



HUGHES INFORMATION TECHNOLOGY SYSTEMS

## DELTA NOTICE

**EOS Core System (ECS) Project Contract No. NAS5-60000**

**July 26, 1996**

**Document No.:** 311-CD-008-001

**Title:** Release B SDPS Database Design and Database Schema Specification for the ECS Project

Enclosed please find change pages for the subject document. Please replace the pages as follows:

<u>Remove</u>	<u>Insert</u>
iii	iii
vii	vii
ix through xvi	ix through xvi
1-1 through 1-6	1-1 through 1-4
6-1 through 6-176	6-1 through 6-180
7-1 through 7-2	7-1 through 7-108
8-1 through 8-2	8-1 through 8-174

If you have any questions, please contact our Data Management Office at (301) 925-1037.



HUGHES INFORMATION TECHNOLOGY SYSTEMS

## ERRATA NOTICE

**EOS Core System (ECS) Project Contract No. NAS5-60000**

**July 26, 1996**

**Document No.:** 311-CD-008-001

**Title:** Release B SDPS Database Design and Database Schema Specification for the ECS Project

Enclosed please find change pages for the subject document. Please replace the pages as follows:

Remove

A-1 through A-34

B-1 through B-26

Insert

A-1 through A-32

B-1 through B-28

If you have any questions, please contact our Data Management Office at (301) 925-1037.

311-CD-008-001  
(Formerly 311-CD-002-005)

## **EOSDIS Core System Project**

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

May 1996

**This document has not yet been approved by the  
Government for general use or distribution.**

Hughes Information Technology Systems  
Upper Marlboro, Maryland

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

**May 1996**

Prepared Under Contract NAS5-60000  
CDRL Item # 050

## **SUBMITTED BY**

Rick Kochhar /s/

5/15/96

---

Richard Kochhar, Release B CCB Chairman  
EOSDIS Core System Project

Date

The number of this document has been changed so that the Release A and Release B systems can be documented separately.

**Hughes Information Technology Systems**  
Upper Marlboro, Maryland

311-CD-008-001

This page intentionally left blank.

# Preface

---

This document provides change pages for the Release B SDPS Database Design and Database Schema Specification (311-CD-008-001). The change pages provide updated detail design material for the Data Server and CIDM subsystems. Additionally, other sections of the document (311-CD-008-001) have also been updated as necessary to reflect design detail modifications. The enclosed change pages replace the corresponding sections in CDRL 311-CD-008-001.

This document contains changes to a formal contract deliverable document; as such it requires Government review and approval prior to acceptance and use. The 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.

Questions concerning distribution or control of this document should be addressed to:

Data Management Office  
The ECS Project Office  
Hughes Information Technology Corporation  
1616 McCormick Drive  
Upper Marlboro, MD 20774

This page intentionally left blank.

# Abstract

---

This design document organizes and describes the metadata for the Earth Observation System Data and Information System Core System (ECS.), for Release B. 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 contains User views of the data(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)/Object Modeling Technique (OMT) Computer Aided Software Engineering (CASE) Tool. The specifications are defined in alphabetical order for cross reference to the diagrams.

The Internal Model is presented as the 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:** Database, Design, Schema, Specifications, Dictionary, SDPS, Metadata, Mapping, Data, Model, ESDT, CSDT, Files, Directory, Inventory

This page intentionally left blank.

# Change Information Page

<b>List of Effective Pages</b>			
Page Number		Issue	
Title		Submitted as Final	
iii through xvi		Submitted as Final	
1-1 through 1-4		Submitted as Final	
2-1 through 2-4		Submitted as Final	
3-1 through 3-4		Submitted as Final	
4-1 and 4-2		Submitted as Final	
5-1 through 5-14		Submitted as Final	
6-1 through 6-180		Submitted as Final	
7-1 and 7-108		Submitted as Final	
8-1 through 8-174		Submitted as Final	
9-1 through 9-142		Submitted as Final	
10-1 through 10-26		Submitted as Final	
11-1 through 11-2		Submitted as Final	
A-1 through A-32		Submitted as Final	
B-1 through B-28		Submitted as Final	
C-1 through C-12		Submitted as Final	
D-1 through D-2		Submitted as Final	
E-1 through E-6		Submitted as Final	
AB-1 through AB-6		Submitted as Final	
GL-1 through GL-12		Submitted as Final	
<b>Document History</b>			
Document Number	Status/Issue	Publication Date	CCR Number
311-CD-002-001	Original	March 1995	
311-CD-002-002	Final	April 1995	95-0239
311-CD-002-003	Final	August 1995	95-0151
311-CD-002-004	Final	December 1995	95-0913
311-CD-002-005	Submitted as Final	May 1996	96-0465
311-CD-002-005 311-CD-008-001	Retired Resubmitted w/ New Num	— July 1996	— 96-0843
311-CD-008-001	Change Pages	July 1996	96-0770

This page intentionally left blank.

# Contents

---

## 1. Introduction

1.1	Identification .....	1-1
1.2	Scope .....	1-1
1.3	Purpose .....	1-1
1.4	Audience .....	1-1
1.5	Document Organization .....	1-2

## 2. Related Documentation

2.1	Parent Documents .....	2-1
2.2	Applicable Documents .....	2-1
2.3	Information Documents .....	2-3
2.3.1	Information Documents Referenced .....	2-3

## 3. Modeling Technique and Application

3.1	The Three Schema Approach .....	3-1
3.1.1	The External Model .....	3-1
3.1.2	The Data Model .....	3-1
3.1.3	The Internal Model .....	3-1
3.2	Release B Data Engineering Process .....	3-2
3.2.1	View Collection, Analysis and Integration .....	3-2
3.3	Product Analysis .....	3-3

## 4. Deleted Section

## 5. The External Model: User View

5.1	User Views .....	5-1
5.1.1	V0 Client Access Views .....	5-1
5.1.2	V0 Results Views .....	5-7
5.1.3	ECS Views .....	5-12

## 6. The Data Model: Earth Science

6.1	Object Oriented Data Modeling .....	6-1
6.1.1	Data Naming Convention .....	6-3

6.1.2	Association Naming Convention .....	6-4
6.2	High Level Module Diagram .....	6-4
6.3	Earth Science Data Model: OMT Diagrams .....	6-6
6.3.1	DataOriginator Module .....	6-6
6.3.2	ECSCollection Module .....	6-6
6.3.3	ECSDataGranule Module .....	6-9
6.3.4	LocalitySpatial Module .....	6-9
6.3.5	LocalityTemporal Module .....	6-9
6.3.6	Contact Module .....	6-9
6.3.7	Delivered Algorithm Package Module .....	6-14
6.3.8	Document Module .....	6-14
6.3.9	Class Definitions .....	6-17
6.4	Earth Science Metadata Specifications.....	6-34
6.5	Candidate Keys .....	6-164
6.6	Earth Science Data Model Cross References to Other Models and Systems .....	6-170
6.6.1	Earth Science Data Model Classes Mapped to the Data Pyramid .....	6-170
6.6.2	GCMD Directory Interchange Format DIF Mapping .....	6-175

## **7. The Internal Model: Data Server Subsystem**

7.1	Data Server Subsystem Description .....	7-1
7.2	Graphical Model and Relational Tables .....	7-1

## **8. The Internal Model: Client, Interoperability, and Data Management Subsystem**

8.1	Client, Interoperability, and Data Management Subsystem Description.....	8-1
-----	--	-----

## **9. The Internal Model: Planning and Data Processing (PDPS) Subsystems**

9.1	Planning and Data Processing Subsystem (PDPS) Description .....	9-1
9.2	Graphical Model and Relational Tables .....	9-1
9.3	Cross Reference Tables for Traceability .....	9-106

## **10. The Internal Model: Ingest Subsystem**

10.1	Ingest Subsystem Description .....	10-1
10.2	Graphical Model and Relational Tables .....	10-1
10.3	Cross Reference Table for Traceability .....	10-19

## 11. Future Direction

11.1	Approach for Concluding Release B Analysis .....	11-1
11.2	Description of Remaining Tasks .....	11-1
11.3	Preliminary Schedule .....	11-1
11.4	Approach for Documenting Remaining Tasks .....	11-2
11.5	DAAC Analysis .....	11-2

## Appendix A. Auxiliary Data Specifications

A.1	Introduction .....	A-1
	A.1.1 Reference Papers .....	A-1
	A.1.2 Guide .....	A-2
	A.1.3 Map Projection Parameters .....	A-3
	A.1.4 Additional Text Records .....	A-6
A.2.	Processing Reports and Processing History .....	A-6
	A.2.1 Processing Reports .....	A-6
	A.2.2 Processing History Specification .....	A-10
A.3.	Delivered Algorithm Package .....	A-14
	A.3.1 Delivery Contents List Specification .....	A-14
	A.3.2 Context Diagram Specification .....	A-14
	A.3.3 Change Log Specification .....	A-14
	A.3.4 System Description Specification .....	A-14
	A.3.5 SW Development Standard Specification .....	A-14
	A.3.6 Processing File Description Specification .....	A-14
	A.3.7 Programming Guide Specification .....	A-14
	A.3.8 ATBD Specification .....	A-14
	A.3.9 Detailed Design Specification .....	A-14
	A.3.10 Test Plan Specification .....	A-14
	A.3.11 Test Site Config Specification .....	A-14
	A.3.12 Compile Info Specification .....	A-15
	A.3.13 Results Product File Specification .....	A-15
	A.3.14 Operations Manual Specification .....	A-15
	A.3.15 Science SW Source Code Specification .....	A-15
	A.3.16 Test Source Code Specification .....	A-15
	A.3.17 PGE error log Specification .....	A-15
	A.3.18 ScSW Script Specification .....	A-15
	A.3.19 Link and Compile Script Specification .....	A-15
	A.3.20 Test Script Specification .....	A-15
	A.3.21 Received Algorithm Package Pointer Specification .....	A-15

A.3.22	Result Product File Specification .....	A-15
A.3.23	Results Report Specification .....	A-15
A.3.24	Metadata Configuration File Specification .....	A-15
A.3.25	Instrument Science Data Specification .....	A-15
A.3.26	Instrument Engineering Data Specification .....	A-16
A.3.27	Platform Ancillary Data Specification .....	A-16
A.3.28	External Data Specification .....	A-16
A.3.29	Calibration Files Specification .....	A-16
A.3.30	Process Control Parameter and Resource File Specification .....	A-16
A.3.31	PGE Config File .....	A-16
A.3.32	Science SW Executable Specification .....	A-16
A.3.33	Processing Dependencies .....	A-16
A.4	Auxiliary Data Specifications for Granules .....	A-16
A.4.1	Science Output Specifications .....	A-16
A.4.3	User Comment Document .....	A-32

## **Appendix B. Mandatory Metadata**

B.1	Introduction .....	B-1
B.2.	Interpretation of Information .....	B-3
B.2.1	Introduction .....	B-3
B.2.2	Explanation of BNF .....	B-3
B.3	Summary Tables .....	B-4
B.4	Collection Level Metadata Specification .....	B-8
B.4.1	Metadata Requirement for Collections in Limited Class .....	B-8
B.4.2	Metadata Requirement for Collections in Intermediate Class .....	B-10
B.4.3	Metadata Requirement for Collections in Full Class .....	B-12
B.4.4	MultiType Collections .....	B-15
B.5	GranuleLevel Metadata .....	B-15
B.5.1	Metadata Requirement for Granules in Limited Class .....	B-15
B.5.2	Metadata Requirement for Granules in Intermediate Class .....	B-16
B.5.3	Metadata Requirement for Granules in Full Class .....	B-17
B.5.4	Metadata Requirement for Browse Products .....	B-18
B.6	Compound Definitions .....	B-18

## **Appendix C. Product Specific Data**

C.1	Introduction .....	C-1
C.1.1	Mapping to Core Attributes (C-1) .....	C-1
C.1.2	Non Core Attributes (C-2) .....	C-1

C.2	Mapping of Specific Domains and Aliases to the Core Model (C-1) .....	C-2
C.3	Non-core Attributes (C-2a and C-2b) .....	C-3

## Appendix D. SDesignor Explanation

## Appendix E. Usage Statistics

E.1	System Usage Statistics .....	E-1
E.1.1	Basis for Statistical Analysis .....	E-1
E.1.2	Caveats to Methods Employed .....	E-1
E.1.3	Usage Statistics .....	E-2
E.1.4	Summary Bar Chart of Usage Statistics .....	E-3

## Abbreviations and Acronyms

### Glossary

### List of Figures

3-1	Data Engineering Process .....	3-2
6-1a	Example of an Object Model Diagram .....	6-2
6-1b	Multiplicity of Associations .....	6-3
6-3	DataOriginator .....	6-7
6-4	ECSCollection .....	6-8
6-5	ECSDataGranule .....	6-9
6-6	LocalitySpatial .....	6-11
6-7	LocalityTemporal .....	6-12
6-8	Contact .....	6-13
6-9	DeliveredAlgorithmPackage .....	6-14
6-10	Document .....	6-15
6-11	Data Pyramid .....	6-165
9-1	PDPS Planning Graphical Model .....	9-2
9-2	Data Processing Subsystem Graphical Models .....	9-89
10-1	Ingest Graphical Model .....	10-2
A.4.2.4.2.2-1	Mapping of GRIB Formatted Records to HDF Science Data Set .....	A-23
A.4.2.4.2.2-2	Graphic Depiction of the Format of the Output HDF-EOS Data File .....	A-25
A.4.2.4.2.2-3	Mapping of Native Master Map Format Product .....	A-28
E-1a	Usage Summary for ECS Data .....	E-4
E-1b	Usage Summary for Non-ECS Data .....	E-5

## List of Tables

5-1	Inventory Access View .....	5-2
5-2	Browse Request Access View .....	5-3
5-3	Directory Access View .....	5-4
5-4	Product Request Access View .....	5-5
5-5	ProjectCampaignGuide Access (V0 interface) View .....	5-5
5-6	DataSetGuide Access (V0 interface) View .....	5-6
5-7	SensorInstrumentGuide Access (V0 interface) View .....	5-6
5-8	SourcePlatformGuide Access (V0 interface) View .....	5-7
5-9	DataCenterGuide Access (V0 interface) View .....	5-7
5-10	Inventory Results View .....	5-7
5-11	Browse Result View .....	5-10
5-12	Directory Result View .....	5-11
5-13	DataCenterGuide Result (V0 interface) View .....	5-11
5-14	DataSetGuide Result (V0 interface) View .....	5-11
5-15	SensorInstrumentGuide Result (V0 interface) View .....	5-11
5-16	SourcePlatformGuide Result (V0 interface) View .....	5-11
5-17	ProjectCampaignGuide Result (V0 interface) View .....	5-12
5-18	Product Result(V0 Interface)View .....	5-12
5-19	EP6 Inventory Access View .....	5-12
5-20	EP 6 Inventory Result View .....	5-13
5-21	EP 6 Data Dictionary Access View .....	5-13
5-22	EP 6 Data Dictionary Result View .....	5-13
5-23	EP6 Advertisement Access View .....	5-14
5-24	EP6 Advertisement Result View .....	5-14
6-1	Earth Science Data Model Mapped to the Data Pyramid .....	6-167
6-2	GCMD/DIF Mapped to the Earth Science Data Model Attributes.....	6-174
9-1	PDPS Planning Relational Tables .....	9-3
9-2	Data Processing Subsystem Relational Tables .....	9-90
9-3	Planning Subsystem Persistent Data Cross Reference Table .....	9-107
9-4	Data Processing Subsystem Persistent Data Cross Reference Table .....	9-137
10-1	Ingest Relational Tables .....	10-3
10-2	Ingest Persistent Data Cross Reference Table .....	10-20
11-1	Remaining Tasks Schedule .....	11-2
A-1	Production History Requirements.....	A-12
B-1	Summary of DMWG Meeting Defining Guidance for Levels of Metadata .....	B-2
B-2	High Level Association Between Metadata and Services .....	B-3
B-3	Summary Status of Single Type Collection Level Attributes .....	B-5
B-4	Summary of GranuleLevel Attributes .....	B-7
C-1	Mapping of Specific Domains & Aliases .....	C-2

C-2a. Non-Core Attributes Sorted by Server ..... C-4  
C-2b. Non-Core Attributes Sorted by Attribute ..... C-8  
E-1a Non-ECS Usage Estimate Totals - Number of Requests Per Year ..... E-2  
E-1b Non-ECS Usage Estimate Totals - Number of Requests per Year ..... E-3

This page intentionally left blank.

# 1. Introduction

---

## 1.1 Identification

This document provides change pages for the Release B SDPS 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 (NAS5-600000.)

## 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, February 1996 and the Release Plan Content Description for the ECS Project, October 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 (SPDS) 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 specifications for related files which may be 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 described in this document.

These change pages provide updated detail design material for the Data Model, Data Server and Interoperability and Data Management Subsystems. In addition to the detail design sections for these two Subsystems, other sections of the document have been updated as necessary to reflect design detail. A characterization of these changes is presented in Section 1.5.1.

## 1.3 Purpose

The purpose of this document is to provide change pages which illustrate, specify, and communicate the design of ECS earth science metadata<sup>1</sup> and identify the system persistent to software developers and the government. It is a living document that captures ECS earth science data requirements in a logically structured format that is useful to designers, developers, and managers. The earth science metadata model represented in this document is a practical means of assuring the consistency of data requirements across subsystems 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

---

<sup>1</sup> Metadata is defined in the Federal Geographical Data Committee Metadata Standard.

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

## 1.5 Document Organization

This paper is organized in accordance with ESDIS standard format. The document includes introductory and reference for the change pages that replace sections of the Release B Science Data Processing Segment (SDPS) Database Design and Database Schema Specification (311-CD-002-005).

The following section pertains to this document only:

- Section 1 contains the introductory material and background necessary for the reader to understand the content.

The following sections replace the corresponding section of the Release B Science Data Processing Segment (SDPS) Database Design and Database Schema Specification (311-CD-002-005):

- 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 for the Data Server subsystem.
- Section 8 presents a snapshot of the Interoperability and Data Management subsystems.
- Appendix B contains descriptions for mandatory metadata.
- Appendix A contains specifications for Auxiliary Data.

### 1.5.1 Changes to Document Organization and Content Since Delivery in May 1996

There have been numerous changes in data model content from the prior release delivered in May. Content changes for Section 6 and Appendix A and B were a result of feedback from both internal and external sources. The subsystem descriptions, relational tables, and cross-reference tables for both Data Server (Section 7) and Interoperability and Data Management (Section 8) have been included in this document. The Graphical Model (Section 6.3) includes several multiplicity changes. Additionally, associations between Earth Science Data Objects has also been included in this model. A new subsection was added to Section 6 to capture the proposed candidate keys.

Consistency was addressed between the following:

- Data dictionaries and graphical models
- Data dictionaries, graphical models, and BNF
- Class and attribute names

The following summarizes the most significant changes that were made to the graphical model:

- Collection Module: Changed multiplicity to provide clarity and synchronize with the BNF; Eliminated off page connectors thus redundant relationships and Named associations to reflect additional analysis.
- Data Originator Module: Changed multiplicity to provide clarity and synchronize with the BNF; Eliminated off page connectors thus redundant relationships and Named associations to reflect additional analysis.

- Delivered Algorithm Module: Changed multiplicities to reflect scientific analysis and Named associations to reflect additional analysis.
- Document Module: Changed multiplicities to reflect analysis; Eliminated off page connectors thus redundant relationships and Named associations to reflect additional analysis.
- Granule Module: Changed multiplicity to provide clarity and synchronize with the BNF; Eliminated off page connectors thus redundant relationships; Renamed a class and Named associations to reflect additional analysis.
- Spatial Locality Module: Changed multiplicity to provide clarity and synchronize with the FGDC; Named associations to reflect additional analysis.

Questions regarding technical information contained within this Paper should be addressed to the following ECS contacts:

- ECS Contacts
  - Karl Cox, Science Office, (301) 925-0537, [kcox@eos.hitc.com](mailto:kcox@eos.hitc.com)
  - Janet Hylton, Data Engineer, (301) 925-0466, [janet@eos.hitc.com](mailto:janet@eos.hitc.com)
  - Amanda Wingo, Science Specialist, (301) 925-0815, [awingo@eos.hitc.com](mailto:awingo@eos.hitc.com)

This page intentionally left blank.

## 2. Related Documentation

---

### 2.1 Parent Documents

The parent documents are the documents 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.

160-TP-004-001	User Pull Analysis Notebook [for the ECS Project], Technical Paper
194-00287[TPW]	Ancillary Data in the EOSDIS Core System, Technical Paper
194-815-SI4-001	SDP Toolkit Primer for the ECS Project <a href="http://newsroom.hitc.com/sdptoolkit/primer/tkprimer.html">http://newsroom.hitc.com/sdptoolkit/primer/tkprimer.html</a>
210-TP-001-003	Technical Baseline for the ECS Project, Technical P205-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
209-CD-001-002	ICD Between ECS and NASA Science Internet (NSI)
209-CD-002-003	ICD Between ECS and ASTER Ground Data System
209-CD-005-005	ICD Between ECS and Science Computing Facilities
209-CD-006-005	ICD Between the ECS and the NOAA
209-CD-008-004	ICD Between the ECS and GSFC DAAC
209-CD-011-004	ICD Between the ECS and Version 0 for Interoperability
209-CD-013-003	ICD Between the ECS Project and Landsat-7
209-CD-021-002	ICD Between the ECS and ASF DAAC
209-CD-022-002	ICD Between the ECS and ORNL DAAC
209-CD-027-001	ICD Between the ECS and SAGE III

304-CD-005-002	Release B SDPS/CSMS System Requirements Specifications
305-CD-020-002	Release B SDPS/CSMS Design Specification Overview
305-CD-003-002	Communications and System Management (CSMS) Design Specification for the ECS Project, Preliminary
305-CD-021-002	Release B SDPS Client Subsystem Design Specification
305-CD-022-002	Release B SDPS Interoperability Subsystem Design Specification
305-CD-023-002	Release B SDPS Data Management Subsystem Design Specification for the ECS Project
305-CD-024-002	Release B SDPS Data Server Subsystem Design Specification for the ECS Project
305-CD-025-002	Release B SDPS Ingest Subsystem Design Specification for the ECS Project
305-CD-026-002	Release B SDPS Planning Subsystem Design Specification for the ECS Project
305-CD-027-002	Release B SDPS Data Processing Subsystem Design Specification for the ECS Project
305-CD-028-002	Release B CSMS Segment Communications Subsystem Design Specification for the ECS Project
305-CD-029-002	Release B CSMS Segment Systems Management Subsystem Design Specification for the ECS Project
305-CD-030-002	Release B GSFC Distributed Active Archive Center Implementation
305-CD-031-002	Release B LaRC Distributed Active Archive Center Implementation
305-CD-033-002	Release B EDC Distributed Active Archive Center Implementation
305-CD-034-002	Release B ASF Distributed Active Archive Center Implementation
305-CD-035-002	Release B NSIDC Distributed Active Archive Center Implementation
305-CD-036-002	Release B JPL Distributed Active Archive Center Implementation
305-CD-037-002	Release B ORNL Distributed Active Archive Center Implementation
305-CD-038-002	Release B SMC Distributed Active Archive Center Implementation
305-CD-039-002	Release B Data Dictionary for Subsystem Design Specification for the ECS Project
311-CD-003-002	Communications and System Management Segment (CSMS) Database Design Specification and Database Schema for the ECS Project
333-CD-002-002	SDP Toolkit Users Guide for the ECS Project
FB9402V2	ECS Science Requirements Summary, White Paper

## 2.3 Information Documents

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
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
none	Goddard Space Flight Center, Science Data Plan for the EOS Data and Information System covering EOSDIS Version 0 and Beyond, 7/94 ( <a href="http://edhs1.gsfc.nasa.gov:8001/waisdata/special/od9900203toc.html">http://edhs1.gsfc.nasa.gov:8001/waisdata/special/od9900203toc.html</a> )
none	Goddard Space Flight Center Global Change Data Center; Global Change Master Directory (GCMD) @ <a href="http://gcmd.gsfc.nasa.gov/gcmdhome.html">http://gcmd.gsfc.nasa.gov/gcmdhome.html</a>
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

### 2.3.1 Information Documents Referenced

The following documents are referenced:

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

This page intentionally left blank.

## 3. Modeling Technique and Application

---

### 3.1 The Three Schema Approach<sup>1</sup>

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 mechanism to communicate the data requirements to the various system development components and users. 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 presented in this document are developed within the object oriented framework; therefore, a somewhat modified set of object models is delivered to support the relational basis for the object oriented environment. For example, the content of the OMT diagrams is intentionally left incomplete with respect to the functional aspects of the methodology. However, traceability between the data objects contained in this document and the functional objects, which are defined in DID305, is expressed in Sections 7-10 of this document. This document also refers to models rather than schema to identify the three logical entities in this modeling approach. The characterization, however, remains the same.

#### 3.1.1 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's windows into the database. For physical implementation, these views are further decomposed into various scenarios illustrating the query capability of the system. These views are represented in Section 5 of this document.

#### 3.1.2 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 and characteristics of these attributes. This model is defined in Section 6 of this document.

#### 3.1.3 The Internal Model

The internal model is synonymous with the physical schema design. This is the platform dependent representation of the data model that is implemented in the Sybase relational database management system. It completes the framework for the three schema approach.

---

<sup>1</sup>. 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

### 3.2 Release B Data Engineering Process

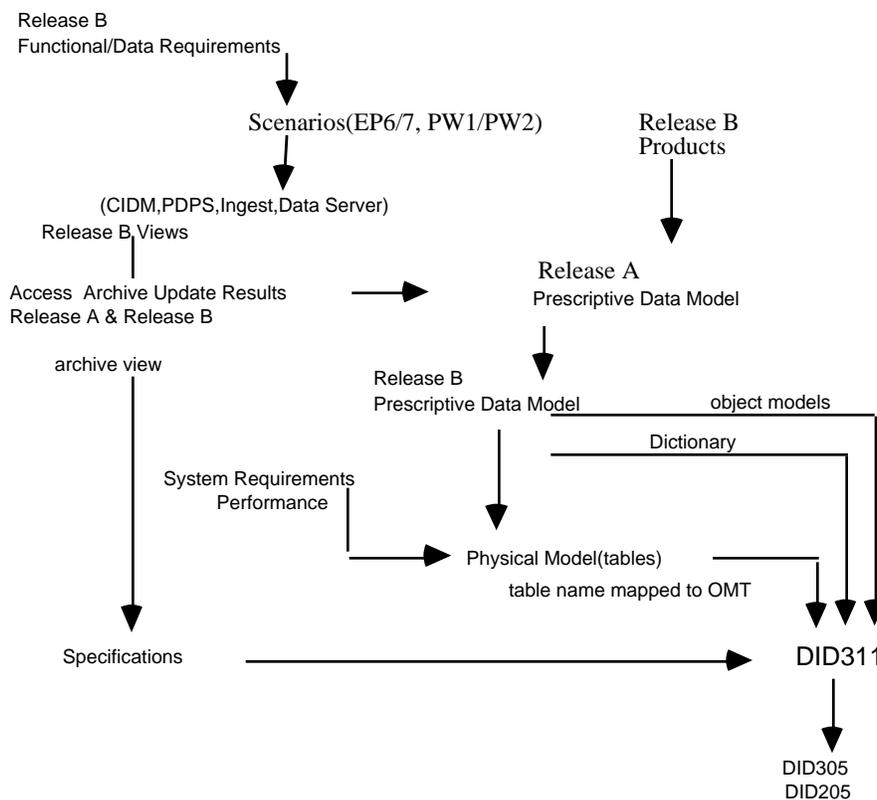
The application of the above three schema approach to the ECS data analysis effort is reflected in the following data engineering process (Fig. 3-1). This process adopts the notion of creating 3 models which represent the phases associated with characterizing the ECS data. The execution of the process, which is illustrated below, requires that the Data Engineering Organization conduct two major activities:

- View Collection, Analysis, and Integration and;
- Product Analysis.

View collection, analysis, and integration will provide the Earth Science User Views that the model must accommodate. Product Analysis will reveal the unique characteristics of the Release B data which must be applied to the Release A model. The results of these activities will produce a single logical model which will then be applied if applicable within each subsystem. The following briefly describes each of the above Data Engineering tasks.

#### 3.2.1 View Collection, Analysis and Integration

Because of the incremental track development process, the results of the View Collection, Analysis and Integration activity is not conclusive; however, the view collection, analysis and application of the views activity is similar to the task performed for Release A. That is, the User Access, Results, Update, and System Archive Views, for Release B are collected and further analyzed to determine their impact on the Earth Science Model and to identify the Release B Archive Views or specifications. The impact on the data model may include identifying additional attributes, tightening up existing definitions, or identifying additional relationships.



**Figure 3-1. Data Engineering Process**

### **3.2.1.1 View Collection/Analysis**

For Release B, the source of information that will be reviewed to identify user views will differ somewhat from the Release A approach. For Release A, the V0 Client requirements were the primary source for Earth Science user access and results view, collection and analysis. For Release B the following list of potential sources will be used to identify the views.

- The Release B Formal track design components
  - Ingest
  - PDPS
- The Release B Incremental Track design components
  - Client
  - Interoperability
  - Data Management
- The results of EP Development, Implementation and Reviews.
- The results from the Design Issue Team will provide input to the view collection activity.
- The EP6/EP7 Scenarios will provide real world examples of what the earth science data model must be capable of responding to in an operational setting. The analysis of these scenarios will provide a collection of data which will be required to support the functionality of the scenario.
- Interface Control Documents for Release B. The Data Engineering Team will work closely with the Interface Control team to insure that the interfaces can be supported within the data model.

### **3.2.1.2 View Integration**

This step is similar to the Release A view application activity in which the content of the view is mapped to the earth science model to determine if additional data, relationships, objects or cardinality may be required to support the view.

## **3.3 Product Analysis**

The Release A product analysis provided the basis for the Release A descriptive model. The Release B product analysis will serve a slightly different purpose. Therefore, the process for collection and analysis is also slightly different. The focus of this analysis was to verify the stability of the earth science model by ensuring that the Release B data can be accommodated within the data model. The product analysis phase of this effort for Release B Products involved the following:

- Identify Release B Products from the Technical Baseline.
- Map a subset of the Release B Products to the Earth Science Data Model
- Collaborate with the Release B DAACS for the purpose of clarifying the data model and providing support in the application of the model to the DAAC-specific data.

Product-specific metadata is defined as the data which is required to describe the characteristics (attributes) of the data collection and each individual data granule. For the collection this would

include the collection-level earth science (core) attributes which relate to the collection as well as to any specific collection-level characteristics which may be required to adequately describe the collection. For the granule, this would include the ECS Data Granule core attributes as specified in the data model in addition to any granule specific characteristics about the granule that needs to be recorded in the ECS Metadata.

## 4. Deleted Section

---

This page intentionally left blank.

## 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, represent the Earth Science data required to satisfy a search request and provide meaningful results. The intent for presenting this information in DID 311 is to demonstrate that the access and results 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. The views identified in this document 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. The ECS System to External System views are described in the ICDs. The workflows and interface functionality have been described in the DID 305s.

The collection of user views identified in this section represents the results of the view collection, analysis, and application tasks described in Section 3 (Data Engineering Process). Two categories of views were identified- the current V0 Client interface, which will continue to be supported in Release B, and specific ECS user views which characterize the EP6 effort.

#### 5.1.1 V0 Client Access Views

For Release B the Earth Science Search Tool will support the current V0 access functionality. The Product Request Tool will support the order function of the V0 Client. Therefore, the following data views are presented for this subset of the client access functionality.

The V0 Client Access views are defined as a collection of attributes, which may be specified by the end user, for the purpose of accessing the V0 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, and also the Product Request Tool. Each of these is represented as a type of view; each view is represented as a collection of attributes. This is characterized as a table consisting of V0 attributes mapped to the ECS Metadata attributes, and application/system data, if appropriate. The application/system data is supported within the application, for example a flag is set, or a value may be derived, as a result of a process. This data will not map to the Earth Science data model as it is generally used to support the functionality of the ECS system and not the end user. The reasoning behind representing the views as a collection of V0 attributes cross-referenced to ECS attributes is to illustrate that the V0 Metadata required for searching has been accommodated within ECS.

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

<b>V0 Attribute (screen parameter)</b>	<b>Application/System Data</b>	<b>Earth Science Metadata Attribute</b>
Message ID	x	
Authenticator	x	
Granule Limit	x	
Browse Only	x	
Campaign		CampaignShortName Campaign Long Name
Data set ID		LongName
Sensor Name		SensorShortName SensorLongName SensorTechnique Instrument Long Name InstrumentShortName InstrumentTechnique NonInstrumentLongName NonInstrumentShortName NonInstrumentTechnique
Source Name		PlatformShortName PlatformLongName NonInstrumentShortName NonInstrumentLongName NonInstrumentTechnique CampaignShortName CampaignLongName DataOriginatorLongName DataOriginatorShortName
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		Additional Attributes Parameter Value
Processing Level		ProcessingLevel ID
Parameter		ECS Variable ECS Parameter
<b>SPATIAL LOCATION</b>		
Global granules only		SpatialKeyword

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

<b>V0 Attribute (screen parameter)</b>	<b>Application/System Data</b>	<b>Earth Science Metadata Attribute</b>
<b>Range Location (Rectangle)</b>		
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	
<b>Point Location</b>		
Latitude		Point Latitude
Longitude		Point Longitude
<b>Polygon Location (Four corners)</b>		
Latitude		GRing Point Latitude
Longitude		GRing Point Longitude
		GRing PointSequenceNo
Pole included	x	
Tangent_Longitude	x	
Tangent_Latitude	x	
Map projection type	x	

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

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

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

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

**Table 5-3. Directory Access View (1 of 2)**

<b>V0 Attribute (screen parameter)</b>	<b>Application/System Data</b>	<b>Earth Science Metadata Attribute</b>
Message Id	x	
Authenticator	x	
Campaign		CampaignShortName Campaign Long Name
Data set ID		Longname
Sensor Name		SensorShortName SensorLongName SensorTechnique Instrument Long Name InstrumentShortName InstrumentTechnique NonInstrumentLongName NonInstrumentShortName NonInstrumentTechnique
Source Name		PlatformShortName PlatformLongName NonInstrumentShortName NonInstrumentLongName NonInstrumentTechnique CampaignShortName CampaignLongName DataOriginatorLongName DataOriginatorShortName
Start Date		Range Beginning Date

**Table 5-3. Directory Access View (2 of 2)**

<b>V0 Attribute (screen parameter)</b>	<b>Application/System Data</b>	<b>Earth Science Metadata Attribute</b>
		Range Beginning Time
Stop Date		Range Ending Date
		Range Ending Time
Parameter		ECS Variable ECS Parameter

**Table 5-4. Product Request Access View**

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

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

<b>V0 Attribute (screen parameter)</b>	<b>Application/System Data</b>	<b>Earth Science Metadata Attribute</b>
Data Center ID		DataCenter
Campaign		CampaignShortName Campaign Long Name

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

<b>V0 Attribute (screen parameter)</b>	<b>Application/System Data</b>	<b>Earth Science Metadata Attribute</b>
Data Center ID		DataCenter
Campaign		CampaignShortName Campaign Long Name
Sensor Name		SensorShortName SensorLongName SensorTechnique Instrument Long Name InstrumentShortName InstrumentTechnique NonInstrumentLongName NonInstrumentShortName NonInstrumentTechnique
Source Name		PlatformShortName PlatformLongName NonInstrumentShortName NonInstrumentLongName NonInstrumentTechnique CampaignShortName CampaignLongName DataOriginatorLongName DataOriginatorShortName
Parameter		ECS Variable ECS Parameter
Data set ID		Longname

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

<b>V0 Attribute (screen parameter)</b>	<b>Application/System Data</b>	<b>Earth Science Metadata Attribute</b>
Data Center ID		DataCenter
Sensor Name		SensorShortName SensorLongName SensorTechnique Instrument Long Name InstrumentShortName InstrumentTechnique NonInstrumentLongName NonInstrumentShortName NonInstrumentTechnique

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

<b>V0 Attribute (screen parameter)</b>	<b>Application/System Data</b>	<b>Earth Science Metadata Attribute</b>
Data Center ID		DataCenter
Source Name		PlatformShortName PlatformLongName NonInstrumentShortName NonInstrumentLongName NonInstrumentTechnique CampaignShortName CampaignLongName DataOriginatorLongName DataOriginatorShortName

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

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

### 5.1.2 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 5-10. Inventory Results View (1 of 3)**

<b>V0 Attribute (screen parameter)</b>	<b>Application/System Data</b>	<b>Earth Science Metadata Attribute</b>
Status Code	x	
Status Code Comment	x	
Number of Datasets	x	
MessageID	x	
Data Center ID		ArchiveCenter
<b>DATASET</b>		
Status Code	x	
MD Entry ID	x	
Data Set ID		Longname
Restriction		Access Constraints

**Table 5-10. Inventory Results View (2 of 3)**

<b>V0 Attribute (screen parameter)</b>	<b>Application/System Data</b>	<b>Earth Science Metadata Attribute</b>
Browse Product Description		BrowseDescription
Comment	x	UserCommentDocumentPointer
Campaign		CampaignShortName CampaignLongName
Day_Night		Additional Attribute Parameter Value
Processing Level		ProcessingLevelID
Sensor Name		SensorShortName SensorLongName SensorTechnique Instrument Long Name InstrumentShortName InstrumentTechnique NonInstrumentLongName NonInstrumentShortName NonInstrumentTechnique
Source Name		PlatformShortName PlatformLongName NonInstrumentShortName NonInstrumentLongName NonInstrumentTechnique CampaignShortName CampaignLongName DataOriginatorLongName DataOriginatorShortName
Parameter		ECS Variable ECS Parameter
Number of Granule Hits	x	
<b>GRANULE</b>		
Granule ID	x	GranulePointer
Start Date/Time		Range Beginning Date Range Beginning Time
Stop Date/Time		Range Ending Date Range Ending Time
Browse Type	x	
Comment	x	UserCommentDocumentPointer
Package ID	x	
Parameter		ECS Variable ECS Parameter
Campaign		CampaignShortName Campaign Long Name

**Table 5-10. Inventory Results View (3 of 3)**

<b>V0 Attribute (screen parameter)</b>	<b>Application/System Data</b>	<b>Earth Science Metadata Attribute</b>
SensorName		SensorShortName SensorLongName SensorTechnique Instrument Long Name InstrumentShortName InstrumentTechnique NonInstrumentLongName NonInstrumentShortName NonInstrumentTechnique
Day Night		Additional Attributes ParameterValue
ProcessingLevel		ProcessingLevelID
SourceName		PlatformShorName PlatformLongName NonInstrumentShortName NonInstrumentLongName
<b>SPATIAL LOCATION</b>		
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
<b>PACKAGE</b>		
Data Center ID		ArchiveCenter
Dataset ID		LongName
PackageID	x	
Comment	x	
Granule Count	x	
Number of Options	x	
<b>PROCESSING OPTION</b>		
Option ID	x	
Package Size	x	
Number of Media Type	x	
<b>MEDIA TYPE</b>		
Type ID	x	
Number of Media Format	x	
<b>MEDIA FORMAT</b>		
Format Id	x	
Approx Cost	x	

**Table 5-11. Browse Result View**

<b>V0 Attribute (screen parameter)</b>	<b>Application/System Data</b>	<b>Earth Science Metadata Attribute</b>
MessageId	x	
Data Center ID		ArchiveCenter
StatusCode	x	
StatusCodeComment	x	
<b>IMAGE</b>		
Data set ID		Longname
Granule ID	x	GranulePointer
Image ID	x	BrowsePointer
Image Size		Browse Size
<b>FTP BROWSE RESULT</b>		
MessageId	x	
StatusCode	x	
StatusCodeComment	x	
Data Center ID		ArchiveCenter
Total File Size	x	
<b>DAAC CONTACT ADDRESS</b>		
Contact Name		Contact LastName
		Contact FirstName
		Contact MiddleName
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 5-12. Directory Result View**

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

**Table 5-13. DataCenterGuide Result (V0 interface) View**

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

**Table 5-14. DataSetGuide Result (V0 interface) View**

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

**Table 5-15. SensorInstrumentGuide Result (V0 interface) View**

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

**Table 5-16. SourcePlatformGuide Result (V0 interface) View**

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

**Table 5-17. ProjectCampaignGuide Result (V0 interface) View**

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

**Table 5-18. 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	

### 5.1.3 ECS Views

Section 6, Table 6-1 of this document discusses the data pyramid views and associated ECS objects and attributes. This table may provide insight into the various layers of the data pyramid and the associated ECS attributes. In addition to this table the Client Subsystem, which has been demonstrated in several EPs and PWs, can also provide views into the ECS data. The primary focus of this section is to present a subset of the client views as presented in EP6. The format is centered around EP6 scenarios, where the scenario is first translated into User Views of the data, which is reflected in the second column of the following tables. These views are then translated into ECS data terms (Earth Science Metadata Attributes and Application/System Data), which is reflected in the third and fourth column of the access and results views tables that follow.

#### **Earth Science Search Tool EP6 Inventory Data Access Scenario, Access and Results View Scenario:**

- (a) Using the Earth Science Search Tool (ESST), submit a search to the data Inventory for data related to vegetation indices covering the watershed study site (upper left: 78W, 40N; Lower right: 77W, 39N)

**Table 5-19. EP6 Inventory Access View**

Scenario	User View	Earth Science Metadata Attribute	Application/System Data
(a)	Vegetation Indices	ECS Topic ECS Term ECS Variable	
	watershed study site upper left: 78W, 40N; Lower right: 77W, 39N	WestBoundingCoordinate NorthBoundingCoordinate EastBoundingCoordinate SouthBoundingCoordinate	

**Table 5-20. EP 6 Inventory Result View**

Scenario	User View	Earth Science Metadata Attribute	Application /System Data
(a)	Granule Name	Short Name	
	Topic Parameter Parameter	ECS Topic ECS Term ECS Variable	
	Location Coordinates	WestBoundingCoordinate NorthBoundingCoordinate EastBoundingCoordinate SouthBoundingCoordinate	
	Temporal	Range Date Time Single Data Time	
	Sensor	SensorShortName	
	Platform	PlatformShort Name	
	Browse		Browse Flag

**Earth Science Search Tool EP6 Data Dictionary Scenario, Access and Results Views**

**Scenario:**

(b) To aid your choice of search parameters, use the Data Dictionary to look up the definitions(s) of the terms used in the Earth Science Search Tool.

**Table 5-21. EP 6 Data Dictionary Access View**

Scenario	User View	Earth Science Metadata Attribute	Application /System Data
(b)	Search Term		Attribute Name

**Table 5-22. EP 6 Data Dictionary Result View**

Scenario	User View	Earth Science Metadata Attribute	Application /System Data
(b)	Search Term Description		Attribute Name Attribute Description

**Earth Science Search Tool EP6 Advertisement Scenario, Access and Results Views**

**Scenario:**

(c) There may be other data collections available through EP6 that would be useful additions to your database. These data collections might not be composed of EOS-data but they might be advertised and available for your use. Submit a search using the Advertising Service for data collections pertaining to vegetation that are available for your study site. The coordinates of your study site are upper left: 78W, 40N; Lower right: 77W, 39N.

**Table 5-23. EP6 Advertisement Access View**

Scenario	User View	Earth Science Metadata Attribute	Application /System Data
(c)	Vegetation	ECS Topic ECS Term ECS Variable	
	upper left: 78W, 40N; Lower right: 77W, 39N	WestBoundingCoordinate NorthBoundingCoordinate EastBoundingCoordinate SouthBoundingCoordinate	

**Table 5-24. EP6 Advertisement Result View**

Scenario	User View	EarthScience Metadata Attribute	Application /System Data
(c)	Collection Name(s)	Collection Short Name(s)	
	Parameter(s)	ECS Topic ECS Term ECS Variable	
	Coverage: North/West  South/East	WestBoundingCoordinate NorthBoundingCoordinate EastBoundingCoordinate SouthBoundingCoordinate	
	Advertisement(s)		Title
	Description		Description
	URL		Guide URL
	Contact	Role	
		Contact First Name	
		ContactMiddleName	
		ContactLastName	
		Street Address	
		City	
		StateProvince	
		PostalCode	
		Country	
		TelephoneNumber	
		TelephoneNumberType	
		ElectronicMailAddress	
	Process Level	ProcessingLevelID	
	Sensor	SensorShortName	
	Start Date	RangeBeginningDate	
	End Date	RangeEndingDate	

## 6. The Data Model: Earth Science

---

### 6.1 Object Oriented Data Modeling

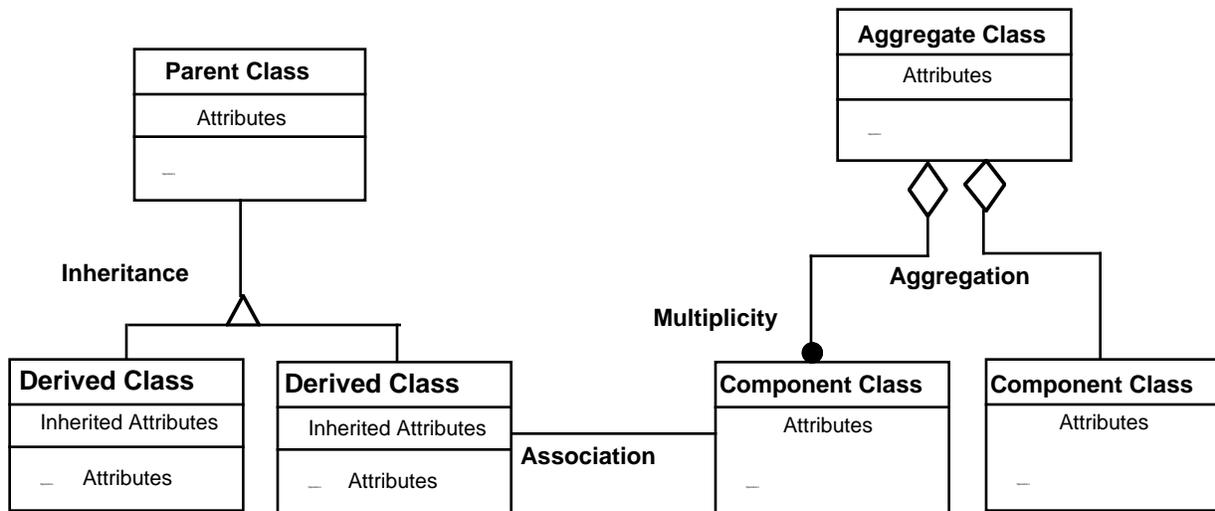
The diagrams illustrated in Sections 6.2 and 6.3 are data structures which are the products of analysis using the Interactive Development Environment (IDE) Software through Pictures (StP) Object Modeling Technique (OMT) which is a Computer Aided Software Engineering (CASE) tool. This section is an overview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

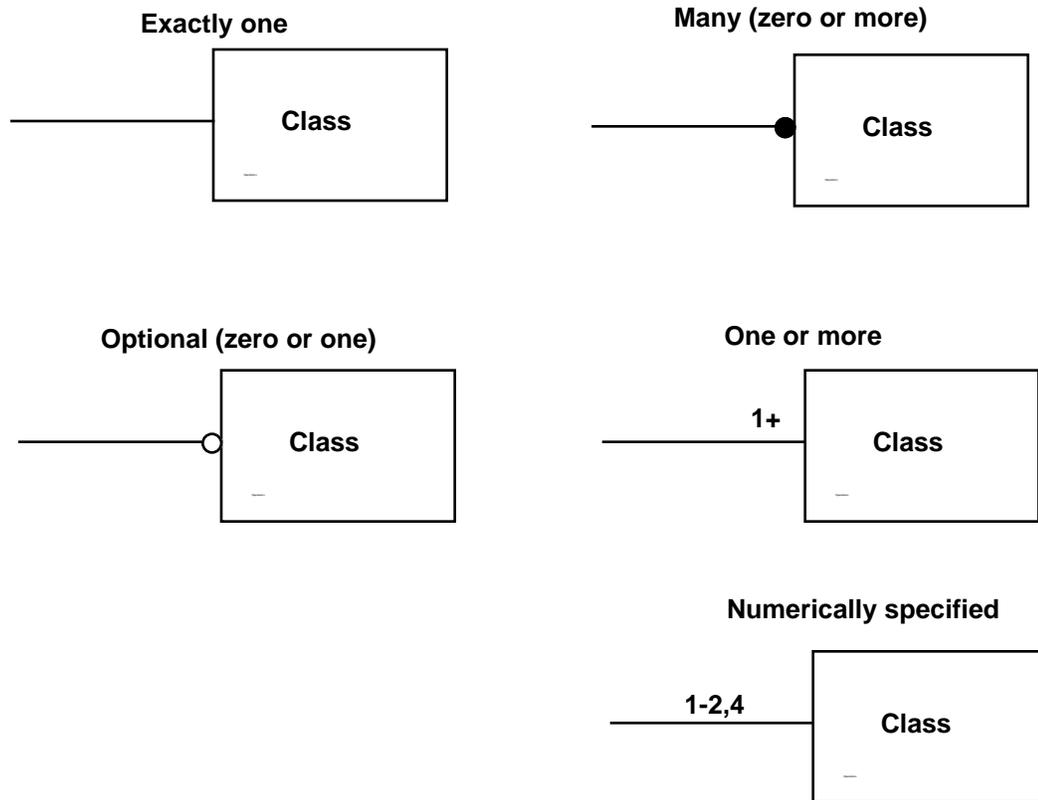
Figure 6-1 shows this notation used in the Data Model diagrams. The rectangular boxes in the model denote classes. Each box, shown in full detail, consists of three sections. The name of the class fills the top section, its attributes go in the middle section, and its operations in the bottom section. 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 6-1a. Example of an Object Model Diagram**

Figure 6-1a also shows that there are two classes, each called a "Component Class", that 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 6-1a, the left component class must occur some number of times (zero, one or many), the right component must occur exactly once. The association between the right hand derived class and the left hand component class is constrained to be one to one. The derived classes inherit the attributes of the parent as well as having attributes assigned individually. Figure 6-1b shows the various types of association.

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.



**Figure 6-1b. Multiplicity of Associations.**

### 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.<sup>1</sup> 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.

<sup>1</sup>. This glossary is maintained by the Hughes Data Management Office (DMO).

- 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 superclass of data within the model.
- Where class “off-page” connectors are described, the name of the off-page connector is the exact name of the referenced class.
- Names are represented as singular wherever possible, consistent with standard modeling techniques.

### 6.1.2 Association Naming Convention

As with the data name, the association name is, in some cases, a judgment call by the data engineering group, that adheres to a set of predefined rules. The rules which apply are:

- Association labels are identified via analysis of existing class definitions, documented policy, and conversation held with data providers, instrument teams, and DAACs.
- Associations labels are based on the action which best describes the relationship between the two associated entities.
- Associations are labeled to be read from top to bottom primarily and left to right secondarily.
- Inheritance structures are not labeled, as inheritance implies Parent class “is a” Child class.
- Aggregation relationships are not labeled, as all aggregations are defined as Assembly “contains” Component.

## 6.2 High Level Module Diagram

Figure 6-2 shows a high level view of the Data Model showing the relationships of the modules. 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. This representation is provided to give overall context. More detailed relationships and off-page connectors to subsystem functional classes are shown in individual modules.

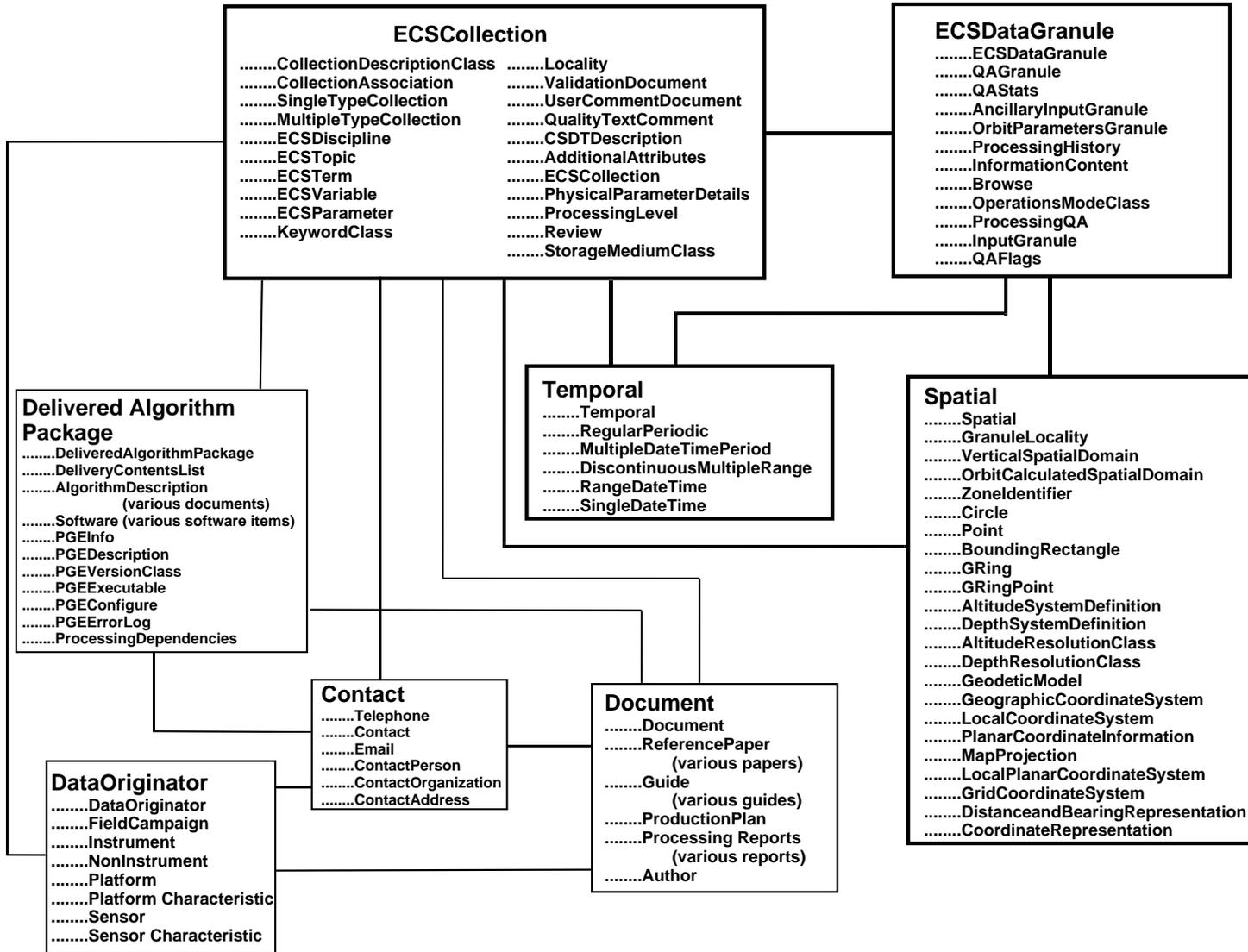


Figure 6-2. High Level Class Diagram of the Data Model

## 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 6-10 and Section 6.2.1 for definitions of the classes.

In Sections 6.3.1 through 6.3.8 the various modules coupled with their OMT diagram are defined. The specifications for the attributes within each class are found in Section 6.3.9.

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.

### 6.3.1 DataOriginator Module

This module provides a structure to contain characteristics for collections of data origin, from a higher through to a detailed level. 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 examples will fit within the structure of this module using several attributes.

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

### 6.3.2 ECSCollection Module

A collection<sup>2</sup> 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., ECSDiscipline -> ECSTopic -> ECSTerm -> ECSVariable -> ECSParameter. The first four levels are derived from the Global Change Master Directory (GCMD) system, the last are ECS collection specific parameters.

This module contains objects and associated attributes necessary to describe an ECS collection. Additionally relationships to other objects are also reflected in this module.

Figure 6-4 is the ECSCollection Module OMT diagram.

---

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

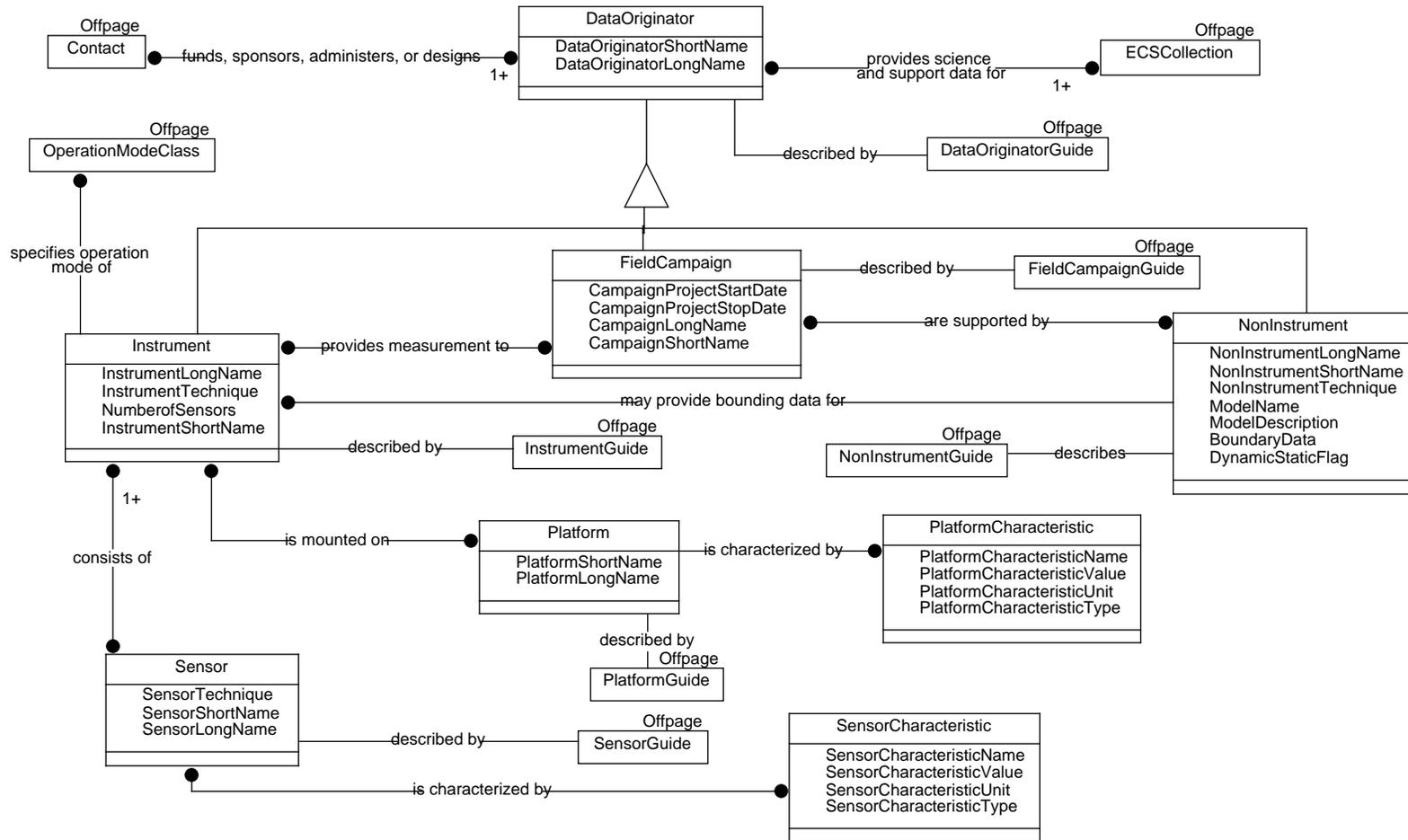


Figure 6-3. DataOriginator

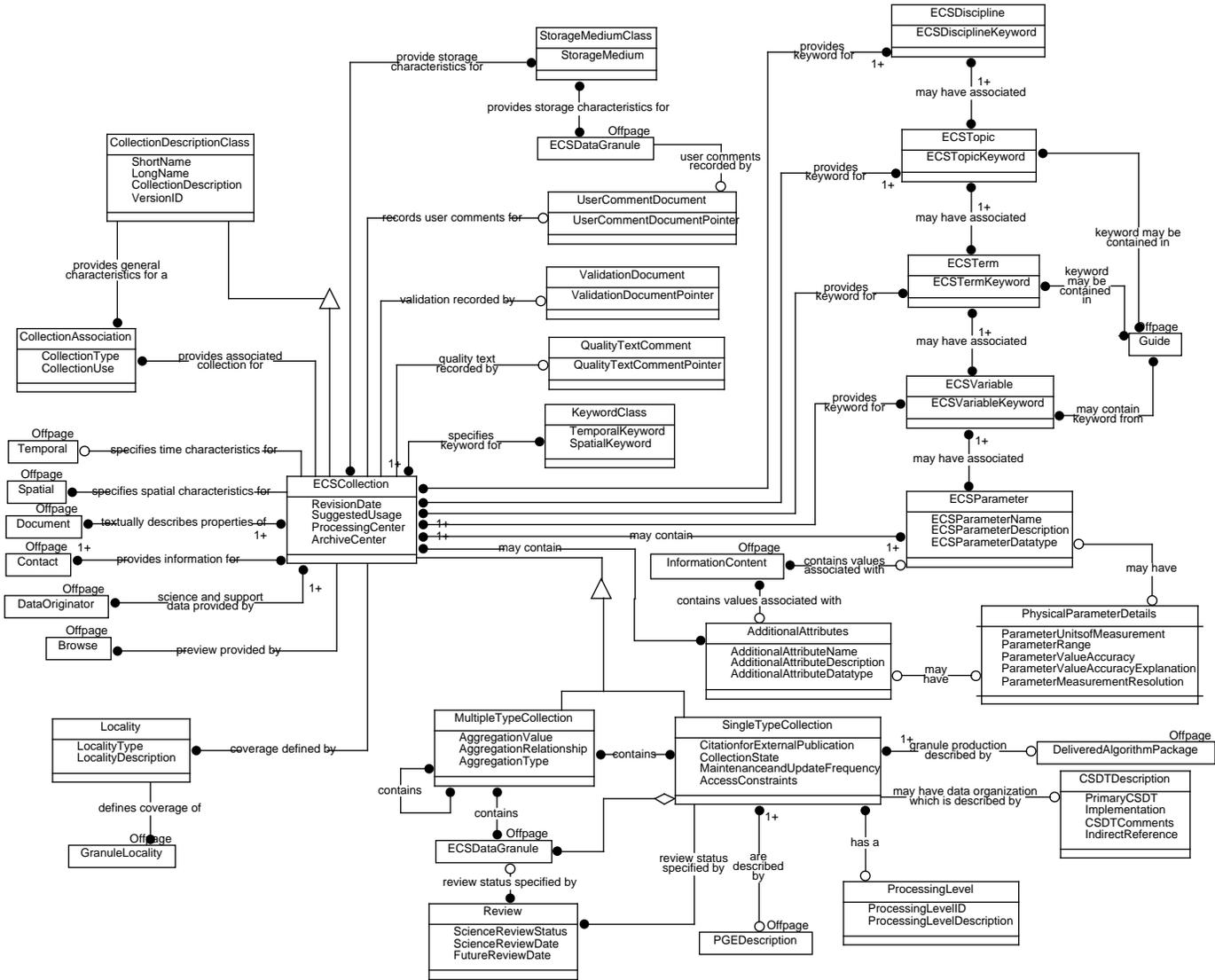


Figure 6-4. ECSCollection

### **6.3.3 ECSDataGranule Module**

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. The granule is associated with QA and production history data.

Figure 6-5 is the ECSDataGranule Module OMT diagram.

### **6.3.4 LocalitySpatial Module**

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.

### **6.3.5 LocalityTemporal Module**

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.

### **6.3.6 Contact Module**

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

The Contact Module is illustrated in Figure 6-8.

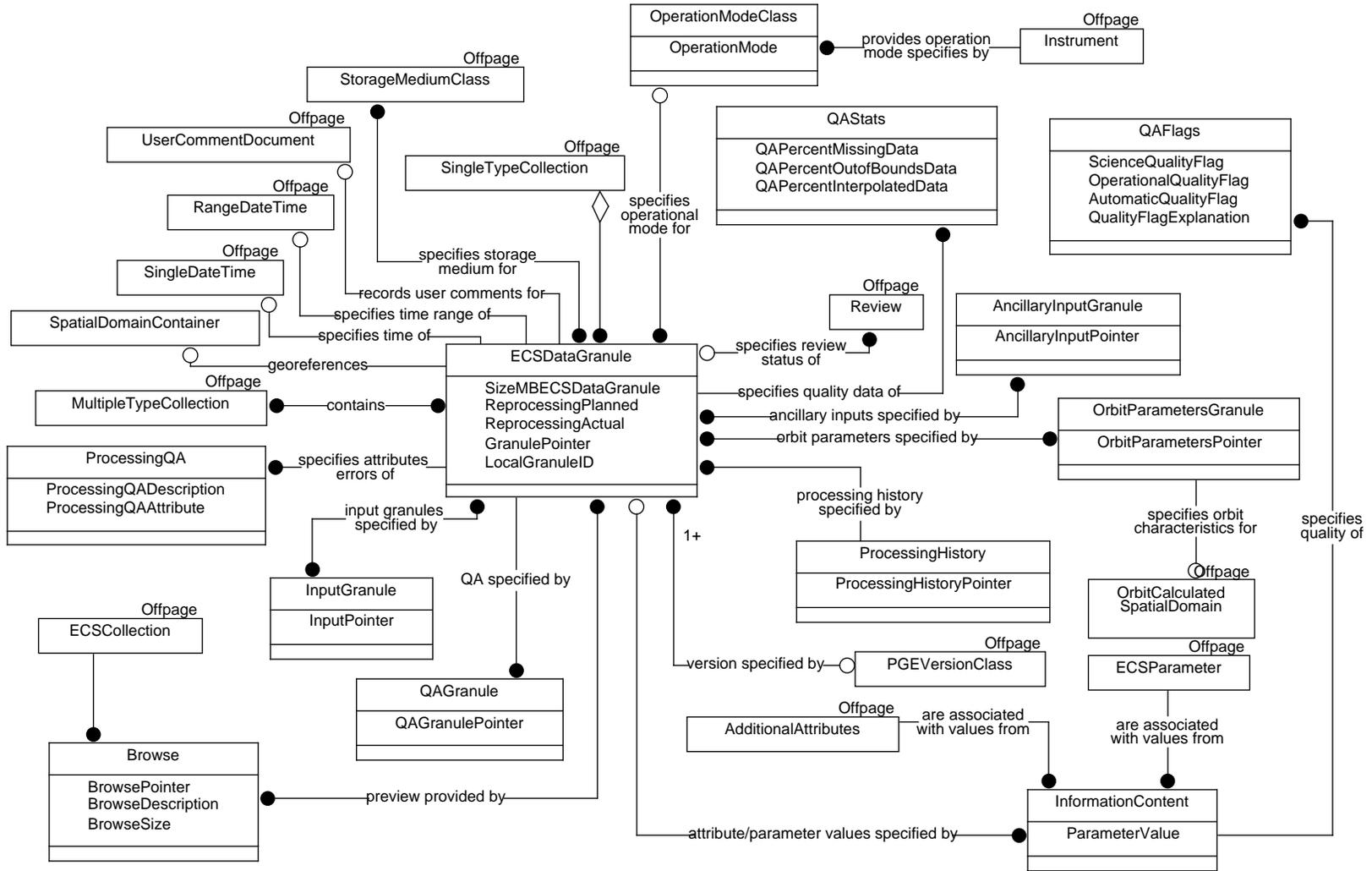


Figure 6-5. ECSDataGranule

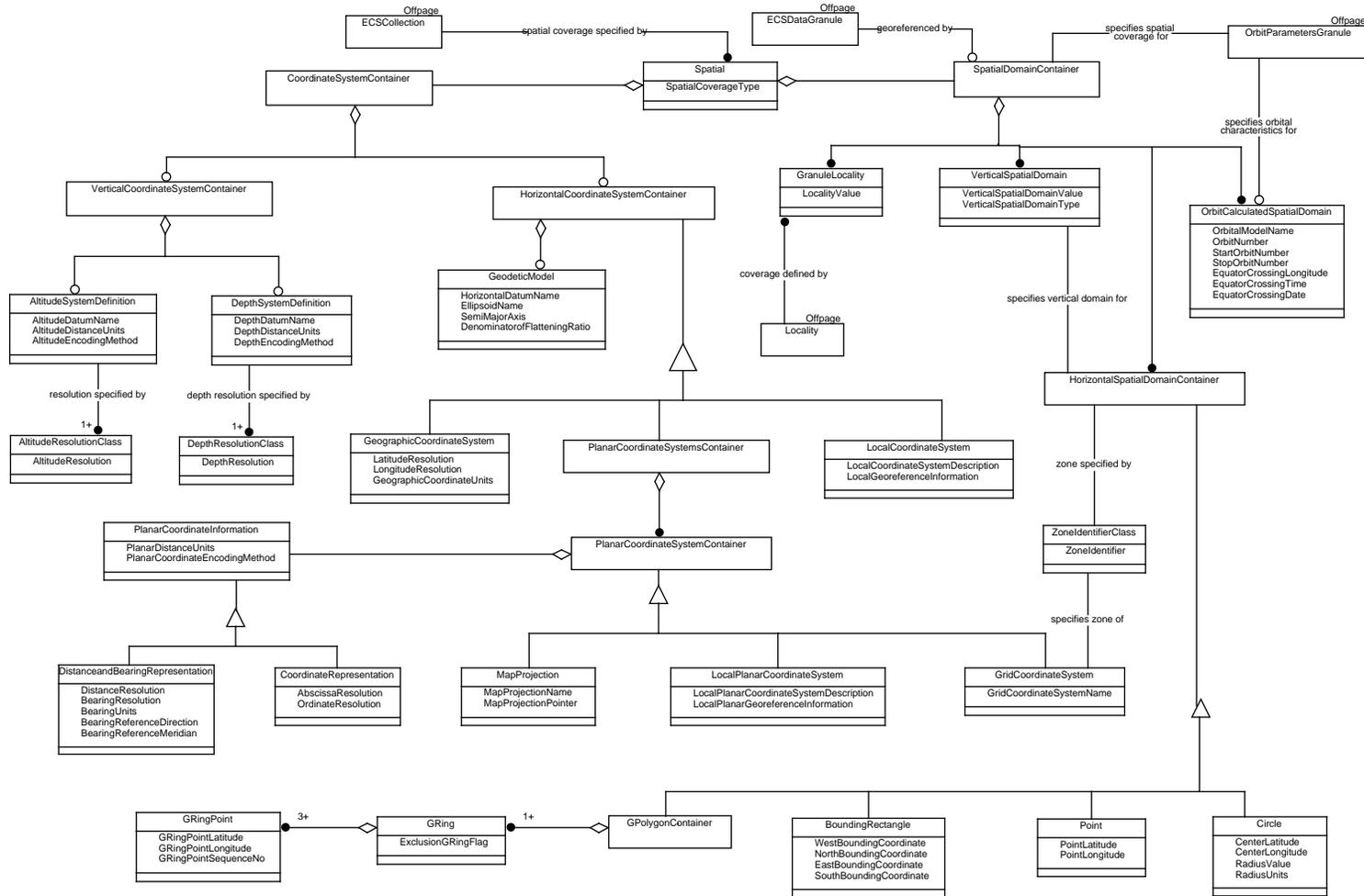
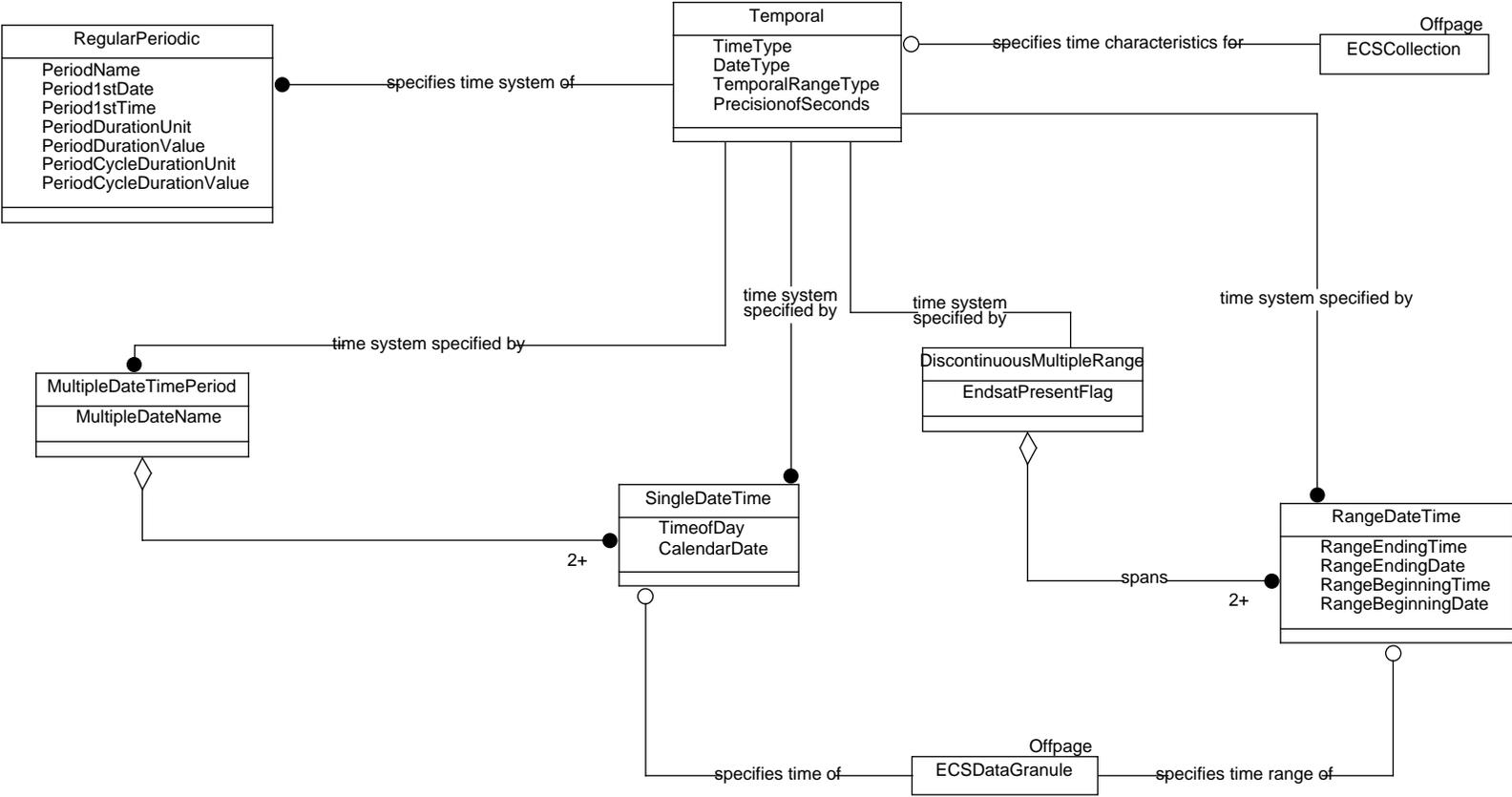


Figure 6-6. LocalitySpatial



6-12

311-CD-008-001

Figure 6-7. LocalityTemporal

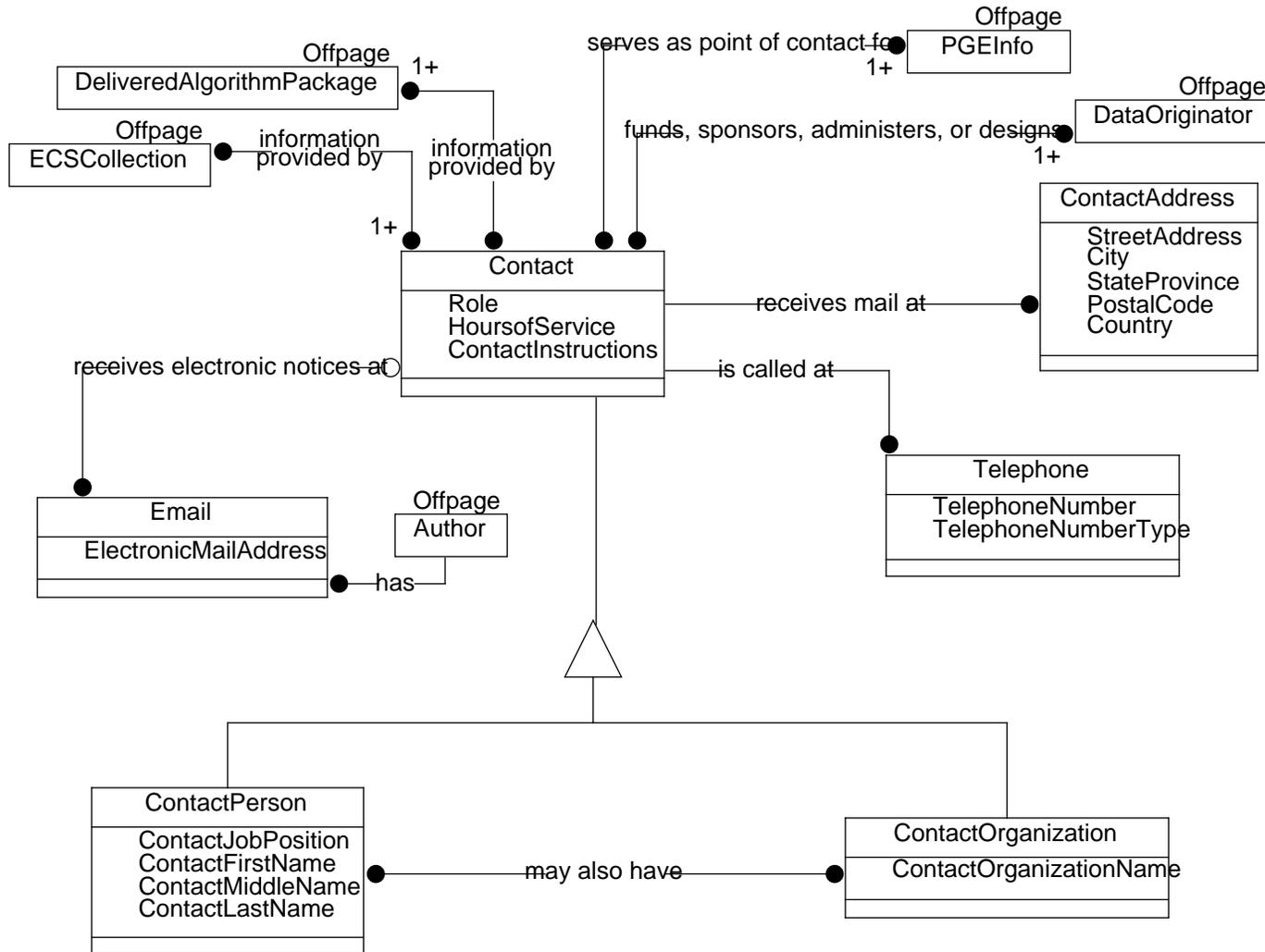


Figure 6-8. Contact

### **6.3.7 Delivered Algorithm Package Module**

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.

### **6.3.8 Document Module**

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.

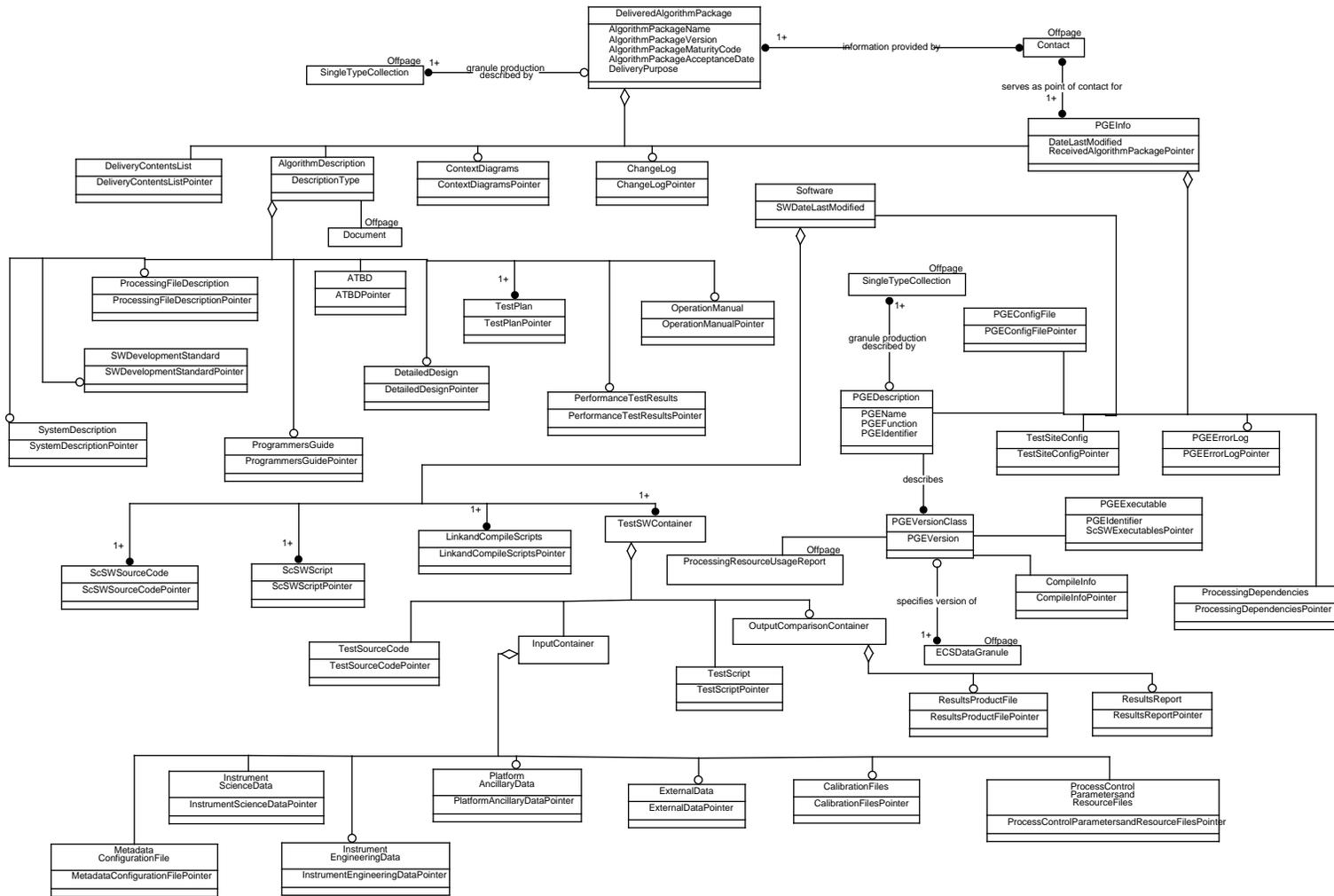
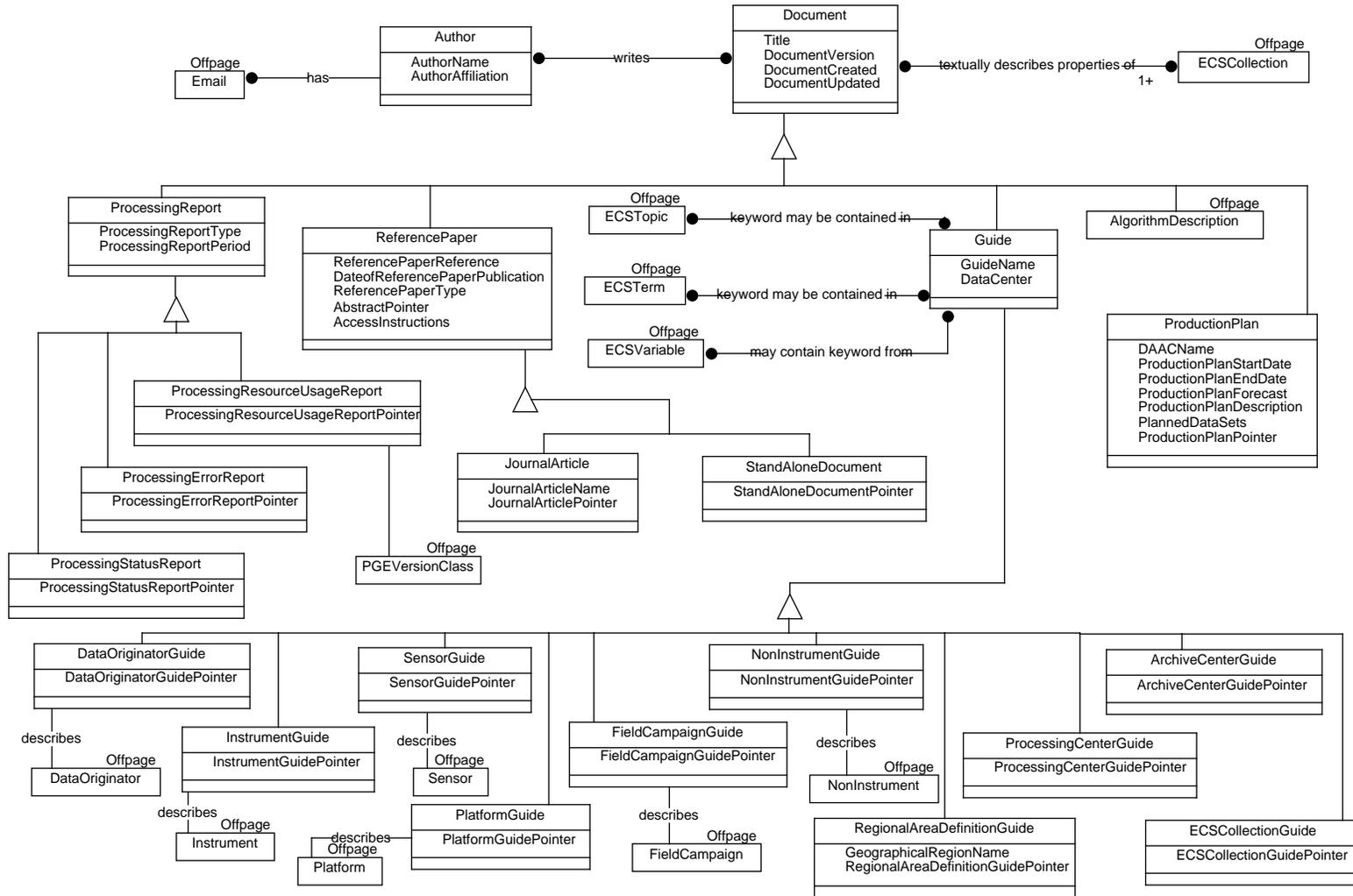


Figure 6-9. DeliveredAlgorithmPackage



6-16

311-CD-008-001

Figure 6-10. Document

### **6.3.9 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.

#### **ATBD**

This class contains the logical pointer for the Algorithm Theoretical Basis Documents.

#### **AdditionalAttributes**

This class identifies the product specific attributes (i.e. attributes used to describe the unique characteristics of the collection which extend beyond those defined in this model). Only non science content attributes are included in this class (see parameter class for others). Such attributes have no direct relationship with the ECSVariable class and other keywords used to describe science content - which are described through the various keywords and parameter classes. This class is used for attributes such as day/night flag or number of scans per granule which are not directly science content related.

#### **AlgorithmDescription**

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

#### **AltitudeResolutionClass**

This class contains multiple instances of altitude resolution associated with the AltitudeSystemDefinition.

#### **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. The class contains the datum name, distance units and encoding method which provide the definition for the system.

#### **AncillaryInputGranule**

This class contains the logical pointer to the ancillary input used in creation of the granule. Many such objects (i.e., files) may occur per granule. Specifications are found in appendix A.

#### **ArchiveCenterGuide**

This class contains the logical pointer to the archive center guide. A specification which defines the contents of this guide is found in Appendix A.

#### **Author**

This class contains the name and affiliation of the author of the document.

## **BoundingBoxRectangle**

This class contains area coverage for ECS collections or granules. This area coverage is 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. Latitude values are -90.0 to +90.0.

## **Browse**

This class contains the description and size of a Browse product. The logical pointer to the actual Browse product instance is also included in this class. 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 or more per granule.

## **CSDTDescription**

The class 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 PrimaryCSDTs (fixed domain), but the specific Implementation has an unbounded domain indicating the range at the lower structured level. While many CSDTs may exist in a granule, only the primary or dominant CSDT is described (e.g. PrimaryCSDT = swath, Implementation = HDF-EOS). The indirect reference is used for collection specific data organization labels. A comment field is provided for further explanation.

## **CalibrationFiles**

This class contains a logical pointer to files containing parameters, coefficients, etc., most often static values which control science software operation and the parameterization of algorithms.

## **ChangeLog**

This class contains a logical pointer to separately specified log of changes to the Delivered Algorithm Package.

## **Circle**

This class identifies the characteristics required to specify the area coverage for a granule or collection as a circle consisting of latitude center, longitude center, radius units, and radius value.

## **CollectionAssociation**

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

### **CollectionDescriptionClass**

This class contains brief description of all collections, also includes the short and long names and the version of the collection.

### **CompileInfo**

This class specifies the logical pointer to the compilation flags and other options explained in a separately specified object.

### **Contact**

This class describes the basic characteristics for a person or an organization type of contact. These contacts may provide information about a Collection, Delivered Algorithm Package, PGE or Data Originator. The role attribute specifies the type of contact and serves to differentiate the use of the module for the various classes associated with it from other modules. System and user profile contact information is held elsewhere.

### **ContactAddress**

This class contains the address details for each contact.

### **ContactOrganization**

This class contains the name of the contact organization. This class is used optionally with ContactPerson. In some instances, ContactOrganization is the primary point of contact.

### **ContactPerson**

This class contains the contact person's name and position. This class is used optionally with ContactOrganization. In some instances, ContactPerson is the primary point of contact.

### **ContextDiagrams**

This class contains a logical pointer to the context diagrams.

### **CoordinateRepresentation**

This class contains the abscissa and ordinate resolutions for the planar coordinates.

### **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. Primarily used to establish context within the module.

### **DataOriginator**

This class contains the short and long name of the institution, project, and/or mission from which

the inherited classes (Instrument, FieldCampaign, and NonInstrument) are funded, administered, and/or sponsored.

### **DataOriginatorGuide**

This class contains the logical pointer to the data originator guides. A specification is found in appendix A.

### **DeliveredAlgorithmPackage (Science Software Archive Package)**

This class provides the common characteristics of the algorithms used in product generation. These characteristics include the algorithm package name, date, version, maturity code and generating system characteristics for the package.

### **DeliveryContentsList**

This class contains the logical pointer to the delivery contents list.

### **DepthResolutionClass**

This class contains the depth resolution associated with the DepthSystemDefinition.

### **DepthSystemDefinition**

This class contains the characteristics of the reference frame or system from which depths are measured.

### **DetailedDesign**

This class contains the logical pointer to detailed design and/or implementation documents.

### **DiscontinuousMultipleRange**

This class contains a flag which is used to denote that a collection which currently ends at the present is being updated on an ongoing basis. The flag is an application support attribute used to avoid the need for rapid collection-level update of the end date/time.

### **DistanceandBearingRepresentation**

This class contains the resolutions units, direction, and meridian for the planar coordinate system. 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 attributes used to specify the title, version, created and

update dates for all document types.

### **ECSCollection**

This class provides further description of the collection to include media, revision date, usage, and processing and archive centers. It is associated with many other collection level descriptive classes and modules.

### **ECSCollectionGuide**

This class contains a logical pointer to collection guides. A specification is found in appendix A.

### **ECSDataGranule**

This class provides the descriptive characteristics associated with a granule.

### **ECSDiscipline**

This class provides the discipline keyword(s) associated with a collection.

### **ECSParameter**

This class is used to describe all (major) (science) parameters in the collection. This class provides for a detailed 'data dictionary' description of the data product (i.e., content repeated in each granule). The parameter names are often unique across collections, reflecting the uniqueness of the parameter(s) in the collection. However, the parameter need not be unique even when in combination with the more generally descriptive ECSVariable, ECSTerm, ECSTopic, or ECSDiscipline keywords.

This class is self describing; i.e. the name, type and description together specify the nature of each individual metadata attribute. This is in preference to a system of collecting product specific attributes for each collection.

A parameter may have a value associated with the ECSParameter contained in the collection or with each instance of a granule, therefore the association with the class 'Information Content' attribute is used to capture this value.

### **ECSTerm**

This class contains the term keyword(s) associated with the collection. (i.e., atmospheric temperature, precipitation, soils, sea ice)

### **ECSTopic**

This class contains the topic keyword(s) associated with the collection.(i.e., atmospheric science, hydrosphere, land surface, ocean science)

**ECSVariable**

This class contains the variable keyword(s) associated with the collection. (i.e., upper troposphere temperature, precipitable water, soil depth, albedo)

**Email**

This class contains the electronic mail address of the contact or document author.

**ExternalData**

This class contains a logical pointer to the external data which may be described as 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 such as start and stop project dates and campaign long and short names.

**FieldCampaignGuide**

This class contains a logical pointer to field campaign guides. A specification is found in Appendix A.

**GPolygonContainer**

This class contains the G-Ring characteristics which denote the latitude and longitude of a clockwise series of points, which when connected form a polygon. The minimum number of segments is 3. 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).

**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 which 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**

This class contains the parameters describing the shape of the Earth.

### **GeographicCoordinateSystem**

This class contains the latitude and longitude resolution and coordinate units which define the position of a point on the Earth's surface with respect to a reference spheroid.

### **GranuleLocality**

This class contains the value for the granules locality.

### **GridCoordinateSystem**

This class contains the name of the grid coordinate system.

### **Guide**

This class contains the name and data center location of the Guide. This class provides these basic attributes for all guides.

### **HorizontalCoordinateSystemContainer**

A container class (no data content). This class is used to add context to the module.

### **HorizontalSpatialDomainContainer**

Container class (no data content). This class is used to add context to the module.

### **InformationContent**

This class captures the actual values associated with the Additional Attribute or ECS Parameter classes. 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 attributes. For example, if SST (sea surface temperature) was calculated per granule and needed to be searchable; then the user would set up SST in the ECSPParameter class (at the collection level) and provide the granule value of SST using the toolkit MET tools.

This class need not be used at all; i.e. the ECSPParameter and AdditionalAttributes can stand as additional characteristics of the collections independent of any value.

### **InputContainer**

Container class gathering input files together (no data content). This class is used to add context to the module.

### **InputGranule**

This class contains the logical pointer to the input granule.

### **Instrument**

This class contains the basic attributes of an instrument to include the long and short names, technique and number of sensors.

### **InstrumentEngineeringData**

This class contains a logical pointer to instrument engineering data which is often level 0 content equivalent and delivered as part of the test suite.

### **InstrumentGuide**

The class contains a logical pointer to instrument guides. A specification for this guide can be found in Appendix A.

### **InstrumentScienceData**

This class contains a logical pointer to instrument data (separately specified), delivered as part of the test suite.

### **JournalArticle**

This class contains the Journal Article name and logical pointer to the article.

### **KeywordClass**

This class contains the spatial and temporal keywords associated with the ECS collection.

### **LinkandCompileScripts**

This class contains the logical pointer to the software makefile etc. (separate specification found in appendix A).

### **LocalCoordinateSystem**

This class contains a description of the coordinate system and georeference information.

### **LocalPlanarCoordinateSystem**

This class contains a description of the system and georeference information.

### **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 phenomenologically-based collections, thus the locality type and description are contained in this class.

### **MapProjection**

This class contains the name of the map projection [the systematic representation of all or part of the surface of the Earth on a plane or developable surface], and a logical pointer to the map projection details which are specified separately. ECS currently supports a number of projections which are specified separately.

### **MetadataConfigurationFile**

This class contains a logical pointer to the metadata configuration files. This file (separately specified) is completed by the data producer and contains a ODL description of the metadata produced by the science software and routinely inserted into product granule headers.

### **MultipleDateTimePeriod**

This class contains the name of the multiple date period. Multiple version of SingleDateTime, generally used at the collection level.

### **MultipleTypeCollection**

This class contains the value, relationship and type for the multiple type collection. This class is used only when the collection has been developed by aggregating single type or other multiple type collections and/or granules using criteria which is recorded using the aggregation attributes.

### **NonInstrument**

This class is used to describe the characteristics of 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.

### **NonInstrumentGuide**

This class contains a logical pointer to NonInstrument guides. A specification is found in

Appendix A.

### **OperationManual**

This class contains a logical pointer to the operations manual.

### **OperationModeClass**

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

### **OrbitCalculatedSpatialDomain**

This class is used to describe the characteristics of the orbit calculated spatial domain to include the model name, orbit number, start and stop orbit number, equator crossing date and time, and equator crossing longitude.

### **OrbitParametersGranule**

This class contains the logical pointer to the orbit parameter granule. This class contains orbit data for which an association with the granule database exists. A specification is found in appendix A.

### **OutputComparisonContainer**

Container class gathering test output comparisons together for modeling purposes (no data content). This class is used to provide context to the module.

### **PGEConfigFile**

This class contains a logical pointer to the PGE Configuration File. A description of each delivered software file each held as a separate object.

### **PGEDescription**

This class contains the name, function and identifier of the PGE.

### **PGEErrorLog**

This class contains the logical pointer to the PGE Error Log.

### **PGEExecutable**

This class contains binary executable(s) and possibly scripts comprising the PGE.

### **PGEInfo**

This class contains the date when the PGE information was last modified. This class identifies the version, maturity, processing requirements and the resulting product structure and associated information.

### **PGEVersionClass**

This class contains the version of the PGE.

### **PerformanceTestResults**

This class contains a logical pointer to the performance test results. No specification available.

### **PhysicalParameterDetails**

This class is used to provide further information about the physical or geophysical parameters specified in the AdditionalAttributes and ECSPParameters. It contains the units of measurement, range, accuracy, explanation and resolution.

### **PlanarCoordinateInformation**

This class contains information about the coordinate system developed on the planar surface to include the distance units and encoding method.

### **PlanarCoordinateSystemContainer**

This class used to add context to the module (no data content). This container is made up of the distance and angles, which define the position of a point on a reference plane to which the surface of the Earth has been projected.

### **PlanarCoordinateSystemsContainer**

This class is a container class (no data content) used to add context to the module. When the choice of planar systems has been chosen for description, many possible systems could be described.

### **Platform**

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

### **PlatformAncillaryData**

This class contains the logical pointer to the input data (such as control telemetry and instrument

status) required for test purposes (separately specified).

### **PlatformCharacteristic**

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

### **PlatformGuide**

This class contains a logical pointer to platform guides. A specification is found in appendix A.

### **Point**

This class identifies the characteristics of the point area coverage to include the latitude and longitude.

### **ProcessControlParametersandResourceFiles**

This class contains the logical pointer to the Process Control Parameter and Resource Files. This file is completed by the data producer and contains a human readable statement 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. A specification is found in appendix A.

### **ProcessingCenterGuide**

This class contains a logical pointer to processing center guides. A specification is found in appendix A.

### **ProcessingDependencies**

This class contains a logical pointer to the processing dependencies. These dependencies contain material covering the inputs required for processing. This is critical in the support of planning procedures. A specification is found in appendix A.

### **ProcessingErrorReport**

This class contains a logical pointer to the processing error report which is produced by the ECS Planning Subsystem. A specification is found in appendix A.

### **ProcessingFileDescription**

This class contains a logical pointer to the processing file description which details the file and record layouts for each PGE.

## **ProcessingHistory**

The Processing History class contains a logical pointer to the processing history which provides information about the processing of each granule associated with the granule database. This includes the input products and granules used to generate the product.

## **ProcessingLevel**

The processing level class contains the level identifier and level description of the collection.

## **ProcessingQA**

This class contains the name of the attribute in error in addition to a brief description of the error that occurred during processing.

## **ProcessingReport**

This class contains the type and period of the processing report which is produced by the ECS Planning Subsystem.

## **ProcessingResourceUsageReport**

This class contains the logical pointer to the processing resource usage report. A specification is found in appendix A.

## **ProcessingStatusReport**

This class contains a logical pointer to the processing status report produced by the ECS Planning Subsystem. A specification is found in appendix A.

## **ProductionPlan**

This class contains the dates, forecast, description, and planned data sets associated with the production plan in addition to the logical pointer to the production plan. This class has searchable attributes plus a pointer to a specification for the plans produced by the ECS Planning Subsystem.

## **ProgrammersGuide**

This class contains the logical pointer to the programmers guide. A specification is found in appendix A.

## **QAFlags**

This class contains the science, operational and automatic quality flags which indicate the overall quality assurance levels of specific parameter values within a granule.

### **QAGranule**

This class specifies the logical pointer to the QA granule. This class contains material for a separate file or files containing user specified QA information about the granule. A specification is found in appendix A.

### **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 set of measures can occur many times either for the granule as a whole or for individual parameters.

### **QualityTextComment**

A class containing a logical pointer to documents which record details of quality measurement and other comments concerning the collection. A specification is found in appendix A.

### **RangeDateTime**

This class specifies the 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 class contains the geographic region name and the logical pointer to the regional area definition guides. A specification is found in appendix A.

### **RegularPeriodic**

This class contains the name of the temporal period in addition to the date, time, duration unit, and value, and cycle duration unit and value. Used at the collection level to describe a collection having granules which cover a regularly occurring period.

### **ResultsProductFile**

This class contains a logical pointer to the results product. A specification is found in appendix A.

## **ResultsReport**

This class contains a logical pointer to the results report. A specification is found in appendix A.

## **Review**

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

## **SWDevelopmentStandard**

This class contains a logical pointer to the software development standard. Separate document.

## **ScSWScript**

This class contains a logical pointer to the software scripts etc. (separate specification).

## **ScSWSourceCode**

This class contains a logical pointer to the software source code.

## **Sensor**

This class contains the short and long name of the sensor and sensor technique.

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.

## **SensorCharacteristic**

This class contains a self-describing set of characteristics reflecting the measurement capabilities of the sensor. Some sensor characteristics are extracted from the telemetry stream and are expected to be updated with significantly greater frequency compared to other characteristics. Such should be associated with the granule via the singletype collection in the multitype collection scenario. Other characteristics are essentially static and are entered by the data producer as searchable attributes (e.g., band width). Other characteristics will be documented in the sensor guide.

## **SensorGuide**

This class contains a logical pointer to the sensor guides. A specification is found in appendix A.

## **SingleDateTime**

This class contains the time of day and calendar date for an ECS granule. This class provides a means of encoding a single date and time for a granule occurring 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 a description specific to a single, as opposed to a multitype collection, to include citation of external publication, collection state, maintenance and update frequency, and access constraints. The definition of a singletype collection is stated below. The management and development of singletype collections is the subject of other documentation.

A single type collection contains a set of granules for which the dominant variation in the value of metadata attributes is in the space and time attributes.

For example, most level 0, 1, and many level 2 collections conform to this definition.

## **Software**

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

## **Spatial**

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

## **SpatialDomainContainer**

Container class (no data content) used to add context to the module.

## **StandAloneDocument**

This class contains the logical pointer to the stand alone document which is a document not published in journals.

## **StorageMediumClass**

This class contains the medium on which the data are stored.

**SystemDescription**

Separately specified, description of science software processing system.

**Telephone**

This class contains the telephone details associated with the contact.

**Temporal**

This class contains attributes which describe the basis of the time system used in other classes.

**TestPlan**

This class contains the logical pointer to the test plan for the PGE.

**TestSWContainer**

This class is used to provide context to the module (no data content).

**TestScript**

This class contains a logical pointer to the test script which is equivalent to the scripts for PGE software, but specific to the management of test software. A specification is found in appendix A.

**TestSiteConfig**

This class contains a logical pointer to the test site configuration.

**TestSourceCode**

This class contains a logical pointer to additional software necessary for testing (separate specification).

**UserCommentDocument**

A class containing a logical pointer to documents used to record user comments on the collection. A specification is found in appendix A.

**ValidationDocument**

A class containing a logical pointer to a document used to record details of validation steps used for the assessment of granule and overall collection quality. A specification is found in appendix

A.

### **VerticalCoordinateSystemContainer**

A container class (no data content) used to provide context to the module. The reference frame or system from which vertical distances(altitudes or depths) are measured.

### **VerticalSpatialDomain**

This class contains the domain value and type for the vertical spatial domain.

### **ZoneIdentifierClass**

This class contains the zone identifier of the various zones in the associated grid coordinate system. See domain values of coordinate system for constraints on the zone numbers.

## **6.4 Earth Science Metadata Specifications**

Descriptions 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 is 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, information 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 parentheses. 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 Ss.) 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 units are 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:** ATBDPointer  
**Module Name:** DAP\_v3  
**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:** AbscissaResolution  
**Module Name:** LocalitySpatial\_v3  
**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  
**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\_v3  
**Class Name:** ReferencePaper  
**Attribute Description:**  
Pointer to the reference paper article abstract.  
**Content Source:** DP  
**Alias:**  
**Constraints:**  
if abstract exists (must for all papers), this must exist.  
**Default Value:** null  
**Datatype:** varstring(255)  
**Units:** NA  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** AccessConstraints  
**Module Name:** Collection\_v3  
**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\_v3  
**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; 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:** AdditionalAttributeDatatype  
**Module Name:** Collection\_v3  
**Class Name:** AdditionalAttributes  
**Attribute Description:**  
Data type of AdditionalAttributeName.  
**Content Source:** DP  
**Alias:**  
**Constraints:**  
If AdditionalAttributeName exists then AdditionalAttributeDatatype must exist.  
**Default Value:** null  
**Datatype:** string(10)  
**Units:** NA  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** AdditionalAttributeDescription  
**Module Name:** Collection\_v3  
**Class Name:** AdditionalAttributes  
**Attribute Description:**  
This attribute provides a description for the AdditionalAttributeName.  
**Content Source:** DP  
**Alias:**  
**Constraints:**  
If AdditionalAttributeName exists then AdditionalAttributeDescription must exist.  
**Default Value:** null  
**Datatype:** string(255)  
**Units:** NA  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** AdditionalAttributeName  
**Module Name:** Collection\_v3  
**Class Name:** AdditionalAttributes  
**Attribute Description:**  
This attribute is used to name characteristics of the collection which have not been included in the core set of attributes. The characteristics are confined to those which do not directly describe the science content of the collection (such as number of scans in image). These characteristics are in themselves attributes of the collection held in a self describing format using the AdditionalAttributes class.  
**Content Source:** DP  
**Alias:**  
**Constraints:**

If AdditionalAttributeDescription exists then AdditionalAttributeName must exist.

**Default Value:** null  
**Datatype:** AdditionalAttributeDatatype  
**Units:** ParameterUnitsofMeasurement  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** AggregationRelationship  
**Module Name:** Collection\_v3  
**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\_v3  
**Class Name:** MultipleTypeCollection

**Attribute Description:**

This attribute will contain the criteria by which multiple type collections have been grouped. It will describe the major categorization which applies to the data therein. Possible collection groupings include: INSTRUMENT, for all collections 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\_v3  
**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:** DAP\_v3  
**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:** DAP\_v3  
**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:** DAP\_v3  
**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:** DAP\_v3  
**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\_v3  
**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:** NA  
**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\_v3  
**Class Name:** AltitudeSystemDefinition  
**Attribute Description:**  
Units in which altitudes are recorded.  
**Content Source:** DP  
**Alias:**  
**Constraints:**  
AltitudeDistanceUnits is mandatory if AltitudeSystemDefinition class is applicable.  
**Default Value:** null  
**Datatype:** string(20)  
**Units:** NA  
**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\_v3  
**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:** NA  
**Domain Value:** Explicit elevation coordinate included with horizontal coordinates  
**Domain Description:**

**Domain Value:** Implicit coordinate  
**Domain Description:**

**Domain Value:** Attribute Values  
**Domain Description:**

**Domain Value:** Free Text  
**Domain Description:**

---

**Attribute:** AltitudeResolution  
**Module Name:** LocalitySpatial\_v3  
**Class Name:** AltitudeResolutionClass  
**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\_v3  
**Class Name:** AncillaryInputGranule  
**Attribute Description:**  
Data model logical reference to ancillary input data.  
**Content Source:** DSS  
**Alias:**  
**Constraints:**  
If ancillary data exists then AncillaryInputPointer exists.  
**Default Value:** null  
**Datatype:** varstring(255)  
**Units:** NA  
**Domain Value:** NA  
**Domain Description:**  
NA

---

**Attribute:** ArchiveCenter  
**Module Name:** Collection\_v3  
**Class Name:** ECSCollection  
**Attribute Description:**  
Center where collection is archived.  
**Content Source:** DAAC  
**Alias:**  
**Constraints:**  
not null  
**Default Value:** not null  
**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:** Free Text  
**Domain Description:**  
  
**Domain Value:** CIESIN  
**Domain Description:**  
Consortium for International Earth Science Information Network

---

**Attribute:** ArchiveCenterGuidePointer  
**Module Name:** Document\_v3  
**Class Name:** ArchiveCenterGuide  
**Attribute Description:**  
Logical pointer to the Archive Center Guide.  
**Content Source:** DAAC  
**Alias:**  
**Constraints:**  
  
**Default Value:** null  
**Datatype:** string(255)  
**Units:** NA  
**Domain Value:**

**Domain Description:**

---

**Attribute:** AuthorAffiliation  
**Module Name:** Document\_v3  
**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:** null  
**Datatype:** string(64)  
**Units:** NA  
**Domain Value:** free text  
**Domain Description:**  
this attribute is unbounded.

---

**Attribute:** AuthorName  
**Module Name:** Document\_v3  
**Class Name:** Author  
**Attribute Description:**  
The name of the author of the document.  
**Content Source:** DP  
**Alias:**  
**Constraints:**  
Must exist for each document.  
**Default Value:** null  
**Datatype:** string(64)  
**Units:** NA  
**Domain Value:** free text  
**Domain Description:**  
this attribute is unbounded.

---

**Attribute:** AutomaticQualityFlag  
**Module Name:** Granule\_v3  
**Class Name:** QAFlags  
**Attribute Description:**  
The granule level flag applying generally to the granule and specifically to parameters the granule level. When applied to parameter, the flag refers to the quality of that parameter for the 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 QAFlags 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:** suspect  
**Domain Description:**  
 May be okay; could not clearly determine.

---

**Attribute:** BearingReferenceDirection  
**Module Name:** LocalitySpatial\_v3  
**Class Name:** DistanceandBearingRepresentation  
**Attribute Description:**  
 Direction from which the bearing is measured clockwise.  
**Content Source:** DP  
**Alias:**  
**Constraints:**

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

**Domain Value:** South  
**Domain Description:**

---

**Attribute:** BearingReferenceMeridian  
**Module Name:** LocalitySpatial\_v3  
**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:** null  
**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\_v3  
**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\_v3  
**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\_v3  
**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:** null  
**Datatype:** string(40)  
**Units:** NA  
**Domain Value:** free text  
**Domain Description:**  
this attribute is unbounded.

---

**Attribute:** BrowseDescription  
**Module Name:** Granule\_v3  
**Class Name:** Browse  
**Attribute Description:**  
Textual description of the Browse granule.  
**Content Source:** DP  
**Alias:**  
**Constraints:**  
Must exist if browse produced.  
**Default Value:** null  
**Datatype:** varstring(255)  
**Units:** NA  
**Domain Value:** Free Text  
**Domain Description:**

---

**Attribute:** BrowsePointer  
**Module Name:** Granule\_v3

**Class Name:** Browse  
**Attribute Description:** Data model specific logical reference to the browse.  
**Content Source:** DSS  
**Alias:**  
**Constraints:** If browse product exists then BrowsePointer exists.  
**Default Value:**  
**Datatype:** varstring(255)  
**Units:** NA  
**Domain Value:** NA  
**Domain Description:** NA

---

**Attribute:** BrowseSize  
**Module Name:** Granule\_v3  
**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:** MB  
**Domain Value:** Free Numerics  
**Domain Description:**

---

**Attribute:** CSDTCComments  
**Module Name:** Collection\_v3  
**Class Name:** CSDTDDescription  
**Attribute Description:** A free text field for the user to add comments clarifying the data structure.  
**Content Source:**  
**Alias:** Data Format  
**Constraints:**  
**Default Value:** null  
**Datatype:** varstring(255)  
**Units:** NA  
**Domain Value:** Free Text  
**Domain Description:**

---

**Attribute:** CalendarDate  
**Module Name:** LocalityTemporal\_v3

**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.

**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:** DAP\_v3

**Class Name:** CalibrationFiles

**Attribute Description:**  
Data model logical reference to calibration files.

**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:** CampaignLongName

**Module Name:** DataOriginator\_v3

**Class Name:** FieldCampaign

**Attribute Description:**  
The long name of the field campaign or project which is responsible for providing the data.

**Content Source:** DP

**Alias:**

**Constraints:**

**Default Value:** null

**Datatype:** string(80)

**Units:** NA

**Domain Value:** Free Text

**Domain Description:**

---

**Attribute:** CampaignProjectStartDate

**Module Name:** DataOriginator\_v3  
**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:** null  
**Datatype:** date  
**Units:**  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** CampaignProjectStopDate  
**Module Name:** DataOriginator\_v3  
**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:** null  
**Datatype:** date  
**Units:**  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** CampaignShortName  
**Module Name:** DataOriginator\_v3  
**Class Name:** FieldCampaign  
**Attribute Description:**  
The short name of the field campaign or project which is responsible for providing the data.  
**Content Source:** DP  
**Alias:**  
**Constraints:**  
**Default Value:** null  
**Datatype:** string(20)  
**Units:** NA  
**Domain Value:** Free Text  
**Domain Description:**

---

**Attribute:** CenterLatitude  
**Module Name:** LocalitySpatial\_v3  
**Class Name:** Circle  
**Attribute Description:** Geodetic 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\_v3  
**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:** DAP\_v3  
**Class Name:** ChangeLog  
**Attribute Description:** Data model logical reference to the change log document.  
**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\_v3  
**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: Originator (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\_v3  
**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\_v3  
**Class Name:** CollectionDescriptionClass

**Attribute Description:**

This attribute identifies the major emphasis of the content of the collection. Some examples are: 'cloud top products generated from instrument X', or 'all products containing the parameter sea surface temperature as skin temp'.

**Content Source:** DP

**Alias:**

**Constraints:**

**Default Value:** not null

**Datatype:** varstring(255)

**Units:** NA

**Domain Value:** free text

**Domain Description:**

**Attribute:** CollectionState

**Module Name:** Collection\_v3

**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\_v3

**Class Name:** CollectionAssociation

**Attribute Description:**

Type of associated collection being described. Used to describe the 'geneology' of the collection in terms of other collections and supports production history.

**Content Source:** DP

**Alias:**

**Constraints:**

Must exist when Collection Use is used.

**Default Value:** null

**Datatype:** string(20)

**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, including browse.  
**Domain Value:** Science Associated  
**Domain Description:**  
Collections with which this collection is associated in science terms.

---

**Attribute:** CollectionUse  
**Module Name:** Collection\_v3  
**Class Name:** CollectionAssociation  
**Attribute Description:**  
Additional comments for all types of associated collections, such as the importance of the input and its use.  
**Content Source:** DP  
**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:** DAP\_v3  
**Class Name:** CompileInfo  
**Attribute Description:**  
Data model logical reference to the compiler information document.  
**Content Source:** DSS  
**Alias:**  
**Constraints:**  
If CompileInfo exists then CompileInfoPointer must exist.  
**Default Value:** null  
**Datatype:** varstring(255)  
**Units:** NA  
**Domain Value:** NA  
**Domain Description:**  
NA

---

**Attribute:** ContactFirstName  
**Module Name:** Contact\_v3  
**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:** Contact Person Primary  
DIF=first name  
DIF= Investigator  
Technical Contact  
or Author  
Contact Person

**Constraints:**  
DIF= Investigator, Technical Contact, or Author dependent upon domain value of Role= 'Investigator', 'Technical Contact', or 'Author'

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

---

**Attribute:** ContactInstructions  
**Module Name:** Contact\_v3  
**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\_v3  
**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\_v3  
**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:** Contact Person Primary  
DIF=last name  
DIF= Investigator  
Technical Contact  
or Author  
Contact Person

**Constraints:**

DIF=Investigator, Technical Contact, or Author dependent upon domain value of Role= 'Investigator', 'Technical Contact', or 'Author'

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

---

**Attribute:** ContactMiddleName  
**Module Name:** Contact\_v3  
**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:** Contact Person Primary  
DIF=middle name  
DIF=Investigator  
Technical Contact  
or Author  
Contact Person

**Constraints:**

DIF= Investigator, Technical Contact, or Author dependent upon domain value of Role= 'Investigator', 'Technical Contact', or 'Author'

**Default Value:** null  
**Datatype:** varstring(255)  
**Units:** NA

**Domain Value:** Free Text  
**Domain Description:**

---

**Attribute:** ContactOrganizationName  
**Module Name:** Contact\_v3  
**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  
Contact Organization Primary  
DIF=Data Center Name  
DIF= Originating Center

**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:** DAP\_v3  
**Class Name:** ContextDiagrams

**Attribute Description:**  
Data model logical reference to the context diagram document.

**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:** Country  
**Module Name:** Contact\_v3  
**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:** DAACName  
**Module Name:** Document\_v3  
**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:** null  
**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

---

**Attribute:** DataCenter  
**Module Name:** Document\_v3

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

---

**Attribute:** DataOriginatorGuidePointer  
**Module Name:** Document\_v3  
**Class Name:** DataOriginatorGuide  
**Attribute Description:** Pointer to a specification for the Data Originator Guide.  
**Content Source:** DAAC  
**Alias:**  
**Constraints:**  
  
**Default Value:** null  
**Datatype:** string(255)  
**Units:** NA  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** DataOriginatorLongName  
**Module Name:** DataOriginator\_v3  
**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. e.g. National Oceanic and Atmospheric Administration; North American Space Agency Pathfinder; and National Aeronautical and Space Administration.  
**Content Source:** DP  
**Alias:**  
**Constraints:**  
  
**Default Value:** null  
**Datatype:** string(80)  
**Units:** NA  
**Domain Value:** free text  
**Domain Description:** This attribute is unbounded.

---

<b>Attribute:</b>	DataOriginatorShortName
<b>Module Name:</b>	DataOriginator_v3
<b>Class Name:</b>	DataOriginator
<b>Attribute Description:</b>	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.
<b>Content Source:</b>	DP
<b>Alias:</b>	
<b>Constraints:</b>	
<b>Default Value:</b>	null
<b>Datatype:</b>	string(20)
<b>Units:</b>	NA
<b>Domain Value:</b>	free text
<b>Domain Description:</b>	This attribute is unbounded.
<b>Domain Value:</b>	NASA
<b>Domain Description:</b>	National Aeronautics and Space Administration
<b>Domain Value:</b>	NOAA
<b>Domain Description:</b>	National Oceanic and Atmospheric Administration
<b>Domain Value:</b>	UARS
<b>Domain Description:</b>	Upper Atmospheric Research Satellite
<b>Domain Value:</b>	DMSP
<b>Domain Description:</b>	Defense Meteorological Satellite Program
<b>Domain Value:</b>	MCSST
<b>Domain Description:</b>	
<b>Domain Value:</b>	TOPEX/POSEIDON
<b>Domain Description:</b>	Ocean Topography Experiment
<b>Domain Value:</b>	NOS/NGS
<b>Domain Description:</b>	
<b>Domain Value:</b>	NOAA/NASA Pathfinder
<b>Domain Description:</b>	Pathfinder
<b>Domain Value:</b>	ERBE
<b>Domain Description:</b>	Earth Radiation Budget Experiment
<b>Domain Value:</b>	FIRE
<b>Domain Description:</b>	First ISCCP Regional Experiment
<b>Domain Value:</b>	GTE
<b>Domain Description:</b>	
<b>Domain Value:</b>	ISCCP
<b>Domain Description:</b>	

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:** NASA WVP  
**Domain Description:**  
 NASA Water Vapor Project  
**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:**

---

**Attribute:** DateLastModified  
**Module Name:** DAP\_v3  
**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:** NA  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** DateType  
**Module Name:** LocalityTemporal\_v3  
**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:** NA  
**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:** DateofReferencePaperPublication  
**Module Name:** Document\_v3  
**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:** DeliveryContentsListPointer  
**Module Name:** DAP\_v3  
**Class Name:** DeliveryContentsList  
**Attribute Description:**  
Data model logical reference to delivery contents list document.  
**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:** DAP\_v3  
**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(25)  
**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\_v3  
**Class Name:** GeodeticModel  
**Attribute Description:**  
The ratio of the Earth's major axis to the difference between the major and the minor.  
**Content Source:** DP  
**Alias:**  
**Constraints:**  
DenominatorofFlatteningRatio > 0.0  
**Constraints:**  
DenominatorofFlatteningRatio is mandatory if GeodeticModel class is applicable.  
**Default Value:** null  
**Datatype:** float(5)\_ (1)

**Units:** NA  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** DepthDatumName  
**Module Name:** LocalitySpatial\_v3  
**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:** NA  
**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:**

<b>Domain Value:</b>	High-water full and charge
<b>Domain Description:</b>	
<b>Domain Value:</b>	Low-water full and charge
<b>Domain Description:</b>	
<b>Domain Value:</b>	Columbia River datum
<b>Domain Description:</b>	
<b>Domain Value:</b>	Gulf Coast low water datum
<b>Domain Description:</b>	
<b>Domain Value:</b>	Equatorial springs low water
<b>Domain Description:</b>	
<b>Domain Value:</b>	Approximate lowest astronomical tide
<b>Domain Description:</b>	
<b>Domain Value:</b>	No correction
<b>Domain Description:</b>	

---

<b>Attribute:</b>	DepthDistanceUnits
<b>Module Name:</b>	LocalitySpatial_v3
<b>Class Name:</b>	DepthSystemDefinition
<b>Attribute Description:</b>	
	Units in which depths are recorded.
<b>Content Source:</b>	DP
<b>Alias:</b>	
<b>Constraints:</b>	
	DepthDistanceUnits are mandatory if DepthSystemDefinition class is applicable.
<b>Default Value:</b>	null
<b>Datatype:</b>	string(20)
<b>Units:</b>	NA
<b>Domain Value:</b>	meters
<b>Domain Description:</b>	
<b>Domain Value:</b>	feet
<b>Domain Description:</b>	
<b>Domain Value:</b>	fathoms
<b>Domain Description:</b>	

---

<b>Attribute:</b>	DepthEncodingMethod
<b>Module Name:</b>	LocalitySpatial_v3
<b>Class Name:</b>	DepthSystemDefinition
<b>Attribute Description:</b>	
	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:** NA  
**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\_v3  
**Class Name:** DepthResolutionClass  
**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:** DAP\_v3  
**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:**

<b>Domain Value:</b>	Processing File Description
<b>Domain Description:</b>	
<b>Domain Value:</b>	ATBD
<b>Domain Description:</b>	
<b>Domain Value:</b>	Test Plan
<b>Domain Description:</b>	
<b>Domain Value:</b>	Operations Manual
<b>Domain Description:</b>	
<b>Domain Value:</b>	SW Development Standard
<b>Domain Description:</b>	
<b>Domain Value:</b>	Programmers Guide
<b>Domain Description:</b>	
<b>Domain Value:</b>	Detailed Design
<b>Domain Description:</b>	
<b>Domain Value:</b>	Performance Test Results
<b>Domain Description:</b>	
<b>Domain Value:</b>	Free Text
<b>Domain Description:</b>	

---

<b>Attribute:</b>	DetailedDesignPointer
<b>Module Name:</b>	DAP_v3
<b>Class Name:</b>	DetailedDesign
<b>Attribute Description:</b>	
	Data model logical reference to detailed design document.
<b>Content Source:</b>	DSS
<b>Alias:</b>	
<b>Constraints:</b>	
	If Detailed Design Document exists then DetailedDesignPointer must exist.
<b>Default Value:</b>	null
<b>Datatype:</b>	varstring(255)
<b>Units:</b>	NA
<b>Domain Value:</b>	
<b>Domain Description:</b>	

---

<b>Attribute:</b>	DistanceResolution
<b>Module Name:</b>	LocalitySpatial_v3
<b>Class Name:</b>	DistanceandBearingRepresentation
<b>Attribute Description:</b>	
	The minimum distance measurable between two points, expressed in Planar Distance Units of measure.
<b>Content Source:</b>	DP

**Alias:****Constraints:**

DistanceResolution &gt; 0.0

**Constraints:**

DistanceResolution is mandatory if DistanceandBearingRepresentation class is applicable.

**Default Value:** null**Datatype:** float(7)\_(3)**Units:** Planar Distance Units**Domain Value:****Domain Description:**

---

**Attribute:** DocumentCreated**Module Name:** Document\_v3**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\_v3**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\_v3**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\_v3  
**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:** ECSCollectionGuidePointer  
**Module Name:** Document\_v3  
**Class Name:** ECSCollectionGuide  
**Attribute Description:**  
Logical pointer to a specification for the ECS Collection Guide.  
**Content Source:** DAAC  
**Alias:**  
**Constraints:**  
  
**Default Value:** null  
**Datatype:** string(255)  
**Units:** NA  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** ECSDisciplineKeyword

**Module Name:** Collection\_v3  
**Class Name:** ECSDiscipline  
**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:** ECSPParameterDatatype  
**Module Name:** Collection\_v3  
**Class Name:** ECSPParameter  
**Attribute Description:**  
 Data type of ECSPParameterName.  
**Content Source:** DP  
**Alias:**  
**Constraints:**  
 If ParameterName exists then ParameterDatatype must exist.  
**Default Value:** null  
**Datatype:** string(10)  
**Units:** NA  
**Domain Value:** int  
**Domain Description:**  
  
**Domain Value:** float  
**Domain Description:**  
  
**Domain Value:** varstring  
**Domain Description:**  
  
**Domain Value:** string  
**Domain Description:**  
  
**Domain Value:** date  
**Domain Description:**  
  
**Domain Value:** time  
**Domain Description:**

**Domain Value:** datetime  
**Domain Description:**

**Domain Value:** special  
**Domain Description:**

---

**Attribute:** ECSPParameterDescription  
**Module Name:** Collection\_v3  
**Class Name:** ECSPParameter  
**Attribute Description:**  
This attribute provides a description for the ECSPParameterName.  
**Content Source:** DP  
**Alias:** DIF=Summary  
**Constraints:**  
If ECSPParameterName exists then ECSPParameterDescription must exist.  
**Default Value:** null  
**Datatype:** string(255)  
**Units:** NA  
**Domain Value:** Free Text  
**Domain Description:**

---

**Attribute:** ECSPParameterName  
**Module Name:** Collection\_v3  
**Class Name:** ECSPParameter  
**Attribute Description:**  
This attribute is used to name characteristics of the collection which have not been included in the core set of attributes; i.e. they are collection or product specific. The characteristics are confined to those which do directly describe the science content of the collection (such as sea surface temperature). The characteristics must be linkable with ECSVariableKeywords. These characteristics are in themselves attributes of the collection held in a self describing format using the ECSPParameter class.  
**Content Source:** DP  
**Alias:** V0 parameters  
**Constraints:**  
Unique with respect to ParameterDescription and PhysicalParameterDetails.  
**Constraints:**  
If ECSPParameterDescription exists then ECSPParameterName must exist.  
**Default Value:** null  
**Datatype:** string(255)  
**Units:** ParameterUnitsofMeasurement  
**Domain Value:** Free Text  
**Domain Description:**

---

**Attribute:** ECSTermKeyword  
**Module Name:** Collection\_v3

**Class Name:** ECSTerm  
**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:**  
**Default Value:** not null  
**Datatype:** string(50)  
**Units:** NA  
**Domain Value:** use GCMD Term Keyword List  
**Domain Description:**

---

**Attribute:** ECSTopicKeyword  
**Module Name:** Collection\_v3  
**Class Name:** ECSTopic  
**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:**  
**Default Value:** not null  
**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:**

**Domain Value:** use GCMD Topic Keyword List  
**Domain Description:**

---

**Attribute:** ECSVariableKeyword  
**Module Name:** Collection\_v3  
**Class Name:** ECSVariable  
**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 connect 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:**

**Default Value:** not null  
**Datatype:** string(80)  
**Units:** NA  
**Domain Value:** Free Text  
**Domain Description:**

**Domain Value:** see GCMD Variable Keyword List  
**Domain Description:**

---

**Attribute:** EastBoundingCoordinate  
**Module Name:** LocalitySpatial\_v3  
**Class Name:** BoundingRectangle  
**Attribute Description:**  
 Eastern-most 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:** not null  
**Datatype:** float(11)\_(6)  
**Units:** decimal degrees  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** ElectronicMailAddress  
**Module Name:** Contact\_v3  
**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  
DIF=email

**Constraints:**

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

---

**Attribute:** EllipsoidName  
**Module Name:** LocalitySpatial\_v3  
**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:** null  
**Datatype:** varstring(255)  
**Units:** NA  
**Domain Value:** Clarke 1866  
**Domain Description:**

**Domain Value:** Geodetic Reference System 80  
**Domain Description:**

**Domain Value:** free text  
**Domain Description:**

this attribute is unbounded.

**Domain Value:** WGS 84  
**Domain Description:**

Geodetic global reference system.

**Domain Value:** IERS Terrestrial Reference Frame  
**Domain Description:**

---

**Attribute:** EndsatPresentFlag  
**Module Name:** LocalityTemporal\_v3  
**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:** null  
**Datatype:** string(1)  
**Units:** NA  
**Domain Value:** n

**Domain Description:**  
No, does not end at present time.

**Domain Value:** y

**Domain Description:**  
Yes, does end at present time.

---

**Attribute:** EquatorCrossingDate  
**Module Name:** LocalitySpatial\_v3  
**Class Name:** OrbitCalculatedSpatialDomain

**Attribute Description:**  
This attribute represents the date of the descending equator crossing.

**Content Source:** PGE  
**Alias:**  
**Constraints:**

**Default Value:** null  
**Datatype:** date  
**Units:**

**Domain Value:**  
**Domain Description:**

---

**Attribute:** EquatorCrossingLongitude  
**Module Name:** LocalitySpatial\_v3  
**Class Name:** OrbitCalculatedSpatialDomain

**Attribute Description:**  
This attribute represents the terrestrial longitude of the descending equator crossing.

**Content Source:** PGE  
**Alias:**  
**Constraints:**  
  
**Default Value:** null  
**Datatype:** float(11)\_(6)  
**Units:**  
**Domain Value:** +-180.00  
**Domain Description:**

---

**Attribute:** EquatorCrossingTime  
**Module Name:** LocalitySpatial\_v3  
**Class Name:** OrbitCalculatedSpatialDomain  
**Attribute Description:**  
This attribute represents the time of the descending equator crossing.  
**Content Source:** PGE  
**Alias:**  
**Constraints:**  
  
**Default Value:** null  
**Datatype:** time  
**Units:**  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** ExclusionGRingFlag  
**Module Name:** LocalitySpatial\_v3  
**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:** NA  
**Domain Value:** Y  
**Domain Description:**  
Value denotes geodetic latitude or longitude of the starting point of arc of an inner (exclusion) G-Ring.  
**Domain Value:** N  
**Domain Description:**  
Value denotes the geodetic latitude or longitude of the starting point of an arc of an outer G-Ring.

---

**Attribute:** ExternalDataPointer  
**Module Name:** DAP\_v3

**Class Name:** ExternalData

**Attribute Description:**

Data model logical reference to external data document.

**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:** FieldCampaignGuidePointer

**Module Name:** Document\_v3

**Class Name:** FieldCampaignGuide

**Attribute Description:**

Logical pointer to the Field Campaign Guide.

**Content Source:** DAAC

**Alias:**

**Constraints:**

**Default Value:** null

**Datatype:** string(255)

**Units:** NA

**Domain Value:**

**Domain Description:**

---

**Attribute:** FutureReviewDate

**Module Name:** Collection\_v3

**Class Name:** Review

**Attribute Description:**

Date of next planned QA peer review.

**Content Source:** DP; PGE

**Alias:** DIF=Future Review Date

**Constraints:**

**Default Value:** null

**Datatype:** date

**Units:** NA

**Domain Value:**

**Domain Description:**

---

**Attribute:** GRingPointLatitude

**Module Name:** LocalitySpatial\_v3

**Class Name:** GRingPoint  
**Attribute Description:** The geodetic 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\_v3  
**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\_v3  
**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:** int(5)  
**Units:** NA

**Domain Value:**  
**Domain Description:**

---

**Attribute:** GeographicCoordinateUnits  
**Module Name:** LocalitySpatial\_v3  
**Class Name:** GeographicCoordinateSystem  
**Attribute Description:**  
Units of measure used for the geodetic 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:**  
GeographicCoordinateUnits are mandatory if GeographicCoordinateSystem class is applicable.  
**Default Value:** null  
**Datatype:** string(80)  
**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:**

---

**Attribute:** GeographicalRegionName  
**Module Name:** Document\_v3  
**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  
Mississippi 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:** NA  
**Domain Value:** free text  
**Domain Description:**  
this attribute is unbounded.

---

**Attribute:** GranulePointer  
**Module Name:** Granule\_v3  
**Class Name:** ECSDDataGranule  
**Attribute Description:**  
Pointer to granule specification.  
**Content Source:**  
**Alias:**  
**Constraints:**  
  
**Default Value:** not null  
**Datatype:** varstring(255)  
**Units:** NA  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** GridCoordinateSystemName  
**Module Name:** LocalitySpatial\_v3  
**Class Name:** GridCoordinateSystem  
**Attribute Description:**  
Name of the Grid Coordinate System. 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'.  
**Content Source:** DP  
**Alias:**  
**Constraints:**  
If GridCoordinateSystem is used, zone identifier must be used.  
**Default Value:** null  
**Datatype:** varstring(255)  
**Units:** NA  
**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:** GuideName  
**Module Name:** Document\_v3  
**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:** Free Text  
**Domain Description:**

**Domain Value:** Archive Center Guide  
**Domain Description:**

**Domain Value:** Processing Center Guide  
**Domain Description:**

**Domain Value:** Data Originator Guide  
**Domain Description:**

**Domain Value:** Field Campaign Guide  
**Domain Description:**

**Domain Value:** Platform Guide  
**Domain Description:**

**Domain Value:** Instrument Guide  
**Domain Description:**

**Domain Value:** ECS Collection Guide  
**Domain Description:**

**Domain Value:** Sensor Guide  
**Domain Description:**

**Domain Value:** Non Instrument Guide  
**Domain Description:**

---

**Attribute:** HorizontalDatumName  
**Module Name:** LocalitySpatial\_v3  
**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:** NA  
**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\_v3  
**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\_v3  
**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:**  
  
**Domain Value:** Free Text  
**Domain Description:**

---

**Attribute:** IndirectReference  
**Module Name:** Collection\_v3  
**Class Name:** CSDTDescription  
**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:** DP  
**Alias:**  
**Constraints:**  
  
**Default Value:** null  
**Datatype:** varstring(100)  
**Units:** NA  
**Domain Value:** Free Text  
**Domain Description:**

---

**Attribute:** InputPointer  
**Module Name:** Granule\_v3  
**Class Name:** InputGranule  
**Attribute Description:**  
Data model logical reference to Input Granule.  
**Content Source:**  
**Alias:**  
**Constraints:**

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

---

**Attribute:** InstrumentEngineeringDataPointer  
**Module Name:** DAP\_v3  
**Class Name:** InstrumentEngineeringData  
**Attribute Description:**  
Data model logical reference to Instrument Engineering Data document.  
**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:** InstrumentGuidePointer  
**Module Name:** Document\_v3  
**Class Name:** InstrumentGuide  
**Attribute Description:**  
Logical pointer to the Instrument Guide.  
**Content Source:** DAAC  
**Alias:**  
**Constraints:**

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

---

<b>Attribute:</b>	InstrumentLongName
<b>Module Name:</b>	DataOriginator_v3
<b>Class Name:</b>	Instrument
<b>Attribute Description:</b>	The long or full name by which the instrument is known.
<b>Content Source:</b>	DP
<b>Alias:</b>	
<b>Constraints:</b>	InstrumentLongName and/or InstrumentShortName must exist if Instrument class is used.
<b>Default Value:</b>	
<b>Datatype:</b>	string(80)
<b>Units:</b>	NA
<b>Domain Value:</b>	Active Cavity Radiometer Irradiance Monitor
<b>Domain Description:</b>	
<b>Domain Value:</b>	Atmospheric Infrared Sounder
<b>Domain Description:</b>	
<b>Domain Value:</b>	Microwave Humidity Sounder
<b>Domain Description:</b>	
<b>Domain Value:</b>	Advanced Microwave Sounding Unit
<b>Domain Description:</b>	
<b>Domain Value:</b>	Advanced Spaceborne Thermal Emission and Reflection Radiometer
<b>Domain Description:</b>	
<b>Domain Value:</b>	Clouds and the Earth's Radiant Energy System
<b>Domain Description:</b>	
<b>Domain Value:</b>	Doppler Orbitography and Radiopositioning Integrated by Satellite
<b>Domain Description:</b>	
<b>Domain Value:</b>	Altimetry Microwave Radiometer
<b>Domain Description:</b>	
<b>Domain Value:</b>	Solid-State Altimeter
<b>Domain Description:</b>	
<b>Domain Value:</b>	EOS Ocean Color Instrument
<b>Domain Description:</b>	
<b>Domain Value:</b>	Earth Observing Scanning Polarimeter
<b>Domain Description:</b>	
<b>Domain Value:</b>	Enhanced Thematic Mapper Plus
<b>Domain Description:</b>	

<b>Domain Value:</b>	Geoscience Laser Altimeter System
<b>Domain Description:</b>	
<b>Domain Value:</b>	High Resolution Dynamics Limb Sounder
<b>Domain Description:</b>	
<b>Domain Value:</b>	Lightening Imaging Sensor
<b>Domain Description:</b>	
<b>Domain Value:</b>	Multi-frequency Imaging Microwave Radiometer
<b>Domain Description:</b>	
<b>Domain Value:</b>	Multiangle Imaging SpectroRadiometer
<b>Domain Description:</b>	
<b>Domain Value:</b>	Microwave Limb Sounder
<b>Domain Description:</b>	
<b>Domain Value:</b>	Moderate-Resolution Imaging Spectroradiometer
<b>Domain Description:</b>	
<b>Domain Value:</b>	Measurements of Pollution in the Troposphere
<b>Domain Description:</b>	
<b>Domain Value:</b>	Ozone Dynamics Ultraviolet Spectrometer
<b>Domain Description:</b>	
<b>Domain Value:</b>	Stratospheric Aerosol and Gas Experiment III
<b>Domain Description:</b>	
<b>Domain Value:</b>	SeaWinds
<b>Domain Description:</b>	
<b>Domain Value:</b>	Solar Stellar Irradiance Comparison Experiment
<b>Domain Description:</b>	
<b>Domain Value:</b>	Tropospheric Emission Spectrometer
<b>Domain Description:</b>	
<b>Domain Value:</b>	free text
<b>Domain Description:</b>	This attribute is unbounded.

---

<b>Attribute:</b>	InstrumentScienceDataPointer
<b>Module Name:</b>	DAP_v3
<b>Class Name:</b>	InstrumentScienceData
<b>Attribute Description:</b>	Data model logical reference to Instrument Science Data document.
<b>Content Source:</b>	DSS
<b>Alias:</b>	

**Constraints:**

If Instrument Science Data exists then InstrumentScienceDataPointer must exist.

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

**Attribute:** InstrumentShortName  
**Module Name:** DataOriginator\_v3  
**Class Name:** Instrument

**Attribute Description:**  
 The short name by which the instrument is known.

**Content Source:** DP

**Alias:**

**Constraints:**

InstrumentLongName and/or InstrumentShortName must exist if Instrument class is used.

**Default Value:**  
**Datatype:** string(20)  
**Units:** NA  
**Domain Value:** free text  
**Domain Description:**

**Attribute:** InstrumentTechnique  
**Module Name:** DataOriginator\_v3  
**Class Name:** Instrument

**Attribute Description:**  
 Specifies the technique or process used by the instrument.

**Content Source:** DP

**Alias:**

**Constraints:**

**Default Value:** null  
**Datatype:** string(30)  
**Units:** NA  
**Domain Value:** free text

**Domain Description:**  
 this attribute is unbounded.

**Domain Value:** imaging

**Domain Description:**

**Domain Value:** limb sounding

**Domain Description:**

**Domain Value:** microwave sounding

**Domain Description:**

**Domain Value:** height measurement

<b>Domain Description:</b>	
<b>Domain Value:</b>	measurement by drifting bouy
<b>Domain Description:</b>	
<b>Domain Value:</b>	measurement by moored bouy
<b>Domain Description:</b>	
<b>Domain Value:</b>	rain guage measurement
<b>Domain Description:</b>	
<b>Domain Value:</b>	radiometry
<b>Domain Description:</b>	
<b>Domain Value:</b>	polarimetry
<b>Domain Description:</b>	
<b>Domain Value:</b>	laser altimetry
<b>Domain Description:</b>	
<b>Domain Value:</b>	radar altimetry
<b>Domain Description:</b>	
<b>Domain Value:</b>	Kjepdahl digestion
<b>Domain Description:</b>	
<b>Domain Value:</b>	eddy correlation apparatus
<b>Domain Description:</b>	
<b>Domain Value:</b>	wind profiling
<b>Domain Description:</b>	
<b>Domain Value:</b>	radio carbon dating
<b>Domain Description:</b>	
<b>Domain Value:</b>	Umkehr observations
<b>Domain Description:</b>	

---

<b>Attribute:</b>	JournalArticleName
<b>Module Name:</b>	Document_v3
<b>Class Name:</b>	JournalArticle
<b>Attribute Description:</b>	
The name of the journal article.	
<b>Content Source:</b>	DP
<b>Alias:</b>	
<b>Constraints:</b>	
must exist if article does.	
<b>Default Value:</b>	null
<b>Datatype:</b>	string(80)
<b>Units:</b>	NA

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

---

**Attribute:** JournalArticlePointer  
**Module Name:** Document\_v3  
**Class Name:** JournalArticle  
**Attribute Description:** Data model logical reference to Journal Article.  
**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\_v3  
**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:** DAP\_v3  
**Class Name:** LinkandCompileScripts  
**Attribute Description:** Data model logical reference to link and compile scripts.  
**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\_v3  
**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:** NA  
**Domain Value:** free text  
**Domain Description:**  
this attribute is unbounded.

---

**Attribute:** LocalGeoreferenceInformation  
**Module Name:** LocalitySpatial\_v3  
**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:** NA  
**Domain Value:** free text  
**Domain Description:**  
this attribute is unbounded.

---

**Attribute:** LocalGranuleID  
**Module Name:** Granule\_v3  
**Class Name:** ECSDDataGranule  
**Attribute Description:**  
Unique identifier for locally produced granule that ECS ingests and is required to capture.  
**Content Source:**  
**Alias:**  
**Constraints:**

**Default Value:** null  
**Datatype:** string(48)  
**Units:** NA  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** LocalPlanarCoordinateSystemDescription  
**Module Name:** LocalitySpatial\_v3  
**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:** NA  
**Domain Value:** free text  
**Domain Description:**  
this attribute is unbounded.

---

**Attribute:** LocalPlanarGeoreferenceInformation  
**Module Name:** LocalitySpatial\_v3  
**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:** NA  
**Domain Value:** free text  
**Domain Description:**  
this attribute is unbounded.

---

**Attribute:** LocalityDescription  
**Module Name:** Collection\_v3  
**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\_v3  
**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. Mid west 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:** NA  
**Domain Value:** free text  
**Domain Description:** this attribute is unbounded.

---

**Attribute:** LocalityValue  
**Module Name:** LocalitySpatial\_v3  
**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.

<b>Domain Value:</b>	Land
<b>Domain Description:</b> Global land surface.	
<b>Domain Value:</b>	Land/Cryo
<b>Domain Description:</b> Land Ice and Snow regions.	
<b>Domain Value:</b>	Land/L
<b>Domain Description:</b> Local land sites.	
<b>Domain Value:</b>	Land/R
<b>Domain Description:</b> Regional land sites.	
<b>Domain Value:</b>	Limb
<b>Domain Description:</b> Limb sounding.	
<b>Domain Value:</b>	Local
<b>Domain Description:</b> Local sites.	
<b>Domain Value:</b>	Ocean/Cryo
<b>Domain Description:</b> Regions with sea ice.	
<b>Domain Value:</b>	Ocean/I
<b>Domain Description:</b> Ocean with Case I sediments.	
<b>Domain Value:</b>	Ocean/II
<b>Domain Description:</b> Ocean with Case II sediments.	
<b>Domain Value:</b>	Ocean/L
<b>Domain Description:</b> Local oceanic sites.	
<b>Domain Value:</b>	Ocean/R
<b>Domain Description:</b> Regional oceanic sites.	
<b>Domain Value:</b>	Ocean/S
<b>Domain Description:</b> Southern Ocean.	
<b>Domain Value:</b>	Ocean/SA
<b>Domain Description:</b> Southern & Eastern North Atlantic.	
<b>Domain Value:</b>	Polar
<b>Domain Description:</b> Latitudes > 60 degrees N & S.	
<b>Domain Value:</b>	Tropic
<b>Domain Description:</b> Zonal Band 35 degrees N to 35 degrees S.	
<b>Domain Value:</b>	Wetlands
<b>Domain Description:</b> Global wetlands.	
<b>Domain Value:</b>	Free Text
<b>Domain Description:</b>	

---

**Attribute:** LongName  
**Module Name:** Collection\_v3  
**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  
**Constraints:**  
not null  
**Constraints:**  
must be unique  
**Default Value:**  
**Datatype:** string(80)  
**Units:** NA  
**Domain Value:** Free Text  
**Domain Description:**

---

**Attribute:** LongitudeResolution  
**Module Name:** LocalitySpatial\_v3  
**Class Name:** GeographicCoordinateSystem  
**Attribute Description:**  
The minimum difference between two adjacent longitude values expressed in Geographic Coordinate Units of measure.  
**Content Source:** DP  
**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:** MaintenanceandUpdateFrequency  
**Module Name:** Collection\_v3  
**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:**

**Default Value:** not null  
**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\_v3  
**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:** NA  
**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:** Polar Stereographic

**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.

**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:** free text

**Domain Description:**

---

**Attribute:** MapProjectionPointer

**Module Name:** LocalitySpatial\_v3

**Class Name:** MapProjection

**Attribute Description:**

This is a data modeling logical reference to a map projection.

**Content Source:** DSS

**Alias:**

**Constraints:**

**Default Value:** null

**Datatype:** varstring(255)

**Units:** NA

**Domain Value:**

**Domain Description:**

---

**Attribute:** MetadataConfigurationFilePointer

**Module Name:** DAP\_v3

**Class Name:** MetadataConfigurationFile

**Attribute Description:**

Data model logical reference to Metadata Configuration File.

**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\_v3

**Class Name:** NonInstrument

**Attribute Description:**

A description of the model used to produce the noninstrument data if applicable. e.g. NMC Aviation Model

**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\_v3

**Class Name:** NonInstrument

**Attribute Description:**

The name of the model used to produce computer model results for noninstrument data if applicable. 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\_v3

**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:** NA**Domain Value:** free text**Domain Description:**

this attribute is unbounded.

---

**Attribute:** NonInstrumentGuidePointer**Module Name:** Document\_v3**Class Name:** NonInstrumentGuide**Attribute Description:**

Logical pointer to the NonInstrument Guide.

**Content Source:** DAAC**Alias:****Constraints:****Default Value:** null**Datatype:** string(255)**Units:** NA**Domain Value:****Domain Description:**

---

**Attribute:** NonInstrumentLongName**Module Name:** DataOriginator\_v3**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:** Data Assimilation Model**Domain Description:****Domain Value:** free text**Domain Description:**

This attribute is unbounded.

**Domain Value:** European Centre for Medium Range Weather Forecasting**Domain Description:**

---

**Attribute:** NonInstrumentShortName  
**Module Name:** DataOriginator\_v3  
**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  
**Domain Value:** ECMWF  
**Domain Description:**  
 European Centre for Medium Range Weather Forecasting

---

**Attribute:** NonInstrumentTechnique  
**Module Name:** DataOriginator\_v3  
**Class Name:** NonInstrument  
**Attribute Description:**  
 Technique/process describing what a noninstrument does.  
**Content Source:**  
**Alias:**  
**Constraints:**  
  
**Default Value:** null  
**Datatype:** string(20)  
**Units:** NA  
**Domain Value:** Free Text  
**Domain Description:**  
  
**Domain Value:** Predictive Forecasting  
**Domain Description:**  
 Predictive Forecast  
**Domain Value:** Publishing Papers  
**Domain Description:**  
 Published Papers

---

**Attribute:** NorthBoundingCoordinate  
**Module Name:** LocalitySpatial\_v3

**Class Name:** BoundingBoxRectangle  
**Attribute Description:** Northern-most coordinate of the limit of coverage expressed in geodetic latitude.  
**Content Source:** DP(collection);PGE(granule)  
**Alias:**  
**Constraints:**  
 NorthBoundingBoxCoordinate not null for collection only.  
**Constraints:**  
 NorthBoundingBoxCoordinate <= +90.0  
**Constraints:**  
 NorthBoundingBoxCoordinate => -90.0  
**Constraints:**  
 NorthBoundingBoxCoordinate => SouthBoundingBoxCoordinate  
**Default Value:** not null  
**Datatype:** float(10)\_(6)  
**Units:** decimal degrees  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** NumberofSensors  
**Module Name:** DataOriginator\_v3  
**Class Name:** Instrument  
**Attribute Description:** The number of sensors carried by the instrument.  
**Content Source:** DP  
**Alias:**  
**Constraints:**  
 NumberofSensors => 1  
**Default Value:** 1  
**Datatype:** int(2)  
**Units:** NA  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** OperationManualPointer  
**Module Name:** DAP\_v3  
**Class Name:** OperationManual  
**Attribute Description:** Data model logical reference to Operation Manual.  
**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\_v3  
**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:** OperationalQualityFlag  
**Module Name:** Granule\_v3  
**Class Name:** QAFlags  
**Attribute Description:**  
The granule level flag applying both generally to a granule and specifically to parameters at the granule level. When applied to parameter, the flag refers to the quality of that parameter for the 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 QAFlags 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 suspect and being investigated using an operational test tool.

---

**Attribute:** OrbitNumber  
**Module Name:** LocalitySpatial\_v3  
**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(8)

**Units:** NA

**Domain Value:**

**Domain Description:**

---

**Attribute:** OrbitParametersPointer

**Module Name:** Granule\_v3

**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:** OrbitalModelName

**Module Name:** LocalitySpatial\_v3

**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:**

OrbitModelName is mandatory if OrbitCalculatedSpatialDomain class is applicable.

**Default Value:**

**Datatype:** string(80)

**Units:** NA

**Domain Value:** free text

**Domain Description:**

this attribute is unbounded.

---

**Attribute:** OrdinateResolution  
**Module Name:** LocalitySpatial\_v3  
**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:** PGConfigFilePointer  
**Module Name:** DAP\_v3  
**Class Name:** PGConfigFile  
**Attribute Description:**  
 Data model logical reference to PGE Configuration File document.  
**Content Source:** DSS  
**Alias:**  
**Constraints:**  
 If PGE Configuration File exists then PGConfigFilePointer exists.  
**Default Value:** null  
**Datatype:** varstring(255)  
**Units:** NA  
**Domain Value:** NA  
**Domain Description:**  
 NA

---

**Attribute:** PGErrorLogPointer  
**Module Name:** DAP\_v3  
**Class Name:** PGErrorLog  
**Attribute Description:**  
 Data model logical reference to PGE Error Log.  
**Content Source:** DSS  
**Alias:**  
**Constraints:**  
 If PGE Error Log exists then PGErrorLogPointer must exist.  
**Default Value:** null  
**Datatype:** varstring(255)  
**Units:** NA  
**Domain Value:** NA  
**Domain Description:**  
 NA

---

**Attribute:** PGEFunction  
**Module Name:** DAP\_v3  
**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:** DAP\_v3  
**Class Name:** PGEExecutable  
**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:** NA  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** PGEIdentifier  
**Module Name:** DAP\_v3  
**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:** NA  
**Domain Value:**

**Domain Description:**

---

**Attribute:** PGEName  
**Module Name:** DAP\_v3  
**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:** DAP\_v3  
**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:** string(20)  
**Units:** NA  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** ParameterMeasurementResolution  
**Module Name:** Collection\_v3  
**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:** ParameterRange  
**Module Name:** Collection\_v3  
**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:** null  
**Datatype:** string(10)  
**Units:** NA  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** ParameterUnitsofMeasurement  
**Module Name:** Collection\_v3  
**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\_v3  
**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 parameter is physical then units must exist.  
**Constraints:**

If ParameterValue exists then the class ECSPParameter must exist.

**Default Value:** null  
**Datatype:** int; float; varstring; string; date; time; datetime; special  
**Units:** ParameterUnitsofMeasurement  
**Domain Value:** Free Text  
**Domain Description:**  
Other values at the collection and granule level.

---

**Attribute:** ParameterValueAccuracy  
**Module Name:** Collection\_v3  
**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\_v3  
**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:** DAP\_v3  
**Class Name:** PerformanceTestResults  
**Attribute Description:**  
Data model logical reference to Performance Test Results document.  
**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\_v3

**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\_v3

**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\_v3

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

**Attribute:** PeriodCycleDurationValue  
**Module Name:** LocalityTemporal\_v3  
**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 > 0.0 if used.  
**Constraints:**  
 PeriodCycleDurationValue is mandatory if RegularPeriodic class is used.  
**Default Value:** null  
**Datatype:** float(7)\_(3)  
**Units:** NA  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** PeriodDurationUnit  
**Module Name:** LocalityTemporal\_v3  
**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:** NA  
**Domain Value:** free text  
**Domain Description:**  
this attribute is unbounded.

---

**Attribute:** PeriodDurationValue  
**Module Name:** LocalityTemporal\_v3  
**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:** PeriodDurationUnit  
**Domain Value:**

**Domain Description:**

---

**Attribute:** PeriodName  
**Module Name:** LocalityTemporal\_v3  
**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:** NA  
**Domain Value:** free text  
**Domain Description:**  
this attribute is unbounded.

---

**Attribute:** PlanarCoordinateEncodingMethod  
**Module Name:** LocalitySpatial\_v3  
**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:** NA  
**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\_v3

**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:** NA

**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\_v3

**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:** NA

**Domain Value:**

**Domain Description:**

---

**Attribute:** PlatformAncillaryDataPointer

**Module Name:** DAP\_v3

**Class Name:** PlatformAncillaryData

**Attribute Description:**  
Data model logical reference to Platform Ancillary Data.

**Content Source:** DSS

**Alias:**

**Constraints:**  
If Platform Ancillary Data exists then PlatformAncillaryDataPointer must exist.

**Default Value:** null

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

---

**Attribute:** PlatformCharacteristicName  
**Module Name:** DataOriginator\_v3  
**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\_v3  
**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\_v3

**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\_v3

**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:** string; date; float; int

**Units:** PlatformCharacteristicUnit

**Domain Value:**

**Domain Description:**

---

**Attribute:** PlatformGuidePointer  
**Module Name:** Document\_v3  
**Class Name:** PlatformGuide  
**Attribute Description:**  
Logical pointer to the Platform Guide.  
**Content Source:** DAAC  
**Alias:**  
**Constraints:**

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

---

**Attribute:** PlatformLongName  
**Module Name:** DataOriginator\_v3  
**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\_v3  
**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(25)  
**Units:** NA  
**Domain Value:** free text  
**Domain Description:**  
This attribute is unbounded.  
**Domain Value:** NOAA-14

**Domain Description:**

**Domain Value:** C130 Aircraft

**Domain Description:**

**Domain Value:** AM-1

**Domain Description:**

---

**Attribute:** PointLatitude  
**Module Name:** LocalitySpatial\_v3  
**Class Name:** Point  
**Attribute Description:**  
A single geodetic latitudinal 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\_v3  
**Class Name:** Point  
**Attribute Description:**  
A single longitudinal value.  
**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:** decimal degrees  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** PostalCode  
**Module Name:** Contact\_v3  
**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\_v3  
**Class Name:** Temporal  
**Attribute Description:**  
The precision (position in number of places to right of decimal point) of seconds used in measurement of timefield in SingleDateTime and RangeDateTime.  
**Content Source:** DP  
**Alias:**  
**Constraints:**  
PrecisionofSeconds => 0  
**Default Value:** 0  
**Datatype:** int(6)  
**Units:** NA  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** PrimaryCSDT  
**Module Name:** Collection\_v3  
**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:** DP; DAAC  
**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 integer, 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 such 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:**  
Typically, swath data arrays will be two dimensional arrays, corresponding to a 2D 'image' of the ground along the orbital track. Sometimes, though, swath data arrays may be 1D arrays, where there is one element per scan (time, altitude, etc.). Additionally, swath data arrays could have 3 or more dimensions, where the additional dimensions are

channel number or altitude. A 'simple' swath structure is designated where every data array is of the same size and resolution.

**Domain Value:** Complex Swath

**Domain Description:**

Created by a sensor making N observations in the across-track direction. The along-track direction causes the foot print 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:** ProcessControlParametersandResourceFilesPointer

**Module Name:** DAP\_v3

**Class Name:** ProcessControlParametersandResourceFiles

**Attribute Description:**

Logical data model reference to Process Control Parameters and Resource Files.

**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\_v3

**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:** 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:** ProcessingCenterGuidePointer  
**Module Name:** Document\_v3  
**Class Name:** ProcessingCenterGuide  
**Attribute Description:**  
 Logical pointer to the Processing Center Guide.  
**Content Source:** DAAC  
**Alias:**  
**Constraints:**

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

---

**Attribute:** ProcessingDependenciesPointer  
**Module Name:** DAP\_v3  
**Class Name:** ProcessingDependencies  
**Attribute Description:**  
 Data model logical reference to Processing Dependencies document.  
**Content Source:** DP  
**Alias:**

**Constraints:**

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

---

**Attribute:** ProcessingErrorReportPointer  
**Module Name:** Document\_v3  
**Class Name:** ProcessingErrorReport  
**Attribute Description:**  
Data model reference to Processing Error Report specification.  
**Content Source:** PLS  
**Alias:**  
**Constraints:**

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

---

**Attribute:** ProcessingFileDescriptionPointer  
**Module Name:** DAP\_v3  
**Class Name:** ProcessingFileDescription  
**Attribute Description:**  
Data model logical reference to Processing File Description document.  
**Content Source:** DSS  
**Alias:**  
**Constraints:**

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

---

**Attribute:** ProcessingHistoryPointer  
**Module Name:** Granule\_v3  
**Class Name:** ProcessingHistory  
**Attribute Description:**  
Data model logical reference to the granule level processing history file.  
**Content Source:** DSS  
**Alias:**

**Constraints:**

Processing history log must exist.

**Default Value:**

null

**Datatype:**

varstring(255)

**Units:**

NA

**Domain Value:**

NA

**Domain Description:**

NA

**Attribute:**

ProcessingLevelDescription

**Module Name:**

Collection\_v3

**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\_v3  
**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

<b>Attribute:</b>	ProcessingQAAttribute
<b>Module Name:</b>	Granule_v3
<b>Class Name:</b>	ProcessingQA
<b>Attribute Description:</b>	This attribute identifies the non-science QA attribute which did not meet pre-defined parameter thresholds during validation processing.
<b>Content Source:</b>	PDPS
<b>Alias:</b>	
<b>Constraints:</b>	
<b>Default Value:</b>	
<b>Datatype:</b>	string(80)
<b>Units:</b>	
<b>Domain Value:</b>	ShortName
<b>Domain Description:</b>	
<b>Domain Value:</b>	ScienceQualityFlag
<b>Domain Description:</b>	
<b>Domain Value:</b>	OperationalQualityFlag
<b>Domain Description:</b>	
<b>Domain Value:</b>	AutomaticQualityFlag
<b>Domain Description:</b>	
<b>Domain Value:</b>	QualityFlagExplanation
<b>Domain Description:</b>	
<b>Domain Value:</b>	ReprocessingActual
<b>Domain Description:</b>	
<b>Domain Value:</b>	ReprocessingPlanning
<b>Domain Description:</b>	
<b>Domain Value:</b>	SizeMBECSDataGranule
<b>Domain Description:</b>	
<b>Domain Value:</b>	QAPercentMissingData
<b>Domain Description:</b>	
<b>Domain Value:</b>	QAPercentOutofBoundsData
<b>Domain Description:</b>	
<b>Domain Value:</b>	QAPercentInterpolatedData
<b>Domain Description:</b>	
<b>Domain Value:</b>	RangeEndingTime
<b>Domain Description:</b>	
<b>Domain Value:</b>	RangeEndingDate
<b>Domain Description:</b>	

**Domain Value:** RangeBeginningTime  
**Domain Description:**

**Domain Value:** RangeBeginningDate  
**Domain Description:**

**Domain Value:** TimeOfDay  
**Domain Description:**

**Domain Value:** CalendarDate  
**Domain Description:**

**Domain Value:** ParameterValue  
**Domain Description:**

**Domain Value:** LocalityValue  
**Domain Description:**

**Domain Value:** VerticalSpatialDomainValue  
**Domain Description:**

**Domain Value:** VerticalSpatialDomainType  
**Domain Description:**

**Domain Value:** OrbitModelName  
**Domain Description:**

**Domain Value:** OrbitNumber  
**Domain Description:**

**Domain Value:** StartOrbitNumber  
**Domain Description:**

**Domain Value:** StopOrbitNumber  
**Domain Description:**

**Domain Value:** EquatorCrossingLongitude  
**Domain Description:**

**Domain Value:** EquatorCrossingTime  
**Domain Description:**

**Domain Value:** EquatorCrossingDate  
**Domain Description:**

---

**Attribute:** ProcessingQADescription  
**Module Name:** Granule\_v3  
**Class Name:** ProcessingQA

**Attribute Description:**  
This attribute provides description of the error encountered during processing for the specified Processing QA

Attribute  
**Content Source:** PDPS  
**Alias:**  
**Constraints:**  
  
**Default Value:**  
**Datatype:** string(255)  
**Units:**  
**Domain Value:** TBD  
**Domain Description:**

---

**Attribute:** ProcessingReportPeriod  
**Module Name:** Document\_v3  
**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\_v3  
**Class Name:** ProcessingReport  
**Attribute Description:**  
Type of processing report supplied by Planning Subsystem.  
**Content Source:** PLS  
**Alias:**  
**Constraints:**

**Default Value:**

**Datatype:** string(10)  
**Units:** NA  
**Domain Value:** Status  
**Domain Description:**

**Domain Value:** Error  
**Domain Description:**

**Domain Value:** Resource Usage  
**Domain Description:**

---

**Attribute:** ProcessingResourceUsageReportPointer  
**Module Name:** Document\_v3  
**Class Name:** ProcessingResourceUsageReport  
**Attribute Description:**  
Data model logical reference to the Processing Resource Usage Report.  
**Content Source:** PLS  
**Alias:**  
**Constraints:**

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

---

**Attribute:** ProcessingStatusReportPointer  
**Module Name:** Document\_v3  
**Class Name:** ProcessingStatusReport  
**Attribute Description:**  
Data model logical reference to the Processing Status Report.  
**Content Source:** PLS  
**Alias:**  
**Constraints:**

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

---

**Attribute:** ProductionPlanDescription  
**Module Name:** Document\_v3  
**Class Name:** ProductionPlan  
**Attribute Description:**

The description of the production plan.

**Content Source:** PLS  
**Alias:**  
**Constraints:**

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

---

**Attribute:** ProductionPlanEndDate  
**Module Name:** Document\_v3  
**Class Name:** ProductionPlan  
**Attribute Description:**  
The ending date for which the production plan is applicable.  
**Content Source:** PLS  
**Alias:**  
**Constraints:**

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

---

**Attribute:** ProductionPlanForecast  
**Module Name:** Document\_v3  
**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:** null  
**Datatype:** int(3)  
**Units:** days  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** ProductionPlanPointer  
**Module Name:** Document\_v3  
**Class Name:** ProductionPlan  
**Attribute Description:**

Logical pointer to the production 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:** NA  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** ProductionPlanStartDate  
**Module Name:** Document\_v3  
**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:** null  
**Datatype:** datetime  
**Units:**  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** ProgrammersGuidePointer  
**Module Name:** DAP\_v3  
**Class Name:** ProgrammersGuide  
**Attribute Description:**  
Data model logical reference to Programmers Guide document.  
**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:** QAGranulePointer  
**Module Name:** Granule\_v3  
**Class Name:** QAGranule  
**Attribute Description:**

Data model logical reference to QA Granule.

**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\_v3

**Class Name:** QAStats

**Attribute Description:**

Granule level % interpolated data. This attribute can be repeated for individual parameters within a granule.

**Content Source:** PGE

**Alias:**

**Constraints:**

**Default Value:** null

**Datatype:** int(3)

**Units:** %

**Domain Value:** 0-100

**Domain Description:**

---

**Attribute:** QAPercentMissingData

**Module Name:** Granule\_v3

**Class Name:** QAStats

**Attribute Description:**

Granule level % missing data. This attribute can be repeated for individual parameters within a granule.

**Content Source:** PGE

**Alias:**

**Constraints:**

**Default Value:** null

**Datatype:** int(3)

**Units:** %

**Domain Value:** 0-100

**Domain Description:**

---

**Attribute:** QAPercentOutofBoundsData

**Module Name:** Granule\_v3

**Class Name:** QAStats

**Attribute Description:**

Granule level % out of bounds data. This attribute can be repeated for individual parameters within a granule.

**Content Source:** PGE  
**Alias:**  
**Constraints:**  
mandatory  
**Default Value:** null  
**Datatype:** int(3)  
**Units:** %  
**Domain Value:** 0-100  
**Domain Description:**

---

**Attribute:** QualityFlagExplanation  
**Module Name:** Granule\_v3  
**Class Name:** QAFlags  
**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\_v3  
**Class Name:** QualityTextComment  
**Attribute Description:**  
Data model logical 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\_v3  
**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\_v3

**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\_v3

**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\_v3  
**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:**  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** RangeEndingDate  
**Module Name:** LocalityTemporal\_v3  
**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\_v3  
**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:** ReceivedAlgorithmPackagePointer

**Module Name:** DAP\_v3

**Class Name:** PGEInfo

**Attribute Description:**

Data model logical reference to Received Algorithm Package.

**Content Source:** PGE

**Alias:**

**Constraints:**

**Default Value:** null

**Datatype:** varstring(255)

**Units:** NA

**Domain Value:**

**Domain Description:**

---

**Attribute:** ReferencePaperReference

**Module Name:** Document\_v3

**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\_v3  
**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\_v3  
**Class Name:** RegionalAreaDefinitionGuide  
**Attribute Description:**  
 Logical pointer to the Regional Area Definition Guide.  
**Content Source:** DSS  
**Alias:**  
**Constraints:**  
 if guide exists, this must exist.  
**Default Value:** null  
**Datatype:** string(255)  
**Units:** NA  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** ReprocessingActual  
**Module Name:** Granule\_v3  
**Class Name:** ECSDDataGranule  
**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\_v3  
**Class Name:** ECSDDataGranule  
**Attribute Description:** Granule level, stating what reprocessing may be performed on this granule.  
**Content Source:** PGE  
**Alias:**  
**Constraints:**

**Default Value:** null  
**Datatype:** string(45)  
**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:** DAP\_v3  
**Class Name:** ResultsProductFile  
**Attribute Description:** Data model logical reference to Results Product File.  
**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:** DAP\_v3  
**Class Name:** ResultsReport  
**Attribute Description:**  
Data model logical reference to Results Report.  
**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:** RevisionDate  
**Module Name:** Collection\_v3  
**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:** null  
**Datatype:** date  
**Units:**  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** Role  
**Module Name:** Contact\_v3  
**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:**

**Domain Value:** Investigator  
**Domain Description:**

**Domain Value:** Investigator ID  
**Domain Description:**

---

**Attribute:** SWDateLastModified  
**Module Name:** DAP\_v3  
**Class Name:** Software  
**Attribute Description:** Date and time when the software was last modified.  
**Content Source:** DP  
**Alias:**  
**Constraints:** Mandatory if any modification made.  
**Default Value:** null  
**Datatype:** datetime  
**Units:**  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** SWDevelopmentStandardPointer  
**Module Name:** DAP\_v3  
**Class Name:** SWDevelopmentStandard  
**Attribute Description:** Data model logical reference to Software Development Standard document.  
**Content Source:** DSS  
**Alias:**  
**Constraints:** If SW Development Standard exists then SWDevelopmentStandardPointer must exist.  
**Default Value:** null  
**Datatype:** varstring(255)  
**Units:** NA

**Domain Value:** NA  
**Domain Description:**  
NA

---

**Attribute:** ScSWExecutablesPointer  
**Module Name:** DAP\_v3  
**Class Name:** PGEExecutable  
**Attribute Description:**  
Data model logical reference tar file containing PGE scripts, binaries, and coefficient files.  
**Content Source:** DP  
**Alias:**  
**Constraints:**

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

---

**Attribute:** ScSWScriptPointer  
**Module Name:** DAP\_v3  
**Class Name:** ScSWScript  
**Attribute Description:**  
Data model logical pointer to Science Software Script.  
**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:** DAP\_v3  
**Class Name:** ScSWSourceCode  
**Attribute Description:**  
Data model logical reference to Science Software Source Code.  
**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:** ScienceQualityFlag  
**Module Name:** Granule\_v3  
**Class Name:** QAFlags  
**Attribute Description:**  
Granule level flag applying to a granule, and specifically to parameters. When applied to parameter, the flag refers to the quality of that parameter for the 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:** PGE(granule)  
**Alias:** DIF=Quality  
**Constraints:**  
One flag from QAFlags must exist.  
**Default Value:**  
**Datatype:** string(25)  
**Units:** NA  
**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:** Validated  
**Domain Description:**  
The collection or granule (for {parameter name}) has been validated by an expert.

---

**Attribute:** ScienceReviewDate  
**Module Name:** Collection\_v3  
**Class Name:** Review  
**Attribute Description:**  
Date of last QA peer review.  
**Content Source:** DP; PGE  
**Alias:** DIF=Science Review Date  
**Constraints:**  
**Default Value:** null  
**Datatype:** date  
**Units:** NA  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** ScienceReviewStatus

**Module Name:** Collection\_v3  
**Class Name:** Review  
**Attribute Description:** Type of Review which occurred on the 'Science Review Date'  
**Content Source:** DP; PGE  
**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:** SemiMajorAxis  
**Module Name:** LocalitySpatial\_v3  
**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:** null  
**Datatype:** float(8)\_(3)  
**Units:** KM  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** SensorCharacteristicName  
**Module Name:** DataOriginator\_v3  
**Class Name:** SensorCharacteristic  
**Attribute Description:**  
The name of the characteristic which describes a single aspect of a sensor.  
**Content Source:** DP  
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\_v3  
**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:** int  
**Domain Description:**

**Domain Value:** string  
**Domain Description:**

**Domain Value:** date  
**Domain Description:**

**Domain Value:** float  
**Domain Description:**

---

**Attribute:** SensorCharacteristicUnit  
**Module Name:** DataOriginator\_v3  
**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\_v3

**Class Name:** SensorCharacteristic

**Attribute Description:**  
 The value associated with a particular sensor characteristic. e.g. for SensorCharacteristicName='ChannelSpectrum-Start',  
 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:** int; string; date; float

**Units:** SensorCharacteristicUnit

**Domain Value:**

**Domain Description:**

---

**Attribute:** SensorGuidePointer

**Module Name:** Document\_v3

**Class Name:** SensorGuide

**Attribute Description:**  
 Logical pointer to the Sensor Guide.

**Content Source:** DAAC

**Alias:**

**Constraints:**

**Default Value:** null

**Datatype:** string(255)

**Units:** NA

**Domain Value:**

**Domain Description:**

---

**Attribute:** SensorLongName

**Module Name:** DataOriginator\_v3

**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\_v3  
**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

<b>Domain Value:</b>	HALOE
<b>Domain Description:</b>	
<b>Domain Value:</b>	PEM HEPS
<b>Domain Description:</b>	
<b>Domain Value:</b>	PEM MEPS
<b>Domain Description:</b>	
<b>Domain Value:</b>	PEM AXIS
<b>Domain Description:</b>	
<b>Domain Value:</b>	CZCS
<b>Domain Description:</b>	Coastal Zone Color Scanner
<b>Domain Value:</b>	HIRS/2
<b>Domain Description:</b>	High-Resolution Infrared Sounder 2
<b>Domain Value:</b>	MSU
<b>Domain Description:</b>	Microwave Sounding Unit
<b>Domain Value:</b>	SSM/I
<b>Domain Description:</b>	Special Sensor Microwave/Imager
<b>Domain Value:</b>	ERBE-Nonscanner
<b>Domain Description:</b>	
<b>Domain Value:</b>	LIDAR
<b>Domain Description:</b>	
<b>Domain Value:</b>	MAS
<b>Domain Description:</b>	
<b>Domain Value:</b>	ERBE-Scanner
<b>Domain Description:</b>	
<b>Domain Value:</b>	free text
<b>Domain Description:</b>	this attribute is unbounded.
<b>Domain Value:</b>	AIRS
<b>Domain Description:</b>	

---

<b>Attribute:</b>	SensorTechnique
<b>Module Name:</b>	DataOriginator_v3
<b>Class Name:</b>	Sensor
<b>Attribute Description:</b>	The technique or process for describing what the sensor does.
<b>Content Source:</b>	DP
<b>Alias:</b>	
<b>Constraints:</b>	

<b>Default Value:</b>	null
<b>Datatype:</b>	string(40)
<b>Units:</b>	NA
<b>Domain Value:</b>	free text
<b>Domain Description:</b>	
	This attribute is unbounded.
<b>Domain Value:</b>	active cavity radiometry
<b>Domain Description:</b>	
<b>Domain Value:</b>	passive microwave radiometry
<b>Domain Description:</b>	
<b>Domain Value:</b>	broadband scanning radiometry
<b>Domain Description:</b>	
<b>Domain Value:</b>	dual-frequency radar altimetry
<b>Domain Description:</b>	
<b>Domain Value:</b>	eight-channel opto-mechanical scanning
<b>Domain Description:</b>	
<b>Domain Value:</b>	Whiskbroome scanning radiometry
<b>Domain Description:</b>	
<b>Domain Value:</b>	laser altimetry
<b>Domain Description:</b>	
<b>Domain Value:</b>	infrared limb sounding
<b>Domain Description:</b>	

---

<b>Attribute:</b>	ShortName
<b>Module Name:</b>	Collection_v3
<b>Class Name:</b>	CollectionDescriptionClass
<b>Attribute Description:</b>	
	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.
<b>Content Source:</b>	DP
<b>Alias:</b>	
<b>Constraints:</b>	not null
<b>Constraints:</b>	must be unique
<b>Default Value:</b>	
<b>Datatype:</b>	string(8)
<b>Units:</b>	NA
<b>Domain Value:</b>	
<b>Domain Description:</b>	

---

**Attribute:** SizeMBECSDataGranule  
**Module Name:** Granule\_v3  
**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:** SouthBoundingCoordinate  
**Module Name:** LocalitySpatial\_v3  
**Class Name:** BoundingRectangle  
**Attribute Description:**  
Southern-most limit of coverage expressed in geodetic 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:** not null  
**Datatype:** float(10)\_6  
**Units:** decimal degrees  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** SpatialCoverageType  
**Module Name:** LocalitySpatial\_v3  
**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:**

**Default Value:**  
**Datatype:** string(25)  
**Units:**  
**Domain Value:** HORIZ&VERT  
**Domain Description:**

**Domain Value:** Horizontal  
**Domain Description:**

**Domain Value:** Vertical  
**Domain Description:**

**Domain Value:** Rectangular Coordinates  
**Domain Description:**

**Domain Value:** Free Text  
**Domain Description:**

**Domain Value:** Polar Coordinates  
**Domain Description:**

---

**Attribute:** SpatialKeyword  
**Module Name:** Collection\_v3  
**Class Name:** KeywordClass

**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  
DIF=Location Keywords

**Constraints:**

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

---

**Attribute:** StandAloneDocumentPointer  
**Module Name:** Document\_v3  
**Class Name:** StandAloneDocument

**Attribute Description:**  
Data model logical reference to a Stand-Alone Document.

**Content Source:** DSS  
**Alias:**  
**Constraints:**  
if guide exists, this must exist.  
**Default Value:** null  
**Datatype:** string(255)  
**Units:** NA  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** StartOrbitNumber  
**Module Name:** LocalitySpatial\_v3  
**Class Name:** OrbitCalculatedSpatialDomain  
**Attribute Description:**  
Orbit number at start of data granule or collection.  
**Content Source:** PGE  
**Alias:**  
**Constraints:**  
StartOrbitNumber is mandatory if OrbitCalculatedSpatialDomain class is applicable.  
**Default Value:** null  
**Datatype:** int(8)  
**Units:** NA  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** StateProvince  
**Module Name:** Contact\_v3  
**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\_v3  
**Class Name:** OrbitCalculatedSpatialDomain  
**Attribute Description:**  
Orbit number at end of data granule or collection.

**Content Source:** PGE  
**Alias:**  
**Constraints:** StopOrbitNumber is mandatory if OrbitCalculatedSpatialDomain class is applicable.  
**Default Value:** null  
**Datatype:** int(8)  
**Units:** NA  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** StorageMedium  
**Module Name:** Collection\_v3  
**Class Name:** StorageMediumClass  
**Attribute Description:** The quantity and type of medium on which the distributed data are stored.  
**Content Source:** DAAC  
**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\_v3

**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:** SuggestedUsage  
**Module Name:** Collection\_v3  
**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:** SystemDescriptionPointer  
**Module Name:** DAP\_v3  
**Class Name:** SystemDescription  
**Attribute Description:** Logical reference to the System Description document.  
**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\_v3  
**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\_v3  
**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  
Contact TDD/TTY Telephone  
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\_v3  
**Class Name:** KeywordClass  
**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\_v3  
**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(30)  
**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 occurrences of single date and time points.

---

**Attribute:** TestPlanPointer  
**Module Name:** DAP\_v3  
**Class Name:** TestPlan  
**Attribute Description:**  
Data model logical reference to Test Plan document.  
**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:** DAP\_v3  
**Class Name:** TestScript  
**Attribute Description:**  
Data model logical reference to Test Script.  
**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:** DAP\_v3  
**Class Name:** TestSiteConfig  
**Attribute Description:**  
Data model logical reference to Test Site Configuration document.  
**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:** DAP\_v3  
**Class Name:** TestSourceCode  
**Attribute Description:**  
Data model logical reference to Test Source Code.  
**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:** TimeType  
**Module Name:** LocalityTemporal\_v3  
**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:** null  
**Datatype:** string(10)  
**Units:** NA  
**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:** TimeOfDay  
**Module Name:** LocalityTemporal\_v3  
**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:** Title  
**Module Name:** Document\_v3  
**Class Name:** Document  
**Attribute Description:**  
The full title of the document.  
**Content Source:** DP  
**Alias:**  
**Constraints:**  
mandatory for all documents  
**Default Value:** null  
**Datatype:** string(255)  
**Units:** NA  
**Domain Value:** free text  
**Domain Description:**  
this attribute is unbounded.

---

**Attribute:** UserCommentDocumentPointer  
**Module Name:** Collection\_v3  
**Class Name:** UserCommentDocument  
**Attribute Description:**  
Data model logical reference to User Comment Document.  
**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\_v3  
**Class Name:** ValidationDocument  
**Attribute Description:**  
Data model logical 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\_v3  
**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\_v3  
**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:** null  
**Datatype:** string(10)  
**Units:** NA  
**Domain Value:** varstring  
**Domain Description:**  
  
**Domain Value:** float  
**Domain Description:**  
  
**Domain Value:** int  
**Domain Description:**

---

**Attribute:** VerticalSpatialDomainValue  
**Module Name:** LocalitySpatial\_v3  
**Class Name:** VerticalSpatialDomain  
**Attribute Description:**  
This attribute describes the extent of the area of vertical space covered by the granule. 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:** varstring; float; int

**Units:** DepthDistanceUnits or AltitudeDistanceUnits

**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).

**Domain Value:** free text  
**Domain Description:**

---

**Attribute:** WestBoundingCoordinate  
**Module Name:** LocalitySpatial\_v3  
**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:** not null  
**Datatype:** float(11)\_(6)  
**Units:** decimal degrees  
**Domain Value:**  
**Domain Description:**

---

**Attribute:** ZoneIdentifier  
**Module Name:** LocalitySpatial\_v3  
**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:** NA  
**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.

<b>Domain Value:</b>	State Plane Coordinate System 1983
<b>Domain Description:</b>	
<b>Domain Value:</b>	ARC Coordinate System
<b>Domain Description:</b>	
1 <= ARC System Zone Identifier <= 18	
<b>Domain Value:</b>	Other Grid System
<b>Domain Description:</b>	

## 6.5 Candidate Keys

Each class or association depicted in the SDPS logical model can be uniquely identified by a minimal set of class attributes. This identifying set of attributes is commonly referred to as the candidate key. Keys are an important concept in a database environment. Databases enforce data integrity via the use of keys. Keys ensure that data objects are not randomly duplicated within the database, and they ensure that all object links reference valid data objects. A class or association may have multiple candidate keys. The candidate key that is selected in the system implementation as the unique identifier of an object, is frequently referred to as the primary key. The remaining non-selected candidate keys are frequently referred to as alternate keys.

The object identifier is always a candidate key for a class, as well as class attributes which uniquely identify each object instance. The names followed by ID in the following table represents this concept of object identifiers. Due to the nature of inheritance, subclasses inherit their candidate key from their parent class. For associations, the candidate key depends on the multiplicity of the association itself. A many-to-many association requires the candidate key attributes of both participating classes. A one-to-many association candidate key, is defined solely by the candidate key attributes of the dependent (many) class. A one-to-one association, regardless of optionality, is defined by the candidate keys attributes of either of the participating classes.

Accordingly, the identification of association candidate keys is a two stage process. First, domain analysis must be done on each class attribute to isolate those class attributes that uniquely identify an object instance. Where suitable class attributes can be found, those attributes are tagged as components of the candidate key. When no suitable class attributes can be found, the object identifier is enlisted as the candidate key. Second, the multiplicity of each association must be considered, as outlined above, to define the candidate key for each association based on the candidate key for each of its participating classes.

Each association in the SDPS logical model was analyzed using this two step process to determine suitable candidate keys. The results of this analysis may be found in Table 6-1. It should be noted that the keys listed in Table 6-1 were selected from a logical standpoint. The actual system implementation may select different keys based on performance factors and other implementation constraints. Table 6-1 should be used in conjunction with the module OMT diagrams found in section 6.3 of this document.

**Table 6-1. SDPS Object Model Candidate Keys Listing**

Associated Keys		Link Keys
AdditionalAttributes	PhysicalParameterDetails	Candidate Keys: (PhysicalParameterDetailsID),(AdditionalAttributeName)
AltitudeSystemDefinition	AltitudeResolutionClass	Candidate Keys: (AltitudeResolutionClassID)
AlgorithmDescription	ATBDPointer	Candidate Keys: (AlgorithmDescriptionID), (ATBDPointer )
AlgorithmDescription	DetailedDesign	Candidate Keys: (AlgorithmDescriptionID), (DetailedDesignPointer )
AlgorithmDescription	OperationalManual	Candidate Keys: (AlgorithmDescriptionID), (OperationalManualPointer )
AlgorithmDescription	PerformanceTestResults	Candidate Keys: (AlgorithmDescriptionID), ( PerformanceTestResultsPointer)
AlgorithmDescription	ProcessingFileDescription	Candidate Keys: (AlgorithmDescriptionID), (ProcessingFileDescription )
AlgorithmDescription	ProgrammersGuide	Candidate Keys: (AlgorithmDescriptionID), ( ProgrammersGuide)
AlgorithmDescription	SWDevelopmentStandard	Candidate Keys: (AlgorithmDescriptionID), (SWDevelopmentStandardPointer )
AlgorithmDescription	SystemDescription	Candidate Keys: (AlgorithmDescriptionID), ( SystemDescriptionPointer)
AlgorithmDescription	TestPlan	Candidate Keys: (TestPlanPointer)
Author	Document	Candidate Keys: (DocumentID, AuthorName)
Browse	ECSCollection	Candidate Keys: BrowseID)
Contact	ContactAddress	Candidate Keys: ContactAddressID)
Contact	DataOriginator	Candidate Keys: (DataOriginatorID,ContactID)
Contact	ECSCollection	Candidate Keys: ContactID, Shortname,VersionID)
Contact	PGEInfo	Candidate Keys: (ContactID,PGEINforID)
Contact	Email	Candidate Keys: EmailID)
Contact	Telephone	Candidate Keys: (TelephoneNumber)
ContactOrganization	ContactPerson	Candidate Keys: (ContactPerson:ContactID,ContactOrganization:ContactID)
DataOriginator	DataOriginatorGuide	Candidate Keys: (DocumentID), (DataOriginatorID)
DataOriginator	ECSCollection	Candidate Keys: (DataOriginatorID,ECSCollectionID)
DataOriginator	ECSCollection	Candidate Keys: DataOriginatorID, Shortname,VersionID)
DataOriginatorGuide	DataOriginator	Candidate Keys: (DocumentID),(DataOriginatorShortName)
DeliveredAlgoritihmPackage	AlgorithmDescription	Candidate Keys: (AlgorithmDescriptionID), (AlgorithmPackageName, AlgorithmPackageVersion)
DeliveredAlgoritihmPackage	ChangeLog	Candidate Keys: (ChangeLogPointer), (AlgorithmPackageName, AlgorithmPackageVersion)
DeliveredAlgoritihmPackage	Contact	Candidate Keys: (ContactID, AlgorithmPackageName,AlgorithmPackageVersion)
DeliveredAlgoritihmPackage	ContextDiagrams	Candidate Keys: (ContextDiagramsPointer), (AlgorithmPackageName, AlgorithmPackageVersion)
DeliveredAlgoritihmPackage	DeliveryContentsList	Candidate Keys: (DeliveryContentsListPointer), (AlgorithmPackageName, AlgorithmPackageVersion)
DeliveredAlgoritihmPackage	PGEInfo	Candidate Keys: (ReceivedAlgorithmPackagePointer), (AlgorithmPackageName, AlgorithmPackageVersion)

**Table 6-1. SDPS Object Model Candidate Keys Listing**

Associated Keys		Link Keys
DeliveredAlgorithmPackage	Software	Candidate Keys: (SoftwareID), (AlgorithmPackageName, AlgorithmPackageVersion)
DepthSystemDefinition	DepthResolutionClass	Candidate Keys: (DepthResolutionClassID)
DiscontinuousMultipleRange	RangeDateTime	Candidate Keys: (RangeDateTimelD)
Document	ECSCollection	Candidate Keys: (DocumentID)
Document	ECSDDataGranule	Candidate Keys: (DocumentID)
ECSCollection	AdditionalAttributes	Candidate Keys: (AdditionalAttributeName, ShortName, VersionID)
ECSCollection	ArchiveCenterGuide	Candidate Keys: (DocumentID), (ShortName, VersionID)
ECSCollection	ECSCollectionAssociation	Candidate Keys: (Shortname, VersionID)
ECSCollection	ECSCollectionGuide	Candidate Keys: (DocumentID), (ShortName, VersionID)
ECSCollection	ECSPParameter	Candidate Keys: (ECSPParameterName, ShortName, VersionID)
ECSCollection	Locality	Candidate Keys: (LocalityID)
ECSCollection	ProcessingCenterGuide	Candidate Keys: (DocumentID), (ShortName, VersionID)
ECSCollection	QACollectionStats	Candidate Keys: (QACollectionStatsID)
ECSCollection	QAGranule	Candidate Keys: (QAGranulePointer), (ShortName, VersionID)
ECSCollection	QualityTextComment	Candidate Keys: (QualityTextCommentPointer), (ShortName, VersionID)
ECSCollection	SpatialKeywordClass	Candidate Keys: (Spatial Keyword, ShortName, VersionID)
ECSCollection	UserCommentDocument	Candidate Keys: (UserCommentDocumentPointer), (ShortName, VersionID)
ECSCollection	ValidationDocument	Candidate Keys: (ValidationDocumentPointer), (ShortName, VersionID)
ECSDDataGranule	AncillaryInputGranule	Candidate Keys: (ECSDDataGranuleID)(AncillaryInputPointer)
ECSDDataGranule	Browse	Candidate Keys: (BrowsePointer, ECSDDataGranuleID)
ECSDDataGranule	GranuleLocality	Candidate Keys: (Locality Value)
ECSDDataGranule	InformationContent	Candidate Keys: (InformationContentID)
ECSDDataGranule	InputGranule	Candidate Keys: (InputPointer, ECSDDataGranuleID)
ECSDDataGranule	OrbitParametersGranule	Candidate Keys: (ECSDDataGranuleID)(OrbitParametersPointer)
ECSDDataGranule	ProcessingHistory	Candidate Keys: (ECSDDataGranuleID)
ECSDDataGranule	QAGranule	Candidate Keys: (QAGranulePointer)
ECSDDataGranule	Review	Candidate Keys: (ReviewDate)
ECSDDataGranule	SingleTypeCollection	Candidate Keys: (ECSDDataGranuleID)
ECSDDataGranule	SpatialDomainContainer	Candidate Keys: (ECSDDataGranuleID), (SpatialDomainContainerID)
ECSDDataGranule	UserCommentDocument	Candidate Keys: (UserCommentDocumentPointer), (ECSDDataGranuleID)
ECSDDiscipline	ECSCollection	Candidate Keys: (ECSDDisciplineKeyword, ShortName, VersionID)
ECSDDiscipline	ECSTopic	Candidate Keys: (ECSTopicKeyword, ECSDisciplineKeyword)
ECSPParameter	InformationContent	Candidate Keys: (InformationContentID)
ECSPParameter	PhysicalParameterDetails	Candidate Keys: (PhysicalParameterDetailsID), (ECSPParameterName)
ECSTerm	ECSCollection	Candidate Keys: (ECSTermKeyword), (ShortName, VersionID)
ECSTerm	ECSVariable	Candidate Keys: (ECSTermKeyword, ECSVariableKeyword)
ECSTerm	Guide	Candidate Keys: (ECSTermKeyword), (DocumentID)

**Table 6-1. SDPS Object Model Candidate Keys Listing**

Associated Keys		Link Keys
ECSTopic	ECSCollection	Candidate Keys: (ECSTopicKeyword),(ShortName, VersionID)
ECSTopic	ECSTerm	Candidate Keys: (ECSTopicKeyword,TermKeyword)
ECSTopic	Guide	Candidate Keys: (ECSTopicKeyword), (DocumentID)
ECSVariable	ECSCollection	Candidate Keys: (ECSVariableKeyword),(ShortName, VersionID)
ECSVariable	ECSPParameter	Candidate Keys: (ECSVariableKeyword,ParameterKeyword)
ECSVariable	Guide	Candidate Keys: (DocumentID),(ECSVariableKeyword)
Email	Author	Candidate Keys: (ElectronicMailAddress,AuthorName)
FieldCampaign	FieldCampaignGuide	Candidate Keys: (DataOriginatorID), (DocumentID)
FieldCampaign	NonInstrument	Candidate Keys: (FieldCampaign:DataOriginatorID, NonInstrument:DataOriginatorID)
GranuleLocality	Locality	Candidate Keys: (LocalityValue)
Guide	ECSCollection	Candidate Keys: (DocumentID)
HorizontalCoordinateSystemContainer	GeodeticModel	Candidate Keys: (HorizontalDatumName), (HorizontalCoordinateSystemContainerID)
HorizontalSpatialDomainContainer	ZonelfIdentifier	Candidate Keys: (ZonelfIdentifier),(HorizontalSpatialDomainContainer)
InformationContent	ECSPParameter	Candidate Keys: (InformationContentID)
InformationContent	QAFlags	Candidate Keys: (QAFlagsID)
Input Container	CalibrationFiles	Candidate Keys: (CalibrationFilesPointer)
Input Container	ExternalData	Candidate Keys: (ExternalDataPointer)
Input Container	InstrumentEngineeringData	Candidate Keys: (InstrumentEngineeringDataPointer)
Input Container	InstrumentScienceData	Candidate Keys: (InstrumentScienceDataPointer)
Input Container	MetaDataConfigurationFile	Candidate Keys: (MetaDataConfigurationFilePointer)
Input Container	PlatformAncillaryData	Candidate Keys: (PlatformAncillaryDataPointer)
Input Container	ProcessControlParametersResource Files	Candidate Keys: (ProcessControlParametersResource FilesPointer)
Instrument	FieldCampaign	Candidate Keys: (Instrument:DataOriginatorID, FiledCampaign:DataOriginatorID)
Instrument	InstrumentGuide	Candidate Keys: (DocumentID), (DataOriginatorID)
Instrument	OperationModeClass	Candidate Keys: (OperationMode)
Instrument	Platform	Candidate Keys: (DataOriginatorID, PlatformShortName)
Instrument	Sensor	Candidate Keys: (DataOriginatorID, SensorShortName)
InstrumentGuide	Instrument	Candidate Keys: (DocumentID), (DataOriginatorID)
MultipleDateTimePeriod	SingleDateTime	Candidate Keys: (TimeofDay,CalendarDate)
MultipleTypeCollection	ECSDDataGranule	Candidate Keys: (ShortName, VersionID,ECSDDataGranuleID)
MultipleTypeCollection	MultipleTypeCollection	Candidate Keys: (MultipleTypeCollection:ShortName, MultipleTypeCollection:VersionID,MultipleTypeCollection:ShortName, MultipleTypeCollection:VersionID)
MultipleTypeCollection	SingleTypeCollection	Candidate Keys: (MultipleTypeCollection:ShortName, MultipleTypeCollection:VersionID,SingleTypeCollection:ShortName, SingleTypeCollection:VersionID)

**Table 6-1. SDPS Object Model Candidate Keys Listing**

Associated Keys		Link Keys
NonInstrument	Instrument	Candidate Keys: (NonInstrument:DataOriginatorID,Instrument:DataOriginatorID)
NonInstrumentGuide	NonInstrument	Candidate Keys: (DocumentID), (DataOriginatorID)
OperationModeClass	ECSDDataGranule	Candidate Keys: (ECSDDataGranuleID)
OrbitCalculatedSpatialDomain	OrbitParametersGranule	Candidate Keys: (OrbitParametersGranuleID), (OrbitCalculatedSpatialDomianID)
OutputComparisonContainer	ResultsProductFile	Candidate Keys: (ResultsProductFilePointer)
OutputComparisonContainer	ResultsReport	Candidate Keys: (ResultsReportPointer)
OutputComparisonContainer	ResultsTempFile	Candidate Keys: (ResultsTempFilePointer)
PGEDescription	PGEVersionClass	(Candidate Keys: (PGEVersion)
PGEDescription	SingleTypeCollection	Candidate Keys: (Shortname,VersionID)
PGEConfigFile	CompileInfo	Candidate Keys: (CompileInfoPointer), (PGEConfigFilePointer)
PGEConfigFile	PGEDescription	Candidate Keys: (PGEIdentifier), (PGEConfigFilePointer)
PGEConfigFile	PGEErrorLog	Candidate Keys: (PGEErrorLogPointer), (PGEConfigFilePointer)
PGEConfigFile	PGEExecutable	Candidate Keys: (ScSWExecutablesPointer), (PGEConfigFilePointer)
PGEConfigFile	ProcessingDependencies	Candidate Keys: (ProcessingDependenciesPointer), (PGEConfigFilePointer)
PGEConfigFile	TestSiteConfig	Candidate Keys: (TestSiteConfigPointer), (PGEConfigFilePointer)
PGEVersionClass	ECSDDataGranule	Candidate Keys: (ECSDDataGranuleID)
PlanarCoordinateInformation	PlanarCoordinateSystemContainer	Candidate Keys: (HorizontalCoordinateSystemContainerID), (PlanarCoordinateInformationID)
PlanarCoordinateSystemsContainer	PlanarCoordinateSystemContainer	Candidate Keys: (PlanarCoordinateSystemsContainerID)
Platform	ECSCollection	Candidate Keys: (PlatformShortName,ShortName,VersionID)
Platform	PlatformCharacteristic	Candidate Keys: (PlatformCharacteristicName)
Platform	PlatformGuide	Candidate Keys: (PlatformShortName)
PlatformCharacteristic	SpatialDomainContainer	Candidate Keys: (SpatialDomainContainerID),(PlatformCharacteristicName)
ProcessingLevel	SingleTypeCollection	Candidate Keys: (ShortName,VersionID)
ProcessingQA	ECSDDataGranule	Candidate Keys: (ProcessingQAAttribute)
QAStats	ECSDDataGranule	Candidate Keys: (QAStatsID)
RangeDateTime	ECSDDataGranule	Candidate Keys: (ECSDDataGranuleID), (RangeDateTimeID)
Sensor	ECSCollection	Candidate Keys: (ShortName,VersionID,SensorShortName)
Sensor	SensorGuide	Candidate Keys: (DocumentID), (SensorShortName)
SingleDateTime	ECSDDataGranule	Candidate Keys: (ECSDDataGranuleID), (TimeOfDay, CalendarDate)
SingleTypeCollection	CSDTDescription	Candidate Keys: (ShortName, VersionID), (CSDTID)
SingleTypeCollection	DeliveredAlgorithmPackage	Candidate Keys: (AlgorithmPackageName, AlgorithmPackageVersion), (ShortName,VersionID)
SingleTypeCollection	PGEDescription	Candidate Keys: (ShortName,VersionID)
SingleTypeCollection	Review	Candidate Keys: ReviewID)
Software	LinkandCompileScripts	Candidate Keys: (LinkandCompileScriptsPointer)

**Table 6-1. SDPS Object Model Candidate Keys Listing**

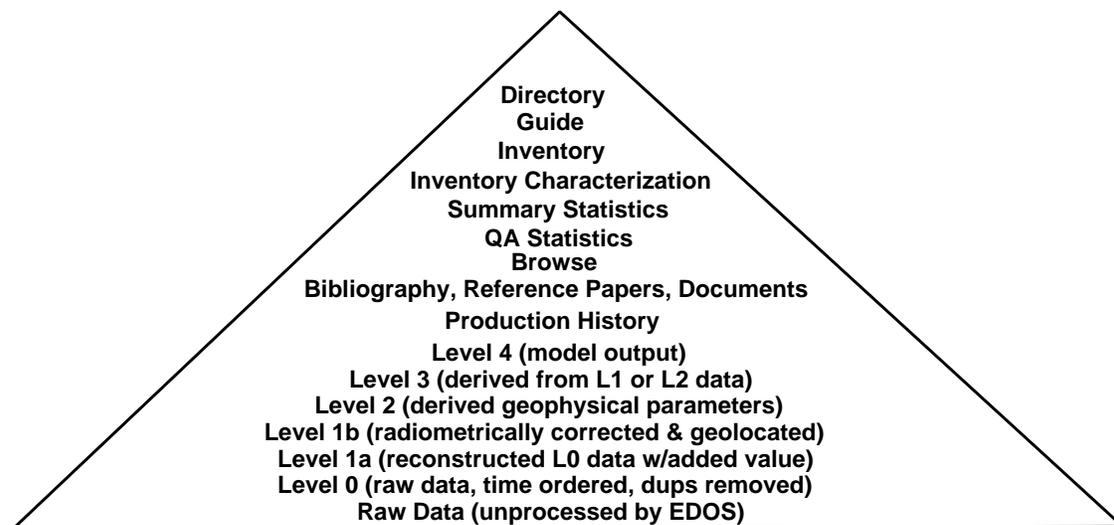
Associated Keys		Link Keys
Software	PGConfigFile	Candidate Keys: (PGConfigFileID),(SoftwareID)
Software	ScSWScript	Candidate Keys: (ScSWScriptPointer)
Software	ScSWSourceCode	Candidate Keys: (ScSWSourceCodePointer)
Software	TestSWContainer	Candidate Keys: (TestSWContainerID), (SoftwareID)
Spatial	CoordinateSystemContainer	Candidate Keys: (SpatialCoverageType),(CoordinateSystemContainerID)
Spatial	ECSCollection	Candidate Keys: (SpatialCoverageType),(ShortName, VersionID)
Spatial	SpatialDomainContainer	Candidate Keys: (SpatialCoverageType), (SpatialDomainContainerID)
SpatialDomainContainer	ECSDDataGranule	Candidate Keys: (SpatialDomainContainerID), (ECSDDataGranuleID)
SpatialDomainContainer	GranuleLocality	Candidate Keys: (LocalityValue)
SpatialDomainContainer	HorizontalSpatialDomainContainer	Candidate Keys: (HorizontalSpatialDomainContainerID)
SpatialDomainContainer	OrbitCalculated SpatialDomain	Candidate Keys: (SpatialDomainContainerID), (OrbitCalculatedSpatialDomainID)
SpatialDomainContainer	OrbitParametersGranule	Candidate Keys: (SpatialDomainContainerID),(OrbitParametersPointer)
SpatialDomainContainer	PlatformCharacteristic	Candidate Keys: (SpatialDomainContainerID), (PlatformCharacteristicName)
StorageMediumClass	ECSCollection	CandidateKeys: (StorageMedium), (Shortname, VersionID)
StorageMediumClass	ECSDDataGranule	Candidate Keys: (StorageMedium), (ECSDDataGranuleID)
Temporal	DiscontinuousMultipleRange	Candidate Keys: (DiscontinuousMultipleRangeID),(TemporalID)
Temporal	ECSCollection	Candidate Keys: (TemporalID),(ShortName,VersionID)
Temporal	MultipleDate TimePeriod	Candidate Keys: (MultipleDateName)
Temporal	RangeDateTime	Candidate Keys: (RangeDate TimeID)
Temporal	RegularPeriodic	Candidate Keys: (PeriodName)
Temporal	SingleDateTime	Candidate Keys: (TimeofDay,CalendarDate)
VerticalSpatialDomain	HorizontalSpatialDomainContainer	Candidate Keys: (VerticalSpatialDomainValue), (HorizontalSpatialDomainContainer)
ZonIdentifier	GridCoordinateSystem	Candidate Keys: (ZonIdentifier), (GridCoordinateSystemName)

## 6.6 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 to support validation of consistency between systems.

### 6.6.1 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. Although the types of data at the various layers do not always adhere to these general rules, the pyramid has nevertheless proven to be an effective tool for presenting the multi-layered nature of earth science and related data.



**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.** Radiometrically 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 delivered 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 summarizes the contents of a large number of data sets. The directory includes 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. This provides an analytically driven set of potential Release B user views; i.e. derived from the content of the data model rather than requirements. 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.

**Table 6-2. Earth Science Data Model Mapped to the Data Pyramid (Page 1 of 4)**

<b>Data Pyramid</b>	<b>Module</b>	<b>Class</b>
Browse	Granule	Browse
Browse	Granule	QAGranule
Delivered Algorithm Package	DeliveredAlgorithmPackage	AlgorithmDescription
Delivered Algorithm Package	DeliveredAlgorithmPackage	ATBD
Delivered Algorithm Package	DeliveredAlgorithmPackage	CalibrationFiles
Delivered Algorithm Package	DeliveredAlgorithmPackage	ChangeLog
Delivered Algorithm Package	DeliveredAlgorithmPackage	CompileInfo
Delivered Algorithm Package	DeliveredAlgorithmPackage	ContextDiagrams
Delivered Algorithm Package	DeliveredAlgorithmPackage	DeliveredAlgorithmPackage
Delivered Algorithm Package	DeliveredAlgorithmPackage	DeliveryContentsList
Delivered Algorithm Package	DeliveredAlgorithmPackage	DetailedDesign
Delivered Algorithm Package	DeliveredAlgorithmPackage	ExternalData
Delivered Algorithm Package	DeliveredAlgorithmPackage	InstrumentEngineeringData
Delivered Algorithm Package	DeliveredAlgorithmPackage	InstrumentScienceData
Delivered Algorithm Package	DeliveredAlgorithmPackage	LinkandCompileScripts
Delivered Algorithm Package	DeliveredAlgorithmPackage	MetadataConfigurationFile
Delivered Algorithm Package	DeliveredAlgorithmPackage	OperationManual
Delivered Algorithm Package	DeliveredAlgorithmPackage	PerformanceTestResults
Delivered Algorithm Package	DeliveredAlgorithmPackage	PGEConfigFile
Delivered Algorithm Package	DeliveredAlgorithmPackage	PGEDescription
Delivered Algorithm Package	DeliveredAlgorithmPackage	PGEErrorLog
Delivered Algorithm Package	DeliveredAlgorithmPackage	PGEInfo
Delivered Algorithm Package	DeliveredAlgorithmPackage	PGEVersion
Delivered Algorithm Package	DeliveredAlgorithmPackage	PlatformAncillaryData
Delivered Algorithm Package	DeliveredAlgorithmPackage	ProcessControlParametersandResourceFiles
Delivered Algorithm Package	DeliveredAlgorithmPackage	Processing Dependencies
Delivered Algorithm Package	DeliveredAlgorithmPackage	ProcessingFileDescription
Delivered Algorithm Package	DeliveredAlgorithmPackage	ProgrammersGuide
Delivered Algorithm Package	DeliveredAlgorithmPackage	ResultsProductFile
Delivered Algorithm Package	DeliveredAlgorithmPackage	ResultsReport
Delivered Algorithm Package	DeliveredAlgorithmPackage	ResultTempFile
Delivered Algorithm Package	DeliveredAlgorithmPackage	ScSWScript
Delivered Algorithm Package	DeliveredAlgorithmPackage	ScSWSourceCode
Delivered Algorithm Package	DeliveredAlgorithmPackage	Software
Delivered Algorithm Package	DeliveredAlgorithmPackage	SWDevelopmentStandard
Delivered Algorithm Package	DeliveredAlgorithmPackage	SystemDescription
Delivered Algorithm Package	DeliveredAlgorithmPackage	TestPlan
Delivered Algorithm Package	DeliveredAlgorithmPackage	TestScript
Delivered Algorithm Package	DeliveredAlgorithmPackage	TestSiteConfig
Delivered Algorithm Package	DeliveredAlgorithmPackage	TestSourceCode
Delivered Algorithm Package	Document	Author
Delivered Algorithm Package	Document	Document
Directory	Collection	CSDTDescription

**Table 6-2. Earth Science Data Model Mapped to the Data Pyramid (Page 2 of 4)**

<b>Data Pyramid</b>	<b>Module</b>	<b>Class</b>
Directory	Collection	InformationContent
Directory	Collection	Locality
Directory	Collections	AdditionalAttributes
Directory	Collections	CollectionAssociationClass
Directory	Collections	CollectionDescriptionClass
Directory	Collections	ECSCollection
Directory	Collections	ECSDiscipline
Directory	Collections	ECSPParameter
Directory	Collections	ECSTerm
Directory	Collections	ECSTopic
Directory	Collections	ECSVariable
Directory	Collections	MultipleTypeCollection
Directory	Collections	PhysicalParameterDetails
Directory	Collections	ProcessingLevel
Directory	Collections	QACollectionStats
Directory	Collections	QualityTextComment
Directory	Collections	Review
Directory	Collections	SingleTypeCollection
Directory	Collections	SpatialKeywordClass
Directory	Collections	UserCommentDocument
Directory	Contact	Contact
Directory	Contact	ContactAddress
Directory	Contact	ContactOrganization
Directory	Contact	ContactPerson
Directory	Contact	Email
Directory	Contact	Telephone
Directory	DataOriginator	DataOriginator
Directory	DataOriginator	FieldCampaign
Directory	DataOriginator	Instrument
Directory	DataOriginator	NonInstrument
Directory	DataOriginator	Platform
Directory	DataOriginator	PlatformCharacteristic
Directory	DataOriginator	Sensor
Directory	DataOriginator	SensorCharacteristic
Directory	LocalitySpatial	AltitudeSystemDefinition
Directory	LocalitySpatial	BoundingRectangle
Directory	LocalitySpatial	Circle
Directory	LocalitySpatial	CoordinateRepresentation
Directory	LocalitySpatial	DepthSystemDefinition
Directory	LocalitySpatial	DistanceandBearingRepresentation
Directory	LocalitySpatial	GeodeticModel
Directory	LocalitySpatial	GeographicCoordinateSystem
Directory	LocalitySpatial	GridCoordinateSystem
Directory	LocalitySpatial	GRing
Directory	LocalitySpatial	GRingPoint
Directory	LocalitySpatial	LocalCoordinateSystem

**Table 6-2. Earth Science Data Model Mapped to the Data Pyramid (Page 3 of 4)**

<b>Data Pyramid</b>	<b>Module</b>	<b>Class</b>
Directory	LocalitySpatial	LocalPlanarCoordinateSystem
Directory	LocalitySpatial	MapProjection
Directory	LocalitySpatial	OrbitCalculatedSpatialDomain
Directory	LocalitySpatial	PlanarCoordinateInformation
Directory	LocalitySpatial	Point
Directory	LocalitySpatial	Spatial
Directory	LocalitySpatial	VerticalSpatialDomain
Directory	LocalitySpatial	ZonIdentifier
Directory	LocalityTemporal	MultipleDateTimePeriod
Directory	LocalityTemporal	RangeDateTime
Directory	LocalityTemporal	RegularPeriodic
Directory	LocalityTemporal	SingleDateTime
Directory	LocalityTemporal	Temporal
Guide	Document	ArchiveCenterGuide
Guide	Document	Author
Guide	Document	DataOriginatorGuide
Guide	Document	Document
Guide	Document	ECSCollectionGuide
Guide	Document	FieldCampaignGuide
Guide	Document	Guide
Guide	Document	InstrumentGuide
Guide	Document	NonInstrumentGuide
Guide	Document	PlatformGuide
Guide	Document	ProcessingCenterGuide
Guide	Document	RegionalAreaDefinitionGuide
Guide	Document	SensorGuide
Inventory	Granule	AncillaryInputGranule
Inventory	Granule	ECSDDataGranule
Inventory	Granule	InformationContent
Inventory	Granule	InputGranule
Inventory	Granule	OperationMode
Inventory	Granule	OrbitParametersGranule
Inventory	Granule	PGEVersion
Inventory	Granule	ProcessingQA
Inventory	Granule	QACollectionStats
Inventory	Granule	QAStats
Inventory	Granule	Review
Inventory	Granule	UserCommentDocument
Inventory	LocalitySpatial	BoundingRectangle
Inventory	LocalitySpatial	Circle
Inventory	LocalitySpatial	GranuleLocality
Inventory	LocalitySpatial	GRing
Inventory	LocalitySpatial	GRingPoint
Inventory	LocalitySpatial	OrbitCalculatedSpatialDomain
Inventory	LocalitySpatial	Point
Inventory	LocalitySpatial	Spatial

**Table 6-2. Earth Science Data Model Mapped to the Data Pyramid (Page 4 of 4)**

Data Pyramid	Module	Class
Inventory	LocalitySpatial	VerticalSpatialDomain
Inventory	LocalitySpatial	ZoneIdentifier
Inventory	LocalityTemporal	DiscontinuousMultipleRange
Inventory	LocalityTemporal	RangeDateTime
Inventory	LocalityTemporal	SingleDateTime
Papers	Document	Author
Papers	Document	Document
Papers	Document	JournalArticle
Papers	Document	ReferencePaper
Papers	Document	StandAloneDocument
Production History	Collections	CollectionAssociationClass
Production History	Document	ProcessingErrorReport
Production History	Document	ProcessingReport
Production History	Document	ProcessingResourceUsageReport
Production History	Document	ProcessingStatusReport
Production History	Document	ProductionPlan
Production History	Granule	AncillaryInputGranule
Production History	Granule	InputGranule
Production History	Granule	OrbitParametersGranule
Production History	Granule	ProcessingHistory
QA data statistics	Collections	QACollectionStats
QA data statistics	Collections	QualityTextComment
QA data statistics	Collections	UserCommentDocument
QA data statistics	Collections	ValidationDocument
QA data statistics	Granule	ProcessingQA
QA data statistics	Granule	QACollectionStats
QA data statistics	Granule	QAGranule
QA data statistics	Granule	QAStats

### 6.6.2 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).”<sup>3</sup>

*Message abstract*<sup>4</sup>: “The Consultative Committee for Space Data Systems (CCSDS) sponsored an International Master directory Workshop (IMDW) to explore the possibility of establishing a

<sup>3</sup>. Reference: Global Change Master Directory Overview, WWW

<sup>4</sup>. 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.”

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)*<sup>5</sup>: 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)
- Term (New)
- Variable (New)
- Data Center (Group)
  - Data Center Name
  - Dataset ID (Not required)
  - Contact Person (Group)
    - last name
    - first name (Not required)
    - middle name (Not required)

---

<sup>5</sup>. Source is documentation on the WWW.

- 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 table contain the DIF mappings. They are used by the subsystem developers to implement advertising and distribution functions. Table 6-2 is alphabetically ordered by DIF Field.

**Table 6-2 . GCMD/DIF Mapped to the Earth Science Data Model Attributes  
(Page 1 of 3)**

<b>GCMD/DIF Field</b>	<b>Earth Science Data Model Attributes</b>
Address (Required)	Country
Address (Required)	City
Address (Required)	StateProvince
Altitude Resolution	AltitudeResolution
Campaign or Project	CampaignLongName
Campaign or Project	CampaignShortName
Campaign or Project	DataOriginatorLongName
Campaign or Project	DataOriginatorShortName
Coverage	EastBoundingCoordinate
Coverage	NorthBoundingCoordinate
Coverage	SouthBoundingCoordinate
Coverage	WestBoundingCoordinate
Data Center Name (Required)	ArchiveCenter
Data Center Name (Required)	ProcessingCenter

**Table 6-2 . GCMD/DIF Mapped to the Earth Science Data Model Attributes  
(Page 2 of 3)**

GCMD/DIF Field	Earth Science Data Model Attributes
Data Center Name (Required) (Dependent upon domain value of Role= "Archive")	ContactOrganizationName
Dataset ID (Part of required group "Data Center" that is as a decomposed attribute optional by itself)	LongName
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 + CollectionDescription)	LongName
Directory Entry Title (Required) (This DIF field is composed of two ECS Data Model attributes: LongName + Description)	CollectionDescription
Discipline Keywords	ECSDisciplineKeyword
email	ElectronicMailAddress
first name (Required) Investigator, Technical Contact, Author (Dependent upon domain value of Role=	ContactFirstName ("Investigator", "Technical Contact", or "Author" )
Future Review Date	FutureReviewDate
General Keyword	AggregationType
General Keyword	GeographicalRegionName
Investigator, Technical Contact, Data Center Contact	ContactJobPosition (Dependency is Contact Name)
last name (Required) Investigator, Technical Contact, Author (dependent upon domain value of Role=	ContactLastName ("Investigator", "Technical Contact", or "Author" )
Latitude Resolution	LatitudeResolution
Location Keywords	LocalityType
Location Keywords	SpatialKeyword
Location Keywords	SpatialCoverageType
Location Keywords (Depends upon LocalityType)	LocalityName
Longitude Resolution	LongitudeResolution
middle name (Required) for Investigator, Technical Contact, Author (dependent upon domain value of Role= "Investigator", "Technical Contact", or "Author" )	ContactMiddleName
N/A	ParameterValue
Originating Center (Dependent upon domain value of Role= "Producer")	ContactOrganizationName
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

**Table 6-2 . GCMD/DIF Mapped to the Earth Science Data Model Attributes  
(Page 3 of 3)**

GCMD/DIF Field	Earth Science Data Model Attributes
Sensor Name	SensorShortName
Source Name	InstrumentLongName
Source Name	InstrumentShortName
Source Name	NonInstrumentLongName
Source Name	NonInstrumentShortName
Source Name	PlatformShortName
Source Name	PlatformLongName
Source Name	PlatformShortName
Source Name	PlatformLongName
Start Date	RangeBeginningDate
Start Date	RangeBeginningTime
Stop Date	RangeEndingDate
Stop Date	RangeEndingTime
Storage Medium	DistributionMedium
Summary*	InstrumentTechnique
Summary*	NonInstrumentTechnique
Summary*	NumberOfCollections
Summary*	OperationMode
Summary*	ParameterDescription
Summary*	ParameterMeasurementResolution
Summary*	ParameterRange
Summary*	ParameterUnitsOfMeasurement
Summary*	ParameterValueAccuracy
Summary*	ParameterValueAccuracyExplanation
Summary*	SensorCharacteristicName
Summary*	SensorCharacteristicType
Summary*	SensorCharacteristicUnit
Summary*	SensorCharacteristicValue
Summary*	SuggestedUsage
Summary*	AlgorithmPackageAcceptanceDate
Summary*	AlgorithmPackageIntendedOperatingSystem
Summary*	AlgorithmPackageVersion
Summary*	DateOfReferencePaperPublication
Summary*	DocumentAccessInstructions
Summary*	GuideName
Summary*	NumberOfSensors
Summary*	AccessConstraints
Summary*	AlgorithmPackageName
Term	ECSTermKeyword
Title, Edition, Originator, Publication Date	CitationForExternalPublication
Topic	ECSTopicKeyword
Variable	ECSVariable

\* 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.

## 7. The Internal Model: Data Server Subsystem

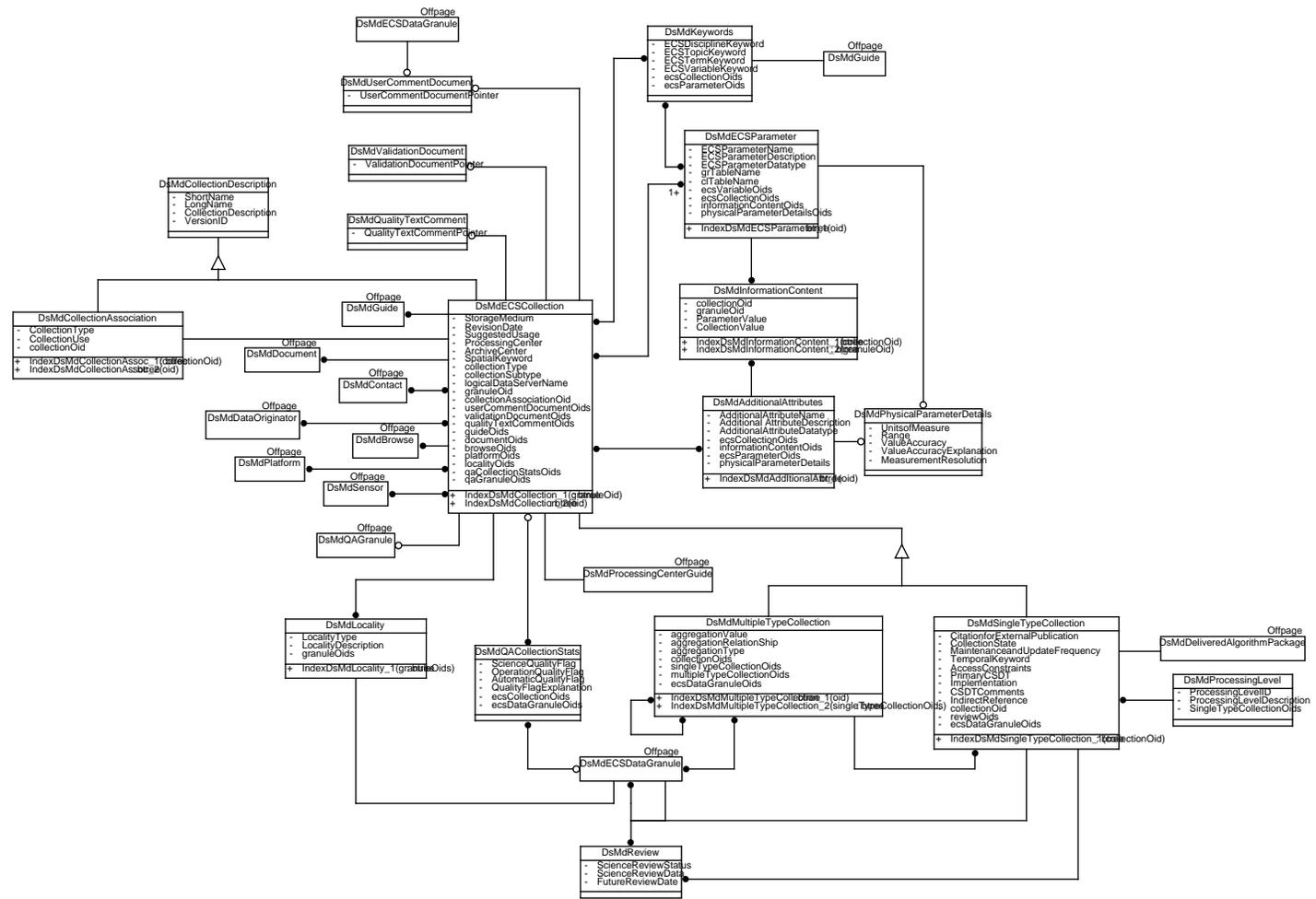
---

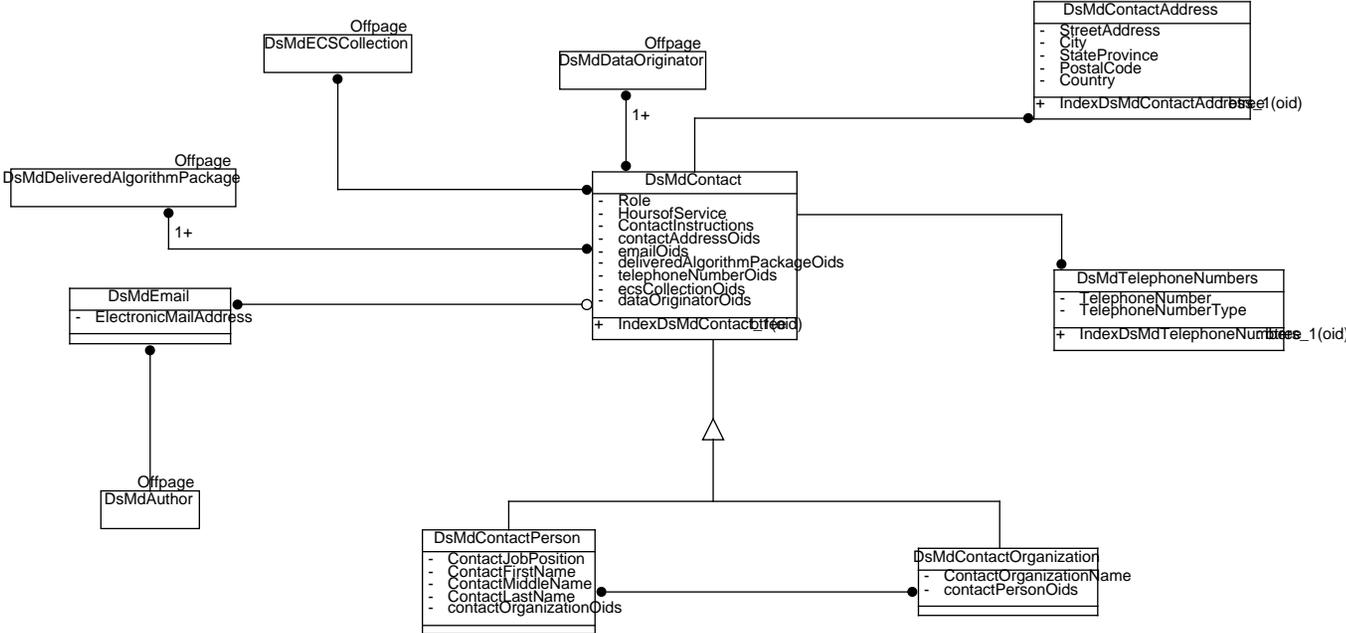
### 7.1 Data Server Subsystem Description

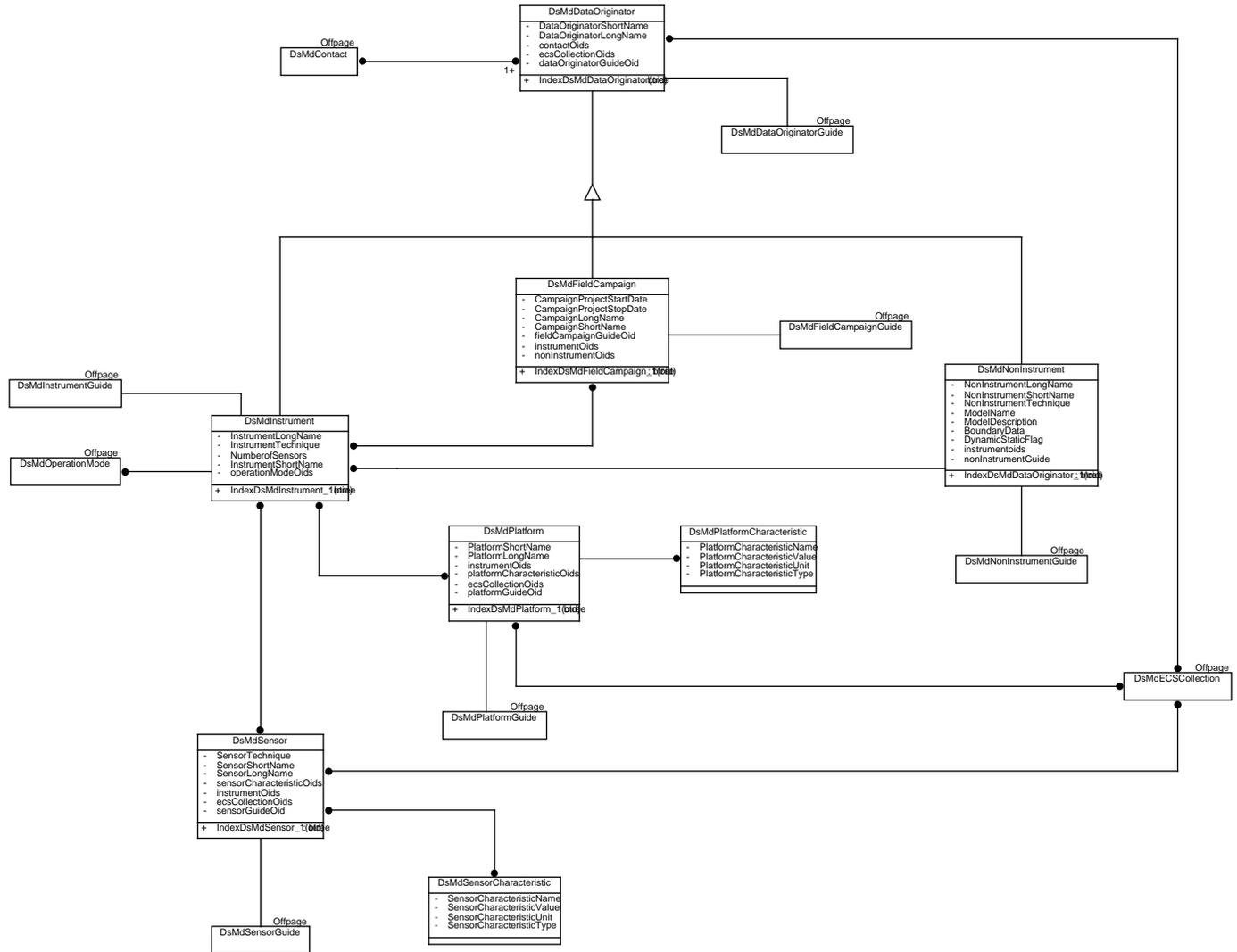
This subsystem has the responsibility for storing Earth Science and related data in a persistent fashion, providing search and retrieval access to this data, and supporting the administration of the data and the supporting hardware devices and software products. Other subsystems can access it directly 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 194-207-SE1-001.)

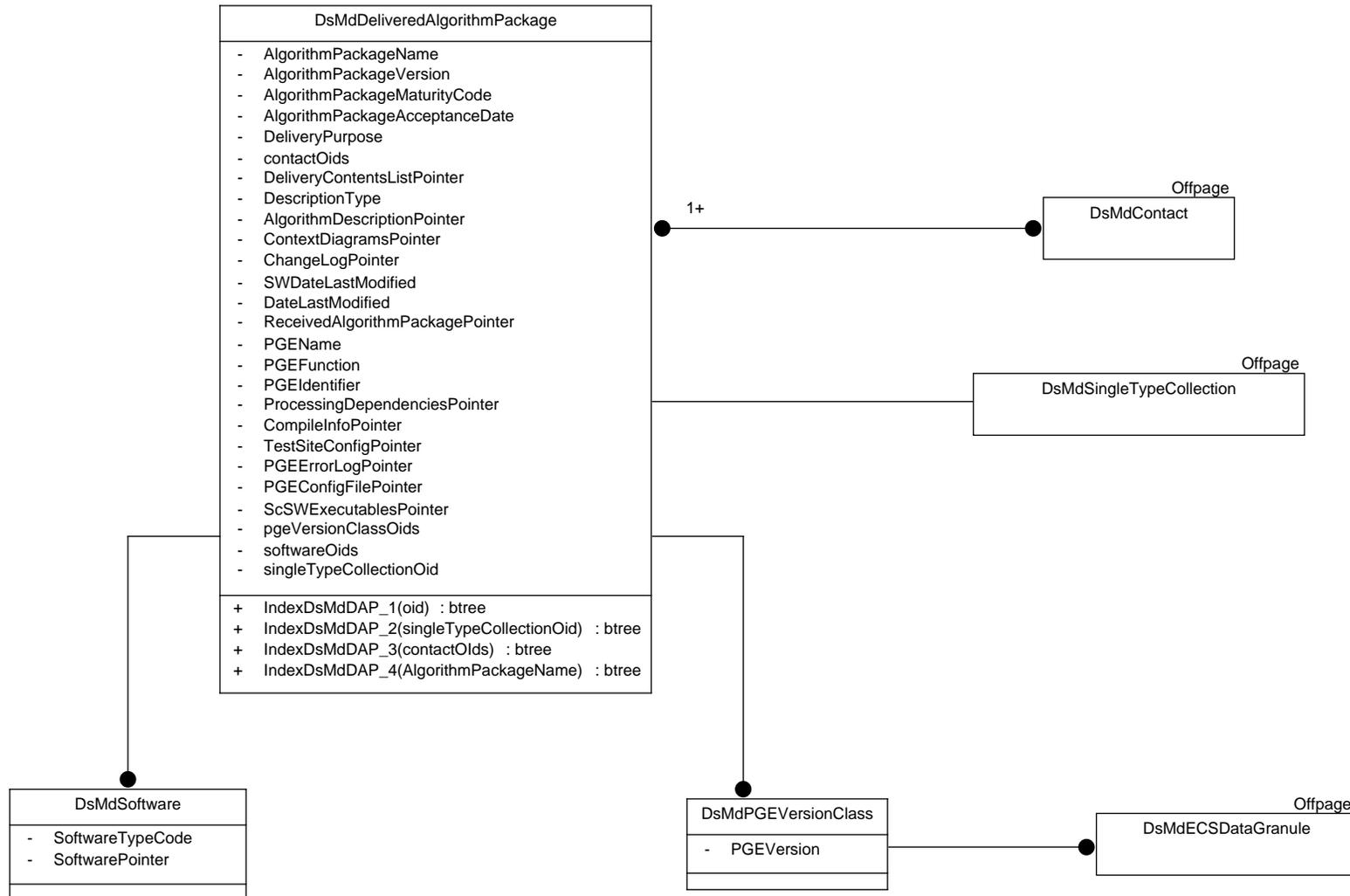
### 7.2 Graphical Model and Relational Tables

The following graphical model and table descriptions generated from OMT represent the Data Server Subsystem's persistent data design for Release B. The graphical model provides an overall illustration of the collection of Data Server database tables and the relationship between these tables. Further, a detail description of each table is also being provided in this section. These descriptions include attribute names, which are being represented as Column Name, types and keys, for each of the tables contained in the graphical model.

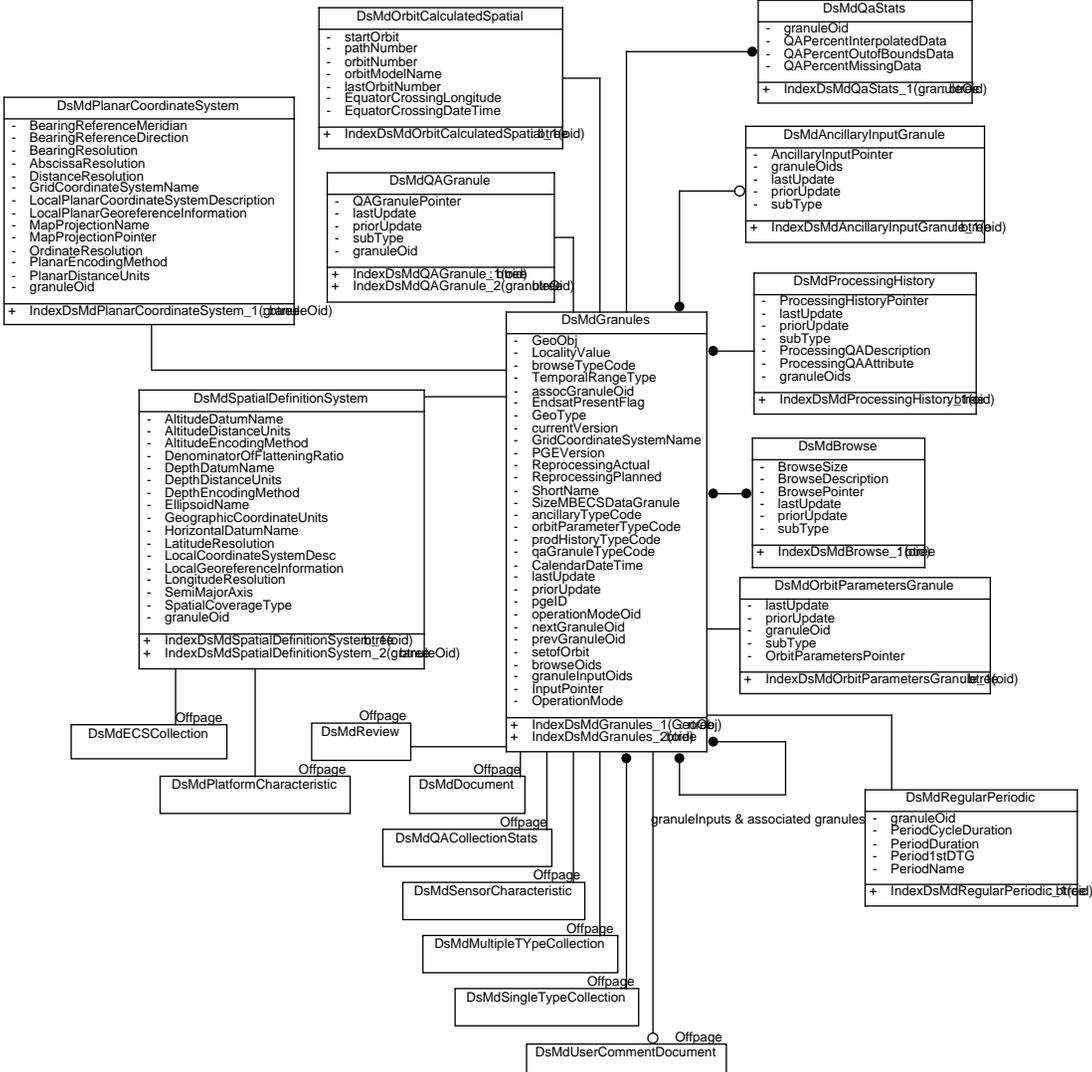












DsMdNonScienceData
<ul style="list-style-type: none"><li>- internalFileName</li><li>- filePath</li><li>- userDataFile</li><li>- checksum</li><li>- fileSize</li><li>- creationDate</li><li>- granuleId</li></ul>

DsMdAttributeTableXref
<ul style="list-style-type: none"><li>- attributeName</li><li>- productName</li><li>- tableName</li><li>- columnName</li></ul>

DsMdAttributeList
<ul style="list-style-type: none"><li>- listName</li><li>- sequenceNumber</li><li>- glType</li><li>- attributeName</li></ul>

**Table 7.2-1. Collection Relational Tables**

-----+  
**Name:** DsMdAdditionalAttributes**Diagram:** Collection  
 -----+

Column Name	Type	Mandatory
Additional AttributeDescription	text	N
AdditionalAttributeDatatype	char(10)	N
AdditionalAttributeName	text	N
ecsCollectionOids	setof(oid)	N
ecsParameterOids	setof(oid)	N
informationContentOids	setof(oid)	N
physicalParameterDetails	setof(oid)	N

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
DsMdAddItionalAttr_1	oid	btree

**Object Orientation**

References	Arity	Reference Type
DsMdECSCollection	M:N	by oid
DsMdInformationContent	1:M	by oid
DsMdPhysicalParameterDetails	1:0	by oid

Inheritance	Parents	Children
DsMdAdditionalAttributes	None	None

-----+  
**Name:** DsMdCollectionAssociation **Diagram:** Collection  
-----+

-----+  

<b>Column Name</b>	<b>Type</b>	<b>Mandatory</b>
CollectionType	char(10)	Y
CollectionUse	text	Y
collectionOid	oid	N

  
-----+

-----+  

<b>Virtual Columns</b>	<b>Signature</b>	<b>Return Type</b>
None		

  
-----+

-----+  

<b>Index Name</b>	<b>Performed on</b>	<b>Type</b>
DsMdCollectionAssoc_1	collectionOid	btree
DsMdCollectionAssoc_2	oid	btree

  
-----+

-----+  
**Object Orientation**  
-----+

<b>References</b>	<b>Arity</b>	<b>Reference Type</b>
DsMdECSCollection	1:1	by oid

<b>Inheritance</b>	<b>Parents</b>	<b>Children</b>
DsMdCollectionAssociation	DsMdCollectionDescription	None

  
-----+

-----+  
**Name:** DsMdCollectionDescription**Diagram:** Collection  
 -----+

Column Name	Type	Mandatory
CollectionDescription	text	Y
LongName	char(80)	Y
ShortName	char(10)	Y
VersionID	text	Y

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
None		

-----+  
**Object Orientation**  
 -----+

References	Arity	Reference Type
None		

Inheritance	Parents	Children
DsMdCollectionDescription	None	DsMdCollectionAssociation
DsMdCollectionDescription		DsMdECSCollection

-----+  
**Name:** DsMdECSCollection      **Diagram:** Collection  
 -----+

Column Name	Type	Mandatory
ArchiveCenter	char(20)	Y
ProcessingCenter	char(20)	N
RevisionDate	timestamp	N
SpatialKeyword	char(80)	Y
StorageMedium	char(30)	N
SuggestedUsage	text	N
browseOids	setof(oid)	N
collectionAssociationOid	oid	N
collectionSubtype	varchar(60)	N
collectionType	varchar(60)	Y
documentOids	setof(oid)	N
granuleOid	oid	N
guideOids	setof(oid)	N
localityOids	setof(oid)	N
logicalDataServerName	char(60)	N
platformOids	setof(oid)	N
qaCollectionStatsOids	setof(oid)	N
qaGranuleOids	setof(oid)	N
qualityTextCommentOids	setof(oid)	N
userCommentDocumentOids	setof(oid)	N
validationDocumentOids	setof(oid)	N

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
DsMdCollection_1	granuleOid	btree
DsMdCollection_2	oid	btree

-----+  
**Object Orientation**  
 -----+

References	Arity	Reference Type
DsMdAdditionalAttributes	M:N	

DsMdBrowse	1:M	by oid
DsMdCollectionAssociation	:1	by oid
DsMdContact	M:N	
DsMdDataOriginator	M:N	
DsMdDocument	1:M	by oid
DsMdECSPParameter	M:N	
DsMdGuide	1:M	by oid
DsMdKeywords	M:N	
DsMdLocality	1:M	by oid
DsMdPlatform	M:N	by oid
DsMdProcessingCenterGuide	1:1	
DsMdQACollectionStats	O:M	by oid
DsMdQAGranule	1:0	by oid
DsMdQualityTextComment	1:0	by oid
DsMdSensor	M:N	
DsMdUserCommentDocument	1:0	by oid
DsMdValidationDocument	1:0	by oid

**Inheritance**

DsMdECSCollection  
DsMdECSCollection  
DsMdECSCollection

**Parents**

DsMdCollectionDescription

**Children**

DsMdSingleTypeCollection  
DsMdMultipleTypeCollection

+-----+

-----+  
**Name:** DsMdECSPParameter      **Diagram:** Collection  
 -----+

Column Name	Type	Mandatory
ECSPParameterDatatype	char(10)	Y
ECSPParameterDescription	text	N
ECSPParameterName	char(30)	Y
clTableName	varchar(32)	N
ecsCollectionOids	setof(oid)	N
ecsVariableOids	setof(oid)	N
grTableName	varchar(32)	N
informationContentOids	setof(oid)	N
physicalParameterDetailsOids	setof(oid)	N

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
DsMdECSPParameter_1	oid	btree

**Object Orientation**

References	Arity	Reference Type
DsMdECSCollection	M:N	by oid
DsMdInformationContent	1:M	by oid
DsMdKeywords	M:N	by oid
DsMdPhysicalParameterDetails	1:0	by oid

Inheritance	Parents	Children
DsMdECSPParameter	None	None

-----+  
**Name:** DsMdInformationContent**Diagram:** Collection  
-----+

-----+  

<b>Column Name</b>	<b>Type</b>	<b>Mandatory</b>
CollectionValue	text	N
ParameterValue	char(30)	N
collectionOid	oid	N
granuleOid	oid	N

  
-----+

-----+  

<b>Virtual Columns</b>	<b>Signature</b>	<b>Return Type</b>
None		

  
-----+

-----+  

<b>Index Name</b>	<b>Performed on</b>	<b>Type</b>
DsMdInformationContent_1	collectionOid	btree
DsMdInformationContent_2	granuleOid	btree

  
-----+

-----+  
**Object Orientation**  
-----+

<b>References</b>	<b>Arity</b>	<b>Reference Type</b>
DsMdAdditionalAttributes	M:1	
DsMdECSPParameter	M:1	

<b>Inheritance</b>	<b>Parents</b>	<b>Children</b>
DsMdInformationContent	None	None

  
-----+

<b>Name:</b> DsMdKeywords	<b>Diagram:</b> Collection
---------------------------	----------------------------

Column Name	Type	Mandatory
ECSDisciplineKeyword	char(32)	Y
ECSTermKeyword	char(40)	Y
ECSTopicKeyword	char(32)	Y
ECSVariableKeyword	char(32)	Y
ecsCollectionOids	setof(oid)	N
ecsParameterOids	setof(oid)	N

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
None		

Object Orientation		
References	Arity	Reference Type
DsMdECSCollection	M:N	by oid
DsMdECSParameter	M:N	by oid
DsMdGuide	1:1	by oid
Inheritance	Parents	Children
DsMdKeywords	None	None

-----+  
**Name:** DsMdLocality                    **Diagram:** Collection  
 -----+

-----+  

<b>Column Name</b>	<b>Type</b>	<b>Mandatory</b>
LocalityDescription	timestamp	Y
LocalityType	char(20)	Y
granuleOids	oid	N

 -----+

-----+  

<b>Virtual Columns</b>	<b>Signature</b>	<b>Return Type</b>
None		

 -----+

-----+  

<b>Index Name</b>	<b>Performed on</b>	<b>Type</b>
DsMdLocality_1	granuleOids	btree

 -----+

-----+  
**Object Orientation**  
 -----+  

<b>References</b>	<b>Arity</b>	<b>Reference Type</b>
DsMdECSCollection	M:1	
DsMdECSDataGranule	1:1	by oid

<b>Inheritance</b>	<b>Parents</b>	<b>Children</b>
DsMdLocality	None	None

 -----+

-----+  
**Name:** DsMdMultipleTypeCollection**Diagram:** Collection  
 -----+

Column Name	Type	Mandatory
aggregationRelationship	char(2)	Y
aggregationType	char(10)	Y
aggregationValue	char(80)	Y
collectionOids	oid	N
ecsDataGranuleOids	setof(oid)	N
multipleTypeCollectionOids	setof(oid)	N
singleTypeCollectionOids	setof(oid)	N

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
DsMdMultipleTypeCollection_1	oid	btree
DsMdMultipleTypeCollection_2	singleTypeCollectionOids	btree

-----+  
**Object Orientation**  
 -----+

References	Arity	Reference Type
DsMdECSDDataGranule	M:N	by oid
DsMdMultipleTypeCollection	M:N	by oid
DsMdSingleTypeCollection	1:M	by oid

Inheritance	Parents	Children
DsMdMultipleTypeCollection	DsMdECSCollection	None

-----+

-----+  
**Name:** DsMdPhysicalParameterDetails**Diagram:** Collection  
-----+

-----+  
**Column Name**                      **Type**                      **Mandatory**  
MeasurementResolution              char(30)                      N  
Range                                      char(10)                      N  
UnitsofMeasure                      char(20)                      N  
ValueAccuracyExplanation              text                              N  
ValueAccuracy                      char(30)                      N  
-----+

-----+  
**Virtual Columns**                      **Signature**                      **Return Type**  
None  
-----+

-----+  
**Index Name**                      **Performed on**                      **Type**  
None  
-----+

-----+  
**Object Orientation**  
-----+

**References**                      **Arity**                      **Reference Type**  
DsMdAdditionalAttributes              O:1  
DsMdECSPparameter                      O:1

**Inheritance**                      **Parents**                      **Children**  
DsMdPhysicalParameterDetails      None                              None  
-----+

-----+  
**Name:** DsMdProcessingLevel    **Diagram:** Collection  
-----+

-----+  
**Column Name**                      **Type**                                      **Mandatory**  
ProcessingLevelDescription      text    N  
ProcessingLevelID                      char(6)    Y  
SingleTypeCollectionOids            setof(oid)                                      N  
-----+

-----+  
**Virtual Columns**                      **Signature**                                      **Return Type**  
None  
-----+

-----+  
**Index Name**                                      **Performed on**                                      **Type**  
None  
-----+

-----+  
**Object Orientation**  
-----+

**References**                                      **Arity**    **Reference Type**  
DsMdSingleTypeCollection          1:M    by oid

**Inheritance**                                      **Parents**    **Children**  
DsMdProcessingLevel                      None    None  
-----+

-----+  
**Name:** DsMdQACollectionStats **Diagram:** Collection  
-----+

-----+  

<b>Column Name</b>	<b>Type</b>	<b>Mandatory</b>
AutomaticQualityFlag	char(30)	Y
OperationQualityFlag	char(30)	Y
QualityFlagExplanation	text	N
ScienceQualityFlag	char(3)	Y
ecsCollectionOids	setof(oid)	N
ecsDataGranuleOids	setof(oid)	N

  
-----+

-----+  

<b>Virtual Columns</b>	<b>Signature</b>	<b>Return Type</b>
None		

  
-----+

-----+  

<b>Index Name</b>	<b>Performed on</b>	<b>Type</b>
None		

  
-----+

-----+  
**Object Orientation**  
-----+

<b>References</b>	<b>Arity</b>	<b>Reference Type</b>
DsMdECSCollection	M:0	by oid
DsMdECSDataGranule	M:0	by oid

<b>Inheritance</b>	<b>Parents</b>	<b>Children</b>
DsMdQACollectionStats	None	None

  
-----+

+-----+  
**Name:** DsMdQualityTextComment**Diagram:** Collection  
+-----+

+-----+  
**Column Name**                      **Type**                      **Mandatory**  
QualityTextCommentPointer      text                      Y  
+-----+

+-----+  
**Virtual Columns**                      **Signature**                      **Return Type**  
None  
+-----+

+-----+  
**Index Name**                      **Performed on**                      **Type**  
None  
+-----+

+-----+  
**Object Orientation**  
+-----+  
**References**                      **Arity**                      **Reference Type**  
DsMdECSCollection              O:1  
  
**Inheritance**                      **Parents**                      **Children**  
DsMdQualityTextComment      None                      None  
+-----+

+-----+  
**Name:** DsMdReview                    **Diagram:** Collection  
+-----+

+-----+  
**Column Name**                    **Type**                    **Mandatory**  
FutureReviewDate                    timestamp                    N  
ScienceReviewData                    timestamp                    Y  
ScienceReviewStatus                    char(20)                    Y  
+-----+

+-----+  
**Virtual Columns**                    **Signature**                    **Return Type**  
None  
+-----+

+-----+  
**Index Name**                    **Performed on**                    **Type**  
None  
+-----+

+-----+  
**Object Orientation**  
+-----+

**References**                    **Arity**                    **Reference Type**  
DsMdECSDaDataGranule                    M:1  
DsMdSingleTypeCollection                    M:1

**Inheritance**                    **Parents**                    **Children**  
DsMdReview                    None                    None  
+-----+

-----+  
**Name:** DsMdSingleTypeCollection**Diagram:** Collection  
 -----+

Column Name	Type	Mandatory
AccessConstraints	text	N
CSDTComments	text	N
CitationforExternalPublication	text	N
CollectionState	char(10)	N
Implementation	varchar(100)	Y
IndirectReference	text	Y
MaintenanceandUpdateFrequency	char(15)	Y
PrimaryCSDT	int	Y
TemporalKeyword	char(80)	N
collectionOid	oid	N
ecsDataGranuleOids	setof(oid)	N
reviewOids	setof(oid)	N

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
DsMdSingleTypeCollection_1	collectionOid	btree

-----+  
**Object Orientation**  
 -----+

References	Arity	Reference Type
DsMdDeliveredAlgorithmPackage1	1:1	
DsMdECSDDataGranule	1:M	by oid
DsMdMultipleTypeCollection	M:1	
DsMdProcessingLevel	M:1	
DsMdReview	1:M	by oid

Inheritance	Parents	Children
DsMdSingleTypeCollection	DsMdECSCollection	None

-----+

+-----+  
**Name:** DsMdUserCommentDocument**Diagram:** Collection  
+-----+

+-----+  
**Column Name**                      **Type**                      **Mandatory**  
UserCommentDocumentPointer text                      Y  
+-----+

+-----+  
**Virtual Columns**                      **Signature**                      **Return Type**  
None  
+-----+

+-----+  
**Index Name**                      **Performed on**                      **Type**  
None  
+-----+

+-----+  
**Object Orientation**  
+-----+

**References**                      **Arity**                      **Reference Type**  
DsMdECSCollection                      O:1  
DsMdECSDataGranule                      O:1

**Inheritance**                      **Parents**                      **Children**  
DsMdUserCommentDocument                      None                      None  
+-----+

+-----+  
**Name:** DsMdValidationDocument**Diagram:** Collection  
+-----+

+-----+  
**Column Name**                      **Type**                                      **Mandatory**  
ValidationDocumentPointer      text    Y  
+-----+

+-----+  
**Virtual Columns**                      **Signature**                                      **Return Type**  
None  
+-----+

+-----+  
**Index Name**                                      **Performed on**                                      **Type**  
None  
+-----+

+-----+  
**Object Orientation**  
+-----+

**References**                                      **Arity**    **Reference Type**  
DsMdECSCollection                      O:1

**Inheritance**                                      **Parents**    **Children**  
DsMdValidationDocument                      None    None  
+-----+

**Table 7.2-2. Contact Relational Tables**

-----+  
**Name:** DsMdContact                      **Diagram:** Contact  
 -----+

-----+  

<b>Column Name</b>	<b>Type</b>	<b>Mandatory</b>
ContactInstructions	varchar(255)	N
HoursofService	varchar(255)	N
Role	char(16)	Y
contactAddressOids	setof(oid)	N
dataOriginatorOids	setof(oid)	N
deliveredAlgorithmPackageOids	setof(oid)	N
ecsCollectionOids	setof(oid)	N
emailOids	setof(oid)	N
telephoneNumberOids	setof(oid)	N

 -----+

-----+  

<b>Virtual Columns</b>	<b>Signature</b>	<b>Return Type</b>
None		

 -----+

-----+  

<b>Index Name</b>	<b>Performed on</b>	<b>Type</b>
DsMdContact_1	oid	btree

 -----+

-----+  
**Object Orientation**  
 -----+

<b>References</b>	<b>Arity</b>	<b>Reference Type</b>
DsMdContactAddress	1:M	by oid
DsMdDataOriginator	M:N	by oid
DsMdDeliveredAlgorithmPackage	M:N	by oid
DsMdECSCollection	M:N	by oid
DsMdEmail	O:M	by oid
DsMdTelephoneNumbers	1:M	by oid

<b>Inheritance</b>	<b>Parents</b>	<b>Children</b>
DsMdContact	None	DsMdContactOrganization
DsMdContact		DsMdContactPerson

 -----+

-----+  
**Name:** DsMdContactAddress    **Diagram:** Contact  
 -----+

Column Name	Type	Mandatory
City	varchar(30)	N
Country	varchar(10)	N
PostalCode	varchar(20)	N
StateProvince	varchar(20)	N
StreetAddress	varchar(80)	N

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
DsMdContactAddress_1	oid	btree

-----+  
**Object Orientation**  
 -----+

References	Arity	Reference Type
DsMdContact	M:1	

Inheritance	Parents	Children
DsMdContactAddress	None	None

-----+

+-----+  
**Name:** DsMdContactOrganization**Diagram:** Contact  
+-----+

Column Name	Type	Mandatory
ContactOrganizationName	varchar(255)	N
contactPersonOids	setof(oid)	N

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
None		

+-----+  
**Object Orientation**  
+-----+

References	Arity	Reference Type
DsMdContactPerson	M:N	by oid

Inheritance	Parents	Children
DsMdContactOrganization	DsMdContact	None

+-----+

-----+  
**Name:** DsMdContactPerson      **Diagram:** Contact  
 -----+

Column Name	Type	Mandatory
ContactFirstName	varchar(255)	N
ContactJobPosition	varchar(255)	N
ContactLastName	varchar(255)	Y
ContactMiddleName	varchar(255)	N
contactOrganizationOids	setof(oid)	N

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
None		

Object Orientation		
References	Arity	Reference Type
DsMdContactOrganization	M:N	by oid
Inheritance	Parents	Children
DsMdContactPerson	DsMdContact	None

<b>Name:</b> DsMdEmail	<b>Diagram:</b> Contact
------------------------	-------------------------

Column Name	Type	Mandatory
ElectronicMailAddress	varchar(255)	Y

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
None		

**Object Orientation**

References	Arity	Reference Type
DsMdAuthor	M:1	by oid
DsMdContact	M:0	by oid

Inheritance	Parents	Children
DsMdEmail	None	None

+-----+  
**Name:** DsMdTelephoneNumbers **Diagram:** Contact  
+-----+

Column Name	Type	Mandatory
TelephoneNumber	varchar(23)	Y
TelephoneNumberType	varchar(10)	N

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
DsMdTelephoneNumbers_1	oid	btree

+-----+  
**Object Orientation**  
+-----+

References	Arity	Reference Type
DsMdContact	M:1	

Inheritance	Parents	Children
DsMdTelephoneNumbers	None	None

+-----+

**Table 7.2-3. Data Originator Relational Tables**

-----+  
**Name:** DsMdDataOriginator      **Diagram:** DataOriginator  
 -----+

Column Name	Type	Mandatory
DataOriginatorLongName	char(80)	Y
DataOriginatorShortName	char(20)	Y
contactOids	setof(oid)	N
dataOriginatorGuideOid	oid	N
ecsCollectionOids	setof(oid)	N

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
DsMdDataOriginator	oid	btree

-----+  
**Object Orientation**  
 -----+

References	Arity	Reference Type
DsMdContact	M:N	by oid
DsMdDataOriginatorGuide	1:1	by oid
DsMdECSCollection	M:N	by oid

Inheritance	Parents	Children
DsMdDataOriginator	None	DsMdFieldCampaign
DsMdDataOriginator		DsMdInstrument
DsMdDataOriginator		DsMdNonInstrument

-----+  
**Name:** DsMdFieldCampaign    **Diagram:** DataOriginator  
 -----+

Column Name	Type	Mandatory
CampaignLongName	char(80)	Y
CampaignProjectStartDate	timestamp	N
CampaignProjectStopDate	timestamp	N
CampaignShortName	char(20)	Y
instrumentOids	setof(oid)	N
nonInstrumentOids	setof(oid)	N

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
DsMdFieldCampaign	oid	btree

-----+  
**Object Orientation**  
 -----+

References	Arity	Reference Type
DsMdFieldCampaignGuide	1:1	by oid
DsMdInstrument	M:N	by oid

Inheritance	Parents	Children
DsMdFieldCampaign	DsMdDataOriginator	None

-----+

<b>Name:</b> DsMdInstrument	<b>Diagram:</b> DataOriginator
-----------------------------	--------------------------------

Column Name	Type	Mandatory
InstrumentLongName	char(80)	Y
InstrumentShortName	char(20)	Y
InstrumentTechnique	char(20)	Y
NumberofSensors	shortint	N
operationModeOids	setof(oid)	N

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
DsMdInstrument_1	oid	btree

**Object Orientation**

References	Arity	Reference Type
DsMdFieldCampaign	M:N	
DsMdInstrumentGuide	1:1	
DsMdNonInstrument	M:1	
DsMdOperationMode	1:M	by oid
DsMdPlatform	M:N	
DsMdSensor	M:N	

Inheritance	Parents	Children
DsMdInstrument	DsMdDataOriginator	None

-----+  
**Name:** DsMdNonInstrument      **Diagram:** DataOriginator  
 -----+

Column Name	Type	Mandatory
BoundaryData	char(40)	N
DynamicStaticFlag	char(10)	N
ModelDescription	text	N
ModelName	char(20)	N
NonInstrumentLongName	char(80)	N
NonInstrumentShortName	char(20)	Y
NonInstrumentTechnique	char(20)	Y
instrumentoids	setof(oid)	N
nonInstrumentGuide	oid	N

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
DsMdDataOriginator_1	oid	btree

**Object Orientation**

References	Arity	Reference Type
DsMdInstrument	1:M	by oid
DsMdNonInstrumentGuide	1:1	by oid

Inheritance	Parents	Children
DsMdNonInstrument	DsMdDataOriginator	None

-----+  
**Name:** DsMdPlatform                    **Diagram:** DataOriginator  
 -----+

Column Name	Type	Mandatory
PlatformLongName	char(80)	Y
PlatformShortName	char(20)	Y
ecsCollectionOids	setof(oid)	N
instrumentOids	setof(oid)	N
platformCharacteristicOids	setof(oid)	N
platformGuideOid	oid	N

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
DsMdPlatform_1	oid	btree

-----+  
**Object Orientation**  
 -----+

References	Arity	Reference Type
DsMdECSCollection	M:N	by oid
DsMdInstrument	M:N	by oid
DsMdPlatformCharacteristic	1:M	by oid
DsMdPlatformGuide	1:1	by oid

Inheritance	Parents	Children
DsMdPlatform	None	None

-----+

-----+  
**Name:** DsMdPlatformCharacteristic**Diagram:** DataOriginator  
-----+

-----+  

<b>Column Name</b>	<b>Type</b>	<b>Mandatory</b>
PlatformCharacteristicName	char(80)	N
PlatformCharacteristicType	char(20)	N
PlatformCharacteristicUnit	char(20)	N
PlatformCharacteristicValue	char(20)	N

  
-----+

-----+  

<b>Virtual Columns</b>	<b>Signature</b>	<b>Return Type</b>
None		

  
-----+

-----+  

<b>Index Name</b>	<b>Performed on</b>	<b>Type</b>
None		

  
-----+

-----+  
**Object Orientation**  
-----+

-----+  

<b>References</b>	<b>Arity</b>	<b>Reference Type</b>
DsMdPlatform	M:1	

-----+  

<b>Inheritance</b>	<b>Parents</b>	<b>Children</b>
DsMdPlatformCharacteristic	None	None

  
-----+

-----+  
**Name:** DsMdSensor                      **Diagram:** DataOriginator  
 -----+

Column Name	Type	Mandatory
SensorLongName	char(80)	N
SensorShortName	char(20)	Y
SensorTechnique	char(40)	Y
ecsCollectionOids	setof(oid)	N
instrumentOids	setof(oid)	N
sensorCharacteristicOids	setof(oid)	N
sensorGuideOid	oid	N

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
DsMdSensor_1	oid	btree

-----+  
**Object Orientation**  
 -----+

References	Arity	Reference Type
DsMdECSCollection	M:N	by oid
DsMdInstrument	M:N	by oid
DsMdSensorCharacteristic	M:N	by oid
DsMdSensorGuide	1:1	by oid

Inheritance	Parents	Children
DsMdSensor	None	None

-----+

-----+  
**Name:** DsMdSensorCharacteristic**Diagram:** DataOriginator  
-----+

-----+  

<b>Column Name</b>	<b>Type</b>	<b>Mandatory</b>
SensorCharacteristicName	char(20)	Y
SensorCharacteristicType	char(20)	Y
SensorCharacteristicUnit	char(20)	Y
SensorCharacteristicValue	shortint	Y

  
-----+

-----+  

<b>Virtual Columns</b>	<b>Signature</b>	<b>Return Type</b>
None		

  
-----+

-----+  

<b>Index Name</b>	<b>Performed on</b>	<b>Type</b>
None		

  
-----+

-----+  
**Object Orientation**  
-----+

-----+  

<b>References</b>	<b>Arity</b>	<b>Reference Type</b>
DsMdSensor	M:N	

-----+  

<b>Inheritance</b>	<b>Parents</b>	<b>Children</b>
DsMdSensorCharacteristic	None	None

  
-----+

**Table 7.2-4 . Delivered Algorithm Package Relational Tables**

-----+  
**Name:** DsMdDeliveredAlgorithmPackage**Diagram:** DeliveredAlgorithmPackage  
 -----+

<b>Column Name</b>	<b>Type</b>	<b>Mandatory</b>
AlgorithmDescriptionPointer	varchar(255)	N
AlgorithmPackageAcceptanceDatetimestamp		Y
AlgorithmPackageMaturityCode	varchar(10)	Y
AlgorithmPackageName	varchar(80)	Y
AlgorithmPackageVersion	varchar(20)	Y
ChangeLogPointer	varchar(255)	N
CompileInfoPointer	varchar(255)	N
ContextDiagramsPointer	varchar(255)	N
DateLastModified	timestamp	N
DeliveryContentsListPointer	varchar(255)	N
DeliveryPurpose	varchar(25)	Y
DescriptionType	varchar(64)	N
PGConfigFilePointer	varchar(255)	N
PGErrorLogPointer	varchar(255)	N
PGFunction	varchar(80)	N
PGIdentifier	varchar(10)	N
PGName	varchar(20)	N
ProcessingDependenciesPointer	varchar(255)	N
ReceivedAlgorithmPackagePointerv	varchar(255)	N
SWDateLastModified	timestamp	N
ScSWExecutablesPointer	varchar(255)	N
TestSiteConfigPointer	varchar(255)	N
contactOids	setof(oid)	N
pgeVersionClassOids	setof(oid)	N
singleTypeCollectionOid	oid	N
softwareOids	setof(oid)	N

<b>Virtual Columns</b>	<b>Signature</b>	<b>Return Type</b>
None		

<b>Index Name</b>	<b>Performed on</b>	<b>Type</b>
DsMdDAP_1	oid	btree
DsMdDAP_2	singleTypeCollectionOid	btree
DsMdDAP_3	contactOids	btree
DsMdDAP_4	AlgorithmPackageName	btree

+-----+

+-----+

**Object Orientation**

+-----+

<b>References</b>	<b>Arity</b>	<b>Reference Type</b>
DsMdContact	M:N	by oid
DsMdPGEVersionClass	1:M	by oid
DsMdSingleTypeCollection	1:1	by oid
DsMdSoftware	1:M	by oid

<b>Inheritance</b>	<b>Parents</b>	<b>Children</b>
DsMdDeliveredAlgorithmPackageNone		None

+-----+

-----+  
**Name:** DsMdPGEVersionClass **Diagram:** DeliveredAlgorithmPackage  
 -----+

Column Name	Type	Mandatory
PGEVersion	real	Y

-----+

Virtual Columns	Signature	Return Type
None		

-----+

Index Name	Performed on	Type
None		

-----+

-----+  
**Object Orientation**  
 -----+

References	Arity	Reference Type
DsMdDeliveredAlgorithmPackage		
	M:1	
DsMdECSDDataGranule	1:M	

Inheritance	Parents	Children
DsMdPGEVersionClass	None	None

-----+

<b>Name:</b> DsMdSoftware	<b>Diagram:</b> DeliveredAlgorithmPackage
---------------------------	---

Column Name	Type	Mandatory
SoftwarePointer	varchar(255)	N
SoftwareTypeCode	varchar(40)	Y

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
None		

**Object Orientation**

References	Arity	Reference Type
DsMdDeliveredAlgorithmPackage	M:1	

Inheritance	Parents	Children
DsMdSoftware	None	None

**Table 7.2-5. Document Relational Tables**

<b>Name:</b> DsMdAuthor		<b>Diagram:</b> Document
<b>Column Name</b>	<b>Type</b>	<b>Mandatory</b>
AuthorAffiliation	varchar(64)	N
AuthorName	varchar(64)	Y
documentOids	setof(oid)	N
emailOids	setof(oid)	N
<b>Virtual Columns</b>	<b>Signature</b>	<b>Return Type</b>
None		
<b>Index Name</b>	<b>Performed on</b>	<b>Type</b>
DsMdAuthor_1	oid	btree
<b>Object Orientation</b>		
<b>References</b>	<b>Arity</b>	<b>Reference Type</b>
DsMdDocument	M:N	by oid
DsMdEmail	1:M	by oid
<b>Inheritance</b>	<b>Parents</b>	<b>Children</b>
DsMdAuthor	None	None

+-----+  
**Name:** DsMdDocUncontrolledParameter **Diagram:** Document  
+-----+

Column Name	Type	Mandatory
docUncontrolledParameterKeyword		
	varchar(80)	N
documentOid	oid	N

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
None		

+-----+  
**Object Orientation**  
+-----+

References	Arity	Reference Type
DsMdDocument	1:1	by oid

Inheritance	Parents	Children
DsMdDocUncontrolledParameter	None	None

+-----+

-----+  
**Name:** DsMdDocument      **Diagram:** Document  
 -----+

-----+  

Column Name	Type	Mandatory
DocumentCreated	timestamp	Y
DocumentUpdated	timestamp	Y
DocumentVersion	char(8)	Y
Title	varchar(255)	Y
authorOids	setof(oid)	N
deliveredAlgorithmPackageOid	oid	N
docUncontrolledParameterOid	oid	N

 -----+

-----+  

Virtual Columns	Signature	Return Type
None		

 -----+

-----+  

Index Name	Performed on	Type
DsMdDocument_1	oid	btree
DsMdDocument_2	deliveredAlgorithmOid	btree

 -----+

-----+  
**Object Orientation**  
 -----+

References	Arity	Reference Type
DsMdAuthor	M:N	by oid
DsMdDeliveredAlgorithmPackage	1:1	by oid
DsMdDocUncontrolledParameter	1:1	by oid
DsMdECSDDataGranule	M:1	
DsMdGuide	M:1	

Inheritance	Parents	Children
DsMdDocument	None	DsMdGuide
DsMdDocument		DsMdProcessingReport
DsMdDocument		DsMdProductionPlan
DsMdDocument		DsMdReferencePaper

 -----+

-----+  
**Name:** DsMdGuide

**Diagram:** Document  
-----+

-----+

<b>Column Name</b>	<b>Type</b>	<b>Mandatory</b>
DataCenter	char(8)	N
GeographicalRegionName	varchar(64)	N
GuideName	varchar(64)	Y
GuidePointer	varchar(255)	N
collectionOid	oid	N
documentOids	setof(oids)	N
ecsTermOid	oid	N
ecsTopicOid	oid	N
ecsVariableOid	oid	N
guideOptionalOid	oid	N

-----+

-----+

<b>Virtual Columns</b>	<b>Signature</b>	<b>Return Type</b>
None		

-----+

-----+

<b>Index Name</b>	<b>Performed on</b>	<b>Type</b>
DsMdGuide_1	ecsTopicOid	btree
DsMdGuide_2	ecsTermOid	btree
DsMdGuide_3	ecsVariableOid	btree
DsMdGuide_4	collectionOid	btree

-----+

-----+

### **Object Orientation**

-----+

<b>References</b>	<b>Arity</b>	<b>Reference Type</b>
DsMdDataOriginator	1:0	by oid
DsMdDocument	1:M	by oid
DsMdECSCollection	M:1	
DsMdECSVariable	1:1	by oid
DsMdEcsTopic	1:1	by oid
DsMdFieldCampaign	1:0	by oid
DsMdInstrument	1:1	by oid
DsMdKeywords	1:1	by oid
DsMdNonInstrument	1:0	by oid
DsMdPlatform	1:0	by oid

DsMdSensor

1:0

by oid

**Inheritance**

DsMdGuide

**Parents**

DsMdDocument

**Children**

None

+-----+

+-----+  
**Name:** DsMdProcessingReport **Diagram:** Document  
+-----+

+-----+  

<b>Column Name</b>	<b>Type</b>	<b>Mandatory</b>
ProcessingReportPeriod	int1	Y
ProcessingReportPointer	varchar(255)	N
ProcessingReportType	varchar(10)	Y

  
+-----+

+-----+  

<b>Virtual Columns</b>	<b>Signature</b>	<b>Return Type</b>
None		

  
+-----+

+-----+  

<b>Index Name</b>	<b>Performed on</b>	<b>Type</b>
None		

  
+-----+

+-----+  
**Object Orientation**  
+-----+  

<b>References</b>	<b>Arity</b>	<b>Reference Type</b>
None		

  
+-----+

+-----+  

<b>Inheritance</b>	<b>Parents</b>	<b>Children</b>
DsMdProcessingReport	DsMdDocument	None

  
+-----+

-----+  
**Name:** DsMdProductionPlan    **Diagram:** Document  
 -----+

-----+  

Column Name	Type	Mandatory
DAACName	char(8)	Y
PlannedDataSets	varchar(255)	N
ProductionPlanDescription	varchar(255)	N
ProductionPlanEndDate	timestamp	N
ProductionPlanForecast	smallint	N
ProductionPlanPointer	varchar(255)	N
ProductionPlanStartDate	timestamp	N

 -----+

-----+  

Virtual Columns	Signature	Return Type
None		

 -----+

-----+  

Index Name	Performed on	Type
None		

 -----+

-----+  
**Object Orientation**  
 -----+

**References**  
 None  
 -----+

	Arity	Reference Type
<b>Inheritance</b>	<b>Parents</b>	<b>Children</b>
DsMdProductionPlan	DsMdDocument	None

 -----+

-----+  
**Name:** DsMdReferencePaper    **Diagram:** Document  
 -----+

Column Name	Type	Mandatory
AbstractPointer	varchar(255)	N
AccessInstructions	varchar(255)	N
DateofReferencePaperPublication	timestamp	Y
JournalArticleName	varchar(80)	N
ReferencePaperPointer	varchar(255)	N
ReferencePaperReference	varchar(20)	Y
ReferencePaperType	varchar(40)	Y

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
None		

**Object Orientation**

References	Arity	Reference Type
<b>Inheritance</b>	<b>Parents</b>	<b>Children</b>
DsMdReferencePaper	DsMdDocument	None

**Table 7.2-6. ECS Data Granule Relational Tables**

-----+  
**Name:** DsMdAncillaryInputGranule **Diagram:** ECSDataGranule  
 -----+

Column Name	Type	Mandatory
AncillaryInputPointer	text	N
granuleOids	setof(oid)	N
lastUpdate	timestamp	N
priorUpdate	timestamp	N
subType	text	N

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
DsMdAncillaryInputGranule_1	oid	btree

Object Orientation		
References	Arity	Reference Type
DsMdGranules	O:M	by oid
Inheritance	Parents	Children
DsMdAncillaryInputGranule	None	None

<b>Name:</b> DsMdBrowse	<b>Diagram:</b> ECSDDataGranule
-------------------------	---------------------------------

Column Name	Type	Mandatory
BrowseDescription	text	N
BrowsePointer	text	N
BrowseSize	numeric(5,3)	N
lastUpdate	timestamp	N
priorUpdate	timestamp	N
subType	text	N

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
DsMdBrowse_1	oid	btree

Object Orientation		
References	Arity	Reference Type
DsMdGranules	M:N	
Inheritance	Parents	Children
DsMdBrowse	None	None

-----+  
**Name:** DsMdGranules                    **Diagram:** ECSDDataGranule  
 -----+

Column Name	Type	Mandatory
CalendarDateTime	timestamp	N
EndsatPresentFlag	boolean	N
GeoObj	GeoObject	N
GeoType	char(20)	N
GridCoordinateSystemName	text	N
InputPointer	text	N
LocalityValue	varchar(80)	N
OperationMode	char(20)	N
PGEVersion	float	N
ReprocessingActual	char(20)	N
ReprocessingPlanned	char(20)	N
ShortName	char(20)	N
SizeMBECSDDataGranule	int	N
TemporalRangeType	char(20)	N
ancillaryTypeCode	int	N
assocGranuleOid	setof(oid)	N
browseOids	setof(oid)	N
browseTypeCode	int	N
currentVersion	char(10)	N
granuleInputOids	setof(oid)	N
lastUpdate	timestamp	N
nextGranuleOid	oid	N
operationModeOid	oid	N
orbitParameterTypeCode	int	N
pgeID	oid	N
prevGranuleOid	oid	N
priorUpdate	timestamp	N
prodHistoryTypeCode	int	N
qaGranuleTypeCode	int	N
setofOrbit	setof(t_DsMdOrbitCalculatedSpatial)	N

Virtual Columns	Signature	Return Type
None		

<b>Index Name</b>	<b>Performed on</b>	<b>Type</b>
DsMdGranules_1	GeoObj	rtree
DsMdGranules_2	oid	btree

### Object Orientation

<b>References</b>	<b>Arity</b>	<b>Reference Type</b>
DsMdAncillaryInputGranule	M:0	
DsMdBrowse	M:N	by oid
DsMdDocument	1:1	
DsMdGranules	M:N	by oid
DsMdMultipleTYpeCollection	1:1	
DsMdOrbitCalculatedSpatial	1:1	
DsMdOrbitParametersGranule	:1	
DsMdPlanarCoordinateSystem	1:1	
DsMdProcessingHistory	M:1	
DsMdQACollectionStats	1:1	
DsMdQAGranule	1:1	
DsMdQaStats	1:M	
DsMdRegularPeriodic	1:1	
DsMdReview	1:1	
DsMdSensorCharacteristic	1:1	
DsMdSingleTypeCollection	M:1	
DsMdSpatialDefinitionSystem	1:1	
DsMdUserCommentDocument	1:0	

<b>Inheritance</b>	<b>Parents</b>	<b>Children</b>
DsMdGranules	None	None

-----+  
**Name:** DsMdOrbitCalculatedSpatial**Diagram:** ECSDataGranule  
-----+

-----+  

<b>Column Name</b>	<b>Type</b>	<b>Mandatory</b>
EquatorCrossingDateTime	timestamp	N
EquatorCrossingLongitude	float	N
lastOrbitNumber	int	N
orbitModelName	int	N
orbitNumber	int	N
pathNumber	int	N
startOrbit	int	N

  
-----+

-----+  

<b>Virtual Columns</b>	<b>Signature</b>	<b>Return Type</b>
None		

  
-----+

-----+  

<b>Index Name</b>	<b>Performed on</b>	<b>Type</b>
DsMdOrbitCalculatedSpatial_1	oid	btree

  
-----+

-----+  
**Object Orientation**  
-----+

<b>References</b>	<b>Arity</b>	<b>Reference Type</b>
DsMdGranules	1:1	

<b>Inheritance</b>	<b>Parents</b>	<b>Children</b>
DsMdOrbitCalculatedSpatial	None	None

  
-----+

-----+  
**Name:** DsMdOrbitParametersGranule **Diagram:** ECSDDataGranule  
 -----+

Column Name	Type	Mandatory
OrbitParametersPointer	text	N
granuleOid	oid	N
lastUpdate	timestamp	N
priorUpdate	timestamp	N
subType	text	N

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
DsMdOrbitParametersGranule_1	oid	btree

-----+  
**Object Orientation**  
 -----+

References	Arity	Reference Type
DsMdGranules	1:1	by oid

Inheritance	Parents	Children
DsMdOrbitParametersGranule	None	None

-----+

-----+  
**Name:** DsMdPlanarCoordinateSystem**Diagram:** ECSDDataGranule  
 -----+

Column Name	Type	Mandatory
AbscissaResolution	float	N
BearingReferenceDirection	text	N
BearingReferenceMeridian	text	N
BearingResolution	float	N
DistanceResolution	float	N
GridCoordinateSystemName	text	N
LocalPlanarCoordinateSystemDescription	text	N
LocalPlanarGeoreferenceInformation	text	N
MapProjectionName	text	N
MapProjectionPointer	text	N
OrdinateResolution	float	N
PlanarDistanceUnits	varchar(80)	N
PlanarEncodingMethod	varchar(80)	N
granuleOid	oid	N

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
DsMdPlanarCoordinateSystem_1	granuleOid	btree

-----+  
**Object Orientation**  
 -----+

References	Arity	Reference Type
DsMdGranules	1:1	by oid

Inheritance	Parents	Children
DsMdPlanarCoordinateSystem	None	None

-----+

-----+  
**Name:** DsMdProcessingHistory **Diagram:** ECSDDataGranule  
-----+

-----+  

<b>Column Name</b>	<b>Type</b>	<b>Mandatory</b>
ProcessingHistoryPointer	text	N
ProcessingQAAttribute	text	N
ProcessingQADescription	text	N
granuleOids	setof(oid)	N
lastUpdate	timestamp	N
priorUpdate	timestamp	N
subType	text	N

  
-----+

-----+  

<b>Virtual Columns</b>	<b>Signature</b>	<b>Return Type</b>
None		

  
-----+

-----+  

<b>Index Name</b>	<b>Performed on</b>	<b>Type</b>
DsMdProcessingHistory_1	oid	btree

  
-----+

-----+  
**Object Orientation**  
-----+

<b>References</b>	<b>Arity</b>	<b>Reference Type</b>
DsMdGranules	1:M	by oid

<b>Inheritance</b>	<b>Parents</b>	<b>Children</b>
DsMdProcessingHistory	None	None

  
-----+

-----+  
**Name:** DsMdQAGranule      **Diagram:** ECSDDataGranule  
 -----+

-----+  

Column Name	Type	Mandatory
QAGranulePointer	text	N
granuleOid	oid	N
lastUpdate	timestamp	N
priorUpdate	timestamp	N
subType	text	N

 -----+

-----+  

Virtual Columns	Signature	Return Type
None		

 -----+

-----+  

Index Name	Performed on	Type
DsMdQAGranule_1	oid	btree
DsMdQAGranule_2	granuleOid	btree

 -----+

-----+  
**Object Orientation**  
 -----+  

References	Arity	Reference Type
DsMdGranules	1:1	by oid

Inheritance	Parents	Children
DsMdQAGranule	None	None

 -----+

-----+  
**Name:** DsMdQaStats                    **Diagram:** ECSDDataGranule  
 -----+

Column Name	Type	Mandatory
QAPercentInterpolatedData	float	N
QAPercentMissingData	float	N
QAPercentOutOfBoundsData	float	N
granuleOid	oid	N

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
DsMdQaStats_1	granuleOid	btree

-----+  
**Object Orientation**  
 -----+

References	Arity	Reference Type
DsMdGranules	1:1	by oid

Inheritance	Parents	Children
DsMdQaStats	None	None

-----+

-----+  
**Name:** DsMdRegularPeriodic    **Diagram:** ECSDDataGranule  
 -----+

Column Name	Type	Mandatory
Period1stDTG	timestamp	N
PeriodCycleDuration	text	N
PeriodDuration	text	N
PeriodName	text	N
granuleOid	oid	N

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
DsMdRegularPeriodic_1	oid	btree

Object Orientation		
References	Arity	Reference Type
DsMdGranules	1:1	by oid
Inheritance	Parents	Children
DsMdRegularPeriodic	None	None

-----+  
**Name:** DsMdSpatialDefinitionSystem**Diagram:** ECSDDataGranule  
 -----+

Column Name	Type	Mandatory
AltitudeDatumName	char(40)	N
AltitudeDistanceUnits	char(20)	N
AltitudeEncodingMethod	text	N
DenominatorOfFlatteningRatio	float	N
DepthDatumName	char(80)	N
DepthDistanceUnits	char(20)	N
DepthEncodingMethod	text	N
EllipsoidName	text	N
GeographicCoordinateUnits	char(80)	N
HorizontalDatumName	char(30)	N
LatitudeResolution	float	N
LocalCoordinateSystemDesc	text	N
LocalGeoreferenceInformation	text	N
LongitudeResolution	float	N
SemiMajorAxis	float	N
SpatialCoverageType	text	N
granuleOid	oid	N

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
DsMdSpatialDefinitionSystem_1	oid	btree
DsMdSpatialDefinitionSystem_2	granuleOid	btree

-----+  
**Object Orientation**  
 -----+

References	Arity	Reference Type
DsMdECSCollection	1:1	
DsMdGranules	1:1	by oid

DsMdPlatformCharacteristic 1:1

**Inheritance**

DsMdSpatialDefinitionSystem

**Parents**

None

**Children**

None

+-----+

**Table 7.2-7. System Relational Tables**

<b>Name:</b> DsMdAttributeList	<b>Diagram:</b> System
--------------------------------	------------------------

Column Name	Type	Mandatory
attributeName	text	N
glType	varchar(30)	N
listName	varchar(30)	Y
sequenceNumber	smallint	Y

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
None		

**Object Orientation**

References	Arity	Reference Type
<b>Inheritance</b>	<b>Parents</b>	<b>Children</b>
DsMdAttributeList	None	None

-----+  
**Name:** DsMdAttributeTableXref **Diagram:** System  
-----+

-----+  
**Column Name**                      **Type**                      **Mandatory**  
attributeName                      varchar(32)                      Y  
columnName                      varchar(32)                      N  
productName                      varchar(80)                      Y  
tableName                      varchar(32)                      N  
-----+

-----+  
**Virtual Columns**                      **Signature**                      **Return Type**  
None  
-----+

-----+  
**Index Name**                      **Performed on**                      **Type**  
None  
-----+

-----+  
**Object Orientation**  
-----+

**References**                      **Arity**                      **Reference Type**

**Inheritance**                      **Parents**                      **Children**  
DsMdAttributeTableXref                      None                      None  
-----+

-----+  
**Name:** DsMdNonScienceData    **Diagram:** System  
 -----+

Column Name	Type	Mandatory
checksum	integer	N
creationDate	timestamp	N
filePath	varchar(80)	N
fileSize	integer	N
granuleId	oid	Y
internalFileName	varchar(80)	Y
userDataFile	varchar(40)	N

Virtual Columns	Signature	Return Type
None		

Index Name	Performed on	Type
None		

-----+  
**Object Orientation**  
 -----+

References	Arity	Reference Type
Inheritance	Parents	Children
DsMdNonScienceData	None	None

-----+

### **7.2.1 Cross Reference Tables for Traceability**

The following cross reference table identifies the objects and attributes for the Data Server Subsystem's persistent data as indicated in the DID305 volume (Technical Paper) dated June 1996. 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 satisfy the functionality described in the associated CSCi. TBD notations found throughout this table will be resolved and documented in the as-built documentation.

**Table 7-3. Data Server Subsystem Persistent Data Cross Reference Table (Page 1 of 20)**

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
Science DataServer & Document DataServer						
TBD	TBD		DsCoCombination	DsCoCombination	TBD	TBD
TBD	TBD		DsCsLookupTable	myColorName	TBD	TBD
TBD	TBD		DsCsLookupTable	myName	TBD	TBD
TBD	TBD		DsCsRaw	myName	TBD	TBD
TBD	TBD		DsCsRaw	mylocation	TBD	TBD
TBD	TBD		DsCsRaw	mysize	TBD	TBD
DsMdECSCollection	StorageMedium		DsMdMetadata	myScienceMetadata	ECSCollection	StorageMedium
DsMdECSCollection	RevisionDate		DsMdMetadata	myScienceMetadata	ECSCollection	RevisionDate
DsMdECSCollection	SuggestedUsage		DsMdMetadata	myScienceMetadata	ECSCollection	SuggestedUsage
DsMdECSCollection	ProcessingCenter		DsMdMetadata	myScienceMetadata	ECSCollection	ProcessingCenter
DsMdECSCollection	ArchiveCenter		DsMdMetadata	myScienceMetadata	ECSCollection	ArchiveCenter
DsMdECSCollection	SpatialKeyword		DsMdMetadata	myScienceMetadata	SpatialKeywordClass	SpatialKeyword
DsMdUserCommentDocument	UserCommentDocumentPointer		DsMdMetadata	myScienceMetadata	UserCommentDocument	UserCommentDocumentPointer
DsMdValidationDocument	ValidationDocumentPointer		DsMdMetadata	myScienceMetadata	ValidationDocument	ValidationDocumentPointer

**Table 7-3. Data Server Subsystem Persistent Data Cross Reference Table (Page 2 of 20)**

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
DsMdQualityTextComment	QualityTextCommentPointer		DsMdMetadata	myScienceMetadata	QualityTextComment	QualityTextCommentPointer
DsMdCollectionDescription	ShortName		DsMdMetadata	myScienceMetadata	CollectionDescription	ShortName
DsMdCollectionDescription	LongName		DsMdMetadata	myScienceMetadata	CollectionDescription	LongName
DsMdCollectionDescription	CollectionDescription		DsMdMetadata	myScienceMetadata	CollectionDescription	CollectionDescription
DsMdCollectionDescription	VersionID		DsMdMetadata	myScienceMetadata	CollectionDescription	VersionID
DsMdCollectionAssociation	CollectionType		DsMdMetadata	myScienceMetadata	CollectionAssociation	CollectionType
DsMdCollectionAssociation	CollectionUse		DsMdMetadata	myScienceMetadata	CollectionAssociation	CollectionUse
DsMdLocality	LocalityType		DsMdMetadata	myScienceMetadata	Locality	LocalityType
DsMdLocality	LocalityDescription		DsMdMetadata	myScienceMetadata	Locality	LocalityDescription
DsMdQACollectionStats	ScienceQualityFlag		DsMdMetadata	myScienceMetadata	QACollectionStats	ScienceQualityFlag
DsMdQACollectionStats	OperationQualityFlag		DsMdMetadata	myScienceMetadata	QACollectionStats	OperationQualityFlag
DsMdQACollectionStats	AutomaticQualityFlag		DsMdMetadata	myScienceMetadata	QACollectionStats	AutomaticQualityFlag
DsMdQACollectionStats	QualityFlagExplanation		DsMdMetadata	myScienceMetadata	QACollectionStats	QualityFlagExplanation
DsMdKeywords	ECSDisciplineKeyword		DsMdMetadata	myScienceMetadata	ECSDiscipline	ECSDisciplineKeyword
DsMdKeywords	ECSTopicKeyword		DsMdMetadata	myScienceMetadata	ECSDiscipline	ECSTopicKeyword
DsMdKeywords	ECSTermKeyword		DsMdMetadata	myScienceMetadata	ECSDiscipline	ECSTermKeyword

**Table 7-3. Data Server Subsystem Persistent Data Cross Reference Table (Page 3 of 20)**

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
DsMdKeywords	ECSVariableKey word		DsMdMetadata	myScienceMetad ata	ECSVariable	ECSVariableKey word
DsMdParameter	ECSPParameterNa me		DsMdMetadata	myScienceMetad ata	ECSPParameter	ECSPParameterNa me
DsMdParameter	ECSPParameterDe scription		DsMdMetadata	myScienceMetad ata	ECSPParameter	ECSPParameterDe scription
DsMdParameter	ECSPParameterDa tatype		DsMdMetadata	myScienceMetad ata	ECSPParameter	ECSPParameterDa tatype
DsMdParameter	grTableName		DsMdMetadata	myScienceMetad ata	ECSPParameter	grTableName
DsMdParameter	clTableName		DsMdMetadata	myScienceMetad ata	ECSPParameter	clTableName
DsMdInformation Content	ParameterValue		DsMdMetadata	myScienceMetad ata	InformationConte nt	ParameterValue
DsMdInformation Content	CollectionValue		DsMdMetadata	myScienceMetad ata	InformationConte nt	CollectionValue
DsMdAdditionalAt tributes	AdditionalAttribut eName		DsMdMetadata	myScienceMetad ata	AdditionalAttribut es	AdditionalAttribut eName
DsMdAdditionalAt tributes	AdditionalAttribut eDescription		DsMdMetadata	myScienceMetad ata	AdditionalAttribut es	AdditionalAttribut eDescription
DsMdAdditionalAt tributes	AdditionalAttribut eDatatype		DsMdMetadata	myScienceMetad ata	AdditionalAttribut es	AdditionalAttribut eDatatype
DsMdAdditionalAt tributes	physicalParamete rDetails		DsMdMetadata	myScienceMetad ata	AdditionalAttribut es	physicalParamete rDetails
DsMdPhysicalPar ameterDetails	UnitsofMeasure		DsMdMetadata	myScienceMetad ata	PhysicalParamete rDetails	ParameterUnitsof Measure
DsMdPhysicalPar ameterDetails	Range		DsMdMetadata	myScienceMetad ata	PhysicalParamete rDetails	ParameterRange
DsMdPhysicalPar ameterDetails	ValueAccuracy		DsMdMetadata	myScienceMetad ata	PhysicalParamete rDetails	ParameterValueA ccuracy

**Table 7-3. Data Server Subsystem Persistent Data Cross Reference Table (Page 4 of 20)**

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
DsMdPhysicalParameterDetails	ValueAccuracyExplanation		DsMdMetadata	myScienceMetadata	PhysicalParameterDetails	ParameterValueAccuracyExplanation
DsMdPhysicalParameterDetails	MeasurementResolution		DsMdMetadata	myScienceMetadata	PhysicalParameterDetails	ParameterMeasurementResolution
DsMdMultipleTypeCollection	aggregationValue		DsMdMetadata	myScienceMetadata	MultipleTypeCollection	AggregationValue
DsMdMultipleTypeCollection	aggregationRelationship		DsMdMetadata	myScienceMetadata	MultipleTypeCollection	AggregationRelationship
DsMdMultipleTypeCollection	aggregationType		DsMdMetadata	myScienceMetadata	MultipleTypeCollection	AggregationType
DsMdSingleTypeCollection	CitationForExternalPublication		DsMdMetadata	myScienceMetadata	SingleTypeCollection	CitationForExternalPublication
DsMdSingleTypeCollection	CollectionState		DsMdMetadata	myScienceMetadata	SingleTypeCollection	CollectionState
DsMdSingleTypeCollection	MaintenanceUpdateFrequency		DsMdMetadata	myScienceMetadata	SingleTypeCollection	MaintenanceUpdateFrequency
DsMdSingleTypeCollection	TemporalKeyword		DsMdMetadata	myScienceMetadata	SingleTypeCollection	TemporalKeyword
DsMdSingleTypeCollection	AccessConstraints		DsMdMetadata	myScienceMetadata	SingleTypeCollection	AccessConstraints
DsMdSingleTypeCollection	PrimaryCSDT		DsMdMetadata	myScienceMetadata	CSDTDescription	PrimaryCSDT
DsMdSingleTypeCollection	Implementation		DsMdMetadata	myScienceMetadata	CSDTDescription	Implementation
DsMdSingleTypeCollection	CSDTComments		DsMdMetadata	myScienceMetadata	CSDTDescription	CSDTComments
DsMdSingleTypeCollection	IndirectReference		DsMdMetadata	myScienceMetadata	CSDTDescription	IndirectReference
DsMdProcessingLevel	ProcessingLevelD		DsMdMetadata	myScienceMetadata	ProcessingLevel	ProcessingLevelD

**Table 7-3. Data Server Subsystem Persistent Data Cross Reference Table (Page 5 of 20)**

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
DsMdProcessingLevel	ProcessingLevelDescription		DsMdMetadata	myScienceMetadata	ProcessingLevel	ProcessingLevelDescription
DsMdReview	ScienceReviewStatus		DsMdMetadata	myScienceMetadata	Review	ScienceReviewStatus
DsMdReview	ScienceReviewDate		DsMdMetadata	myScienceMetadata	Review	ScienceReviewDate
DsMdReview	FutureReviewDate		DsMdMetadata	myScienceMetadata	Review	FutureReviewDate
DsMdGranules	TemporalRangeType		DsMdMetadata	myScienceMetadata	Temporal	TemporalRangeType
DsMdGranules	EndsatPresentFlag		DsMdMetadata	myScienceMetadata	DiscontinuousMultipleRange	EndsatPresentFlag
DsMdGranules	GridCoordinateSystemName		DsMdMetadata	myScienceMetadata	GridCoordinateSystem	GridCoordinateSystemName
DsMdGranules	PGEVersion		DsMdMetadata	myScienceMetadata	PGEVersionClass	PGEVersion
DsMdGranules	ReprocessingActual		DsMdMetadata	myScienceMetadata	ECSDDataGranule	ReprocessingActual
DsMdGranules	ReprocessingPlanned		DsMdMetadata	myScienceMetadata	ECSDDataGranule	ReprocessingPlanned
DsMdGranules	SizeMBECSDDataGranule		DsMdMetadata	myScienceMetadata	ECSDDataGranule	SizeMBECSDDataGranule
DsMdGranules	CalendarDateTime		DsMdMetadata	myScienceMetadata	SingleDateTime	TimeOfDay
DsMdGranules	CalendarDateTime		DsMdMetadata	myScienceMetadata	SingleDateTime	CalendarDate
DsMdGranules	InputPointer		DsMdMetadata	myScienceMetadata	InputGranule	InputPointer
DsMdGranules	OperationMode		DsMdMetadata	myScienceMetadata	OperationModeClass	OperationMode
DsMdQAGranule	QAGranulePointer		DsMdMetadata	myScienceMetadata	QAGranule	QAGranulePointer

**Table 7-3. Data Server Subsystem Persistent Data Cross Reference Table (Page 6 of 20)**

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
DsMdOrbitCalculatedSpatial	startOrbit		DsMdMetadata	myScienceMetadata	OrbitCalculatedSpatialDomain	StartOrbitNumber
DsMdOrbitCalculatedSpatial	orbitNumber		DsMdMetadata	myScienceMetadata	OrbitCalculatedSpatialDomain	OrbitNumber
DsMdOrbitCalculatedSpatial	orbitModelName		DsMdMetadata	myScienceMetadata	OrbitCalculatedSpatialDomain	OrbitModelName
DsMdOrbitCalculatedSpatial	lastOrbitNumber		DsMdMetadata	myScienceMetadata	OrbitCalculatedSpatialDomain	StopOrbitNumber
DsMdOrbitCalculatedSpatial	EquatorCrossingLongitude		DsMdMetadata	myScienceMetadata	OrbitCalculatedSpatialDomain	EquatorCrossingLongitude
DsMdOrbitCalculatedSpatial	EquatorCrossingDateTime		DsMdMetadata	myScienceMetadata	OrbitCalculatedSpatialDomain	EquatorCrossingTime
DsMdOrbitCalculatedSpatial	EquatorCrossingDate		DsMdMetadata	myScienceMetadata	OrbitCalculatedSpatialDomain	EquatorCrossingDate
DsMdQaStats	QAPercentInterpolatedData		DsMdMetadata	myScienceMetadata	QAStats	QAPercentInterpolatedData
DsMdQaStats	QAPercentOutofBoundsData		DsMdMetadata	myScienceMetadata	QAStats	QAPercentOutofBoundsData
DsMdQaStats	QAPercentMissingData		DsMdMetadata	myScienceMetadata	QAStats	QAPercentMissingData
DsMdAncillaryInputGranule	AncillaryInputPointer		DsMdMetadata	myScienceMetadata	AncillaryInputGranule	AncillaryInputPointer
DsMdProcessingHistory	ProcessingHistoryPointer		DsMdMetadata	myScienceMetadata	ProcessingHistory	ProcessingHistoryPointer
DsMdProcessingHistory	ProcessingQADescription		DsMdMetadata	myScienceMetadata	ProcessingQA	ProcessingQADescription
DsMdProcessingHistory	ProcessingQAAttribute		DsMdMetadata	myScienceMetadata	ProcessingQA	ProcessingQAAttribute
DsMdBrowse	BrowseSize		DsMdMetadata	myScienceMetadata	Browse	BrowseSize
DsMdBrowse	BrowseDescription		DsMdMetadata	myScienceMetadata	Browse	BrowseDescription

**Table 7-3. Data Server Subsystem Persistent Data Cross Reference Table (Page 7 of 20)**

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
DsMdBrowse	BrowsePointer		DsMdMetadata	myScienceMetadata	Browse	BrowsePointer
DsMdOrbitParametersGranule	OrbitParametersPointer		DsMdMetadata	myScienceMetadata	OrbitParametersGranule	OrbitParametersPointer
DsMdRegularPeriodic	PeriodCycleDuration		DsMdMetadata	myScienceMetadata	RegularPeriodic	PeriodCycleDuration
DsMdRegularPeriodic	PeriodDuration		DsMdMetadata	myScienceMetadata	RegularPeriodic	PeriodDuration
DsMdRegularPeriodic	Period1stDTG		DsMdMetadata	myScienceMetadata	RegularPeriodic	Period1stDTG
DsMdRegularPeriodic	PeriodName		DsMdMetadata	myScienceMetadata	RegularPeriodic	PeriodName
DsMdPlanarCoordinateSystem	BearingReferenceMeridian		DsMdMetadata	myScienceMetadata	DistanceandBearingRepresentation	BearingReferenceMeridian
DsMdPlanarCoordinateSystem	BearingReferenceDirection		DsMdMetadata	myScienceMetadata	DistanceandBearingRepresentation	BearingReferenceDirection
DsMdPlanarCoordinateSystem	BearingResolution		DsMdMetadata	myScienceMetadata	DistanceandBearingRepresentation	BearingResolution
DsMdPlanarCoordinateSystem	AbscissaResolution		DsMdMetadata	myScienceMetadata	CoordinateResolution	AbscissaResolution
DsMdPlanarCoordinateSystem	DistanceResolution		DsMdMetadata	myScienceMetadata	DistanceandBearingRepresentation	DistanceResolution
DsMdPlanarCoordinateSystem	GridCoordinateSystemName		DsMdMetadata	myScienceMetadata	GridCoordinateSystem	GridCoordinateSystemName
DsMdPlanarCoordinateSystem	LocalPlanarCoordinateSystemDescription		DsMdMetadata	myScienceMetadata	LocalPlanarCoordinateSystem	LocalPlanarCoordinateSystemDescription
DsMdPlanarCoordinateSystem	LocalPlanarGeoreferenceInformation		DsMdMetadata	myScienceMetadata	LocalPlanarCoordinateSystem	LocalPlanarGeoreferenceInformation
DsMdPlanarCoordinateSystem	MapProjectionName		DsMdMetadata	myScienceMetadata	MapProjection	MapProjectionName

**Table 7-3. Data Server Subsystem Persistent Data Cross Reference Table (Page 8 of 20)**

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
DsMdPlanarCoordinateSystem	MapProjectionPointer		DsMdMetadata	myScienceMetadata	MapProjection	MapProjectionPointer
DsMdPlanarCoordinateSystem	OrdinateResolution		DsMdMetadata	myScienceMetadata	CoordinateRepresentation	OrdinateResolution
DsMdPlanarCoordinateSystem	PlanarEncodingMethod		DsMdMetadata	myScienceMetadata	PlanarCoordinateInformation	PlanarCoordinateEncodingMethod
DsMdPlanarCoordinateSystem	PlanarDistanceUnits		DsMdMetadata	myScienceMetadata	PlanarCoordinateInformation	PlanarDistanceUnits
DsMdSpatialDefinitionSystem	AltitudeDatumName		DsMdMetadata	myScienceMetadata	AltitudeSystemDefinition	AltitudeDatumName
DsMdSpatialDefinitionSystem	AltitudeDistanceUnits		DsMdMetadata	myScienceMetadata	AltitudeSystemDefinition	AltitudeDistanceUnits
DsMdSpatialDefinitionSystem	AltitudeEncodingMethod		DsMdMetadata	myScienceMetadata	AltitudeSystemDefinition	AltitudeEncodingMethod
DsMdSpatialDefinitionSystem	DenominatorOfFlatteningRatio		DsMdMetadata	myScienceMetadata	GeodeticModel	DenominatorOfFlatteningRatio
DsMdSpatialDefinitionSystem	DepthDatumName		DsMdMetadata	myScienceMetadata	DepthSystemDefinition	DepthDatumName
DsMdSpatialDefinitionSystem	DepthDistanceUnits		DsMdMetadata	myScienceMetadata	DepthSystemDefinition	DepthDistanceUnits
DsMdSpatialDefinitionSystem	DepthEncodingMethod		DsMdMetadata	myScienceMetadata	DepthSystemDefinition	DepthEncodingMethod
DsMdSpatialDefinitionSystem	EllipsoidName		DsMdMetadata	myScienceMetadata	GeodeticModel	EllipsoidName
DsMdSpatialDefinitionSystem	GeographicCoordinateUnits		DsMdMetadata	myScienceMetadata	GeographicCoordinateSystem	GeographicCoordinateUnits
DsMdSpatialDefinitionSystem	HorizontalDatumName		DsMdMetadata	myScienceMetadata	GeodeticModel	HorizontalDatumName
DsMdSpatialDefinitionSystem	LatitudeResolution		DsMdMetadata	myScienceMetadata	GeographicCoordinateSystem	LatitudeResolution
DsMdSpatialDefinitionSystem	LocalCoordinateSystemDesc		DsMdMetadata	myScienceMetadata	LocalCoordinateSystem	LocalCoordinateSystemDesc

**Table 7-3. Data Server Subsystem Persistent Data Cross Reference Table (Page 9 of 20)**

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
DsMdSpatialDefinitionSystem	LocalGeoreferenceInformation		DsMdMetadata	myScienceMetadata	LocalCoordinateSystem	LocalGeoreferenceInformation
DsMdSpatialDefinitionSystem	LongitudeResolution		DsMdMetadata	myScienceMetadata	GeographicCoordinateSystem	LongitudeResolution
DsMdSpatialDefinitionSystem	SemiMajorAxis		DsMdMetadata	myScienceMetadata	GeodeticModel	SemiMajorAxis
DsMdSpatialDefinitionSystem	SpatialCoverageType		DsMdMetadata	myScienceMetadata	Spatial	SpatialCoverageType
DsMdContact	Role		DsMdMetadata	myScienceMetadata	Contact	Role
DsMdContact	HoursofService		DsMdMetadata	myScienceMetadata	Contact	HoursofService
DsMdContact	ContactInstructions		DsMdMetadata	myScienceMetadata	Contact	ContactInstructions
DsMdContactPerson	ContactJobPosition		DsMdMetadata	myScienceMetadata	ContactPerson	ContactJobPosition
DsMdContactPerson	ContactFirstName		DsMdMetadata	myScienceMetadata	ContactPerson	ContactFirstName
DsMdContactPerson	ContactMiddleName		DsMdMetadata	myScienceMetadata	ContactPerson	ContactMiddleName
DsMdContactPerson	ContactLastName		DsMdMetadata	myScienceMetadata	ContactPerson	ContactLastName
DsMdContactOrganization	ContactOrganizationName		DsMdMetadata	myScienceMetadata	ContactOrganization	ContactOrganizationName
DsMdContactAddress	StreetAddress		DsMdMetadata	myScienceMetadata	ContactAddress	StreetAddress
DsMdContactAddress	City		DsMdMetadata	myScienceMetadata	ContactAddress	City
DsMdContactAddress	StateProvince		DsMdMetadata	myScienceMetadata	ContactAddress	StateProvince
DsMdContactAddress	PostalCode		DsMdMetadata	myScienceMetadata	ContactAddress	PostalCode

**Table 7-3. Data Server Subsystem Persistent Data Cross Reference Table (Page 10 of 20)**

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
DsMdContactAddress	Country		DsMdMetadata	myScienceMetadata	ContactAddress	Country
DsMdTelephoneNumbers	TelephoneNumber		DsMdMetadata	myScienceMetadata	Telephone	TelephoneNumber
DsMdTelephoneNumbers	TelephoneNumberType		DsMdMetadata	myScienceMetadata	Telephone	TelephoneNumberType
DsMdEmail	ElectronicMailAddress		DsMdMetadata	myScienceMetadata	Email	ElectronicMailAddress
DsMdDataOriginator	DataOriginatorShortName		DsMdMetadata	myScienceMetadata	DataOriginator	DataOriginatorShortName
DsMdDataOriginator	DataOriginatorLongName		DsMdMetadata	myScienceMetadata	DataOriginator	DataOriginatorLongName
DsMdFieldCampaign	CampaignProjectStartDate		DsMdMetadata	myScienceMetadata	FieldCampaign	CampaignProjectStartDate
DsMdFieldCampaign	CampaignProjectStopDate		DsMdMetadata	myScienceMetadata	FieldCampaign	CampaignProjectStopDate
DsMdFieldCampaign	CampaignLongName		DsMdMetadata	myScienceMetadata	FieldCampaign	CampaignLongName
DsMdFieldCampaign	CampaignShortName		DsMdMetadata	myScienceMetadata	FieldCampaign	CampaignShortName
DsMdInstrument	InstrumentLongName		DsMdMetadata	myScienceMetadata	Instrument	InstrumentLongName
DsMdInstrument	InstrumentTechnique		DsMdMetadata	myScienceMetadata	Instrument	InstrumentTechnique
DsMdInstrument	NumberOfSensors		DsMdMetadata	myScienceMetadata	Instrument	NumberOfSensors
DsMdInstrument	InstrumentShortName		DsMdMetadata	myScienceMetadata	Instrument	InstrumentShortName
DsMdNonInstrument	NonInstrumentLongName		DsMdMetadata	myScienceMetadata	NonInstrument	NonInstrumentLongName
DsMdNonInstrument	NonInstrumentShortName		DsMdMetadata	myScienceMetadata	NonInstrument	NonInstrumentShortName

**Table 7-3. Data Server Subsystem Persistent Data Cross Reference Table (Page 11 of 20)**

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
DsMdNonInstrument	NonInstrumentTechnique		DsMdMetadata	myScienceMetadata	NonInstrument	NonInstrumentTechnique
DsMdNonInstrument	ModelName		DsMdMetadata	myScienceMetadata	NonInstrument	ModelName
DsMdNonInstrument	ModelDescription		DsMdMetadata	myScienceMetadata	NonInstrument	ModelDescription
DsMdNonInstrument	BoundaryData		DsMdMetadata	myScienceMetadata	NonInstrument	BoundaryData
DsMdNonInstrument	DynamicStaticFlag		DsMdMetadata	myScienceMetadata	NonInstrument	DynamicStaticFlag
DsMdPlatform	PlatformShortName		DsMdMetadata	myScienceMetadata	Platform	PlatformShortName
DsMdPlatform	PlatformLongName		DsMdMetadata	myScienceMetadata	Platform	PlatformLongName
DsMdPlatformCharacteristic	PlatformCharacteristicName		DsMdMetadata	myScienceMetadata	PlatformCharacteristic	PlatformCharacteristicName
DsMdPlatformCharacteristic	PlatformCharacteristicValue		DsMdMetadata	myScienceMetadata	PlatformCharacteristic	PlatformCharacteristicValue
DsMdPlatformCharacteristic	PlatformCharacteristicUnit		DsMdMetadata	myScienceMetadata	PlatformCharacteristic	PlatformCharacteristicUnit
DsMdPlatformCharacteristic	PlatformCharacteristicType		DsMdMetadata	myScienceMetadata	PlatformCharacteristic	PlatformCharacteristicType
DsMdSensor	SensorTechnique		DsMdMetadata	myScienceMetadata	Sensor	SensorTechnique
DsMdSensor	SensorShortName		DsMdMetadata	myScienceMetadata	Sensor	SensorShortName
DsMdSensor	SensorLongName		DsMdMetadata	myScienceMetadata	Sensor	SensorLongName
DsMdSensorCharacteristic	SensorCharacteristicName		DsMdMetadata	myScienceMetadata	SensorCharacteristic	SensorCharacteristicName
DsMdSensorCharacteristic	SensorCharacteristicValue		DsMdMetadata	myScienceMetadata	SensorCharacteristic	SensorCharacteristicValue

**Table 7-3. Data Server Subsystem Persistent Data Cross Reference Table (Page 12 of 20)**

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
DsMdSensorCharacteristic	SensorCharacteristicUnit		DsMdMetadata	myScienceMetadata	SensorCharacteristic	SensorCharacteristicUnit
DsMdSensorCharacteristic	SensorCharacteristicType		DsMdMetadata	myScienceMetadata	SensorCharacteristic	SensorCharacteristicType
DsMdDeliveredAlgorithmPackage	AlgorithmPackageName		DsMdMetadata	myScienceMetadata	DeliveredAlgorithmPackage	AlgorithmPackageName
DsMdDeliveredAlgorithmPackage	AlgorithmPackageVersion		DsMdMetadata	myScienceMetadata	DeliveredAlgorithmPackage	AlgorithmPackageVersion
DsMdDeliveredAlgorithmPackage	AlgorithmPackageMaturityCode		DsMdMetadata	myScienceMetadata	DeliveredAlgorithmPackage	AlgorithmPackageMaturityCode
DsMdDeliveredAlgorithmPackage	AlgorithmPackageAcceptanceDate		DsMdMetadata	myScienceMetadata	DeliveredAlgorithmPackage	AlgorithmPackageAcceptanceDate
DsMdDeliveredAlgorithmPackage	DeliveryPurpose		DsMdMetadata	myScienceMetadata	DeliveredAlgorithmPackage	DeliveryPurpose
DsMdDeliveredAlgorithmPackage	DeliveryContentsListPointer		DsMdMetadata	myScienceMetadata	DeliveryContentsList	DeliveryContentsListPointer
DsMdDeliveredAlgorithmPackage	DescriptionType		DsMdMetadata	myScienceMetadata	AlgorithmDescription	DescriptionType
DsMdDeliveredAlgorithmPackage	AlgorithmDescriptionPointer		DsMdMetadata	myScienceMetadata	ProcessingFileDescription	ProcessingFileDescriptionPointer
DsMdDeliveredAlgorithmPackage	AlgorithmDescriptionPointer		DsMdMetadata	myScienceMetadata	SWDevelopmentStandard	SWDevelopmentStandardPointer
DsMdDeliveredAlgorithmPackage	AlgorithmDescriptionPointer		DsMdMetadata	myScienceMetadata	SystemDescription	SystemDescriptionPointer
DsMdDeliveredAlgorithmPackage	AlgorithmDescriptionPointer		DsMdMetadata	myScienceMetadata	ProgrammersGuide	ProgrammersGuidePointer
DsMdDeliveredAlgorithmPackage	AlgorithmDescriptionPointer		DsMdMetadata	myScienceMetadata	ATBD	ATBDPointer
DsMdDeliveredAlgorithmPackage	AlgorithmDescriptionPointer		DsMdMetadata	myScienceMetadata	DetailedDesign	DetailedDesignPointer
DsMdDeliveredAlgorithmPackage	AlgorithmDescriptionPointer		DsMdMetadata	myScienceMetadata	TestPlan	TestPlanPointer

**Table 7-3. Data Server Subsystem Persistent Data Cross Reference Table (Page 13 of 20)**

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
DsMdDeliveredAlgorithmPackage	AlgorithmDescriptionPointer		DsMdMetadata	myScienceMetadata	OperationManual	OperationManualPointer
DsMdDeliveredAlgorithmPackage	AlgorithmDescriptionPointer		DsMdMetadata	myScienceMetadata	PerformanceTestResults	PerformanceTestResultsPointer
DsMdDeliveredAlgorithmPackage	ContextDiagramsPointer		DsMdMetadata	myScienceMetadata	ContextDiagrams	ContextDiagramsPointer
DsMdDeliveredAlgorithmPackage	ChangeLogPointer		DsMdMetadata	myScienceMetadata	ChangeLog	ChangeLogPointer
DsMdDeliveredAlgorithmPackage	SWDateLastModified		DsMdMetadata	myScienceMetadata	Software	SWDateLastModified
DsMdDeliveredAlgorithmPackage	DateLastModified		DsMdMetadata	myScienceMetadata	PGEInfo	DateLastModified
DsMdDeliveredAlgorithmPackage	ReceivedAlgorithmPackagePointer		DsMdMetadata	myScienceMetadata	PGEInfo	ReceivedAlgorithmPackagePointer
DsMdDeliveredAlgorithmPackage	PGEName		DsMdMetadata	myScienceMetadata	PGEDescription	PGEName
DsMdDeliveredAlgorithmPackage	PGEFunction		DsMdMetadata	myScienceMetadata	PGEDescription	PGEFunction
DsMdDeliveredAlgorithmPackage	PGEIdentifier		DsMdMetadata	myScienceMetadata	PGEDescription	PGEIdentifier
DsMdDeliveredAlgorithmPackage	ProcessingDependenciesPointer		DsMdMetadata	myScienceMetadata	ProcessingDependencies	ProcessingDependenciesPointer
DsMdDeliveredAlgorithmPackage	CompileInfoPointer		DsMdMetadata	myScienceMetadata	CompileInfo	CompileInfoPointer
DsMdDeliveredAlgorithmPackage	TestSiteConfigPointer		DsMdMetadata	myScienceMetadata	TestSiteConfig	TestSiteConfigPointer
DsMdDeliveredAlgorithmPackage	PGEErrorLogPointer		DsMdMetadata	myScienceMetadata	PGEErrorLog	PGEErrorLogPointer
DsMdDeliveredAlgorithmPackage	PGEConfigFilePointer		DsMdMetadata	myScienceMetadata	PGEConfigFile	PGEConfigFilePointer
DsMdDeliveredAlgorithmPackage	ScSWEExecutableSPointer		DsMdMetadata	myScienceMetadata	PGEExecutable	ScSWEExecutableSPointer

**Table 7-3. Data Server Subsystem Persistent Data Cross Reference Table (Page 14 of 20)**

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
DsMdSoftware	SoftwareTypeCode		DsMdMetadata	myScienceMetadata	N/A	N/A
DsMdSoftware	SoftwarePointer		DsMdMetadata	myScienceMetadata	LinkandCompileScripts	LinkandCompileScriptsPointer
DsMdSoftware	SoftwarePointer		DsMdMetadata	myScienceMetadata	ScSWScript	ScSWScriptPointer
DsMdSoftware	SoftwarePointer		DsMdMetadata	myScienceMetadata	ScSWSourceCode	ScSWSourceCodePointer
DsMdSoftware	SoftwarePointer		DsMdMetadata	myScienceMetadata	TestSourceCode	TestSourceCodePointer
DsMdSoftware	SoftwarePointer		DsMdMetadata	myScienceMetadata	MetadataConfigurationFile	MetadataConfigurationFilePointer
DsMdSoftware	SoftwarePointer		DsMdMetadata	myScienceMetadata	InstrumentScienceData	InstrumentScienceDataPointer
DsMdSoftware	SoftwarePointer		DsMdMetadata	myScienceMetadata	InstrumentEngineeringData	InstrumentEngineeringDataPointer
DsMdSoftware	SoftwarePointer		DsMdMetadata	myScienceMetadata	PlatformAncillaryData	PlatformAncillaryDataPointer
DsMdSoftware	SoftwarePointer		DsMdMetadata	myScienceMetadata	ExternalData	ExternalDataPointer
DsMdSoftware	SoftwarePointer		DsMdMetadata	myScienceMetadata	CalibrationFiles	CalibrationFilesPointer
DsMdSoftware	SoftwarePointer		DsMdMetadata	myScienceMetadata	ProcessControlParametersandResourceFiles	ProcessControlParametersandResourceFiles
DsMdSoftware	SoftwarePointer		DsMdMetadata	myScienceMetadata	TestScript	TestScript
DsMdSoftware	SoftwarePointer		DsMdMetadata	myScienceMetadata	ResultTempFile	ResultTempFile
DsMdSoftware	SoftwarePointer		DsMdMetadata	myScienceMetadata	ResultReport	ResultReport

**Table 7-3. Data Server Subsystem Persistent Data Cross Reference Table (Page 15 of 20)**

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
DsMdPGEVersionClass	PGEVersion		DsMdMetadata	myScienceMetadata	PGEVersionClass	PGEVersion
DsMdDocument	Title		DsMdMetadata	myScienceMetadata	Document	Title
DsMdDocument	DocumentVersion		DsMdMetadata	myScienceMetadata	Document	DocumentVersion
DsMdDocument	DocumentCreated		DsMdMetadata	myScienceMetadata	Document	DocumentCreated
DsMdDocument	DocumentUpdated		DsMdMetadata	myScienceMetadata	Document	DocumentUpdated
DsMdDocUncontrolledParameter	docUncontrolledParameterKeyword		DsMdMetadata	myScienceMetadata	N/A	N/A
DsMdAuthor	AuthorName		DsMdMetadata	myScienceMetadata	Author	AuthorName
DsMdAuthor	AuthorAffiliation		DsMdMetadata	myScienceMetadata	Author	AuthorAffiliation
DsMdProcessingReport	ProcessingReportType		DsMdMetadata	myScienceMetadata	ProcessingReport	ProcessingReportType
DsMdProcessingReport	ProcessingReportPeriod		DsMdMetadata	myScienceMetadata	ProcessingReport	ProcessingReportPeriod
DsMdDocUncontrolledParameter	docUncontrolledParameterKeyword		DsMdMetadata	myScienceMetadata	ProcessingResourceUsageReport	ProcessingResourceUsageReportPointer
DsMdDocUncontrolledParameter	docUncontrolledParameterKeyword		DsMdMetadata	myScienceMetadata	ProcessingStatusReport	ProcessingStatusReportPointer
DsMdDocUncontrolledParameter	docUncontrolledParameterKeyword		DsMdMetadata	myScienceMetadata	ProcessingErrorReport	ProcessingErrorReportPointer
DsMdReferencePaper	ReferencePaperReference		DsMdMetadata	myScienceMetadata	ReferencePaper	ReferencePaperReference
DsMdReferencePaper	DateofReferencePaperPublication		DsMdMetadata	myScienceMetadata	ReferencePaper	DateofReferencePaperPublication

**Table 7-3. Data Server Subsystem Persistent Data Cross Reference Table (Page 16 of 20)**

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
DsMdReferencePaper	ReferencePaperType		DsMdMetadata	myScienceMetadata	ReferencePaper	ReferencePaperType
DsMdReferencePaper	AbstractPointer		DsMdMetadata	myScienceMetadata	ReferencePaper	AbstractPointer
DsMdReferencePaper	AccessInstructions		DsMdMetadata	myScienceMetadata	ReferencePaper	AccessInstructions
DsMdReferencePaper	JournalArticleName		DsMdMetadata	myScienceMetadata	JournalArticle	JournalArticleName
DsMdReferencePaper	ReferencePaperPointer		DsMdMetadata	myScienceMetadata	JournalArticle	ReferencePaperPointer
DsMdProductionPlan	DAACName		DsMdMetadata	myScienceMetadata	ProductionPlan	DAACName
DsMdProductionPlan	ProductionPlanStartDate		DsMdMetadata	myScienceMetadata	ProductionPlan	ProductionPlanStartDate
DsMdProductionPlan	ProductionPlanEndDate		DsMdMetadata	myScienceMetadata	ProductionPlan	ProductionPlanEndDate
DsMdProductionPlan	ProductionPlanForecast		DsMdMetadata	myScienceMetadata	ProductionPlan	ProductionPlanForecast
DsMdProductionPlan	ProductionPlanDescription		DsMdMetadata	myScienceMetadata	ProductionPlan	ProductionPlanDescription
DsMdProductionPlan	PlannedDataSets		DsMdMetadata	myScienceMetadata	ProductionPlan	PlannedDataSets
DsMdProductionPlan	ProductionPlanPointer		DsMdMetadata	myScienceMetadata	ProductionPlan	ProductionPlanPointer
DsMdGuide	GuideName		DsMdMetadata	myScienceMetadata	Guide	GuideName
DsMdGuide	DataCenter		DsMdMetadata	myScienceMetadata	Guide	DataCenter
DsMdGuide	GuidePointer		DsMdMetadata	myScienceMetadata	DataOriginatorGuide	DataOriginatorGuide
DsMdGuide	GuidePointer		DsMdMetadata	myScienceMetadata	SensorGuide	SensorGuide

**Table 7-3. Data Server Subsystem Persistent Data Cross Reference Table (Page 17 of 20)**

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
DsMdGuide	GuidePointer		DsMdMetadata	myScienceMetad ata	InstrumentGuide	InstrumentGuide
DsMdGuide	GuidePointer		DsMdMetadata	myScienceMetad ata	PlatformGuide	PlatformGuide
DsMdGuide	GuidePointer		DsMdMetadata	myScienceMetad ata	FieldCampaignGu ide	FieldCampaignGu ide
DsMdGuide	GuidePointer		DsMdMetadata	myScienceMetad ata	NonInstrumentGu ide	NonInstrumentGu ide
DsMdGuide	GuidePointer		DsMdMetadata	myScienceMetad ata	RegionalAreaDefi nitionGuide	RegionalAreaDefi nitionGuide
DsMdGuide	GuidePointer		DsMdMetadata	myScienceMetad ata	ProcessingCenter Guide	ProcessingCenter Guide
DsMdGuide	GuidePointer		DsMdMetadata	myScienceMetad ata	ArchiveCenterGui de	ArchiveCenterGui de
DsMdGuide	GuidePointer		DsMdMetadata	myScienceMetad ata	ECSCollectionGui de	ECSCollectionGui de
DsMdGuide	GeographicalRegi onName		DsMdMetadata	myScienceMetad ata	RegionalAreaDefi nitionGuide	GeographicalRegi onName
TBD	TBD		DsNpAncillary	DsNpAncillary	TBD	TBD
TBD	TBD		DsNpCalibration	DsNpCalibration	TBD	TBD
TBD	TBD		DsNpCorrelative	DsNpCorrelative	TBD	TBD
TBD	TBD		DsNpNonECSDat aProduct		TBD	TBD
TBD	TBD		DsNpPlatform		TBD	TBD
TBD	TBD		DsNpVersion		TBD	TBD
TBD	TBD		DsNsHistoricalDa taB		TBD	TBD
TBD	TBD		DsNsMPRB		TBD	TBD
TBD	TBD		DsNsNonECSDat aProduct		TBD	TBD

**Table 7-3. Data Server Subsystem Persistent Data Cross Reference Table (Page 18 of 20)**

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		DsNsProdPlans		TBD	TBD
TBD	TBD		DsNsQAStatistics		TBD	TBD
Storage Mgmt &DataDist.						
ASCII		DSST_Configuration	DsCnConfiguration	none		
TBD		DSST_DiskMonitoring	DsStPullList	myCurrentSize		
TBD		DSST_ResourceManagement	DsStReservation	my EndTime		
TBD		DSST_ResourceManagement	DsStReservation	myPriority		
TBD		DSST_ResourceManagement	DsStReservation	myRequester		
TBD		DSST_ResourceManagement	DsStReservation	myReservationRef		
TBD		DSST_ResourceManagement	DsStReservation	myResourceType		
TBD		DSST_ResourceManagement	DsStReservation	mySize		
TBD		DSST_ResourceManagement	DsStReservation	myStartTime		
TBD		DSST_ResourceManagement	DsStReservation	mySubmitTime		
ASCII		DSST_ResourceManagement	DsStResource	myResourceName		
ASCII		DSST_ResourceManagement	DsStResource	ourManager		
ASCII		DSST_ResourceManagement	DsStResource	ourSchedule		

**Table 7-3. Data Server Subsystem Persistent Data Cross Reference Table (Page 19 of 20)**

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
ASCII		DSST_Resource Management	DsStResourceMa nager	myConcurrentOp erationsB		
ASCII		DSST_Resource Management	DsStResourceMa nager	myFreeResource s		
ASCII		DSST_Resource Management	DsStResourceMa nager	myMaxResources		
ASCII		DSST_Resource Management	DsStResourceMa nager	myReservedReso urces		
ASCII		DSST_Resource Management	DsStResourceMa nager	myResourceType		
ASCII		DSST_Resource Management	DsStResourceQu eue	myCurrentqueued		
ASCII		DSST_Resource Management	DsStResourceQu eue	myLastQTimeB		
ASCII		DSST_Resource Management	DsStResourceQu eue	myMaxSize		
ASCII		DSST_Resource Management	DsStResourceQu eue	myQPeriodB		
ASCII		DSST_Resource Management	DsStResourceQu eue	myQTimeB		
ASCII		DSST_Resource Management	DsStResourceQu eue	myStatQueueB		
ASCII		DSST_Resource Management	DsStResourceQu eue	mystatQSizeB		
TBD		DSST_Resource Management	DsStResourceSc hedule	myEndDate		
TBD		DSST_Resource Management	DsStResourceSc hedule	myPoolName		
TBD		DSST_Resource Management	DsStResourceSc hedule	myScheduleFileN ame		
TBD		DSST_Resource Management	DsStResourceSc hedule	myStartDate		

**Table 7-3. Data Server Subsystem Persistent Data Cross Reference Table (Page 20 of 20)**

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		DSST_Resource Management	DsStResourceSchedule	myconfig		
ASCII		DSST_DiskMonitoring	DsStStagingDataList	mycurrentSize		
ASCII		DSST_DiskMonitoring	DsStStagingDataList	myNextElement		
ASCII		DSST_DiskMonitoring	DsStStagingDataList	myTotalSize		
ASCII		DSST_FileAccesses	DsStStagingDisk	myAvailableSpace		
ASCII		DSST_FileAccesses	DsStStagingDisk	myMaxSize		
ASCII		DSST_FileAccesses	DsStStagingDisk	myPathname		
ASCII		DSST_FileAccesses	DsStStagingDisk	mySize		
ASCII		DSST_FileAccesses	DsStStagingMonitor	myconfig		
ASCII		DsDdDistList	DsDdDistFile	myPath		
ASCII		DsDdOverview	DsDdMedia	myDistributionList myDistList		
		DsDdOverview	DsDdMedia	myMediaType		
		DsDdOverview	DsDdMedia	myRequestID		
		DsDdOverview	DsDdMedia	myResource		
ASCII		DsDdRequestListC	DsDdRequestListC	none		

Table 7-4 represents a mapping from Data Server's Release A to Release B Schema.

**Table 7-4. Data Server Sybase Release A to Illustra Release B Schema Cross Reference Table (Page 1 of 19)**

Release A Table	Release A Column	Release B Table	Release B Column
DsMdAlgDescPointers	ATBDPointer	DsMdDeliveredAlgorithmPackage	AlgorithmDescriptionPointer
DsMdAlgDescPointers	DetailedDesignPointer	DsMdDeliveredAlgorithmPackage	AlgorithmDescriptionPointer
DsMdAlgDescPointers	OperationManualPointer	DsMdDeliveredAlgorithmPackage	AlgorithmDescriptionPointer
DsMdAlgDescPointers	ProcessingFileDescPointer	DsMdDeliveredAlgorithmPackage	AlgorithmDescriptionPointer
DsMdAlgDescPointers	ProgrammersGuidePointer	DsMdDeliveredAlgorithmPackage	AlgorithmDescriptionPointer
DsMdAlgDescPointers	SWDevelopmentStandardPointer	DsMdDeliveredAlgorithmPackage	AlgorithmDescriptionPointer
DsMdAlgDescPointers	SystemDescriptionPointer	DsMdDeliveredAlgorithmPackage	AlgorithmDescriptionPointer
DsMdAlgDescPointers	dapId	none	none
DsMdAltitudeResolution	AltitudeResolution	DsMdGranules	GeoObj
DsMdAltitudeResolution	collectionId	none	none
DsMdAncillaryInputGranule	AncillaryInputPointer	DsMdAncillaryInputGranule	AncillaryInputPointer
DsMdAncillaryInputGranule	dbID	DsMdAncillaryInputGranule	granuleOids
DsMdAncillaryInputGranule	lastUpdate	DsMdAncillaryInputGranule	lastUpdate
DsMdAncillaryInputGranule	priorUpdate	DsMdAncillaryInputGranule	priorUpdate
DsMdAncillaryInputGranule	subType	DsMdAncillaryInputGranule	subType
DsMdAttributeList	attributeName	DsMdAttributeList	attributeName
DsMdAttributeList	glType	DsMdAttributeList	glType
DsMdAttributeList	listName	DsMdAttributeList	listName
DsMdAttributeList	sequenceNumber	DsMdAttributeList	sequenceNumber
DsMdAttributeTableXref	attributeName	DsMdAttributeTableXref	attributeName
DsMdAttributeTableXref	columnName	DsMdAttributeTableXref	columnName
DsMdAttributeTableXref	productName	DsMdAttributeTableXref	productName
DsMdAttributeTableXref	tableName	DsMdAttributeTableXref	tableName
DsMdAuthor	authorAffiliation	DsMdAuthor	AuthorAffiliation
DsMdAuthor	authorName	DsMdAuthor	AuthorName

**Table 7-4. Data Server Sybase Release A to Illustra Release B Schema Cross Reference Table (Page 2 of 19)**

Release A Table	Release A Column	Release B Table	Release B Column
DsMdAuthor	electronicMailAddress	DsMdAuthor	emailOids
DsMdBoundingRectangle	BoundingRectangle__x0	DsMdGranules	OriginalObj
DsMdBoundingRectangle	BoundingRectangle__x9	DsMdGranules	OriginalObj
DsMdBoundingRectangle	BoundingRectangle__y0	DsMdGranules	OriginalObj
DsMdBoundingRectangle	BoundingRectangle__y9	DsMdGranules	OriginalObj
DsMdBoundingRectangle	referenceId	none	none
DsMdBrowse	BrowseDescription	DsMdBrowse	BrowseDescription
DsMdBrowse	BrowsePointer	DsMdBrowse	BrowsePointer
DsMdBrowse	BrowseSize	DsMdBrowse	BrowseSize
DsMdBrowse	dbID	DsMdGranules	browseOids
DsMdBrowse	lastUpdate	DsMdBrowse	lastUpdate
DsMdBrowse	priorUpdate	DsMdBrowse	priorUpdate
DsMdBrowse	subType	DsMdOrbitParameterGranule	subType
DsMdCSDTDescription	CSDT	none	none
DsMdCSDTDescription	DataStructureComments	none	none
DsMdCSDTDescription	Implementation	none	none
DsMdCSDTDescription	NumberOfObjects	none	none
DsMdCSDTDescription	collectionId	none	none
DsMdCircle	BoundingCircle__r	DsMdGranules	OriginalObj
DsMdCircle	BoundingCircle__x	DsMdGranules	OriginalObj
DsMdCircle	BoundingCircle__y	DsMdGranules	OriginalObj
DsMdCircle	referenceId	none	none
DsMdColAggregationCriteria	aggregationRelationship	DsMdMultipleTypeCollection	aggregationRelationship
DsMdColAggregationCriteria	aggregationType	DsMdMultipleTypeCollection	aggregationType
DsMdColAggregationCriteria	aggregationValue	DsMdMultipleTypeCollection	aggregationValue
DsMdColAggregationCriteria	collectionId	DsMdECSCollection	none
DsMdCollFloatInfoContent	ParameterName	DsMdECSPParameter	ParameterName

**Table 7-4. Data Server Sybase Release A to Illustra Release B Schema Cross Reference Table (Page 3 of 19)**

Release A Table	Release A Column	Release B Table	Release B Column
DsMdCollFloatInfoContent	clFloatValue	DsMdECSPParameter	CollectionValue
DsMdCollFloatInfoContent	collectionId	none	none
DsMdCollIntegerInfoContent	ParameterName	DsMdECSPParameter	ParameterName
DsMdCollIntegerInfoContent	clIntValue	DsMdECSPParameter	CollectionValue
DsMdCollIntegerInfoContent	collectionId	none	none
DsMdCollStringInfoContent	ParameterName	DsMdECSPParameter	ParameterName
DsMdCollStringInfoContent	clStringValue	DsMdECSPParameter	CollectionValue
DsMdCollStringInfoContent	collectionId	none	none
DsMdCollectionContactXref	collectionId	none	none
DsMdCollectionContactXref	contactId	DsMdContact	ecsCollectionOids
DsMdCollectionGranuleXref	collectionId	none	none
DsMdCollectionGranuleXref	granuleId	DsMdECSCollection	granuleOid
DsMdCollectionType	CollectionType	DsMdCollectionAssociation	CollectionType
DsMdCollectionType	CollectionUse	DsMdCollectionAssociation	CollectionUse
DsMdCollectionType	LongName	DsMdCollectionDescription	LongName
DsMdCollectionType	ShortName	DsMdCollectionDescription	ShortName
DsMdCollectionType	VersionID	DsMdCollectionDescription	VersionID
DsMdCollectionType	collectionId	none	none
DsMdCollections	AccessConstraints	DsMdSingleTypeCollection	AccessConstraints
DsMdCollections	ArchiveCenter	DsMdECSCollection	ArchiveCenter
DsMdCollections	CitationForExternalPublication	DsMdSingleTypeCollection	CitationforExternalPublication
DsMdCollections	CollectionDescription	DsMdCollectionDescription	CollectionDescription
DsMdCollections	CollectionState	DsMdSingleTypeCollection	CollectionState
DsMdCollections	LongName	DsMdCollectionDescription	LongName
DsMdCollections	MaintenanceUpdateFrequency	none	none
DsMdCollections	PackagesId	none	none
DsMdCollections	ProcessingCenter	DsMdECSCollection	ProcessingCenter

**Table 7-4. Data Server Sybase Release A to Illustr Release B Schema Cross Reference Table (Page 4 of 19)**

Release A Table	Release A Column	Release B Table	Release B Column
DsMdCollections	ProcessingLevelID	DsMdProcessingLevel	ProcessingLevelID
DsMdCollections	RevisionDate	DsMdECSCollection	RevisionDate
DsMdCollections	ShortName	DsMdCollectionDescription	ShortName
DsMdCollections	StorageMedium	DsMdECSCollection	StorageMedium
DsMdCollections	SuggestedUsage	DsMdECSCollection	SuggestedUsage
DsMdCollections	TemporalKeyword	DsMdSingleTypeCollection	TemporalKeyword
DsMdCollections	VersionId	DsMdCollectionDescription	VersionID
DsMdCollections	browseld	none	none
DsMdCollections	dapId	none	none
DsMdCollections	dbID	none	none
DsMdCollections	lastUpdate	none	none
DsMdCollections	logicalDataServerName	DsMdECSCollection	logicalDataServerName
DsMdCollections	pgeld	none	none
DsMdCollections	primaryCollectionFlag	none	none
DsMdCollections	priorUpdate	none	none
DsMdCollections	qaGranuleId	none	none
DsMdCollections	subType	DsMdECSCollection	subType
DsMdCollections	type	DsMdECSCollection	type
DsMdCollectionsDataOriginal	collectionId	DsMdDataOriginator	ecsCollectionOids
DsMdCollectionsDataOriginal	dataOrigId	DsMdECSCollection	none
DsMdContact	ContactInstructions	DsMdContact	ContactInstructions
DsMdContact	ContactRole	DsMdContact	Role
DsMdContact	HoursOfService	DsMdContact	HoursOfService
DsMdContact	dbID	none	none
DsMdContactAddress	AddressType	none	none
DsMdContactAddress	City	DsMdContactAddress	City

**Table 7-4. Data Server Sybase Release A to Illustra Release B Schema Cross Reference Table (Page 5 of 19)**

Release A Table	Release A Column	Release B Table	Release B Column
DsMdContactAddress	Country	DsMdContactAddress	Country
DsMdContactAddress	PostalCode	DsMdContactAddress	PostalCode
DsMdContactAddress	SequenceNumber	none	none
DsMdContactAddress	StateProvince	DsMdContactAddress	StateProvince
DsMdContactAddress	StreetAddress	DsMdContactAddress	StreetAddress
DsMdContactAddress	contactId	none	none
DsMdContactDataOriginatorXRef	contactId	DsMdContact	dataOriginatorOids
DsMdContactDataOriginatorXRef	dataOrigId	DsMdContact	contactOids
DsMdContactOrganizations	OrganizationName	DsMdContactOrganization	ContactOrganizationName
DsMdContactOrganizations	contactId	none	none
DsMdContactPersons	ContactFirstName	DsMdContactPerson	ContactFirstName
DsMdContactPersons	ContactLastName	DsMdContactPerson	ContactLastName
DsMdContactPersons	ContactMiddleName	DsMdContactPerson	ContactMiddleName
DsMdContactPersons	JobPosition	DsMdContactPerson	ContactJobPosition
DsMdContactPersons	contactId	none	none
DsMdDAPCollectionsXRef	collectionId	DsMdDeliveredAlgorithmPackage	singleTypeCollectionOid
DsMdDAPCollectionsXRef	dapId	none	none
DsMdDAPContactXRef	contactId	DsMdDeliveredAlgorithmPackage	contactOid
DsMdDAPContactXRef	dapId	none	none
DsMdDAPInputPointeri	InstrumentEngineeerDataPointer	DsMdSoftware	SoftwarePointer
DsMdDAPInputPointers	CalibrationFilesPointer	DsMdSoftware	SoftwarePointer
DsMdDAPInputPointers	ExternalDataPointer	DsMdSoftware	SoftwarePointer
DsMdDAPInputPointers	InstrumentScienceDataPointer	DsMdSoftware	SoftwarePointer
DsMdDAPInputPointers	MetadataConfigFilePointer	DsMdSoftware	SoftwarePointer
DsMdDAPInputPointers	PlatformAncillaryDataPointer	DsMdSoftware	SoftwarePointer
DsMdDAPInputPointers	ProcessContParmResFilesPointer	DsMdSoftware	SoftwarePointer

**Table 7-4. Data Server Sybase Release A to Illustra Release B Schema Cross Reference Table (Page 6 of 19)**

Release A Table	Release A Column	Release B Table	Release B Column
DsMdDAPInputPointers	dapId	none	none
DsMdDapContactXref	contactId	DsMdDapContact	deliveredAlgorithmPackageOid
DsMdDapContactXref	dapId	none	none
DsMdDataOriginator	DataOriginatorLongName	DsMdDataOriginator	DataOriginatorLongName
DsMdDataOriginator	DataOriginatorShortName	DsMdDataOriginator	DataOriginatorShortName
DsMdDataOriginator	dbId	none	none
DsMdDeliveredAlgorithmPackage	AlgorithmPackageAcceptanceDate	DsMdDeliveredAlgorithmPackage	AlgorithmPackageAcceptanceDate
DsMdDeliveredAlgorithmPackage	AlgorithmPackageMaturityCode	DsMdDeliveredAlgorithmPackage	AlgorithmPackageMaturityCode
DsMdDeliveredAlgorithmPackage	AlgorithmPackageName	DsMdDeliveredAlgorithmPackage	AlgorithmPackageName
DsMdDeliveredAlgorithmPackage	AlgorithmPackageVersion	DsMdDeliveredAlgorithmPackage	AlgorithmPackageVersion
DsMdDeliveredAlgorithmPackage	ChangeLogPointer	DsMdDeliveredAlgorithmPackage	ChangeLogPointer
DsMdDeliveredAlgorithmPackage	ContextDiagramPointer	DsMdDeliveredAlgorithmPackage	ContextDiagramsPointer
DsMdDeliveredAlgorithmPackage	DateLastModified	DsMdDeliveredAlgorithmPackage	DateLastModified
DsMdDeliveredAlgorithmPackage	DeliveryContentListPointer	DsMdDeliveredAlgorithmPackage	DeliveryContentsListPointer
DsMdDeliveredAlgorithmPackage	DeliveryPurpose	DsMdDeliveredAlgorithmPackage	DeliveryPurpose
DsMdDeliveredAlgorithmPackage	DescriptionType	DsMdDeliveredAlgorithmPackage	DescriptionType
DsMdDeliveredAlgorithmPackage	PGFunction	DsMdDeliveredAlgorithmPackage	PGFunction
DsMdDeliveredAlgorithmPackage	PGName	DsMdDeliveredAlgorithmPackage	PGName
DsMdDeliveredAlgorithmPackage	PGIdentifier	DsMdDeliveredAlgorithmPackage	PGIdentifier

**Table 7-4. Data Server Sybase Release A to Illustra Release B Schema Cross Reference Table (Page 7 of 19)**

Release A Table	Release A Column	Release B Table	Release B Column
DsMdDeliveredAlgorithmPackage	SWDateLastModified	DsMdDeliveredAlgorithmPackage	SWDateLastModified
DsMdDeliveredAlgorithmPackage	collectionId	DsMdDeliveredAlgorithmPackage	singleTypeCollectionOid
DsMdDeliveredAlgorithmPackage	dbID	none	none
DsMdDepthResolution	DepthResolution	DsMdGranules	none
DsMdDepthResolution	collectionId	none	none
DsMdDocDeliveredAlgPackage	dapDocumentPointer	none	none
DsMdDocDeliveredAlgPackage	descriptionType	DsMdDeliveredAlgorithmPackage	DescriptionType
DsMdDocDeliveredAlgPackage	documentId	none	none
DsMdDocUncontrolledParameter	docUncontrolledParamKeyword	DsMdDocUncontrolledParameter	docUncontrolledParamKeyword
DsMdDocUncontrolledParameter	documentId	DsMdDocument	documentOid
DsMdDocument	collectionId	DsMdGuide	documentOids
DsMdDocument	dbID	none	none
DsMdDocument	documentCreated	DsMdDocument	DocumentCreated
DsMdDocument	documentName	none	subclasses
DsMdDocument	documentTitle	DsMdDocument	Title
DsMdDocument	documentUpdated	DsMdDocument	DocumentUpdated
DsMdDocument	documentVersion	DsMdDocument	DocumentVersion
DsMdDocumentAuthorXRef	authorName	DsMdAuthor	documentOids
DsMdDocumentAuthorXRef	documentId	DsMdDocument	authorOids
DsMdDocumentCampaign	docCampaignName	none	none
DsMdDocumentCampaign	documentId	DsMdGuide	guideOptionalOid
DsMdDocumentCollectionXRef	collectionId	none	none
DsMdDocumentCollectionXRef	documentId	none	none

**Table 7-4. Data Server Sybase Release A to Illustr Release B Schema Cross Reference Table (Page 8 of 19)**

Release A Table	Release A Column	Release B Table	Release B Column
DsMdDocumentDataCenterName	docArchiveCenter	none	none
DsMdDocumentDataCenterName	documentId	none	none
DsMdDocumentDataSet	docLongName	none	none
DsMdDocumentDataSet	documentId	none	none
DsMdDocumentPlatform	docPlatformShortName	none	none
DsMdDocumentPlatform	documentId	DsMdGuide	guideOptionalOid
DsMdDocumentSensor	docSensorShortName	none	none
DsMdDocumentSensor	documentId	DsMdGuide	guideOptionalOid
DsMdEmailAddress	ElectronicMailAddress	DsMdEmail	ElectronicMailAddress
DsMdEmailAddress	contactId	DsMdContact	emailOid
DsMdFieldCampaign	CampaignProjectStartDate	DsMdFieldCampaign	CampaignProjectStartDate
DsMdFieldCampaign	CampaignProjectStopDate	DsMdFieldCampaign	CampaignProjectStopDate
DsMdFieldCampaign	FieldCampaignName	DsMdFieldCampaign	CampaignNameLongName
DsMdFieldCampaign	dataOrigId	none	none
DsMdGPolygon	GPolygonContainer__ff	DsMdGranules	GeoObj
DsMdGPolygon	GPolygonContainer__qt	DsMdGranules	GeoObj
DsMdGPolygon	GPolygonContainer__x1	DsMdGranules	GeoObj
DsMdGPolygon	GPolygonContainer__x8	DsMdGranules	GeoObj
DsMdGPolygon	GPolygonContainer__y1	DsMdGranules	GeoObj
DsMdGPolygon	GPolygonContainer__y8	DsMdGranules	GeoObj
DsMdGPolygon	referenceId	none	none
DsMdGrFloatInfoContent	ParameterName	DsMdECSPParameter	ParameterName
DsMdGrFloatInfoContent	grFloatValue	DsMdECSPParameter	parameterValue
DsMdGrFloatInfoContent	granuleId	none	none
DsMdGrIntegerInfoContent	ParameterName	DsMdECSPParameter	ParameterName
DsMdGrIntegerInfoContent	grIntValue	DsMdECSPParameter	parameterValue

**Table 7-4. Data Server Sybase Release A to Illustra Release B Schema Cross Reference Table (Page 9 of 19)**

Release A Table	Release A Column	Release B Table	Release B Column
DsMdGrIntegerInfoContent	granuleId	none	none
DsMdGrStringInfoContent	ParameterName	DsMdECSPParameter	ParameterName
DsMdGrStringInfoContent	grStringValue	DsMdECSPParameter	CollectionValue
DsMdGrStringInfoContent	granuleId	none	none
DsMdGranuleContactXref	contactId	none	none
DsMdGranuleContactXref	granuleId	none	none
DsMdGranuleInputs	granuleId	DsMdGranules	granuleInputOids
DsMdGranuleInputs	inputGranule	none	none
DsMdGranuleLocality	LocalityValue	DsMdGranules	LocalityValue
DsMdGranuleLocality	referenceId	none	none
DsMdGranuleVersions	currentGranuleId	DsMdGranules	oid
DsMdGranuleVersions	currentVersion	DsMdGranules	currentVersion
DsMdGranuleVersions	previousGranuleId	DsMdGranules	previousGranuleOid
DsMdGranuleVersions	previousVersion	DsMdGranules	previousGranuleOid
DsMdGranules	CalendarDate	DsMdGranules	CalendarDate
DsMdGranules	GridCoordinateSystemName	DsMdGranules	GridCoordinateSystemName
DsMdGranules	OperationMode	DsMdOperationMode	OperationMode
DsMdGranules	PGEVersion	DsMdGranules	PGEVersion
DsMdGranules	RangeBeginningDate	GeoObj	begintime
DsMdGranules	RangeBeginningTime	GeoObj	begintime
DsMdGranules	RangeEndingDate	GeoObj	endtime
DsMdGranules	RangeEndingTime	GeoObj	endtime
DsMdGranules	ReprocessingActual	DsMdGranules	ReprocessingActual
DsMdGranules	ReprocessingPlanned	DsMdGranules	ReprocessingPlanned
DsMdGranules	ShortName	DsMdGranules	ShortName
DsMdGranules	SizeMBECSDataGranule	DsMdGranules	SizeMBECSDataGranule
DsMdGranules	TimeOfDay	DsMdGranules	CalendarDateTime

**Table 7-4. Data Server Sybase Release A to Illustra Release B Schema Cross Reference Table (Page 10 of 19)**

Release A Table	Release A Column	Release B Table	Release B Column
DsMdGranules	ancillaryInputGranuleId	DsMdGranules	granuleInputOids
DsMdGranules	ancillaryTypeCode	DsMdGranules	ancillaryTypeCode
DsMdGranules	browseId	none	nonebrowseId
DsMdGranules	browseTypeCode	DsMdGranules	browseTypeCode
DsMdGranules	dbID	none	none
DsMdGranules	lastUpdate	DsMdGranules	lastUpdate
DsMdGranules	orbitParameterTypeCode	DsMdGranules	orbitParameterTypeCode
DsMdGranules	orbitParametersGranuleId	none	none
DsMdGranules	pgId	none	none
DsMdGranules	primaryCollectionId	none	none
DsMdGranules	priorUpdate	DsMdGranules	priorUpdate
DsMdGranules	prodHistoryTypeCode	DsMdGranules	prodHistoryTypeCode
DsMdGranules	productionHistoryId	none	productionHistoryId
DsMdGranules	qaGranuleId	none	none
DsMdGranules	qaGranuleTypeCode	DsMdGranules	qaGranuleTypeCode
DsMdGranules	userCommentDocumentId	none	none
DsMdGranulesDocumentXRef	documentId	DsMdDocument	granuleOid
DsMdGranulesDocumentXRef	granuleId	none	none
DsMdGuide	dataCenter	DsMdGuide	DataCenter
DsMdGuide	documentId	DsMdGuide	documentOids
DsMdGuide	geographicalRegionalName	DsMdGuide	GeographicalRegionalName
DsMdGuide	guideName	DsMdGuide	GuideName
DsMdGuide	guidePointer	DsMdGuide	GuidePointer
DsMdGuide	storageStrategy	none	none
DsMdIdentifier	lastIdentifier	none	none
DsMdIndirectReferenceClass	IndirectReference	DsMdSingleTypeCollection	IndirectReference
DsMdIndirectReferenceClass	NumberOfTypesOfCSDT	none	none

**Table 7-4. Data Server Sybase Release A to Illustra Release B Schema Cross Reference Table (Page 11 of 19)**

Release A Table	Release A Column	Release B Table	Release B Column
DsMdIndirectReferenceClass	StructuralMetadataPointer	none	none
DsMdIndirectReferenceClass	collectionId	none	none
DsMdInstrument	InstrumentName	DsMdInstrument	InstrumentLongName
DsMdInstrument	InstrumentType	DsMdInstrument	InstrumentShortName
DsMdInstrument	NumberOfSensors	DsMdInstrument	NumberOfSensors
DsMdInstrument	PlatformLongName	DsMdPlatform	PlatformLongName
DsMdInstrument	PlatformShortName	DsMdPlatform	PlatformShortName
DsMdInstrument	dataOrigId	none	none
DsMdInstrumentFieldCampaignXref	dataOrigId	none	none
DsMdInstrumentFieldCampaignXref	fieldCampaignId	none	none
DsMdInstrumentSensorXref	dataOrigId	DsMdSensor	instrumentOids
DsMdInstrumentSensorXref	sensorId	DsMdInstrument	sensorOid
DsMdKeywords	ControlledParameterKeyword	DsMdECSTerm	ECSTermKeyword
DsMdKeywords	DisciplineKeyword	DsMdECSDiscipline	ECSDisciplineKeyword
DsMdKeywords	ParameterName	DsMdECSParameter	ECSParameterName
DsMdKeywords	TopicKeyword	DsMdECSKeywords	ECSTopicKeyword
DsMdKeywords	UnControlledParameterKeyword	DsMdECSKeywords	ECSDisciplineKeyword
DsMdKeywords	collectionId	DsMdECSCollection	various
DsMdLocality	LocalityDescription	DsMdLocality	LocalityDescription
DsMdLocality	LocalityType	DsMdLocality	LocalityType
DsMdLocality	collectionId	DsMdECSCollection	localityOids
DsMdMCFAttributeContent	attributegroup	none	none
DsMdMCFAttributeContent	noofattributes	none	none
DsMdMCFAttributeContent	nooflevels	none	none
DsMdMCFAttributeType	attributegroup	none	none
DsMdMCFAttributeType	attributelength	none	none

**Table 7-4. Data Server Sybase Release A to Illustra Release B Schema Cross Reference Table (Page 12 of 19)**

Release A Table	Release A Column	Release B Table	Release B Column
DsMdMCFAttributeType	attributename	none	none
DsMdMCFAttributeType	attributetype	none	none
DsMdMCFAttributeType	sequenceno	none	none
DsMdMCFAttributeType	sequencetype	none	none
DsMdMultipleDateTimePeriod	MultipleDateName	DsMdGranules	GeoObj
DsMdMultipleDateTimePeriod	collectionId	none	none
DsMdNonInstruFieldCampaiXRef	fieldCampaignId	DsMdInstrument	fieldCampaignOids
DsMdNonInstruFieldCampaiXRef	nonInstrumentId	none	none
DsMdNonInstrument	BoundaryData	DsMdNonInstrument	BoundaryData
DsMdNonInstrument	DynamicStaticFlag	DsMdNonInstrument	DynamicStaticFlag
DsMdNonInstrument	ModelDescription	DsMdNonInstrument	ModelDescription
DsMdNonInstrument	ModelName	DsMdNonInstrument	ModelName
DsMdNonInstrument	NonInstrumentLongName	DsMdNonInstrument	NonInstrumentLongName
DsMdNonInstrument	NonInstrumentShortName	DsMdNonInstrument	NonInstrumentShortName
DsMdNonInstrument	NonInstrumentType	DsMdNonInstrument	NonInstrumentType
DsMdNonInstrument	dataOrigId	none	none
DsMdNonScienceData	checkSum	DsMdNonScienceData	checkSum
DsMdNonScienceData	creationDate	DsMdNonScienceData	creationDate
DsMdNonScienceData	filePath	DsMdNonScienceData	filePath
DsMdNonScienceData	fileSize	DsMdNonScienceData	fileSize
DsMdNonScienceData	granuleId	DsMdNonScienceData	granuleOid
DsMdNonScienceData	internalFileName	DsMdNonScienceData	internalFileName
DsMdNonScienceData	userDataFile	DsMdNonScienceData	userDataFile
DsMdOperationMode	OperationMode	DsMdOperationMode	OperationMode
DsMdOperationMode	dataOrigId	none	none
DsMdOperationMode	granuleId	none	none

**Table 7-4. Data Server Sybase Release A to Illustra Release B Schema Cross Reference Table (Page 13 of 19)**

Release A Table	Release A Column	Release B Table	Release B Column
DsMdOrbitCalculatedSpatial	lastOrbitNumber	DsMdOrbitCalculatedSpatial	lastOrbitNumber
DsMdOrbitCalculatedSpatial	orbitModelName	DsMdOrbitCalculatedSpatial	orbitModelName
DsMdOrbitCalculatedSpatial	orbitNumber	DsMdOrbitCalculatedSpatial	orbitNumber
DsMdOrbitCalculatedSpatial	pathNumber	DsMdOrbitCalculatedSpatial	pathNumber
DsMdOrbitCalculatedSpatial	referenceId	DsMdGranules	setofOrbit
DsMdOrbitCalculatedSpatial	startOrbitNumber	DsMdOrbitCalculatedSpatial	startOrbitactive
DsMdOrbitParametersGranule	OrbitParametersPointer	DsMdOrbitParametersGranule	OrbitParametersPointer
DsMdOrbitParametersGranule	dbID	none	none
DsMdOrbitParametersGranule	lastUpdate	DsMdOrbitParametersGranule	lastUpdate
DsMdOrbitParametersGranule	priorUpdate	DsMdOrbitParametersGranule	priorUpdate
DsMdOrbitParametersGranule	subType	DsMdOrbitParametersGranule	subType
DsMdPGEPointers	CompileInfoPointer	DsMdDeliveredAlgorithmPackage	CompileInfoPointer
DsMdPGEPointers	PGEConfigFilePointer	DsMdDeliveredAlgorithmPackage	PGEConfigFilePointer
DsMdPGEPointers	PGEErrorLogPointer	DsMdDeliveredAlgorithmPackage	PGEErrorLogPointer
DsMdPGEPointers	ProcessingDependenciesPointer	DsMdDeliveredAlgorithmPackage	ProcessingDependenciesPointer
DsMdPGEPointers	TestSiteConfigPointer	DsMdDeliveredAlgorithmPackage	TestSiteConfigPointer
DsMdPGEPointers	dapId	none	none
DsMdPGEVersion	PGEVersion	DsMdPGEVersion	PGEVersion
DsMdPGEVersion	dapId	none	none
DsMdParameters	Datatype	DsMdECSPParameter	ECSPParameterDatatype
DsMdParameters	Description	DsMdECSPParameter	ECSPParameterDescription
DsMdParameters	MeasurementResolution	DsMdPhysicalParametersDetails	MeasurementResolution
DsMdParameters	ParameterName	DsMdECSPParameter	ECSPParameterName
DsMdParameters	Range	DsMdPhysicalParametersDetails	Range
DsMdParameters	UnitsOfMeasure	DsMdPhysicalParametersDetails	UnitsOfMeasure
DsMdParameters	ValueAccuracy	DsMdPhysicalParametersDetails	ValueAccuracy
DsMdParameters	ValueAccuracyExplanation	DsMdPhysicalParametersDetails	ValueAccuracyExplanation

**Table 7-4. Data Server Sybase Release A to Illustra Release B Schema Cross Reference Table (Page 14 of 19)**

Release A Table	Release A Column	Release B Table	Release B Column
DsMdParmToTableVector	Datatype	DsMdParmToTableVector	Datatype
DsMdParmToTableVector	clTableName	DsMdParmToTableVector	clTableName
DsMdParmToTableVector	grTableName	DsMdParmToTableVector	grTableName
DsMdPersonOrganizationXref	organizationId	DsMdContactPerson	contactorganizationOids
DsMdPersonOrganizationXref	personId	DsMdContactOrganization	contactPersonOids
DsMdPlanarCoordinateSystems	AbscissaResolution	DsMdPlanarCoordinateSystems	AbscissaResolution
DsMdPlanarCoordinateSystems	BearingReferenceDirection	DsMdPlanarCoordinateSystems	BearingReferenceDirection
DsMdPlanarCoordinateSystems	BearingReferenceMeridian	DsMdPlanarCoordinateSystems	BearingReferenceMeridian
DsMdPlanarCoordinateSystems	BearingResolution	DsMdPlanarCoordinateSystems	BearingResolution
DsMdPlanarCoordinateSystems	BearingUnits	DsMdGranules	none
DsMdPlanarCoordinateSystems	DistanceResolution	DsMdPlanarCoordinateSystems	DistanceResolution
DsMdPlanarCoordinateSystems	GridCoordinateSystemName	DsMdPlanarCoordinateSystems	GridCoordinateSystemName
DsMdPlanarCoordinateSystems	LocalPlanarCoordinateSystemDes	DsMdPlanarCoordinateSystems	LocalPlanarCoordinateSystemDes
DsMdPlanarCoordinateSystems	LocalPlanarGeoreferenceInforma	DsMdPlanarCoordinateSystems	LocalPlanarGeoreferenceInforma
DsMdPlanarCoordinateSystems	MapProjectionName	DsMdPlanarCoordinateSystems	MapProjectionName
DsMdPlanarCoordinateSystems	MapProjectionPointer	DsMdPlanarCoordinateSystems	MapProjectionPointer
DsMdPlanarCoordinateSystems	OrdinateResolution	DsMdPlanarCoordinateSystems	OrdinateResolution
DsMdPlanarCoordinateSystems	PlanarCoordinateEncodingMeth	DsMdPlanarCoordinateSystems	PlanarCoordinateEncodingMeth
DsMdPlanarCoordinateSystems	PlanarDistanceUnits	DsMdPlanarCoordinateSystems	PlanarDistanceUnits
DsMdPlanarCoordinateSystems	collectionId	DsMdPlanarCoordinateSystems	granuleOid
DsMdPlanarCoordinateSystems	dbID	none	none
DsMdPlatformCharacteristic	PlatformCharacteristicName	DsMdPlatformCharacteristic	PlatformCharacteristicName
DsMdPlatformCharacteristic	PlatformCharacteristicType	DsMdPlatformCharacteristic	PlatformCharacteristicType
DsMdPlatformCharacteristic	PlatformCharacteristicUnit	DsMdPlatformCharacteristic	PlatformCharacteristicUnit
DsMdPlatformCharacteristic	PlatformCharacteristicValue	DsMdPlatformCharacteristic	PlatformCharacteristicValue
DsMdPlatformCharacteristic	PlatformShortName	DsMdPlatform	PlatformShortName

**Table 7-4. Data Server Sybase Release A to Illustra Release B Schema Cross Reference Table (Page 15 of 19)**

Release A Table	Release A Column	Release B Table	Release B Column
DsMdPoint	PointLocation__x	DsMdGranules	GeoObj
DsMdPoint	PointLocation__y	DsMdGranules	GeoObj
DsMdPoint	referenceId	none	none
DsMdProcessingLevels	ProcessingLevelDescription	DsMdProcessingLevel	ProcessingLevelDescription
DsMdProcessingLevels	ProcessingLevelID	DsMdProcessingLevel	ProcessingLevelID
DsMdProcessingReport	documentId	none	none
DsMdProcessingReport	processingReportPeriod	DsMdProcessingReport	processingReportPeriod
DsMdProcessingReport	processingReportPointer	DsMdProcessingReport	processingReportPointer
DsMdProcessingReport	processingReportType	DsMdProcessingReport	processingReportType
DsMdProductDbXref	dbName	none	none
DsMdProductDbXref	endDate	none	none
DsMdProductDbXref	productName	none	none
DsMdProductDbXref	startDate	none	none
DsMdProductionHistory	ProductionHistoryPointer	DsMdProcessingHistory	ProcessingHistoryPointer
DsMdProductionHistory	dbID	none	none
DsMdProductionHistory	lastUpdate	DsMdProcessingHistory	lastUpdate
DsMdProductionHistory	priorUpdate	DsMdProcessingHistory	priorUpdate
DsMdProductionHistory	subType	DsMdProcessingHistory	subType
DsMdProductionPlan	DAACName	DsMdProductionPlan	DAACName
DsMdProductionPlan	documentId	none	none
DsMdProductionPlan	plannedDataSets	DsMdProductionPlan	PlannedDataSets
DsMdProductionPlan	productionPlanDescription	DsMdProductionPlan	ProductionPlanDescription
DsMdProductionPlan	productionPlanEndDate	DsMdProductionPlan	ProductionPlanEndDate
DsMdProductionPlan	productionPlanForecast	DsMdProductionPlan	ProductionPlanForecast
DsMdProductionPlan	productionPlanPointer	DsMdProductionPlan	ProductionPlanPointer
DsMdProductionPlan	productionPlanStartDate	DsMdProductionPlan	ProductionPlanStartDate
DsMdQaCollectionStats	AutomaticQualityFlag	DsMdQACollectionStats	AutomaticQualityFlag

**Table 7-4. Data Server Sybase Release A to Illustra Release B Schema Cross Reference Table (Page 16 of 19)**

Release A Table	Release A Column	Release B Table	Release B Column
DsMdQaCollectionStats	OperationalQualityFlag	DsMdQACollectionStats	OperationalQualityFlag
DsMdQaCollectionStats	QualityFlagExplanation	DsMdQACollectionStats	QualityFlagExplanation
DsMdQaCollectionStats	ScienceQualityFlag	DsMdQACollectionStats	ScienceQualityFlag
DsMdQaCollectionStats	referenceId	DsMdECSCollection	qaGranuleOids
DsMdQaGranule	QAGranuleUR	DsMdQAGranule	QAGranulePointer
DsMdQaGranule	dbID	none	none
DsMdQaGranule	lastUpdate	DsMdQAGranule	lastUpdate
DsMdQaGranule	priorUpdate	DsMdQAGranule	priorUpdate
DsMdQaGranule	subType	DsMdQAGranule	subType
DsMdQaStats	QAPercentInterpolatedData	DsMdQaStats	QAPercentInterpolatedData
DsMdQaStats	QAPercentMissingData	DsMdQaStats	QAPercentMissingData
DsMdQaStats	QAPercentOutOfBoundsData	DsMdQaStats	QAPercentOutOfBoundsData
DsMdQaStats	granuleId	none	none
DsMdQualityTextComment	QualityTextCommentPointer	DsMdQualityTextComment	QualityTextCommentPointer
DsMdQualityTextComment	collectionId	DsMdGranules	qualityTextCommentsOids
DsMdQualityTextComment	dbID	DsMdECSCollection	qualityTextCommentOid
DsMdRangeDateTime	RangeBeginningDate	DsMdDataGranules	GeoObj
DsMdRangeDateTime	RangeBeginningTime	DsMdDataGranules	GeoObj
DsMdRangeDateTime	RangeEndingDate	DsMdDataGranules	GeoObj
DsMdRangeDateTime	RangeEndingTime	DsMdDataGranules	GeoObj
DsMdRangeDateTime	collectionId	none	none
DsMdReferencePaper	accessInstructions	DsMdReferencePaper	AccessInstructions
DsMdReferencePaper	dateReferencePaperPublication	DsMdReferencePaper	DateofReferencePaperPublication
DsMdReferencePaper	documentId	none	none
DsMdReferencePaper	journalArticleName	DsMdReferencePaper	JournalArticleName
DsMdReferencePaper	referencePaperPointer	DsMdReferencePaper	ReferencePaperPointer
DsMdReferencePaper	referencePaperReference	DsMdReferencePaper	ReferencePaperReference

**Table 7-4. Data Server Sybase Release A to Illustra Release B Schema Cross Reference Table (Page 17 of 19)**

Release A Table	Release A Column	Release B Table	Release B Column
DsMdReferencePaper	referencePaperType	DsMdReferencePaper	ReferencePaperType
DsMdRegularPeriodic	Period1stDate	DsMdRegularPeriodic	Period1stDTG
DsMdRegularPeriodic	Period1stTime	DsMdRegularPeriodic	Period1stDTG
DsMdRegularPeriodic	PeriodCycleDurationUnit	DsMdRegularPeriodic	PeriodCycleDuration
DsMdRegularPeriodic	PeriodDurationUnit	DsMdRegularPeriodic	PeriodDuration
DsMdRegularPeriodic	PeriodDurationValue	DsMdRegularPeriodic	PeriodDuration
DsMdRegularPeriodic	PeriodName	DsMdRegularPeriodic	PeriodName
DsMdRegularPeriodic	collectionId	DsMdRegularPeriodic	granulesOid
DsMdResultsPointers	ResultProductFilePointer	DsMdSoftware	SoftwarePointer
DsMdResultsPointers	ResultReportPointer	DsMdSoftware	SoftwarePointer
DsMdResultsPointers	ResultTempFilePointer	DsMdSoftware	SoftwarePointer
DsMdResultsPointers	dapId	none	none
DsMdReview	FutureReviewDate	DsMdReview	FutureReviewDate
DsMdReview	ScienceReviewDate	DsMdReview	ScienceReviewDate
DsMdReview	ScienceReviewStatus	DsMdReview	ScienceReviewStatus
DsMdReview	reviewId	DsMdSingleTypeCollection	reviewOids
DsMdSWPointers	CompileInfoPointer	none	none
DsMdSWPointers	LinkAndCompileScriptPointer	DsMdSoftware	SoftwarePointer
DsMdSWPointers	ScSWScriptPointer	DsMdSoftware	SoftwarePointer
DsMdSWPointers	ScSWSourceCodePointer	DsMdSoftware	SoftwarePointer
DsMdSWPointers	TestScriptPointer	DsMdSoftware	SoftwarePointer
DsMdSWPointers	TestSourceCodePointer	DsMdSoftware	SoftwarePointer
DsMdSWPointers	dapId	none	none
DsMdSensor	SensorLongName	DsMdSensor	SensorLongName
DsMdSensor	SensorShortName	DsMdSensor	SensorShortName
DsMdSensor	SensorType	DsMdSensor	SensorTechnique
DsMdSensor	dbID	none	none

**Table 7-4. Data Server Sybase Release A to Illustra Release B Schema Cross Reference Table (Page 18 of 19)**

Release A Table	Release A Column	Release B Table	Release B Column
DsMdSensorCharacteristic	SensorCharacteristicName	DsMdSensorCharacteristic	SensorCharacteristicName
DsMdSensorCharacteristic	SensorCharacteristicType	DsMdSensorCharacteristic	SensorCharacteristicType
DsMdSensorCharacteristic	SensorCharacteristicUnit	DsMdSensorCharacteristic	SensorCharacteristicUnit
DsMdSensorCharacteristic	SensorCharacteristicValue	DsMdSensorCharacteristic	SensorCharacteristicValue
DsMdSensorCharacteristic	granuleId	none	none
DsMdSensorCharacteristic	sensorId	none	none
DsMdSingleDateTime	CalenderDate	DsMdGranules	CalenderDate
DsMdSingleDateTime	MultipleDateName	DsMdGranules	MultipleDateName
DsMdSingleDateTime	TimeOfDay	DsMdGranules	TimeOfDay
DsMdSingleDateTime	collectionId	DsMdSingleDateTime	collectionId
DsMdSpatial	AltitudeDatumName	DsMdSpatialDefinitionSystem	AltitudeDatumName
DsMdSpatial	AltitudeDistanceUnits	DsMdSpatialDefinitionSystem	AltitudeDistanceUnits
DsMdSpatial	AltitudeEncodingMethod	DsMdSpatialDefinitionSystem	AltitudeEncodingMethod
DsMdSpatial	DenominatorOfFlatteningRatio	DsMdSpatialDefinitionSystem	DenominatorOfFlatteningRatio
DsMdSpatial	DepthDatumName	DsMdSpatialDefinitionSystem	DepthDatumName
DsMdSpatial	DepthDistanceUnits	DsMdSpatialDefinitionSystem	DepthDistanceUnits
DsMdSpatial	DepthEncodingMethod	DsMdSpatialDefinitionSystem	DepthEncodingMethod
DsMdSpatial	EllipsoidName	DsMdSpatialDefinitionSystem	EllipsoidName
DsMdSpatial	GeographicCoordinateUnits	DsMdSpatialDefinitionSystem	GeographicCoordinateUnits
DsMdSpatial	HorizontalDatumName	DsMdSpatialDefinitionSystem	HorizontalDatumName
DsMdSpatial	LatitudeResolution	DsMdSpatialDefinitionSystem	LatitudeResolution
DsMdSpatial	LocalCoordinateSystemDesc	DsMdSpatialDefinitionSystem	LocalCoordinateSystemDesc
DsMdSpatial	LocalGeoreferenceInformation	DsMdSpatialDefinitionSystem	LocalGeoreferenceInformation
DsMdSpatial	LongitudeResolution	DsMdSpatialDefinitionSystem	LongitudeResolution
DsMdSpatial	SemiMajorAxis	DsMdSpatialDefinitionSystem	SemiMajorAxis
DsMdSpatial	SpatialCoverageType	DsMdSpatialDefinitionSystem	SpatialCoverageType
DsMdSpatial	collectionId	DsMdSpatialDefinitionSystem	granuleOid

**Table 7-4. Data Server Sybase Release A to Illustra Release B Schema Cross Reference Table (Page 19 of 19)**

Release A Table	Release A Column	Release B Table	Release B Column
DsMdSpatialKeywords	SpatialKeyword	DsMdSpatialKeyword	SpatialKeyword
DsMdSpatialKeywords	collectionId	DsMdECSCollection	collectionOid
DsMdTelephoneNumbers	TelephoneNumber	DsMdTelephoneNumbers	TelephoneNumber
DsMdTelephoneNumbers	TelephoneNumberType	DsMdTelephoneNumbers	TelephoneNumberType
DsMdTelephoneNumbers	contactId	DsMdContact	telephoneNumberOids
DsMdTemporal	DateType	none	none
DsMdTemporal	EndsatPresentFlag	DsMdGranules	EndsatPresentFlag
DsMdTemporal	PrecisionOfSeconds	none	none
DsMdTemporal	TemporalRangeType	DsMdGranules	TemporalRangeType
DsMdTemporal	TimeType	none	none
DsMdTemporal	collectionId	none	none
DsMdTestPointers	PerformanceTestResultsPointer	DsMdDeliveredAlgorithmPackage	AlgorithmDescriptionPointer
DsMdTestPointers	TestPlanPointer	DsMdDeliveredAlgorithmPackage	AlgorithmDescriptionPointer
DsMdTestPointers	dapId	none	none
DsMdUserCommentDocument	UserCommentDocumentPointer	DsMdUserCommentDocument	userCommentDocumentPointer
DsMdUserCommentDocument	collectionId	none	none
DsMdUserCommentDocument	dbID	DsMdECSCollection	userCommentDocumentOid
DsMdValidationDocument	ValidationDocumentPointer	DsMdValidationDocument	ValidationDocumentPointer
DsMdValidationDocument	collectionId	none	none
DsMdValidationDocument	dbID	DsMdECSCollection	validationDocumentOid
DsMdVerticalSpatialDomain	VerticalSpatialDomainType	none	none
DsMdVerticalSpatialDomain	VerticalSpatialDomainValue	none	none
DsMdVerticalSpatialDomain	referenceId	none	none
DsMdZoneIdentifier	ZoneIdentifier	DsMdSpatialDefinitionSystem	ZoneIdentifier
DsMdZoneIdentifier	referenceId	DsMdGranules	granuleInputOids