFC_TSDIS alias	MSFC_PR_L0_L1 domain	MSFC_PR_L0_L1 alias	MSFC_RADARS_L0_L1 domain	MSFC_RADARS_L0_L1 alias	MSFC_RADAR_TMI_L0_L1 domain	MSFC_RADAR_TMI_L0_L1 alias	MSFC_PR_ATMOS_DYN domain	MSFC_PR_ATMOS_DYN alias	MSFC_TMI_ATMOS_DYN domain	MSFC_TMI_ATMOS_DYN alias	MSFC_LIS_ATMOS_DYN domain	MSFC_LIS_ATMOS_DYN alias	MSFC_SSMI_LAND_AUX domain	MSFC_SSMI_LAND_AUX alias	MSFC_TOVS_OCEAN_DYN domain	MSFC_TOVS_OCEAN_DYN alias	MSFC_SSMI_INSITU_ATMOS_DYN domain	MSFC_SSMI_INSITU_ATMOS_DYN alias	MSFC_SSMI_ATMOS_COMP domain	MSFC_SSMI_ATMOS_COMP alias	MSFC_SSMI_ATMOS_DYN domain	MSFC_SSMI_ATMOS_DYN alias
StreetAddress																														
SuggestedUsage				DS Comments																										
TelephoneNumber				Phone		Phone																								
TelephoneNumberType								Fax																						
TemporalKeyword			Daily Average		Daily Average				5-Day Average Daily Total Monthly Average						5-Day Average Daily Total Monthly Average				Monthly Total		Daily				Daily Total Daily		Daily		Daily	
TimeofDay								Temporal Coverage		Temporal Coverage		Temporal Coverage		Temporal Coverage																
VerticalSpatialDomainValue																														
WestBoundingCoordinate																														

C.3 Non-core Attributes (C-2a and C-2b)

The column headings in this table are derived from the two earth science model classes, Parameter and PhysicalParameterDetails. They represent the non-core or product specific attributes whose derivation is described in section 1.2 above. The current set of attributes information includes name only although for the LIS instrument, the descriptions are included. The remaining columns must be populated to enable implementation. Table C-2a is sorted by server while table C-2b contains the same information but is sorted by attribute.

The two rightmost columns contain additional information as follows:

Server

This is the name of the server in which these non-core attributes are required. The servers are the same as those found in table C-1.

Class Value

The column indicates the association of the attribute; i.e., the metadata class to which the attribute value should be linked in implementation. It can also be viewed as a 'rate of change' statement indicating that the attribute value updates either with each granule or is static and applicable only once to the whole collection. The vast majority of the non-core attributes are of the former type; i.e., each granule has a specific attribute value.

Table C-2a. Non-core Attributes Sorted by Server (1 of

ParameterName	ParameterDescription	Parameter DataType	Server	Class Value
Day/Night Flag			CERES_ERP	granule
Radiative Flux			CERES_ERP	granule
Solar Incidence			CERES_ERP	granule
Temperature			CERES_ERP	granule
Albedo-Incidence			ERBE_ERP	granule
Day/Night Flag		char	ERBE_ERP	granule
Flux			ERBE_ERP	granule
Radiance			ERBE_ERP	granule
PathNumber	The path (subset of an orbit) of the satellite when collecting this data, to be used in determining the spatial extent of the data.	int	EDC_LANDSAT_LAND_SFC_VEG WRS Path	granule
Day/Night			GSFC_AVHRR_LAND_SFC_VEG	granule
GranuleVersionIdentifier			GSFC_AVHRR_LAND_SFC_VEG	granule
ProducersGranuleIdentifier			GSFC_AVHRR_LAND_SFC_VEG	granule
RadiusofGranuleFromCenter			GSFC_AVHRR_LAND_SFC_VEG	granule
Calibrated Radiance			GSFC_CZCS_L0/L1	granule
Day/Night			GSFC_TOMS_ATMOS_COMP	granule
Ozone			GSFC_TOMS_ATMOS_COMP	granule
Reflectance			GSFC_TOMS_ATMOS_COMP	granule
Cloud Base			GSFC_TRMM	granule
Day/Night			GSFC_TRMM	granule
GenerationDate			GSFC_TRMM	granule
VersionId			GSFC_TRMM_ATMOS_DYN	granule
DateofGenerationofInputFiles			GSFC_VIRS_L0/L1	granule
GenerationDate			GSFC_VIRS_L0/L1	granule

Table C-2a. Non-core Attributes Sorted by Server (2 of 6)

ParameterName	ParameterDescription	Parameter DataType	Server	Class Value
VersionId			GSFC_VIRS_L0/L1	granule
Day/Night			GSFC_VIRS_L0_L1	granule
Clouds			LARC_FIRE	granule
Geopotential Height			LARC_FIRE	granule
Height			LARC_FIRE	granule
Humidity			LARC_FIRE	granule
Mixing Ratio			LARC_FIRE	granule
Montgomery Stream Function			LARC_FIRE	granule
Pressure			LARC_FIRE	granule
TemporalRangeType			LARC_FIRE	granule
Wind Direction			LARC_FIRE	granule
Wind Height			LARC_FIRE	granule
Wind Speed			LARC_FIRE	granule
Acetylene			LARC_GTE	granule
Butane			LARC_GTE	granule
C2CL4			LARC_GTE	granule
CH3ONO2			LARC_GTE	granule
CH4			LARC_GTE	granule
CO			LARC_GTE	granule
Day/Night Flag			LARC_GTE	granule
Ethane			LARC_GTE	granule
Nav-Met			LARC_GTE	granule
NO			LARC_GTE	granule
NOy			LARC_GTE	granule
PAN			LARC_GTE	granule
Pentane			LARC_GTE	granule
PPN			LARC_GTE	granule
Propane			LARC_GTE	granule
UV Nadir			LARC_GTE	granule
UV Zenith			LARC_GTE	granule
Albedo			LARC_ISCCP	granule
Clouds			LARC_ISCCP	granule
Day/Night Flag			LARC_ISCCP	granule

Table C-2a. Non-core Attributes Sorted by Server (3 of 6)

ParameterName	ParameterDescription	Parameter DataType	Server	Class Value
Humidity			LARC_ISCCP	granule
Ice			LARC_ISCCP	granule
Irradiance			LARC_ISCCP	granule
Ozone			LARC_ISCCP	granule
Pressure			LARC_ISCCP	granule
Radiance			LARC_ISCCP	granule
Reflectance			LARC_ISCCP	granule
Snow			LARC_ISCCP	granule
Temperature			LARC_ISCCP	granule
AREA_DELTA_LAT	* The delta lat (in degrees) for an event to be considered part of the area *		MSFC_LIS	granule
AREA_DELTA_LON	* The delta lat (in degrees) for an event to be considered part of the area *		MSFC_LIS	granule
AREA_DELTA_TIME	* The time diff (in seconds) between events to be considered part of the same area *		MSFC_LIS	granule
average_cal_amp	* Average radiance of event calibrated amplitude at the pixel x,y location *	float	MSFC_LIS	granule
average_raw_amp	* Average counts of event amplitude at the pixel x,y location *	short	MSFC_LIS	granule
BEST_CALIBRATION	* current best calibration *		MSFC_LIS	granule
BIG_AREA_AREA	* If an area's area extent is bigger than this, then the value is flagged *		MSFC_LIS	granule
BIG_AREA_FLASHCOUNT	* If the number of flashes in an area is greater than this, flagit *		MSFC_LIS	granule
BIG_AREA_FLASHRATE	* If the flash rate for an area is greater than this number, flagit *		MSFC_LIS	granule
BIG_AREA_RAD	* If an area has a summed radiance greater than this, it is flagged *		MSFC_LIS	granule
BIG_AREA_TIME	* If an area lasts longer than this time, it is flagged *		MSFC_LIS	granule
BIG_EVENT_RAD	* If an event has a raw amp greater than this, it is flagged *		MSFC_LIS	granule
BIG_FLASH_AREA	* If a flash's area extent is bigger than this, then the value is flagged *		MSFC_LIS	granule
BIG_FLASH_RAD	* If a flash has a summed radiance greater than this, it is flagged *		MSFC_LIS	granule

Table C-2a. Non-core Attributes Sorted by Server (4 of 6)

ParameterName	ParameterDescription	Parameter DataType	Server	Class Value
BIG_FLASH_TIME	* If a flash lasts longer than this time, it is flagged *		MSFC_LIS	granule
BIG_GROUP_AREA	* If a group's area extent (also equal to the # of events in the group) is bigger than this, then it is flagged *		MSFC_LIS	granule
BIG_GROUP_RAD	* If a group has a summed radiance greater than this, it is flagged *		MSFC_LIS	granule
BIG_ORBIT_AREA	* If the amount of latlon space of an orbit covered in events is greater than this value, flag it *		MSFC_LIS	granule
BIG_ORBIT_AREACOUNT	* If the # of areas in an orbit is greater than this, flag it *		MSFC_LIS	granule
BIG_ORBIT_EVENTCOUNT	* If the # of events in an orbit is greater than this, flag it *		MSFC_LIS	granule
BIG_ORBIT_FLASHCOUNT	* If the # of flashes in an orbit is greater than this, flag it *		MSFC_LIS	granule
BIG_ORBIT_FLASHRATE	* If the max flash rate for an orbit is greater than this, flag it *		MSFC_LIS	granule
BIG_ORBIT_GROUPCOUNT	* If the # of groups in an orbit is greater than this, flag it *		MSFC_LIS	granule
BIG_ORBIT_RAD	* If an orbit has a summed radiance greater than this, it is flagged *		MSFC_LIS	granule
BIG_ORBIT_TIME	* If an orbit lasts longer than this value, flag it *		MSFC_LIS	granule
BKG_CAL_RAD_MAX	* max calibrated radiance expected *		MSFC_LIS	granule
BKG_CAL_RAD_MIN	* Min calibrated radiance expected *		MSFC_LIS	granule
BKG_RAW_AMP_MAX	* max raw bkg radiance expected *		MSFC_LIS	granule
BKG_RAW_AMP_MIN	* Min raw bkg radiance expected *		MSFC_LIS	granule
CAL_RAD_MAX	* max calibrated radiance expected *		MSFC_LIS	granule
CAL_RAD_MIN	* Min calibrated radiance expected *		MSFC_LIS	granule
day_night_twilight;	* Was the data at this point taken during daynighttwilight *	char	MSFC_LIS	granule
event_count	* # of events at the pixel x,y location *	short	MSFC_LIS	granule
FLASH_DELTA_LAT	* The delta lat (in degrees) for an event to be considered part of the flash *		MSFC_LIS	granule
FLASH_DELTA_LON	* The delta lat (in degrees) for an event to be considered part of the flash *		MSFC_LIS	granule

Table C-2a. Non-core Attributes Sorted by Server (5 of 6)

ParameterName	ParameterDescription	Parameter DataType	Server	Class Value
FLASH_DELTA_TIME	* The time difference (in seconds) between events to be considered part of the same flash *		MSFC_LIS	granule
GROUP_DELTA_LAT	* The delta lat (in degrees) for an event to be considered part of the group *		MSFC_LIS	granule
GROUP_DELTA_LON	* The delta lat (in degrees) for an event to be considered part of the group *		MSFC_LIS	granule
GROUP_DELTA_TIME	* The time difference (in seconds) between events that can be considered to be the same group *		MSFC_LIS	granule
inst_name	* 3 char inst name (OTDMSFC_LIS) *	char	MSFC_LIS	granule
max_event_rad	* What was the max radiation value at this grid point *	float	MSFC_LIS	granule
max_flash_rate;	* What was max flash rate at this grid point *	float	MSFC_LIS	granule
max_item_rad	* What was the max radiation value at this grid point *	float	MSFC_LIS	granule
observe_time;	* How long was this grid point within the FOV of MSFC_LISOTD *	short	MSFC_LIS	granule
orbit_id_number	* unique orbit I.D. number *	long	MSFC_LIS	granule
peak_cal_amp	* Peak radiance of event calibrated amplitude at the pixel x,y location *	float	MSFC_LIS	granule
peak_raw_amp	* Max count of event amplitude at the pixel x,y location *	short	MSFC_LIS	granule
single_events;	* How many single event Areas were found (possible noise stat) *	short	MSFC_LIS	granule
solar_zenith_angle;	* What was the solar zenith angle for this data *	short	MSFC_LIS	granule
start_lat	Lat of the satelite at the start of the data	float	MSFC_LIS	granule
start_lon	* Lon of the satelite at the start of the data *	float	MSFC_LIS	granule
stop_lat	* Latitude of the satelite at the end of the data *	float	MSFC_LIS	granule
stop_lon	* Lon of the satelite at the end of the data *	float	MSFC_LIS	granule
total_cal_amp	* Total sum radiance of event calibrated amplitude at the pixel x,y location *	float	MSFC_LIS	granule

Table C-2a. Non-core Attributes Sorted by Server (6 of 6)

ParameterName	ParameterDescription	Parameter DataType	Server	Class Value
total_raw_amp	* Total sum counts of event amplitudes at the pixel x,y location *	long	MSFC_LIS	granule
DateofGenerationofInputFiles			MSFC_PR_ATMOS_DYN	granule
VersionId			MSFC_PR_ATMOS_DYN	granule
DateofGenerationofInputFiles			MSFC_PR_L0/L1	granule
GenerationDate			MSFC_PR_L0/L1	granule
VersionId			MSFC_PR_L0/L1	granule
DateofGenerationofInputFiles			MSFC_RADAR_TAPES_ATMOS_DYN	granule
VersionId			MSFC_RADAR_TAPES_ATMOS_DYN	granule
DateofGenerationofInputFiles			MSFC_RADAR_TAPES_L0/L1	granule
GenerationDate			MSFC_RADAR_TAPES_L0/L1	granule
VersionId			MSFC_RADAR_TAPES_L0/L1	granule
PackageId			MSFC_SMMR_L0/L1	granule
DateofGenerationofInputFiles			MSFC_TM1_ATMOS_DYN	granule
VersionId			MSFC_TM1_ATMOS_DYN	granule
DateofGenerationofInputFiles			MSFC_TM1_L0/L1	granule
GenerationDate			MSFC_TM1_L0/L1	granule
VersionId			MSFC_TM1_L0/L1	granule
StopOrbitNumber			MSFC_TSDIS	granule
Bounding Coordinates				granule

Table C-2b . Non-core Attributes Sorted by Attribute (1 of

ParameterName	ParameterDescription	Parameter DataType	Server	Class Value
Acetylene			LARC_GTE	granule
Albedo			LARC_ISCCP	granule
Albedo-Incidence			ERBE_ERP	granule
AREA_DELTA_LAT	* The delta lat (in degrees) for an event to be considered part of the area *		MSFC_LIS	granule
AREA_DELTA_LON	* The delta lat (in degrees) for an event to be considered part of the area *		MSFC_LIS	granule
AREA_DELTA_TIME	* The time diff (in seconds) between events to be considered part of the same area *		MSFC_LIS	granule
average_cal_amp	* Average radiance of event calibrated amplitude at the pixel x,y location *	float	MSFC_LIS	granule
average_raw_amp	* Average counts of event amplitude at the pixel x,y location *	short	MSFC_LIS	granule
BEST_CALIBRATION	* current best calibration *		MSFC_LIS	granule
BIG_AREA_AREA	* If an area's area extent is bigger than this, then the value is flagged *		MSFC_LIS	granule
BIG_AREA_FLASHCOUNT	* If the number of flashes in an area is greater than this, flagit *		MSFC_LIS	granule
BIG_AREA_FLASHRATE	* If the flash rate for an area is greater than this number, flag it *		MSFC_LIS	granule
BIG_AREA_RAD	* If an area has a summed radiance greater than this, it is flagged *		MSFC_LIS	granule
BIG_AREA_TIME	* If an area lasts longer than this time, it is flagged *		MSFC_LIS	granule
BIG_EVENT_RAD	* If an event has a raw amp greater than this, it is flagged *		MSFC_LIS	granule
BIG_FLASH_AREA	* If a flash's area extent is bigger than this, then the value is flagged *		MSFC_LIS	granule
BIG_FLASH_RAD	* If a flash has a summed radiance greater than this, it is flagged *		MSFC_LIS	granule
BIG_FLASH_TIME	* If a flash lasts longer than this time, it is flagged *		MSFC_LIS	granule
BIG_GROUP_AREA	* If a group's area extent (also equal to the # of events in the group) is bigger than this*		MSFC_LIS	granule
BIG_GROUP_RAD	* If a group has a summed radiance greater than this, it is flagged *		MSFC_LIS	granule

Table C-2b . Non-core Attributes Sorted by Attribute (2 of 6)

ParameterName	ParameterDescription	Parameter DataType	Server	Class Value
BIG_ORBIT_AREA	* If the amount of latlon space of an orbit covered in events is greater than this value, flag it *		MSFC_LIS	granule
BIG_ORBIT_AREACOUNT	* If the # of areas in an orbit is greater than this, flag it *		MSFC_LIS	granule
BIG_ORBIT_EVENTCOUNT	* If the # of events in an orbit is greater than this, flag it *		MSFC_LIS	granule
BIG_ORBIT_FLASHCOUNT	* If the # of flashes in an orbit is greater than this, flag it *		MSFC_LIS	granule
BIG_ORBIT_FLASHRATE	* If the max flash rate for an orbit is greater than this, flag it *		MSFC_LIS	granule
BIG_ORBIT_GROUPCOUNT	* If the # of groups in an orbit is greater than this, flag it *		MSFC_LIS	granule
BIG_ORBIT_RAD	* If an orbit has a summed radiance greater than this, it is flagged *		MSFC_LIS	granule
BIG_ORBIT_TIME	* If an orbit lasts longer than this value, flag it *		MSFC_LIS	granule
BKG_CAL_RAD_MAX	* max calibrated radiance expected *		MSFC_LIS	granule
BKG_CAL_RAD_MIN	* Min calibrated radiance expected *		MSFC_LIS	granule
BKG_RAW_AMP_MAX	* max raw bkg radiance expected *		MSFC_LIS	granule
BKG_RAW_AMP_MIN	* Min raw bkg radiance expected *		MSFC_LIS	granule
Bounding Coordinates				granule
Butane			LARC_GTE	granule
C2CL4			LARC_GTE	granule
Calibrated Radiance			GSFC_CZCS_L0/L1	granule
CAL_RAD_MAX	* max calibrated radiance expected *		MSFC_LIS	granule
CAL_RAD_MIN	* Min calibrated radiance expected *		MSFC_LIS	granule
CH3ONO2			LARC_GTE	granule
CH4			LARC_GTE	granule
Cloud Base			GSFC_TRMM	granule
Clouds			LARC_ISCCP	granule
Clouds			LARC_FIRE	granule
CO			LARC_GTE	granule
DateofGenerationofInputFiles			GSFC_VIRS_L0/L1	granule
DateofGenerationofInputFiles			MSFC_RADAR_TAPES_L0/L1	granule

Table C-2b . Non-core Attributes Sorted by Attribute (3 of 6)

ParameterName	ParameterDescription	Parameter DataType	Server	Class Value
DateofGenerationofInputFiles			MSFC_TM1_L0/L1	granule
DateofGenerationofInputFiles			MSFC_PR_L0/L1	granule
DateofGenerationofInputFiles			MSFC_RADAR_TAPES_ATMOS_DYN	granule
DateofGenerationofInputFiles			MSFC_TM1_ATMOS_DYN	granule
DateofGenerationofInputFiles			MSFC_PR_ATMOS_DYN	granule
Day/Night			GSFC_TOMS_ATMOS_COMP	granule
Day/Night			GSFC_AVHRR_LAND_SFC_VEG	granule
Day/Night			GSFC_TRMM	granule
Day/Night			GSFC_VIRS_L0_L1	granule
Day/Night Flag			CERES_ERP	granule
Day/Night Flag		char	ERBE_ERP	granule
Day/Night Flag			LARC_ISCCP	granule
Day/Night Flag			LARC_GTE	granule
day_night_twilight;	* Was the data at this point taken during daynighttwilight *	char	MSFC_LIS	granule
Ethane			LARC_GTE	granule
event_count	* # of events at the pixel x,y location *	short	MSFC_LIS	granule
FLASH_DELTA_LAT	* The delta lat (in degrees) for an event to be considered part of the flash *		MSFC_LIS	granule
FLASH_DELTA_LON	* The delta lat (in degrees) for an event to be considered part of the flash *		MSFC_LIS	granule
FLASH_DELTA_TIME	* The time difference (in seconds) between events to be considered part of the same flash *		MSFC_LIS	granule
Flux			ERBE_ERP	granule
GenerationDate			MSFC_RADAR_TAPES_L0/L1	granule
GenerationDate			MSFC_TM1_L0/L1	granule
GenerationDate			MSFC_PR_L0/L1	granule
GenerationDate			GSFC_VIRS_L0/L1	granule

Table C-2b . Non-core Attributes Sorted by Attribute (4 of 6)

ParameterName	ParameterDescription	Parameter DataType	Server	Class Value
GenerationDate			GSFC_TRMM	granule
Geopotential Height			LARC_FIRE	granule
GranuleVersionIdentifier			GSFC_AVHRR_LAND_SFC_VEG	granule
GROUP_DELTA_LAT	* The delta lat (in degrees) for an event to be considered part of the group *		MSFC_LIS	granule
GROUP_DELTA_LON	* The delta lat (in degrees) for an event to be considered part of the group *		MSFC_LIS	granule
GROUP_DELTA_TIME	* The time difference (in seconds) between events that can be considered to be the same group *		MSFC_LIS	granule
Height			LARC_FIRE	granule
Humidity			LARC_ISCCP	granule
Humidity			LARC_FIRE	granule
Ice			LARC_ISCCP	granule
inst_name	* 3 char inst name (OTDMSFC_LIS) *	char	MSFC_LIS	granule
Irradiance			LARC_ISCCP	granule
max_event_rad	* What was the max radiation value at this grid point *	float	MSFC_LIS	granule
max_flash_rate;	* What was max flash rate at this grid point *	float	MSFC_LIS	granule
max_item_rad	* What was the max radiation value at this grid point *	float	MSFC_LIS	granule
Mixing Ratio			LARC_FIRE	granule
Montgomery Stream Function			LARC_FIRE	granule
Nav-Met			LARC_GTE	granule
NO			LARC_GTE	granule
NOy			LARC_GTE	granule
observe_time;	* How long was this grid point within the FOV of MSFC_LISOTD *	short	MSFC_LIS	granule
orbit_id_number	* unique orbit I.D. number *	long	MSFC_LIS	granule
Ozone			GSFC_TOMS_ATMOS_COMP	granule
Ozone			LARC_ISCCP	granule
PackageId			MSFC_SMMR_L0/L1	granule
PAN			LARC_GTE	granule

Table C-2b . Non-core Attributes Sorted by Attribute (5 of 6)

ParameterName	ParameterDescription	Parameter DataType	Server	Class Value
PathNumber	The path (subsetof an orbit) of the satellite when collecting this data, to be used in determining the spatial extent of the data.	int	EDC_LANDSAT_LAND_SFC_VEG WRS Path	granule
peak_cal_amp	* Peak radiance of event calibrated amplitude at the pixel x,y location *	float	MSFC_LIS	granule
peak_raw_amp	* Max count of event amplitude at the pixel x,y location *	short	MSFC_LIS	granule
Pentane			LARC_GTE	granule
PPN			LARC_GTE	granule
Pressure			LARC_ISCCP	granule
Pressure			LARC_FIRE	granule
ProducersGranuleIdentifier			GSFC_AVHRR_LAND_SFC_VEG	granule
Propane			LARC_GTE	granule
Radiance			ERBE_ERP	granule
Radiance			LARC_ISCCP	granule
Radiative Flux			CERES_ERP	granule
RadiusofGranuleFromCenter			GSFC_AVHRR_LAND_SFC_VEG	granule
Reflectance			GSFC_TOMS_ATMOS_COMP	granule
Reflectance			LARC_ISCCP	granule
single_events;	* How many single event Areas were found *	short	MSFC_LIS	granule
Snow			LARC_ISCCP	granule
Solar Incidence			CERES_ERP	granule
solar_zenith_angle;	* What was the solar zenith angle for this data *	short	MSFC_LIS	granule
start_lat	Lat of the satelite at the start of the data	float	MSFC_LIS	granule
start_lon	* Lon of the satelite at the start of the data *	float	MSFC_LIS	granule
StopOrbitNumber			MSFC_TSDIS	granule
stop_lat	* Latitude of the satelite at the end of the data *	float	MSFC_LIS	granule
stop_lon	* Lon of the satelite at the end of the data *	float	MSFC_LIS	granule

Table C-2b . Non-core Attributes Sorted by Attribute (6 of 6)

ParameterName	ParameterDescription	Parameter DataType	Server	Class Value
Temperature			CERES_ERP	granule
Temperature			LARC_ISCCP	granule
TemporalRangeType			LARC_FIRE	granule
total_cal_amp	* Total sum radiance of event calibrated amplitude at the pixel x,y location *	float	MSFC_LIS	granule
total_raw_amp	* Total sum counts of event amplitudes at the pixel x,y location *	long	MSFC_LIS	granule
UV Nadir			LARC_GTE	granule
UV Zenith			LARC_GTE	granule
VersionId			GSFC_VIRS_L0/L1	granule
VersionId			GSFC_TRMM_ATMOS_DYN	granule
VersionId			MSFC_RADAR_TAPES_ATMOS_DYN	granule
VersionId			MSFC_TM1_ATMOS_DYN	granule
VersionId			MSFC_PR_ATMOS_DYN	granule
VersionId			MSFC_RADAR_TAPES_L0/L1	granule
VersionId			MSFC_TM1_L0/L1	granule
VersionId			MSFC_PR_L0/L1	granule
Wind Direction			LARC_FIRE	granule
Wind Height			LARC_FIRE	granule
Wind Speed			LARC_FIRE	granule

Abbreviations and Acronyms

ACMHW	Access and Control Management HWCI
ADC	affiliated data center
ADSHW	Advertising Server HWCI
ADSRV	Advertising Service CSCI
AI&T	algorithm integration and test
AITHW	Algorithm Integration and Test HWCI
AITTL	Algorithm Integration and Test CSCI
AM-1	EOS AM Project spacecraft 1, morning spacecraft series -- ASTER, CERES, MISR, MODIS and MOPITT instruments
ANSI	American National Standards Institute
API	application program (or programming) interface
APID	application's process ID
AQAHW	Algorithm QA HWCI
ASCII	American Standard Code for Information Exchange
ASTER	Advanced Spaceborne Thermal Emission and Reflection Radiometer (formerly ITIR)
AVHRR	Advanced Very High-Resolution Radiometer
BER	bit error rate
BUFR	binary universal format for representation of data
CASE	Computer Aided Software Engineering
CCSDS	Consultative Committee for Space Data Systems
CD	contractual delivery 214-001
CD-ROM	compact disk -- read only memory
CDR	Critical Design Review
CDRL	contract data requirements list
CERES	Clouds and Earth's Radiant Energy System
CI	configuration item
COTS	commercial off-the-shelf (hardware or software)
CPU	central processing unit
CSCI	computer software configuration item
CSMS	Communications and Systems Management Segment (ECS)
DAAC	Distributed Active Archive Center
DAN	data availability notice

DAO	Data Assimilation Office
DAR	data acquisition request
DAS	data availability schedule
DBMS	Database Management System
DDICT	Data Dictionary CSCI
DDIST	Data Distribution Services CSCI
DDSRV	Document Data Server CSCI
DESKT	Desktop CSCI
DID	data item description
DIM	distributed information manager (SDPS)
DIMGR	Distributed Information Manager CSCI
DIPHW	Distribution and Ingest Peripheral Management HWCI
DMGHW	Data Management HWCI
DMWG	Data Management Working Group
DP	Data Provider
DPR	data processing request
DPREP	Science Data Preprocessing CSCI
DPS	Data Processing Subsystem
DRPHW	Data Repository HWCI
DSS	Data Server Subsystem
ECS	EOSDIS Core System
EDC	EROS Data Center
EDHS	ECS Data Handling System
EDOS	EOS Data and Operations System
EOS	Earth Observing System
EOS-AM	EOS Morning Crossing (Descending) Mission -- see AM-1
EOSDIS	Earth Observing System Data and Information System
EROS	Earth Resources Observation System
ESDIS	Earth Science Data and Information System (GSFC)
ESDT	Earth science data types
ESN	EOSDIS Science Network (ECS)
FDDI	fiber distributed data interface
FDF	flight dynamics facility
FDFEPHEM	FDF-generated definitive orbit data
FGDC	Federal Geographic Data Commuittee
FK	Foreign Key

FOO	Flight of Opportunity
FOS	Flight Operations Segment (ECS)
GB	gigabyte (10^9)
GNU	(recursive acronym: “GNU’s Not Unix”); a project supported by the Free Software Foundation dedicated to the delivery of free software
GPCP	Global Precipitation Climatology Project
GPCP	Global Precipitation Climatology Project
GPI	GOES Precipitation Index
GRIB	GRid In Binary
GSFC	Goddard Space Flight Center
GTWAY	Version 0 Interoperability Gateway CSCI
GUI	graphic user interface
GV	ground validation
HDF	hierarchical data format
HDF-EOS	an EOS proposed standard for a specialized HDF data format
HIPPI	high performance parallel interface
HMI	human machine interface
HTML	HyperText Markup Language
HTTP	Hypertext Transport Protocol
HWCI	hardware configuration item
I&T	integration and test
I/F	interface
I/O	input/output
ICD	interface control document
ICLHW	Ingest Client HWCI
ID	identification
IDE	Interactive Development Environments
IDR	Incremental Design Review
IERS	International Earth Rotation Service
IMS	Information Management System (obsolete ECS element name)
INGST	Ingest Services CSCI
IP	international partners
IR-1	Interim Release 1
IRD	interface requirements document
ISO	International Standards Organization
IV&V	independent verification and validation

JPL	Jet Propulsion Laboratory
L0-L4	Level 0 (zero) through Level 4
LaRC	Langley Research Center (DAAC)
LIM	local information manager (SDPS)
LIMGR	Local Information Manager CSCI
LIS	Lightning Imaging Sensor
LSM	local system management (ECS)
MB	megabyte (10^6)
MDT	mean downtime
MDT	mean downtime
MFLOPS	mega (millions of) floating-point operations (10^6) per second
MISR	Multi-Angle Imaging SpectroRadiometer
MODIS	Moderate-Resolution Imaging Spectrometer
MOPITT	Measurements of Pollution in the Troposphere
MSFC	Marshall Space Flight Center
MSS	System Management Subsystem (of CSMS)
MTBF	mean time between failure
MTPE	Mission to Planet Earth
MTTR	mean time to restore
N/A	not applicable
NAS	National Academy of Science
NASA	National Aeronautics and Space Administration
NESDIS	National Environmental Satellite Data and Information Service
NMC	National Meteorological Center (NOAA)
NOAA	National Oceanic and Atmospheric Administration
NSIDC	National Snow and Ice Data Center (DAAC)
O/A	orbit/altitude
ODC	other data center
OMT	Object Modeling Technique
OSI	Open System Interconnect
PDPS	Planning & Data Production System
PDR	Preliminary Design Review
PDS	production data set
PGE	Product Generation Executive
PGS	Product Generation System (obsolete ECS element name) (ASTER)
PK	Primary Key

PLANG	Production Planning CSCI
PLNHW	Planning HWCI
PLS	Planning Subsystem
POSIX	Portable Operating System Interface for Computer Environments
PR	Precipitation Radar (TRMM)
PRONG	Processing CSCI
QA	quality assurance
RMA	reliability, maintainability, availability
RTF	rich text format
SAA	satellite active archive
SAGE	Stratospheric Aerosol and Gas Experiment
SCF	Science Computing Facility
SDP	Science Data Processing
SDPF	Sensor Data Processing Facility (GSFC)
SDPS	Science Data Processing Segment (ECS)
SDPTK	SDP Toolkit CSCI
SDSRV	Science Data Server CSCI
SeaWIFS II	Sea-Viewing Wide Field-of-View Sensor II
SFDU	Standard Format Data Unit
SMC	System Management Center (ECS)
SPRHW	Science Processing HWCI
SRS	software requirements specification
SSM/I	Special Sensor for Microwave/Imaging (DMSP)
SST	sea surface temperature
STMGT	Storage Management Software CSCI
StP	Software through Pictures
TMI	TRMM Microwave Image
TOMS	Total Ozone Mapping Spectrometer
TONS	TDRS On-board Navigational System
TRMM	Tropical Rainfall Measuring Mission (joint US-Japan)
TSDIS	TRMM Science Data and Information System
USNO	US Naval Observatory
UT	universal time
UTC	universal time code
V0	Version 0
VIRS	Visible Infrared Scanner (TRMM)

WAIS	Wide Area Information Server
WKBCH	Workbench CSCI
WKSHW	Working Storage HWCI
WWW	World-Wide Web

Glossary

Advertisement	A text description that announces the availability of ECS data or services to ECS users.
Advertising Service	An ECS software component that announces the availability of data and services to ECS users.
Affiliated Data Center	A facility not funded by NASA that processes, archives, and distributes Earth science data useful for Global Change research, with which a working agreement has been negotiated by the EOS program. The agreement provides for the establishment of the degree of connectivity and interoperability between EOSDIS and the ADC needed to meet the specific data access requirements involved in a manner consistent and compatible with EOSDIS services. Such data-related services to be provided to EOSDIS by the ADC can vary considerably for each specific case.
Algorithm	Software delivered to the SDPS by a science investigator (PI, TL, or II) to be used as the primary tool in the generation of science products. The term includes executable code, source code, job control scripts, as well as documentation.
Alias	Alternate name is any name besides the data element name by which a data item is known. *Note*: Often stored in data dictionaries. *Syn:* alternate name.
Ancillary Data	Data other than instrument data required to perform an instrument's data processing. They include orbit data, attitude data, time information, spacecraft engineering data, calibration data, data quality information, and data from other instruments.
Archive Activity Log	Log of all archive activity (insert, acquire)
Archive Tape Library	Archive robotics unit

Averaging Standard data averaging involves extraction from a data granule of aggregate pixels formed by numerically averaging the N adjacent pixels in each of one or more dimensions of the granule. The number of pixels in each dimension to be averaged is characterized by the value of "N."

Batch Pertaining to a system or mode of operation in which inputs are collected and processed all at one time, rather than being processed as they arrive, and a job, once started, proceeds to completion without additional input or user interaction. Contrast with: conversational; interactive; on-line; real time.

Browse Data Product Subsets of a larger data set, other than the directory and guide, generated for the purpose of allowing rapid interrogation (i.e., browse) of the larger data set by a potential user. For example, the browse product for an image data set with multiple spectral bands and moderate spatial resolution might be an image in two spectral channels, at a degraded spatial resolution. The form of browse data is generally unique for each type of data set and depends on the nature of the data and the criteria used for data selection within the relevant scientific disciplines.

Calibration Data The collection of data required to perform calibration of the instrument science data, instrument engineering data, and the spacecraft engineering data. It includes pre-flight calibration measurements, in-flight calibrator measurements, calibration equation coefficients derived from calibration software routines, and ground truth data that are to be used in the data calibration processing routine.

Catalog Interoperability	Refers to the capability of the user interface software of one data set directory or catalog to interact with the user interface at another data set directory or catalog. Three levels of Catalog Interoperability are recognized: Level 1 Interoperability – simple network interconnectivity among systems. Level 2 Interoperability – catalog systems can exchange limited search and user information. Level 3 Interoperability – catalog systems exchange standard search protocols. This provides "virtual" similarity between different systems.
Client	Requester of a service
Client	A software component that issues service requests to another software component.
Commercial Off-The-Self (COTS)	"Commercial off-the-shelf" means a product, such as an item, material, software, component, subsystem, or system, sold or traded to the general public in the course of normal business operations at prices based on established catalog or market prices (see FAR 15.804-3(c) for explanation of terms).
Correctable BER	Rate of occurrence of correctable bit errors (bit errors that are generally corrected by the corresponding hardware)
Correlative Data	Scientific data from other sources used in the interpretation or validation of instrument data products, e.g., ground truth data and/or data products of other instruments. These data are not utilized for processing instrument data.
Data Access Log	Log of all data access (retrieve) within the Data Server
Data Acquisition Request (DAR)	A request for future data acquisition by an instrument(s) that the user constructs and submits through the IMS.
Data Availability Acknowledgment	Status return when a Data Availability Notice cannot be satisfied (e.g., due to a validation error or transmission error)
Data Availability Notice	Notice from a client of data available for ingest
Data Availability Schedule	Schedule of predicted, future data availability for a client

Data Center	A facility storing, maintaining, and making available data sets for expected use in ongoing and/or future activities. Data centers provide selection and replication of data and needed documentation and, often, the generation of user tailored data products.
Data Collection	A logically organized set of related earth science data, including observation data, data products, and documents.
Data Distribution Request	Request to distribute data
Data Ingest Request	Request to ingest data
	Data Provider, usually instrument team people or allied investigators. These folks provide collection level attribute values into the DSS database via a Graphical User Interface(GUI).
Data Processing Request	Request to process data (sent from Data Server to PDPS)
Data Product Levels	Data levels 1 through 4 as defined in the EOS Data Panel Report. Consistent with the CODMAC and ESADS definitions.
	Raw Data – Data in their original packets, as received from the spacecraft and instruments, unprocessed by EDOS.
	Level 0 – Raw instrument data at original resolution, time ordered, with duplicate packets removed.
	Level 1A – Level 0 data, which may have been reformatted or transformed reversibly, located to a coordinate system, and packaged with needed ancillary and engineering data.
	Level 1B – Radiometrically corrected and calibrated data in physical units at full instrument resolution as acquired.
Data Receipt Log	Log of all data received
Data Request	A request for data from the Data Server.
Data Retrieval Request	= Retrieval Request
Data Server	A logical association of services that provide access to a collection of earth science and related data.
Data Server Insert Request	Request to insert data into a Data Server

Data Set	A logically meaningful grouping or collection of similar or related data.
Data Set Documentation	Information describing the characteristics of a data set and its component granules, including format, source instrumentation, calibration, processing, algorithms, etc.
Definitive Attitude Data	Down-linked attitude data received with Level 0 data
Definitive Orbit Data	Down-linked orbit (ephemeris) data received with Level 0 data
Directive	Flowdown of policy.
Directory	A collection of uniform descriptions that summarize the contents of a large number of data sets. It provides information suitable for making an initial determination of the existence and contents of each data set. Each directory entry contains brief data set information (e.g., type of data, data set name, time and location bounds).
Distributed Active Archive Center	An EOSDIS facility which generates, archives, and distributes EOS Standard Products and related information for the duration of the EOS mission. An EOSDIS DAAC is managed by an institution such as a NASA field center or a university, per agreement with NASA. Each DAAC contains functional elements for processing data (the PGS), for archiving and disseminating data (the DADS), and for user services and information management (elements of the IMS).
Distribution Activity Log	Log of all distribution activity
ECS-Supported	A hardware or software component that conforms to an ESDIS approved set of standards and has been fully tested by the ECS contractor.

EDOS Production Data Sets	Data sets generated by EDOS using raw instrument or spacecraft packets with space-to-ground transmission artifacts removed, in time order, with duplicate data removed, and with quality/accounting (Q/A) metadata appended. Time span, number of packets, or number of orbits encompassed in a single data set are specified by the recipient of the data. These data sets are equivalent to level zero data formatted with Q/A metadata. For EOS, the data sets are composed of: instrument science packets, instrument engineering packets, spacecraft housekeeping packets, or onboard ancillary packets with quality and accounting information from each individual packet and the data set itself and with essential formatting information for unambiguous identification and subsequent processing.
EDOS Quick Look Production Data Sets	Data sets generated by EDOS using raw instrument or spacecraft packets from a single TDRSS acquisition session and made available for delivery to a user within 1 hour of receipt of the last packet in the session. Transmission artifacts are removed, but time ordering and duplicate packet removal is limited to packets received during the TDRSS contact period.
Electronic Distribution Request	Request to distribute data electronically (network)
Engineering Data	All data available on-board about health, safety, environment, or status of the spacecraft and instruments. Spacecraft Engineering Data – The subset of engineering data from spacecraft sensor measurements and on-board computations. Instrument Engineering Data – All non-science data provided by the instrument. Housekeeping Data – The subset of engineering data required for mission and science operations. These include health and safety, ephemeris, and other required environmental parameters.
Ephemeris Data	(See Orbit Data)
Event	In reference to subscriptions, the occurrence that triggers a subscription action
Facilities (IICF)	higher-level data sets.

Facility Instrument	An instrument defined by NASA as having broad significance to the EOS Program and provided by a designated NASA center or foreign agency.
Field-expandable	Storage hardware where the capacity or size of archival storage can be increased at the local site without removing the hardware from the local site
File Directory	Table of data granules and their locations in the archive
Granule	The smallest aggregation of data that is independently managed (i.e., described, inventoried, retrievable). Granules may be managed as logical granules and/or physical granules.
Ground Truth	Geophysical parameter data, measured or collected by other means than by the instrument itself, used as correlative or calibration data for that instrument data. It includes data taken on the ground or in the atmosphere. Ground truth data are another measurement of the phenomenon of interest; they are not necessarily more "true" or more accurate than the instrument data.
Housekeeping Data	(See Engineering Data)
In Situ Data	(See Ground Truth)
Ingest Status Request	Request for status on a Data Ingest Request
Insert Request	Request to insert data into the archive
Institutional Facilities or Elements	Facilities established by an institution that take on some responsibility in support of EOSDIS, or elements of the EOSDIS that function as part of an institution, and represent both EOSDIS and the programs, goals and purpose of the institution.
Instrument Data	Data specifically associated with the instrument, either because they were generated by the instrument or included in data packets identified with that instrument. These data consist of instrument science and engineering data, and possible ancillary data.
Instrument Housekeeping Data	(See Engineering Data)
Instrument or Elements	(See Engineering Data)

Instrument Science Data	Data produced by the science sensor(s) of an instrument, usually constituting the mission of that instrument.
Interdisciplinary	Project-provided facilities at interdisciplinary investigator locations
Intermediate Activity Log	Log of operations including file space allocations, file space deallocations, media mounts, media dismounts, media loads, media unloads, file writes, files reads, file deletions
Inventory Update Log	Checkpoint log of archive data and their locations. This log is used in conjunction with the File Directory to allow recovery of archive contents in the event of a system failure.
Investigator Computing	used to pursue EOS-approved investigations and produce
Investigator Working Group (IWG)	A group made up of the Principal Investigators and research
Metadata	Information about data sets which is provided to the ECS by the data supplier or the generating algorithm and which provides a description of the content, format, and utility of the data set. Metadata may be used to select data for a particular scientific investigation.
Migration Coordination Message	Messages passed between Version 0 sites and ECS to coordinate Version 0 migration
off-line	Pertaining to a device or process that is not under the direct control of the central processing unit of a computer. *Contrast with:* on-line.
on-line	Pertaining to a system or mode of operation in which input data enter the computer directly from the point of origin or output data are transmitted directly to the point where they are used. For example, an airline reservation system. *Contrast with:* batch.
Operational Data	Data created by an operational instrument (i.e., NOAA AMRIR).
Operations Personnel	= Operations Staff

Operations Staff	One of the DAAC operations staff assigned to the Ingest or Data Server subsystems--i.e., Data Archive Analyst, Data Ingest Technician, Data Distribution Technician, Data Base Administrator
Orbit Data	Data that represent spacecraft locations. Orbit (or ephemeris) data include: Geodetic latitude, longitude and height above an adopted reference ellipsoid (or distance from the center of mass of the Earth); a corresponding statement about the accuracy of the position and the corresponding time of the position (including the time system); some accuracy requirements may be hundreds of meters while other may be a few centimeters.
Physical Media Class	Class of physical media (e.g., 3480 tape, D3 tape, M/O disk)
Physical Media Distribution Request	Request to distribute data on hard media (e.g., tape, optical disk, etc.)
Principal Investigator (PI)	An individual who is contracted to conduct a specific scientific investigation. (An Instrument PI is the person designated by the EOS Program as ultimately responsible for the delivery and performance of Standard Products derived from an EOS Instrument Investigation.)
Principal Investigator Computing Facility (PICF)	Project-provided facilities at PI locations used to develop and maintain algorithms, produce data sets, and validate data.
Principal Investigator Instrument	An instrument selected pursuant to the EOS Announcement of Opportunity and provided by a PI and his home institution.
Product Generation Executive	Data Provider code which populates metadata on a granule by granule basis.
Prototype Product	Data product generated as part of a research investigation, of wide research utility, requiring too much data or computer power for generation at the investigator SCF, and accepted as a candidate Standard Product by the IWG. Prototype Products will be generated at DAACs, but their routine generation is not guaranteed and will not interfere with other Standard Product generation.

Quick-Look Data	Data received during one TDRSS contact period which have been processed to Level 0 (to the extent possible for data from a single contact). These are data that have been identified to EDOS as requiring priority processing.
Quick-Look Product	Product produced at a PGS by applying science algorithms to Quick-Look Data
real-time	Pertaining to a system or mode of operation in which computation is performed during the actual time that an external process occurs, in order that the computation results can be used to control, monitor, or respond in a timely manner to the external process. Contrast with: batch.
Repaired Attitude Data	Attitude data received from the FDF to correct a specific portion of the definitive attitude data.
Repaired Orbit Data	Orbit data received from the FDF to correct a specific portion of the definitive orbit data.
Retrieval Request	Request to retrieve data from the archive
Scheduling	automatic scheduling of a full set of events. Incremental scheduling is interactive scheduling of selected events. For example, the initial generation of a schedule might use batch scheduling, while the addition of a single event with the desire to avoid perturbing previously scheduled events might use incremental scheduling.
Science Processing Library	The Science Processing Library (SPL) is a repository of software, contributed by scientists and other users, to which ECS will provide access in order to facilitate the reuse of software throughout the community. This software is made available as it was contributed with ECS performing only a cataloging function to identify for users what is available. ECS is not responsible for the validity or maintenance of the software contained in the Science Processing Library.
Service Class	A group of ECS services and their associated data.
Service Request	A message issued by a user or client which directs a component of the ECS system to perform a task.

Session	A mechanism that supports a related set of interactions between a client and a server, and manages the resources associated with those interactions.
Special Data Products	Data products which are considered part of a research investigation and are produced for a limited region or time period, or data products which are not accepted as standard products.
Standard Products	(1) Data products generated as part of a research investigation, of wide research utility, accepted by the IWG and the EOS Program Office, routinely produced, and in general spatially and/or temporally extensive. Standard Level 1 products will be generated for all EOS instruments; standard Level 2 products will be generated for most EOS instruments. (2) All data products which have been accepted for production at a PGS, including (1) above as well as prototype products. This may include browse data products that are generated as part of the product production process.
Status Request	Request for status of archive insert and retrieval requests (also need this for ingest and distribution status)
Subsampling	Standard subsampling involves extraction of a multi-dimensional rectangular array of pixels from a single data granule, where regularly-spaced, non-consecutive pixels are extracted from each array dimension. For each dimension, the size of the pixel array is characterized by the starting pixel location, the number of pixels to extract, and the pixel-spacing between extracted pixels.
Subscription	An event (or set of events) and the resultant action (or set of actions) requested by a client. The event is either future data arrival or the expiration of a timer. Actions are TBD.
Subscription Event	An event (or set of events) identified in a subscription. The event is either future data arrival or the expiration of a timer.
Subscription Request	A request to queue a subscription

Subsetting	Standard subsetting involves extraction of a multi-dimensional rectangular array of pixels from a single data granule, where consecutive pixels are extracted from each array dimension. For each dimension, the size of the pixel array is characterized by the starting pixel location and the number of pixels to extract.
Subscription	A request for notifications and data to be provided upon the occurrence of a specified event of set of events.. An event is either future data arrival or the expiration of a timer.
System Files	Internal files and other data used by Ingest or Data Server software.
Target of Opportunity (TOO)	A TOO is a science event or phenomenon that cannot be fully predicted in advance, thus requiring timely system response or high-priority processing.
Team Member Computing Facilities (TMCF)	Project-provided facilities at research instrument team member locations used to develop and test algorithms and assess data quality.
User	A person which interacts with the ECS system and issues service requests to the system.
User Pull Area	Staging space set up to allow users to retrieve data at a time of their convenience