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

8.1 Client, Interoperability, and Data Management Subsystem Description

The SDPS Client subsystem provides a collection of components through which users access the services and data available in ECS and other systems interoperable with ECS. The client subsystem also includes the services needed to interface an application (e.g., a science algorithm) with ECS, e.g., for data access or to make use of ECS provided toolkits. It consists of a Scientist Workbench and a Desktop Component. The Scientist Workbench contains various tools; examples of which is to search ECS for data, retrieve and view search results, display scientific articles and guide documents, support direct access to data objects. The desktop provides convenient methods for organizing the user interface objects, and setting the interface preferences. (Reference from 194-207-SEI-001.)

In general, support for the communication between SDPS clients and services is provided by CSMS. Additional services are provided by the Interoperability Subsystem (IOS) for the Client to determine the location of ECS data and services. The main component of the IOS is the Advertising Service. The Advertising Service provides the capability for both users and ECS applications to search for data descriptions (at the directory level) and their services that relate to these data entries. SDPS is architected as a collection of distributed applications. They use the functions of the Interoperability Subsystem (and CSMS) to cooperate with each other. (Reference from 194-207-SEI-001).

The Release B SDPS Interoperability Subsystem Design Specification for the ECS Project, 305-CD-022-002 did include an object diagram depicting its logical database schema, therefore a reference back to this design specification is not possible at this time. It is the physical database schema and the data contained therein, that is persistent throughout the life of the project. the detailed physical schema should be published in the next iteration of the Release B SDPS Interoperability Subsystem Design Specification for the ECS Project.

The Data Management Subsystem (DMS) is responsible for supporting the location, search, and access of data and service objects made available in the SDPS. The components of the subsystem decouple the location, search, and access functions from the components performing the data server and client interface functions, in order to accommodate the anticipated variety of usersõ search and access needs, and to provide a growth path as capabilities evolve. The subsystem includes distributed search and retrieval functions called the Distributed Information Management (DIM) functions; components, which act as each siteõs gateway into its Earth Science databases, called the Local Information Management (LIM) functions; and a Data Dictionary function which users can access to obtain explanations of available data. (Reference from 194-207-SEI-001 and 305-CD-023-002.)

8.2 Graphical Model and Relational Tables

Figure 8-1 shows the graphical model for the Data Management persistent storage and Figure 8-2 shows the graphical model for the IOS persistent data design. The graphical models provide an overall illustration of the collection of DMS and IOS 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.

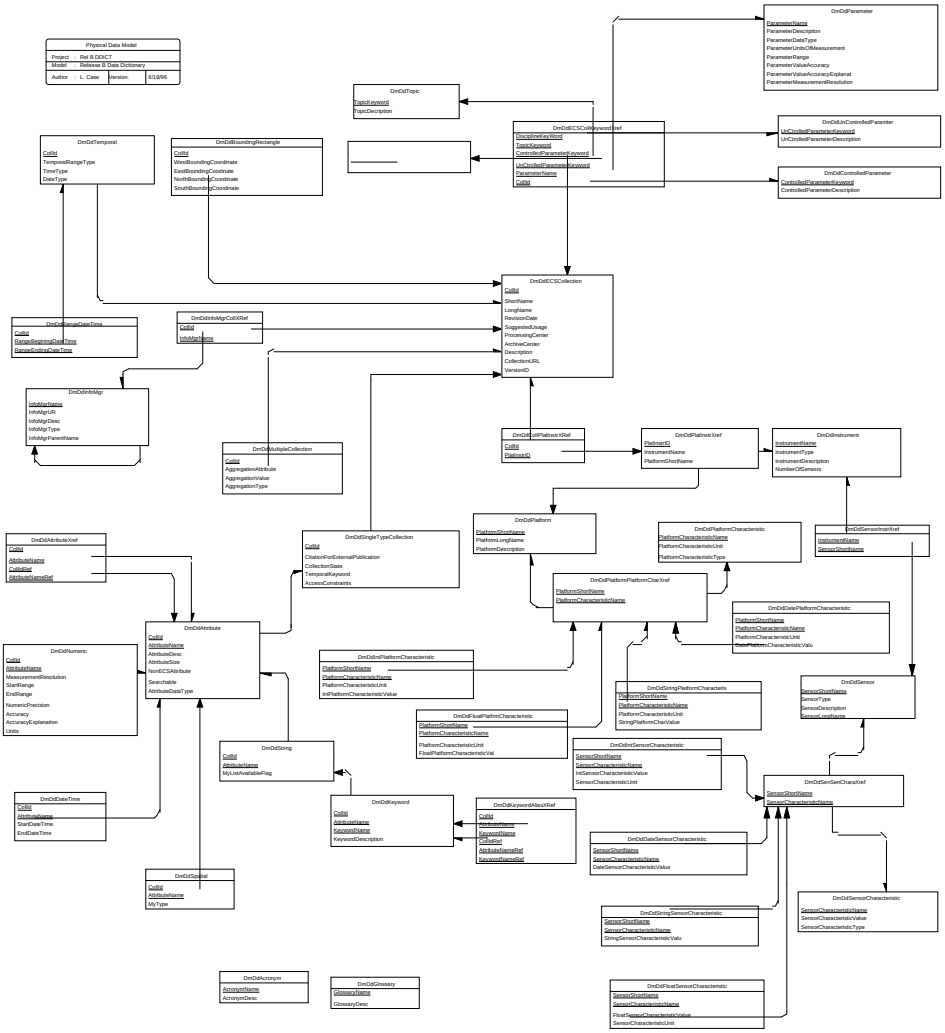

Figure 8-1. Data Dictionary Physical Data Model

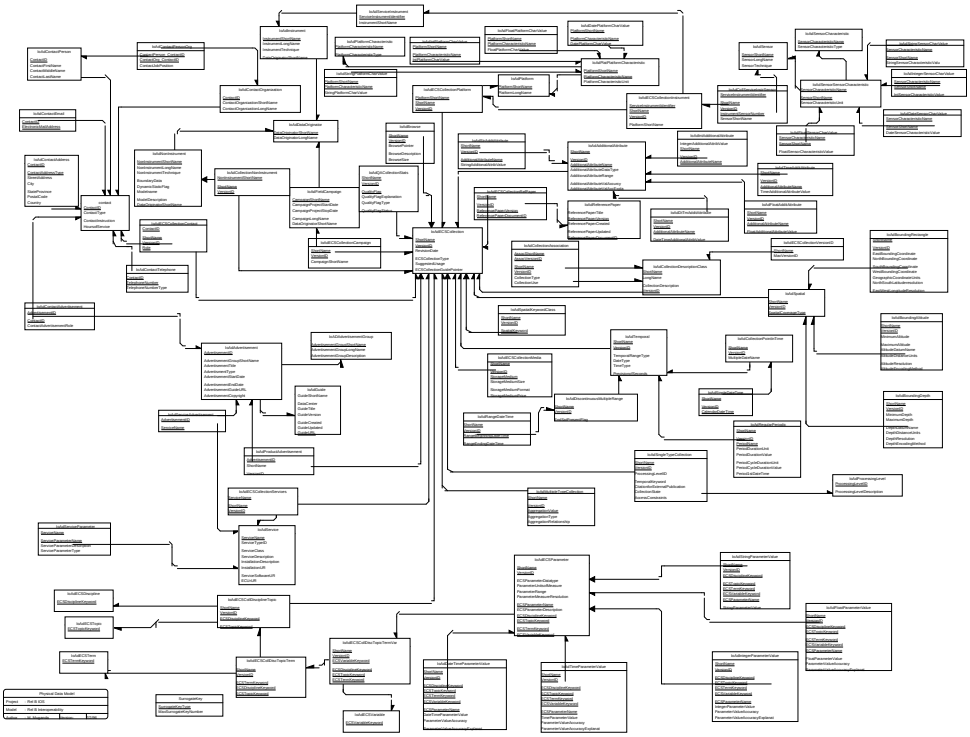

Figure 8-2. Interoperability Graphical Data Model

Table 8-1. Data Dictionary Relational Tables

Name : DmDdAcronym

Code : DMDDACRONYM

Label :

Number :

Source :

Column Name	Code	Type	P	M
AcronymName	ACRONYMNAME	char(15)	Y	Y
AcronymDesc	ACRONYMDESC	text(%n)		

Index Code	P	F	U	C	Column Code	Sort
DMDDACRONYM_PK	Y		Y		ACRONYMNAME	ASC

Name : DmDdAttribute

Code : DMDDATTRIBUTE

Label :

Number :

Source : Entity DMDDATTRIBUTE

Column Name	Code	Type	P	M
CollId	COLL_ID	char(8)	Y	Y
AttributeName	ATTRIBUTENAME	char(32)	Y	Y
AttributeDesc	ATTRIBUTEDESC	varchar(255)		
AttributeSize	ATTRIBUTESIZE	int		
NonECSAttribute	NONECSATTRIBUTE	numeric(1)		
Searchable	SEARCHABLE	numeric(1)		
AttributeDataType	ATTRIBUTEDATATYPE	char(1)		

Index Code	P	F	U	C	Column Code	Sort
DMDDATTRIBUTE_PK	Y	Y	Y		COLL_ID	ASC
					ATTRIBUTENAME	ASC

Reference To	Primary Key	Foreign Key
DMDDSINGLETYPECOLLECTION	COLL_ID	COLL_ID

Referenced By	Foreign Key	Primary Key
DMDDATTRIBUTEXREF	COLL_ID ATTRIBUTENAME	COLL_ID ATTRIBUTENAME
DMDDNUMERIC	COLL_ID ATTRIBUTENAME	COLL_ID ATTRIBUTENAME
DMDDDATETIME	COLL_ID ATTRIBUTENAME	COLL_ID ATTRIBUTENAME
DMDDSTRING	COLL_ID ATTRIBUTENAME	COLL_ID ATTRIBUTENAME

Referenced By	Foreign Key	Primary Key
DMDDSPATIAL	COLL_ID ATTRIBUTENAME	COLL_ID ATTRIBUTENAME
DMDDATTRIBUTEXREF	COLL_IDREF ATTRIBUTENAMEREF	COLL_ID ATTRIBUTENAME

Name : DmDdAttributeXref

Code : DMDDATTRIBUTEXREF

Label :

Number :

Source :

Column Name	Code	Type	P	M
CollId	COLL_ID	char(8)	Y	Y
AttributeName	ATTRIBUTENAME	char(32)	Y	Y
CollIdRef	COLL_IDREF	char(8)	Y	Y
AttributeNameRef	ATTRIBUTENAMEREF	char(32)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
DMDDATTRIBUTEXREF_PK	Y	Y	Y		COLL_ID	ASC
					ATTRIBUTENAME	ASC
					COLL_IDREF	ASC
					ATTRIBUTENAMEREF	ASC

Reference To	Primary Key	Foreign Key
DMDDATTRIBUTE	COLL_ID ATTRIBUTENAME	COLL_ID ATTRIBUTENAME
DMDDATTRIBUTE	COLL_ID ATTRIBUTENAME	COLL_IDREF ATTRIBUTENAMEREF

Name : DmDdBoundingRectangle

Code : DMDDBOUNDINGRECTANGLE

Label :

Number :

Source :

Column Name	Code	Type	P	M
CollId	COLL_ID	char(8)	Y	Y
WestBoundingCoordinate	WESTBOUNDINGCOORDINATE	numeric(11,6)		
EastBoundingCoodinate	EASTBOUNDINGCOODINATE	numeric(11,6)		
NorthBoundingCoordinate	NORTHBOUNDINGCOORDINATE	numeric(11,6)		
SouthBoundingCoordinate	SOUTHBOUNDINGCOORDINATE	numeric(11,6)		

Index Code	P	F	U	C	Column Code	Sort
DMDDBOUNDINGRECTANGLE_PK	Y	Y	Y		COLL_ID	ASC

Reference To	Primary Key	Foreign Key
DMDDECSCOLLECTION	COLL_ID	COLL_ID

Name : DmDdCollPlatInstrXRef

Code : DMDDCOLLPLATINSTRXREF

Label :

Number :

Source :

Column Name	Code	Type	P	M
CollId	COLL_ID	char(8)	Y	Y
PlatInstrID	PLATINSTRID	integer	Y	Y

Index Code	P	F	U	C	Column Code	Sort
DMDDCOLLPLATINSTRXREF_PK	Y	Y	Y		COLL_ID	ASC
					PLATINSTRID	ASC

Reference To	Primary Key	Foreign Key
DMDDECSCOLLECTION	COLL_ID	COLL_ID
DMDDPLATINSTRXREF	PLATINSTRID	PLATINSTRID

Name : DmDdControlledParameter

Code : DMDDCONTROLLEDPARAMETER

Label :

Number :

Source : Entity DMDDCONTROLLEDPARAMETER

Column Name	Code	Type	P	M
ControlledParameterKeyword	CONTROLLEDPARAMETERKEYWORD	char(50)	Y	Y
ControlledParameterDescription	CONTROLLEDPARAMETERDESCRIPTION	varchar(255)		

Index Code	P	F	U	C	Column Code	Sort
DMDDCONTROLLEDPARAMETER_PK	Y		Y		CONTROLLEDPARAMETERKEYWORD	ASC

Referenced By	Foreign Key	Primary Key
DMDDECSCOLLKEYWORDXREF	CONTROLLEDPARAMETERKEYWORD	CONTROLLEDPARAMETERKEYWORD

Name : DmDdDatePlatformCharacteristic

Code : DMDDDATEPLATFORMCHARACTERISTIC

Label :

Number :

Source :

Column Name	Code	Type	P	M
PlatformShortName	PLATFORMSHORTNAME	char(31)	Y	Y
PlatformCharacteristicName	PLATFORMCHARACTERISTICNAME	varchar(80)	Y	Y
PlatformCharacteristicUnit	PLATFORMCHARACTERISTICUNIT	char(20)		
DatePlatformCharacteristicValu	DATEPLATFORMCHARACTERISTICVALU	datetime		

Index Code	P	F	U	C	Column Code	Sort
DMDDDATEPLATFORMCHARACTERIS_PK	Y	Y	Y		PLATFORMSHORTNAME	ASC
					PLATFORMCHARACTERISTICNAME	ASC

Reference To	Primary Key	Foreign Key
DMDDPLATFORMPLATFORMCHARXREF	PLATFORMSHORTNAME	PLATFORMSHORTNAME
	PLATFORMCHARACTERISTICNAME	PLATFORMCHARACTERISTICNAME

Name : DmDdDateSensorCharacteristic

Code : DMDDDATESENSORCHARACTERISTIC

Label :

Number :

Source :

Column Name	Code	Type	P	M
SensorShortName	SENSORSHORTNAME	char(31)	Y	Y
SensorCharacteristicName	SENSORCHARACTERISTICNAME	varchar(80)	Y	Y
DateSensorCharacteristicValue	DATESENSORCHARACTERISTICVALUE	datetime		

Index Code	P	F	U	C	Column Code	Sort
DMDDDATESENSORCHARACTERISTI_PK	Y	Y	Y		SENSORSHORTNAME	ASC
					SENSORCHARACTERISTICNAME	ASC

Reference To	Primary Key	Foreign Key
DMDDSENSENCHARAXREF	SENSORSHORTNAME	SENSORSHORTNAME
	SENSORCHARACTERISTICNAME	SENSORCHARACTERISTICNAME

Name : DmDdDateTime

Code : DMDDDATETIME

Label :

Number :

Source : Entity DMDDDATETIME

Column Name	Code	Type	P	M
CollId	COLL_ID	char(8)	Y	Y
AttributeName	ATTRIBUTENAME	char(32)	Y	Y
StartDateTime	STARTDATETIME	datetime		
EndDateTime	ENDDATETIME	datetime		

Index Code	P	F	U	C	Column Code	Sort
DMDDDATETIME_PK	Y	Y	Y		COLL_ID	ASC
					ATTRIBUTENAME	ASC

Reference To	Primary Key	Foreign Key
DMDDATTRIBUTE	COLL_ID	COLL_ID
	ATTRIBUTENAME	ATTRIBUTENAME

Name : DmDdDiscipline

Code : DMDDDISCIPLINE

Label :

Number :

Source : Entity DMDDDISCIPLINE

Column Name	Code	Type	P	M
DisciplineKeyWord	DISCIPLINEKEYWORD	char(24)	Y	Y
DisciplineDescription	DISCIPLINEDESCRIPTION	varchar(255)		

Index Code	P	F	U	C	Column Code	Sort
DMDDDISCIPLINE_PK	Y		Y		DISCIPLINEKEYWORD	ASC

Referenced By	Foreign Key	Primary Key
DMDDECSCOLLKEYWORDXREF	DISCIPLINEKEYWORD	DISCIPLINEKEYWORD

Name : DmDdECSCollection

Code : DMDDECSCOLLECTION

Label :

Number :

Source : Entity DMDDECSCOLLECTION

Column Name	Code	Type	P	M
CollId	COLL_ID	char(8)	Y	Y
ShortName	SHORTNAME	char(20)		
LongName	LONGNAME	char(80)		
RevisionDate	REVISIONDATE	datetime		
SuggestedUsage	SUGGESTEDUSAGE	varchar(500)		
ProcessingCenter	PROCESSINGCENTER	char(20)		
ArchiveCenter	ARCHIVECENTER	char(20)		
Description	DESCRIPTION	varchar(255)		
CollectionURL	COLLECTIONURL	varchar(255)		
VersionID	VERSIONID	int		

Index Code	P	F	U	C	Column Code	Sort
DMDDECSCOLLECTION_PK	Y	Y	Y		COLL_ID	ASC

Referenced By	Foreign Key	Primary Key
DMDDECSCOLLKEYWORDXREF	COLL_ID	COLL_ID
DMDDINFOMGRCOLLXREF	COLL_ID	COLL_ID
DMDDSINGLETYPECOLLECTION	COLL_ID	COLL_ID
DMDDMULTIPLECOLLECTION	COLL_ID	COLL_ID
DMDDTEMPORAL	COLL_ID	COLL_ID

Referenced By	Foreign Key	Primary Key
DMDDBOUNDINGRECTANGLE	COLL_ID	COLL_ID
DMDDCOLLPLATINSTRXREF	COLL_ID	COLL_ID

Name : DmDdECSCollKeywordXref

Code : DMDDECSCOLLKEYWORDXREF

Label :

Number :

Source :

Column Name	Code	Type	P	M
DisciplineKeyWord	DISCIPLINEKEYWORD	char(24)	Y	Y
TopicKeyword	TOPICKEYWORD	char(32)	Y	Y
ControlledParameterKeyword	CONTROLLEDPARAMETERKEYWORD	char(50)	Y	Y
UnCtrolledParameterKeyword	UNCTROLLEDPARAMETERKEYWORD	varchar(80)	Y	Y
ParameterName	PARAMETERNAME	varchar(80)	Y	Y
CollId	COLL_ID	char(8)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
DMDDECSCOLLKEYWORDXREF_PK	Y	Y	Y		DISCIPLINEKEYWORD	ASC
					TOPICKEYWORD	ASC
					CONTROLLEDPARAMETERKEYWORD	ASC
					UNCTROLLEDPARAMETERKEYWORD	ASC
					PARAMETERNAME	ASC
					COLL_ID	ASC

Reference To	Primary Key	Foreign Key
DMDDDISCIPLINE	DISCIPLINEKEYWORD	DISCIPLINEKEYWORD
DMDDTOPIC	TOPICKEYWORD	TOPICKEYWORD
DMDDCONTROLLEDPARAMETER	CONTROLLEDPARAMETERKEYWORD	CONTROLLEDPARAMETERKEYWORD
DMDDUNCONTROLLEDPARAMTER	UNCTROLLEDPARAMETERKEYWORD	UNCTROLLEDPARAMETERKEYWORD
DMDDPARAMETER	PARAMETERNAME	PARAMETERNAME
DMDDECSCOLLECTION	COLL_ID	COLL_ID

Name : DmDdFloatPlatfrmCharacteristic

Code : DMDDFLOATPLATFRMCHARACTERISTIC

Label :

Number :

Source :

Column Name	Code	Type	P	M
PlatformShortName	PLATFORMSHORTNAME	char(31)	Y	Y
PlatformCharacteristicName	PLATFORMCHARACTERISTICNAME	varchar(80)	Y	Y
PlatformCharacteristicUnit	PLATFORMCHARACTERISTICUNIT	char(20)		
FloatPlatformCharacteristicVal	FLOATPLATFORMCHARACTERISTICVAL	float		

Index Code	P	F	U	C	Column Code	Sort
DMDDFLOATPLATFRMCHARACTERIS_PK	Y	Y	Y		PLATFORMSHORTNAME	ASC
					PLATFORMCHARACTERISTICNAME	ASC

Reference To	Primary Key	Foreign Key
DMDDPLATFORMPLATFORMCHARXREF	PLATFORMSHORTNAME	PLATFORMSHORTNAME
	PLATFORMCHARACTERISTICNAME	PLATFORMCHARACTERISTICNAME

Name : DmDdFloatSensorCharacteristic

Code : DMDDFLOATSENSORCHARACTERISTIC

Label :

Number :

Source :

Column Name	Code	Type	P	M
SensorShortName	SENSORSHORTNAME	char(31)	Y	Y
SensorCharacteristicName	SENSORCHARACTERISTICNAME	varchar(80)	Y	Y
FloatSensorCharacteristicValue	FLOATSENSORCHARACTERISTICVALUE	float		
SensorCharacteristicUnit	SENSORCHARACTERISTICUNIT	char(20)		

Index Code	P	F	U	C	Column Code	Sort
DMDDFLOATSENSORCHARACTERIST_PK	Y	Y	Y		SENSORSHORTNAME	ASC
					SENSORCHARACTERISTICNAME	ASC

Reference To	Primary Key	Foreign Key
DMDDSENSENCHARAXREF	SENSORSHORTNAME	SENSORSHORTNAME
	SENSORCHARACTERISTICNAME	SENSORCHARACTERISTICNAME

Name : DmDdGlossary

Code : DMDDGLOSSARY

Label :

Number :

Source :

Column Name	Code	Type	P	M
GlossaryName	GLOSSARYNAME	char(80)	Y	Y
GlossaryDesc	GLOSSARYDESC	text(%n)		

Index Code	P	F	U	C	Column Code	Sort
DMDDGLOSSARY_PK	Y		Y		GLOSSARYNAME	ASC

Name : DmDdInfoMgr

Code : DMDDINFOMGR

Label :

Number :

Source : Entity DMDDINFOMGR

Column Name	Code	Type	P	M
InfoMgrName	INFOMGRNAME	char(20)	Y	Y
InfoMgrUR	INFOMGRUR	varchar(255)		Y
InfoMgrDesc	INFOMGR	varchar(255)		
InfoMgrType	INFOMGRTYPE	char(20)		
InfoMgrParentName	INFOMGRPARENTNAME	char(20)		Y

Index Code	P	F	U	C	Column Code	Sort
DMDDINFOMGR_PK	Y	Y	Y		INFOMGRNAME	ASC
DMDDINFOMGR_FK1		Y			INFOMGRPARENTNAME	ASC

Reference To	Primary Key	Foreign Key
DMDDINFOMGR	INFOMGRNAME	INFOMGRPARENTNAME

Referenced By	Foreign Key	Primary Key
DMDDINFOMGRCOLLXREF	INFOMGRNAME	INFOMGRNAME
DMDDINFOMGR	INFOMGRPARENTNAME	INFOMGRNAME

Name : DmDdInfoMgrCollXRef

Code : DMDDINFOMGRCOLLXREF

Label :

Number :

Source :

Column Name	Code	Type	P	M
CollId	COLL_ID	char(8)	Y	Y
InfoMgrName	INFOMGRNAME	char(20)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
DMDDINFOMGRCOLLXREF_PK	Y	Y	Y		COLL_ID	ASC
					INFOMGRNAME	ASC

Reference To	Primary Key	Foreign Key
DMDDINFOMGR	INFOMGRNAME	INFOMGRNAME
DMDDECSCOLLECTION	COLL_ID	COLL_ID

Name : DmDdInstrument

Code : DMDDINSTRUMENT

Label :

Number :

Source : Entity INSTRUMENT

Column Name	Code	Type	P	M
InstrumentName	INSTRUMENTNAME	varchar(80)	Y	Y
InstrumentType	INSTRUMENTTYPE	char(20)		
InstrumentDescription	INSTRUMENTDESCRIPTION	varchar(255)		
NumberOfSensors	NUMBEROFSENSORS	smallint		

Index Code	P	F	U	C	Column Code	Sort
DMDDINSTRUMENT_PK	Y	Y	Y		INSTRUMENTNAME	ASC

Referenced By	Foreign Key	Primary Key
DMDDPLATINSTRXREF	INSTRUMENTNAME	INSTRUMENTNAME
DMDDSENSORINSTRXREF	INSTRUMENTNAME	INSTRUMENTNAME

Name : DmDdIntPlatformCharacteristic

Code : DMDDINTPLATFORMCHARACTERISTIC

Label :

Number :

Source :

Column Name	Code	Type	P	M
PlatformShortName	PLATFORMSHORTNAME	char(31)	Y	Y
PlatformCharacteristicName	PLATFORMCHARACTERISTICNAME	varchar(80)	Y	Y
PlatformCharacteristicUnit	PLATFORMCHARACTERISTICUNIT	char(20)		
IntPlatformCharacteristicValue	INTPLATFORMCHARACTERISTICVALUE	int		

Index Code	P	F	U	C	Column Code	Sort
DMDDINTPLATFORMCHARACTERIST_PK	Y	Y	Y		PLATFORMSHORTNAME	ASC
					PLATFORMCHARACTERISTICNAME	ASC

Reference To	Primary Key	Foreign Key
DMDDPLATFORMPLATFORMCHARXREF	PLATFORMSHORTNAME	PLATFORMSHORTNAME
	PLATFORMCHARACTERISTICNAME	PLATFORMCHARACTERISTICNAME

Name : DmDdIntSensorCharacteristic

Code : DMDDINTSENSORCHARACTERISTIC

Label :

Number :

Source :

Column Name	Code	Type	P	M
SensorShortName	SENSORSHORTNAME	char(31)	Y	Y
SensorCharacteristicName	SENSORCHARACTERISTICNAME	varchar(80)	Y	Y
IntSensorCharacteristicValue	INTSENSORCHARACTERISTICVALUE	int		
SensorCharacteristicUnit	SENSORCHARACTERISTICUNIT	char(20)		

Index Code	P	F	U	C	Column Code	Sort
DMDDINTSENSORCHARACTERISTIC_PK	Y	Y	Y		SENSORSHORTNAME	ASC
					SENSORCHARACTERISTICNAME	ASC

Reference To	Primary Key	Foreign Key
DMDDSENSENCHARAXREF	SENSORSHORTNAME	SENSORSHORTNAME
	SENSORCHARACTERISTICNAME	SENSORCHARACTERISTICNAME

Name : DmDdKeyword

Code : DMDDKEYWORD

Label :

Number :

Source : Entity DMDDKEYWORD

Column Name	Code	Type	P	M
CollId	COLL_ID	char(8)	Y	Y
AttributeName	ATTRIBUTENAME	char(32)	Y	Y
KeywordName	KEYWORDNAME	char(80)	Y	Y
KeywordDescription	KEYWORDDESCRIPTION	varchar(255)		

Index Code	P	F	U	C	Column Code	Sort
DMDDKEYWORD_PK	Y		Y		COLL_ID	ASC
					ATTRIBUTENAME	ASC
					KEYWORDNAME	ASC

Reference To	Primary Key	Foreign Key
DMDDSTRING	COLL_ID	COLL_ID
	ATTRIBUTENAME	ATTRIBUTENAME

Referenced By	Foreign Key	Primary Key
DMDDKEYWORDALIASXREF	COLL_ID	COLL_ID
	ATTRIBUTENAME	ATTRIBUTENAME
	KEYWORDNAME	KEYWORDNAME
DMDDKEYWORDALIASXREF	KEYWORDNAME	COLL_ID
	ATTRIBUTENAMEREF	ATTRIBUTENAME
	KEYWORDNAMEREF	KEYWORDNAME

Name : DmDdKeywordAliasXRef

Code : DMDDKEYWORDALIASXREF

Label :

Number :

Source :

Column Name	Code	Type	P	M
CollId	COLL_ID	char(8)	Y	Y
AttributeName	ATTRIBUTENAME	char(32)	Y	Y
KeywordName	KEYWORDNAME	char(80)	Y	Y
CollIdRef	COLL_IDREF	char(8)	Y	Y
AttributeNameRef	ATTRIBUTENAMEREF	char(32)	Y	Y
KeywordNameRef	KEYWORDNAMEREF	char(80)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
DMDDKEYWORDALIASXREF_PK	Y		Y		COLL_ID	ASC
					ATTRIBUTENAME	ASC
					KEYWORDNAME	ASC
					COLL_IDREF	ASC
					ATTRIBUTENAMEREF	ASC
					KEYWORDNAMEREF	ASC

Reference To	Primary Key	Foreign Key
DMDDKEYWORD	COLL_ID	COLL_ID
	ATTRIBUTENAME	ATTRIBUTENAME
	KEYWORDNAME	KEYWORDNAME
DMDDKEYWORD	COLL_ID	KEYWORDNAME
	ATTRIBUTENAME	ATTRIBUTENAMEREF
	KEYWORDNAME	KEYWORDNAMEREF

Name : DmDdMultipleCollection

Code : DMDDMULTIPLECOLLECTION

Label :

Number :

Source : Entity DMDDMULTIPLECOLLECTION

Column Name	Code	Type	P	M
CollId	COLL_ID	char(8)	Y	Y
AggregationAttribute	AGGREGATIONATTRIBUTE	char(30)		
AggregationValue	AGGREGATIONVALUE	varchar(80)		
AggregationType	AGGREGATIONTYPE	char(20)		

Index Code	P	F	U	C	Column Code	Sort
DMDDMULTIPLECOLLECTION_PK	Y	Y	Y		COLL_ID	ASC

Reference To	Primary Key	Foreign Key
DMDDECSCOLLECTION	COLL_ID	COLL_ID

Name : DmDdNumeric

Code : DMDDNUMERIC

Label :

Number :

Source : Entity DMDDNUMERIC

Column Name	Code	Type	P	M
CollId	COLL_ID	char(8)	Y	Y
AttributeName	ATTRIBUTENAME	char(32)	Y	Y
MeasurementResolution	MEASUREMENTRESOLUTION	varchar(50)		Y
StartRange	STARTRANGE	float(8)		
EndRange	ENDRANGE	float(8)		
NumericPrecision	NUMERICPRECISION	float(8)		
Accuracy	ACCURACY	float(8)		
AccuracyExplanation	ACCURACYEXPLANATION	varchar(80)		
Units	UNITS	char(30)		

Index Code	P	F	U	C	Column Code	Sort
DMDDNUMERIC_PK	Y	Y	Y		COLL_ID	ASC
					ATTRIBUTENAME	ASC

Reference To	Primary Key	Foreign Key
DMDDATTRIBUTE	COLL_ID ATTRIBUTENAME	COLL_ID ATTRIBUTENAME

Name : DmDdParameter

Code : DMDDPARAMETER

Label :

Number :

Source : Entity DMDDPARAMETER

Column Name	Code	Type	P	M
ParameterName	PARAMETERNAME	varchar(80)	Y	Y
ParameterDescription	PARAMETERDESCRIPTION	varchar(255)		
ParameterDataType	PARAMETERDATATYPE	char(10)		
ParameterUnitsOfMeasurement	PARAMETERUNITSOFMEASUREMENT	char(20)		
ParameterRange	PARAMETERRANGE	char(10)		
ParameterValueAccuracy	PARAMETERVALUEACCURACY	char(30)		
ParameterValueAccuracyExplanat	PARAMETERVALUEACCURACYEXPLANAT	varchar(255)		
ParameterMeasurementResolution	PARAMETERMEASUREMENTRESOLUTION	char(30)		

Index Code	P	F	U	C	Column Code	Sort
DMDDPARAMETER_PK	Y		Y		PARAMETERNAME	ASC

Referenced By	Foreign Key	Primary Key
DMDDECSCOLLKEYWORDXREF	PARAMETERNAME	PARAMETERNAME

Name : DmDdPlatform

Code : DMDDPLATFORM

Label :

Number :

Source : Entity DMDDPLATFORM

Column Name	Code	Type	P	M
PlatformShortName	PLATFORMSHORTNAME	char(31)	Y	Y
PlatformLongName	PLATFORMLONGNAME	varchar(80)		
PlatformDescription	PLATFORMDESCRIPTION	varchar(255)		

Index Code	P	F	U	C	Column Code	Sort
DMDDPLATFORM_PK	Y		Y		PLATFORMSHORTNAME	ASC

Referenced By	Foreign Key	Primary Key
DMDDPLATINSTRXREF	PLATFORMSHORTNAME	PLATFORMSHORTNAME
DMDDPLATFORMPLATFORMCHARXREF	PLATFORMSHORTNAME	PLATFORMSHORTNAME

Name : DmDdPlatformCharacteristic

Code : DMDDPLATFORMCHARACTERISTIC

Label :

Number :

Source :

Column Name	Code	Type	P	M
PlatformCharacteristicName	PLATFORMCHARACTERISTICNAME	varchar(80)	Y	Y
PlatformCharacteristicUnit	PLATFORMCHARACTERISTICUNIT	char(20)		
PlatformCharacteristicType	PLATFORMCHARACTERISTICTYPE	char(20)		

Index Code	P	F	U	C	Column Code	Sort
DMDDPLATFORMCHARACTERISTIC_PK	Y		Y		PLATFORMCHARACTERISTICNAME	ASC

Referenced By	Foreign Key	Primary Key
DMDDPLATFORMPLATFORMCHARXREF	PLATFORMCHARACTERISTICNAME	PLATFORMCHARACTERISTICNAME

Name : DmDdPlatformPlatformCharXref

Code : DMDDPLATFORMPLATFORMCHARXREF

Label :

Number :

Source :

Column Name	Code	Type	P	M
PlatformShortName	PLATFORMSHORTNAME	char(31)	Y	Y
PlatformCharacteristicName	PLATFORMCHARACTERISTICNAME	varchar(80)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
DMDDPLATFORMPLATFORMCHARXRE_PK	Y	Y	Y		PLATFORMSHORTNAME	ASC
					PLATFORMCHARACTERISTICNAME	ASC

Reference To	Primary Key	Foreign Key
DMDDPLATFORM	PLATFORMSHORTNAME	PLATFORMSHORTNAME
DMDDPLATFORMCHARACTERISTIC	PLATFORMCHARACTERISTICNAME	PLATFORMCHARACTERISTICNAME

Referenced By	Foreign Key	Primary Key
DMDDINTPLATFORMCHARACTERISTIC	PLATFORMSHORTNAME	PLATFORMSHORTNAME
	PLATFORMCHARACTERISTICNAME	PLATFORMCHARACTERISTICNAME
DMDDFLOATPLATFRMCHARACTERISTIC	PLATFORMSHORTNAME	PLATFORMSHORTNAME
	PLATFORMCHARACTERISTICNAME	PLATFORMCHARACTERISTICNAME
DMDDDATEPLATFORMCHARACTERISTIC	PLATFORMSHORTNAME	PLATFORMSHORTNAME
	PLATFORMCHARACTERISTICNAME	PLATFORMCHARACTERISTICNAME
DMDDSTRINGPLATFORMCHARACTERIS	PLATFORMSHORTNAME	PLATFORMSHORTNAME
	PLATFORMCHARACTERISTICNAME	PLATFORMCHARACTERISTICNAME

Name : DmDdPlatInstrXref

Code : DMDDPLATINSTRXREF

Label :

Number :

Source : Relationship DMDDPLATINSTRXREF

Column Name	Code	Type	P	M
PlatInstrID	PLATINSTRID	integer	Y	Y
InstrumentName	INSTRUMENTNAME	varchar(80)		Y
PlatformShortName	PLATFORMSHORTNAME	char(31)		Y

Index Code	P	F	U	C	Column Code	Sort
DMDDPLATINSTRXREF_PK	Y	Y	Y		PLATINSTRID	ASC
DMDDPLATINSTRXREF_FK1		Y			PLATFORMSHORTNAME	ASC
DMDDPLATINSTRXREF_FK2		Y			INSTRUMENTNAME	ASC

Reference To	Primary Key	Foreign Key
DMDDPLATFORM	PLATFORMSHORTNAME	PLATFORMSHORTNAME
DMDDINSTRUMENT	INSTRUMENTNAME	INSTRUMENTNAME

Referenced By	Foreign Key	Primary Key
DMDDCOLLPLATINSTRXREF	PLATINSTRID	PLATINSTRID

Name : DmDdRangeDateTime

Code : DMDDRANGEDATETIME

Label :

Number :

Source :

Column Name	Code	Type	P	M
CollId	COLL_ID	char(8)	Y	Y
RangeBeginingDateTime	RANGEBEGININGDATETIME	datetime	Y	Y
RangeEndingDateTime	RANGEENDINGDATETIME	datetime	Y	Y

Index Code	P	F	U	C	Column Code	Sort
DMDDRANGEDATETIME_PK	Y		Y		COLL_ID	ASC
					RANGEBEGININGDATETIME	ASC
					RANGEENDINGDATETIME	ASC

Reference To	Primary Key	Foreign Key
DMDDTEMPORAL	COLL_ID	COLL_ID

Name : DmDdSenSenCharaXref

Code : DMDDSENSENCHARAXREF

Label :

Number :

Source : Relationship DMDDSENSENCHARAXREF

Column Name	Code	Type	P	M
SensorShortName	SENSORSHORTNAME	char(31)	Y	Y
SensorCharacteristicName	SENSORCHARACTERISTICNAME	varchar(80)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
DMDDSENSENCHARAXREF_PK	Y	Y	Y		SENSORSHORTNAME	ASC
					SENSORCHARACTERISTICNAME	ASC

Reference To	Primary Key	Foreign Key
DMDDSENSOR	SENSORSHORTNAME	SENSORSHORTNAME
DMDDSENSORCHARACTERISTIC	SENSORCHARACTERISTICNAME	SENSORCHARACTERISTICNAME

Referenced By	Foreign Key	Primary Key
DMDDINTSENSORCHARACTERISTIC	SENSORSHORTNAME	SENSORSHORTNAME
	SENSORCHARACTERISTICNAME	SENSORCHARACTERISTICNAME
DMDDDATESENSORCHARACTERISTIC	SENSORSHORTNAME	SENSORSHORTNAME
	SENSORCHARACTERISTICNAME	SENSORCHARACTERISTICNAME
DMDDSTRINGSENSORCHARACTERISTIC	SENSORSHORTNAME	SENSORSHORTNAME
	SENSORCHARACTERISTICNAME	SENSORCHARACTERISTICNAME
DMDDFLOATSENSORCHARACTERISTIC	SENSORSHORTNAME	SENSORSHORTNAME
	SENSORCHARACTERISTICNAME	SENSORCHARACTERISTICNAME

Name : DmDdSensor

Code : DMDDSENSOR

Label :

Number :

Source : Entity SENSOR

Column Name	Code	Type	P	M
SensorShortName	SENSORSHORTNAME	char(31)	Y	Y
SensorType	SENSORTYPE	char(40)		
SensorDescription	SENSORDESCRIPTION	varchar(255)		
SensorLongName	SENSORLONGNAME	varchar(80)		

Index Code	P	F	U	C	Column Code	Sort
DMDDSENSOR_PK	Y		Y		SENSORSHORTNAME	ASC

Referenced By	Foreign Key	Primary Key
DMDDSENSORINSTRXREF	SENSORSHORTNAME	SENSORSHORTNAME
DMDDSENSENCHARAXREF	SENSORSHORTNAME	SENSORSHORTNAME

Name : DmDdSensorCharacteristic

Code : DMDDSENSORCHARACTERISTIC

Label :

Number :

Source : Entity SENSORCHARACTERISTIC

Column Name	Code	Type	P	M
SensorCharacteristicName	SENSORCHARACTERISTICNAME	varchar(80)	Y	Y
SensorCharacteristicValue	SENSORCHARACTERISTICVALUE	char(20)		
SensorCharacteristicType	SENSORCHARACTERISTICTYPE	char(20)		

Index Code	P	F	U	C	Column Code	Sort
DMDDSENSORCHARACTERISTIC_PK	Y		Y		SENSORCHARACTERISTICNAME	ASC

Referenced By	Foreign Key	Primary Key
DMDDSENSENCHARAXREF	SENSORCHARACTERISTICNAME	SENSORCHARACTERISTICNAME

Name : DmDdSensorInstrXref

Code : DMDDSENSORINSTRXREF

Label :

Number :

Source : Relationship DMDDSENSORINSTRXREF

Column Name	Code	Type	P	M
InstrumentName	INSTRUMENTNAME	varchar(80)	Y	Y
SensorShortName	SENSORSHORTNAME	char(31)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
DMDDSENSORINSTRXREF_PK	Y		Y		INSTRUMENTNAME	ASC
					SENSORSHORTNAME	ASC

Reference To	Primary Key	Foreign Key
DMDDSENSOR	SENSORSHORTNAME	SENSORSHORTNAME
DMDDINSTRUMENT	INSTRUMENTNAME	INSTRUMENTNAME

Name : DmDdSingleTypeCollection

Code : DMDDSINGLETYPECOLLECTION

Label :

Number :

Source : Entity DMDDSINGLETYPECOLLECTION

Column Name	Code	Type	P	M
CollId	COLL_ID	char(8)	Y	Y
CitationForExternalPublication	CITATIONFOREXTERNALPUBLICATION	varchar(255)		
CollectionState	COLLECTIONSTATE	varchar(255)		
TemporalKeyword	TEMPORALKEYWORD	char(10)		
AccessConstraints	ACCESSCONSTRAINTS	varchar(255)		

Index Code	P	F	U	C	Column Code	Sort
DMDDSINGLETYPECOLLECTION_PK	Y	Y	Y		COLL_ID	ASC

Reference To	Primary Key	Foreign Key
DMDDECSCOLLECTION	COLL_ID	COLL_ID

Referenced By	Foreign Key	Primary Key
DMDDATTRIBUTE	COLL_ID	COLL_ID

Name : DmDdSpatial

Code : DMDDSPATIAL

Label :

Number :

Source : Entity DMDDSPATIAL

Column Name	Code	Type	P	M
CollId	COLL_ID	char(8)	Y	Y
AttributeName	ATTRIBUTENAME	char(32)	Y	Y
MyType	MYTYPE	char(30)		

Index Code	P	F	U	C	Column Code	Sort
DMDDSPATIAL_PK	Y	Y	Y		COLL_ID	ASC
					ATTRIBUTENAME	ASC

Reference To	Primary Key	Foreign Key
DMDDATTRIBUTE	COLL_ID ATTRIBUTENAME	COLL_ID ATTRIBUTENAME

Name : DmDdString

Code : DMDDSTRING

Label :

Number :

Source : Entity DMDDSTRING

Column Name	Code	Type	P	M
CollId	COLL_ID	char(8)	Y	Y
AttributeName	ATTRIBUTENAME	char(32)	Y	Y
MyListAvailableFlag	MYLISTAVAILABLEFLAG	numeric(1)		

Index Code	P	F	U	C	Column Code	Sort
DMDDSTRING_PK	Y	Y	Y		COLL_ID	ASC
					ATTRIBUTENAME	ASC

Reference To	Primary Key	Foreign Key
DMDDATTRIBUTE	COLL_ID ATTRIBUTENAME	COLL_ID ATTRIBUTENAME

Referenced By	Foreign Key	Primary Key
DMDDKEYWORD	COLL_ID ATTRIBUTENAME	COLL_ID ATTRIBUTENAME

Name : DmDdStringPlatformCharacteris

Code : DMDDSTRINGPLATFORMCHARACTERIS

Label :

Number :

Source :

Column Name	Code	Type	P	M
PlatformShortName	PLATFORMSHORTNAME	char(31)	Y	Y
PlatformCharacteristicName	PLATFORMCHARACTERISTICNAME	varchar(80)	Y	Y
PlatformCharacteristicUnit	PLATFORMCHARACTERISTICUNIT	char(20)		
StringPlatformCharValue	STRINGPLATFORMCHARVALUE	varchar(%n)		

Index Code	P	F	U	C	Column Code	Sort
DMDDSTRINGPLATFORMCHARACTER_PK	Y	Y	Y		PLATFORMSHORTNAME	ASC
					PLATFORMCHARACTERISTICNAME	ASC

Reference To	Primary Key	Foreign Key
DMDDPLATFORMPLATFORMCHARXREF	PLATFORMSHORTNAME	PLATFORMSHORTNAME
	PLATFORMCHARACTERISTICNAME	PLATFORMCHARACTERISTICNAME

Name : DmDdStringSensorCharacteristic

Code : DMDDSTRINGSENSORCHARACTERISTIC

Label :

Number :

Source :

Column Name	Code	Type	P	M
SensorShortName	SENSORSHORTNAME	char(31)	Y	Y
SensorCharacteristicName	SENSORCHARACTERISTICNAME	varchar(80)	Y	Y
StringSensorCharacteristicValu	STRINGSENSORCHARACTERISTICVALU	varchar(%n)		

Index Code	P	F	U	C	Column Code	Sort
DMDDSTRINGSENSORCHARACTERIS_PK	Y	Y	Y		SENSORSHORTNAME	ASC
					SENSORCHARACTERISTICNAME	ASC

Reference To	Primary Key	Foreign Key
DMDDSENSENCHARAXREF	SENSORSHORTNAME	SENSORSHORTNAME
	SENSORCHARACTERISTICNAME	SENSORCHARACTERISTICNAME

Name : DmDdTemporal

Code : DMDDTEMPORAL

Label :

Number :

Source :

Column Name	Code	Type	P	M
CollId	COLL_ID	char(8)	Y	Y
TemporalRangeType	TEMPORALRANGETYPE	char(30)		
TimeType	TIMETYPE	char(10)		
DateType	DATETYPE	char(10)		

Index Code	P	F	U	C	Column Code	Sort
DMDDTEMPORAL_PK	Y	Y	Y		COLL_ID	ASC

Reference To	Primary Key	Foreign Key
DMDDECSCOLLECTION	COLL_ID	COLL_ID

Referenced By	Foreign Key	Primary Key
DMDDRANGEDATETIME	COLL_ID	COLL_ID

Name : DmDdTopic

Code : DMDDTOPIC

Label :

Number :

Source : Entity DMDDTOPIC

Column Name	Code	Type	P	M
TopicKeyword	TOPICKEYWORD	char(32)	Y	Y
TopicDecription	TOPICDECRIPTION	varchar(255)		

Index Code	P	F	U	C	Column Code	Sort
DMDDTOPIC_PK	Y		Y		TOPICKEYWORD	ASC

Referenced By	Foreign Key	Primary Key
DMDDECSCOLLKEYWORDXREF	TOPICKEYWORD	TOPICKEYWORD

Name : DmDdUnControlledParamter

Code : DMDDUNCONTROLLEDPARAMTER

Label :

Number :

Source : Entity DMDDUNCONTROLLEDPARAMTER

Column Name	Code	Type	P	M
UnCtrolledParameterKeyword	UNCTROLLEDPARAMETERKEYWORD	varchar(80)	Y	Y
UnCtrolledParameterDescription	UNCTROLLEDPARAMETERDESCRIPTION	varchar(255)		

Index Code	P	F	U	C	Column Code	Sort
DMDDUNCONTROLLEDPARAMTER_PK	Y		Y		UNCTROLLEDPARAMETERKEYWORD	ASC

Referenced By	Foreign Key	Primary Key
DMDDECSCOLLKEYWORDXREF	UNCTROLLEDPARAMETERKEYWORD	UNCTROLLEDPARAMETERKEYWORD

Table 8-2. Interoperability Relational Tables

Name : contact

Code : IOADCONTACT

Label : Contact

Number :

Source : Entity IOADCONTACT

Column Name	Code	Type	P	M
ContactID	CONTACTID	int	Y	Y
ContactType	CONTACTTYPE	char(12)		Y
ContactInstruction	CONTACTINSTRUCTION	varchar(255)		
HoursofService	HOURSOFSERVICE	varchar(255)		

Index Code	P	F	U	C	Column Code	Sort
IOADCONTACT_PK	Y		Y		CONTACTID	ASC

Referenced By	Foreign Key	Primary Key
IOADECSCOLLECTIONCONTACT	CONTACTID	CONTACTID
IOADCONTACTADDRESS	CONTACTID	CONTACTID
IOADCONTACTTELEPHONE	CONTACTID	CONTACTID
IOADCONTACTEMAIL	CONTACTID	CONTACTID
IOADCONTACTADVERTISEMENT	CONTACTID	CONTACTID
IOADCONTACT_PERSON	CONTACTID	CONTACTID
IOADCONTACTORGANIZATION	CONTACTID	CONTACTID

Name : IoAdAdditionalAttribute

Code : IOADADDITIONALATTRIBUTE

Label : IoAdAdditionalAttribute

Number :

Source : Entity IOADADDITIONALATTRIBUTES

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
AdditionalAttributeName	ADDITIONALATTRIBUTENAME	varchar(80)	Y	Y
AdditionalAttributeDataType	ADDITIONALATTRIBUTEDATATYPE	char(10)		
AdditionalAttributeRange	ADDITIONALATTRIBUTERANGE	char(10)		
AdditionalAttributeValAccurcy	ADDITIONALATTRIBUTEVALACCURCY	varchar(30)		
AdditionalAttributeValAccExpla	ADDITIONALATTRIBUTEVALACCEXPLA	varchar(255)		

Index Code	P	F	U	C	Column Code	Sort
IOADADDITIONALATTRIBUTE_PK	Y		Y		SHORTNAME	ASC
					VERSIONID	ASC
					ADDITIONALATTRIBUTENAME	ASC

Reference To	Primary Key	Foreign Key
IOADECSCOLLECTION	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID

Referenced By	Foreign Key	Primary Key
IOADINTADDITIONALATTRIBUTE	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID
	ADDITIONALATTRIBUTENAME	ADDITIONALATTRIBUTENAME
IOADFLOATADDITATTRIBUTE	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID
	ADDITIONALATTRIBUTENAME	ADDITIONALATTRIBUTENAME
IOADSTRADDITATTRIBUTE	SHORTNAME	SHORTNAME

Referenced By	Foreign Key	Primary Key
	VERSIONID ADDITIONALATTRIBUTENAME	VERSIONID ADDITIONALATTRIBUTENAME
IOADDTTMADDITATTRIBUTE	SHORTNAME VERSIONID ADDITIONALATTRIBUTENAME	SHORTNAME VERSIONID ADDITIONALATTRIBUTENAME
IOADTIMEADDITATTRIBUTE	SHORTNAME VERSIONID ADDITIONALATTRIBUTENAME	SHORTNAME VERSIONID ADDITIONALATTRIBUTENAME

Name : IoAdAdvertisement

Code : IOADADVERTISEMENT

Label :

Number :

Source : Entity IOADADVERTISEMENT

Column Name	Code	Type	P	M
AdvertisementID	ADVERTISEMENTID	int	Y	Y
AdvertisementGroupShortName	ADVERTISEMENTGROUPSHORTNAME	char(20)		Y
AdvertisementTitle	ADVERTISEMENTTITLE	varchar(80)		Y
AdvertismentType	ADVERTISMENTTYPE	char(8)		Y
AdvertisementStartDate	ADVERTISEMENTSTARTDATE	datetime		Y
AdvertisementEndDate	ADVERTISEMENTENDDATE	datetime		Y
AdvertisementGuideURL	ADVERTISEMENTGUIDEURL	varchar(255)		
AdvertisementCopyright	ADVERTISEMENTCOPYRIGHT	varchar(255)		

Index Code	P	F	U	C	Column Code	Sort
IOADADVERTISEMENT_PK	Y		Y		ADVERTISEMENTID	ASC
IOADADVERTISEMENT_FK1		Y			ADVERTISEMENTGROUPSHORTNAME	ASC
IOADADVERTISEMENT_FK2		Y			ADVERTISEMENTGUIDEURL	ASC

Reference To	Primary Key	Foreign Key
IOADADVERTISEMENTGROUP	ADVERTISEMENTGROUPSHORTNAME	ADVERTISEMENTGROUPSHORTNAME
IOADGUIDE	GUIDEURL	ADVERTISEMENTGUIDEURL

Referenced By	Foreign Key	Primary Key
IOADCONTACTADVERTISEMENT	ADVERTISEMENTID	ADVERTISEMENTID
IOADPRODUCTADVERTISEMENT	ADVERTISEMENTID	ADVERTISEMENTID
IOADSERVICEADVERTISEMENT	ADVERTISEMENTID	ADVERTISEMENTID

Name : IoADAdvertisementGroup

Code : IOADADVERTISEMENTGROUP

Label :

Number :

Source : Entity IOADADVERTISEMENTGROUP

Column Name	Code	Type	P	M
AdvertisementGroupShortName	ADVERTISEMENTGROUPSHORTNAME	char(20)	Y	Y
AdvertisementGroupLongName	ADVERTISEMENTGROUPLONGNAME	varchar(80)		
AdvertisementGroupDescription	ADVERTISEMENTGROUPDESCRIPTION	varchar(255)		

Index Code	P	F	U	C	Column Code	Sort
IOADADVERTISEMENTGROUP_PK	Y		Y		ADVERTISEMENTGROUPSHORTNAME	ASC

Referenced By	Foreign Key	Primary Key
IOADADVERTISEMENT	ADVERTISEMENTGROUPSHORTNAME	ADVERTISEMENTGROUPSHORTNAME

Name : IoAdBoundingAltitude

Code : IOADBOUNDINGALTITUDE

Label : IoAdBoundingAltitude

Number :

Source : Entity IOADBOUNDINGDEPTH

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
MinimumAltitude	MINIMUMALTITUDE	float		Y
MaximumAltitude	MAXIMUMALTITUDE	float		Y
AltitudeDatumName	ALTITUDEDATUMNAME	varchar(80)		Y
AltitudeDistanceUnits	ALTITUDEDISTANCEUNITS	char(20)		Y
AltitudeResolution	ALTITUDERESOLUTION	float		Y
AltitudeEncodingMethod	ALTITUDEENCODINGMETHOD	varchar(255)		

Index Code	P	F	U	C	Column Code	Sort
IOADBOUNDINGALTITUDE_PK	Y	Y	Y		SHORTNAME	ASC
					VERSIONID	ASC

Reference To	Primary Key	Foreign Key
IOADSPATIAL	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID

Name : IoAdBoundingDepth

Code : IOADBOUNDINGDEPTH

Label : IoAdBoundingDepth

Number :

Source :

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
MinimumDepth	MINIMUMDEPTH	float		Y
MaximumDepth	MAXIMUMDEPTH	float		Y
DepthDatumName	DEPTHDATUMNAME	varchar(80)		Y
DepthDistanceUnits	DEPTHDISTANCEUNITS	char(20)		Y
DepthResolution	DEPTHRESOLUTION	float		Y
DepthEncodingMethod	DEPTHENCODINGMETHOD	varchar(255)		

Index Code	P	F	U	C	Column Code	Sort
IOADBOUNDINGDEPTH_PK	Y	Y	Y		SHORTNAME	ASC
					VERSIONID	ASC

Reference To	Primary Key	Foreign Key
IOADSPATIAL	SHORTNAME VERSIONID	SHORTNAME VERSIONID

Name : IoAdBoundingRectangle

Code : IOADBOUNDINGRECTANGLE

Label :

Number :

Source : Entity IOADBOUNDINGRECTANGLE

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
EastBoundingCoordinate	EASTBOUNDINGCOORDINATE	decimal(11,6)		Y
NorthBoundingCoordinate	NORTHBOUNDINGCOORDINATE	decimal(11,6)		Y
SouthBoundingCoordinate	SOUTHBOUNDINGCOORDINATE	decimal(11,6)		Y
WestBoundingCoordinate	WESTBOUNDINGCOORDINATE	decimal(11,6)		Y
GeographicCoordinateUnits	GEOGRAPHICCOORDINATEUNITS	varchar(80)		Y
NorthSouthLatituderesolution	NORTHSOUTHLATITUDERESOLUTION	float		Y
EastWestLongitudeResolution	EASTWESTLONGITUDERESOLUTION	float		Y

Index Code	P	F	U	C	Column Code	Sort
IOADBOUNDINGRECTANGLE_PK	Y	Y	Y		SHORTNAME	ASC
					VERSIONID	ASC

Reference To	Primary Key	Foreign Key
IOADSPATIAL	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID

Name : IoAdBrowse

Code : IOADBROWSE

Label :

Number :

Source : Entity IOADBROWSE

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
BrowsePointer	BROWSEPOINTER	char(80)		Y
BrowseDescription	BROWSEDESCRIPTION	varchar(255)		
BrowseSize	BROWSESIZE	decimal(5,3)		Y

Index Code	P	F	U	C	Column Code	Sort
IOADBROWSE_PK	Y	Y	Y		SHORTNAME	ASC
					VERSIONID	ASC

Reference To	Primary Key	Foreign Key
IOADECSCOLLECTION	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID

Name : IoAdCollectionAssociation

Code : IOADCOLLECTIONASSOCIATION

Label :

Number :

Source : Entity IOADCOLLECTIONASSOCIATION

Column Name	Code	Type	P	M
AssocShortName	ASSOCSHORTNAME	char(8)	Y	Y
AssocVersionID	ASSOCVERSIONID	int	Y	Y
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
CollectionType	COLLECTIONTYPE	char(20)		Y
CollectionUse	COLLECTIONUSE	varchar(500)		Y

Index Code	P	F	U	C	Column Code	Sort
IOADCOLLECTIONASSOCIATION_PK	Y	Y	Y		ASSOCSHORTNAME	ASC
					ASSOCVERSIONID	ASC
					SHORTNAME	ASC
					VERSIONID	ASC

Reference To	Primary Key	Foreign Key
IOADCOLLECTIONDESCRIPTIONCLASS	SHORTNAME VERSIONID	SHORTNAME VERSIONID
IOADCOLLECTIONDESCRIPTIONCLASS	SHORTNAME VERSIONID	ASSOCSHORTNAME ASSOCVERSIONID

Name : IoAdCollectionDescriptionClass

Code : IOADCOLLECTIONDESCRIPTIONCLASS

Label : IoAdCollectionDescriptionClass

Number :

Source :

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
LongName	LONGNAME	varchar(80)		
CollectionDescription	COLLECTIONDESCRIPTION	varchar(255)		
VersionID	VERSIONID	int	Y	Y

Index Code	P	F	U	C	Column Code	Sort
IOADCOLLECTIONDESCRIPTIONCL_PK	Y	Y	Y		SHORTNAME	ASC

Reference To	Primary Key	Foreign Key
IOADECSCOLLECTION	SHORTNAME VERSIONID	SHORTNAME VERSIONID

Referenced By	Foreign Key	Primary Key
IOADECSCOLLECTIONVERSIONID	SHORTNAME	SHORTNAME
IOADCOLLECTIONASSOCIATION	SHORTNAME VERSIONID	SHORTNAME VERSIONID
IOADCOLLECTIONASSOCIATION	ASSOCSHORTNAME ASSOCVERSIONID	SHORTNAME VERSIONID

Name : IoAdCollectionNonInstrument

Code : IOADCOLLECTIONNONINSTRUMENT

Label :

Number :

Source : Entity IOADCOLLECTIONNONINSTRUMENT

Column Name	Code	Type	P	M
NonInstrumentShortName	NONINSTRUMENTSHORTNAME	char(20)	Y	Y
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y

Index Code	P	F	U	C	Column Code	Sort
IOADCOLLECTIONNONINSTRUMENT_PK	Y	Y	Y		NONINSTRUMENTSHORTNAME	ASC
					SHORTNAME	ASC
					VERSIONID	ASC

Reference To	Primary Key	Foreign Key
IOADNONINSTRUMENT	NONINSTRUMENTSHORTNAME	NONINSTRUMENTSHORTNAME
IOADECSCOLLECTION	SHORTNAME VERSIONID	SHORTNAME VERSIONID

Name : IoAdCollectionPointInTime

Code : IOADCOLLECTIONPOINTINTIME

Label : IoAdCollectionPointInTime

Number :

Source : Entity IOADCOLLECTIONPOINTINTIME

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
MultipleDateName	MULTIPLEDATENAME	varchar(30)		

Index Code	P	F	U	C	Column Code	Sort
IOADCOLLECTIONPOINTINTIME_PK	Y	Y	Y		SHORTNAME	ASC
					VERSIONID	ASC

Reference To	Primary Key	Foreign Key
IOADTEMPORAL	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID

Referenced By	Foreign Key	Primary Key
IOADSINGLEDATETIME	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID

Name : IoAdCollServiceInstrSensor

Code : IOADCOLLSERVICEINSTRSENSOR

Label : IoAdCollServiceInstrSensor

Number :

Source : Entity IOADINSTRUMENTSENSOR

Column Name	Code	Type	P	M
ServiceInstrumentIdentifier	SERVICEINSTRUMENTIDENTIFIER	int	Y	Y
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
InstrumentSensorNumber	INSTRUMENTSENSORNUMBER	int	Y	Y
SensorShortName	SENSORSHORTNAME	char(20)		Y

Index Code	P	F	U	C	Column Code	Sort
IOADCOLLSERVICEINSTRSENSOR_PK	Y		Y		SERVICEINSTRUMENTIDENTIFIER	ASC
					SHORTNAME	ASC
					VERSIONID	ASC
					INSTRUMENTSENSORNUMBER	ASC
IOADCOLLSERVICEINSTRSENSOR_FK1		Y			SENSORSHORTNAME	ASC

Reference To	Primary Key	Foreign Key
IOADSENSOR	SENSORSHORTNAME	SENSORSHORTNAME
IOADECSCOLLECTIONINSTRUMENT	SERVICEINSTRUMENTIDENTIFIER	SERVICEINSTRUMENTIDENTIFIER
	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID

Name : IoAdContactAddress

Code : IOADCONTACTADDRESS

Label :

Number :

Source : Entity IOADCONTACTADDRESS

Column Name	Code	Type	P	M
ContactID	CONTACTID	int	Y	Y
ContactAddressType	ADDRESSTYPE	char(10)	Y	Y
StreetAddress	STREETADDRESS	char(80)		Y
City	CITY	char(30)		Y
StateProvince	STATEPROVINCE	char(20)		Y
PostalCode	POSTALCODE	char(20)		Y
Country	COUNTRY	char(10)		

Index Code	P	F	U	C	Column Code	Sort
IOADCONTACTADDRESS_PK	Y		Y		CONTACTID	ASC
					ADDRESSTYPE	ASC

Reference To	Primary Key	Foreign Key
IOADCONTACT	CONTACTID	CONTACTID

Name : IoAdContactAdvertisement

Code : IOADCONTACTADVERTISEMENT

Label :

Number :

Source : Entity IOADCONTACTADVERTISEMENT

Column Name	Code	Type	P	M
AdvertisementID	ADVERTISEMENTID	int	Y	Y
ContactID	CONTACTID	int	Y	Y
ContactAdvertisementRole	CONTACTADVERTISEMENTROLE	char(16)		Y

Index Code	P	F	U	C	Column Code	Sort
IOADCONTACTADVERTISEMENT_PK	Y	Y	Y		ADVERTISEMENTID	ASC
					CONTACTID	ASC

Reference To	Primary Key	Foreign Key
IOADCONTACT	CONTACTID	CONTACTID
IOADADVERTISEMENT	ADVERTISEMENTID	ADVERTISEMENTID

Name : IoAdContactEmail

Code : IOADCONTACTEMAIL

Label :

Number :

Source : Entity IOADCONTACTEMAIL

Column Name	Code	Type	P	M
ContactID	CONTACTID	int	Y	Y
ElectronicMailAddress	ELECTRONICMAILADDRESS	varchar(255)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
IOADCONTACTEMAIL_PK	Y		Y		CONTACTID	ASC
					ELECTRONICMAILADDRESS	ASC

Reference To	Primary Key	Foreign Key
IOADCONTACT	CONTACTID	CONTACTID

Name : IoAdContactOrganization

Code : IOADCONTACTORGANIZATION

Label :

Number :

Source : Entity IOADCONTACTORGANIZATION

Column Name	Code	Type	P	M
ContactID	CONTACTID	int	Y	Y
ContactOrganizationShortName	CONTACTORGANIZATIONSHORTNAME	char(20)		
ContactOrganizationLongName	CONTACTORGANIZATIONLONGNAME	char(255)		

Index Code	P	F	U	C	Column Code	Sort
IOADCONTACTORGANIZATION_PK	Y	Y	Y		CONTACTID	ASC

Reference To	Primary Key	Foreign Key
IOADCONTACT	CONTACTID	CONTACTID

Referenced By	Foreign Key	Primary Key
IOADCONTACTPERSONORG	CONTACTORG_CONTACTID	CONTACTID

Name : IoAdContactPerson

Code : IOADCONTACT_PERSON

Label : ContactPerson

Number :

Source : Entity IOADCONTACT_PERSON

Column Name	Code	Type	P	M
ContactID	CONTACTID	int	Y	Y
ContactFirstName	CONTACTFIRSTNAME	char(30)		Y
ContactMiddleName	CONTACTMIDDLENAME	varchar(30)		
ContactLastName	CONTACTLASTNAME	varchar(30)		Y

Index Code	P	F	U	C	Column Code	Sort
IOADCONTACT_PERSON_PK	Y	Y	Y		CONTACTID	ASC

Reference To	Primary Key	Foreign Key
IOADCONTACT	CONTACTID	CONTACTID

Referenced By	Foreign Key	Primary Key
IOADCONTACTPERSONORG	CONTACTPERSON_CONTACTID	CONTACTID

Name : IoAdContactPersonOrg

Code : IOADCONTACTPERSONORG

Label :

Number :

Source : Entity IOADCONTACTPERSONORG

Column Name	Code	Type	P	M
ContactPerson_ContactID	CONTACTPERSON_CONTACTID	int	Y	Y
ContactOrg_ContactID	CONTACTORG_CONTACTID	int	Y	Y
ContactJobPosition	CONTACTJOBPOSITION	varchar(255)		

Index Code	P	F	U	C	Column Code	Sort
IOADCONTACTPERSONORG_PK	Y	Y	Y		CONTACTPERSON_CONTACTID	ASC
					CONTACTORG_CONTACTID	ASC

Reference To	Primary Key	Foreign Key
IOADCONTACTORGANIZATION	CONTACTID	CONTACTORG_CONTACTID
IOADCONTACT_PERSON	CONTACTID	CONTACTPERSON_CONTACTID

Name : IoAdContactTelephone

Code : IOADCONTACTTELEPHONE

Label :

Number :

Source : Entity IOADCONTACTTELEPHONE

Column Name	Code	Type	P	M
ContactID	CONTACTID	int	Y	Y
TelephoneNumber	TELEPHONENUMBER	char(23)	Y	Y
TelephoneNumberType	TELEPHONENUMBERTYPE	char(5)		Y

Index Code	P	F	U	C	Column Code	Sort
IOADCONTACTTELEPHONE_PK	Y		Y		CONTACTID	ASC
					TELEPHONENUMBER	ASC

Reference To	Primary Key	Foreign Key
IOADCONTACT	CONTACTID	CONTACTID

Name : IoAdDataOriginator

Code : IOADDATAORIGINATOR

Label :

Number :

Source :

Column Name	Code	Type	P	M
DataOriginatorShortName	DATAORIGINATORSHORTNAME	char(20)	Y	Y
DataOriginatorLongName	DATAORIGINATORLONGNAME	varchar(80)		

Referenced By	Foreign Key	Primary Key
IOADINSTRUMENT	DATAORIGINATORSHORTNAME	DATAORIGINATORSHORTNAME
IOADNONINSTRUMENT	DATAORIGINATORSHORTNAME	DATAORIGINATORSHORTNAME
IOADFIELDCAMPAIGN	DATAORIGINATORSHORTNAME	DATAORIGINATORSHORTNAME

Name : IoAdDatePlatformCharValue

Code : IOADDATEPLATFORMCHARVALUE

Label : IoAdDatePlatformCharValue

Number :

Source :

Column Name	Code	Type	P	M
PlatformShortName	PLATFORMSHORTNAME	char(31)	Y	Y
PlatformCharacteristicName	PLATFORMCHARACTERISTICNAME	char(80)	Y	Y
DatePlatformCharValue	DATEPLATFORMCHARVALUE	datetime		

Index Code	P	F	U	C	Column Code	Sort
IOADDATEPLATFORMCHARVALUE_PK	Y	Y	Y		PLATFORMSHORTNAME	ASC
					PLATFORMCHARACTERISTICNAME	ASC

Reference To	Primary Key	Foreign Key
IOADPLATPLATFORMCHARACTERISTIC	PLATFORMSHORTNAME	PLATFORMSHORTNAME
	PLATFORMCHARACTERISTICNAME	PLATFORMCHARACTERISTICNAME

Name : IoAdDateSensorCharValue

Code : IOADDATESENSORCHARVALUE

Label : IoAdDateSensorCharValue

Number :

Source :

Column Name	Code	Type	P	M
SensorCharacteristicName	SENSORCHARACTERISTICNAME	char(80)	Y	Y
SensorShortName	SENSORSHORTNAME	char(20)	Y	Y
DateSensorCharacteristicValue	DATESENSORCHARACTERISTICVALUE	datetime		

Index Code	P	F	U	C	Column Code	Sort
IOADDATESENSORCHARVALUE_PK	Y	Y	Y		SENSORCHARACTERISTICNAME	ASC
					SENSORSHORTNAME	ASC

Reference To	Primary Key	Foreign Key
IOADSENSORSENSORCHACTERISTIC	SENSORCHARACTERISTICNAME	SENSORCHARACTERISTICNAME
	SENSORSHORTNAME	SENSORSHORTNAME

Name : IoAdDateTimeParameterValue

Code : IOADDATETIMEPARAMETERVALUE

Label : IoAdDateTimeParameterValue

Number :

Source :

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
ECSDisciplineKeyword	ECSDISCIPLINEKEYWORD	char(24)	Y	Y
ECSTopicKeyword	ECSTOPICKEYWORD	char(32)	Y	Y
ECSTermKeyword	ECSTERMKEYWORD	char(50)	Y	Y
ECSVariableKeyword	ECSVARIABLEKEYWORD	char(80)	Y	Y
ECSParameterName	ECSPARAMETERNAME	varchar(80)	Y	Y
DateTimeParameterValue	DATETIMEPARAMETERVALUE	datetime		
ParameterValueAccuracy	PARAMETERVALUEACCURACY	char(30)		
ParameterValueAccuracyExplanat	PARAMETERVALUEACCURACYEXPLANAT	varchar(255)		

Index Code	P	F	U	C	Column Code	Sort
IOADDATETIMEPARAMETERVALUE_PK	Y	Y	Y		SHORTNAME	ASC
					VERSIONID	ASC
					ECSDISCIPLINEKEYWORD	ASC
					ECSTOPICKEYWORD	ASC
					ECSTERMKEYWORD	ASC
					ECSVARIABLEKEYWORD	ASC
					ECSPARAMETERNAME	ASC

Reference To	Primary Key	Foreign Key
IOADECSPARAMETER	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID
	ECSPARAMETERNAME	ECSPARAMETERNAME
	ECSDISCIPLINEKEYWORD	ECSDISCIPLINEKEYWORD
	ECSTOPICKEYWORD	ECSTOPICKEYWORD
	ECSTERMKEYWORD	ECSTERMKEYWORD

Reference To	Primary Key	Foreign Key
	ECSVARIABLEKEYWORD	ECSVARIABLEKEYWORD

Name : IoAdDiscontinuousMultipleRange

Code : IOADDISCONTINUOUSMULTIPLERANGE

Label : IoAdDiscontinuousMultipleRange

Number :

Source : Entity IOADDISCONTINUOUSMULTIPLERANGE

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
EndSatPresentFlag	ENDSATPRESENTFLAG	char(1)		

Index Code	P	F	U	C	Column Code	Sort
IOADDISCONTINUOUSMULTIPLERA_PK	Y	Y	Y		SHORTNAME	ASC
					VERSIONID	ASC

Reference To	Primary Key	Foreign Key
IOADTEMPORAL	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID

Referenced By	Foreign Key	Primary Key
IOADRANGEDATETIME	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID

Name : IoAdDtTmAdditAttribute

Code : IOADDTTMADDITATTRIBUTE

Label : IoAdDtTmAdditAttribute

Number :

Source :

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
AdditionalAttributeName	ADDITIONALATTRIBUTENAME	varchar(80)	Y	Y
DateTimeAdditonalAttribValue	DATETIMEADDITONALATTRIBVALUE	datetime		

Index Code	P	F	U	C	Column Code	Sort
IOADDTTMADDITATTRIBUTE_PK	Y	Y	Y		SHORTNAME	ASC
					VERSIONID	ASC
					ADDITIONALATTRIBUTENAME	ASC

Reference To	Primary Key	Foreign Key
IOADADDITIONALATTRIBUTE	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID
	ADDITIONALATTRIBUTENAME	ADDITIONALATTRIBUTENAME

Name : IoAdECSCollDisciplineTopic

Code : IOADECSCOLLDISCIPLINETOPIC

Label : IoAdECSCollDisciplineTopic

Number :

Source : Entity IOADECSCOLLECTIONGCMDPARAMETER

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
ECSDisciplineKeyword	ECSDISCIPLINEKEYWORD	char(24)	Y	Y
ECSTopicKeyword	ECSTOPICKEYWORD	char(32)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
IOADECSCOLLDISCIPLINETOPIC_PK	Y	Y	Y		SHORTNAME	ASC
					VERSIONID	ASC
					ECSDISCIPLINEKEYWORD	ASC
					ECSTOPICKEYWORD	ASC

Reference To	Primary Key	Foreign Key
IOADECSCOLLECTION	SHORTNAME VERSIONID	SHORTNAME VERSIONID
IOADECSDISCIPLINE	ECSDISCIPLINEKEYWORD	ECSDISCIPLINEKEYWORD
IOADECSTOPIC	ECSTOPICKEYWORD	ECSTOPICKEYWORD

Referenced By	Foreign Key	Primary Key
IOADECSCOLLDISCTOPICTERM	SHORTNAME VERSIONID	SHORTNAME VERSIONID

Name : IoAdECSCollDiscTopicTerm

Code : IOADECSCOLLDISCTOPICTERM

Label : IoAdECSCollDiscTopicTerm

Number :

Source :

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
ECSTermKeyword	ECSTERMKEYWORD	char(50)	Y	Y
ECSDisciplineKeyword	ECSDISCIPLINEKEYWORD	char(24)	Y	Y
ECSTopicKeyword	ECSTOPICKEYWORD	char(32)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
IOADECSCOLLDISCTOPICTERM_PK	Y		Y		SHORTNAME	ASC
					VERSIONID	ASC
					ECSTERMKEYWORD	ASC
					ECSDISCIPLINEKEYWORD	ASC
					ECSTOPICKEYWORD	ASC

Reference To	Primary Key	Foreign Key
IOADECSTERM	ECSTERMKEYWORD	ECSTERMKEYWORD
IOADECSCOLLDISCIPLINETOPIC	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID

Referenced By	Foreign Key	Primary Key
IOADECSCOLLDISCTOPICTERMVAR	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID

Name : IoAdECSCollDiscTopicTermVar

Code : IOADECSCOLLDISCTOPICTERMVAR

Label : IoAdECSCollDiscTopicTermVar

Number :

Source :

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
ECSVariableKeyword	ECSVARIABLEKEYWORD	char(80)	Y	Y
ECSDisciplineKeyword	ECSDISCIPLINEKEYWORD	char(24)	Y	Y
ECSTopicKeyword	ECSTOPICKEYWORD	char(32)	Y	Y
ECSTermKeyword	ECSTERMKEYWORD	char(50)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
IOADECSCOLLDISCTOPICTERMVAR_PK	Y		Y		SHORTNAME	ASC
					VERSIONID	ASC
					ECSVARIABLEKEYWORD	ASC
					ECSDISCIPLINEKEYWORD	ASC
					ECSTOPICKEYWORD	ASC
					ECSTERMKEYWORD	ASC

Reference To	Primary Key	Foreign Key
IOADECSCOLLDISCTOPICTERM	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID
IOADECSVARIABLE	ECSVARIABLEKEYWORD	ECSVARIABLEKEYWORD

Referenced By	Foreign Key	Primary Key
IOADECSPARAMETER	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID

Name : IoAdECSCollection

Code : IOADECSCOLLECTION

Label :

Number :

Source : Entity IOADECSCOLLECTION

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
RevisionDate	REVISIONDATE	datetime		Y
ECSCollectionType	ECSCOLLECTIONTYPE	char(10)		
SuggestedUsage	SUGGESTEDUSAGE	varchar(500)		
ECSCollectionGuidePointer	ECSCOLLECTIONGUIDEPOINTER	varchar(255)		

Index Code	P	F	U	C	Column Code	Sort
IOADECSCOLLECTION_PK	Y		Y		SHORTNAME	ASC
					VERSIONID	ASC

Referenced By	Foreign Key	Primary Key
IOADECSCOLLECTIONCONTACT	SHORTNAME VERSIONID	SHORTNAME VERSIONID
IOADECSCOLLECTIONSERVICES	SHORTNAME VERSIONID	SHORTNAME VERSIONID
IOADSPATIAL	SHORTNAME VERSIONID	SHORTNAME VERSIONID
IOADECSCOLLDISCIPLINETOPIC	SHORTNAME VERSIONID	SHORTNAME VERSIONID
IOADCOLLECTIONNONINSTRUMENT	SHORTNAME	SHORTNAME

Referenced By	Foreign Key	Primary Key
	VERSIONID	VERSIONID
IOADECSCOLLECTIONMEDIA	SHORTNAME VERSIONID	SHORTNAME VERSIONID
IOADECSCOLLECTIONCAMPAIGN	SHORTNAME VERSIONID	SHORTNAME VERSIONID
IOADSPATIALKEYWORDCLASS	SHORTNAME VERSIONID	SHORTNAME VERSIONID
IOADPRODUCTADVERTISEMENT	SHORTNAME VERSIONID	SHORTNAME VERSIONID
IOADADDITIONALATTRIBUTE	SHORTNAME VERSIONID	SHORTNAME VERSIONID
IOADQACOLLECTIONSTATS	SHORTNAME VERSIONID	SHORTNAME VERSIONID
IOADSINGLETYPECOLLECTION	SHORTNAME VERSIONID	SHORTNAME VERSIONID
IOADMULTIPLETYPECOLLECTION	SHORTNAME VERSIONID	SHORTNAME VERSIONID
IOADCOLLECTIONDESCRIPTIONCLASS	SHORTNAME VERSIONID	SHORTNAME VERSIONID
IOADECSCOLLECTIONREFPAPER	SHORTNAME VERSIONID	SHORTNAME VERSIONID
IOADBROWSE	SHORTNAME VERSIONID	SHORTNAME VERSIONID
IOADECSCOLLECTIONPLATFORM	SHORTNAME VERSIONID	SHORTNAME VERSIONID

Referenced By	Foreign Key	Primary Key
IOADTEMPORAL	SHORTNAME VERSIONID	SHORTNAME VERSIONID

Name : IoAdECSCollectionCampaign

Code : IOADECSCOLLECTIONCAMPAIGN

Label :

Number :

Source : Entity IOADECSCOLLECTIONCAMPAIGN

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
CampaignShortName	CAMPAIGNSHORTNAME	char(20)		

Index Code	P	F	U	C	Column Code	Sort
IOADECSCOLLECTIONCAMPAIGN_PK	Y	Y	Y		SHORTNAME	ASC
					VERSIONID	ASC
IOADECSCOLLECTIONCAMPAIGN_FK1		Y			CAMPAIGNSHORTNAME	ASC

Reference To	Primary Key	Foreign Key
IOADECSCOLLECTION	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID
IOADFIELDCAMPAIGN	CAMPAIGNSHORTNAME	CAMPAIGNSHORTNAME

Name : IoAdECSCollectionContact

Code : IOADECSCOLLECTIONCONTACT

Label :

Number :

Source : Entity IOADECSCOLLECTIONCONTACT

Column Name	Code	Type	P	M
ContactID	CONTACTID	int	Y	Y
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
Role	ROLE	char(16)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
IOADECSCOLLECTIONCONTACT_PK	Y		Y		CONTACTID	ASC
					SHORTNAME	ASC
					VERSIONID	ASC
					ROLE	ASC

Reference To	Primary Key	Foreign Key
IOADCONTACT	CONTACTID	CONTACTID
IOADECSCOLLECTION	SHORTNAME VERSIONID	SHORTNAME VERSIONID

Name : IoAdECSCollectionInstrument

Code : IOADECSCOLLECTIONINSTRUMENT

Label :

Number :

Source : Entity IOADECSCOLLECTIONINSTRUMENT

Column Name	Code	Type	P	M
ServiceInstrumentIdentifier	SERVICEINSTRUMENTIDENTIFIER	int	Y	Y
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
PlatformShortName	PLATFORMSHORTNAME	char(31)		Y

Index Code	P	F	U	C	Column Code	Sort
IOADECSCOLLECTIONINSTRUMENT_PK	Y	Y	Y		SERVICEINSTRUMENTIDENTIFIER	ASC
					SHORTNAME	ASC
					VERSIONID	ASC
IOADECSCOLLECTIONINSTRUMEN_FK1		Y			PLATFORMSHORTNAME	ASC
					SHORTNAME	ASC
					VERSIONID	ASC

Reference To	Primary Key	Foreign Key
IOADECSCOLLECTIONPLATFORM	PLATFORMSHORTNAME	PLATFORMSHORTNAME
	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID
IOADSERVICEINSTRUMENT	SERVICEINSTRUMENTIDENTIFIER	SERVICEINSTRUMENTIDENTIFIER

Referenced By	Foreign Key	Primary Key
IOADCOLLSERVICEINSTRSENSOR	SERVICEINSTRUMENTIDENTIFIER	SERVICEINSTRUMENTIDENTIFIER
	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID

Name : IoAdECSCollectionMedia

Code : IOADECSCOLLECTIONMEDIA

Label :

Number :

Source : Entity IOADECSCOLLECTIONMEDIA

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
StorageMedium	STORAGEMEDIUM	char(30)	Y	Y
StorageMediumSize	STORAGEMEDIUMSIZE	varchar(80)		Y
StorageMediumFormat	STORAGEMEDIUMFORMAT	char(10)		
StorageMediumPrice	STORAGEMEDIUMPRICE	money		

Index Code	P	F	U	C	Column Code	Sort
IOADECSCOLLECTIONMEDIA_PK	Y		Y		SHORTNAME	ASC
					VERSIONID	ASC
					STORAGEMEDIUM	ASC

Reference To	Primary Key	Foreign Key
IOADECSCOLLECTION	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID

Name : IoAdECSCollectionPlatform

Code : IOADECSCOLLECTIONPLATFORM

Label : IoAdECSCollectionPlatform

Number :

Source :

Column Name	Code	Type	P	M
PlatformShortName	PLATFORMSHORTNAME	char(31)	Y	Y
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y

Index Code	P	F	U	C	Column Code	Sort
IOADECSCOLLECTIONPLATFORM_PK	Y	Y	Y		PLATFORMSHORTNAME	ASC
					SHORTNAME	ASC
					VERSIONID	ASC

Reference To	Primary Key	Foreign Key
IOADECSCOLLECTION	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID
IOADPLATFORM	PLATFORMSHORTNAME	PLATFORMSHORTNAME

Referenced By	Foreign Key	Primary Key
IOADECSCOLLECTIONINSTRUMENT	PLATFORMSHORTNAME	PLATFORMSHORTNAME
	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID

Name : IoAdECSCollectionRefPaper

Code : IOADECSCOLLECTIONREFPAPER

Label : IoAdECSCollectionRefPaper

Number :

Source :

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
ReferencePaperVersion	REFERENCEPAPERVERSION	char(8)	Y	Y
ReferencePaperDocumentID	REFERENCEPAPERDOCUMENTID	char(10)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
IOADECSCOLLECTIONREFPAPER_PK	Y	Y	Y		SHORTNAME	ASC
					VERSIONID	ASC
					REFERENCEPAPERVERSION	ASC
					REFERENCEPAPERDOCUMENTID	ASC

Reference To	Primary Key	Foreign Key
IOADECSCOLLECTION	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID
IOADREFERENCEPAPER	REFERENCEPAPERVERSION	REFERENCEPAPERVERSION
	REFERENCEPAPERDOCUMENTID	REFERENCEPAPERDOCUMENTID

Name : IoAdECSCollectionServices

Code : IOADECSCOLLECTIONSERVICES

Label :

Number :

Source : Entity IOADECSCOLLECTIONSERVICES

Column Name	Code	Type	P	M
ServiceName	SERVICENAME	char(10)	Y	Y
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y

Index Code	P	F	U	C	Column Code	Sort
IOADECSCOLLECTIONSERVICES_PK	Y	Y	Y		SERVICENAME	ASC
					SHORTNAME	ASC
					VERSIONID	ASC

Reference To	Primary Key	Foreign Key
IOADECSCOLLECTION	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID
IOADSERVICE	SERVICENAME	SERVICENAME

Name : IoAdECSCollectionVersionID

Code : IOADECSCOLLECTIONVERSIONID

Label : IoAdECSCollectionVersionID

Number :

Source :

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
MaxVersionID	MAXVERSIONID	int		

Index Code	P	F	U	C	Column Code	Sort
IOADECSCOLLECTIONVERSIONID_PK	Y	Y	Y		SHORTNAME	ASC

Reference To	Primary Key	Foreign Key
IOADCOLLECTIONDESCRIPTIONCLASS	SHORTNAME	SHORTNAME

Name : IoAdECSDiscipline

Code : IOADECSDISCIPLINE

Label : IoAdECSDiscipline

Number :

Source :

Column Name	Code	Type	P	M
ECSDisciplineKeyword	ECSDISCIPLINEKEYWORD	char(24)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
IOADECSDISCIPLINE_PK	Y		Y		ECSDISCIPLINEKEYWORD	ASC

Referenced By	Foreign Key	Primary Key
IOADECSCOLLDISCIPLINETOPIC	ECSDISCIPLINEKEYWORD	ECSDISCIPLINEKEYWORD

Name : IoAdECSParameter

Code : IOADECSPARAMETER

Label :

Number :

Source : Entity IOADECSPARAMETER

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
ECSParameterDatatype	ECSPARAMETERDATATYPE	char(10)		Y
ParameterUnitsofMeasure	PARAMETERUNITSOFMEASURE	char(20)		Y
ParameterRange	PARAMETERRANGE	char(10)		Y
ParameterMeasureResolution	PARAMETERMEASURERESOLUTION	char(30)		Y
ECSParameterName	ECSPARAMETERNAME	varchar(80)	Y	Y
ECSParameterDescription	ECSPARAMETERDESCRIPTION	varchar(255)		
ECSDisciplineKeyword	ECSDISCIPLINEKEYWORD	char(24)	Y	Y
ECSTopicKeyword	ECSTOPICKEYWORD	char(32)	Y	Y
ECSTermKeyword	ECSTERMKEYWORD	char(50)	Y	Y
ECSVariableKeyword	ECSVARIABLEKEYWORD	char(80)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
IOADECSPARAMETER_PK	Y		Y		SHORTNAME	ASC
					VERSIONID	ASC
					ECSPARAMETERNAME	ASC
					ECSDISCIPLINEKEYWORD	ASC
					ECSTOPICKEYWORD	ASC
					ECSTERMKEYWORD	ASC
					ECSVARIABLEKEYWORD	ASC

Reference To	Primary Key	Foreign Key
IOADECSCOLLDISCTOPICTERMVAR	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID

Referenced By	Foreign Key	Primary Key
IOADDATETIMEPARAMETERVALUE	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID
	ECSPARAMETERNAME	ECSPARAMETERNAME
	ECSDISCIPLINEKEYWORD	ECSDISCIPLINEKEYWORD
	ECSTOPICKEYWORD	ECSTOPICKEYWORD
	ECSTERMKEYWORD	ECSTERMKEYWORD
	ECSVARIABLEKEYWORD	ECSVARIABLEKEYWORD
IOADINTEGERPARAMETERVALUE	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID
	ECSPARAMETERNAME	ECSPARAMETERNAME
	ECSDISCIPLINEKEYWORD	ECSDISCIPLINEKEYWORD
	ECSTOPICKEYWORD	ECSTOPICKEYWORD
	ECSTERMKEYWORD	ECSTERMKEYWORD
	ECSVARIABLEKEYWORD	ECSVARIABLEKEYWORD
IOADFLOATPARAMETERVALUE	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID
	ECSPARAMETERNAME	ECSPARAMETERNAME
	ECSDISCIPLINEKEYWORD	ECSDISCIPLINEKEYWORD
	ECSTOPICKEYWORD	ECSTOPICKEYWORD
	ECSTERMKEYWORD	ECSTERMKEYWORD
	ECSVARIABLEKEYWORD	ECSVARIABLEKEYWORD
IOADSTRINGPARAMETERVALUE2	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID
	ECSPARAMETERNAME	ECSPARAMETERNAME
	ECSDISCIPLINEKEYWORD	ECSDISCIPLINEKEYWORD
	ECSTOPICKEYWORD	ECSTOPICKEYWORD
	ECSTERMKEYWORD	ECSTERMKEYWORD
	ECSVARIABLEKEYWORD	ECSVARIABLEKEYWORD
IOADTIMEPARAMETERVALUE	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID
	ECSPARAMETERNAME	ECSPARAMETERNAME
	ECSDISCIPLINEKEYWORD	ECSDISCIPLINEKEYWORD
	ECSTOPICKEYWORD	ECSTOPICKEYWORD

Referenced By	Foreign Key	Primary Key
	ECSTERMKEYWORD ECSVARIABLEKEYWORD	ECSTERMKEYWORD ECSVARIABLEKEYWORD

Name : IoAdECSTerm

Code : IOADECSTERM

Label : IoAdECSTerm

Number :

Source :

Column Name	Code	Type	P	M
ECSTermKeyword	ECSTERMKEYWORD	char(50)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
IOADECSTERM_PK	Y		Y		ECSTERMKEYWORD	ASC

Referenced By	Foreign Key	Primary Key
IOADECSCOLLDISCTOPICTERM	ECSTERMKEYWORD	ECSTERMKEYWORD

Name : IoAdECSTopic

Code : IOADECSTOPIC

Label : IoAdECSTopic

Number :

Source :

Column Name	Code	Type	P	M
ECSTopicKeyword	ECSTOPICKEYWORD	char(32)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
IOADECSTOPIC_PK	Y		Y		ECSTOPICKEYWORD	ASC

Referenced By	Foreign Key	Primary Key
IOADECSCOLLDISCIPLINETOPIC	ECSTOPICKEYWORD	ECSTOPICKEYWORD

Name : IoAdECSVariable

Code : IOADECSVARIABLE

Label : IoAdECSVariable

Number :

Source :

Column Name	Code	Type	P	M
ECSVariableKeyword	ECSVARIABLEKEYWORD	char(80)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
IOADECSVARIABLE_PK	Y		Y		ECSVARIABLEKEYWORD	ASC

Referenced By	Foreign Key	Primary Key
IOADECSCOLLDISCTOPICTERMVAR	ECSVARIABLEKEYWORD	ECSVARIABLEKEYWORD

Name : IoAdFieldCampaign

Code : IOADFIELDCAMPAIGN

Label :

Number :

Source : Entity IOADFIELDCAMPAIGN

Column Name	Code	Type	P	M
CampaignShortName	CAMPAIGNSHORTNAME	char(20)	Y	Y
CampaignProjectStartDate	CAMPAIGNPROJECTSTARTDATE	datetime		Y
CampaignProjectStopDate	CAMPAIGNPROJECTSTOPDATE	datetime		
CampaignLongName	CAMPAIGNLONGNAME	char(80)		
DataOriginatorShortName	DATAORIGINATORSHORTNAME	char(20)		

Index Code	P	F	U	C	Column Code	Sort
IOADFIELDCAMPAIGN_PK	Y		Y		CAMPAIGNSHORTNAME	ASC

Reference To	Primary Key	Foreign Key
IOADDATAORIGINATOR	DATAORIGINATORSHORTNAME	DATAORIGINATORSHORTNAME

Referenced By	Foreign Key	Primary Key
IOADECSCOLLECTIONCAMPAIGN	CAMPAIGNSHORTNAME	CAMPAIGNSHORTNAME

Name : IoAdFloatAdditAttribute

Code : IOADFLOATADDITATTRIBUTE

Label : IoAdFloatAdditAttribute

Number :

Source :

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
AdditionalAttributeName	ADDITIONALATTRIBUTENAME	varchar(80)	Y	Y
FloatAdditionalAttributeValue	FLOATADDITIONALATTRIBUTEVALUE	float(10)		

Index Code	P	F	U	C	Column Code	Sort
IOADFLOATADDITATTRIBUTE_PK	Y	Y	Y		SHORTNAME	ASC
					VERSIONID	ASC
					ADDITIONALATTRIBUTENAME	ASC

Reference To	Primary Key	Foreign Key
IOADADDITIONALATTRIBUTE	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID
	ADDITIONALATTRIBUTENAME	ADDITIONALATTRIBUTENAME

Name : IoAdFloatParameterValue

Code : IOADFLOATPARAMETERVALUE

Label : IoAdFloatParameterValue

Number :

Source :

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
ECSDisciplineKeyword	ECSDISCIPLINEKEYWORD	char(24)	Y	Y
ECSTopicKeyword	ECSTOPICKEYWORD	char(32)	Y	Y
ECSTermKeyword	ECSTERMKEYWORD	char(50)	Y	Y
ECSVariableKeyword	ECSVARIABLEKEYWORD	char(80)	Y	Y
ECSParameterName	ECSPARAMETERNAME	varchar(80)	Y	Y
FloatParameterValue	FLOATPARAMETERVALUE	float		
ParameterValueAccuracy	PARAMETERVALUEACCURACY	char(30)		
ParameterValueAccuracyExplanat	PARAMETERVALUEACCURACYEXPLANAT	varchar(255)		

Index Code	P	F	U	C	Column Code	Sort
IOADFLOATPARAMETERVALUE_PK	Y	Y	Y		SHORTNAME	ASC
					VERSIONID	ASC
					ECSDISCIPLINEKEYWORD	ASC
					ECSTOPICKEYWORD	ASC
					ECSTERMKEYWORD	ASC
					ECSVARIABLEKEYWORD	ASC
					ECSPARAMETERNAME	ASC

Reference To	Primary Key	Foreign Key
IOADECSPARAMETER	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID
	ECSPARAMETERNAME	ECSPARAMETERNAME
	ECSDISCIPLINEKEYWORD	ECSDISCIPLINEKEYWORD
	ECSTOPICKEYWORD	ECSTOPICKEYWORD
	ECSTERMKEYWORD	ECSTERMKEYWORD

Reference To	Primary Key	Foreign Key
	ECSVARIABLEKEYWORD	ECSVARIABLEKEYWORD

Name : IoAdFloatPlatformCharValue

Code : IOADFLOATPLATFORMCHARVALUE

Label : IoAdFloatPlatformCharValue

Number :

Source :

Column Name	Code	Type	P	M
PlatformShortName	PLATFORMSHORTNAME	char(31)	Y	Y
PlatformCharacteristicName	PLATFORMCHARACTERISTICNAME	char(80)	Y	Y
FloatPlatformCharValue	FLOATPLATFORMCHARVALUE	float		

Index Code	P	F	U	C	Column Code	Sort
IOADFLOATPLATFORMCHARVALUE_PK	Y	Y	Y		PLATFORMSHORTNAME	ASC
					PLATFORMCHARACTERISTICNAME	ASC

Reference To	Primary Key	Foreign Key
IOADPLATPLATFORMCHARACTERISTIC	PLATFORMSHORTNAME	PLATFORMSHORTNAME
	PLATFORMCHARACTERISTICNAME	PLATFORMCHARACTERISTICNAME

Name : IoAdFloatSensorCharValue

Code : IOADFLOATSENSORCHARVALUE

Label : IoAdFloatSensorCharValue

Number :

Source :

Column Name	Code	Type	P	M
SensorCharacteristicName	SENSORCHARACTERISTICNAME	char(80)	Y	Y
SensorShortName	SENSORSHORTNAME	char(20)	Y	Y
FloatSensorCharacteristicValue	FLOATSENSORCHARACTERISTICVALUE	float		

Index Code	P	F	U	C	Column Code	Sort
IOADFLOATSENSORCHARVALUE_PK	Y	Y	Y		SENSORCHARACTERISTICNAME	ASC
					SENSORSHORTNAME	ASC

Reference To	Primary Key	Foreign Key
IOADSENSORSENSORCHACTERISTIC	SENSORCHARACTERISTICNAME	SENSORCHARACTERISTICNAME
	SENSORSHORTNAME	SENSORSHORTNAME

Name : IoAdGuide

Code : IOADGUIDE

Label : IoAdGuide

Number :

Source :

Column Name	Code	Type	P	M
GuideShortName	GUIDENAME	char(64)		Y
DataCenter	DATACENTER	char(8)		
GuideTitle	GUIDETITLE	varchar(255)		
GuideVersion	GUIDEVERSION	char(8)		Y
GuideCreated	GUIDECREATED	datetime		
GuideUpdated	GUIDEUPDATED	datetime		
GuideURL	GUIDEURL	varchar(255)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
IOADGUIDE_PK	Y		Y		GUIDEURL	ASC

Referenced By	Foreign Key	Primary Key
IOADADVERTISEMENT	ADVERTISEMENTGUIDEURL	GUIDEURL

Name : IoAdInstrument

Code : IOADINSTRUMENT

Label :

Number :

Source : Entity IOADINSTRUMENT

Column Name	Code	Type	P	M
InstrumentShortName	INSTRUMENTSHORTNAME	char(31)	Y	Y
InstrumentLongName	INSTRUMENTLONGNAME	varchar(80)		
InstrumentTechnique	INSTRUMENTTECHNIQUE	char(20)		
DataOriginatorShortName	DATAORIGINATORSHORTNAME	char(20)		

Index Code	P	F	U	C	Column Code	Sort
IOADINSTRUMENT_PK	Y		Y		INSTRUMENTSHORTNAME	ASC

Reference To	Primary Key	Foreign Key
IOADDATAORIGINATOR	DATAORIGINATORSHORTNAME	DATAORIGINATORSHORTNAME

Referenced By	Foreign Key	Primary Key
IOADSERVICEINSTRUMENT	INSTRUMENTSHORTNAME	INSTRUMENTSHORTNAME

Name : IoAdIntAdditionalAttribute

Code : IOADINTADDITIONALATTRIBUTE

Label : IoAdIntAdditionalAttribute

Number :

Source :

Column Name	Code	Type	P	M
IntegerAdditionalAttribValue	INTEGERADDITIONALATTRIBVAL	int		
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
AdditionalAttributeName	ADDITIONALATTRIBUTENAME	varchar(80)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
IOADINTADDITIONALATTRIBUTE_PK	Y	Y	Y		SHORTNAME	ASC
					VERSIONID	ASC
					ADDITIONALATTRIBUTENAME	ASC

Reference To	Primary Key	Foreign Key
IOADADDITIONALATTRIBUTE	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID
	ADDITIONALATTRIBUTENAME	ADDITIONALATTRIBUTENAME

Name : IoAdIntegerParameterValue

Code : IOADINTEGERPARAMETERVALUE

Label : IoAdIntegerParameterValue

Number :

Source :

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
ECSDisciplineKeyword	ECSDISCIPLINEKEYWORD	char(24)	Y	Y
ECSTopicKeyword	ECSTOPICKEYWORD	char(32)	Y	Y
ECSTermKeyword	ECSTERMKEYWORD	char(50)	Y	Y
ECSVariableKeyword	ECSVARIABLEKEYWORD	char(80)	Y	Y
ECSParameterName	ECSPARAMETERNAME	varchar(80)	Y	Y
IntegerParameterValue	INTEGERPARAMETERVALUE	int		
ParameterValueAccuracy	PARAMETERVALUEACCURACY	char(30)		
ParameterValueAccuracyExplanat	PARAMETERVALUEACCURACYEXPLANAT	varchar(255)		

Index Code	P	F	U	C	Column Code	Sort
IOADINTEGERPARAMETERVALUE_PK	Y	Y	Y		SHORTNAME	ASC
					VERSIONID	ASC
					ECSDISCIPLINEKEYWORD	ASC
					ECSTOPICKEYWORD	ASC
					ECSTERMKEYWORD	ASC
					ECSVARIABLEKEYWORD	ASC
					ECSPARAMETERNAME	ASC

Reference To	Primary Key	Foreign Key
IOADECSPARAMETER	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID
	ECSPARAMETERNAME	ECSPARAMETERNAME
	ECSDISCIPLINEKEYWORD	ECSDISCIPLINEKEYWORD
	ECSTOPICKEYWORD	ECSTOPICKEYWORD
	ECSTERMKEYWORD	ECSTERMKEYWORD

Reference To	Primary Key	Foreign Key
	ECSVARIABLEKEYWORD	ECSVARIABLEKEYWORD

Name : IoAdIntegerSensorCharValue

Code : IOADINTEGERSENSORCHARVALUE

Label : IoAdIntegerSensorCharValue

Number :

Source :

Column Name	Code	Type	P	M
SensorCharacteristicName	SENSORCHARACTERISTICNAME	char(80)	Y	Y
SensorShortName	SENSORSHORTNAME	char(20)	Y	Y
IntSensorCharacteristicValue	INTSENSORCHARACTERISTICVALUE	int		

Index Code	P	F	U	C	Column Code	Sort
IOADINTEGERSENSORCHARVALUE_PK	Y	Y	Y		SENSORCHARACTERISTICNAME	ASC
					SENSORSHORTNAME	ASC

Reference To	Primary Key	Foreign Key
IOADSENSORSENSORCHACTERISTIC	SENSORCHARACTERISTICNAME	SENSORCHARACTERISTICNAME
	SENSORSHORTNAME	SENSORSHORTNAME

Name : IoAdIntPlatformCharValue

Code : IOADXPLATFORMCHARVALUE

Label : IoAdIntPlatformCharValue

Number :

Source :

Column Name	Code	Type	P	M
PlatformShortName	PLATFORMSHORTNAME	char(31)	Y	Y
PlatformCharacteristicName	PLATFORMCHARACTERISTICNAME	char(80)	Y	Y
IntPlatformCharValue	INTPLATFORMCHARVALUE	int		

Index Code	P	F	U	C	Column Code	Sort
IOADXPLATFORMCHARVALUE_PK	Y	Y	Y		PLATFORMSHORTNAME	ASC
					PLATFORMCHARACTERISTICNAME	ASC

Reference To	Primary Key	Foreign Key
IOADPLATPLATFORMCHARACTERISTIC	PLATFORMSHORTNAME	PLATFORMSHORTNAME
	PLATFORMCHARACTERISTICNAME	PLATFORMCHARACTERISTICNAME

Name : IoAdMultipleTypeCollection

Code : IOADMULTIPLETYPECOLLECTION

Label :

Number :

Source : Entity IOADMULTITYPECOLLECTION

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
AggregationValue	AGGREGATIONVALUE	varchar(80)	Y	Y
AggregationType	AGGREGATIONTYPE	char(20)		Y
AggregationRelationship	AGGREGATIONRELATIONSHIP	char(2)		Y

Index Code	P	F	U	C	Column Code	Sort
IOADMULTIPLETYPECOLLECTION_PK	Y		Y		SHORTNAME	ASC
					VERSIONID	ASC
					AGGREGATIONVALUE	ASC

Reference To	Primary Key	Foreign Key
IOADECSCOLLECTION	SHORTNAME VERSIONID	SHORTNAME VERSIONID

Name : IoAdNonInstrument

Code : IOADNONINSTRUMENT

Label : IoAdNonInstrument

Number :

Source : Entity IOADNONINSTRUMENT

Column Name	Code	Type	P	M
NonInstrumentShortName	NONINSTRUMENTSHORTNAME	char(20)	Y	Y
NonInstrumentLongName	NONINSTRUMENTLONGNAME	varchar(80)		
NonInstrumentTechnique	NONINSTRUMENTTECHNIQUE	char(20)		
BoundaryData	BOUNDARYDATA	varchar(40)		
DynamicStaticFlag	DYNAMICSTATICFLAG	char(9)		
ModeIname	MODELNAME	char(20)		
ModelDescription	MODELDESCRIPTION	varchar(255)		
DataOriginatorShortName	DATAORIGINATORSHORTNAME	char(20)		

Index Code	P	F	U	C	Column Code	Sort
IOADNONINSTRUMENT_PK	Y		Y		NONINSTRUMENTSHORTNAME	ASC

Reference To	Primary Key	Foreign Key
IOADDATAORIGINATOR	DATAORIGINATORSHORTNAME	DATAORIGINATORSHORTNAME

Referenced By	Foreign Key	Primary Key
IOADCOLLECTIONNONINSTRUMENT	NONINSTRUMENTSHORTNAME	NONINSTRUMENTSHORTNAME

Name : IoAdPlatform

Code : IOADPLATFORM

Label :

Number :

Source : Entity IOADPLATFORM

Column Name	Code	Type	P	M
PlatformShortName	PLATFORMSHORTNAME	char(31)	Y	Y
PlatformLongName	PLATFORMLONGNAME	varchar(80)		Y

Index Code	P	F	U	C	Column Code	Sort
IOADPLATFORM_PK	Y		Y		PLATFORMSHORTNAME	ASC

Referenced By	Foreign Key	Primary Key
IOADPLATPLATFORMCHARACTERISTIC	PLATFORMSHORTNAME	PLATFORMSHORTNAME
IOADECSCOLLECTIONPLATFORM	PLATFORMSHORTNAME	PLATFORMSHORTNAME

Name : IoAdPlatformCharacteristic

Code : IOADPLATFORMCHARACTERISTIC

Label : IoAdPlatformCharacteristic

Number :

Source :

Column Name	Code	Type	P	M
PlatformCharacteristicName	PLATFORMCHARACTERISTICNAME	char(80)	Y	Y
PlatformCharacteristicType	PLATFORMCHARACTERISTICTYPE	char(20)		

Index Code	P	F	U	C	Column Code	Sort
IOADPLATFORMCHARACTERISTIC_PK	Y		Y		PLATFORMCHARACTERISTICNAME	ASC

Referenced By	Foreign Key	Primary Key
IOADPLATPLATFORMCHARACTERISTIC	PLATFORMCHARACTERISTICNAME	PLATFORMCHARACTERISTICNAME

Name : IoAdPlatPlatformCharacteristic

Code : IOADPLATPLATFORMCHARACTERISTIC

Label : IoAdPlatPlatformCharacteristic

Number :

Source :

Column Name	Code	Type	P	M
PlatformShortName	PLATFORMSHORTNAME	char(31)	Y	Y
PlatformCharacteristicName	PLATFORMCHARACTERISTICNAME	char(80)	Y	Y
PlatformCharacteristicUnit	PLATFORMCHARACTERISTICUNIT	char(20)		Y

Index Code	P	F	U	C	Column Code	Sort
IOADPLATPLATFORMCHARACTERIS_PK	Y	Y	Y		PLATFORMSHORTNAME	ASC
					PLATFORMCHARACTERISTICNAME	ASC

Reference To	Primary Key	Foreign Key
IOADPLATFORM	PLATFORMSHORTNAME	PLATFORMSHORTNAME
IOADPLATFORMCHARACTERISTIC	PLATFORMCHARACTERISTICNAME	PLATFORMCHARACTERISTICNAME

Referenced By	Foreign Key	Primary Key
IOADSTRINGPLATFORMCHARVALUE	PLATFORMSHORTNAME	PLATFORMSHORTNAME
	PLATFORMCHARACTERISTICNAME	PLATFORMCHARACTERISTICNAME
IOADFLOATPLATFORMCHARVALUE	PLATFORMSHORTNAME	PLATFORMSHORTNAME
	PLATFORMCHARACTERISTICNAME	PLATFORMCHARACTERISTICNAME
IOADDATEPLATFORMCHARVALUE	PLATFORMSHORTNAME	PLATFORMSHORTNAME
	PLATFORMCHARACTERISTICNAME	PLATFORMCHARACTERISTICNAME
IOADXPLATFORMCHARVALUE	PLATFORMSHORTNAME	PLATFORMSHORTNAME
	PLATFORMCHARACTERISTICNAME	PLATFORMCHARACTERISTICNAME

Name : IoAdProcessingLevel

Code : IOADPROCESSINGLEVEL

Label :

Number :

Source : Entity IOADPROCESSINGLEVEL

Column Name	Code	Type	P	M
ProcessingLevelID	PROCESSINGLEVELID	char(6)	Y	Y
ProcessingLevelDescription	PROCESSINGLEVELDESCRIPTION	varchar(80)		

Index Code	P	F	U	C	Column Code	Sort
IOADPROCESSINGLEVEL_PK	Y		Y		PROCESSINGLEVELID	ASC

Referenced By	Foreign Key	Primary Key
IOADSINGLETYPECOLLECTION	PROCESSINGLEVELID	PROCESSINGLEVELID

Name : IoAdProductAdvertisement

Code : IOADPRODUCTADVERTISEMENT

Label :

Number :

Source : Entity IOADPRODUCTADVERTISEMENT

Column Name	Code	Type	P	M
AdvertisementID	ADVERTISEMENTID	int	Y	Y
ShortName	SHORTNAME	char(8)		Y
VersionID	VERSIONID	int		Y

Index Code	P	F	U	C	Column Code	Sort
IOADPRODUCTADVERTISEMENT_PK	Y	Y	Y		ADVERTISEMENTID	ASC
IOADPRODUCTADVERTISEMENT_FK1		Y			SHORTNAME	ASC
					VERSIONID	ASC

Reference To	Primary Key	Foreign Key
IOADECSCOLLECTION	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID
IOADADVERTISEMENT	ADVERTISEMENTID	ADVERTISEMENTID

Name : IoAdQACollectionStats

Code : IOADQACOLLECTIONSTATS

Label : IoADQACollectionStats

Number :

Source : Entity IOADQACOLLECTIONSTATS

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
QualityFlag	QUALITYFLAG	char(64)	Y	Y
QualityFlagExplanation	QUALITYFLAGEXPLANATION	varchar(255)		
QualityFlagType	QUALITYFLAGTYPE	char(64)		Y
QualityFlagStatus	QUALITYFLAGSTATUS	char(10)		Y

Index Code	P	F	U	C	Column Code	Sort
IOADQACOLLECTIONSTATS_PK	Y		Y		SHORTNAME	ASC
					VERSIONID	ASC
					QUALITYFLAG	ASC

Reference To	Primary Key	Foreign Key
IOADECSCOLLECTION	SHORTNAME VERSIONID	SHORTNAME VERSIONID

Name : IoAdRangeDateTime

Code : IOADRANGEDATETIME

Label :

Number :

Source : Entity IOADRANGEDATETIME

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
RangeBeginningDateTime	RANGEBEGINNINGDATETIME	datetime	Y	Y
RangeEndingDateTime	RANGEENDINGDATETIME	datetime		Y

Index Code	P	F	U	C	Column Code	Sort
IOADRANGEDATETIME_PK	Y		Y		SHORTNAME	ASC
					VERSIONID	ASC
					RANGEBEGINNINGDATETIME	ASC

Reference To	Primary Key	Foreign Key
IOADDISCONTINUOUSMULTIPLERANGE	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID

Name : IoAdReferencePaper

Code : IOADREFERENCEPAPER

Label : IoAdReferencePaper

Number :

Source :

Column Name	Code	Type	P	M
ReferencePaperTitle	REFERENCEPAPERTITLE	varchar(%255)		Y
ReferencePaperVersion	REFERENCEPAPERVERSION	char(8)	Y	Y
ReferencePaperCreated	REFERENCEPAPERCREATED	datetime		
ReferencePaperUpdated	REFERENCEPAPERUPDATED	datetime		
ReferencePaperDocumentID	REFERENCEPAPERDOCUMENTID	char(10)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
IOADREFERENCEPAPER_PK	Y		Y		REFERENCEPAPERVERSION	ASC
					REFERENCEPAPERDOCUMENTID	ASC

Referenced By	Foreign Key	Primary Key
IOADECSCOLLECTIONREFPAPER	REFERENCEPAPERVERSION REFERENCEPAPERDOCUMENTID	REFERENCEPAPERVERSION REFERENCEPAPERDOCUMENTID

Name : IoAdRegularPeriodic

Code : IOADREGULARPERIODIC

Label : IoAdRegularPeriodic

Number :

Source : Entity IOADREGULARPERIODIC

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
PeriodName	PERIODNAME	char(30)	Y	Y
PeriodDurationUnit	PERIODDURATIONUNIT	char(15)		Y
PeriodDurationValue	PERIODDURATIONVALUE	decimal(7,3)		Y
PeriodCycleDurationUnit	PERIODCYCLEDURATIONUNIT	char(15)		Y
PeriodCycleDurationValue	PERIODCYCLEDURATIONVALUE	decimal(7,3)		Y
Period1stDateTime	PERIOD1STDATETIME	datetime		Y

Index Code	P	F	U	C	Column Code	Sort
IOADREGULARPERIODIC_PK	Y		Y		SHORTNAME	ASC
					VERSIONID	ASC
					PERIODNAME	ASC

Reference To	Primary Key	Foreign Key
IOADTEMPORAL	SHORTNAME VERSIONID	SHORTNAME VERSIONID

Name : IoAdSensor

Code : IOADSENSOR

Label :

Number :

Source : Entity IOADSENSOR

Column Name	Code	Type	P	M
SensorShortName	SENSORSHORTNAME	char(31)	Y	Y
SensorLongName	SENSORLONGNAME	varchar(80)		
SensorTechnique	SENSORTECHNIQUE	char(40)		

Index Code	P	F	U	C	Column Code	Sort
IOADSENSOR_PK	Y		Y		SENSORSHORTNAME	ASC

Referenced By	Foreign Key	Primary Key
IOADCOLLSERVICEINSTRSENSOR	SENSORSHORTNAME	SENSORSHORTNAME
IOADSENSORSENSORCHACTERISTIC	SENSORSHORTNAME	SENSORSHORTNAME

Name : IoAdSensorCharacteristic

Code : IOADSENSORCHARACTERISTIC

Label : IoAdSensorCharacteristic

Number :

Source :

Column Name	Code	Type	P	M
SensorCharacteristicName	SENSORCHARACTERISTICNAME	char(80)	Y	Y
SensorCharacteristicType	SENSORCHARACTERISTICTYPE	char(20)		

Index Code	P	F	U	C	Column Code	Sort
IOADSENSORCHARACTERISTIC_PK	Y		Y		SENSORCHARACTERISTICNAME	ASC

Referenced By	Foreign Key	Primary Key
IOADSENSORSENSORCHACTERISTIC	SENSORCHARACTERISTICNAME	SENSORCHARACTERISTICNAME

Name : IoAdSensorSensorCharacteristic

Code : IOADSENSORSENSORCHACTERISTIC

Label : IoAdSensorSensorCharacteristic

Number :

Source :

Column Name	Code	Type	P	M
SensorCharacteristicName	SENSORCHARACTERISTICNAME	char(80)	Y	Y
SensorShortName	SENSORSHORTNAME	char(20)	Y	Y
SensorCharacteristicUnit	SENSORCHARACTERISTICUNIT	char(20)		Y

Index Code	P	F	U	C	Column Code	Sort
IOADSENSORSENSORCHACTERISTI_PK	Y	Y	Y		SENSORCHARACTERISTICNAME	ASC
					SENSORSHORTNAME	ASC

Reference To	Primary Key	Foreign Key
IOADSENSOR	SENSORSHORTNAME	SENSORSHORTNAME
IOADSENSORCHARACTERISTIC	SENSORCHARACTERISTICNAME	SENSORCHARACTERISTICNAME

Referenced By	Foreign Key	Primary Key
IOADFLOATSENSORCHARVALUE	SENSORCHARACTERISTICNAME	SENSORCHARACTERISTICNAME
	SENSORSHORTNAME	SENSORSHORTNAME
IOADDATESENSORCHARVALUE	SENSORCHARACTERISTICNAME	SENSORCHARACTERISTICNAME
	SENSORSHORTNAME	SENSORSHORTNAME
IOADINTEGERSENSORCHARVALUE	SENSORCHARACTERISTICNAME	SENSORCHARACTERISTICNAME
	SENSORSHORTNAME	SENSORSHORTNAME
IOADSTRINGSENSORCHARVALUE	SENSORCHARACTERISTICNAME	SENSORCHARACTERISTICNAME
	SENSORSHORTNAME	SENSORSHORTNAME

Name : IoAdService

Code : IOADSERVICE

Label :

Number :

Source : Entity IOADSERVICE

Column Name	Code	Type	P	M
ServiceName	SERVICENAME	char(10)	Y	Y
ServiceTypeID	SERVICETYPEID	char(9)		Y
ServiceClass	SERVICECLASS	char(10)		Y
ServiceDescription	SERVICEDESCRIPTION	char(10)		
InstallationDescription	INSTALLATIONDESCRIPTION	varchar(255)		
InstallationUR	INSTALLATIONUR	varchar(255)		
ServiceSoftwareUR	SERVICESOFTWAREUR	varchar(255)		
ECUrUR	ECURUR	varchar(255)		

Index Code	P	F	U	C	Column Code	Sort
IOADSERVICE_PK	Y		Y		SERVICENAME	ASC

Referenced By	Foreign Key	Primary Key
IOADECSCOLLECTIONSERVICES	SERVICENAME	SERVICENAME
IOADSERVICEADVERTISEMENT	SERVICENAME	SERVICENAME
IOADSERVICEPARAMETER	SERVICENAME	SERVICENAME

Name : IoAdServiceAdvertisement

Code : IOADSERVICEADVERTISEMENT

Label :

Number :

Source : Entity IOADSERVICEADVERTISEMENT

Column Name	Code	Type	P	M
AdvertisementID	ADVERTISEMENTID	int	Y	Y
ServiceName	SERVICENAME	char(10)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
IOADSERVICEADVERTISEMENT_PK	Y	Y	Y		ADVERTISEMENTID	ASC
					SERVICENAME	ASC

Reference To	Primary Key	Foreign Key
IOADSERVICE	SERVICENAME	SERVICENAME
IOADADVERTISEMENT	ADVERTISEMENTID	ADVERTISEMENTID

Name : IoAdServiceInstrument

Code : IOADSERVICEINSTRUMENT

Label :

Number :

Source : Entity IOADSERVICEINSTRUMENT

Column Name	Code	Type	P	M
ServiceInstrumentIdentifier	SERVICEINSTRUMENTIDENTIFIER	int	Y	Y
InstrumentShortName	INSTRUMENTSHORTNAME	char(31)		Y

Index Code	P	F	U	C	Column Code	Sort
IOADSERVICEINSTRUMENT_PK	Y	Y	Y		SERVICEINSTRUMENTIDENTIFIER	ASC
IOADSERVICEINSTRUMENT_FK1		Y			INSTRUMENTSHORTNAME	ASC

Reference To	Primary Key	Foreign Key
IOADINSTRUMENT	INSTRUMENTSHORTNAME	INSTRUMENTSHORTNAME

Referenced By	Foreign Key	Primary Key
IOADECSCOLLECTIONINSTRUMENT	SERVICEINSTRUMENTIDENTIFIER	SERVICEINSTRUMENTIDENTIFIER

Name : IoAdServiceParameter

Code : IOADSERVICEPARAMETER

Label : IoAdServiceParameter

Number :

Source :

Column Name	Code	Type	P	M
ServiceName	SERVICENAME	char(10)	Y	Y
ServiceParameterName	SERVICEPARAMETERNAME	char(10)	Y	Y
ServiceParameterDescription	SERVICEPARAMETERDESCRIPTION	char(10)		
ServiceParameterType	SERVICEPARAMETERTYPE	char(10)		

Index Code	P	F	U	C	Column Code	Sort
IOADSERVICEPARAMETER_PK	Y		Y		SERVICENAME	ASC
					SERVICEPARAMETERNAME	ASC

Reference To	Primary Key	Foreign Key
IOADSERVICE	SERVICENAME	SERVICENAME

Name : IoAdSingleDateTime

Code : IOADSINGLEDATETIME

Label : IoAdSingleDateTime

Number :

Source : Entity IOADSINGLEDATETIME

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
CalendarDateTime	CALENDARDATETIME	datetime	Y	Y

Index Code	P	F	U	C	Column Code	Sort
IOADSINGLEDATETIME_PK	Y		Y		SHORTNAME	ASC
					VERSIONID	ASC
					CALENDARDATETIME	ASC

Reference To	Primary Key	Foreign Key
IOADCOLLECTIONPOINTINTIME	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID

Name : IoAdSingleTypeCollection

Code : IOADSINGLETYPECOLLECTION

Label :

Number :

Source : Entity IOADSINGLETYPECOLLECTION

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
ProcessingLevelID	PROCESSINGLEVELID	char(6)		
TemporalKeyword	TEMPORALKEYWORD	char(10)		Y
CitationforExternalPublication	CITATIONFOREXTERNALPUBLICATION	varchar(255)		
CollectionState	COLLECTIONSTATE	varchar(255)		
AccessConstraints	ACCESSCONSTRAINTS	varchar(320)		

Index Code	P	F	U	C	Column Code	Sort
IOADSINGLETYPECOLLECTION_PK	Y	Y	Y		SHORTNAME	ASC
					VERSIONID	ASC
IOADSINGLETYPECOLLECTION_FK1		Y			PROCESSINGLEVELID	ASC

Reference To	Primary Key	Foreign Key
IOADPROCESSINGLEVEL	PROCESSINGLEVELID	PROCESSINGLEVELID
IOADECSCOLLECTION	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID

Name : IoAdSpatial

Code : IOADSPATIAL

Label :

Number :

Source : Entity IOADSPATIAL

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
SpatialCoverageType	SPATIALCOVERAGETYPE	char(18)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
IOADSPATIAL_PK	Y		Y		SHORTNAME	ASC
					VERSIONID	ASC
					SPATIALCOVERAGETYPE	ASC

Reference To	Primary Key	Foreign Key
IOADECSCOLLECTION	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID

Referenced By	Foreign Key	Primary Key
IOADBOUNDINGALTITUDE	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID
IOADBOUNDINGRECTANGLE	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID
IOADBOUNDINGDEPTH	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID

Name : IoAdSpatialKeywordClass

Code : IOADSPATIALKEYWORDCLASS

Label :

Number :

Source : Entity IOADECSCOLLECTIONGEOREGION

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
SpatialKeyword	SPATIALKEYWORD	char(10)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
IOADECSCOLLECTIONGEOREGION_PK	Y	Y	Y		SHORTNAME	ASC
					VERSIONID	ASC

Reference To	Primary Key	Foreign Key
IOADECSCOLLECTION	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID

Name : IoAdStrAdditAttribute

Code : IOADSTRADDITATTRIBUTE

Label : IoAdStrAdditAttribute

Number :

Source :

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
AdditionalAttributeName	ADDITIONALATTRIBUTENAME	varchar(80)	Y	Y
StringAdditonalAttribValue	STRINGADDITONALATTRIBVALUE	varchar(80)		

Index Code	P	F	U	C	Column Code	Sort
IOADSTRADDITATTRIBUTE_PK	Y	Y	Y		SHORTNAME	ASC
					VERSIONID	ASC
					ADDITIONALATTRIBUTENAME	ASC

Reference To	Primary Key	Foreign Key
IOADADDITIONALATTRIBUTE	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID
	ADDITIONALATTRIBUTENAME	ADDITIONALATTRIBUTENAME

Name : IoAdStringParameterValue

Code : IOADSTRINGPARAMETERVALUE2

Label : IoAdStringParameterValue

Number :

Source :

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
ECSDisciplineKeyword	ECSDISCIPLINEKEYWORD	char(24)	Y	Y
ECSTopicKeyword	ECSTOPICKEYWORD	char(32)	Y	Y
ECSTermKeyword	ECSTERMKEYWORD	char(50)	Y	Y
ECSVariableKeyword	ECSVARIABLEKEYWORD	char(80)	Y	Y
ECSParameterName	ECSPARAMETERNAME	varchar(80)	Y	Y
StringParameterValue	STRINGPARAMETERVALUE	varchar(80)		

Index Code	P	F	U	C	Column Code	Sort
IOADSTRINGPARAMETERVALUE2_PK	Y	Y	Y		SHORTNAME	ASC
					VERSIONID	ASC
					ECSDISCIPLINEKEYWORD	ASC
					ECSTOPICKEYWORD	ASC
					ECSTERMKEYWORD	ASC
					ECSVARIABLEKEYWORD	ASC
					ECSPARAMETERNAME	ASC

Reference To	Primary Key	Foreign Key
IOADECSPARAMETER	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID
	ECSPARAMETERNAME	ECSPARAMETERNAME
	ECSDISCIPLINEKEYWORD	ECSDISCIPLINEKEYWORD
	ECSTOPICKEYWORD	ECSTOPICKEYWORD
	ECSTERMKEYWORD	ECSTERMKEYWORD
	ECSVARIABLEKEYWORD	ECSVARIABLEKEYWORD

Name : IoAdStringPlatformCharValue

Code : IOADSTRINGPLATFORMCHARVALUE

Label : IoAdStringPlatformCharValue

Number :

Source :

Column Name	Code	Type	P	M
PlatformShortName	PLATFORMSHORTNAME	char(31)	Y	Y
PlatformCharacteristicName	PLATFORMCHARACTERISTICNAME	char(80)	Y	Y
StringPlatformCharValue	STRINGPLATFORMCHARVALUE	varchar(255)		

Index Code	P	F	U	C	Column Code	Sort
IOADSTRINGPLATFORMCHARVALUE_PK	Y	Y	Y		PLATFORMSHORTNAME	ASC
					PLATFORMCHARACTERISTICNAME	ASC

Reference To	Primary Key	Foreign Key
IOADPLATPLATFORMCHARACTERISTIC	PLATFORMSHORTNAME	PLATFORMSHORTNAME
	PLATFORMCHARACTERISTICNAME	PLATFORMCHARACTERISTICNAME

Name : IoAdStringSensorCharValue

Code : IOADSTRINGSENSORCHARVALUE

Label : IoAdStringSensorCharValue

Number :

Source :

Column Name	Code	Type	P	M
SensorCharacteristicName	SENSORCHARACTERISTICNAME	char(80)	Y	Y
SensorShortName	SENSORSHORTNAME	char(20)	Y	Y
StringSensorCharacteristicValu	STRINGSENSORCHARACTERISTICVALU	varchar(255)		

Index Code	P	F	U	C	Column Code	Sort
IOADSTRINGSENSORCHARVALUE_PK	Y	Y	Y		SENSORCHARACTERISTICNAME	ASC
					SENSORSHORTNAME	ASC

Reference To	Primary Key	Foreign Key
IOADSENSORSENSORCHACTERISTIC	SENSORCHARACTERISTICNAME	SENSORCHARACTERISTICNAME
	SENSORSHORTNAME	SENSORSHORTNAME

Name : IoAdTemporal

Code : IOADTEMPORAL

Label : IoAdTemporal

Number :

Source : Entity IOADTEMPORAL

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
TemporalRangeType	TEMPORALRANGETYPE	char(30)		Y
DateType	DATETYPE	char(10)		Y
TimeType	TIMETYPE	char(10)		Y
PrecisionofSeconds	PRECISIONOFSECONDS	smallint		Y

Index Code	P	F	U	C	Column Code	Sort
IOADTEMPORAL_PK	Y	Y	Y		SHORTNAME	ASC
					VERSIONID	ASC

Reference To	Primary Key	Foreign Key
IOADECSCOLLECTION	SHORTNAME VERSIONID	SHORTNAME VERSIONID

Referenced By	Foreign Key	Primary Key
IOADDISCONTINUOUSMULTIPLERANGE	SHORTNAME VERSIONID	SHORTNAME VERSIONID
IOADCOLLECTIONPOINTINTIME	SHORTNAME VERSIONID	SHORTNAME VERSIONID
IOADREGULARPERIODIC	SHORTNAME VERSIONID	SHORTNAME VERSIONID

Name : IoAdTimeAdditAttribute

Code : IOADTIMEADDITATTRIBUTE

Label : IoAdTimeAdditAttribute

Number :

Source :

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
AdditionalAttributeName	ADDITIONALATTRIBUTENAME	varchar(80)	Y	Y
TimeAdditionalAttributeValue	TIMEADDITIONALATTRIBUTEVALUE	timestamp		

Index Code	P	F	U	C	Column Code	Sort
IOADTIMEADDITATTRIBUTE_PK	Y	Y	Y		SHORTNAME	ASC
					VERSIONID	ASC
					ADDITIONALATTRIBUTENAME	ASC

Reference To	Primary Key	Foreign Key
IOADADDITIONALATTRIBUTE	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID
	ADDITIONALATTRIBUTENAME	ADDITIONALATTRIBUTENAME

Name : IoAdTimeParameterValue

Code : IOADTIMEPARAMETERVALUE

Label : IoAdTimeParameterValue

Number :

Source :

Column Name	Code	Type	P	M
ShortName	SHORTNAME	char(8)	Y	Y
VersionID	VERSIONID	int	Y	Y
ECSDisciplineKeyword	ECSDISCIPLINEKEYWORD	char(24)	Y	Y
ECSTopicKeyword	ECSTOPICKEYWORD	char(32)	Y	Y
ECSTermKeyword	ECSTERMKEYWORD	char(50)	Y	Y
ECSVariableKeyword	ECSVARIABLEKEYWORD	char(80)	Y	Y
ECSParameterName	ECSPARAMETERNAME	varchar(80)	Y	Y
TimeParameterValue	TIMEPARAMETERVALUE	timestamp		
ParameterValueAccuracy	PARAMETERVALUEACCURACY	char(30)		
ParameterValueAccuracyExplanat	PARAMETERVALUEACCURACYEXPLANAT	varchar(255)		

Index Code	P	F	U	C	Column Code	Sort
IOADTIMEPARAMETERVALUE_PK	Y	Y	Y		SHORTNAME	ASC
					VERSIONID	ASC
					ECSDISCIPLINEKEYWORD	ASC
					ECSTOPICKEYWORD	ASC
					ECSTERMKEYWORD	ASC
					ECSVARIABLEKEYWORD	ASC
					ECSPARAMETERNAME	ASC

Reference To	Primary Key	Foreign Key
IOADECSPARAMETER	SHORTNAME	SHORTNAME
	VERSIONID	VERSIONID
	ECSPARAMETERNAME	ECSPARAMETERNAME
	ECSDISCIPLINEKEYWORD	ECSDISCIPLINEKEYWORD
	ECSTOPICKEYWORD	ECSTOPICKEYWORD
	ECSTERMKEYWORD	ECSTERMKEYWORD

Reference To	Primary Key	Foreign Key
	ECSVARIABLEKEYWORD	ECSVARIABLEKEYWORD

Name : SurrogateKey

Code : SURROGATEKEY

Label : SurrogateKey

Number :

Source :

Column Name	Code	Type	P	M
SurrogateKeyType	SURROGATEKEYTYPE	varchar(80)	Y	Y
MaxSurrogateKeyNumber	MAXSURROGATEKEYNUMBER	int		

Index Code	P	F	U	C	Column Code	Sort
SURROGATEKEY_PK	Y		Y		SURROGATEKEYTYPE	ASC

8.2.1 Cross Reference Tables for Traceability

The following cross reference tables identify the objects and attributes for the Data Dictionary (Table 8-3) and Interoperability (Table 8-4) Subsystemõs persistent data as indicated in the DID305 volume dated March 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.

8-3. Data Dictionary Subsytem Persistent Data Cross Reference Table (1 of 11)

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
DmDdAcronym	AcronymDescription					
DmDdAcronym	AcronymName					
DmDdAttribute	AttributeDataType					
DmDdAttribute	AttributeDesc	DDictPersistentB		AttributeDesc		
DmDdAttribute	AttributeName	DDictPersistentB		AttributeName	Entire ECS Logical Database Entities	Entire ECS Logical Database Attributes
DmDdAttribute	AttributeSize	DDictPersistentB		AttributeSize		
DmDdAttribute	CollID					
DmDdAttribute	NonECSAttribute	DDictPersistentB		NonECSAttribute		
DmDdAttribute	Searchable	DDictPersistentB		Searchable		
DmDdAttributeXref	AttributeName	DDictPersistentB	DmDdAttribute	AttributeName	Entire ECS Logical Database Entities	Entire ECS Logical Database Attributes
DmDdAttributeXref	AttributeNameRef	DDictPersistentB	DmDdAttribute	AttributeName	Entire ECS Logical Database Entities	Entire ECS Logical Database Attributes
DmDdAttributeXref	CollId	DDictPersistentB				
DmDdAttributeXref	CollRef	DDictPersistentB				
DmDdBoundingRectangle	CollID					
DmDdBoundingRectangle	EastBoundingCoordinate	DDictPersistentB	DmDdAttribute DmDdNumeric	AttributeName AttributeDatatype AttributeStartRange	BoundingRectangle	EastBoundingCoordinate

8-3. Data Dictionary Subsytem Persistent Data Cross Reference Table (2 of 11)

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
DmDdBoundingRectangle	NorthBoundingCoordinate	DDictPersistentB	DmDdAttribute DmDdNumeric	AttributeName AttributeDatatype AttributeStartRange	BoundingRectangle	NorthBoundingCooridinat
DmDdBoundingRectangle	SouthBoundingCoordonate	DDictPersistentB	DmDdAttribute DmDdNumeric	AttributeName AttributeDatatype AttributeStartRange	BoundingRectangle	SouthBoundingCoordinate
DmDdBoundingRectangle	WestBoundingCoordinate	DDictPersistentB	DmDdAttribute DmDdNumeric	AttributeName AttributeDatatype AttributeStartRange	BoundingRectangle	WestBoundingCoordinate
DmDdCollPlatInstrXRef	CollId					
DmDdCollPlatInstrXRef	PlatInstrID					
DmDdControlledParameter	ControlledParameterKeyword	DDictPersistentB	DmDdControlledParameter	ControlledParameterKeyword	ECSTerm	ECSTermKeyword
DmDdControlledParameter	ControlledParameterDescription					
DmDdDatePlatformCharacteristic	DatePlatformCharacteristicValu				PlatformCharacteristic	PlatformCharacteristicValue
DmDdDatePlatformCharacteristic	PlatformCharacteristicName				PlatformCharacteristic	PlatformCharacteristicName
DmDdDatePlatformCharacteristic	PlatformCharacteristicUnit				PlatformCharacteristic	PlatformCharacteristicUnit
DmDdDatePlatformCharacteristic	PlatformShortName	DDictPersistentB	Platform	PlatformShortName	Platform	PlatformShortName
DmDdDateSensorCharacteristic	DateSensorCharacteristicValue	DDictPersistentB	SensorCharacteristic	SensorCharacteristicValue	SensorCharacteristic	SensorCharacteristicValue

8-3. Data Dictionary Subsytem Persistent Data Cross Reference Table (3 of 11)

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
DmDdDateSensorCharacteristic	SensorCharacteristicName	DDictPersistentB	SensorCharacteristic	SensorCharacteristicName	SensorCharacteristic	SensorCharacteristicName
DmDdDateSensorCharacteristic	SensorCharacteristicUnit	DDictPersistentB	SensorCharacteristic	SensorCharacteristicUnit	SensorCharacteristic	SensorCharacteristicUnit
DmDdDateSensorCharacteristic	SensorShortName	DDictPersistentB	Sensor	SensorShortName	Sensor	SensorShortName
DmDdDateTime	AttributeName	DDictPersistentB	DmDdAttribute	AttributeName		
DmDdDateTime	CollID					
DmDdDateTime	EndDate	DDictPersistentB	DmDdDateTime	myStartTime		
DmDdDateTime	StartDate	DDictPersistentB	DmDdDateTime	myEndTime		
DmDdDiscipline	DisciplineKeyword	DDictPersistentB	DmDdDiscipline	DisciplineKeyword	ECSDiscipline	ECSDisciplineKeyword
DmDdDiscipline	DisciplineDescription					
DmDdECSCollection	ArchiveCenter	DDictPersistentB	DmDdECSCollection	ArchiveCenter	ECSCollection	ArchiveCenter
DmDdECSCollection	CollID					
DmDdECSCollection	CollectionURL				ECSCollectionGuide	ECSCollectionGuidePointer
DmDdECSCollection	Description	DDictPersistentB	DmDdECSCollection	Description	CollectionDescriptionClass	CollectionDescription
DmDdECSCollection	LongName				CollectionDescriptionClass	CollectionDescription
DmDdECSCollection	ProcessingCenter	DDictPersistentB	DmDdECSCollection	ProcessingCenter	ECSCollection	ProcessingCenter
DmDdECSCollection	RevisionDate	DDictPersistentB	DmDdECSCollection	RevisionDate	ECSCollection	RevisionDate
DmDdECSCollection	ShortName	DDictPersistentB	DmDdECSCollection	ShortName	CollectionDescriptionClass	ShortName

8-3. Data Dictionary Subsytem Persistent Data Cross Reference Table (4 of 11)

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
DmDdECSCollection	SuggestedUsage	DDictPersistentB	DmDdECSCollection	SuggestedUsage	ECSCollection	SuggestedUsage
DmDdECSCollection	VersionID				CollectionDescriptionClass	VersionID
DmDdECSCollKeywordXref	CollID					
DmDdECSCollKeywordXref	ControlledParameterKeyword	DDictPersistentB	ControlledParameter	ControlledParameterKeyword	ECSTerm	ECSTermKeyword
DmDdECSCollKeywordXref	DisciplineKeyword	DDictPersistentB	Discipline	DisciplineKeyword	ECSDiscipline	ECSDisciplineKeyword
DmDdECSCollKeywordXref	ParameterName	DDictPersistentB	Parameter	ParameterName	ECSParameter	ECSParameterKeyword
DmDdECSCollKeywordXref	TopicKeyword	DDictPersistentB	Topic	TopicKeyword	ECSTopic	ECSTopicKeyword
DmDdECSCollKeywordXref	UncontrolledParameterKeyword	DDictPersistentB	UncontrolledParameter	UncontrolledParameterKeyword	ECSVariable	ECSVariableKeyword
DmDdFloatPlatfrmCharacteristic	FloatPlatformCharacteristicVal					
DmDdFloatPlatformCharacteristic	PlatformCharacteristicName				PlatformCharacteristic	PlatformCharacteristicName
DmDdFloatPlatformCharacteristic	PlatformCharacteristicUnit				PlatformCharacteristic	PlatformCharacteristicUnit
DmDdFloatPlatformCharacteristic	PlatformShortName	DDictPersistentB	Platform	PlatformShortName	Platform	PlatformShortName
DmDdFloatSensorCharacteristic	FloatSensorCharacteristicValue	DDictPersistentB	SensorCharacteristic	SensorCharacteristicValue	SensorCharacteristic	SensorCharacteristicValue
DmDdFloatSensorCharacteristic	SensorCharacteristicName	DDictPersistentB	SensorCharacteristic	SensorCharacteristicName	SensorCharacteristic	SensorCharacteristicName
DmDdFloatSensorCharacteristic	SensorCharacteristicUnit	DDictPersistentB	SensorCharacteristic	SensorCharacteristicUnit	SensorCharacteristic	SensorCharacteristicUnit
DmDdFloatSensorCharacteristic	SensorShortName	DDictPersistentB	Sensor	SensorShortName	Sensor	SensorShortName

8-3. Data Dictionary Subsytem Persistent Data Cross Reference Table (5 of 11)

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
DmDdGlossary	GlossaryName					
DmDdGlossary	GlossaryDesc					
DmDdInfoMgr	InfoMgrDesc	DDictPersistentB	DmDdInfoMgr	InfoMgrDesc		
DmDdInfoMgr	InfoMgrName	DDictPersistentB	DmDdInfoMgr	InfoMgrName		
DmDdInfoMgr	InfoMgrParentName	DDictPersistentB	DmDdInfoMgr	InfoMgrName		
DmDdInfoMgr	InforMgrType	DDictPersistentB	DmDdInfoMgr	InforMgrType		
DmDdInfoMgr	InforMgrUR					
DmDdInfoMgrCollXref	CollId					
DmDdInfoMgrCollXref	InfoMgrName	DDictPersistentB	DmDdInfoMgr	InfoMgrName		
DmDdInstrument	InstrumentDescription					
DmDdInstrument	InstrumentName	DDictPersistentB	DmDdInstrument	InstrumentName	Instrument	InstrumentName
DmDdInstrument	InstrumentType	DDictPersistentB	DmDdInstrument	InstrumentType	Instrument	InstrumentTechnique
DmDdIntPlatfrmCharacteristic	IntPlatformCharacteristicVal					
DmDdIntPlatformCharacteristic	PlatformCharacteristicName				PlatformCharacteristic	PlatformCharacteristicName
DmDdIntPlatformCharacteristic	PlatformCharacteristicUnit				PlatformCharacteristic	PlatformCharacteristicUnit
DmDdIntPlatformCharacteristic	PlatformShortName	DDictPersistentB	Platform	PlatformShortName	Platform	PlatformShortName
DmDdIntSensorCharacteristic	IntSensorCharacteristicValue	DDictPersistentB	SensorCharacteristic	SensorCharacteristicValue	SensorCharacteristic	SensorCharacteristicValue
DmDdIntSensorCharacteristic	SensorCharacteristicName	DDictPersistentB	SensorCharacteristic	SensorCharacteristicName	SensorCharacteristic	SensorCharacteristicName

8-3. Data Dictionary Subsytem Persistent Data Cross Reference Table (6 of 11)

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
DmDdIntSensorCharacteristic	SensorCharacteristicUnit	DDictPersistentB	SensorCharacteristic	SensorCharacteristicUnit	SensorCharacteristic	SensorCharacteristicUnit
DmDdIntSensorCharacteristic	SensorShortName	DDictPersistentB	Sensor	SensorShortName	Sensor	SensorShortName
DmDdKeyword	AttributeName	DDictPersistentB	DmDdAttribute	AttributeName	Entire ECS Logical Database Entities	Entire ECS Logical Database Attributes
DmDdKeyword	CollID					
DmDdKeyword	KeywordDescription					
DmDdKeyword	KeywordName					
DmDdKeywordAliasXref	AttributeName	DDictPersistentB	DmDdAttribute	AttributeName	Entire ECS Logical Database Entities	Entire ECS Logical Database Attributes
DmDdKeywordAliasXref	AttributeNameRef	DDictPersistentB	DmDdAttribute	AttributeName	Entire ECS Logical Database Entities	Entire ECS Logical Database Attributes
DmDdKeywordAliasXref	CollID					
DmDdKeywordAliasXref	CollIDRef					
DmDdKeywordAliasXref	KeywordName					
DmDdKeywordAliasXref	KeywordNameRef					
DmDdMultipleCollection	AggregationAttribute	DDictPersistentB	MultipleTypeCollection	AggregationAttribute	MultipleTypeCollection	AggregationRelationship
DmDdMultipleCollection	AggregationType	DDictPersistentB	MultipleTypeCollection	AggregationType	MultipleTypeCollection	AggregationType
DmDdMultipleCollection	AggegationValue	DDictPersistentB	MultipleTypeCollection	AggegationValue	MultipleTypeCollection	AggregationValue

8-3. Data Dictionary Subsytem Persistent Data Cross Reference Table (7 of 11)

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
DmDdMultipleCollection	CollID					
DmDdNumeric	Accuracy	DDictPersistentB	DmDdNumeric	myAccuracy		
DmDdNumeric	AccuracyExplanation	DDictPersistentB	DmDdNumeric	myAccuracyExplanation		
DmDdNumeric	AttributeName					
DmDdNumeric	EndRange	DDictPersistentB	DmDdNumeric	myEndRange		
DmDdNumeric	MeasurementResolution	DDictPersistentB	DmDdNumeric	myMeasurementResolution		
DmDdNumeric	NumericPrecision	DDictPersistentB	DmDdNumeric	myNumericPrecision		
DmDdNumeric	StartRange	DDictPersistentB	DmDdNumeric	myStartRange		
DmDdNumeric	Units	DDictPersistentB	DmDdNumeric	myUnits		
DmDdParameter	ParameterDataType	DDictPersistentB	Parameter	ParameterDataType	Parameter	ParameterDataType
DmDdParameter	ParameterDescription	DDictPersistentB	Parameter	ParameterDescription	Parameter	ParameterDescription
DmDdParameter	ParameterMeasurementResolution	DDictPersistentB	PhysicalParameterDetails	ParameterMeasurementResolution	PhysicalParameterDetails	ParameterMeasurementResolution
DmDdParameter	ParameterName	DDictPersistentB	Parameter	ParameterName	Parameter	ParameterName
DmDdParameter	ParameterRange	DDictPersistentB	PhysicalParameterDetails	ParameterRange	PhysicalParameterDetails	ParameterRange
DmDdParameter	ParameterUnitsofMeasurement	DDictPersistentB	PhysicalParameterDetails	ParameterUnitsofMeasurement	PhysicalParameterDetails	ParameterUnitsofMeasurement
DmDdParameter	ParameterValueAccuracy	DDictPersistentB	PhysicalParameterDetails	ParameterValueAccuracy	PhysicalParameterDetails	ParameterValueAccuracy
DmDdParameter	ParameterValueAccuracyExplanat	DDictPersistentB	PhysicalParameterDetails	ParameterValueAccuracyExplanat	PhysicalParameterDetails	ParameterValueAccuracyExplanat
DmDdPlatform	PlatformDescription					

8-3. Data Dictionary Subsytem Persistent Data Cross Reference Table (8 of 11)

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
DmDdPlatform	PlatformLongName	DDictPersistentB	Platform	PlatformLongName	Platform	PlatformLongName
DmDdPlatform	PlatformShortName	DDictPersistentB	Platform	PlatformShortName	Platform	PlatformShortName
DmDdPlatformCharacteristic	PlatformCharacteristicName				PlatformCharacteristic	PlatformCharacteristicName
DmDdPlatformCharacteristic	PlatformCharacteristicType				PlatformCharacteristic	PlatformCharacteristicType
DmDdPlatformCharacteristic	PlatformCharacteristicUnit				PlatformCharacteristic	PlatformCharacteristicUnit
DmDdPlatformPlatformCharXref	PlatformCharacteristicName				PlatformCharacteristic	PlatformCharacteristicName
DmDdPlatformPlatformCharXref	PlatformShortName	DDictPersistentB	Platform	PlatformShortName	Platform	PlatformShortName
DmDdPlatInstrXref	InstrumentName				Instrument	InstrumentShortName
DmDdPlatInstrXref	PlatInstrID					
DmDdPlatInstrXref	PlatformShortName				Platform	PlatformShortName
DmDdRangeDateTime	CollID					
DmDdRangeDateTime	RangeBeginningDateTime				RangeDateTime	RangeBeginningDate RangeBeginningTime
DmDdRangeDateTime	RangeEndingDateTime				RangeDateTime	RangeEndingDate RangeEndingTime
DmDdSensSenCharXref`	SensorCharacteristicName	DDictPersistentB	SensorCharacteristic	SensorCharacteristicName	SensorCharacteristic	SensorCharacteristicName

8-3. Data Dictionary Subsytem Persistent Data Cross Reference Table (9 of 11)

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
DmDdSensSenCharXref`	SensorShortName	DDictPersistentB	Sensor	SensorShortName	Sensor	SensorShortName
DmDdSensor	SensorDescription					
DmDdSensor	SensorLongName	DDictPersistentB	Sensor	SensorLongName	Sensor	SensorLongName
DmDdSensor	SensorShortName	DDictPersistentB	Sensor	SensorShortName	Sensor	SensorShortName
DmDdSensor	SensorType	DDictPersistentB	Sensor	SensorType	Sensor	SensorTechnique
DmDdSensorCharacteristic	SensorCharacteristicName	DDictPersistentB	SensorCharacteristic	SensorCharacteristicName	SensorCharacteristic	SensorCharacteristicName
DmDdSensorCharacteristic	SensorCharacteristType	DDictPersistentB	SensorCharacteristic	SensorCharacteristType	SensorCharacteristic	SensorCharacteristType
DmDdSensorCharacteristic	SensorCharacteristicValue	DDictPersistentB	SensorCharacteristic	SensorCharacteristicValue	SensorCharacteristic	SensorCharacteristicValue
DmDdSensorInstrXref	InstrumentName	DDictPersistentB	Instrument	InstrumentName	Instrument	InstrumentLongName
DmDdSensorInstrXref	SensorShortName	DDictPersistentB	SensorShortName	SensorShortName	SensorShortName	SensorShortName
DmDdSingleTypeCollection	AccessConstraints	DDictPersistentB	SingleTypeCollection	AccessConstraints	SingleTypeCollection	AccessConstraints
DmDdSingleTypeCollection	CitationForExternalPublication	DDictPersistentB	SingleTypeCollection	CitationForExternalPublication	SingleTypeCollection	CitationForExternalPublication
DmDdSingleTypeCollection	CollectionState	DDictPersistentB	SingleTypeCollection	CollectionState	SingleTypeCollection	CollectionState
DmDdSingleTypeCollection	CollID			CollID		CollID
DmDdSingleTypeCollection	TemporalKeyword	DDictPersistentB	SingleTypeCollection	TemporalKeyword	SingleTypeCollection	TemporalKeyword
DmDdSpatial	AttributeName	DDictPersistentB	DmDdAtribute	AttributeName	Entire ECS Logical Database Entities	Entire ECS Logical Database Attributes

8-3. Data Dictionary Subsytem Persistent Data Cross Reference Table (10 of 11)

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
DmDdSpatial	CollID	DDictPersistentB		CollID		
DmDdSpatial	myType	DDictPersistentB	DmDdSpatial	myType		
DmDdString	AttributeName	DDictPersistentB				
DmDdString	CollId	DDictPersistentB				
DmDdString	myListAvailableFlag	DDictPersistentB	myListAvailableFlag			
DmDdStringPlatfrmCharacteristic	StringPlatformCharValue					
DmDdStringPlatformCharacteris	PlatformCharacteristicName				PlatformCharacteristic	PlatformCharacteristicName
DmDdStringPlatformCharacteris	PlatformCharacteristicUnit				PlatformCharacteristic	PlatformCharacteristicUnit
DmDdStringPlatformCharacteris	PlatformShortName	DDictPersistentB	Platform	PlatformShortName	Platform	PlatformShortName
DmDdStringSensorCharacteristic	StringSensorCharacteristicValu	DDictPersistentB	SensorCharacteristic	SensorCharacteristicValue	SensorCharacteristic	SensorCharacteristicValue
DmDdStringSensorCharacteristic	SensorCharacteristicName	DDictPersistentB	SensorCharacteristic	SensorCharacteristicName	SensorCharacteristic	SensorCharacteristicName
DmDdStringSensorCharacteristic	SensorCharacteristicUnit	DDictPersistentB	SensorCharacteristic	SensorCharacteristicUnit	SensorCharacteristic	SensorCharacteristicUnit
DmDdStringSensorCharacteristic	SensorShortName	DDictPersistentB	Sensor	SensorShortName	Sensor	SensorShortName
DmDdTemporal	CollId				Temporal	DateType
DmDdTemporal	DateType				Temporal	TemporalRangeType
DmDdTemporal	TemporalRangeType				Temporal	TimeType
DmDdTemporal	TimeType					
DmDdTopic	TopicDescription	DDictPersistentB	Topic			

8-3. Data Dictionary Subsytem Persistent Data Cross Reference Table (11 of 11)

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
DmDdTopic	TopicKeyword	DDictPersistentB	Topic	TopicKeyword	ECSTopic	ECSTopicKeyword
DmDdUncontrolledParameter	UncontrolledParameterDescription					
DmDdUncontrolledParameter	UncontrolledParameterKeyword	DDictPersistentB	UncontrolledParameter	UncontrolledParameterKeyword	ECSVariable	ECSVariableKeyword

8-4. Interoperability Subsystem Persistent Data Cross Reference Table (1 of 22)

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
IoAdAdditionalAttribute	AdditionalAttributeDataType				AdditionalAttributes	AdditionalAttributeDataType
IoAdAdditionalAttribute	AdditionalAttributeName				AdditionalAttributes	AdditionalAttributeName
IoAdAdditionalAttribute	AdditionalAttributeRange				PhysicalParameterDetails	AdditionalAttributeRange
IoAdAdditionalAttribute	AdditionalAttributeValAccExpla				PhysicalParameterDetails	AdditionalAttributeValAccExpla
IoAdAdditionalAttribute	AdditionalAttributeValAccurcy				PhysicalParameterDetails	AdditionalAttributeValAccurcy
IoAdAdditionalAttribute	Shortname				CollectionDescriptionClass	Shortname
IoAdAdditionalAttribute	VersionID				CollectionDescriptionClass	VersionID
IoAdAdvertisement	AdvertisementCopyright					
IoAdAdvertisement	AdvertisementEndDate					

8-4. Interoperability Subsystem Persistent Data Cross Reference Table (2 of 22)

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
IoAdAdvertisement	AdvertisementGroupShortName					
IoAdAdvertisement	AdvertisementGuideURL					
IoAdAdvertisement	AdvertisementID					
IoAdAdvertisement	AdvertisementStartDate					
IoAdAdvertisement	AdvertisementTitle					
IoAdAdvertisement	AdvertisementType					
IoAdvertisementGroup	AdvertisementGroupDescription					
IoAdvertisementGroup	AdvertisementGroupLongName					
IoAdvertisementGroup	AdvertisementGroupShortName					
IoAdBoundingAltitude	AltitudeDatumName				AltitudeSystemDefinition	AltitudeDatumName
IoAdBoundingAltitude	AltitudeDistanceUnits				AltitudeSystemDefinition	AltitudeDistanceUnits
IoAdBoundingAltitude	AltitudeEncodingMethod				AltitudeSystemDefinition	AltitudeEncodingMethod
IoAdBoundingAltitude	AltitudeResolution				AltitudeResolutionClass	AltitudeResolution
IoAdBoundingAltitude	MaximumAltitude				VerticalSpatialDomain	VerticalSpatialDomainValue
IoAdBoundingAltitude	MinimumAltitude				VerticalSpatialDomain	VerticalSpatialDomainValue
IoAdBoundingAltitude	ShortName				CollectionDescriptionClass	ShortName

8-4. Interoperability Subsystem Persistent Data Cross Reference Table (3 of 22)

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
IoAdBoundingAltitude	SpatialCoverageType					SpatialCoverageType
IoAdBoundingAltitude	VersionID				CollectionDescriptionClass	VersionID
IoAdBoundingDepth	DepthDatumName				DepthSystemDefinition	DepthDatumName
IoAdBoundingDepth	DepthDistanceUnits				DepthSystemDefinition	DepthDistanceUnits
IoAdBoundingDepth	DepthEncodingMethod				DepthSystemDefinition	DepthEncodingMethod
IoAdBoundingDepth	DepthResolution				DepthResolution Class	DepthResolution
IoAdBoundingDepth	MaximumDepth				VerticalSpatialDomain	MaximumDepth
IoAdBoundingDepth	MinimumDepth				VerticalSpatialDomain	MinimumDepth
IoAdBoundingDepth	ShortName				CollectionDescriptionClass	ShortName
IoAdBoundingDepth	SpatialCoverageType					
IoAdBoundingDepth	VersionID				CollectionDescriptionClass	VersionID
IoAdBrowse	BrowseDescription				Browse	BrowseDescription
IoAdBrowse	BrowsePointer				Browse	BrowsePointer
IoAdBrowse	BrowseSize				Browse	BrowseSize
IoAdBrowse	Shortname				CollectionDescriptionClass	Shortname
IoAdBrowse	VersionID				CollectionDescriptionClass	VersionID

8-4. Interoperability Subsystem Persistent Data Cross Reference Table (4 of 22)

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
IoAdCollectionAssociation	AssocShortName				CollectionDescriptionClass	AssocShortName
IoAdCollectionAssociation	AssocVersionID				CollectionDescriptionClass	AssocVersionID
IoAdCollectionAssociation	CollectionType				CollectionAssociation	CollectionType
IoAdCollectionAssociation	CollectionUse				CollectionAssociation	CollectionUse
IoAdCollectionAssociation	Shortname				CollectionDescriptionClass	Shortname
IoAdCollectionAssociation	VersionID				CollectionDescriptionClass	VersionID
IoAdCollectionDescriptionClass	CollectionDescription				CollectionDescriptionClass	CollectionDescription
IoAdCollectionDescriptionClass	ShortName				CollectionDescriptionClass	ShortName
IoAdCollectionDescriptionClass	LongName				CollectionDescriptionClass	LongName
IoAdCollectionGeneralKeyword	GeneralKeyword					
IoAdCollectionGeneralKeyword	ShortName					
IoAdCollectionGeneralKeyword	VersionID					
IoAdCollectionNonInstrument	NonInstrumentShortName				NonInstrument	NonInstrumentShortName
IoAdCollectionNonInstrument	ShortName				CollectionDescriptionClass	ShortName
IoAdCollectionNonInstrument	VersionID				CollectionDescriptionClass	VersionID
IoAdCollectionPointInTime	MultipleDateName				MultipleDateTimePeriod	MultipleDateName

8-4. Interoperability Subsystem Persistent Data Cross Reference Table (5 of 22)

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
IoAdCollectionPointInTime	ShortName				CollectionDescriptionClass	ShortName
IoAdCollectionPointInTime	VersionID				CollectionDescriptionClass	VersionID
IoAdCollServiceInstrSensor	InstrumentSensorNumber					
IoAdCollServiceInstrSensor	SensorShortName				Sensor	SensorShortName
IoAdCollServiceInstrSensor	ServiceInstrumentIdentifier					
IoAdCollServiceInstrSensor	ShortName				CollectionDescriptionClass	ShortName
IoAdCollServiceInstrSensor	VersionID				CollectionDescriptionClass	VersionID
IoAdContactAddress	City					City
IoAdContactAddress	ContactAddressType					ContactAddressType
IoAdContactAddress	ContactID					
IoAdContactAddress	Country				ContactAddress	Country
IoAdContactAddress	PostalCode				ContactAddress	PostalCode
IoAdContactAddress	StateProvince				ContactAddress	StateProvince
IoAdContactAddress	StreetAddress					StreetAddress
IoAdContactAdvertisement	AdvertisementID					
IoAdContactAdvertisement	ContactAdvertisementRole					

8-4. Interoperability Subsystem Persistent Data Cross Reference Table (6 of 22)

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
IoAdContactAdvertisement	ContactID					
IoAdContactEmail	ContactID					
IoAdContactEmail	ElectronicMailAddress				Email	ElectronicMailAddress
IoAdContactOrganization	ContactId					
IoAdContactOrganization	ContactOrganizationLongName				ContactOrganization	ContactOrganizationLongName
IoAdContactOrganization	ContactOrganizationShortName				DataOriginator ECSCollection	DataorOriginator ShortName ProcessingCenter ArchiveCenter
IoAdContactPerson	ContactFirstName				ContactPerson	ContactFirstName
IoAdContactPerson	ContactID					
IoAdContactPerson	ContactLastName				ContactPerson	ContactLastName
IoAdContactPerson	ContactMiddleName				Contactperson	ContactMiddleName
IoAdContactPersonOrg	ContactJobPosition				ContactPerson	ContactJobPosition
IoAdContactPersonOrg	ContactOrgContactID					
IoAdContactPersonOrg	ContactPersonContactID					
IoAdContactPersonOrg	ContactPersonOrgBeginDate					
IoAdContactPersonOrg	ContactPersonOrgEndDate					

8-4. Interoperability Subsystem Persistent Data Cross Reference Table (7 of 22)

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
IoAdContactTelephone	ContactID					
IoAdContactTelephone	TelephoneNumber				Telephone	TelephoneNumber
IoAdContactTelephone	TelephoneNumberType				Telephone	TelephoneNumberType
IoAdDatePlatformCharValue	DatePlatformCharValue				PlatformCharacteristic	PlatformCharValue
IoAdDatePlatformCharValue	PlatformCharacteristicName				PlatformCharacteristic	PlatformCharacteristicName
IoAdDatePlatformCharValue	PlatformShortName				Platform	PlatformShortName
IoAdDateSensorCharValue	DateSensorCharacteristicValue				SensorCharacteristic	SensorCharacteristicValue
IoAdDateSensorCharValue	SensorChracteristicName				SensorCharacteristic	SensorChracteristicName
IoAdDateSensorCharValue	SensorShortName				Sensor	SensorShortName
IoAdDateTimeParameterValue	DateTimeParameterValue					
IoAdDateTimeParameterValue	ECSDisciplineKeyword				ECSDiscipline	ECSDisciplineKeyword
IoAdDateTimeParameterValue	ECSParameterName				ECSParameter	ECSParameterName
IoAdDateTimeParameterValue	ECSTermKeyword				ECSTerm	ECSTermKeyword
IoAdDateTimeParameterValue	ECSTopicKeyword				ECSTopic	ECSTopicKeyword
IoAdDateTimeParameterValue	ECSVariableKeyword				ECSVariable	ECSVariableKeyword
IoAdDateTimeParameterValue	ShortName				CollectionDescriptionClass	ShortName

8-4. Interoperability Subsystem Persistent Data Cross Reference Table (8 of 22)

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
IoAdDateTimeParameterValue	VersionID				CollectionDescriptionClass	VersionID
IoAdDiscontinuousMultipleRange	EndSatPresentFlag				DiscontinuousMultipleRange	EndSatPresentFlag
IoAdDiscontinuousMultipleRange	ShortName				CollectionDescriptionClass	ShortName
IoAdDiscontinuousMultipleRange	VersionID				CollectionDescriptionClass	VersionID
IoAdDtTmAdditAttribute	AdditionalAttributeName				AdditionalAttribute	AdditionalAttributeName
IoAdDtTmAdditAttribute	DateTimeAdditionalAttribValue					
IoAdDtTmAdditAttribute	ShortName				CollectionDescriptionClass	ShortName
IoAdDtTmAdditAttribute	VersionID				CollectionDescriptionClass	VersionID
IoAdECSCollDisciplineTopic	ECSDisciplineKeyword				ECSDiscipline	ECSDisciplineKeyword
IoAdECSCollDisciplineTopic	ECSTopicKeyword				ECSTopic	ECSTopicKeyword
IoAdECSCollDisciplineTopic	ShortName				CollectionDescriptionClass	ShortName
IoAdECSCollDisciplineTopic	VersionID				CollectionDescriptionClass	VersionID
IoAdECSCollDiscTopicTerm	ECSDisciplineKeyword				ECSDiscipline	ECSDisciplineKeyword
IoAdECSCollDiscTopicTerm	ECSTermKeyword				ECSTerm	ECSTermKeyword
IoAdECSCollDiscTopicTerm	ECSTopicKeyword				ECSTopic	ECSTopicKeyword
IoAdECSCollDiscTopicTerm	ShortName				CollectionDescriptionClass	ShortName

8-4. Interoperability Subsystem Persistent Data Cross Reference Table (9 of 22)

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
IoAdECSCollDiscTopicTerm	VersionID				CollectionDescriptionClass	VersionID
IoAdECSCollDiscTopicTermVar	ECSDisciplineKeyword				ECSDiscipline	ECSDisciplineKeyword
IoAdECSCollDiscTopicTermVar	ECSTermKeyword				ECSTerm	ECSTermKeyword
IoAdECSCollDiscTopicTermVar	ECSTopicKeyword				ECSTopic	ECSTopicKeyword
IoAdECSCollDiscTopicTermVar	ECSVariableKeyword				ECSVariable	ECSVariableKeyword
IoAdECSCollDiscTopicTermVar	ShortName				CollectionDescriptionClass	ShortName
IoAdECSCollDiscTopicTermVar	VersionID				CollectionDescriptionClass	VersionID
IoAdECSCollection	ECSCollectionGuidePointer				ECSCollectionGuide	ECSCollectionGuidePointer
IoAdECSCollection	ECSCollectionType					
IoAdECSCollection	CollectionVersionDescription				CollectionDescriptionClass	CollectionDescription
IoAdECSCollection	RevisionDate				ECSCollection	RevisionDate
IoAdECSCollection	SuggestedUsage				ECSCollection	SuggestedUsage
IoAdECSCollection	Shortname				CollectiondescriptionClass	Shortname
IoAdECSCollection	VersionID				CollectionDescriptionClass	VersionID
IoAdECSCollectionCampaign	CampaignShortName				FieldCampaign	CampaignShortName
IoAdECSCollectionCampaign	ShortName				CollectionDescriptionClass	ShortName

8-4. Interoperability Subsystem Persistent Data Cross Reference Table (10 of 22)

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
IoAdECSCollectionCampaign	VersionID				CollectionDescriptionClass	VersionID
IoAdECSCollectionContact	ContactID					
IoAdECSCollectionContact	Role		IoAdECSCollectionContact	Role	Contact ECSCollection	Role ProcessingCenter ArchiveCenter
IoAdECSCollectionContact	ShortName				CollectionDescriptionClass	ShortName
IoAdECSCollectionContact	VersionID				CollectionDescriptionClass	VersionID
IoAdECSCollectionGeoRegion	GeographicalRegionName				RegionalAreaDefinitionGuide	GeographicalRegionName
IoAdECSCollectionGeoRegion	ShortName				CollectionDescriptionClass	ShortName
IoAdECSCollectionGeoRegion	VersionID				CollectionDescriptionClass	VersionID
IoAdECSCollectionInstrument	PlatformShortname				Platform	PlatformShortname
IoAdECSCollectionInstrument	ServiceInstrumentIdentifier					ServiceInstrumentIdentifier
IoAdECSCollectionInstrument	ShortName				CollectionDescriptionClass	ShortName
IoAdECSCollectionInstrument	VersionID				CollectionDescriptionClass	VersionID
IoAdECSCollectionMedia	ShortName				CollectionDescriptionClass	ShortName
IoAdECSCollectionMedia	StorageMedium				StorageMediumClass	StorageMedium
IoAdECSCollectionMedia	StorageMediumFormat					

8-4. Interoperability Subsystem Persistent Data Cross Reference Table (11 of 22)

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
IoAdECSCollectionMedia	StorageMediumPrice					
IoAdECSCollectionMedia	StorageMediumSize					
IoAdECSCollectionMedia	VersionID				CollectionDescriptionClass	VersionID
IoAdECSCollectionPlatform	PlatformShortName				Platform	PlatformShortName
IoAdECSCollectionPlatform	ShortName				CollectionDescriptionClass	ShortName
IoAdECSCollectionPlatform	VersionID				CollectionDescriptionClass	VersionID
IoAdECSCollectionRefPaper	ReferencePaperDocumentID					
IoAdECSCollectionRefPaper	ReferencePaperVersion				ReferencePaper	ReferencePaperVersion
IoAdECSCollectionRefPaper	ShortName				CollectionDescriptionClass	ShortName
IoAdECSCollectionRefPaper	VersionID				CollectionDescriptionClass	VersionID
IoAdECSCollectionServices	ServiceName					
IoAdECSCollectionServices	ShortName					
IoAdECSCollectionServices	VersionID					
IoAdECSDiscipline	ECSDisciplineKeyword				ECSDiscipline	ECSDisciplineKeyword
IoAdECSDiscipline	ShortName				CollectionDescriptionClass	ShortName
IoAdECSDiscipline	VersionID				CollectionDescriptionClass	VersionID

8-4. Interoperability Subsystem Persistent Data Cross Reference Table (12 of 22)

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
IoAdECSParameter	ECSDisciplineKeyword				ECSDiscipline	ECSDisciplineKeyword
IoAdECSParameter	ECSParameterDescription				ECCParameter	ECSParameterDescription
IoAdECSParameter	ECSParameterName				ECSParameter	ECSParameterName
IoAdECSParameter	ECSTermKeyword				ECSTerm	ECSTermKeyword
IoAdECSParameter	ECSTopicKeyword				ECSTopic	ECSTopicKeyword
IoAdECSParameter	ECSVariableKeyword				ECSVariable	ECSVariableKeyword
IoAdECSParameter	ParameterMeasureResolution				PhysicalParameterDetails	ParameterMeasureResolution
IoAdECSParameter	ParameterRange				PhysicalParameterDetails	ParameterRange
IoAdECSParameter	ParameterUnitsofMeasure				PhysicalParameterDetails	ParameterUnitsofMeasure
IoAdECSParameter	ShortName				CollectionDescriptionClass	ShortName
IoAdECSParameter	VersionID				CollectionDescriptionClass	VersionID
IoAdECSTerm	ECSTermKeyword				ECSTerm	ECSTermKeyword
IoAdECSTopic	ECSTopicKeyword				ECSTopic	ECSTopicKeyword
IoAdECSVariable	ECSVariableKeyword				ECSVariable	ECSVariableKeyword
IoAdFieldCampaign	CampaignIdentifier					CampaignIdentifier
IoAdFieldCampaign	CampaignLongName				FieldCampaign	CampaignLongName

8-4. Interoperability Subsystem Persistent Data Cross Reference Table (13 of 22)

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
IoAdFieldCampaign	CampaignProjectStartDate				FieldCampaign	CampaignProjectStartDate
IoAdFieldCampaign	CampaignProjectEndDate				FieldCampaign	CampaignProjectEndDate
IoAdFieldCampaign	CampaignShortName				FieldCampaign	CampaignShortName
IoAdFloatAdditAttribute	AdditonalAttributeName				AdditionalAttribute	AdditonalAttributeName
IoAdFloatAdditAttribute	FloatAdditionalAttributeValue					
IoAdFloatAdditAttribute	ShortName				CollectionDescriptionClass	ShortName
IoAdFloatAdditAttribute	VersionID				CollectionDescriptionClass	VersionID
IoAdFloatParameterValue	ECSDisciplineKeyword				ECSDiscipline	ECSDisciplineKeyword
IoAdFloatParameterValue	ECSParameterKeyword				ECSParameter	ECSParameterKeyword
IoAdFloatParameterValue	ECSTermKeyword				ECSTerm	ECSTermKeyword
IoAdFloatParameterValue	ECSTopicKeyword				ECSTopic	ECSTopicKeyword
IoAdFloatParameterValue	ECSVariableKeyword				ECSVariable	ECSVariableKeyword
IoAdFloatParameterValue	FloatParameterValue					
IoAdFloatParameterValue	ShortName				CollectionDescriptionClass	ShortName
IoAdFloatParameterValue	VersionID				CollectionDescriptionClass	VersionID
IoAdFloatSensorCharValue	FloatSensorCharacteristicValue				SensorCharacteristic	SensorCharacteristicValue

8-4. Interoperability Subsystem Persistent Data Cross Reference Table (14 of 22)

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
IoAdFloatSensorCharValue	SensorCharacteristicName				SensorCharacteristic	SensorCharacteristicName
IoAdFloatSensorCharValue	SensorShortName				Sensor	SensorShortName
IoAdGeographicalRegion	GeogrpahicalregionName				RegionalAreaDefinitionGuide	GeogrpahicalRegionName
IoAdGeographicalRegion	ParentGeographicalRegionName				RegionalAreaDefinitionGuide	GeographicalRegionName
IoAdInstrument	InstrumentLongName				Instrument	InstrumentLongName
IoAdInstrument	InstrumentShortName				Instrument	InstrumentShortName
IoAdInstrument	InstrumentTechnique				Instrument	InstrumentTechnique
IoAdIntAdditionalAttribute	AdditionalAttributeName				AdditionalAttribute	AdditionalAttributeName
IoAdIntAdditionalAttribute	IntegerAdditionalAttribValue					
IoAdIntAdditionalAttribute	ShortName				CollectionDescriptionClass	ShortName
IoAdIntAdditionalAttribute	VersionID				CollectionDescriptionClass	VersionID
IoAdIntegerParameterValue	ECSDisciplineKeyword				ECSDiscipline	ECSDisciplineKeyword
IoAdIntegerParameterValue	ECSParameterKeyword				ECSParameter	ECSParameterKeyword
IoAdIntegerParameterValue	ECSTermKeyword				ECSTerm	ECSTermKeyword
IoAdIntegerParameterValue	ECSTopicKeyword				ECSTopic	ECSTopicKeyword
IoAdIntegerParameterValue	ECSVariableKeyword				ECSVariable	ECSVariableKeyword

8-4. Interoperability Subsystem Persistent Data Cross Reference Table (15 of 22)

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
IoAdIntegerParameterValue	IntegerParameterValue					
IoAdIntegerParameterValue	ShortName				CollectionDescriptionClass	ShortName
IoAdIntegerParameterValue	VersionID				CollectionDescriptionClass	VersionID
IoAdIntegerSensorCharValue	IntSensorCharacteristicValue				SensorCharacteristic	IntSensorCharacteristicValue
IoAdIntegerSensorCharValue	SensorCharacteristicName				SensorCharacteristic	SensorCharacteristicName
IoAdIntegerSensorCharValue	SensorShortName				Sensor	SensorShortName
IoAdIntPlatformCharValue	IntPlatformCharacteristicValue				PlatformCharacteristic	IntPlatformCharacteristicValue
IoAdIntPlatformCharValue	PlatformCharacteristicName				PlatformCharacteristic	PlatformCharacteristicName
IoAdIntPlatformCharValue	PlatformShortName				Platform	PlatformShortName
IoAdMultipleTypeCollection	AggregationRelationship[				MultipleTypeCollection	AggregationRelationship[
IoAdMultipleTypeCollection	AggregationType				MultipleTypeCollection	AggregationType
IoAdMultipleTypeCollection	AggregationValue				MultipleTypeCollection	AggregationValue
IoAdMultipleTypeCollection	ShortName				CollectionDescriptionClass	ShortName
IoAdMultipleTypeCollection	VersionID				CollectionDescriptionClass	VersionID
IoAdNonInstrument	BoundaryData				NonInstrument	BoundaryData
IoAdNonInstrument	DynamicStaticFlag				NonInstrument	DynamicStaticFlag

8-4. Interoperability Subsystem Persistent Data Cross Reference Table (16 of 22)

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
IoAdNonInstrument	ModelName				NonInstrument	ModelName
IoAdNonInstrument	ModelDescription				NonInstrument	ModelDescription
IoAdNonInstrument	NonInstrumentLongName				NonInstrument	NonInstrumentLongName
IoAdNonInstrument	NonInstrumentShortName				NonInstrument	NonInstrumentShortName
IoAdNonInstrument	NonInstrumentTechnique				NonInstrument	NonInstrumentTechnique
IoAdPlatform	PlatformLongName				Platform	PlatformLongName
IoAdPlatform	PlatformShortName				Platform	PlatformShortName
IoAdPlatformCharacteristic	PlatformCharacteristicName				PlatformCharacteristic	PlatformCharacteristicName
IoAdPlatformCharacteristic	PlatformCharacteristicType				PlatformCharacteristic	PlatformCharacteristicType
IoAdPlatPlatformCharacteristic	PlatformShortName				Platform	PlatformShortName
IoAdPlatPlatformCharacteristic	PlatformCharacteristicName				PlatformCharacteristic	PlatformCharacteristicName
IoAdPlatPlatformCharacteristic	PlatformCharacteristicUnit				PlatformCharacteristic	PlatformCharacteristicUnit
IoAdProcessingLevel	ProcessingLevelDescription				ProcessingLevel	ProcessingLevelDescription
IoAdProcessingLevel	ProcessingLevelID				ProcessingLevel	ProcessingLevelID
IoAdProductAdvertisement	AdvertisementID					AdvertisementID
IoAdProductAdvertisement	ShortName					

8-4. Interoperability Subsystem Persistent Data Cross Reference Table (17 of 22)

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
IoAdProductAdvertisement	VersionID					
IoAdQACollectionStats	QualityFlag				QAColectionStats	QualityFlag
IoAdQACollectionStats	QualityFlagExplanation				QAColectionStats	QualityFlagExplanation
IoAdQACollectionStats	QualityFlagStatus				QAColectionStats	QualityFlagStatus
IoAdQACollectionStats	QualityFlagType				QAColectionStats	QualityFlagType
IoAdQACollectionStats	ShortName				CollectionDescriptionClass	ShortName
IoAdQACollectionStats	VersionID				CollectionDescriptionClass	VersionID
IoAdRangeDateTime	RangeBeginningDateTime				RangeDateTime	RangeBeginningDate RangeBeginningTime
IoAdRangeDateTime	RangeEndingDateTime				RangeDateTime	RangeEndingDate RangeEndingTime
IoAdRangeDateTime	ShortName				CollectionDescriptionClass	ShortName
IoAdRangeDateTime	VersionID				CollectionDescriptionClass	VersionID
IoAdReferencePaper	ReferencePaperCreated				Document	DocumentCreated
IoAdReferencePaper	ReferencePaperDocumentId					
IoAdReferencePaper	ReferencePaperTitle				Document	DocumentTitle

8-4. Interoperability Subsystem Persistent Data Cross Reference Table (18 of 22)

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
IoAdReferencePaper	ReferencePaperVersion				Document	DocumentVersion
IoAdReferencePaper	ReferencePaperUpdated				Document	DocumentUpdated
IoAdRegularPeriodic	PeriodCycleDurationUnit				RegularPeriodic	PeriodCycleDurationUnit
IoAdRegularPeriodic	PeriodCycleDurationValue				RegularPeriodic	PeriodCycleDurationValue
IoAdRegularPeriodic	Period1stDateTime				RegularPeriodic	Period1stDateTime
IoAdRegularPeriodic	PeriodName				RegularPeriodic	PeriodName
IoAdRegularPeriodic	ShortName				CollectionDescriptionClass	ShortName
IoAdRegularPeriodic	VersionID				CollectionDescriptionClass	VersionID
IoAdSensor	SensorLongName				Sensor	SensorLongName
IoAdSensor	SensorShortName				Sensor	SensorShortName
IoAdSensor	SensorTechnique				Sensor	SensorTechnique
IoAdSensorCharacteristic	SensorCharacteristicName				SensorCharacteristic	SensorCharacteristicName
IoAdSensorCharacteristic	SensorCharacteristicType				SensorCharacteristic	SensorCharacteristicType
IoAdSensorSensorCharacteristic	SensorShortName				Sensor	SensorShortName
IoAdSensorSensorCharacteristic	SensorCharacteristicName				SensorCharacteristic	SensorCharacteristicName
IoAdSensorSensorCharacteristic	SensorCharacteristicUnit				SensorCharacteristic	SensorCharacteristicUnit

8-4. Interoperability Subsystem Persistent Data Cross Reference Table (19 of 22)

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
IoAdService	EcUrURL					
IoAdService	InstallationDescription					
IoAdService	InstallationURL					
IoAdService	ServiceClass					
IoAdService	ServiceDescription					
IoAdService	ServiceName					
IoAdService	ServiceSoftwareURL					
IoAdService	ServiceTypeID					
IoAdServiceAdvertisement	AdvertisementID					
IoAdServiceAdvertisement	ServiceName					
IoAdServiceInstrument	InstrumentShortName					
IoAdServiceInstrument	ServiceInstrumentIdentifier					
IoAdServiceParameter	ServiceName					
IoAdServiceParameter	ServiceParameterDescription					
IoAdServiceParameter	ServiceParameterName					
IoAdServiceParameter	ServiceParameterType					
IoAdSingleDateTime	CalendarDateTime				SingleDateTime	CalendarDateTimeofDay

8-4. Interoperability Subsystem Persistent Data Cross Reference Table (20 of 22)

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
IoAdSingleDateTime	ShortName				CollectionDescriptionClass	ShortName
IoAdSingleDateTime	VersionID				CollectionDescriptionClass	VersionID
IoAdSingleTypeCollection	AccessConstraints				SingleTypeCollection	AccessConstraints
IoAdSingleTypeCollection	CitationforExternalPublication				SingleTypeCollection	CitationforExternalPublication
IoAdSingleTypeCollection	CollectionState				SingleTypeCollection	CollectionState
IoAdSingleTypeCollection	ProcessingLevelID				ProcessingLevel	ProcessingLevelID
IoAdSingleTypeCollection	ShortName				CollectionDescriptionClass	ShortName
IoAdSingleTypeCollection	TemporalKeyword				SingleTypeCollection	TemporalKeyword
IoAdSingleTypeCollection	VersionID				CollectionDescriptionClass	VersionID
IoAdSingleTypeCollection	ShortName				CollectionDescriptionClass	ShortName
IoAdSingleTypeCollection	SpatialCoverageType					
IoAdSingleTypeCollection	VersionID				CollectionDescriptionClass	VersionID
IoAdStrAdditAttribute	AdditionalAttributeName				AdditionalAttribute	AdditionalAttributeName
IoAdStrAdditAttribute	ShortName				CollectionDescriptionClass	ShortName
IoAdStrAdditAttribute	StringAdditionalAtribValue					
IoAdStrAdditAttribute	VersionID				CollectionDescriptionClass	VersionID

8-4. Interoperability Subsystem Persistent Data Cross Reference Table (21 of 22)

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
IoAdStringParameterValue	ECSDisciplineKeyword				ECSDiscipline	ECSDisciplineKeyword
IoAdStringParameterValue	ECSParameterKeyword				ECSParameter	ECSParameterKeyword
IoAdStringParameterValue	ECSTermKeyword				ECSTerm	ECSTermKeyword
IoAdStringParameterValue	ECSTopicKeyword				ECSTopic	ECSTopicKeyword
IoAdStringParameterValue	ECSVariableKeyword				ECSVariable	ECSVariableKeyword
IoAdStringParameterValue	ShortName				CollectionDescriptionClass	ShortName
IoAdStringParameterValue	StringParameterValue					
IoAdStringParameterValue	VersionID				CollectionDescriptionClass	VersionID
IoAdStringPlatformCharValue	PlatformCharacteristicName				PlatformCharacteristic	PlatformCharacteristicName
IoAdStringPlatformCharValue	PlatformShortName				Platform	PlatformShortName
IoAdStringPlatformCharValue	StringPlatformCharValue				PlatformCharacteristic	PlatformCharValue
IoAdStringSensorCharValue	SensorChracteristicName				SensorCharacteristic	SensorChracteristicName
IoAdStringSensorCharValue	SensorShortName				Sensor	SensorShortName
IoAdStringSensorCharValue	StringSensorChracteristicValu				SensorCharacteristic	StringSensorChracteristicValu
IoAdTemporal	DateType				Temporal	DateType
IoAdTemporal	PrecisionofSeconds				Temporal	PrecisionofSeconds

8-4. Interoperability Subsystem Persistent Data Cross Reference Table (22 of 22)

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
IoAdTemporal	ShortName				CollectionDescriptionClass	ShortName
IoAdTemporal	TemporalRangeType				Temporal	TemporalRangeType
IoAdTemporal	TimeType				Temporal	TimeType
IoAdTemporal	VersionID				CollectionDescriptionClass	VersionID
IoAdTimeAdditAttribute	AdditionalAttributeName				AdditionalAttribute	AdditionalAttributeName
IoAdTimeAdditAttribute	ShortName				CollectionDescriptionClass	ShortName
IoAdTimeAdditAttribute	TimeAdditionalAttributeValue				AdditionalAttribute	TimeAdditionalAttributeValue
IoAdTimeAdditAttribute	VersionID				CollectionDescriptionClass	VersionID
IoAdTimeParameterValue	ECSDisciplineKeyword				ECSDiscipline	ECSDisciplineKeyword
IoAdTimeParameterValue	ECSParameterKeyword				ECSParameter	ECSParameterKeyword
IoAdTimeParameterValue	ECSTermKeyword				ECSTerm	ECSTermKeyword
IoAdTimeParameterValue	ECSTopicKeyword				ECSTopic	ECSTopicKeyword
IoAdTimeParameterValue	ECSVariableKeyword				ECSVariable	ECSVariableKeyword
IoAdTimeParameterValue	ShortName				CollectionDescriptionClass	ShortName
IoAdTimeParameterValue	TimeParameterValue					
IoAdTimeParameterValue	VersionID				CollectionDescriptionClass	VersionID

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

9.1 Planning and Data Processing Subsystem (PDPS) Description

The Planning Subsystem supports the operations staff in developing a production plan based on a locally defined strategy, reserving the resources to permit the plan to be achieved and the implementation of the plan as data and processing requests are received. It also allows the site operations staff to negotiate on a common basis with other provider sites and EOSDIS System Management (CSMS) if any change to their production plan causes conflict with other provider site plans (e.g., where dependencies between processing algorithms cannot be fulfilled.) This subsystem provides the functions needed to pre-plan routine data processing, schedule ad hoc processing, and dispatch and manage processing requests. The subsystem provides access to the data production schedules at each site, and provides management functions for handling deviations from the schedule to operations and science users. (Reference Technical Paper 19400436TP.)

The Data Processing Subsystem is responsible for managing, queuing, and executing processes on the processing resources at a provider site. Requests for processing are submitted from the Planning Subsystem, which in turn have been triggered by data arrival or user request (Data Server) or through Planning itself (e.g., reprocessing.) The data processing subsystem provides the functions needed to execute all processing requests in a fully automated fashion according to a pre-planned schedule. The subsystem allocates processing resources to requests according to priority and within the scheduling parameters set by the plan. It stages and de-stages data, and re-allocates resources to balance processing load. It offers interfaces to operations users to manage processes, schedules, resources, and resource allocations; and makes processing status and history available to operations and science users. (Reference Technical Paper 19400436TP.)

The data required to achieve these functions are the subject of this section. A graphical model of the design is presented as well as a description of the tables referenced in the model. Additionally, a cross reference table which identifies the relationship between 311, 305 and table objects.

9.2 Graphical Model and Relational Tables

The following graphical model and table descriptions represent the PDPS Subsystem's persistent data design for Release B. The graphical model provides an overall illustration of the collection of PDPS database tables and the relationship between theses 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 (refer to Appendix D for further explanation of the tables).

Planning ER Model

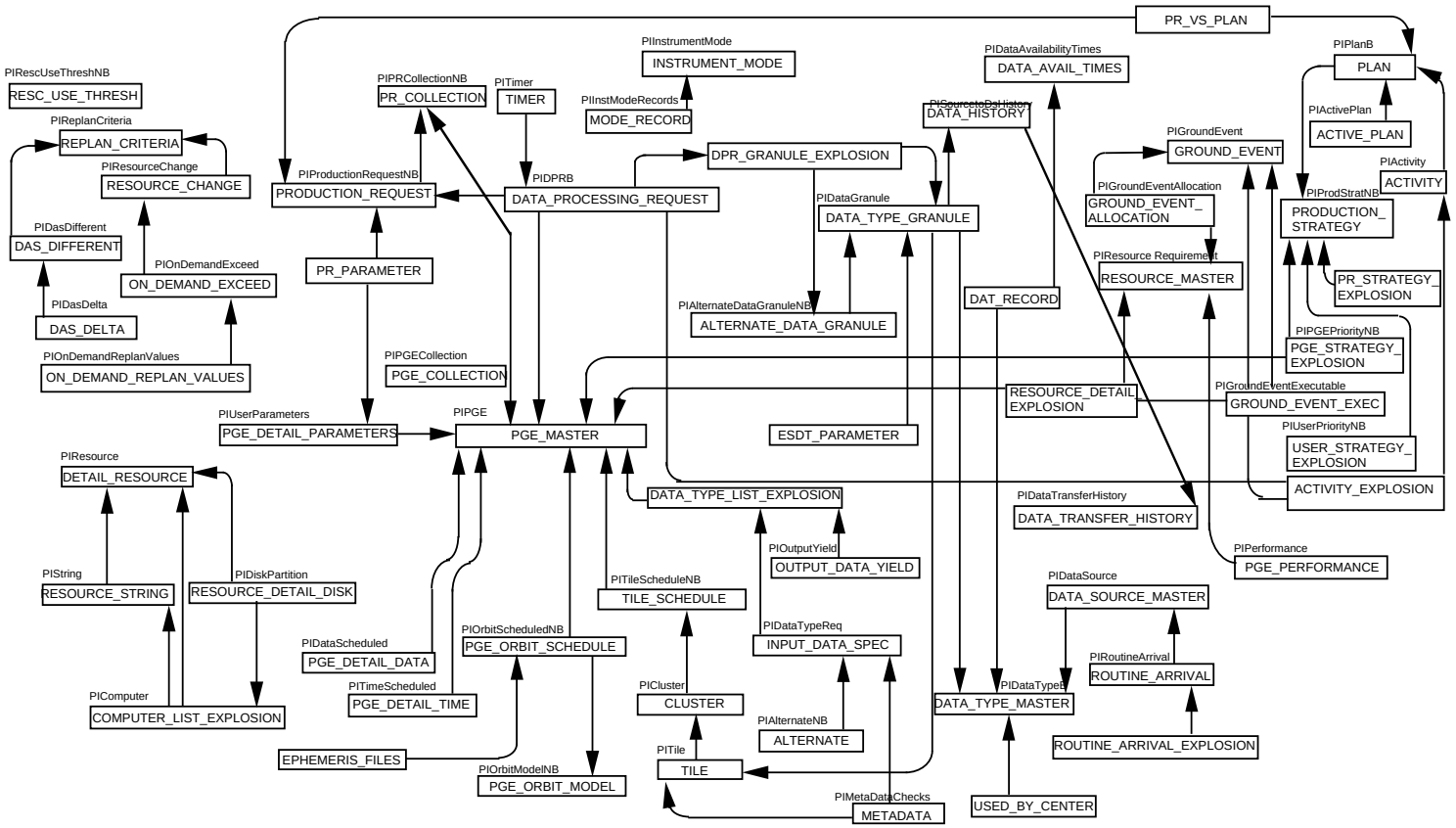

Figure 9-1. PDPS Planning Graphical Model

Name : ACTIVE_PLAN

Code : ACTIVE_PLAN

Label :

Number :

Source : Entity ACTIVE_PLAN

Column Name	Code	Type	P	M
plan_name	PLAN_NAME	varchar(20)	Y	Y
plan_start_time	PLAN_START_TIME	datetime		
plan_end_time	PLAN_END_TIME	datetime		

Index Code	P	F	U	C	Column Code	Sort
ACTIVE_PLAN_PK	Y	Y	Y		PLAN_NAME	ASC

Reference To	Primary Key	Foreign Key
PLAN	PLAN_NAME	PLAN_NAME

Name : ACTIVITY

Code : ACTIVITY

Label :

Number :

Source : Entity ACTIVITY

Column Name	Code	Type	P	M
plan_name	PLAN_NAME	varchar(20)	Y	Y
predicted_start	PREDICTED_START	datetime		
predicted_stop	PREDICTED_STOP	datetime		
priority	PRIORITY	int		

Index Code	P	F	U	C	Column Code	Sort
ACTIVITY_PK	Y	Y	Y		PLAN_NAME	ASC

Reference To	Primary Key	Foreign Key
PLAN	PLAN_NAME	PLAN_NAME

Referenced By	Foreign Key	Primary Key
ACTIVITY_EXPLOSION	PLAN_NAME	PLAN_NAME

Name : ACTIVITY_EXPLOSION

Code : ACTIVITY_EXPLOSION

Label :

Number :

Source :

Column Name	Code	Type	P	M
plan_name	PLAN_NAME	varchar(20)	Y	Y
dpr_id	DPR_ID	varchar(20)		Y
ground_event_id	GROUND_EVENT_ID	int		Y
activity_flag	ACTIVITY_FLAG	bit		Y

Index Code	P	F	U	C	Column Code	Sort
ACTIVITY_EXPLOSION_PK	Y	Y	Y		PLAN_NAME	ASC
ACTIVITY_EXPLOSION_FK1		Y			DPR_ID	ASC
ACTIVITY_EXPLOSION_FK2		Y			GROUND_EVENT_ID	ASC

Reference To	Primary Key	Foreign Key
ACTIVITY	PLAN_NAME	PLAN_NAME
GROUND_EVENT	GROUND_EVENT_ID	GROUND_EVENT_ID
DATA_PROCESSING_REQUEST	DPR_ID	DPR_ID

Name : ALTERNATE

Code : ALTERNATE

Label :

Number :

Source : Entity ALTERNATE

Column Name	Code	Type	P	M
pge_id	PGE_ID	varchar(20)	Y	Y
data_type_id	DATA_TYPE_ID	varchar(20)	Y	Y
temp_flag	TEMP_FLAG	varchar(20)		
order	ORDER	int		
wait_for	WAIT_FOR	bit		
primary	PRIMARY	varchar(20)		
timer	TIMER	datetime		

Index Code	P	F	U	C	Column Code	Sort
ALTERNATE_FK1	Y	Y			DATA_TYPE_ID	ASC
					PGE_ID	ASC
ALTERNATE_FK2	Y	Y			PGE_ID	ASC

Reference To	Primary Key	Foreign Key
INPUT_DATA_SPEC	PGE_ID DATA_TYPE_ID	PGE_ID DATA_TYPE_ID

Name : ALTERNATE_DATA_GRANULE

Code : ALTERNATE_DATA_GRANULE

Label :

Number :

Source : Entity ALTERNATE_DATA_GRANULE

Column Name	Code	Type	P	M
dpr_id	DPR_ID	varchar(20)	Y	Y
granule_id	GRANULE_ID	varchar(20)	Y	Y
primary_type	PRIMARY_TYPE	varchar(20)		
accepted	ACCEPTED	bit		Y
timer	TIMER	datetime		
order	ORDER	int		
type	TYPE	varchar(20)		
temp_flag	TEMP_FLAG	bit		Y

Index Code	P	F	U	C	Column Code	Sort
ALTERNATE_DATA_GRANULE_PK	Y	Y	Y		DPR_ID	ASC
					GRANULE_ID	ASC
ALTERNATE_DATA_GRANULE_FK	Y	Y	Y		DPR_ID	ASC

Reference To	Primary Key	Foreign Key
DATA_TYPE_GRANULE	GRANULE_ID	GRANULE_ID

Referenced By	Foreign Key	Primary Key
DPR_GRANULE_EXPLOSION	DPR_ID	DPR_ID
	GRANULE_ID	GRANULE_ID

Name : CLUSTER

Code : CLUSTER

Label :

Number :

Source : Entity CLUSTER

Column Name	Code	Type	P	M
cluster_id	CLUSTER_ID	int	Y	Y
pge_id	PGE_ID	varchar(20)		
predict_availability	PREDICT_AVAILABILITY	datetime		
last_orbit	LAST_ORBIT	datetime		

Index Code	P	F	U	C	Column Code	Sort
CLUSTER_PK	Y		Y		CLUSTER_ID	ASC
CLUSTER_FK		Y			PGE_ID	ASC

Reference To	Primary Key	Foreign Key
TILE_SCHEDULE	PGE_ID	PGE_ID

Referenced By	Foreign Key	Primary Key
TILE	CLUSTER_ID	CLUSTER_ID

Name : COMPUTER_LIST_EXPLOSION

Code : COMPUTER_LIST_EXPLOSION

Label :

Number :

Source : Entity COMPUTER_LIST_EXPLOSION

Column Name	Code	Type	P	M
resource_id	RESOURCE_ID	int	Y	Y
computer_id	COMPUTER_ID	int	Y	Y
string_id	STRING_ID	int		Y
cpu	CPU	int		
per_process_ram	PER_PROCESS_RAM	int		
total_ram	TOTAL_RAM	int		
operating_system	OPERATING_SYSTEM	varchar(60)		
max_disk_space	MAX_DISK_SPACE	int		

Index Code	P	F	U	C	Column Code	Sort
COMPUTER_EXPLOSION_PK	Y	Y	Y		RESOURCE_ID	ASC
COMPUTER_LIST_EXPLOSION_FK	Y		Y		COMPUTER_ID	ASC

Reference To	Primary Key	Foreign Key
DETAIL_RESOURCE	RESOURCE_ID	RESOURCE_ID
RESOURCE_STRING	RESOURCE_ID STRING_ID	RESOURCE_ID STRING_ID

Referenced By	Foreign Key	Primary Key
RESOURCE_DETAIL_DISK	RESOURCE_ID COMPUTER_ID	RESOURCE_ID COMPUTER_ID

Name : DAS_DELTA

Code : DAS_DELTA

Label :

Number :

Source : Entity DAS_DELTA

Column Name	Code	Type	P	M
data_type_id	DATA_TYPE_ID	varchar(20)	Y	Y
criteria_id	CRITERIA_ID	int		
delta	DELTA	datetime		

Index Code	P	F	U	C	Column Code	Sort
DAS_DELTA_FK		Y			CRITERIA_ID	ASC

Reference To	Primary Key	Foreign Key
DAS_DIFFERENT	CRITERIA_ID	CRITERIA_ID

Name : DAS_DIFFERENT

Code : DAS_DIFFERENT

Label :

Number :

Source :

Column Name	Code	Type	P	M
criteria_id	CRITERIA_ID	int	Y	Y
time_frame	TIME_FRAME	datetime		

Index Code	P	F	U	C	Column Code	Sort
DAS_DIFFERENT_PK	Y	Y	Y		CRITERIA_ID	ASC

Reference To	Primary Key	Foreign Key
REPLAN_CRITERIA	CRITERIA_ID	CRITERIA_ID

Referenced By	Foreign Key	Primary Key
DAS_DELTA	CRITERIA_ID	CRITERIA_ID

Name : DAT_RECORD

Code : DAT_RECORD

Label :

Number :

Source : Entity DAT_RECORD

Column Name	Code	Type	P	M
data_type_id	DATA_TYPE_ID	varchar(20)	Y	Y
avail_times_id	AVAIL_TIMES_ID	int		
start_time	START_TIME	datetime		
stop_time	STOP_TIME	datetime		
predicted_availability	PREDICTED_AVAILABILITY	datetime		
tile_id	TILE_ID	int		

Index Code	P	F	U	C	Column Code	Sort
DAT_RECORD_PK	Y	Y			DATA_TYPE_ID	ASC
DAT_RECORD_FK		Y			AVAIL_TIMES_ID	ASC

Reference To	Primary Key	Foreign Key
DATA_TYPE_MASTER	DATA_TYPE_ID	DATA_TYPE_ID
DATA_AVAIL_TIMES	AVAIL_TIMES_ID	AVAIL_TIMES_ID

Referenced By	Foreign Key	Primary Key
DATA_TRANSFER_HISTORY	DATA_TYPE_ID	DATA_TYPE_ID

Name : DATA_AVAIL_TIMES

Code : DATA_AVAIL_TIMES

Label :

Number :

Source : Entity DATA_AVAIL_TIMES

Column Name	Code	Type	P	M
avail_times_id	AVAIL_TIMES_ID	int	Y	Y
start_time	START_TIME	datetime		
stop_time	STOP_TIME	datetime		
product_origin	PRODUCT_ORIGIN	varchar(20)		

Index Code	P	F	U	C	Column Code	Sort
DATA_AVAIL_TIMES_PK	Y		Y		AVAIL_TIMES_ID	ASC

Referenced By	Foreign Key	Primary Key
DAT_RECORD	AVAIL_TIMES_ID	AVAIL_TIMES_ID

Name : DATA_HISTORY

Code : DATA_HISTORY

Label :

Number :

Source :

Column Name	Code	Type	P	M
data_type_id	DATA_TYPE_ID	varchar(20)	Y	Y
moving_avg_time	MOVING_AVG_TIME	datetime		
num_estimate	NUM_ESTIMATE	int		
std_deviation	STD_DEVIATION	int		
last_actual_arrival	LAST_ACTUAL_ARRIVAL	datetime		
last_predicted_arrival	LAST_PREDICTED_ARRIVAL	datetime		

Index Code	P	F	U	C	Column Code	Sort
DATA_HISTORY_PK	Y	Y	Y		DATA_TYPE_ID	ASC

Reference To	Primary Key	Foreign Key
DATA_TRANSFER_HISTORY	DATA_TYPE_ID	DATA_TYPE_ID

Referenced By	Foreign Key	Primary Key
DATA_TYPE_GRANULE	DATA_TYPE_ID	DATA_TYPE_ID

Name : DATA_PROCESSING_REQUEST

Code : DATA_PROCESSING_REQUEST

Label :

Number :

Source : Entity DATA_PROCESSING_REQUEST

Column Name	Code	Type	P	M
dpr_id	DPR_ID	varchar(20)	Y	Y
pge_id	PGE_ID	varchar(20)		
request_id	REQUEST_ID	varchar(25)		
granule_id	GRANULE_ID	varchar(20)		Y
priority	PRIORITY	int		
predicted_start	PREDICTED_START	datetime		
baseline_time	BASELINE_TIME	datetime		
actual_start	ACTUAL_START	datetime		
completion_state	COMPLETION_STATE	varchar(10)		
stop_time	STOP_TIME	datetime		
start_time	START_TIME	datetime		
dpr_UR	DPR_UR	varchar(255)		
next_cond_dpr	NEXT_COND_DPR	varchar(20)		

Index Code	P	F	U	C	Column Code	Sort
DATA_PROCESSING_REQUEST_PK	Y	Y	Y		DPR_ID	ASC
DATA_PROCESSING_REQUEST_FK1		Y			PGE_ID	ASC
DATA_PROCESSING_REQUEST_FK2		Y			REQUEST_ID	ASC

Reference To	Primary Key	Foreign Key
PGE_MASTER	PGE_ID	PGE_ID
PRODUCTION_REQUEST	REQUEST_ID	REQUEST_ID
DPR_GRANULE_EXPLOSION	DPR_ID GRANULE_ID	DPR_ID GRANULE_ID

Referenced By	Foreign Key	Primary Key
ACTIVITY_EXPLOSION	DPR_ID	DPR_ID
TIMER	DPR_ID	DPR_ID

Name : DATA_SOURCE_MASTER

Code : DATA_SOURCE_MASTER

Label :

Number :

Source : Entity DATA_SOURCE_MASTER

Column Name	Code	Type	P	M
data_type_id	DATA_TYPE_ID	varchar(20)	Y	Y
predicted_method	PREDICTED_METHOD	varchar(20)		
supplier_name	SUPPLIER_NAME	varchar(30)		

Index Code	P	F	U	C	Column Code	Sort
DATA_SOURCE_MASTER_PK	Y	Y			DATA_TYPE_ID	ASC

Reference To	Primary Key	Foreign Key
DATA_TYPE_MASTER	DATA_TYPE_ID	DATA_TYPE_ID

Referenced By	Foreign Key	Primary Key
ROUTINE_ARRIVAL	DATA_TYPE_ID	DATA_TYPE_ID

Name : DATA_TRANSER_HISTORY

Code : DATA_TRANSFER_HISTORY

Label :

Number :

Source :

Column Name	Code	Type	P	M
data_type_id	DATA_TYPE_ID	varchar(20)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
DATA_TRANSFER_HISTORY	Y	Y	Y		DATA_TYPE_ID	ASC

Reference To	Primary Key	Foreign Key
DAT_RECORD	DATA_TYPE_ID	DATA_TYPE_ID

Referenced By	Foreign Key	Primary Key
DATA_HISTORY	DATA_TYPE_ID	DATA_TYPE_ID

Name : DATA_TYPE_GRANULE

Code : DATA_TYPE_GRANULE

Label :

Number :

Source : Entity DATA_TYPE_GRANULE

Column Name	Code	Type	P	M
data_type_id	DATA_TYPE_ID	varchar(20)		
stop_time	STOP_TIME	datetime		
availability	AVAILABILITY	bit		
availability_actual	AVAILABILITY_ACTUAL	datetime		
availability_predicted	AVAILABILITY_PREDICTED	datetime		
baseline_time	BASELINE_TIME	datetime		
predicted_staging_time	PREDICTED_STAGING_TIME	datetime		
start_time	START_TIME	datetime		
UR	UR	varchar(255)		
granule_id	GRANULE_ID	varchar(20)	Y	Y
tile_id	TILE_ID	int		

Index Code	P	F	U	C	Column Code	Sort
DATA_TYPE_GRANULE_PK	Y		Y		GRANULE_ID	ASC

Reference To	Primary Key	Foreign Key
DATA_TYPE_MASTER	DATA_TYPE_ID	DATA_TYPE_ID
DATA_HISTORY	DATA_TYPE_ID	DATA_TYPE_ID
TILE	TILE_ID	TILE_ID

Referenced By	Foreign Key	Primary Key
ALTERNATE_DATA_GRANULE	GRANULE_ID	GRANULE_ID
DPR_GRANULE_EXPLOSION	GRANULE_ID	GRANULE_ID
ESDT_PARAMETER	GRANULE_ID	GRANULE_ID

Name : DATA_TYPE_LIST_EXPLOSION

Code : DATA_TYPE_LIST_EXPLOSION

Label :

Number :

Source :

Column Name	Code	Type	P	M
pge_id	PGE_ID	varchar(20)	Y	Y
data_type_id	DATA_TYPE_ID	varchar(20)	Y	Y
io_flag	IO_FLAG	bit		Y

Index Code	P	F	U	C	Column Code	Sort
DATA_TYPE_LIST_EXPLOSION_FK1	Y	Y			DATA_TYPE_ID	ASC
DATA_TYPE_LIST_EXPLOSION_FK2	Y	Y			PGE_ID	ASC

Reference To	Primary Key	Foreign Key
PGE_MASTER	PGE_ID	PGE_ID

Referenced By	Foreign Key	Primary Key
OUTPUT_DATA_YIELD	PGE_ID DATA_TYPE_ID	PGE_ID DATA_TYPE_ID
INPUT_DATA_SPEC	PGE_ID DATA_TYPE_ID	PGE_ID DATA_TYPE_ID

Name : DATA_TYPE_MASTER

Code : DATA_TYPE_MASTER

Label :

Number :

Source : Entity DATA_TYPE_MASTER

Column Name	Code	Type	P	M
data_type_id	DATA_TYPE_ID	varchar(20)	Y	Y
data_type_name	DATA_TYPE_NAME	varchar(18)		
subscription_flag	SUBSCRIPTION_FLAG	bit		
DS_UR_string	DS_UR_STRING	varchar(30)		
catalogue_category	CATALOGUE_CATEGORY	varchar(15)		
instrument	INSTRUMENT	varchar(20)		
satellite_name	SATELLITE_NAME	varchar(25)		
nominal_size	NOMINAL_SIZE	float(10)		
archive_center	ARCHIVE_CENTER	char(5)		
QA_subscription	QA_SUBSCRIPTION	bit		Y
processing_center	PROCESSING_CENTER	char(4)		
dynamic_flag	DYNAMIC_FLAG	bit		Y
description	DESCRIPTION	varchar(60)		
provider	PROVIDER	varchar(20)		
service	SERVICE	varchar(10)		
spatial_flag	SPATIAL_FLAG	bit		

Index Code	P	F	U	C	Column Code	Sort
DATA_TYPE_MASTER_PK	Y		Y		DATA_TYPE_ID	ASC

Reference To	Primary Key	Foreign Key
INPUT_DATA_SPEC	DATA_TYPE_ID	DATA_TYPE_ID
OUTPUT_DATA_YIELD	DATA_TYPE_ID	DATA_TYPE_ID

Referenced By	Foreign Key	Primary Key
DATA_SOURCE_MASTER	DATA_TYPE_ID	DATA_TYPE_ID
DATA_TYPE_GRANULE	DATA_TYPE_ID	DATA_TYPE_ID
DAT_RECORD	DATA_TYPE_ID	DATA_TYPE_ID
USED_BY_CENTER	DATA_TYPE_ID	DATA_TYPE_ID

Name : DETAIL_RESOURCE

Code : DETAIL_RESOURCE

Label :

Number :

Source : Entity DETAIL_RESOURCE

Column Name	Code	Type	P	M
resource_id	RESOURCE_ID	int	Y	Y
resource_name	RESOURCE_NAME	varchar(60)		Y

Index Code	P	F	U	C	Column Code	Sort
DETAIL_RESOURCE_PK	Y		Y		RESOURCE_ID	ASC

Referenced By	Foreign Key	Primary Key
COMPUTER_LIST_EXPLOSION	RESOURCE_ID	RESOURCE_ID
RESOURCE_DETAIL_DISK	RESOURCE_ID	RESOURCE_ID
RESOURCE_STRING	RESOURCE_ID	RESOURCE_ID

Name : DPR_GRANULE_EXPLOSION

Code : DPR_GRANULE_EXPLOSION

Label :

Number :

Source :

Column Name	Code	Type	P	M
dpr_id	DPR_ID	varchar(20)	Y	Y
granule_id	GRANULE_ID	varchar(20)	Y	Y
io_flag	IO_FLAG	bit		Y

Index Code	P	F	U	C	Column Code	Sort
DPR_GRANULE_EXPLOSION_FK1	Y	Y			DPR_ID	ASC
DPR_GRANULE_EXPLOSION_FK2	Y	Y			GRANULE_ID	ASC

Reference To	Primary Key	Foreign Key
ALTERNATE_DATA_GRANULE	DPR_ID GRANULE_ID	DPR_ID GRANULE_ID
DATA_TYPE_GRANULE	GRANULE_ID	GRANULE_ID

Referenced By	Foreign Key	Primary Key
DATA_PROCESSING_REQUEST	DPR_ID GRANULE_ID	DPR_ID GRANULE_ID

Name : ESDT_PARAMETER

Code : ESDT_PARAMETER

Label :

Number :

Source :

Column Name	Code	Type	P	M
ESDT_parm_id	ESDT_PARM_ID	int	Y	Y
granule_id	GRANULE_ID	varchar(20)		
ESDT_parm_value	ESDT_PARM_VALUE	varchar(20)		

Index Code	P	F	U	C	Column Code	Sort
ESDT_PARAMETER_PK	Y		Y		ESDT_PARM_ID	ASC
ESDT_PARAMETER_FK1		Y			GRANULE_ID	ASC

Reference To	Primary Key	Foreign Key
DATA_TYPE_GRANULE	GRANULE_ID	GRANULE_ID

Name : GROUND_EVENT

Code : GROUND_EVENT

Label :

Number :

Source : Entity GROUND_EVENT

Column Name	Code	Type	P	M
ground_event_id	GROUND_EVENT_ID	int	Y	Y
duration	DURATION	datetime		
win_start	WIN_START	datetime		
win_end	WIN_END	datetime		
template_flag	TEMPLATE_FLAG	bit		Y
description	DESCRIPTION	varchar(60)		
priority	PRIORITY	int		
ground_event_name	GROUND_EVENT_NAME	varchar(40)		

Index Code	P	F	U	C	Column Code	Sort
GROUND_EVENT_PK	Y		Y		GROUND_EVENT_ID	ASC

Referenced By	Foreign Key	Primary Key
GROUND_EVENT_EXEC	GROUND_EVENT_ID	GROUND_EVENT_ID
GROUND_EVENT_ALLOCATION	GROUND_EVENT_ID	GROUND_EVENT_ID
ACTIVITY_EXPLOSION	GROUND_EVENT_ID	GROUND_EVENT_ID

Name : GROUND_EVENT_ALLOCATION

Code : GROUND_EVENT_ALLOCATION

Label :

Number :

Source :

Column Name	Code	Type	P	M
rsc_req_id	RSC_REQ_ID	int	Y	Y
ground_event_id	GROUND_EVENT_ID	int	Y	Y
exclusive_or_shared	EXCLUSIVE_OR_SHARED	int		

Index Code	P	F	U	C	Column Code	Sort
RESOURCE_VS_GROUND_EVENT_FK1	Y	Y			GROUND_EVENT_ID	ASC
RESOURCE_VS_GROUND_EVENT_FK2	Y	Y			RSC_REQ_ID	ASC

Reference To	Primary Key	Foreign Key
GROUND_EVENT	GROUND_EVENT_ID	GROUND_EVENT_ID
RESOURCE_MASTER	RSC_REQ_ID	RSC_REQ_ID

Name : GROUND_EVENT_EXEC

Code : GROUND_EVENT_EXEC

Label :

Number :

Source : Entity GROUND_EVENT_EXEC

Column Name	Code	Type	P	M
ground_event_id	GROUND_EVENT_ID	int	Y	Y
script	SCRIPT	varchar(10)		
actual_start	ACTUAL_START	datetime		
actual_stop	ACTUAL_STOP	datetime		

Index Code	P	F	U	C	Column Code	Sort
GROUND_EVENT_EXEC_PK	Y	Y	Y		GROUND_EVENT_ID	ASC

Reference To	Primary Key	Foreign Key
GROUND_EVENT	GROUND_EVENT_ID	GROUND_EVENT_ID

Name : INPUT_DATA_SPEC

Code : INPUT_DATA_SPEC

Label :

Number :

Source : Entity INPUT_DATA_SPEC

Column Name	Code	Type	P	M
pge_id	PGE_ID	varchar(20)	Y	Y
data_type_id	DATA_TYPE_ID	varchar(20)	Y	Y
logical_id	LOGICAL_ID	varchar(20)		
command_string	COMMAND_STRING	varchar(20)		
inspect_string	INSPECT_STRING	varchar(80)		
QA_threshold	QA_THRESHOLD	varchar(40)		
num_needed	NUM_NEEDED	int		
data_type_req	DATA_TYPE_REQ	varchar(80)		
input_type	INPUT_TYPE	varchar(10)		

Index Code	P	F	U	C	Column Code	Sort
INPUT_DATA_SPEC_FK1	Y	Y			PGE_ID	ASC

Reference To	Primary Key	Foreign Key
DATA_TYPE_LIST_EXPLOSION	PGE_ID DATA_TYPE_ID	PGE_ID DATA_TYPE_ID

Referenced By	Foreign Key	Primary Key
DATA_TYPE_MASTER	DATA_TYPE_ID	DATA_TYPE_ID
ALTERNATE	PGE_ID	PGE_ID

Referenced By	Foreign Key	Primary Key
	DATA_TYPE_ID	DATA_TYPE_ID
METADATA	PGE_ID DATA_TYPE_ID	PGE_ID DATA_TYPE_ID

Name : INSTRUMENT_MODE

Code : INSTRUMENT_MODE

Label :

Number :

Source : Entity INSTRUMENT_MODE

Column Name	Code	Type	P	M
mode_schedule_id	MODE_SCHEDULE_ID	int	Y	Y
schedule_start	SCHEDULE_START	datetime		
schedule_stop	SCHEDULE_STOP	datetime		
collection_id	COLLECTION_ID	varchar(20)		

Index Code	P	F	U	C	Column Code	Sort
INSTRUMENT_MODE_PK	Y		Y		MODE_SCHEDULE_ID	ASC

Reference To	Primary Key	Foreign Key
PGE_COLLECTION	COLLECTION_ID	COLLECTION_ID

Referenced By	Foreign Key	Primary Key
MODE_RECORD	MODE_SCHEDULE_ID	MODE_SCHEDULE_ID

Name : METADATA

Code : METADATA

Label :

Number :

Source :

Column Name	Code	Type	P	M
pge_id	PGE_ID	varchar(20)	Y	Y
data_type_id	DATA_TYPE_ID	varchar(20)	Y	Y
metadata_type	METADATA_TYPE	varchar(5)		
metadata_oper	METADATA_OPER	varchar(3)		
metadata_parm_name	METADATA_PARM_NAME	varchar(20)		
metadata_value	METADATA_VALUE	varchar(40)		

Index Code	P	F	U	C	Column Code	Sort
METADATA_FK1	Y	Y			DATA_TYPE_ID	ASC
METADATA_FK2	Y	Y			PGE_ID	ASC

Reference To	Primary Key	Foreign Key
INPUT_DATA_SPEC	PGE_ID DATA_TYPE_ID	PGE_ID DATA_TYPE_ID

Name : MODE_RECORD

Code : MODE_RECORD

Label :

Number :

Source :

Column Name	Code	Type	P	M
mode_name	MODE_NAME	varchar(20)	Y	Y
mode_schedule_id	MODE_SCHEDULE_ID	int		
mode_start_time	MODE_START_TIME	datetime		
mode_stop_time	MODE_STOP_TIME	datetime		
instrument_name	INSTRUMENT_NAME	varchar(20)		

Index Code	P	F	U	C	Column Code	Sort
MODE_RECORD_PK	Y		Y		MODE_NAME	ASC
MODE_RECORD_FK1		Y			MODE_SCHEDULE_ID	ASC

Reference To	Primary Key	Foreign Key
INSTRUMENT_MODE	MODE_SCHEDULE_ID	MODE_SCHEDULE_ID

Name : ON_DEMAND_EXCEED

Code : ON_DEMAND_EXCEED

Label :

Number :

Source :

Column Name	Code	Type	P	M
criteria_id	CRITERIA_ID	int	Y	Y
default_to_thresh	DEFAULT_TO_THRESH	bit		Y

Index Code	P	F	U	C	Column Code	Sort
ON_DEMAND_EXCEED_PK	Y	Y	Y		CRITERIA_ID	ASC

Reference To	Primary Key	Foreign Key
REPLAN_CRITERIA	CRITERIA_ID	CRITERIA_ID

Referenced By	Foreign Key	Primary Key
ON_DEMAND_REPLAN_VALUES	CRITERIA_ID	CRITERIA_ID

Name : ON_DEMAND_REPLAN_VALUES

Code : ON_DEMAND_REPLAN_VALUES

Label :

Number :

Source : Entity ON_DEMAND_REPLAN_VALUES

Column Name	Code	Type	P	M
criteria_id	CRITERIA_ID	int	Y	Y
on_demand_replan_id	ON_DEMAND_REPLAN_ID	int	Y	Y
replan_values	REPLAN_VALUES	int		
resource_type	RESOURCE_TYPE	varchar(10)		
cumulative	CUMULATIVE	float(10)		

Index Code	P	F	U	C	Column Code	Sort
ON_DEMAND_REPLAN_VALUES_FK1	Y	Y			CRITERIA_ID	ASC

Reference To	Primary Key	Foreign Key
ON_DEMAND_EXCEED	CRITERIA_ID	CRITERIA_ID

Name : OUTPUT_DATA_YIELD

Code : OUTPUT_DATA_YIELD

Label :

Number :

Source : Entity OUTPUT_DATA_YIELD

Column Name	Code	Type	P	M
pge_id	PGE_ID	varchar(20)	Y	Y
data_type_id	DATA_TYPE_ID	varchar(20)	Y	Y
command_string	COMMAND_STRING	varchar(80)		
logical_id	LOGICAL_ID	varchar(20)		
yield	YIELD	float(10)		

Index Code	P	F	U	C	Column Code	Sort
OUTPUT_DATA_YIELD_FK1	Y	Y			PGE_ID	ASC

Reference To	Primary Key	Foreign Key
DATA_TYPE_LIST_EXPLOSION	PGE_ID DATA_TYPE_ID	PGE_ID DATA_TYPE_ID

Referenced By	Foreign Key	Primary Key
DATA_TYPE_MASTER	DATA_TYPE_ID	DATA_TYPE_ID

Name : PGE_COLLECTION

Code : PGE_COLLECTION

Label :

Number :

Source :

Column Name	Code	Type	P	M
collection_id	COLLECTION_ID	varchar(20)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
PGE_COLLECTION_PK	Y		Y		COLLECTION_ID	ASC

Referenced By	Foreign Key	Primary Key
INSTRUMENT_MODE	COLLECTION_ID	COLLECTION_ID

Name : PGE_DETAIL_DATA

Code : PGE_DETAIL_DATA

Label :

Number :

Source : Entity PGE_DETAIL_DATA

Column Name	Code	Type	P	M
pge_id	PGE_ID	varchar(20)	Y	Y
input_data_id	INPUT_DATA_ID	int	Y	Y
primary_data_source	PRIMARY_DATA_SOURCE	varchar(30)		
instances_per_pgerun	INSTANCES_PER_PGERUN	int		

Index Code	P	F	U	C	Column Code	Sort
PGE_DETAIL_DATA_PK	Y		Y		PGE_ID	ASC
					INPUT_DATA_ID	ASC

Reference To	Primary Key	Foreign Key
PGE_MASTER	PGE_ID	PGE_ID

Name : PGE_DETAIL_PARAMETERS

Code : PGE_DETAIL_PARAMETERS

Label :

Number :

Source : Entity PGE_DETAIL_PARAMETERS

Column Name	Code	Type	P	M
pge_id	PGE_ID	varchar(20)	Y	Y
default_value	DEFAULT_VALUE	varchar(20)		
description	DESCRIPTION	varchar(60)		
name	NAME	varchar(15)		
logical_id	LOGICAL_ID	varchar(20)		

Index Code	P	F	U	C	Column Code	Sort
PGE_DETAIL_PARAMETERS_FK1	Y	Y			PGE_ID	ASC

Reference To	Primary Key	Foreign Key
PGE_MASTER	PGE_ID	PGE_ID

Referenced By	Foreign Key	Primary Key
PR_PARAMETER	PGE_ID	PGE_ID

Name : PGE_DETAIL_TIME

Code : PGE_DETAIL_TIME

Label :

Number :

Source : Entity PGE_DETAIL_TIME

Column Name	Code	Type	P	M
pge_id	PGE_ID	varchar(20)	Y	Y
processing_boundary	PROCESSING_BOUNDARY	datetime		
processing_period	PROCESSING_PERIOD	datetime		
time_units	TIME_UNITS	varchar(20)		
time_units_per_pgerun	TIME_UNITS_PER_PGERUN	float(10)		

Index Code	P	F	U	C	Column Code	Sort
PGE_DETAIL_TIME_PK	Y	Y	Y		PGE_ID	ASC

Reference To	Primary Key	Foreign Key
PGE_MASTER	PGE_ID	PGE_ID

Name : PGE_MASTER

Code : PGE_MASTER

Label :

Number :

Source : Entity PGE_MASTER

Column Name	Code	Type	P	M
pge_id	PGE_ID	varchar(20)	Y	Y
pge_name	PGE_NAME	varchar(20)		
pge_version	PGE_VERSION	varchar(10)		
platform	PLATFORM	varchar(20)		
pge_test_operational	PGE_TEST_OPERATIONAL	varchar(15)		
num_of_cpus	NUM_OF_CPUS	int		
type	TYPE	varchar(20)		
instrument	INSTRUMENT	varchar(20)		
default_timer	DEFAULT_TIMER	int		

Index Code	P	F	U	C	Column Code	Sort
PGE_MASTER_PK	Y		Y		PGE_ID	ASC

Referenced By	Foreign Key	Primary Key
PGE_DETAIL_PARAMETERS	PGE_ID	PGE_ID
PRODUCTION_REQUEST	PGE_ID	PGE_ID
PGE_DETAIL_TIME	PGE_ID	PGE_ID

Referenced By	Foreign Key	Primary Key
PGE_DETAIL_DATA	PGE_ID	PGE_ID
PGE_ORBIT_SCHEDULE	PGE_ID	PGE_ID
TILE_SCHEDULE	PGE_ID	PGE_ID
DATA_PROCESSING_REQUEST	PGE_ID	PGE_ID
DATA_TYPE_LIST_EXPLOSION	PGE_ID	PGE_ID
RESOURCE_DETAIL_EXPLOSION	PGE_ID	PGE_ID
PGE_STRATEGY_EXPLOSION	PGE_ID	PGE_ID

Name : PGE_ORBIT_MODEL

Code : PGE_ORBIT_MODEL

Label :

Number :

Source : Entity PGE_ORBIT_MODEL

Column Name	Code	Type	P	M
instrument	INSTRUMENT	varchar(20)	Y	Y
orbit_number	ORBIT_NUMBER	int		
platform	PLATFORM	varchar(20)		

Index Code	P	F	U	C	Column Code	Sort
PGE_ORBIT_MODEL_PK	Y		Y		INSTRUMENT	ASC

Referenced By	Foreign Key	Primary Key
PGE_ORBIT_SCHEDULE	INSTRUMENT	INSTRUMENT

Name : PGE_ORBIT_SCHEDULE

Code : PGE_ORBIT_SCHEDULE

Label :

Number :

Source : Entity PGE_ORBIT_SCHEDULE

Column Name	Code	Type	P	M
pge_id	PGE_ID	varchar(20)	Y	Y
instrument	INSTRUMENT	varchar(20)		
orbit_length	ORBIT_LENGTH	int		
ephemeris	EPHEMERIS	varchar(60)		

Index Code	P	F	U	C	Column Code	Sort
PGE_ORBIT_SCHEDULE_PK	Y	Y	Y		PGE_ID	ASC

Reference To	Primary Key	Foreign Key
PGE_MASTER	PGE_ID	PGE_ID
PGE_ORBIT_MODEL	INSTRUMENT	INSTRUMENT

Name : PGE_PERFORMANCE

Code : PGE_PERFORMANCE

Label :

Number :

Source :

Column Name	Code	Type	P	M
pge_id	PGE_ID	varchar(20)	Y	Y
rsc_req_id	RSC_REQ_ID	int		
cpu_time	CPU_TIME	datetime		
elapsed_time	ELAPSED_TIME	datetime		
shared_memory	SHARED_MEMORY	float(10)		
max_memory	MAX_MEMORY	float(10)		
faults	FAULTS	int		
swaps	SWAPS	int		
block_input_operation	BLOCK_INPUT_OPERATION	int		
block_output_operation	BLOCK_OUTPUT_OPERATION	int		
run_cpu_time	RUN_CPU_TIME	datetime		
run_elapsed_time	RUN_ELAPSED	datetime		
run_shared_memory	RUN_SHARED_MEMORY	float(10)		
run_max_memory	RUN_MAX_MEMORY	float(10)		
run_page_faults	RUN_PAGE_FAULTS	int		
run_swaps	RUN_SWAPS	int		
run_block_in_operation	RUN_BLOCK_IN_OPERATION	int		
run_block_out_operation	RUN_BLOCK_OUT_OPERATION	int		

Index Code	P	F	U	C	Column Code	Sort
PGE_PERFORMANCE_FK12	Y	Y			PGE_ID	ASC

Reference To	Primary Key	Foreign Key
RESOURCE_MASTER	RSC_REQ_ID	RSC_REQ_ID

Name : PGE_STRATEGY_EXPLOSION

Code : PGE_STRATEGY_EXPLOSION

Label :

Number :

Source :

Column Name	Code	Type	P	M
strategy_id	STRATEGY_ID	int	Y	Y
pge_id	PGE_ID	varchar(20)	Y	Y
pge_priority	PGE_PRIORITY	int		Y

Index Code	P	F	U	C	Column Code	Sort
PGE_STRATEGY_EXPLOSION_FK1	Y	Y			STRATEGY_ID	ASC
PGE_STRATEGY_EXPLOSION_FK2	Y	Y			PGE_ID	ASC

Reference To	Primary Key	Foreign Key
PRODUCTION_STRATEGY	STRATEGY_ID	STRATEGY_ID
PGE_MASTER	PGE_ID	PGE_ID

Name : PLAN

Code : PLAN

Label :

Number :

Source : Entity PLAN

Column Name	Code	Type	P	M
plan_name	PLAN_NAME	varchar(20)	Y	Y
activity_id	ACTIVITY_ID	int		Y
active_status	ACTIVE_STATUS	bit		
start_time	START_TIME	datetime		
end_time	END_TIME	datetime		
description	DESCRIPTION	varchar(30)		
strategy_id	STRATEGY_ID	int		

Index Code	P	F	U	C	Column Code	Sort
PLAN_PK	Y		Y		PLAN_NAME	ASC
PLAN_FK1		Y			ACTIVITY_ID	ASC

Reference To	Primary Key	Foreign Key
PRODUCTION_STRATEGY	STRATEGY_ID	STRATEGY_ID

Referenced By	Foreign Key	Primary Key
ACTIVE_PLAN	PLAN_NAME	PLAN_NAME
ACTIVITY	PLAN_NAME	PLAN_NAME

Referenced By	Foreign Key	Primary Key
PR_VS_PLAN	PLAN_NAME	PLAN_NAME

Name : PR_COLLECTION

Code : PR_COLLECTION

Label :

Number :

Source : Entity PR_COLLECTION

Column Name	Code	Type	P	M
collection_id	COLLECTION_ID	varchar(10)	Y	Y
requester_id	REQUESTER_ID	varchar(10)		
collection_start	COLLECTION_START	datetime		
collection_stop	COLLECTION_STOP	datetime		
origination_time	ORIGINATION_TIME	datetime		
priority	PRIORITY	int		
request_id	REQUEST_ID	varchar(25)		

Index Code	P	F	U	C	Column Code	Sort
PR_COLLECTION_PK	Y		Y		COLLECTION_ID	ASC

Reference To	Primary Key	Foreign Key
PRODUCTION_REQUEST	REQUEST_ID	REQUEST_ID

Referenced By	Foreign Key	Primary Key
PRODUCTION_REQUEST	COLLECTION_ID	COLLECTION_ID

Name : PR_PARAMETER

Code : PR_PARAMETER

Label :

Number :

Source :

Column Name	Code	Type	P	M
parameter_id	PARAMETER_ID	int	Y	Y
request_id	REQUEST_ID	varchar(25)	Y	Y
pge_id	PGE_ID	varchar(20)	Y	Y
parameter_value	PARAMETER_VALUE	varchar(20)		

Index Code	P	F	U	C	Column Code	Sort
PR_PARAMETER_PK	Y		Y		PARAMETER_ID	ASC
PR_PARAMETER_FK1	Y	Y			PGE_ID	ASC
PR_PARAMETER_FK2	Y	Y			REQUEST_ID	ASC

Reference To	Primary Key	Foreign Key
PRODUCTION_REQUEST	REQUEST_ID	REQUEST_ID
PGE_DETAIL_PARAMETERS	PGE_ID	PGE_ID

Name : PR_STRATEGY_EXPLOSION

Code : PR_STRATEGY_EXPLOSION

Label :

Number :

Source :

Column Name	Code	Type	P	M
strategy_id	STRATEGY_ID	int	Y	Y
PR_type	PR_TYPE	varchar(10)	Y	Y
PR_priority	PR_PRIORITY	int		Y

Index Code	P	F	U	C	Column Code	Sort
PR_STRATEGY_EXPLOSION_FK1	Y	Y			STRATEGY_ID	ASC

Reference To	Primary Key	Foreign Key
PRODUCTION_STRATEGY	STRATEGY_ID	STRATEGY_ID

Name : PR_VS_PLAN

Code : PR_VS_PLAN

Label :

Number :

Source :

Column Name	Code	Type	P	M
request_id	REQUEST_ID	varchar(25)	Y	Y
plan_name	PLAN_NAME	varchar(20)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
PR_VS_PLAN_FK1	Y	Y			PLAN_NAME	ASC
PR_VS_PLAN_FK2	Y	Y			REQUEST_ID	ASC

Reference To	Primary Key	Foreign Key
PLAN	PLAN_NAME	PLAN_NAME
PRODUCTION_REQUEST	REQUEST_ID	REQUEST_ID

Name : PRODUCTION_REQUEST

Code : PRODUCTION_REQUEST

Label :

Number :

Source : Entity PRODUCTION_REQUEST

Column Name	Code	Type	P	M
request_id	REQUEST_ID	varchar(25)	Y	Y
pge_id	PGE_ID	varchar(20)		
collection_id	COLLECTION_ID	varchar(10)		
plan_name	PLAN_NAME	varchar(20)		
PR_type	PR_TYPE	varchar(20)		
PR_collection	PR_COLLECTION	varchar(20)		
description	DESCRIPTION	varchar(60)		
compl_goal	COMPL_GOAL	datetime		
output_data_type	OUTPUT_DATA_TYPE	varchar(10)		
priority	PRIORITY	int		
num_dpr_to_keep	NUM_DPR_TO_KEEP	int		
num_dpr_to_skip	NUM_DPR_TO_SKIP	int		
collection_start	COLLECTION_START	datetime		
collection_stop	COLLECTION_STOP	datetime		
user_type	USER_TYPE	varchar(20)		
requester_id	REQUESTER_ID	varchar(25)		

Index Code	P	F	U	C	Column Code	Sort
PRODUCTION_REQUEST_PK	Y	Y	Y		REQUEST_ID	ASC
PRODUCTION_REQUEST_FK1		Y			PGE_ID	ASC

Index Code	P	F	U	C	Column Code	Sort
PRODUCTION_REQUEST_FK2		Y			COLLECTION_ID	ASC

Reference To	Primary Key	Foreign Key
PGE_MASTER	PGE_ID	PGE_ID
PR_COLLECTION	COLLECTION_ID	COLLECTION_ID

Referenced By	Foreign Key	Primary Key
PR_PARAMETER	REQUEST_ID	REQUEST_ID
DATA_PROCESSING_REQUEST	REQUEST_ID	REQUEST_ID
PR_VS_PLAN	REQUEST_ID	REQUEST_ID
PR_COLLECTION	REQUEST_ID	REQUEST_ID

Name : PRODUCTION_STRATEGY

Code : PRODUCTION_STRATEGY

Label :

Number :

Source : Entity PRODUCTION_STRATEGY

Column Name	Code	Type	P	M
strategy_id	STRATEGY_ID	int	Y	Y
pge_weight	PGE_WEIGHT	float(10)		
user_weight	USER_WEIGHT	float(10)		
PR_type_weight	PR_TYPE_WEIGHT	float(10)		
aging_delta	AGING_DELTA	int		
inter_DAAC_delta	INTER_DAAC_DELTA	int		
priority_weight	PRIORITY_WEIGHT	float(10)		

Index Code	P	F	U	C	Column Code	Sort
PRODUCTION_STRATEGY_PK	Y		Y		STRATEGY_ID	ASC

Referenced By	Foreign Key	Primary Key
PGE_STRATEGY_EXPLOSION	STRATEGY_ID	STRATEGY_ID
USER_STRATEGY_EXPLOSION	STRATEGY_ID	STRATEGY_ID
PR_STRATEGY_EXPLOSION	STRATEGY_ID	STRATEGY_ID
PLAN	STRATEGY_ID	STRATEGY_ID

Name : REPLAN_CRITERIA

Code : REPLAN_CRITERIA

Label :

Number :

Source : Entity REPLAN_CRITERIA

Column Name	Code	Type	P	M
criteria_id	CRITERIA_ID	int	Y	Y
auto_plan	AUTO_PLAN	bit		Y
report	REPORT	varchar(15)		Y
check_plan	CHECK_PLAN	bit		Y

Index Code	P	F	U	C	Column Code	Sort
REPLAN_CRITERIA_PK	Y	Y	Y		CRITERIA_ID	ASC

Referenced By	Foreign Key	Primary Key
ON_DEMAND_EXCEED	CRITERIA_ID	CRITERIA_ID
RESOURCE_CHANGE	CRITERIA_ID	CRITERIA_ID
DAS_DIFFERENT	CRITERIA_ID	CRITERIA_ID

Name : RESC_USE_THRESH

Code : RESC_USE_THRESH

Label :

Number :

Source : Entity RESC_USE_THRESH

Column Name	Code	Type	P	M
resc_use_thresh_id	RESC_USE_THRESH_ID	int	Y	Y
percent_resources	PERCENT_RESOURCES	float(10)		
resource_type	RESOURCE_TYPE	varchar(20)		
cumulative	CUMULATIVE	float(10)		

Index Code	P	F	U	C	Column Code	Sort
RESC_USE_THRESH_PK	Y		Y		RESC_USE_THRESH_ID	ASC

Name : RESOURCE_CHANGE

Code : RESOURCE_CHANGE

Label :

Number :

Source :

Column Name	Code	Type	P	M
criteria_id	CRITERIA_ID	int	Y	Y
time_frame	TIME_FRAME	int	Y	Y

Index Code	P	F	U	C	Column Code	Sort
RESOURCE_CHANGE_PK	Y	Y	Y		CRITERIA_ID	ASC

Reference To	Primary Key	Foreign Key
REPLAN_CRITERIA	CRITERIA_ID	CRITERIA_ID

Name : RESOURCE_DETAIL_DISK

Code : RESOURCE_DETAIL_DISK

Label :

Number :

Source : Entity RESOURCE_DETAIL_DISK

Column Name	Code	Type	P	M
resource_id	RESOURCE_ID	int	Y	Y
computer_id	COMPUTER_ID	int		Y
device_id	DEVICE_ID	varchar(20)		Y
partition_size	PARTITION_SIZE	int		
block_size	BLOCK_SIZE	int		
sys_allocation	SYS_ALLOCATION	int		
user_allocation	USER_ALLOCATION	int		

Index Code	P	F	U	C	Column Code	Sort
RESOURCE_DETAIL_DISK_PK	Y	Y	Y		RESOURCE_ID	ASC
RESOURCE_DETAIL_DISK_FK1		Y			COMPUTER_ID	ASC

Reference To	Primary Key	Foreign Key
COMPUTER_LIST_EXPLOSION	RESOURCE_ID COMPUTER_ID	RESOURCE_ID COMPUTER_ID
DETAIL_RESOURCE	RESOURCE_ID	RESOURCE_ID

Name : RESOURCE_DETAIL_EXPLOSION

Code : RESOURCE_DETAIL_EXPLOSION

Label :

Number :

Source :

Column Name	Code	Type	P	M
rsc_req_id	RSC_REQ_ID	int	Y	Y
pge_id	PGE_ID	varchar(20)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
RESOURCE_DETAIL_EXPLOSION_FK1	Y	Y			PGE_ID	ASC
RESOURCE_DETAIL_EXPLOSION_FK2	Y	Y			RSC_REQ_ID	ASC

Reference To	Primary Key	Foreign Key
RESOURCE_MASTER	RSC_REQ_ID	RSC_REQ_ID
PGE_MASTER	PGE_ID	PGE_ID

Name : RESOURCE_MASTER

Code : RESOURCE_MASTER

Label :

Number :

Source : Entity RESOURCE_MASTER

Column Name	Code	Type	P	M
rsc_req_id	RSC_REQ_ID	int	Y	Y
ground_event_id	GROUND_EVENT_ID	int		
computer	COMPUTER	varchar(25)		
diskspace	DISKSPACE	int		
number_cpus	NUMBER_CPUS	int		
operating_system	OPERATING_SYSTEM	char(25)		
string	STRING	varchar(25)		

Index Code	P	F	U	C	Column Code	Sort
RESOURCE_MASTER_PK	Y		Y		RSC_REQ_ID	ASC

Referenced By	Foreign Key	Primary Key
PGE_PERFORMANCE	RSC_REQ_ID	RSC_REQ_ID
RESOURCE_DETAIL_EXPLOSION	RSC_REQ_ID	RSC_REQ_ID
GROUND_EVENT_ALLOCATION	RSC_REQ_ID	RSC_REQ_ID

Name : RESOURCE_STRING

Code : RESOURCE_STRING

Label :

Number :

Source :

Column Name	Code	Type	P	M
resource_id	RESOURCE_ID	int	Y	Y
string_id	STRING_ID	int	Y	Y

Index Code	P	F	U	C	Column Code	Sort
RESOURCE_STRING_FK1	Y	Y			RESOURCE_ID	ASC

Reference To	Primary Key	Foreign Key
DETAIL_RESOURCE	RESOURCE_ID	RESOURCE_ID

Referenced By	Foreign Key	Primary Key
COMPUTER_LIST_EXPLOSION	RESOURCE_ID STRING_ID	RESOURCE_ID STRING_ID

Name : ROUTINE_ARRIVAL

Code : ROUTINE_ARRIVAL

Label :

Number :

Source : Entity ROUTINE_ARRIVAL

Column Name	Code	Type	P	M
data_type_id	DATA_TYPE_ID	varchar(20)	Y	Y
boundary	BOUNDARY	datetime		
delay	DELAY	int		

Index Code	P	F	U	C	Column Code	Sort
ROUTINE_ARRIVAL_PK	Y	Y	Y		DATA_TYPE_ID	ASC

Reference To	Primary Key	Foreign Key
DATA_SOURCE_MASTER	DATA_TYPE_ID	DATA_TYPE_ID

Referenced By	Foreign Key	Primary Key
ROUTINE_ARRIVAL_EXPLOSION	DATA_TYPE_ID	DATA_TYPE_ID

Name : ROUTINE_ARRIVAL_EXPLOSION

Code : ROUTINE_ARRIVAL_EXPLOSION

Label :

Number :

Source :

Column Name	Code	Type	P	M
period_type	PERIOD_TYPE	int		
period_value	PERIOD_VALUE	integer		
data_type_id	DATA_TYPE_ID	varchar(20)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
ROUTINE_ARRIVAL_EXPLOSION_PK	Y	Y	Y		DATA_TYPE_ID	ASC

Reference To	Primary Key	Foreign Key
ROUTINE_ARRIVAL	DATA_TYPE_ID	DATA_TYPE_ID

Name : TILE

Code : TILE

Label :

Number :

Source : Entity TILE

Column Name	Code	Type	P	M
tile_id	TILE_ID	int	Y	Y
cluster_id	CLUSTER_ID	int		
latitude	LATITUDE	float(10)		
longitude	LONGITUDE	float(10)		

Index Code	P	F	U	C	Column Code	Sort
TILE_PK	Y		Y		TILE_ID	ASC
TILE_FK1		Y			CLUSTER_ID	ASC

Reference To	Primary Key	Foreign Key
CLUSTER	CLUSTER_ID	CLUSTER_ID

Referenced By	Foreign Key	Primary Key
DATA_TYPE_GRANULE	TILE_ID	TILE_ID

Name : TILE_SCHEDULE

Code : TILE_SCHEDULE

Label :

Number :

Source : Entity TILE_SCHEDULE

Column Name	Code	Type	P	M
pge_id	PGE_ID	varchar(20)	Y	Y
definition	DEFINITION	varchar(20)		
L0_data_type	L0_DATA_TYPE	varchar(20)		
prod_delta_time	PROD_DELTA_TIME	datetime		
num_clusters	NUM_CLUSTERS	int		
boundary	BOUNDARY	datetime		
delay_factor	DELAY_FACTOR	datetime		
period	PERIOD	datetime		

Index Code	P	F	U	C	Column Code	Sort
TILE_SCHEDULE_PK	Y	Y	Y		PGE_ID	ASC

Reference To	Primary Key	Foreign Key
PGE_MASTER	PGE_ID	PGE_ID

Referenced By	Foreign Key	Primary Key
CLUSTER	PGE_ID	PGE_ID

Name : TIMER

Code : TIMER

Label :

Number :

Source :

Column Name	Code	Type	P	M
timer_id	TIMER_ID	int	Y	Y
timer_start	TIMER_START	bit		
timer_exp	TIMER_EXP	bit		
dpr_id	DPR_ID	varchar(20)		Y

Index Code	P	F	U	C	Column Code	Sort
TIMER_PK	Y		Y		TIMER_ID	ASC
TIMER_FK1		Y			DPR_ID	ASC

Reference To	Primary Key	Foreign Key
DATA_PROCESSING_REQUEST	DPR_ID	DPR_ID

Name : USED_BY_CENTER

Code : USED_BY_CENTER

Label :

Number :

Source :

Column Name	Code	Type	P	M
data_type_id	DATA_TYPE_ID	varchar(20)	Y	Y
DAAC_name	DAAC_NAME	char(4)	Y	Y

Index Code	P	F	U	C	Column Code	Sort
USED_BY_CENTER_FK1	Y	Y			DATA_TYPE_ID	ASC

Reference To	Primary Key	Foreign Key
DATA_TYPE_MASTER	DATA_TYPE_ID	DATA_TYPE_ID

Name : USER_STRATEGY_EXPLOSION

Code : USER_STRATEGY_EXPLOSION

Label :

Number :

Source :

Column Name	Code	Type	P	M
strategy_id	STRATEGY_ID	int	Y	Y
user_type	USER_TYPE	varchar(20)	Y	Y
user_priority	USER_PRIORITY	int		Y

Index Code	P	F	U	C	Column Code	Sort
USER_STRATEGY_EXPLOSION_FK1	Y	Y			STRATEGY_ID	ASC

Reference To	Primary Key	Foreign Key
PRODUCTION_STRATEGY	STRATEGY_ID	STRATEGY_ID

Name : DATA_MAP

Code : DATA_MAP

Label :

Number :

Source : Entity DATA_MAP

Column Name	Code	Type	P	M
data_map_id	DATA_MAP_ID	int	Y	Y
data_map_ur_id	DATA_MAP_UR_ID	varchar(25)	Y	Y
data_map_machine	DATA_MAP_MACHINE	varchar(7)		
data_map_status	DATA_MAP_STATUS	int		
number_of_uses	NUMBER_OF_USES	int		
data_map_location	DATA_MAP_LOCATION	varchar(80)		

Index Code	P	F	U	C	Column Code	Sort
DATA_MAP_PK	Y		Y		DATA_MAP_ID	ASC
					DATA_MAP_UR_ID	ASC

Name : DP_ENUM_NAMES

Code : DP_ENUM_NAMES

Label :

Number :

Source : Entity DP_ENUM_NAMES

Column Name	Code	Type	P	M
enum_type_id	ENUM_TYPE_ID	int	Y	Y
enum_name	ENUM_NAME	char(20)		

Index Code	P	F	U	C	Column Code	Sort
DP_ENUM_NAMES_PK	Y		Y		ENUM_TYPE_ID	ASC

Referenced By	Foreign Key	Primary Key
DP_ENUM_VALUES	ENUM_TYPE_ID	ENUM_TYPE_ID

Name : DP_ENUM_VALUES

Code : DP_ENUM_VALUES

Label :

Number :

Source : Entity DP_ENUM_VALUES

Column Name	Code	Type	P	M
enum_type_id	ENUM_TYPE_ID	int	Y	Y
enum_number	ENUM_NUMBER	int	Y	Y
enum_value	ENUM_VALUE	varchar(20)		

Index Code	P	F	U	C	Column Code	Sort
DP_ENUM_VALUES_PK	Y		Y		ENUM_TYPE_ID	ASC
					ENUM_NUMBER	ASC

Reference To	Primary Key	Foreign Key
DP_ENUM_NAMES	ENUM_TYPE_ID	ENUM_TYPE_ID

Name : DPR_STATUS

Code : DPR_STATUS

Label :

Number :

Source :

Column Name	Code	Type	P	M
dpr_id	DPR_ID	varchar(20)	Y	Y
dpr_status	DPR_STATUS	varchar(10)		

Index Code	P	F	U	C	Column Code	Sort
DPR_STATUS_PK	Y		Y		DPR_ID	ASC

Referenced By	Foreign Key	Primary Key
JOB_STATUS	DPR_ID	DPR_ID

Name : EXECUTABLE

Code : EXECUTABLE

Label :

Number :

Source : Entity EXECUTABLE

Column Name	Code	Type	P	M
exec_id	EXEC_ID	int	Y	Y
pge_id	PGE_ID	varchar(20)		Y
exec_target	EXEC_TARGET	varchar(20)		
exec_level	EXEC_LEVEL	int		
exec_location	EXEC_LOCATION	varchar(240)		
exec_name	EXEC_NAME	varchar(60)		
exec_permission	EXEC_PERMISSION	char(10)		
exec_shell	EXEC_SHELL	varchar(10)		

Index Code	P	F	U	C	Column Code	Sort
EXECUTABLE_PK	Y		Y		EXEC_ID	ASC
EXECUTABLE_FK1		Y			PGE_ID	ASC

Reference To	Primary Key	Foreign Key
PGE	PGE_ID	PGE_ID

Name : JOB_STATUS

Code : JOB_STATUS

Label :

Number :

Source :

Column Name	Code	Type	P	M
job_id	JOB_ID	varchar(20)	Y	Y
dpr_id	DPR_ID	varchar(20)		
job_status	JOB_STATUS	varchar(2)		

Reference To	Primary Key	Foreign Key
DPR_STATUS	DPR_ID	DPR_ID

Name : PCF

Code : PCF

Label :

Number :

Source : Entity PCF

Column Name	Code	Type	P	M
dpr_id	DPR_ID	varchar(20)	Y	Y
pge_id	PGE_ID	varchar(20)		Y
pcf_name	PCF_NAME	varchar(60)		Y
pcf_location	PCF_LOCATION	varchar(240)		
pcf_permission	PCF_PERMISSION	char(10)		

Index Code	P	F	U	C	Column Code	Sort
PCF_PK	Y		Y		DPR_ID	ASC
PCF_FK1		Y			PGE_ID	ASC

Reference To	Primary Key	Foreign Key
PGE	PGE_ID	PGE_ID

Name : PGE

Code : PGE

Label :

Number :

Source : Entity PGE

Column Name	Code	Type	P	M
pge_id	PGE_ID	varchar(20)	Y	Y
pge_state	PGE_STATE	varchar(25)		
pge_commands	PGE_COMMANDS	varchar(120)		
pge_environment	PGE_ENVIRONMENT	varchar(240)		
pge_shell	PGE_SHELL	varchar(30)		
pge_host	PGE_HOST	varchar(60)		

Index Code	P	F	U	C	Column Code	Sort
PGE_PK	Y		Y		PGE_ID	ASC

Referenced By	Foreign Key	Primary Key
PCF	PGE_ID	PGE_ID
EXECUTABLE	PGE_ID	PGE_ID

Name : QA_DB_PARAMETERS

Code : QA_DB_PARAMETERS

Label :

Number :

Source :

Column Name	Code	Type	P	M
parm_id	PARM_ID	int	Y	Y
parm_name	PARM_NAME	varchar(50)		Y
parm_type	PARM_TYPE	varchar(20)		Y
parm_min	PARM_MIN	int		Y
parm_max	PARM_MAX	int		Y
parm_keyword	PARM_KEYWORD	varchar(20)		Y
parm_return_code	PARM_RETURN_CODE	int		

Index Code	P	F	U	C	Column Code	Sort
QA_DB_PARAMETERS_PK	Y		Y		PARM_ID	ASC

Name : RESOURCE_MASTER

Code : RESOURCE_MASTER

Label :

Number :

Source : Entity RESOURCE_MASTER

Column Name	Code	Type	P	M
resource_id	RESOURCE_ID	int	Y	Y
resource_name	RESOURCE_NAME	varchar(60)		
resource_state	RESOURCE_STATE	int		

Index Code	P	F	U	C	Column Code	Sort
RESOURCE_MASTER_PK	Y		Y		RESOURCE_ID	ASC

Referenced By	Foreign Key	Primary Key
RSC_COMPUTER	RESOURCE_ID	RESOURCE_ID
RSC_STRING	RESOURCE_ID	RESOURCE_ID
RSC_DISK_PARTITION	RESOURCE_ID	RESOURCE_ID

Name : RSC_COMPUTER

Code : RSC_COMPUTER

Label :

Number :

Source : Entity RSC_COMPUTER

Column Name	Code	Type	P	M
resource_id	RESOURCE_ID	int	Y	Y
computer_id	COMPUTER_ID	int	Y	Y
string_id	STRING_ID	int		Y
operating_sys	OPERATING_SYS	varchar(60)		
per_process_ram	PER_PROCESS_RAM	int		
total_ram	TOTAL_RAM	int		
total_cpu	TOTAL_CPU	int		
per_process_cpu	PER_PROCESS_CPU	int		
cpu_allocation	CPU_ALLOCATION	int		
max_disk_space	MAX_DISK_SPACE	int		

Index Code	P	F	U	C	Column Code	Sort
RSC_COMPUTER_PK	Y		Y		RESOURCE_ID	ASC
					COMPUTER_ID	ASC
RSC_COMPUTER_FK1		Y			STRING_ID	ASC

Reference To	Primary Key	Foreign Key
RSC_STRING	STRING_ID	STRING_ID
RESOURCE_MASTER	RESOURCE_ID	RESOURCE_ID

Referenced By	Foreign Key	Primary Key
RSC_DISK_PARTITION	COMPUTER_ID	COMPUTER_ID

Name : RSC_DISK_ALLOCATION

Code : RSC_DISK_ALLOCATION

Label :

Number :

Source : Entity RSC_DISK_ALLOCATION

Column Name	Code	Type	P	M
allocation_id	ALLOCATION_ID	varchar(20)	Y	Y
partition_id	PARTITION_ID	int		
allocation_type	ALLOCATION_TYPE	int		
allocation_path	ALLOCATION_PATH	varchar(240)		
allocation_size	ALLOCATION_SIZE	int		
allocation_user	ALLOCATION_USER	varchar(40)		
allocation_actual	ALLOCATION_ACTUAL	int		

Index Code	P	F	U	C	Column Code	Sort
RSC_DISK_ALLOCATION_PK	Y		Y		ALLOCATION_ID	ASC
RSC_DISK_ALLOCATION_FK		Y			PARTITION_ID	ASC

Reference To	Primary Key	Foreign Key
RSC_DISK_PARTITION	PARTITION_ID	PARTITION_ID

Name : RSC_DISK_PARTITION

Code : RSC_DISK_PARTITION

Label :

Number :

Source : Entity RSC_DISK_PARTITION

Column Name	Code	Type	P	M
resource_id	RESOURCE_ID	int	Y	Y
partition_id	PARTITION_ID	int	Y	Y
computer_id	COMPUTER_ID	int		Y
partition_size	PARTITION_SIZE	int		
block_size	BLOCK_SIZE	int		
sys_allocation	SYS_ALLOCATION	int		
user_allocation	USER_ALLOCATION	int		

Index Code	P	F	U	C	Column Code	Sort
RSC_DISK_PARTITION_PK	Y		Y		RESOURCE_ID	ASC
					PARTITION_ID	ASC
RSC_DISK_PARTITION_FK1		Y			COMPUTER_ID	ASC

Reference To	Primary Key	Foreign Key
RSC_COMPUTER	COMPUTER_ID	COMPUTER_ID
RESOURCE_MASTER	RESOURCE_ID	RESOURCE_ID

Referenced By	Foreign Key	Primary Key
RSC_DISK_ALLOCATION	PARTITION_ID	PARTITION_ID

Name : RSC_STRING

Code : RSC_STRING

Label :

Number :

Source : Entity RSC_STRING

Column Name	Code	Type	P	M
resource_id	RESOURCE_ID	int	Y	Y
string_id	STRING_ID	int	Y	Y

Index Code	P	F	U	C	Column Code	Sort
RSC_STRING_PK	Y		Y		RESOURCE_ID	ASC
					STRING_ID	ASC

Reference To	Primary Key	Foreign Key
RESOURCE_MASTER	RESOURCE_ID	RESOURCE_ID

Referenced By	Foreign Key	Primary Key
RSC_COMPUTER	STRING_ID	STRING_ID

9.3 Cross Reference Tables for Traceability

The following cross reference table identifies the objects and attributes for the PDPS Subsystem's persistent data as indicated in the DID305 volume dated March 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 satistify the functionality described in the associated CSCI.

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (1 of 31)

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
ACTIVE_PLAN	plan_start_time	PlanActivation	PlActivePlan	ScheduledStart-Time		
ACTIVE_PLAN	plan_name(fk)					
ACTIVE_PLAN	plan_end_time	PlanActivation	PlActivePlan	ScheduledEnd-Time		
ACTIVITY	activity_id	Production-Planning; PublishingPlans; PlanActivation	PlActivity	myActivityId		
ACTIVITY	predicted_start	Production-Planning; PublishingPlans; PlanActivation	PlActivity	myPredictedStart		
ACTIVITY	predicted_stop	Production-Planning; PublishingPlans; PlanActivation	PlActivity	myPredictedStop		
ACTIVITY	priority	Production-Planning; PublishingPlans; PlanActivation	PlActivity	myPriority		
ALTERNATE	temp_flag	Production-Request; PGEProfile	PlAlternateNB	myTemporalFlag		
ALTERNATE	order	Production-Request; PGEProfile	PlAlternateNB	myDefaultOrder		
ALTERNATE	wait_for	Production-Request; PGEProfile	PlAlternateNB	myWaitFor		
ALTERNATE	primary	Production-Request; PGEProfile	PlAlternateNB	myPrimary		

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (2 of 31)

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
ALTERNATE	timer	Production-Request; PGEProfile	PlAlternateNB	myDefaultTimer		
ALTERNATE	PGE_Id(fk)					
ALTERNATE_DATA_GRANULE	primary_type	Subscription-Manager; Production-Request	PlAlternateData-GranuleNB	myPrimaryType		
ALTERNATE_DATA_GRANULE	accepted	Subscription-Manager; Production-Request	PlAlternateData-GranuleNB	myAccepted		
ALTERNATE_DATA_GRANULE	timer	Subscription-Manager; Production-Request	PlAlternateData-GranuleNB	myTimerNB		
ALTERNATE_DATA_GRANULE	order	Subscription-Manager; Production-Request	PlAlternateData-GranuleNB	myOrder		
ALTERNATE_DATA_GRANULE	type	Subscription-Manager; Production-Request	PlAlternateData-GranuleNB	myType		
ALTERNATE_DATA_GRANULE	dprId(fk)					
ALTERNATE_DATA_GRANULE	granule_Id(fk)					
ALTERNATE_DATA_GRANULE	temporal_flag	Subscription-Manager; Production-Request	PlAlternateData-GranuleNB	myTemporalFlag		

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (3 of 31)

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
CLUSTER	last_orbit	PGEProfile	PlCluster	myLastOrbit		
CLUSTER	predict_availability	PGEProfile	PlCluster	myPredicted-Availability		
CLUSTER	cluster_Id(derived)					
CLUSTER	pge_Id(fk)					
CLUSTER	num_tiles	PGEProfile	PlCluster	myNumTiles		
COMPUTER_LIST_EXPLOSION	cpu	Resource-Management	PlComputer	myCPUs		
COMPUTER_LIST_EXPLOSION	per_process_ram	Resource-Management	PlComputer	myPerProcess-Ram		
COMPUTER_LIST_EXPLOSION	resource_Id(fk)		PlComputer	myDiskList		
	string_Id(fk)					
	computer_Id (derived)					
COMPUTER_LIST_EXPLOSION	total_ram	Resource-Management	PlComputer	myTotalRam		
COMPUTER_LIST_EXPLOSION	operating_system	Resource-Management	PlComputer	myOperating-System		
COMPUTER_LIST_EXPLOSION	max_disk_space	Resource-Management	PlComputer	myMaxDiskSpace		
DAS_DELTA	data_type_id	Production-PlanningUserIF; Subscription-Manager	PlDASDelta	myDataTypeId	Collection Description	Short Name
DAS_DELTA	criteria_Id(fk)					

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (4 of 31)

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
DAS_DELTA	delta	Production-PlanningUserIF; Subscription-Manager	PlDASDelta	myDelta		
DAS_DIFFERENT	time_frame	Production-PlanningUserIF	PlDASDifferent	myTimeFrame		
DAT_RECORD	data_type_id	Production-Request; DataActivityTimes	PlDATRecord	myDataTypeId	Collection Description	Short Name
DAT_RECORD	avail_times_Id(fk)					
DAT_RECORD	tile_id	Production-Request; DataActivityTimes	PlDATRecord	myTileId		
DAT_RECORD	start_time	Production-Request; DataActivityTimes	PlDATRecord	myStartTime		
DAT_RECORD	stop_time	Production-Request; DataActivityTimes	PlDATRecord	myStopTime		
DAT_RECORD	predicted_ availability	Production-Request; DataActivityTimes	PlDATRecord	myPredicted-Availability		
DATA_AVAIL_ TIMES	start_time	Subscription-Manager; DataActivityTimes	PlDataAvailability - Times	myStartTime		
DATA_AVAIL_ TIMES	avail_times_Id (derived)					
DATA_AVAIL_ TIMES	stop_time	Subscription-Manager; DataActivityTimes	PlDataAvailability - Times	myStopTime		

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (5 of 31)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Class Name	DID 305 Attribute Name	DID 311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DATA_AVAIL_ TIMES	product_origin	Subscription-Manager; DataActivityTimes	PlDataAvailability - Times	myProductOrigin		
DATA_HISTORY	data_type_id	DataActivityTimes ; PGEProfile	PlSourcetoDs-HistoryNB	myDataTypeID	Collection Description	Short Name
DATA_HISTORY	moving_avg_time	DataActivityTimes ; PGEProfile	PlSourcetoDs-HistoryNB	myMoving-AverageTime		
DATA_HISTORY	num_estimate	DataActivityTimes ; PGEProfile	PlSourcetoDs-HistoryNB	myNumberOf-Estimates		
DATA_HISTORY	std_deviation	DataActivityTimes ; PGEProfile	PlSourcetoDs-HistoryNB	myStandard-Deviation		
DATA_HISTORY	last_actual_ arrival	DataActivityTimes ; PGEProfile	PlSourcetoDs-HistoryNB	myLastActual-Arrival		
DATA_TRANSFE R_HISTORY	prev_transfer_tim es	DataActivityTimes ; PGEProfile	PlSourcetoDs-HistoryNB	myPrevTransferTi mes		
DATA_HISTORY	last_predicted_ arrival	DataActivityTimes ; PGEProfile	PlSourcetoDs-HistoryNB	myLastPredicted-Arrival		
DATA_PROCES-SING_REQUEST	dpr_id	OnDemand-Manager; Production-Planning; Subscription-Manager	PlDPRB	myDprId		
DATA_PROCES-SING_REQUEST	granule_Id,(FK)				ECSDataGranule	GranulePointer

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (6 of 31)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Class Name	DID 305 Attribute Name	DID 311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DATA_PROCES-SING_REQUEST	stop_time		PlDPRB	MyStopTime		
DATA_PROCES-SING_REQUEST	start_time,		PlDPRB	MyStartTime		
DATA_PROCES-SING_REQUEST	dpr_UR		PlDPRB	MyUR		
DATA_PROCES-SING_REQUEST	next_cond_dp		PlDPRB	MyNextCondition DPR		
DPR_GRANULE _EXPLOSION			PlDPRB	MyInputDataInsta nceList		
DPR_GRANULE _EXPLOSION			PlDPRB	MyOutputDataIns tanceList		
DATA_PROCES-SING_REQUEST	pge_id	OnDemand-Manager; Production-Planning; Subscription-Manager	PlDPRB	myPgeId	PGEDescription	PGEIdentifier
DATA_PROCES-SING_REQUEST	request_id`	OnDemand-Manager; Production-Planning; Subscription-Manager	PlDPRB	myProduction-RequestId		
DATA_PROCES-SING_REQUEST	priority	OnDemand-Manager; Production-Planning; Subscription-Manager	PlDPRB	myPriority		

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (7 of 31)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Class Name	DID 305 Attribute Name	DID 311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DATA_PROCES-SING_REQUEST	predicted_start	OnDemand-Manager; Production-Planning; Subscription-Manager	PlDPRB	myPredicted-StartTime		
DATA_PROCES-SING_REQUEST	baseline_time	OnDemand-Manager; Production-Planning; Subscription-Manager	PlDPRB	myBaselineTime		
DATA_PROCES-SING_REQUEST	actual_start	OnDemand-Manager; Production-Planning; Subscription-Manager	PlDPRB	myActualStart-Time		
DATA_PROCES-SING_REQUEST	completion_state	OnDemand-Manager; Production-Planning; Subscription-Manager	PlDPRB	myCompletion-State		
DATA_SOURCE_MASTER	predicted_method	Production-Request	PlDataSource	myPredicted-Method		
DATA_SOURCE_MASTER	data_type_Id(FK)				CollectionDescrip tion	ShortName
DATA_SOURCE_MASTER	supplier_name	Production-Request	PlDataSource	mySupplierName	DataOriginator	DataOriginator-ShortName

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (8 of 31)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Class Name	DID 305 Attribute Name	DID 311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DATA_TYPE_ GRANULE	availability_actual	Production-Planning; Subscription-Manager; Production-Request	PlDataGranule	myActual-Availability		
DATA_TYPE_ GRANULE	availability	Production-Planning; Subscription-Manager; Production-Request	PlDataGranule	myAvailability		
DATA_TYPE_ GRANULE	availability_ predicted	Production-Planning; Subscription-Manager; Production-Request	PlDataGranule	myPredicted-Availability		
DATA_TYPE_ GRANULE	baseline_time	Production-Planning; Subscription-Manager; Production-Request	PlDataGranule	myBaselineTime		
DATA_TYPE_ GRANULE	predicted_staging _time	Production-Planning; Subscription-Manager; Production-Request	PlDataGranule	myPredicted-StagingTime		
ESDT_PARAME TER	ESDT_parm_vals	Production-Planning; Subscription-Manager; Production-Request	PlDataGranule	myESDTParmVal s	TBD	TBD

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (9 of 31)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Class Name	DID 305 Attribute Name	DID 311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DATA_TYPE_ GRANULE	data_type_id	Production-Planning; Subscription-Manager; Production-Request	PlDataGranule	myDataTypeId	Collection Description	Short Name
DATA_TYPE_ GRANULE	start_time	Production-Planning; Subscription-Manager; Production-Request	PlDataGranule	myStartTime	RangeDateTime	RangeBeginningTime
DATA_TYPE_ GRANULE	stop_time	Production-Planning; Subscription-Manager; Production-Request	PlDataGranule	myStopTime	RangeDateTime	RangeEndingTime
DATA_TYPE_ GRANULE	UR	Production-Planning; Subscription-Manager; Production-Request	PlDataGranule	myUR		
DATA_TYPE_ GRANULE	granule_id	Production-Planning; Subscription-Manager; Production-Request	PlDataGranule	myDataGranuleId	ECSDataGranule	GranulePointer
DATA_TYPE_ GRANULE	tile_id	Production-Planning; Subscription-Manager; Production-Request	PlDataGranule	myTileId		

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (10 of 31)

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
	(no attributes)		PlDataTranferHistory	(no attributes)		
DATA_TYPE_ MASTER	data_type_id	Production-Request; Subscription-Submission	PlDataTypeB	myDataTypeId	CollectionDescriptionClass	ShortName
DATA_TYPE_ MASTER	data_type_name	Production-Request; Subscription-Submission	PlDataTypeB	myName	CollectionDescriptionClass	LongName
DATA_TYPE_ MASTER	DS_UR_string	Production-Request; Subscription-Submission	PlDataTypeB	myDServURString		
DATA_TYPE_ MASTER	catalogue_ category	Production-Request; Subscription-Submission	PlDataTypeB	myCatalogue-Category		
DATA_TYPE_ MASTER	instrument	Production-Request; Subscription-Submission	PlDataTypeB	myInstrument-Name	Instrument	InstrumentShortName
DATA_TYPE_ MASTER	satellite_name	Production-Request; Subscription-Submission	PlDataTypeB	mySatelliteName	Platform	PlatformShort-Name
DATA_TYPE_ MASTER	nominal_size	Production-Request; Subscription-Submission	PlDataTypeB	myNominalSize		
DATA_TYPE_ MASTER	archive_center	Production-Request; Subscription-Submission	PlDataTypeB	myArchiveCenter	ECSCollection	ArchiveCenter

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (11 of 31)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Class Name	DID 305 Attribute Name	DID 311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DATA_TYPE_ MASTER	QA_subscription	Production-Request; Subscription-Submission	PlDataTypeB	myQASubscriptio n		
DATA_TYPE_ MASTER	dynamic_flag	Production-Request; Subscription-Submission	PlDataTypeB	myDynamicFlag		
DATA_TYPE_ MASTER	description	Production-Request; Subscription-Submission	PlDataTypeB	myDescription	CollectionDescrip tionClass	CollectionDescrip tion
METADATA		Production-Request; Subscription-Submission	PlDataTypeB	myESDTParmList	TBD	TBD
DATA_TYPE_ MASTER	processing_cente r	Production-Request; Subscription-Submission	PlDataTypeB	myProcessingCe nter	ECSCollection	ProcessingCenter
DATA_TYPE_ MASTER	provider	Production-Request; Subscription-Submission	PlDataTypeB	myProvider	Contact	Role ContactOrgName
DATA_TYPE_ MASTER	service	Production-Request; Subscription-Submission	PlDataTypeB	myService		
DATA_TYPE_ MASTER	spatial_flag	Production-Request; Subscription-Submission	PlDataTypeB	mySpatialFlag		

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (12 of 31)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Class Name	DID 305 Attribute Name	DID 311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
DATA_TYPE_ MASTER	subscription_flag	Production-Request; Subscription-Submission	PlDataTypeB	mySubscriptionFlag		
DATA_TYPE_ MASTER	TBD (This is a list-valued attributre)	Production-Request; Subscription-Submission	PlDataTypeB	myUsedByCenter		
DETAIL_ RESOURCE	resource_id	Resource-Management	PlResource	myId		
DETAIL_ RESOURCE	resource_name	Resource-Management	PlResource	myName		
GROUND_EVENT	duration	Production-Planning; PlanActivation	PlGroundEvent	myDuration		
GROUND_EVENT	ground_event_id (Derived)					
GROUND_EVENT	win_start	Production-Planning; PlanActivation	PlGroundEvent	myWinStartTime		
GROUND_EVENT	win_end	Production-Planning; PlanActivation	PlGroundEvent	myWinEndTime		
GROUND_EVENT	template_flag	Production-Planning; PlanActivation	PlGroundEvent	myTemplateFlag		
GROUND_EVENT	description	Production-Planning; PlanActivation	PlGroundEvent	myDescription		
GROUND_EVENT	priority	Production-Planning; PlanActivation	PlGroundEvent	myPriority		

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (13 of 31)

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
GROUND_EVENT	ground_event_name	Production-Planning; PlanActivation	PlGroundEvent	myName		
GROUND_EVENT_ALLOCATION	excl_or_shared	Production-Planning	PlGroundEvent-Allocation	myExclusiveOr-Shared		
GROUND_EVENT_ALLOCATION	ground_event_id(FK)					
GROUND_EVENT_ALLOCATION	rsc_req_id(FK)					
GROUND_EVENT_EXEC	script	Production-Planning	PlGroundEvent-Executable	myScriptName		
GROUND_EVENT_EXEC	ground_event_id(FK)					
GROUND_EVENT_EXEC	actual_start	Production-Planning	PlGroundEvent-Executable	myActualStart-Time		
GROUND_EVENT_EXEC	actual_stop	Production-Planning	PlGroundEvent-Executable	myActualStop-Time		
INPUT_DATA_SPEC	pge_id	Production-Request; PGEProfile	PlDataTypeReq	myPgeId	PGEDescription	PGEIdentifier
INPUT_DATA_SPEC	data_type_id	Production-Request; PGEProfile	PlDataTypeReq	myDataTypeId	CollectionDescriptionClass	ShortName
INPUT_DATA_SPEC	logical_id	Production-Request; PGEProfile	PlDataTypeReq	myLogicalID		
INPUT_DATA_SPEC	command_string	Production-Request; PGEProfile	PlDataTypeReq	myCommand-String		
INPUT_DATA_SPEC	inspect_string	Production-Request; PGEProfile	PlDataTypeReq	myInspectString		

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (14 of 31)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Class Name	DID 305 Attribute Name	DID 311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
INPUT_DATA_ SPEC	QA_threshold	Production-Request; PGEProfile	PlDataTypeReq	myQAThreshold		
INPUT_DATA_ SPEC	num_needed	Production-Request; PGEProfile	PlDataTypeReq	myNumNeeded		
INPUT_DATA_ SPEC	data_type_req	Production-Request; PGEProfile	PlDataTypeReq	myDataTypeReq		
INPUT_DATA_ SPEC	input_type	Production-Request; PGEProfile	PlDataTypeReq	myType		
INSTRUMENT_ MODE	schedule_start	DataActivityTimes ; PGEProfile	PlInstrument-Modes	myScheduleStart		
	mode_schedule_id(Derived)					
	collection_id(FK)					
INSTRUMENT_ MODE	schedule_stop	DataActivityTimes ; PGEProfile	PlInstrument-Modes	myScheduleStop		
METADATA	pge_id	Production-Request; PGEProfile	PlMetaData-Checks	myPgeId	PGEDescription	PGEIdentifier
METADATA	data_type_id	Production-Request; PGEProfile	PlMetaData-Checks	myDataTypeId	CollectionDescriptionClass	ShortName
METADATA	metadata_type	Production-Request; PGEProfile	PlMetaData-Checks	myMetaDataType		

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (15 of 31)

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
METADATA	metadata_oper	Production-Request; PGEProfile	PlMetaData-Checks	myMetaDataOper		
METADATA	metadata_parm_name	Production-Request; PGEProfile	PlMetaData-Checks	myMetaData-ParmName		TBD
METADATA	metadata_value	Production-Request; PGEProfile	PlMetaData-Checks	myMetaDataValue		
MODE_RECORD	mode_name	DataActivityTimes	PlInstMode-Records	myModeName		
MODE_RECORD	mode_schedule_id(FK)					
MODE_RECORD	mode_start_time	DataActivityTimes	PlInstMode-Records	myModeStartTime		
MODE_RECORD	mode_stop_time	DataActivityTimes	PlInstMode-Records	myModeStopTime		
MODE_RECORD	instrument_name	DataActivityTimes	PlInstMode-Records	myInstrument-Name		
ON_DEMAND_EXCEED	default_to_thresh	Production-PlanningUserIF; OnDemand-Manager	PlOnDemand-Exceed	myDefaultTo-Thresh		
ON_DEMAND_EXCEED	criteria_id(FK)					
ON_DEMAND_REPLAN_VALUES	replan_values	Production-Planning; OnDemand-Manager	PlOnDemand-ReplanValues	myReplanValue		
ON_DEMAND_REPLAN_VALUES	on_demand_replan_id,(Derived)					

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (16 of 31)

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
ON_DEMAND_REPLAN_VALUES	criteria_id(FK)					
ON_DEMAND_REPLAN_VALUES	resource_type	Production-Planning; OnDemand-Manager	PlOnDemand-ReplanValues	myResourceType		
ON_DEMAND_REPLAN_VALUES	cumulative	Production-Planning; OnDemand-Manager	PlOnDemand-ReplanValues	myCumulative		
OUTPUT_DATA_YIELD	pge_id	Production-Request; PGEProfile	PlOutputYield	myPgeId	PGEDescription	PGEIdentifier
OUTPUT_DATA_YIELD	data_type_id	Production-Request; PGEProfile	PlOutputYield	myDataTypeId	CollectionDescriptionClass	ShortName
OUTPUT_DATA_YIELD	command_string	Production-Request; PGEProfile	PlOutputYield	myCommand-String		
OUTPUT_DATA_YIELD	logical_id	Production-Request; PGEProfile	PlOutputYield	myLogicalID		
OUTPUT_DATA_YIELD	yield	Production-Request; PGEProfile	PlOutputYield	myYield		
PGE_COLLEC-TION	collection_id(Derived)	PGEProfile	PlPGECollection	(no attributes)		
PGE_DETAIL_DATA	input_data_id	PGEProfile	PlDataScheduled	myInputDataId		
PGE_DETAIL_DATA	pge_id(FK)				PGEDescription	PGEIdentifier
PGE_DETAIL_DATA	primary_data_source	PGEProfile	PlDataScheduled	myPrimaryData-Source		

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (17 of 31)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Class Name	DID 305 Attribute Name	DID 311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
PGE_DETAIL_ DATA	instances_per_ pgerun	PGEProfile	PlDataScheduled	myNoOfInstances -PerPgeRun		
PGE_DETAIL_ PARAMETERS	default_value	PGEProfile	PlUserParameter s	myDefaultValue		
PGE_DETAIL_ PARAMETERS	pge_id(FK)				PGEDescription	PGEIdentifier
PGE_DETAIL_ PARAMETERS	description	PGEProfile	PlUserParameter s	myDescription		
PGE_DETAIL_ PARAMETERS	name	PGEProfile	PlUserParameter s	myName		
PGE_DETAIL_ PARAMETERS	logical_id	PGEProfile	PlUserParameter s	myLogicalID		
PGE_DETAIL_ TIME	processing_ boundary	PGEProfile	PlTimeScheduled	myAcquisition- Processing- Boundary		
PGE_DETAIL_ TIME	pge_id(FK)					
PGE_DETAIL_ TIME	processing_ period	PGEProfile	PlTimeScheduled	myAcquisition- ProcessingPeriod		
PGE_DETAIL_ TIME	time_units	PGEProfile	PlTimeScheduled	myTimeUnits		
PGE_DETAIL_ TIME	time_units_per_ pgerun	PGEProfile	PlTimeScheduled	myNoOfTimeUnit s-PerPgeRun		
PGE_MASTER	default_timer	OnDemand- Manager; Production- Request; PGEProfile	PlPGE	myDefaultTimer		

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (18 of 31)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Class Name	DID 305 Attribute Name	DID 311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
INPUT_DATA_SPEC		OnDemand-Manager; Production-Request; PGEProfile	PlPGE	myInputDataTypeList		
OUTPUT_DATA_YIELD		OnDemand-Manager; Production-Request; PGEProfile	PlPGE	myOutputDataTypeList		
PGE_MASTER	pge_id	OnDemand-Manager; Production-Request; PGEProfile	PlPGE	myPgeId	PGEDescription	PGEIdentifier
PGE_MASTER	pge_name	OnDemand-Manager; Production-Request; PGEProfile	PlPGE	myPgeName	PGEDescription	PGEName
PGE_MASTER	pge_version	OnDemand-Manager; Production-Request; PGEProfile	PlPGE	myPgeVersion	PGEVersion	PGEVersion
PGE_MASTER	platform	OnDemand-Manager; Production-Request; PGEProfile	PlPGE	myPlatform	Platform	PlatformShortName
PGE_MASTER	pge_test_operational	OnDemand-Manager; Production-Request; PGEProfile	PlPGE	myTestOperational	DeliveredAlgorithmPackage	DeliveryPurpose

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (19 of 31)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Class Name	DID 305 Attribute Name	DID 311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
PGE_MASTER	num_of_cpus	OnDemand-Manager; Production-Request; PGEProfile	PlPGE	myNumCPUs		
PGE_MASTER	type	OnDemand-Manager; Production-Request; PGEProfile	PlPGE	myType		
PGE_MASTER	instrument	OnDemand-Manager; Production-Request; PGEProfile	PlPGE	myInstrument	Instrument	InstrumentShortName
PGE_ORBIT_MODEL	orbit_number	PGEProfile	PlOrbitModelNB	myOrbitNum	OrbitParameters Granule	OrbitParametersPointer
PGE_ORBIT_MODEL	instrument(derived)					
PGE_ORBIT_MODEL	platform	PGEProfile	PlOrbitModelNB	myPlatform	Platform	PlatformShortName
PGE_ORBIT_SCHEDULE	ephemeris	PGEProfile	PlOrbitScheduled-NB	myEphemeris		
PGE_ORBIT_SCHEDULE	pge_id,(fk)				PGEDescription	PGEIdentifier
PGE_ORBIT_SCHEDULE	instrument(fk)				Instrument	InstrumentShortName
PGE_ORBIT_SCHEDULE	orbit_length	PGEProfile	PlOrbitScheduled-NB	myOrbitLength	OrbitParameters Granule	OrbitParametersPointer
PGE_PERFORMANCE	pge_id	PGEProfile	PlPerformance	myPgeId	PGEDescription	PGEIdentifier

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (20 of 31)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Class Name	DID 305 Attribute Name	DID 311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
PGE_ PERFORMANCE	rsc_req_id(fk)					
PGE_ PERFORMANCE	cpu_time	PGEProfile	PlPerformance	myPgeCpuTime		
PGE_ PERFORMANCE	elapsed_time	PGEProfile	PlPerformance	myElapsedTime	SystemDescriptio n	SystemDescriptio nPointer
PGE_ PERFORMANCE	shared_memory	PGEProfile	PlPerformance	mySharedMemor y-Use		
PGE_ PERFORMANCE	max_memory	PGEProfile	PlPerformance	myMaxMemory-Use	SystemDescriptio n	SystemDescriptio nPointer
PGE_ PERFORMANCE	faults	PGEProfile	PlPerformance	myNoOfPage-Faults	SystemDescriptio n	SystemDescriptio nPointer
PGE_ PERFORMANCE	swaps	PGEProfile	PlPerformance	myNoOfSwaps	SystemDescriptio n	SystemDescriptio nPointer
PGE_ PERFORMANCE	block_input_ operation	PGEProfile	PlPerformance	myNoOfBlockIn-Oper	SystemDescriptio n	SystemDescriptio nPointer
PGE_ PERFORMANCE	block_output_ operation	PGEProfile	PlPerformance	myNoOfBlockOut -Oper	SystemDescriptio n	SystemDescriptio nPointer
PGE_ PERFORMANCE	run_cpu_time	PGEProfile	PlPerformance	myRunPgeCpu-Time		
PGE_ PERFORMANCE	run_elapsed_time	PGEProfile	PlPerformance	myRunElapsed-Time		
PGE_ PERFORMANCE	run_shared_ memory	PGEProfile	PlPerformance	myRunShared-MemoryUse		
PGE_ PERFORMANCE	run_max_memor y	PGEProfile	PlPerformance	myRunMax-MemoryUse		
PGE_ PERFORMANCE	run_page_faults	PGEProfile	PlPerformance	myRunNoOfPage -Faults		
PGE_ PERFORMANCE	run_swaps	PGEProfile	PlPerformance	myRunNoOf-Swaps		

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (21 of 31)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Class Name	DID 305 Attribute Name	DID 311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
PGE_ PERFORMANCE	run_block_in_ operation	PGEProfile	PlPerformance	myRunNoOfBlock -InOper		
PGE_ PERFORMANCE	run_block_out_ operation	PGEProfile	PlPerformance	myRunNoOfBlock -OutOper		
PGE_STRATEG Y_EXPLOSION	pge_id	Production-PlanningUserIF	PlPGEPriorityNB	myPge	PGEDescription	PGEIdentifier
PGE_STRATEG Y_EXPLOSION	strategy_id(fk)					
PGE_STRATEG Y_EXPLOSION	pge_priority	Production-PlanningUserIF	PlPGEPriorityNB	myPriority		
PLAN	plan_name	Production-Planning; PublishingPlans; PlanActivation	PlPlanB	myPlanName		
PLAN	active_status	Production-Planning; PublishingPlans; PlanActivation	PlPlanB	myActiveStatus		
PLAN	start_time	Production-Planning; PublishingPlans; PlanActivation	PlPlanB	myStartTime		
PLAN	end_time	Production-Planning; PublishingPlans; PlanActivation	PlPlanB	myEndTime		
PLAN	description	Production-Planning; PublishingPlans; PlanActivation	PlPlanB	myDescription		

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (22 of 31)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Class Name	DID 305 Attribute Name	DID 311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
PLAN	strategy_id	Production-Planning; PublishingPlans; PlanActivation	PlPlanB	myProdStrat		
PR_COLLECTION	collection_id	OnDemand-Manager; Production-Request	PlPRCollectionNB	myCollectionId		
PR_COLLECTION	requester_id	OnDemand-Manager; Production-Request	PlPRCollectionNB	myRequesterId		
PR_COLLECTION	collection_start	OnDemand-Manager; Production-Request	PlPRCollectionNB	myDataCollection-StartTime		
PR_COLLECTION	collection_stop	OnDemand-Manager; Production-Request	PlPRCollectionNB	myDataCollection-StopTime		
PR_COLLECTION	origination_time	OnDemand-Manager; Production-Request	PlPRCollectionNB	myOrigination-Time		
PRODUCTION_REQUEST		OnDemand-Manager; Production-Request	PlPRCollectionNB	myProductionRequestList		
PR_COLLECTION	request_id	OnDemand-Manager; Production-Request	PlPRCollectionNB	myProductionRequests		

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (23 of 31)

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
PR_COLLECTION	priority	OnDemand-Manager; Production-Request	PlPRCollectionNB	myPriority		
PR_STRATEGY_EXPLOSION	PR_type	Production-PlanningUserIF	PlPRPriorityNB	myType		
PR_STRATEGY_EXPLOSION	strategy_id(fk)					
PR_STRATEGY_EXPLOSION	PR_priority	Production-PlanningUserIF	PlPRPriorityNB	myPriority		
DATA_PROCESSING_REQUEST		OnDemand-Manager; Production-Planning; Production-Request	PlProduction-RequestB	myDPRsNB		
PRODUCTION_REQUEST	request_id	OnDemand-Manager; Production-Planning; Production-Request	PlProduction-RequestB	myRequestId		
PRODUCTION_REQUEST	pge_id	OnDemand-Manager; Production-Planning; Production-Request	PlProduction-RequestB	myPgeIdentifier	PGEDescription	PGEIdentifier
PRODUCTION_REQUEST	collection_id PR_collection	OnDemand-Manager; Production-Planning; Production-Request	PlProduction-RequestB	myPRCollection-NB		

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (24 of 31)

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
PRODUCTION_ REQUEST	PR_type	OnDemand-Manager; Production-Planning; Production-Request	PlProduction-RequestB	myPRTypeNB		
PRODUCTION_ REQUEST	PR_collection	OnDemand-Manager; Production-Planning; Production-Request	PlProduction-RequestB	myPRCollection-NB		
PRODUCTION_ REQUEST	description	OnDemand-Manager; Production-Planning; Production-Request	PlProduction-RequestB	myDescription		
PRODUCTION_ REQUEST	compl_goal	OnDemand-Manager; Production-Planning; Production-Request	PlProduction-RequestB	myTargetDate		
PRODUCTION_ REQUEST	output_data_type	OnDemand-Manager; Production-Planning; Production-Request	PlProduction-RequestB	myOutputData-Type	CollectionDescrip tionClass	ShortName
PRODUCTION_ REQUEST	priority	OnDemand-Manager; Production-Planning; Production-Request	PlProduction-RequestB	myPriority		

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (25 of 31)

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
PRODUCTION_ REQUEST	num_dpr_to_kee p	OnDemand-Manager; Production-Planning; Production-Request	PlProduction-RequestB	myNumDPRsTo-Keep		
PRODUCTION_ REQUEST	num_dpr_to_skip	OnDemand-Manager; Production-Planning; Production-Request	PlProduction-RequestB	myNumDPRsTo-Skip		
PRODUCTION_ REQUEST	collection_start	OnDemand-Manager; Production-Planning; Production-Request	PlProduction-RequestB	myDataCollection -StartTime		
PRODUCTION_ REQUEST	collection_stop	OnDemand-Manager; Production-Planning; Production-Request	PlProduction-RequestB	myDataCollection -StopTime		
PRODUCTION_ REQUEST	user_type	OnDemand-Manager; Production-Planning; Production-Request	PlProduction-RequestB	myUserTypeNB		
PRODUCTION_ REQUEST	requester_id	OnDemand-Manager; Production-Planning; Production-Request	PlProduction-RequestB	myRequesterId		

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (26 of 31)

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
PR_PARAMETER		OnDemand-Manager; Production-Planning; Production-Request	PlProduction-RequestB	myUsrParaList		
PR_PARAMETER		OnDemand-Manager; Production-Planning; Production-Request	PlProduction-RequestB	myUsrParaValueList		
PRODUCTION_STRATEGY	strategy_id	Production-PlanningUserIF; Production-Planning	PlProdStratNB	myProdStratId		
PRODUCTION_STRATEGY	pge_weight	Production-PlanningUserIF; Production-Planning	PlProdStratNB	myPgeWeight		
PRODUCTION_STRATEGY	user_weight	Production-PlanningUserIF; Production-Planning	PlProdStratNB	myUserWeight		
PRODUCTION_STRATEGY	PR_type_weight	Production-PlanningUserIF; Production-Planning	PlProdStratNB	myPRTypeWeight		
PRODUCTION_STRATEGY	aging_delta	Production-PlanningUserIF; Production-Planning	PlProdStratNB	myAgingDelta		
PRODUCTION_STRATEGY	inter_DAAC_delta	Production-PlanningUserIF; Production-Planning	PlProdStratNB	myInterDAAC-Delta		

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (27 of 31)

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
PRODUCTION_ STRATEGY	priority_weight	Production-PlanningUserIF; Production-Planning	PlProdStratNB	myUserSelected-PriorityWeight		
REPLAN_ CRITERIA	auto_plan	Production-PlanningUserIF; OnDemand-Manager	PlReplanCriteria	myAutoReplanYN		
REPLAN_ CRITERIA	criteria_id(derived)					
REPLAN_ CRITERIA	report	Production-PlanningUserIF; OnDemand-Manager	PlReplanCriteria	myReport		
REPLAN_ CRITERIA	check_plan	Production-PlanningUserIF; OnDemand-Manager	PlReplanCriteria	myCheckThisYN		
RESC_USE_ THRESH	percent_ resources	Production-PlanningUserIF; Production-Planning; OnDemand-Manager	PlResUseThresh-NB	myPercent-Resources		
RESC_USE_ THRESH	resc_use_thresh_ id(derived)					
RESC_USE_ THRESH	resource_type	Production-PlanningUserIF; Production-Planning; OnDemand-Manager	PlResUseThresh-NB	myResourceType		

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (28 of 31)

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
RESC_USE_ THRESH	cumulative	Production-PlanningUserIF; Production-Planning; OnDemand-Manager	PlResUseThresh-NB	myCumulative		
RESOURCE_ CHANGE	time_frame	Production-PlanningUserIF	PlResource-Change	myTimeFrame		
RESOURCE_ CHANGE	criteria_id(fk)					
RESOURCE_ DETAIL_DISK	device_id	Resource-Management	PlDiskPartition	myDeviceId		
RESOURCE_ DETAIL_DISK	resource_id(fk)					
RESOURCE_ DETAIL_DISK	computer_id(fk)					
RESOURCE_ DETAIL_DISK	partition_size	Resource-Management	PlDiskPartition	myPartitionSize		
RESOURCE_ DETAIL_DISK	block_size	Resource-Management	PlDiskPartition	myBlockSize		
RESOURCE_ DETAIL_DISK	sys_allocation	Resource-Management	PlDiskPartition	mySysAllocation		
RESOURCE_ DETAIL_DISK	user_allocation	Resource-Management	PlDiskPartition	myUserAllocation		
RESOURCE_ MASTER	computer	Production-Planning; PGEProfile	PlResource-Requirement	myComputer	SystemDescriptio n	SystemDescriptio nPointer
RESOURCE_ MASTER	rsc_req_id,(derive d)					
RESOURCE_ MASTER	ground_event_id(fk)					

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (29 of 31)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Class Name	DID 305 Attribute Name	DID 311 Earth Science Object Class Name	DID311 Earth Science Attribute Name
RESOURCE_ MASTER	diskspace	Production-Planning; PGEProfile	PlResource-Requirement	myDiskSpace	SystemDescriptio n	SystemDescriptio nPointer
RESOURCE_ MASTER	cpu	Production-Planning; PGEProfile	PlResource-Requirement	myNCPUs	SystemDescriptio n	SystemDescriptio nPointer
RESOURCE_ MASTER	operating_system	Production-Planning; PGEProfile	PlResource-Requirement	myOperating-System	SystemDescriptio n	SystemDescriptio nPointer
RESOURCE_ MASTER	string	Production-Planning; PGEProfile	PlResource-Requirement	myString	SystemDescriptio n	SystemDescriptio nPointer
RESOURCE_ STRING	string_id	Resource-Management	PlString	myComputerList		
RESOURCE_ STRING	resource_id(fk)					
ROUTINE_ ARRIVAL	boundary	Production-Request	PlRoutineArrival	myBoundary		
ROUTINE_ ARRIVAL	data_type_id(fk)					
ROUTINE_ ARRIVAL	delay	Production-Request	PlRoutineArrival	myDelay		
ROUTINE_ ARRIVAL_EXPL OSION		Production-Request	PlRoutineArrival	myPeriod		
TILE	tile_id	PGEProfile	PlTile	myTileId		
	cluster_id(FK)					

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (30 of 31)

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
TILE	latitude	PGEProfile	PlTile	myCoordinates		
TILE	longitude	PGEProfile	PlTile	myCoordinates		
TILE_SCHEDULE	definition	PGEProfile	PlTileScheduled-NB	myTileDefinition		
TILE_SCHEDULE	pge_id(fk)				PGEDescription	PGEIdentifier
TILE_SCHEDULE	L0_data_type	PGEProfile	PlTileScheduled-NB	myL0DataType		
TILE_SCHEDULE	prod_delta_time	PGEProfile	PlTileScheduled-NB	myProduction-DeltaTime		
TILE_SCHEDULE	num_clusters	PGEProfile	PlTileScheduled-NB	myNumClusters		
TILE_SCHEDULE	boundary	PGEProfile	PlTileScheduled-NB	myBoundary		
TILE_SCHEDULE	period	PGEProfile	PlTileScheduled-NB	myPeriod		
TILE_SCHEDULE	delay_factor	PGEProfile	PlTileScheduled-NB	myDelayFactor		
TIMER	timer_start	Subscription-Manager	PlTimer	myTimerStart		
TIMER	timer_id(derived)					
TIMER	dpr_id(fk)					
TIMER	timer_exp	Subscription-Manager	PlTimer	myTimerExp		

Table 9-3. Planning Subsystem Persistent Data Cross Reference Table (31 of 31)

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
USER_STRATEGY_EXPLOSION	user_type	Production-PlanningUserIF	PlUserPriorityNB	myUserType		
USER_STRATEGY_EXPLOSION	strategy_id(fk)					
USER_STRATEGY_EXPLOSION	user_priority	Production-PlanningUserIF	PlUserPriorityNB	myPriority		

Table 9-4. Data Processing Subsystem Persistent Data Cross Reference Table (1 of 6)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Object Class Name	DID 305 Attribute Name	DID311 Earth Science Object Class Name	DID311Earth Science Attribute Name
DATA_MAP	data_map_location	DataManagement	DpPrDataMap	myLocation		
DATA_MAP	data_map_machine	DataManagement	DpPrDataMap	myMachine		
DATA_MAP	number_of_uses	DataManagement	DpPrDataMap	myNumberOf-Uses		
DATA_MAP	data_map_status	DataManagement	DpPrDataMap	myStatus		
DATA_MAP	data_map_ur_id	DataManagement	DpPrDataMap	myURid		
DATA_MAP	data_map_id	DataManagement	DpPrDataMap			
DPR_STATUS	dpr_id	JobManagement; Execution-Management; DataManagement	DpPrDprStatusNB	dprID		
DPR_STATUS	dpr_status	JobManagement; Execution-Management; DataManagement	DpPrDprStatusNB	currentDprStatus		

Table 9-4. Data Processing Subsystem Persistent Data Cross Reference Table (2 of 6)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Object Class Name	DID 305 Attribute Name	DID311 Earth Science Object Class Name	DID311Earth Science Attribute Name
JOB_STATUS	job_id	JobManagement; Execution-Management; DataManagement	DpPrDprStatusNB	jobIdList		
JOB_STATUS	job_status	JobManagement; Execution-Management; DataManagement	DpPrDprStatusNB	jobStatusList		
JOB_STATUS	dpr_id	JobManagement; Execution-Management; DataManagement	DpPrDprStatusNB			
EXECUTABLE	exec_level	Execution-Management	DpPrExecutable	myLevel		
EXECUTABLE	exec_location	Execution-Management	DpPrExecutable	myLocation		
EXECUTABLE	exec_name	Execution-Management	DpPrExecutable	myName		
EXECUTABLE	exec_permission	Execution-Management	DpPrExecutable	myPermission		
EXECUTABLE	exec_shell	Execution-Management	DpPrExecutable	myShell		
EXECUTABLE	exec_target	Execution-Management	DpPrExecutable	myTarget		
EXECUTABLE	pge_id	Execution-Management	DpPrExecutable			
EXECUTABLE	exec_id	Execution-Management	DpPrExecutable			
PCF	pcf_location	Execution-Management; QualityAssurance	DpPrPcf	myLocation		

Table 9-4. Data Processing Subsystem Persistent Data Cross Reference Table (3 of 6)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Object Class Name	DID 305 Attribute Name	DID311 Earth Science Object Class Name	DID311Earth Science Attribute Name
PCF	pcf_name	Execution-Management; QualityAssurance	DpPrPcf	myName		
PCF	pcf_permission	Execution-Management; QualityAssurance	DpPrPcf	myPermission		
PCF	dpr_id	Execution-Management; QualityAssurance	DpPrPcf			
PCF	pge_id	Execution-Management; QualityAssurance	DpPrPcf			
PGE	pge_commands	Execution-Management; QualityAssurance	DpPrPge	myCommands		
PGE	pge_environment	Execution-Management; QualityAssurance	DpPrPge	myEnvironment		
PGE	pge_host	Execution-Management; QualityAssurance	DpPrPge	myHost		
PGE	pge_id	Execution-Management; QualityAssurance	DpPrPge	myPgeId	PGEDescription	PGEIdentifier
PGE	pge_shell	Execution-Management; QualityAssurance	DpPrPge	myShell		
PGE	pge_state	Execution-Management; QualityAssurance	DpPrPge	myState		
EXECUTABLE		Execution-Management; QualityAssurance	DpPrPge	myExecSet		

Table 9-4. Data Processing Subsystem Persistent Data Cross Reference Table (4 of 6)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Object Class Name	DID 305 Attribute Name	DID311 Earth Science Object Class Name	DID311Earth Science Attribute Name
QA_DB_PARAMETERS	parm_min	QualityAssurance	DpPrDatabaseValNB	myParmMin	PhysicalParameterDetails	ParameterRange
QA_DB_PARAMETERS	parm_max	QualityAssurance	DpPrDatabaseValNB	myParmMax	PhysicalParameterDetails	ParameterRange
QA_DB_PARAMETERS	parm_keyword	QualityAssurance	DpPrDatabaseValNB	myParmKeyword		
QA_DB_PARAMETERS	parm_retcode	QualityAssurance	DpPrDatabaseValNB	myretcode		
QA_DB_PARAMETERS	parm_type	QualityAssurance	DpPrDatabaseValNB	myPDPSParmType	CollectionDescription	ShortName
QA_DB_PARAMETERS	parm_name	QualityAssurance	DpPrDatabaseValNB	myPDPSParmName	ECSParameter	ParameterName
QA_DB_PARAMETERS	parm_id	QualityAssurance	DpPrDatabaseValNB			
RESOURCE_MASTER	resource_id	Resource-Management	DpPrResource	myID		
RESOURCE_MASTER	resource_name	Resource-Management	DpPrResource	myName		
RESOURCE_MASTER	resource_state	Resource-Management	DpPrResource	myState		
RSC_COMPUTER	cpu_allocation	Resource-Management	DpPrComputer	myCpuAllocation	SystemDescription	SystemDescriptionPointer
RSC_DISK_PARTITION	computer_id	Resource-Management	DpPrComputer	myDiskSet		
RSC_COMPUTER	max_disk_space	Resource-Management	DpPrComputer	myMaxDiskSpace	SystemDescription	SystemDescriptionPointer
RSC_COMPUTER	operating_sys	Resource-Management	DpPrComputer	myOperatingSystem	SystemDescription	SystemDescriptionPointer
RSC_COMPUTER	per_process_cpu	Resource-Management	DpPrComputer	myPerProcessCpu		

Table 9-4. Data Processing Subsystem Persistent Data Cross Reference Table (5 of 6)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Object Class Name	DID 305 Attribute Name	DID311 Earth Science Object Class Name	DID311Earth Science Attribute Name
RSC_COMPUTER	per_process_ram	Resource-Management	DpPrComputer	myPerProcessRam		
RSC_COMPUTER	total_cpu	Resource-Management	DpPrComputer	myTotalCpu		
RSC_COMPUTER	total_ram	Resource-Management	DpPrComputer	myTotalRam		
RSC_COMPUTER	resource_id	Resource-Management	DpPrComputer			
RSC_COMPUTER	computer_id	Resource-Management	DpPrComputer			
RSC_COMPUTER	string_id	Resource-Management	DpPrComputer			
RSC_DISK_ALLOCATION	allocation_id	Resource-Management	DpPrDiskAllocation	myID		
RSC_DISK_ALLOCATION	allocation_size	Resource-Management	DpPrDiskAllocation	myLastSize		
RSC_DISK_ALLOCATION	allocation_path	Resource-Management	DpPrDiskAllocation	myPath		
RSC_DISK_ALLOCATION	allocation_actual	Resource-Management	DpPrDiskAllocation	mySize		
RSC_DISK_ALLOCATION	allocation_type	Resource-Management	DpPrDiskAllocation	myType		
RSC_DISK_ALLOCATION	allocation_user	Resource-Management	DpPrDiskAllocation	myUser		
RSC_DISK_ALLOCATION	partition_id	Resource-Management	DpPrDiskAllocation			
RSC_DISK_ALLOCATION	partition_id	Resource-Management	DpPrDiskPartition	myAllocationList		
RSC_DISK_PARTITION	block_size	Resource-Management	DpPrDiskPartition	myBlockSize		

Table 9-4. Data Processing Subsystem Persistent Data Cross Reference Table (6 of 6)

Table Name	Table Attribute Name	DID 305 Object Model Name	DID 305 Object Class Name	DID 305 Attribute Name	DID311 Earth Science Object Class Name	DID311Earth Science Attribute Name
RSC_DISK_PARTITION	partition_size	Resource-Management	DpPrDiskPartition	myPartitionSize		
RSC_DISK_PARTITION	sys_allocation	Resource-Management	DpPrDiskPartition	mySysAllocation		
RSC_DISK_PARTITION	user_allocation	Resource-Management	DpPrDiskPartition	myUserAllocation		
RSC_DISK_PARTITION	computer_id	Resource-Management	DpPrDiskPartition			
RSC_DISK_PARTITION	resource_id	Resource-Management	DpPrDiskPartition			
RSC_DISK_PARTITION	partition_id	Resource-Management	DpPrDiskPartition			
RSC_STRING	string_name	Resource-Management	DpPrString	myComputerSet		
RSC_STRING	resource_id	Resource-Management	DpPrString			

10. The Internal Model: Ingest Subsystem

10.1 Ingest Subsystem Description

A provider site within EOSDIS will normally need to ingest a wide variety of data types to support the services it wishes to offer. These data may be delivered through a wide variety of interfaces (network file transfer, machine-to-machine transfer, media, hard copy etc.) This interface heterogeneity and the need to support extensibility and new data and interfaces as algorithms and provider functionality changes, is handled within the Ingest Subsystem. The subsystem deals with the initial reception of all data received at an EOSDIS facility and triggers subsequent archiving and processing of the data. It makes data ingest schedules available for access by users and programs, and reports deviations from the schedules as exceptions so they can be handled through intervention by operations or science users. (Reference Technical Paper 19400436TP.)

The data required to achieve these functions are the subject of this section. A graphical model of the design is presented as well as a description of the tables referenced in the model. Additionally, a cross reference table which identifies the relationship between 311, 305 and table objects is also presented in this section.

10.2 Graphical Model and Relational Tables

The following graphical model and tables represent the Ingest Subsystem's persistent data design for Release B. The graphical model provides an overall illustration of the collection of Ingest's database tables and the relationship between theses tables. Further a detail description of each table is also being provided in this section. These descriptions include attribute names, which are represented as Column Name, types and keys for each of the tables contained in the graphical model (refer to Appendix D for further explanation of the tables).

Ingest Subsystem ER Model

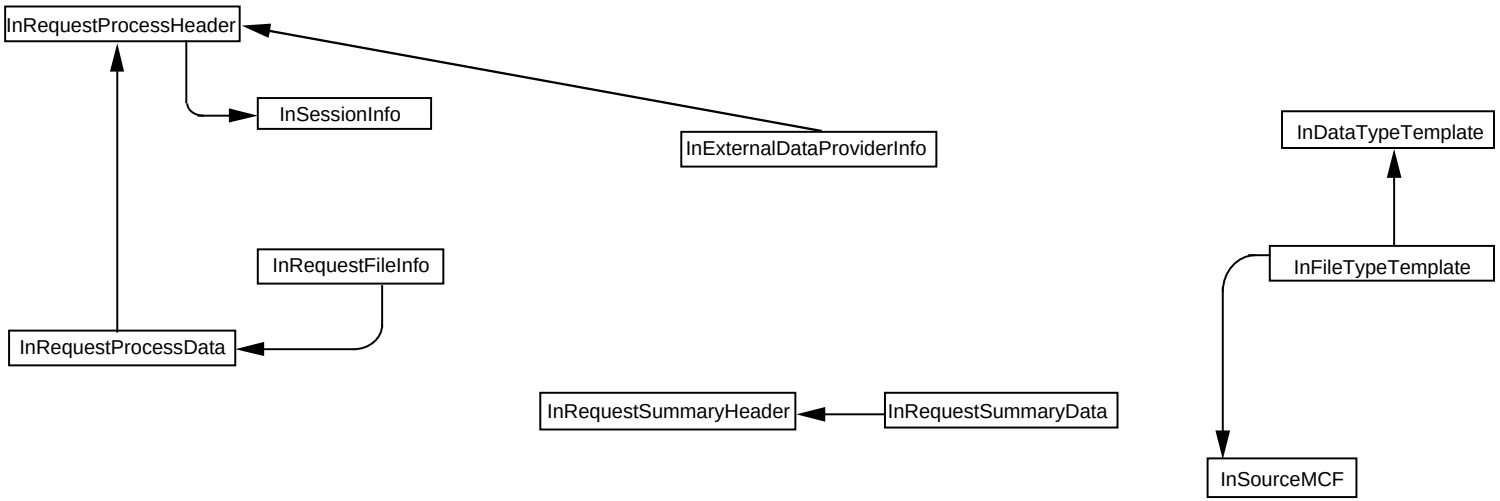

Figure 10-1. Ingest Graphical Model

Name : InDataTypeTemplate

Code : InDTT

Label :

Number :

Source :

Column Name	Code	Type	P	M
DataType	DataType	char(32)	Y	Y
ReqMgrUR	ReqMgrUR	char(40)		
DSArchiveUR	DSArchiveUR	char(40)		
DSResourceUR	DSResourceUR	char(40)		

Index Code	P	F	U	C	Column Code	Sort
InDTTPrimary	Y		Y		DataType	ASC

Referenced By	Foreign Key	Primary Key
InFTT	DataType	DataType

Name : InExternalDataProviderInfo

Code : InEDPI

Label :

Number :

Source :

Column Name	Code	Type	P	M
RequestID	RequestID	int		
ExternalDataProvider	ExternalDataProvider	char(10)	Y	Y
IngestType	IngestType	varchar(40)		Y
MyState	MyState	char(20)		

Index Code	P	F	U	C	Column Code	Sort
InEDPIPrimary			Y		ExternalDataProvider	ASC

Reference To	Primary Key	Foreign Key
INRPH	RequestID	RequestID

Name : InFileTypeTemplate

Code : InFTT

Label :

Number :

Source :

Column Name	Code	Type	P	M
FileType	FileType	varchar(32)	Y	Y
TargetParameter	TargetParameter	varchar(48)		
Maximum	Maximum	tinyint		Y
MetadataSpecialization	MetadataSpecialization	varchar(48)		
MetadataTargetName	MetadataTargetName	varchar(48)		
Minimum	Minimum	tinyint		Y
RequiredFlag	RequiredFlag	char		Y
ScienceSpecialization	ScienceSpecialization	varchar(48)		
ScienceTargetName	ScienceTargetName	varchar(48)		
SourceMCF	SourceMCF	varchar(32)		
ArchivalFlag	ArchivalFlag	char		
DataType	DataType	varchar(32)	Y	Y
MetaDataStart	MetaDataStart	int		
MetaDataEnd	MetaDataEnd	int		
LineDelimiter	LineDelimiter	char		
StringDelimiter	StringDelimiter	char		
PVSeparator	PVSeparator	char		
FileClass	FileClass	char(3)		Y

Index Code	P	F	U	C	Column Code	Sort
InFTTPrimary	Y		Y		FileType	ASC

Index Code	P	F	U	C	Column Code	Sort
					DataType	ASC

Reference To	Primary Key	Foreign Key
InSMCF	SourceMCF TargetParameter	SourceMCF TargetParameter
InDTT	DataType	DataType

Name : InRequestFileInfo

Code : InRFI

Label :

Number :

Source :

Column Name	Code	Type	P	M
RequestID	RequestID	int	Y	Y
DataGranuleID	DataGranuleID	int	Y	Y
FileID	FileID	varchar(255)	Y	Y
DataType	DataType	varchar(32)		Y
SourceDirectoryID	SourceDirectoryID	varchar(255)		Y
FileSize	FileSize	integer		Y
TargetDirectoryID	TargetDirectoryID	varchar(255)		Y
FileStatus	FileStatus	smallint		
FileState	FileState	char(15)		

Index Code	P	F	U	C	Column Code	Sort
InRFIGranuleID					RequestID	ASC
					DataGranuleID	ASC

Reference To	Primary Key	Foreign Key
InRPD	RequestID DataGranuleID DataType	RequestID DataGranuleID DataType

Name : InRequestProcessData

Code : InRPD

Label :

Number :

Source :

Column Name	Code	Type	P	M
RequestID	RequestID	int	Y	Y
DataDescriptor	DataDescriptor	varchar(60)		
DataGranuleState	DataGranuleState	char(20)		Y
DataGranuleID	DataGranuleID	int	Y	Y
DataVersion	DataVersion	smallint		Y
DataType	DataType	varchar(32)	Y	Y
DataGranuleVolume	DataGranuleVolume	int		
TotalFileCount	TotalFileCount	int		
TimeToXfer	TimeToXfer	int		
TimeToPreprocess	TimeToPreprocess	int		
TimeToArchive	TimeToArchive	int		
RetryCount	RetryCount	smallint		

Index Code	P	F	U	C	Column Code	Sort
InRPDPrimary	Y		Y		RequestID	ASC
					DataGranuleID	ASC
					DataType	ASC

Reference To	Primary Key	Foreign Key
INRPH	RequestID	RequestID

Referenced By	Foreign Key	Primary Key
InRFI	RequestID DataGranuleID DataType	RequestID DataGranuleID DataType

Name : InRequestProcessHeader

Code : INRPH

Label : Information on each Client Request

Number : 1

Source :

Column Name	Code	Type	P	M
RequestID	RequestID	int	Y	Y
RequestPriority	RequestPriority	smallint		
RequestState	RequestState	char(10)		
SequenceID	SequenceID	integer		Y
SessionID	SessionID	integer		Y
ExpirationDateTime	ExpirationDateTime	datetime		
ExternalDataProvider	ExternalDataProvider	char(10)		Y
IngestType	IngestType	varchar(40)		Y
TotalDataVolume	TotalDataVolume	integer		
PercentComplete	PercentComplete	smallint		Y
TotalGranuleCount	TotalGranuleCount	int		
Mission	Mission	varchar(60)		
ProcessingStartDateTime	ProcessingStartDateTime	datetime		
ProcessingEndDateTime	ProcessingEndDateTime	datetime		
TotalFileCount	TotalFileCount	int		
ReqMgrUR	ReqMgrUR	varchar(40)		

Index Code	P	F	U	C	Column Code	Sort
InRPHPrimary	Y	Y	Y		RequestID	ASC
InRPHDataProvider				Y	ExternalDataProvider	ASC

Reference To	Primary Key	Foreign Key
InSI	SessionID	SessionID

Referenced By	Foreign Key	Primary Key
InRPD	RequestID	RequestID
InEDPI	RequestID	RequestID

Name : InRequestSummaryData

Code : InRSD

Label : Persistent Data for each Data Type in a request

Number :

Source :

Column Name	Code	Type	P	M
DataType	DataType	varchar(32)	Y	Y
RequestID	RequestID	int	Y	Y
DataGranuleID	DataGranuleID	int	Y	Y
DataGranuleVolume	DataGranuleVolume	integer		
DataGranuleState	DataGranuleState	int		
TotalFileCount	TotalFileCount	int		
TimeToPreprocess	TimeToPreprocess	int		
TimeToArchive	TimeToArchive	int		
TimeToXfer	TimeToXfer	int		
RetryCount	RetryCount	smallint		

Index Code	P	F	U	C	Column Code	Sort
InRSDPrimary	Y		Y		RequestID	ASC
					DataGranuleID	ASC
					DataType	ASC

Reference To	Primary Key	Foreign Key
InRSH	RequestID	RequestID

Name : InRequestSummaryHeader

Code : InRSH

Label : History of Request Information

Number :

Source :

Column Name	Code	Type	P	M
ExternalDataProvider	ExternalDataProvider	char(10)		Y
Mission	Mission	varchar(60)		
RequestID	RequestID	int	Y	Y
ProcessingEndDateTime	ProcessingEndDateTime	datetime		
ProcessingStartDateTime	ProcessingStartDateTime	datetime		
TotalDataVolume	TotalDataVolume	integer		
TotalGranuleCount	TotalGranuleCount	integer		Y
TotalFileCount	TotalFileCount	integer		
IngestType	IngestType	varchar(40)		Y
TimeToXfer	TimeToXfer	int		
TimeToPreprocess	TimeToPreprocess	int		
TimeToArchive	TimeToArchive	int		
TotalSuccessfulGranules	TotalSuccessfulGranules	int		

Index Code	P	F	U	C	Column Code	Sort
InRSHPrimary	Y	Y	Y		RequestID	ASC
InRSHDataProvider				Y	ExternalDataProvider	ASC
InRSHMission					Mission	ASC

Referenced By	Foreign Key	Primary Key
InRSD	RequestID	RequestID

Name : InSessionInfo

Code : InSI

Label :

Number :

Source :

Column Name	Code	Type	P	M
ClientID	ClientID	char(40)		Y
SessionID	SessionID	integer	Y	Y

Index Code	P	F	U	C	Column Code	Sort
InSIPrimary					SessionID	ASC

Referenced By	Foreign Key	Primary Key
INRPH	SessionID	SessionID

Name : InSourceMCF

Code : InSMCF

Label :

Number :

Source :

Column Name	Code	Type	P	M
SourceMCF	SourceMCF	varchar(32)	Y	Y
TargetParameter	TargetParameter	varchar(48)	Y	Y
SourceParameter	SourceParameter	varchar(48)		
CSDT	CSDT	varchar(32)		
FieldLocationOffset	FieldLocationOffset	int		
FieldLength	FieldLength	int		

Index Code	P	F	U	C	Column Code	Sort
InSMCFPrimary	Y		Y		SourceMCF	ASC
					TargetParameter	ASC

Referenced By	Foreign Key	Primary Key
InFTT	SourceMCF TargetParameter	SourceMCF TargetParameter

10.3 Cross Reference Table for Traceability

The following cross reference table identifies the objects and attributes for the Ingest Subsystem's persistent data as indicated in the DID305 volume dated March 1996. If appropriate each of the attributes were mapped to the associated DID311 attributes and further to the physical database table names and attributes reflected in the above section. This mapping demonstrates where and how the data in the earth science data model is being used to support the functionality expressed in DID305. Further it identifies the supporting data that will be required to satisfy the functionality described in the associated CSCI.

Table 10.2 Ingest Persistent Data Cross Reference Table (1 of 7)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attrubute Name
InRequestFileInfo	Request ID		InRequestFileInfo			
InRequestFileInfo	DataGranuleID		InRequestFileInfo			
InRequestFileInfo	FileID		InRequestFileInfo			
InRequestFileInfo	DataType		InRequestFileInfo		CollectionDescriptionClass	ShortName
InRequestFileInfo	SourceDirectoryID		InRequestFileInfo			
InRequestFileInfo	FileSize		InRequestFileInfo			
InRequestFileInfo	TargetDirectoryID		InRequestFileInfo			
InRequestFileInfo	FileStatus		InRequestFileInfo			
InRequestFileInfo	FileState		InRequestFileInfo			
InRequestProcessData	RequestID		InRequestProcessData			
InRequestProcessData	DataDescriptor		InRequestProcessData			
InRequestProcessData	DataGranuleState		InRequestProcessData			
InRequestProcessData	DataGranuleID		InRequestProcessData			
InRequestProcessData	DataVersion		InRequestProcessData			
InRequestProcessData	DataType		InRequestProcessData		CollectionDescriptionClass	ShortName
InRequestProcessData	DataGranuleVolume		InRequestProcessData			
InRequestProcessData	TotalFileCount		InRequestProcessData			

Table 10.2 Ingest Persistent Data Cross Reference Table (2 of 7)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attrubute Name
InRequestProcessData	TimeToXfer		InRequestProcessData			
InRequestProcessData	TimeToPreprocess		InRequestProcessData			
InRequestProcessData	TimeToArchive		InRequestProcessData			
InRequestProcessData	RetryCount		InRequestProcessData			
InRequestProcessHeader	RequestID		InRequestProcessHeader			
InRequestProcessHeader	RequestPriority		InRequestProcessHeader			
InRequestProcessHeader	RequestState		InRequestProcessHeader			
InRequestProcessHeader	SequenceID		InRequestProcessHeader			
InRequestProcessHeader	SessionID		InRequestProcessHeader			
InRequestProcessHeader	ExpirationDateTime		InRequestProcessHeader			
InRequestProcessHeader	ExternalDataProvider		InRequestProcessHeader			
InRequestProcessHeader	IngestType		InRequestProcessHeader			
InRequestProcessHeader	TotalDataVolume		InRequestProcessHeader			
InRequestProcessHeader	PercentComplete		InRequestProcessHeader			
InRequestProcessHeader	TotalGranuleCount		InRequestProcessHeader			

Table 10.2 Ingest Persistent Data Cross Reference Table (3 of 7)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attrubute Name
InRequestProcessHeader	Mission		InRequestProcessHeader			
InRequestProcessHeader	ProcessingStartDateTime		InRequestProcessHeader			
InRequestProcessHeader	ProcessingEndDateTime		InRequestProcessHeader			
InRequestProcessHeader	TotalFileCount		InRequestProcessHeader			
InRequestProcessHeader	ReqMgrUR		InRequestProcessHeader			
InRequestSummaryData	DataGranuleID	In_Ingest_Session	InRequestSummaryData	myDataGranuleID		
InRequestSummaryData	DataGranuleState	In_Ingest_Session	InRequestSummaryData	myFinalStatus		
InRequestSummaryData	DataGranuleVolume	In_Ingest_Session	InRequestSummaryData	myDataGranuleVolume		
InRequestSummaryData	DataType	In_Ingest_Session	InRequestSummaryData	myDataType	CollectionDescriptionClass	ShortName
InRequestSummaryData	RequestID	In_Ingest_Session	InRequestSummaryData	myRequestID		
InRequestSummaryData	RetryCount	In_Ingest_Session	InRequestSummaryData	myRetryCount		
InRequestSummaryData	TimeToArchive	In_Ingest_Session	InRequestSummaryData	myTimeToArchive		
InRequestSummaryData	TimeToPreprocess	In_Ingest_Session	InRequestSummaryData	myTimeToPreprocess		
InRequestSummaryData	TimeToXfer	In_Ingest_Session	InRequestSummaryData	myTimeToXfer		
InRequestSummaryData	TotalFileCount	In_Ingest_Session	InRequestSummaryData	myTotalFileCount		

Table 10.2 Ingest Persistent Data Cross Reference Table (4 of 7)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attrubute Name
InRequestSummaryHeader	ExternalDataProvider		InRequestSummaryHeader			
InRequestSummaryHeader	Mission		InRequestSummaryHeader			
InRequestSummaryHeader	RequestID		InRequestSummaryHeader			
InRequestSummaryHeader	ProcessingEndDateTime		InRequestSummaryHeader			
InRequestSummaryHeader	ProcessingStartDateTime		InRequestSummaryHeader			
InRequestSummaryHeader	TotalDataVolume		InRequestSummaryHeader			
InRequestSummaryHeader	TotalGranuleCount		InRequestSummaryHeader			
InRequestSummaryHeader	TotalFileCount		InRequestSummaryHeader			
InRequestSummaryHeader	IngestType		InRequestSummaryHeader			
InRequestSummaryHeader	TimeToXfer		InRequestSummaryHeader			
InRequestSummaryHeader	TimeToPreprocess		InRequestSummaryHeader			
InRequestSummaryHeader	TimeToArchive		InRequestSummaryHeader			
InRequestSummaryHeader	TotalSuccessfulGranules		InRequestSummaryHeader			

Table 10.2 Ingest Persistent Data Cross Reference Table (5 of 7)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attrubute Name
InExternalDataProviderInfo	ExternalDataProvider	In_Ingest_Database	InExternalDataProviderInfo	myExternalDataProvider	Contact ContactPerson ContactOrganization	Role First,Middle,Last Name ContactOrganizationName
InExternalDataProviderInfo	IngestType	In_Ingest_Database	InExternalDataProviderInfo	myIngestMode		
InExternalDataProviderInfo	myState	In_Ingest_Database	InExternalDataProviderInfo	myState		
InDataTypeTemplate	DataType	In_Ingest_Preprocessing	InDataTypeTemplate	ourDataTypeTemplateList	CollectionDescriptionClass	ShortName
InDataTypeTemplate	DSArchiveUR	In_Ingest_Preprocessing	InDataTypeTemplate	ourDataTypeTemplateList		
InDataTypeTemplate	DSResourceUR	In_Ingest_Preprocessing	InDataTypeTemplate	ourDataTypeTemplateList		
InDataTypeTemplate	ReqMgrUR	In_Ingest_Preprocessing	InDataTypeTemplate	ourDataTypeTemplateList		
InFileTypeTemplate	ArchivalFlag	In_Ingest_Preprocessing	InFileTypeTemplate	myFileTypeInfo		
InFileTypeTemplate	DataType	In_Ingest_Preprocessing	InFileTypeTemplate	myDataType	CollectionDescriptionClass	ShortName
InFileTypeTemplate	FileClass	In_Ingest_Preprocessing	InFileTypeTemplate	myFileTypeInfo		
InFileTypeTemplate	FileType	In_Ingest_Preprocessing	InFileTypeTemplate	myFileType		
InFileTypeTemplate	LineDelimiter	In_Ingest_Preprocessing	InFileTypeTemplate	myFileTypeInfo		
InFileTypeTemplate	Maximum	In_Ingest_Preprocessing	InFileTypeTemplate	myFileTypeInfo		

Table 10.2 Ingest Persistent Data Cross Reference Table (6 of 7)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attrubute Name
InFileTypeTemplate	MetadataSpecialization	In_Ingest_Preprocessing	InFileTypeTemplate	myFileTypeInfo		
InFileTypeTemplate	MetadataTargetName	In_Ingest_Preprocessing	InFileTypeTemplate	myFileTypeInfo		
InFileTypeTemplate	MetaDataEnd	In_Ingest_Preprocessing	InFileTypeTemplate	myFileTypeInfo		
InFileTypeTemplate	MetaDataStart	In_Ingest_Preprocessing	InFileTypeTemplate	myFileTypeInfo		
InFileTypeTemplate	Minimum	In_Ingest_Preprocessing	InFileTypeTemplate	myFileTypeInfo		
InFileTypeTemplate	PVSeparator	In_Ingest_Preprocessing	InFileTypeTemplate	myFileTypeInfo		
InFileTypeTemplate	RequiredFlag	In_Ingest_Preprocessing	InFileTypeTemplate	myFileTypeInfo		
InFileTypeTemplate	ScienceSpecialization	In_Ingest_Preprocessing	InFileTypeTemplate	myFileTypeInfo		
InFileTypeTemplate	ScienceTargetName	In_Ingest_Preprocessing	InFileTypeTemplate	myFileTypeInfo		
InFileTypeTemplate	SourceMCF	In_Ingest_Preprocessing	InFileTypeTemplate	myFileTypeInfo		
InFileTypeTemplate	StringDelimiter	In_Ingest_Preprocessing	InFileTypeTemplate	myFileTypeInfo		
InFileTypeTemplate	TargetParameter	In_Ingest_Preprocessing	InFileTypeTemplate	myFileTypeInfo		
InSourceMCF	CSDT	In_Ingest_Preprocessing	InSourceMCF	myParInfo		
InSourceMCF	FieldLength	In_Ingest_Preprocessing	InSourceMCF	myParInfo		
InSourceMCF	FieldLocationOffset	In_Ingest_Preprocessing	InSourceMCF	myParInfo		

Table 10.2 Ingest Persistent Data Cross Reference Table (7 of 7)

Table Name	Table Attribute Name	DID305 Object Model Name	DID305 ObjectClass Name	DID305 Attribute Name	DID311 Earth Science Object Class Name	DID311 Earth Science Attrubute Name
InSourceMCF	SourceMCF	In_Ingest_Preprocessing	InSourceMCF	mySourceMCF		
InSourceMCF	SourceParameter	In_Ingest_Preprocessing	InSourceMCF	myParInfo		
InSourceMCF	TargetParameter	In_Ingest_Preprocessing	InSourceMCF	myParInfo		
InSessionInfo	ClientID	In_Ingest_Session_Manager	InSessionInfo	ClientID		
InSessionInfo	SessionID	In_Ingest_Session_Manager	InSessionInfo	SessionID		

11. Future Direction

11.1 Approach for Concluding Release B Analysis

This document represents a snapshot in time specifically the Release B CDR time frame. As a result, the Data Server and CIDM subsystems data models are not included in this version of 311. However, the following represents a brief discussion of each outstanding task followed by a schedule for concluding and presenting this information. This schedule is consistent with the Release B system development activities.

11.2 Description of Remaining Tasks

Completion of Table Designs - The purpose of this task is to provide a complete physical database design for each persistent data object within the Data Server subsystem. This task will collect the table designs which are in progress and map the results to the subsystems persistent data objects and attributes. Additionally a traceability between Rel A Sybase design and Rel B Illustra design will be provided.

Snapshot of Incremental Track Database design - A snapshot of the CIDM subsystem will be developed. This snapshot will include a graphical data model in addition to table designs for each table which will be represented using the S Designor tool output. This snapshot will represent the current state of CIDM data design, as planned for EP7.

Update of Data Model - The Data Model will be updated as a result of Data Server data analysis and CIDM snapshot. Additionally, if required, the model will be updated to reflect inputs from DMWG, Guide analysis, policy analysis, DAAC visits, and additional ongoing data analysis activities.

Revised Specifications - The purpose for this task is to provide additional Guide specifications that are currently being developed for Release B.

Evaluate data redundancies across subsystems/optimize data design - The purpose of this task is to identify and resolve if necessary the data that is stored redundantly across subsystems. This will be achieved by analyzing data flows and cross reference tables to determine if redundancies exist, and if so, evaluate ways to optimize the data design.

11.3 Preliminary Schedule

The following identifies each task, which was described above, with anticipated beginning and ending dates. Further, the specific product which will contain the results is also indicated.

Table 11-1.Remaining Tasks Schedule

Task	End Date	Recording Document
Completion of Table Designs Data Server	June 1996	Release B, Data Server CDR version, Jun 1996, DID311-Section 7(addendum)
Snapshot of CIDM	June 1996	Release B, Data Server CDR version, Jun 1996, DID311-Section 8(addendum)
Update Data Model if appropriate	June 1996	Release B, Data Server CDR version, Jun 1996, DID311-Section 6(addendum) As Built Release B Document
Revised Specifications Release B		As Built Release B Document
Identification and resolution of data redundancies across subsystems Release B		As Built Release B Document

11.4 Approach for Documenting Remaining Tasks

The results of the remaining tasks will be documented as addendums to the DID311 and in the "As Built Doucmentation". The above table reflects the sections that will be released and the anticipated time frame for the delivery.

11.5 DAAC Analysis

The Data Engineers and the Science Office personnel have conducted working data analysis sessions with ORNL, GSFC, EDC, LaRC, and NSIDC. The intent of these sessions was to demonstrate how the ECS Data Model will be used to accommodate the DAAC-specific data properties. The results of these sessions have been extremely positive; the ECS Model satisfied the semantics surrounding the local DAAC data models in addition to accommodating the local DAAC data attribute requirements.

Two remaining DAACs, JPL and ASF, will be scheduled for analysis over the next three months. At the conclusion of this analysis a technical paper will be published which will capture the results for all analyzed DAACS.

Appendix A. Auxiliary Data Specifications

A.1 Introduction

These specifications relate to the classes in the data model containing pointers. These pointers indicate archived data objects to which database connections exist. The specifications in this appendix cover one and sometimes two aspects of each object; namely the CSDT and the specification of the object. The CSDT is indicated in every case. For archive objects that are under direct ECS control, the specification is also included. Thus for example, guide documents are included in both senses. In contrast, the specification of Science Products are developed by EOSDIS instrument teams.

The CSDT of many of these data are documents in ASCII text. The exact formats supported at Release A will be RTF, PDF, plain text, HTML and postscript. At Release B, WordPerfect, Microsoft Word, Interleaf and Framemaker will also be supported. Conversion from one format to another is not an ECS service, however.

A.1.1 Reference Papers

A.1.1.1 Abstract Specification

At Release A, the abstract will be expected as part of the document itself. At Release B, the supplied abstract will be formatted in HTML to allow screen presentation of the text. The abstract will be limited to *500* words or less.

All words in the abstract are indexed. These words do not carry as much weight as the title or keywords, but each mention of a particular word elevates it in terms of a search word. The following are guidelines for an effective abstract:

- Reference to other documents and/or document numbers should be avoided, unless you want your document to appear in a list whenever the other number is used in a search.
- Do not include telephone numbers or addressesÑagain, these are indexed and may cause your document to inadvertently appear in another search list. For example, if the user searches on DID 301 and your abstract includes a phone number (area code 301), your document will come up as a "hit" on this search.
- Since words of fewer than three characters are dropped, you may need to hyphenate words together in text where you ordinarily would not.

Example: V2 *becomes* V-2

level 4 *becomes* level-4

In addition to the abstract, keywords need to be supplied. Keywords are specific words that are indexed with a higher weight than the words in the abstract to promote the document whenever that word is used in a search. Therefore, it is especially important to consider how the word may be used by the individual searching the databases. A few things to keep in mind:

- Words in the title are already weighted, so avoid repeating title words unless they are really "key."

- Words of fewer than three characters are ignored during the indexing.
- Hyphenation is used to tie related words together, but should be used sparingly. Example: vers.-4 must be hyphenated if used in the title or as a keyword because the "4" by itself will be dropped.
- Always use lower case, except for common proper nouns.
- Keywords may not exceed 20 characters (including words combined with a hyphen). Any words with greater than 20 characters are ignored.
- Keywords must be separated by a comma and space as in standard sentence structure.

A.1.1.2 Journal Article Specification

Journal Articles are expected to be in one of the formats as allowed for Releases A and B. The content of these papers is not prescribed by ECS.

A.1.1.3 Stand Alone Document Specification

Other documents are expected to be in one of the formats as allowed for Releases A and B. The content of these papers is not prescribed by ECS.

A.1.2 Guide

At Release A, all guides will be stored and presented as HTML formatted documents. This supports the required functionality. At Release B, the full range of ASCII text formats will be supported (see 1.0 above).

Most of the following guides are taken directly from the Version 0 standards.

A.1.2.1 Regional Area Definition Guide

This guide will not be implemented until Release B, and only then when a more complete outline of the content has been generated and agreed to by the DMWG. The current draft outline of the content is as follows:

Objective: This information describes a region of particular scientific interest for which ECS data has been collected or generated. It may be particularly relevant in describing regions covered by multi-type collections. In this instance, the data set guides describing the collections used to form the multi-type collection are superseded by the aggregation criteria.

Sections (for each region):

name of region
location
climate
topography
vegetation cover
land use

...

A.1.2.2 Archive Center Guide Specification

This specification will be developed during 1996 for delivery in the fall.

A.1.2.3 Field Campaign Guide Specification

This specification will be developed during 1996 for delivery in the fall.

A.1.2.4 Platform Guide Specification

This specification will be developed during 1996 for delivery in the fall.

A.1.2.5 Sensor Guide Specification

This specification will be developed during 1996 for delivery in the fall.

A.1.2.6 Collection Guide Specification

This specification will be developed during 1996 for delivery in the fall.

A.1.2.7 Processing Center Guide Specification

This specification will be developed during 1996 for delivery in the fall.

A.1.2.8 Data Originator Guide Specification

This specification will be developed during 1996 for delivery in the fall.

A.1.2.9 Instrument Guide Specification

This specification will be developed during 1996 for delivery in the fall.

A.1.2.10 NonInstrument Guide Specification

This specification will be developed during 1996 for delivery in the fall.

A.1.3 Map Projection Parameters

These parameters may be implemented within a document/text object but may also or alternately exist in (CSDT =) access tables. Each projection is described below in BNF.

The requirements for the support of these projections is derived from requirements on the SDP toolkit.

```
Space_Oblique_Mercator_(Landsat) =

Semi_Major_Axis +
    Semi_Minor_Axis +
    Landsat_Number +
    Path_Number +
    False_Easting +
    False_Northing

Space_Oblique_Mercator_(general) =

Semi_Major_Axis +
    Semi_Minor_Axis +
    IncAng+
    AscLong+
    False_Easting +
```

False_Northing +
PSRev +
LRat +
PFlag

Polar_Stereographic =

Semi_Major_Axis +
Semi_Minor_Axis +
Straight_Vertical_Longitude_from_Pole +
Standard_Parallel +
False_Easting +
False_Northing

Universal_Transverse_Mercator =

UTM_Zone_Number +
Transverse_Mercator

Transverse_Mercator =

Semi_Major_Axis +
Semi_Minor_Axis +
Scale_Factor_at_Central_Meridian +
Longitude_of_Central_Meridian +
Latitude_of_Projection_Origin +
False_Easting +
False_Northing

Interrupted Goodes Homolosine =
Sphere

There follows definitions of the attributes for each projection.

Sphere Radius of reference sphere.
Type: real
Domain: > 0

Semi_Major_Axis
Semi-major axis of ellipsoid
Type: real
Domain: > 0

Semi_Minor_Axis
Semi-minor axis of the ellipsoid
Type: real
Domain: > 0 but <= Semi_Major_Axis

IncAng
Inclination of orbit at ascending node, counter-clockwise from equator (general SOM)
Type: real
Domain: 0 < IncAng < pi

AscLong

Longitude of ascending orbit at equator (general SOM)
Type: real
Domain:-pi < AscLong < +pi

PSRev

Period of satellite revolution in minutes (general SOM)
Type: real
Domain: free real

LRat

Landsat ratio to compensate for confusion at northern end of orbit.
Type: real
Domain: general SOM, -- use 0.5201613

PFlag

End of path flag for Landsat: 0 = start of path, 1=end of path
(general SOM)
Type: integer
Domain: 0 or 1

Longitude of Central Meridian

The line of longitude at the center of a map projection generally used as the basis for constructing the projection.
Type: real
Domain: -pi <= Longitude of Central Meridian <= +pi

Latitude of Projection Origin

Latitude chosen as the origin of rectangular coordinates for a map projection.
Type: real
Domain: -pi/2 <= Latitude of Projection Origin <= +pi/2

False Easting

The value added to all 'x' values in the rectangular coordinates for a map projection. This value frequently is assigned to eliminate negative numbers.
Expressd in the unit of measure identified in Planar Coordinate Units.
Type: real
Domain: free real

False Northing

The value added to all 'y' values in the rectangular coordinates for a map projection. This value frequently is assigned to eliminate negative numbers. Expressed in the unit of measure identified in Planar Coordinate Units.
Type: real
Domain: free real

Straight Vertical Longitude from Pole

Longitude to be oriented straight up from the North or South Pole.
Type: real
Domain: -pi/2 <= Straight Vertical Longitude from Pole <= +pi/2

Scale Factor at Central Meridian

A multiplier for reducing a distance obtained from a map by computation or scaling to the actual distance along the central meridian.

Type: real

Domain: Scale Factor at Central Meridian > 0.0

Other parameter definitions TBD.

A.1.4 Additional Text Records

These addition specifications are conceived as being free text; giving the user and/or the producer the freedom to include more or less text in several topic areas. However, implementation in database (CSDT = access tables) is conceivable in the first two cases, and desirable for the User Comment Document, especially for the granule related comments.

A.1.4.1 User Comment Document

This document is used to record user comments on the collection or on individual granules. It would carry a disclaimer that the comments may or may not be valid. Instances are accessible from the collection and the granule. At Release A, this will be a database entry using a large text field.

There is no prescribed specification for this document.

A.1.4.2 Quality Text Comment

This document is used to record details of quality measurement and other comments concerning the collection, perhaps referrencing individual granules. It is accessible from the collection description.

A.1.4.3 Validation Document

This document is used to record details of validation steps used for the assessment of granule and overall collection quality. It is accessible from the collection description.

There is no prescribed outline content for this document.

A.2. Processing Reports and Processing History

These are outputs from the planning and data processing subsystems. All are produced in human readable ASCII text as simple files (i.e. documents), and all are retrievable from a user interface.

A.2.1 Processing Reports

There are fours types of processing reports covering processing status, error, resource usage and production plans. These specifications are currently shown as straw men only.

A.2.1.1 Processing Status Report

This report provides a status of the production requests (PRs) for a specified instrument that were or remain active during a specified time period. The standard reporting periods for which status is provided are for the most recent day (i.e., current), last 3 days, last 7 days, last 30 or last 90 days. The 1, 3, 7 day the reports are updated daily, while the 30, 90 day reports are updated weekly. There is one set of processing status reports per instrument per DAAC.

for each processing status report the attributes describing the report are:

StatusReportingPeriod	one of 1,3,7,30 or 90 days
StatusReportDate	date of this report
Instrument	instrument identification

for each production request within the report the attributes describing the production request are:

ProductionRequestId	identification of the production request
ProductionRequestStatus	from PlProductionRequest
DataCollectionStartTime	from PlProductionRequest
DataCollectionStopTime	from PlProductionRequest
PGEName	from PlPGE
Priority	from PlProductionRequest
DateOfRequest	from PlProductionRequest

for each production request within the report the attributes characterizing the processing status are:

EarliestDateAwaitingProcessing	The data processing period of the earliest processed DPR within the PR
LatestDateHavingBeenProcessed	The data processing period of the latest processed DPR within the PR
NumberOfDPRs	The number of DPRs for the PR
RunDPRs	The number of sucessful run DPRs in the PR
FailedDPRs	The number of failed run DPRs in the PR
WaitingDPRs	The number of un-run DPRs in the PR

A.2.1.2 Processing Errors Report

Description:The error status from all failed DPRs during one day grouped by PR, and summaries for the preceding 3, 7, 30 and 90 days. This report is produced daily. There is one of these reports per instrument per DAAC.

for each processing error report, the attributes describing the report are:

ErrorReportDate	date of this report
Instrument	instrument identification

for each production request within the report the attributes describing the production request are:

ProductionRequestId	identification of the production request
ProductionRequestStatus	from PlProductionRequest
DataCollectionStartTime	from PlProductionRequest
DataCollectionStopTime	from PlProductionRequest
PGEName	from PlPGE
Priority	from PlProductionRequest
DateOfRequest	from PlProductionRequest

for each failed DPRs within the PR the attributes are:

DPR	from PlDPR
CompletionStatus	from PlDPR
ErrorMessage	*needs new class*
ReRunSuccessfully	*needs new class*

for each error completion status a historic summary:

CompletionStatus	
Period	1, 3, 7, 30, 90 day summary
NumberOfOccurancesInPeriod	the number of failed DPRs within the period

A.2.1.3 Processing Resource Usage Report

Description:This report summarizes the resourse usage for the day. In addition, comparisons for the average of resource usage from the sucessfull DPRs for the preceding 7 and 30 days are also produced daily.

ResourceReportDate	date of this report
Instrument	instrument identification

for each PGE run during that day the report includes:

PGEName	from PlPGE
PGEVersion	from PlPGE

taken from SSI&T:

ElapsedTime	from PlPerformance
MaxMemoryUse	from PlPerformance
NoOfBlockInOper	from PlPerformance
NoOfBlocOutOper	from PlPerformance
NoOfPageFaults	from PlPerformance
NoOfSwaps	from PlPerformance
PGECPUTime	from PlPerformance
SharedMemoryUse	from PlPerformance

7 day average:

ElapsedTime	from PlPerformance
MaxMemoryUse	from PlPerformance
NoOfBlockInOper	from PlPerformance
NoOfBlocOutOper	from PlPerformance
NoOfPageFaults	from PlPerformance
NoOfSwaps	from PlPerformance
PGECPUTime	from PlPerformance
SharedMemoryUse	from PlPerformance

30 day average:

ElapsedTime	from PlPerformance
MaxMemoryUse	from PlPerformance
NoOfBlockInOper	from PlPerformance
NoOfBlocOutOper	from PlPerformance
NoOfPageFaults	from PlPerformance
NoOfSwaps	from PlPerformance
PGECPUTime	from PlPerformance
SharedMemoryUse	from PlPerformance

A.2.1.4 Production Plan

The following is an outline of what a Published Production Plan will look like:

DAAC Name = LaRC

Plan Name = Default

Plan Comments = Nothing Special

Plan Period = 10/01/96, 10/31/96

Plan Products = CERES_BDS, CERES_IES,

Production Requests

ROUTINE_CERES_SUB1, PGE, start_time, stop_time, priority

ROUTINE_CERES_SUB2, PGE, start_time, stop_time, priority

ROUTINE_CERES_SUB3, PGE, start_time, stop_time, priority

Product Schedule

Data Type = CERES_BDS, PGE_VERSION

Granule = START_TIME, STOP_TIME, predicted_time, actual_time
Granule = START_TIME, STOP_TIME, predicted_time, actual_time
Granule = START_TIME, STOP_TIME, predicted_time, actual_time
Granule = START_TIME, STOP_TIME, predicted_time, actual_time
Granule = START_TIME, STOP_TIME, predicted_time, actual_time

Data Type = CERES_IES, PGE_VERSION

Granule = START_TIME, STOP_TIME, predicted_time, actual_time
Granule = START_TIME, STOP_TIME, predicted_time, actual_time

PGE Schedule

PGE Type = CERES Subsystem 1, PGE_VERSION
DPR = START_TIME, STOP_TIME, predicted_time, actual_time
DPR = START_TIME, STOP_TIME, predicted_time, actual_time
DPR = START_TIME, STOP_TIME, predicted_time, actual_time
DPR = START_TIME, STOP_TIME, predicted_time, actual_time

PGE Type = CERES Subsystem 1, PGE_VERSION
DPR = START_TIME, STOP_TIME, predicted_time, actual_time

A.2.2 Processing History Specification

An external view for these attributes is presented elsewhere in this document. That view indicates that the attributes below are returned in 2 objects (this is driven by access requirements plus ease of placement and storage of attribute values during processing); a set of URs or IDs related to lineage and a log file containing all other attribute values. The latter object (the log file) is the archive object pointed to in the granules module. The URs/IDs are a combination of the AncillaryInputgranule ID and the ECSDataGranule self reference which are not explicit in the module. The specification below covers both of these objects or elements of the external view.

The attributes below make up the two objects which are Processing History. The attributes were chosen from a draft specification, presented at the Data Modelling Working Group Production History splinter session May 4-5 1995. The purpose of the splinter session was to assess the importance and relevance of the attributes within Data Lineage and Processing History.

The Release A content is presented below, consisting of an external view of files. In a later release, it is expected that with further analysis of the data architecture, additional functionality will be added, in terms of tracing heritage through the pointers held within the Inventory database (see System Design Specification - 207-CD-001-001; section 4.4.3.10, pages 4-62 through 4-64).. The logfile would also be linked to relevant documents and delivered algorithm packages explaining test results, planned resources and QA reviews and QA dictionaries.

The processing history log file consisting of attributes which describe information relevent to the actual PGE 'event' producing the granule. The processing subsystem will write these attributes to the logfile, from attributes passed on by the planning subsystem, and those calculated by the processing subsystem itself. These attributes measure such information as time, size and resources used. They are written to the log file by the processing and planning subsystem, before, during and after kick off of the PGE. This log file in a Parameter equals Value (PeV) format is inserted into the Data Server Subsystem using the Insert Service. Both granule and log file are inserted at the same time to establish the relationship between the two within the Data Server. In doing so, the two may be rebundled during ordering of a product.

The table below analyzes the requirements. Columns have the following meaning:

- Requirement key name; a brief name indicating the requirement (documented in previous edition of DID311)
- Implementation of requirement; each required item has been classified according to whether it is satisfied by the system.

- Granule means the required item is associated with the granule in the inventory, as is therefore available for retrieval with the granule. These items are found in DID311 in the granule module.
- Collection means the item is associated with the collection and can be retrieved at the directory level. Thes items are found in DID311 in the collections and delivered algorithm package modules.
- Processing history log means the item is captured in the processing log produced by the processing subsystem. Attributes found in the DID305 design document.
- Removed from specification means that the item is not found in the system or that it is a link and therefore not supplied as an attribute.

- DID311 or DID 305 attribute - if applicable; specifies the DID311 (this document) or DID305 (design document) attribute name. Details are found in DID305 or are found in the data dictionary in chapter 6 for attributes in DID311.
- Class name; is the class name containing the DID305 or DID311 attribute (whichever is applicable).
- Module name; is the module name containing the DID305 or DID311 class (whichever is applicable).
- Provided by / maps to; that part of the ECS system to which the module/class/attribute belongs.
- Requirement met; is the item available to the production history view.
- Comments; additional comments and outstanding issues.

Requirement key name	Implementation of requirement	DID 311 or DID 305 attribute name - if applicable	Class Name	Module Name	Provided By / maps to	Requirement Met	Comments
DataLineage							
GranuleId	Granule	GranulePointer	ECSDataGranule	Granule_v1	Assigned to the granule upon Insertion to the Data Server.	YES	This may be an ID provided by the PGE, which will be replaced by the UR upon insertion.
InputPointer	Granule	InputGranuleID	ECSDataGranule	Granule_v1	PGE accesses ID's/Ur's from the PCF - attaches these to the inventory.0 metadata within the file	YES	PCF will contain the UR's and/or ID's of all input files to be utilized by the PGE
AncillaryInputPointer	Granule	AncillaryInputPointer	AncillaryInputGranule	Granule_v1	PGE accesses ID's/UR's from the PCF - attaches these to the inventory.0 metadata within the file	YES	PCF will contain the UR's and/or ID's of all input files to be utilized by the PGE
EphemerisDataID	Granule	OrbitParametersPointer	OrbitParametersGranule	Granule_v1	PGE accesses file ID's/UR's containing Ephemeris Data from the PCF - attaches these to the inventory.0 metadata within the file	YES	PCF will contain the UR's and/or ID's of all ephemeris files utilized by the PGE
CalibrationDataId	Granule	CalibrationFilesPointer	CalibrationFiles	DeliveredAlgorithmPackage_v1	PGE accesses file ID's/UR's containing Calibration Data from the PCF - attaches these to the inventory.0 metadata within the file	YES	these are essentially a type of ancillary data
ProcessingLog							
PlannedCPUConsumption	Collection	PerformanceTestResultsPointer	PerformanceTestResults	DeliveredAlgorithmPackage_v1	All information found in the Delivered Algorithm Package, constructed by the PGE, DAAC during SSI&T	YES	Part of Delivered Algorithm Package, explaining the PGE profile, constructed during SSI&T
PlannedMemoryConsumption	Collection	PerformanceTestResultsPointer	PerformanceTestResults	DeliveredAlgorithmPackage_v1	All information found in the Delivered Algorithm Package, constructed by the PGE, DAAC during SSI&T	YES	
ExpectedRunTime (formerly, PlannedRunTime)	Collection	PerformanceTestResultsPointer	PerformanceTestResults	DeliverdAlgorithmPackage_v1	All informatyion found in the Delivered Algorithm Package, constructed by the PGE, DAAC during SSI&T	YES	Removed from Processing History, all information will be held in the Delivered Algorithm Package (DAP).
Reprocessing Status	Granule	ReprocessingActual, ReprocessingPlanned	ECSDataGranule	Granule_v1	Provided by PGE into granule using Metadata Tools	YES	Removed from Processing History, mandatory metadata in Granule
QA Statistics product reference	Granule	QAGranulePointer	QAGranule	Granule_v1	Provided by PGE into granule using Metadata Tools	YES	Removed from Processing History, mandatory metadata in Granule
ProductGenerationSize	Granule	SizeMBECSDataGranule	ECSDataGranule	Granule_v1	Provided by PGE into granule using Metadata Tools	YES	The size attribute will indicate the volume of data to be contained in the granule
ReprocessingPlanned, ReprocessingActual	Granule	ReprocessingPlanned, ReprocessingActual	ECSDataGranule	Granule_v1	Provided by PGE into granule using Metadata Tools	YES	Removed from Processing History, mandatory metadata in Granule
Test Data File ID's	Granule/Collection	TestPlanPointer, TestScriptPointer, TestSourceCodePointer	TestPlan, TestScript, TestSourceCode, TestSiteConfig	DeliveredAlgorithmPackage_v1	All informatyion found in the Delivered Algorithm Package, constructed by the PGE, DAAC during SSI&T	YES	Removed from Processing History, all information will be held in the Delivered Algorithm Package (DAP). At Release B the navigation to this information will be implemented.
Processing_Completion_Status	Processing History Log	myState (305)	DpPrPge		Processing Subsystem	YES	The exit status is captured when the PGE completes/aborts.
ProductionDate	Processing History Log	N/A (305)	TBD	TBD	Provided by Processing Subsystem	YES	Was Data and Time generated. Must be in UTC.
ActualRunTime	Processing History Log	TBD (305)	TBD	TBD	Processing Subsystem	YES	Made up of the following attributes: Start Time, Stop Time, Elapsed Time
PlannedResources	Processing History Log	myTarget (305)	DpPrExecutable	TBD	Planning and Processing Subsystem	YES	This defines the required machine and operating system combination to execute this process. A null value indicates the entity is capable of being run on any platform.
ActualResources	Processing History Log	myDiskSet (305)	DpPrComputer	ResourceManagement	Processing Subsystem	YES	This attribute points to the set of objects which represent the attached storage devices
ActualResources	Processing History Log	myMaxDiskSpace (305)	DpPrComputer	ResourceManagement	Processing Subsystem	YES	

ActualResources	Processing History Log	myOperatingSystem (305)	DpPrComputer	ResourceManagement	Processing Subsystem	YES	This attribute defines the machine type and the current version of the operating system which controls it
ActualResources	Processing History Log	myTotalRam (305)	DpPrComputer	ResourceManagement	Processing Subsystem	YES	This attribute defines the total RAM configuration for the object instance.
ActualResources	Processing History Log	myClientMachine (305)	DpPrExecutionManager	ResourceManagement	Processing Subsystem	YES	This attribute identifies the local machine where this object is running
ActualCPUConsumption	Processing History Log	myCPUAllocation (305)	DpPrComputer	ResourceManagement	Processing Subsystem	YES	This attribute defines the number of processors which are currently allocated to the processing of PGE's on this platform. At present for PLS 5 there is only one delivery
ActualMemoryConsumption	Processing History Log	myPerProcessRam (305)	DpPrComputer	ResourceManagement	Processing Subsystem	YES	Per process RAM sets soft and hard limits on the amount of virtual memory a process can use
Elapsed_Time	Processing History Log	MyBeginningDateTime, MyEndingDateTime (305)	TBD	TBD	ProcessingSubsystem	YES	Elapsed Time can be calculated from the start time/date and stop time/date
pge_name	Processing Log	myPgeID (305)	DpPrPGE	?	Planning Subsystem	YES	This attribute may be a duplicated if the PGE developers wish to include this information within the granule as product specific metadata
Run Time Parameters	Removed from Specification	N/A	N/A	N/A	N/A	N/A	Changed to User Specified Parameters
Operator Inputs To Processing Stream	Removed from Specification	N/A	N/A	N/A	N/A	N/A	Attribute Removed at DMWG
QAParameter / Value Pairs	Removed from Specification	N/A	N/A	N/A	N/A	N/A	N/A
LinkToDAP	Removed from Specification	DeliveredAlgorithmPackage	DeliveredAlgorithmPackage	N/A	Link must be established by Data Server Subsystem	YES	Link to delivered Algorith package must be formulated during population of the inventory within the Data Server
Link to Algorithm Guide	Removed from Specification	GuideName	Guide	Document_v1	Link must be established by Data Server Subsystem	YES	Link to Algorith Guide must be formulated during population of the inventory within the Data Server
ProductLocation	Removed from Specification	N/A	N/A	N/A	N/A	NO	This can only be supplied after insert to the data server.
Script Used	Removed from specification	N/A	N/A	N/A	N/A	N/A	N/A
ExitCode	Removed from specification	N/A	N/A	N/A	N/A	NO	Pertains to the end state of 1 instance of a PGE run - used to give operator a "heads - up". Not captured in the Processing Subsystem
OperatorIntervention	Removed from Specification	N/A	N/A	N/A	N/A	NO	Processing has no means of capturing any information which an operator may add or change for the PGE within sybase. No such dialog box within the COTS.
ReasonForChange	Removed from Specification	N/A	N/A	N/A	N/A	NO	Processing has no means of capturing any information which an operator may insert to qualify changes they made to the PGE within sybase.
ReasonForOperatorInitialedChange	Removed from Specification	N/A	N/A	N/A	N/A	NO	Processing has no means of capturing any information which an operator may insert to qualify changes they made to the PGE within sybase.
Descendant DPR's Cancelled due to this PDR	Removed from Specification	N/A	N/A	N/A	N/A	N/A	See exit code
StatusLogFiles	Removed from Specification	N/A	N/A	N/A	N/A	YES	SMF logs created with the SDPS Toolkit - must be linked to the granule during insertion into the Data Server
UserLogFiles	Removed from Specification	N/A	N/A	N/A	N/A	YES	SMF logs created with the SDPS Toolkit - must be linked to the granule during insertion into the Data Server
ReportLogFiles	Removed from Specification	N/A	N/A	N/A	N/A	YES	SMF logs created with the SDPS Toolkit - must be linked to the granule during insertion into the Data Server

A.3. Delivered Algorithm Package

The basic delivered algorithm package is mostly specified in DID205 Science User's Guide, Volume 4. Most sections below reference parts of that document. Specific DAAC/Instrument Team agreements may designate other or superceding specifications, however. Implementation is either as text (options as section 1 above), or as P=V metadata, science data tables etc. Many smaller specifications may be contained within the delivery memo/delivery contents statement.

A.3.1 Delivery Contents List Specification

A document. See section 6.3.1 of Science Users Guide (205-CD-002-002).

A.3.2 Context Diagram Specification

If electronic, then should occur as a figure within one of the accepted document/text types.

A.3.3 Change Log Specification

TBD.

A.3.4 System Description Specification

A document; see appendix C.1 of Science Users Guide (205-CD-002-002).

A.3.5 SW Development Standard Specification

A document; 'Data Production Software and Science Computing Facility Standard and Guidelines' (ESDIS Goddard document 423 - 16 - 01; 2/15/95).

A.3.6 Processing File Description Specification

A document. See appendix C.3 of Science Users Guide (205-CD-002-002).

A.3.7 Programming Guide Specification

A document; 'Data Production Software and Science Computing Facility Standard and Guidelines' (ESDIS Goddard document 423 - 16 - 01; 2/15/95).

A.3.8 ATBD Specification

Document. It appears that there is no control template for the content of this document. ATBDs are submitted to the EOS Science Office, and the pointer is a URL to location where these may be obtained.

A.3.9 Detailed Design Specification

Document. Instrument team specified.

A.3.10 Test Plan Specification

Document. see appendix C.4 of Science Users Guide (205-CD-002-002).

A.3.11 Test Site Config Specification

Document. see section 6.3.2.5 of Science Users Guide (205-CD-002-002).

A.3.12 Compile Info Specification

Document. see section 6.3.2.6 of Science Users Guide (205-CD-002-002).

A.3.13 Results Product File Specification

Document. Instrument team specified as per test requirements.

A.3.14 Operations Manual Specification

Document. see appendix C.2 of the Science Users Guide (205-CD-002-002).

A.3.15 Science SW Source Code Specification

Document. Instrument team specified against ATDB and using SW Development Standard Specification.

A.3.16 Test Source Code Specification

Document. Instrument team specified as per test requirements.

A.3.17 PGE error log Specification

Document. see section 6.3.1.5 of Science Users Guide (205-CD-002-002).

A.3.18 ScSW Script Specification

Document. Instrument team specified as per ScSw requirements.

A.3.19 Link and Compile Script Specification

Document. Instrument team specified as per ScSw requirements.

A.3.20 Test Script Specification

Document. Instrument team specified as per test requirements.

A.3.21 Received Algorithm Package Pointer Specification

Package. The science software package received from the SCF, prior to SSI&T.

A.3.22 Result Product File Specification

Instrument team specified as per test requirements.

A.3.23 Results Report Specification

Instrument team specified as per test requirements.

A.3.24 Metadata Configuration File Specification

Document. See appendix J8 of the Toolkit Users Guide (333–CD–003–002).

A.3.25 Instrument Science Data Specification

Instrument team specified as per test requirements.

A.3.26 Instrument Engineering Data Specification

Instrument team specified as per test requirements.

A.3.27 Platform Ancillary Data Specification

Instrument team specified as per test requirements.

A.3.28 External Data Specification

Instrument team specified as per test requirements. See section 4.2.3 below.

A.3.29 Calibration Files Specification

Instrument team specified as per test requirements. See section 4.2.3 below.

A.3.30 Process Control Parameter and Resource File Specification

Document. see Appendix C.1.4. of the Toolkit Users Guide (333–CD–003–002).

A.3.31 PGE Config File

Document. see Section 6.3.2.9 of Science Users Guide (205-CD-002-002).

A.3.32 Science SW Exectutable Specification

File. A tar file containing the script and binary executable(s), produced after successful SSI&T.

A.3.33 Processing Dependencies

Document. see Section 6.3.2.11 of Science Users Guide (205-CD-002-002).

A.4 Auxiliary Data Specifications for Granules

A.4.1 Science Output Specifications

All EOS Standard Products utilize one or more of the recognized CSDTs implemented using the HDF-EOS standard and tools [see the technical paper *HDF-EOS User's Guide* of June 1996 (170-TP-005-001]. Sections 4, 5 and 6 of that document provides an outline data specification for the various HDF-EOS point, swath and grid data types, respectively.

A.4.1.1 Granule

It is expected that the science product granule will be produced predominantly in one of the geolocated HDF-EOS types referenced in 4.1. Non-geolocated HDF-EOS types (n-Dim arrays, science data tables and text) are permitted. The content is as required by instrument teams.

A.4.1.1.1 Structural Metadata

Structural metadata are written into the HDF-EOS products during processing support later services such as display, subset and subsample. These metadata must be supplied by the instrument teams as a part of the full development of HDF-EOS. The metadata itself may be supplied in a similar fashion to that in the MCF (document in ODL).

A.4.1.2 QA Granule

It is expected that the QA granules will normally be produced alongside regular science product granules, and will also be in HDF-EOS. No separate specification for this type is being prepared outside of the science granule HDF-EOS specification.

A.4.1.3 Browse

Browse products will be produced in HDF-EOS using specified types and metadata. A separate draft specification for this type of product has been prepared named 'EOSDIS Browse Delivery Package Description' (Preliminary draft). The most recent controlled version is that from July 1995. available at :

http://eos.nasa.gov/esdis/InfoArch/

A.4.2 Input and Ancillary Input Specifications

There is a wide range of these inputs in terms both of CSDT type and content. CSDTs are indicated. Where ECS is providing the detailed content, this is specified below.

A.4.2.1 Level 0 Data for EOS Instruments

At Release A, level 0 data will arrive at ECS from SDPF for the processing of CERES higher level products. The format if the incoming data are SFDU headers plus binary data set; both in CCSDS defined structures. This is described in the SDPF to TRMM ICD (560-203.103), March 1995.

At Release B, level 0 data for all EOS-AM instrument will arrive at ECS from EDOS. The format is as described in the ICD between the EDOS and the EOC, GSFC, LaRC and DAACs (560-ICD-EDOS/EGS, June 30, 1995).

The level 0 data for the Stratospheric Aerosol and Gas Experiment (SAGE III) is described in the ICD between ECS and the SAGE III Mission Operations Center (209-CD-027-001). These data will be archived at the LaRC DAAC.

The level 0 data from the ADEOS II mission will be received at JPL and the SeaWinds Instrument data will be processed to higher products and archived at the JPL DAAC.

A.4.2.2 Other Incoming Data

Level 0 data ingested into ECS from the LandSat7 system as detailed in the Interface Control Document Between EOSDIS Core System (ECS) and the Landsat 7 System (209-CD-013-003), March 1996 (available on EDHS).

Level 1A and 1B data ingested from ASTER is detailed in the Interface Control Document Between EOSDIS Core System (ECS) and ASTER Ground Data System (209-CD-002-003) of March 1996 (available on EDHS).

Data incoming from the TRMM besides the CERES; i.e. the level 1A and higher level products from the PR, TMI and VIR are detailed in the ICD Between ECS and TRMM Science Data and Information System (TSDIS) (209-CD-007-004) of May 1996 (available on EDHS).

Data incoming from ASF includes level 0 data from several (non-ECS) synthetic aperture radars and is detailed in the Interface Control Document Between EOSDIS Core System (ECS) and the

Alaska SAR (Synthetic Aperture Radar) Facility (ASF) Distributed Active Archive Center (DAAC) for the ECS Project (209-CD-021-002) of March 1996 (available on EDHS).

A.4.2.3 Static Ancillary Data

It is anticipated that static ancillary data will come from two sources; namely the instrument teams themselves who will deliver files with the algorithm package itself and secondly, the SDP toolkit ancillary data tools also include a set of commonly used data sets.

Static data delivered by instrument teams may have any recognized CSDT. Content is not prescribed.

Data delivered with the SDP toolkit for Release A is for the most part in a simple binary format. The coastline database comes in VPF. Further details of the content of these data sets is found in appendix D of the Toolkit Users Guide (333-CD-003-004); notably Table (D-1).

A.4.2.4 Dynamic Ancillary Data

Most dynamic ancillary data will be available in native formats to instrument team PGEs. Selected data sets; those used by many processing chains, are preprocessed into standard formats (EOS-HDF) for ready access and portability. Orbit files are one such data set and the others specified below are the NOAA inputs.

A.4.2.4.1 Orbit Parameter Specification

This specification covers two types of physical files, namely ephemeris and attitude parameters. These files are used in the data processing subsystem to support the geolocation tools. The data are also available to PGEs using other toolkit tools.

Specification for orbit ephemeris file

This file contains the record structures that define the reformatted ephemeris datasets. These structures outline both the native and HDF format ephemeris datasets. The refomatted datasets are written with a single header, followed by a set of ephemeris records, and concluded with a set of orbit metadata records. Each ephemeris file spans 9 days.

Ephemeris Header (one per file)

type	variable name	description and unit
char	spacecraftId	Spacecraft name.
char	asciiTimeRange	Start and stop times to the nearest hour,in ASCII.
char	source	Source of the attitude data.
char	version	Verson number (default=1).
char	parentFile	Actual filename of parent file (full path).
PGSt_double	startTime	Ephemeris starttime, secTAI93.
PGSt_double	endTime	Ephemeris endtime, secTAI93.
PGSt_double	interval	Interval between records, SI seconds.
PGSt_uinteger	nRecords	Number of ephemeris records.
PGSt_uinteger	nOrbits	Number of orbits spanned.

PGSt_uinteger	orbitNumberStart	Orbit number of first orbit spanned.
PGSt_uinteger	orbitNumberEnd	Orbit number of last orbit spanned.
char	refFrame	Ref frame: "TOD" or "J2000".
PGSt_double	keplerElements	Keplerian elements at epoch.
PGSt_double	keplerEpochTai	TAI 93 epoch of Keplerian elements.
char	spares[184]	Pad to 512 bytes.

Ephemeris Record (one per minute of the day - 1440 per day, 12960 over 9 days)

type	**variable name**	**description and unit**
PGSt_double	time	Number of seconds, secTAI93.
PGSt_double	xPos	X component of position vector, meters.
PGSt_double	yPos	Y component of position vector, meters.
PGSt_double	zPos	Z component of position vector, meters.
PGSt_double	xVel	X component of velocity vector, meters/sec.
PGSt_double	yVel	Y component of velocity vector, meters/sec.
PGSt_double	zVel	Z component of velocity vector, meters/sec.
PGSt_uinteger	qFlagEph	Data quality summary flag.

Ephemeris Metadata (one per orbit - c. 14 per day, 144 per file)

type	**variable name**	**description and unit**
PGSt_uinteger	orbitNumber	Orbit number, from beginning of mission.
PGSt_double	orbitAscendTime	Time of upward true equator crossing, secTAI93.
PGSt_double	orbitDescendTime	Time of downward true equator crossing, secTAI93.
PGSt_double	orbitDescendLongitude	Orbit down-crossing terrestial longitude, radians.

Specification for attitude file

This file contains the record structures that define the reformatted attitude datasets. These structures outline both the native and HDF format attitude datasets. The refomatted datasets are written with a single header, followed by a set of attitude records, and concluded with a set of data quality metadata records. There is one file per day.

Header of attitude file (one per file)

type	**variable name**	**description and unit**
char	spacecraftId	Spacecraft name.
char	asciiTimeRange	Start and stop times to the nearest hour, in ASCII.
char	source	Source of the attitude data.
char	version	Verson number (default=1).
char	parentFile	Actual filename of parent file (full path).
PGSt_double	startTime;	Attitude starttime, secTAI93.
PGSt_double	endTime	Attitude endtime, secTAI93.

PGSt_double	interval	Interval between records, SI seconds.
PGSt_uinteger	nRecords	Number of attitude records.
PGSt_uinteger	eulerAngleOrder[3]	Order of rotations as a permutation of 1=X,2=Y,3=Z
PGSt_uinteger	acsControlMode	Current ACS control mode.
PGSt_uinteger	flyingModePriorInertial	Spacecraft orientation mode prior to inertial mode.
PGSt_double	quatOrb0ToEci[4]	Spacecraft orientation prior to inertial flying mode.

Attitude record (one record every 0.5 secs or or 172800 per days).

type	**variable name**	**description and unit**
PGSt_double	time	Time as seconds from January 1, 1993, secTAI93.
PGSt_double	rollAngle	Roll angle, radians.
PGSt_double	pitchAngle	Pitch angle, radians.
PGSt_double	yawAngle	Yaw angle, radians.
PGSt_double	xRate	Angular rate about body X axis, radians/s.
PGSt_double	yRate	Angular rate about body Y axis, radians/s.
PGSt_double	zRate	Angular rate about body Z axis, radians/s.
PGSt_uinteger	qFlagAtt	Attitude data quality summary flag.

A.4.2.4.2 NOAA inputs

A.4.2.4.2.1 Introduction

Amongst the dynamic ancillary data, some NOAA data are being ingested and prepared by ECS for use by instrument teams. What follows specifies the format of the files available to instrument teams.

The format of most incoming NOAA satellite data are specified in ICD Between the ECS and the NOAA ADC (505-41-43) of March 1996 (available on EDHS). Of these data sets, the NOAA Sea Ice Master Map products is being pre-processed to HDF-EOS. All other data sets are left in native format to which instrument teams must interface directly.

The NOAA NMC data comes from NOAA NMC via the GSFC DAAC. This is detailed in the ICD Between the ECS and the GSFC DAAC for the ECS Project (209-CD-008-005) of May 1996 (available on EDHS).

A.4.2.4.2.2 Pre-processing Formats

NMC GRIB

After pre-processing, the GRIB record will be put into HDF-EOS format. HDF-EOS builds upon the standard HDF libraries, allowing the data to be inserted in any three standard forms; swath, point and grid. For the pre-processing of GRIB, only the latter of these needs to be considered. In addition to the data, metadata must be included to allow for additional functionality within ECS, such as subsetting and subsampling. Where possible, all of the metadata will be written in PVL as an attribute (or group of attributes), while the data will be stored in Science Data Sets (SDS's). However, if the archived metadata group is larger than 32000 bytes (the maximum size of an HDF

attribute), then this information will be written to an SDS. During testing, it was found that the archived metadata could not be broken up sufficiently to allow insertion into an attribute for all NMC GRIB files, and therefore this will normally be written to an SDS.

In designing the actual format of the data, a number of factors have been considered. These are:

- There is a need to minimize the number of SDS's in a single file since a large number of these will dramatically increase file access time. This is achieved by grouping data sets by parameter and grid. Thus all of the data in an SDS will be the same parameter on the same grid, but will represent different atmospheric levels.
- The metadata needs to be written as attributes in distinct groups; inventory metadata (covering collection and granule level information to allow insertion into the data server), archived metadata (containing information which is related to a particular product and is not general across products) and structural metadata (containing information on the layout of the file and defined by the HDF-EOS library).
- The requirements of the ingest sub-system to produce a single output file and associated metadata file. While ingest can deal with one file in, many out, the design only allows for a single output metadata file.

Much of the problem in designing the output format lies in the relating of record specific information to a particular SDS. Much of the metadata which is considered inventory level, such as the geolocation information and level information are specific for each record and are not inherent to the whole file. Since, however, these attributes MUST appear in the inventory metadata, it is very difficulty to relate this information back to the SDS's once the data are reformatted. The logical place to put this data for GRIB is in the structural metadata, which describes each SDS. However, some geolocation information needs to be placed at the inventory level. It is proposed to put in the maximum extent of coverage in the inventory metadata and the actual coverage for a particular SDS in the structural metadata and the archived metadata.

In order to minimize the number of SDS's it is proposed that they all be three dimensional. An SDS will then contain all of the information for a specific parameter on a specific grid, but covering various atmospheric levels (see figure 4.2.4.2.2.1). This should give between a 50% to 75% reduction in the number of SDS's compared with the number of GRIB records in the original file. Greater reduction could be achieved by placing all of the information for a particular grid in a single three dimensional SDS (achieving between 80% and 95% reduction), but it is felt that this would put too much information into the structural metadata.

Thus a single HDF file would be composed of the following:

- Inventory metadata as an HDF attribute (named coremetadata.0..9)
- Archived metadata as an HDF attribute or SDS (named archivedmetadata.0..9)
- Structural metadata as an HDF-EOS attribute
- A number of SDS's

All of the metadata will be in PVL. In the case of archived and inventory metadata, it will be described by the use of configuration files. These configuration files will be written in ODL (Object Description Language). The configuration file is presented in Appendix A of this document. The inventory metadata fields will be defined in DID311, but the examples given are

based on a document provided for Internal Review. For more information on ODL, refer to the SDP Toolkit 5+ Users Guide for the ECS Project (333-CD-003-003). The final format is shown diagrammatically in Figure 4.2.4.2.2.2. This shows the format of an HDF-EOS file with 8 SDS's with varying Z levels. In the structural metadata group, there would be 8 groups of structural metadata, one per SDS.

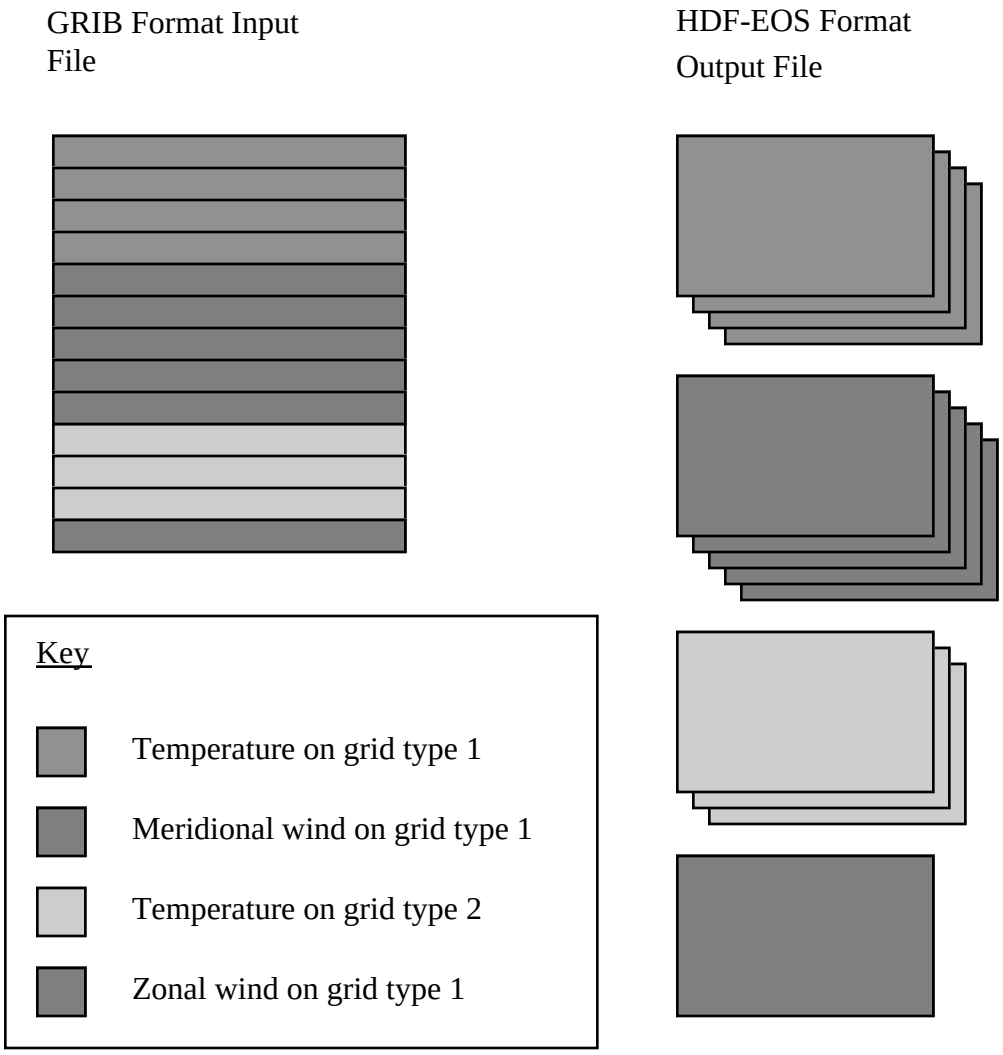

Figure A-4.2.4.2.2.1. Mapping of GRIB Formatted Records to HDF-EOS Science Data Set

.

An important point which should be clarified for the inventory metadata are how record specific data are related to a particular SDS. A number of assumptions have been made concerning the implementation in HDF-EOS.

It is assumed that a single label can be applied to an HDF SDS. This label will uniquely identify an SDS. It is intended that a label associated with a particular SDS will be made up of the standard abbreviation derived from NMC's Office Note-388, suffixed with _N, where N is the grid identifier. This suffix is to allow for the case where one parameter is represented on two different grids. Thus if we have two SDS's containing temperature data on two different grids, then these SDS's could have the labels TMP_27 and TMP_28. This gives easy information regarding the datatype presented in an SDS. The remaining metadata associated with an SDS is then associated with the SDS using the ODL GROUP and OBJECT structures. Each SDS in the output file is an object, and one of the objects within that group is the label. The remaining objects describe the metadata associated with an SDS, such as the projection, bounding co-ordinates (and other geolocation information) and axis labels.

The only real point of note is the labels associated with the z-dimension. If the original GRIB format file contains 3 records containing geopotential height on the same grid but at different atmospheric levels, these records would be put into a single SDS as described above. Within the metadata associated with the group, a number of labels associated with the z dimension have been specified as an array. Thus we now have archived metadata which identifies the number of SDS's in the output file, and associates metadata for the SDS. A user can then identify a particular SDS they are interested in by specifying the parameter name, projection, co-ordinates and an atmospheric level. As an example, consider a GRIB file containing 3 records of relative humidity at 750hPa, 500hPa and at the tropopause. A subset of the filled structural metadata written in ODL might look like the following.

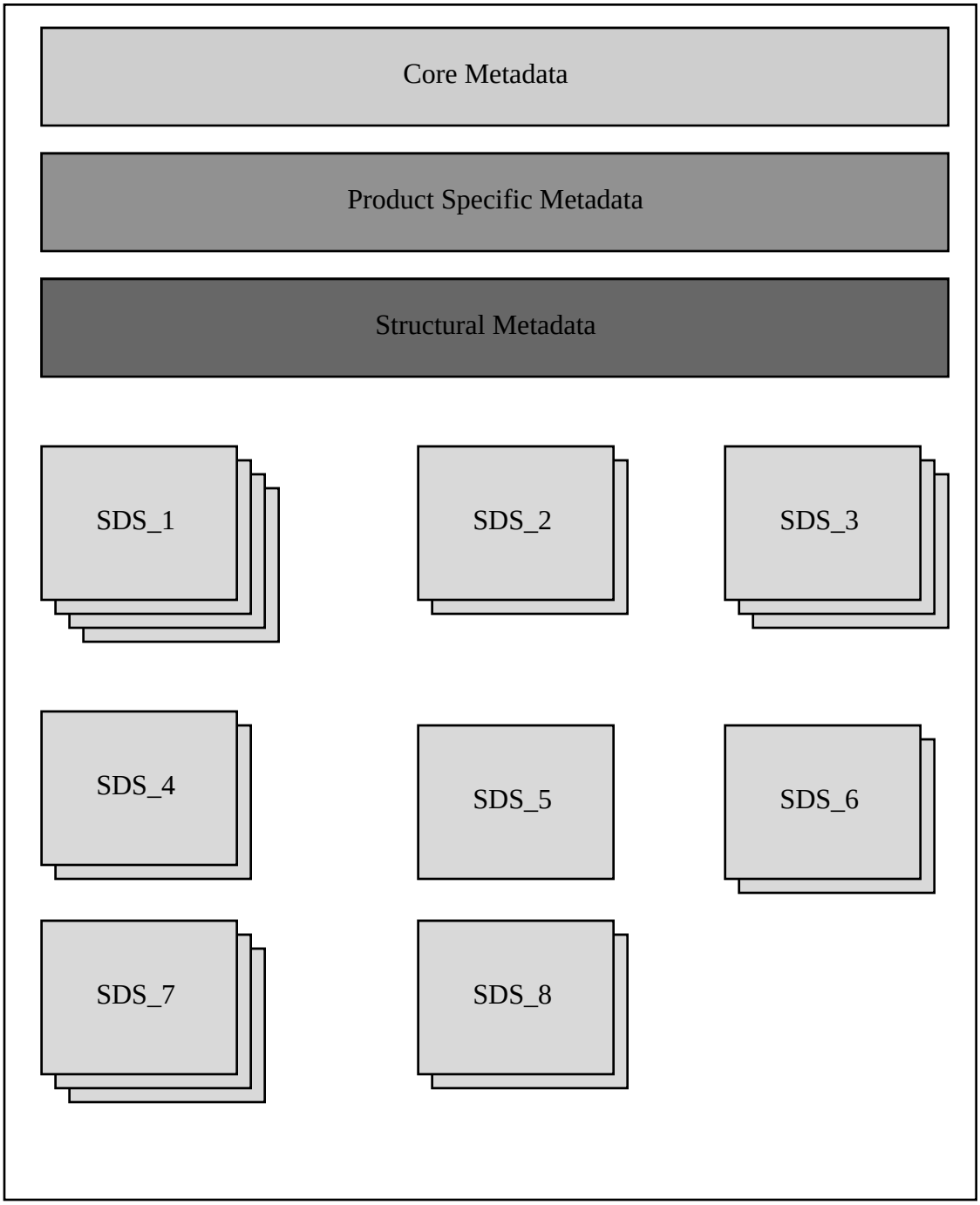

Figure A-4.2.4.2.2.2. Graphic Depiction of the Format of the Output HDF-EOS Data File

```
OBJECT = SDS
     OBJECT = SDS_NAME
          VALUE = R H_30
     END_OBJECT = GROUP

     OBJECT = VERTICALEXTENT
          VALUE = ("750 hPa atmospheric level", "500 hPa atmospher-
ic level", "Tropopause")
     END_OBJECT = VERTICALEXTENT

     OBJECT = PROJECTION
          VALUE = "Polar Stereographic"
     END_OBJECT = PROJECTION

     OBJECT = NORTHMOSTLATITUDE
          VALUE = 90000
     END_OBJECT = NORTHMOSTLATITUDE

     OBJECT = SOUTHMOSTLATITUDE
          VALUE = 90000
     END_OBJECT = NORTHMOSTLATITUDE

     OBJECT = SOUTHMOSTLATITUDE
          VALUE = 90000
     END_OBJECT = NORTHMOSTLATITUDE

     OBJECT = EASTMOSTLONGITUDE
          VALUE = 180000
     END_OBJECT = EASTMOSTLONGITUDE

     OBJECT = WESTMOSTLONGITUDE
          VALUE = -180000
     END_OBJECT = WESTMOSTLONGITUDE
END_OBJECT = SDS;
```

NESDIS Sea Ice

The native format NESDIS EDR Master Map format file contains a total of 19 "maps" covering a range of parameters. Two of these maps are of latitude and longitude for each grid point. Thus there are two options for storing the data; as a swath or as a grid.

Since the geolocation grids are present already in the data set, it is possible to store the information as a swath. This has the advantage of being a simple approach and not relying on transformation equations to obtain the grid coordinates from the input latitude and longitude. Storing the data as an HDF-EOS grid has the advantages of a smaller file size, since the geolocation grids are not required, and a faster point access, since there is no need to use the geolocation arrays as look up tables.

Since this ancillary data set will be used to provide point information to science algorithms, it is thought that speed rather than simplicity, is the driving consideration. For example, if the ancillary data are needed to provide a correction to a set of swath data points, there may be several hundred calls to obtain the information from the ancillary data, and hence speed of processing outweighs the benefits associated with storing the ancillary data as a swath. Thus the data will be stored an HDF-EOS grid structure. The structural metadata are constant for each of the northern and hemisphere NESDIS products, and will not need to change, making the setting of the structural metadata straightforward.

File Format

There are a total of 19 maps present in a single MasterMap file, covering not only scientific data but also geolocation and temporal data. It is proposed to extract and reformat only a subset of the data. The data required for extraction are sea ice concentration and snow depth (NOAA-ECS Interface Control Document). Additionally, the calculated surface type will also be extracted. Thus three sets of data covering the same geolocation will be extracted for each file. This leads to the question of whether this data should be stored in a single 3-dimensional SDS, or three independent 2-D SDS's within the pre-processed file. Practically there is little difference, only slightly more HDF addressing overhead needs to be supplied if the latter option is chosen. To overcome any possible issues about the ordering of the layers with the SDS it is proposed that three single SDS's will be written, since otherwise we would need to guarantee the order in which the data are written. This is shown diagrammatically in Figure 4.2.4.2.2.3.

Science Data

Figure 4.2.4.2.2.3 shows the proposed mapping of the native format to the pre-processed product. Note that only a single header information is read and used to extract most of the metadata (with the exception of the quality information, see below). Three data maps are used from the original products, maps 11 (sea ice concentration), 16 (snow depth) and 18 (calculated surface type) will make up the science data. The values contained within these maps will not be altered. Note that a value of -1 means data are missing from this element of the grid. More information regarding the scientific data contained in the extracted sets can be found in the Mastermap Microwave Derived Products (EDR) Interface Control Document.

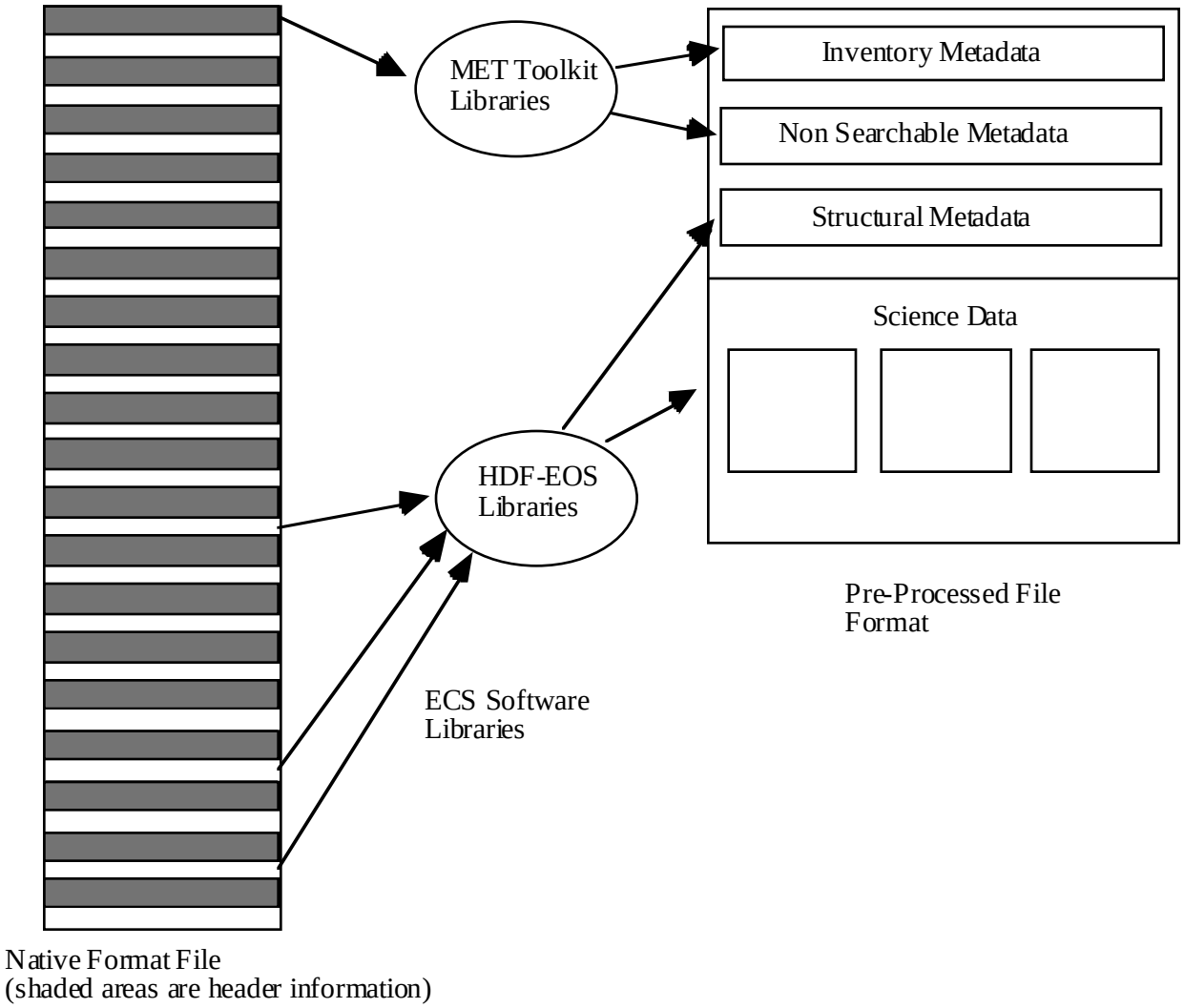

Figure A-4.2.4.2.2.3. Mapping of Native Master Map Format Product

Metadata

An analysis of the record headers has shown that they do not vary within the file with the exception of the field for Channel Number; which seems to be a counter which is set to 1 for the first map within the file and then increment to 19 for the last map. Thus it is proposed that the header will only be extracted once for the file (not for each map). The proposed MCF is shown below. Not all of the metadata fields will be extracted since some of the information contained is redundant, such as the start and end block numbers. Additionally, it is proposed that the metadata will be extracted and where necessary reformatted to fit with the metadata required within ECS. That is the pre-processed file will contain decoded information. For example, the projection type is always

set to 2 within the header of the native format file , but this would be written as "polar stereographic" in the pre-processed file.

Some information can not be obtained directly from the header record, specifically the quality information regarding the percentage of missing data and percentage of data out of bounds. These will be obtained directly from the data by counting the number of data points flagged either with a value of -1 (missing data) or 254/255 (data indeterminate/out of range). Note that the percentage of data out of range will be the percentage of data points present that are out of range, not the percentage of the total possible data points (including missing data).

A further complication arises regarding the start and stop orbit numbers from which data are used to build up the master map. Only the orbit numbers of the last 29 orbits are recorded in the file metadata, although it is possible that maps are actually constructed from more than this number of orbits. It is proposed that the orbit numbers given in the pre-processed file are only those listed in the last 29, since it is unclear whether orbit "gaps" could occur.

In lines with current ECS guidelines, the metadata are written in two groups; inventory metadata metadata (that required to perform search queries on the data) and archive metadata (data which is useful in analyzing the product, but is not searchable). The only further complication is that NESDIS Snow/Ice data forms a single collection, which should have a single platform associated with it. However, the data actually comes from two sources, the DMSP satellites F-10 and F-11. This is overcome in the metadata file using the "parameter name" and "parameter value" construction.

Metadata Configuration File for NESDIS Snow/Ice

```
GROUP = INVENTORYMETADATA
GROUPTYPE = MASTERGROUP
        OBJECT = ShortName
                Data_Location = "MCF"
                Value = "NESDIS Snow/Ice"
                Mandatory = "TRUE"
                NUM_VAL = 1
                TYPE = "STRING"
        END_OBJECT = ShortName
        OBJECT = SizeMBECSDataGranule
                Data_Location = "MCF"
                Value = 3
                Mandatory = "TRUE"
                NUM_VAL = 1
                TYPE = "INTEGER"
        END_OBJECT = SizeMBECSDataGranule
        OBJECT = EastBoundingCoordinate
                Data_Location = "MCF"
                Value = 180.00
```

```
        Mandatory = "TRUE"
        NUM_VAL = 1
        TYPE = "DOUBLE"
END_OBJECT = EastBoundingCoordinate
OBJECT = WestBoundingCoordinate
        Data_Location = "MCF"
        Value = -180.00
        Mandatory = "TRUE"
        NUM_VAL = 1
        TYPE = "DOUBLE"
END_OBJECT = WestBoundingCoordinate
OBJECT = NorthBoundingCoordinate
        Data_Location = "PGE"
        Mandatory = "TRUE"
        NUM_VAL = 1
        TYPE = "DOUBLE"
END_OBJECT = NorthBoundingCoordinate
OBJECT = SouthBoundingCoordinate
        Data_Location = "PGE"
        Mandatory = "TRUE"
        NUM_VAL = 1
        TYPE = "DOUBLE"
END_OBJECT = SouthBoundingCoordinate
OBJECT = RangeBeginningDate
        Data_Location = "PGE"
        Mandatory = "TRUE"
        NUM_VAL = 1
        TYPE = "STRING"
END_OBJECT = RangeBeginningDate
OBJECT = RangeBeginningTime
        Data_Location = "PGE"
        Mandatory = "TRUE"
        NUM_VAL = 1
        TYPE = "STRING"
END_OBJECT = RangeBeginningTime
OBJECT = RangeEndingDate
```

```
                Data_Location = "PGE"
                Mandatory = "TRUE"
                NUM_VAL = 1
                TYPE = "STRING"
        END_OBJECT = RangeEndingDate
        OBJECT = RangeEndingTime
                Data_Location = "PGE"
                Mandatory = "TRUE"
                NUM_VAL = 1
                TYPE = "STRING"
        END_OBJECT = RangeEndingTime
        OBJECT = QAPercentMissingData
                Data_Location = "PGE"
                Mandatory = "TRUE"
                NUM_VAL = 1
                TYPE = "DOUBLE"
        END_OBJECT = QAPercentMissingData
        OBJECT = ParameterName
                Data_Location = "MCF"
                Value = "Platform"
                Mandatory = "TRUE"
                NUM_VAL = 1
                TYPE = "STRING"
        END_OBJECT = ParameterName
        OBJECT = ParameterValue
                Data_Location = "PGE"
                Mandatory = "TRUE"
                        /* Set to either F-10 or F-11 (the DMSP platform number) */
                NUM_VAL = 1
                TYPE = "STRING"
        END_OBJECT = ParameterValue
END_GROUP = INVENTORYMETADATA
GROUP = ARCHIVEMETADATA
GROUPTYPE = MASTERGROUP
        OBJECT = Sensor
                Data_location = "MCF"
```

```
        Value = "SSM/I"
        Mandatory = "TRUE"
        NUM_VAL = 1
        TYPE = "STRING"
END_OBJECT = Sensor
OBJECT = LatitudeResolution
        Data_Location = "MCF"
        Value = 47.625
        Mandatory = "TRUE"
        NUM_VAL = 1
        TYPE = "DOUBLE"
END_OBJECT = LatitudeResolution
OBJECT = LongitudeResolution
        Data_Location = "MCF"
        Value = 47.625
        Mandatory = "TRUE"
        NUM_VAL = 1
        TYPE = "DOUBLE"
END_OBJECT = LongitudeResolution
OBJECT = GeographicCoordinateUnits
        Data_Location = "MCF"
        Value = "km"
        Mandatory = "TRUE"
        NUM_VAL = 1
        TYPE = "STRING"
END_OBJECT = GeographicCoordinateUnits
OBJECT = StartOrbitNumber
        Data_Location = "PGE"
        Mandatory = "TRUE"
        NUM_VAL = 1
        TYPE = "INTEGER"
END_OBJECT = StartOrbitNumber
OBJECT = StopOrbitNumber
        Data_Location = "PGE"
        Mandatory = "TRUE"
        NUM_VAL = 1
```

```
                TYPE = "INTEGER"
        END_OBJECT = StopOrbitNumber

/*****************************************************/
/* For the percentage of data out of bounds, there are          */
/* three distinct values, one for each SDS.  In the             */
/* description below, these are represented by three            */
/* instances of the object.  In implementation, the             */
/* following mapping between classes and SDS's will             */
/* be maintained:                                               */
/*      Class 1 : Sea Ice Concentration                         */
/*      Class 2 : Snow Depth                                    */
/*      Class 3 : Calculated surface type                       */
/* Note that this percentage is the percentage of data          */
/* available which is marked as either out-of-limits or         */
/* indeterminate, not the percentage of all possible            */
/* data points.                                                 */
/*****************************************************/

GROUP = QAContainerGroup
        OBJECT = QAContainerObject
                Data_Location = "NONE"
                Class = "M"
                Mandatory = "TRUE"
                OBJECT = QAPercentOutOfBounds
                        Data_Location = "PGE"
                        Class = "M"
                        Mandatory = "TRUE"
                END_OBJECT = QAPercentOutOfBounds
        END_OBJECT = QAContainerObject
END_GROUP = QAContainerGroup
END_GROUP = ARCHIVEMETADATA
END
```

A.4.3 User Comment Document

see A.4.1. above.

Appendix B. Mandatory Metadata

B.1 Introduction

This appendix specifies the metadata which are mandatory for different categories of product managed by ECS. The metadata attributes are taken directly from the data dictionary in the first part of this document.

The specification of mandatory metadata has been approached, with impetus from the DMWG meeting of summer 1995, in terms of 3 categories of data product; those having full, intermediate and limited requirements for services. This is done in recognition of the fact that to demand a full set of attributes for all data collections in ECS is unnecessary and possibly very costly for migrated data sets. Equally, to make all or most attributes optional would allow the possibility of having valuable data set not fully described and therefore inadequately documented and serviced (see Table B-1 following for a summary from DMWG meeting).

The categories of data product in relation to the amount of level of metadata support required are defined as follows:

Full level of metadata is required for products generated within EOSDIS (e.g. levels 1-4).

Intermediate level of metadata is required for products generated outside of EOSDIS but used within EOSDIS (ancillary, level 0, campaign, LandSat 7, TRMM). It could also be applied to V0 data sets migrated to ECS (especially those reformatted to HDF-EOS) as well as special products.

Limited level of metadata is applied to all other products (e.g. low priority V0 data sets migrated with no format or other change). Relatively few product are likely to fall into this category. Advertisers of external products should meet only these minimum requirements.

The approach to specifying which individual attributes should be mandatory is to have the standard list of all 'core' attributes for all 3 categories but changing the status of attributes for each class of product. The status of each attribute may be mandatory, mandatory if applicable or optional; and attribute status is progressively tightened the as we move from limited to full. This means that , for example, a collection in the 'limited' class can have all metadata - but it need have only a bare minimum.

Inputs to the decision of the status of attributes comes from four sources:

- the status of GCMD/DIF attributes (where used).
- the status of FGDC attributes (where used).
- the need to provide attributes which support certain services.
- engineering judgment as to the suitability of attribute within each class.

The major service is the sophistication of the search and the amount of supporting metadata which can be retrieved. However, two other services are significant:

1) subset/subsample/display of products requires structural metadata plus map projection information. This will be held in the HDF-EOS specific metadata areas which are not a part of the core metadata. There will be no further references to these services in this appendix.
2) navigation from displayed granules to related data objects require the maintenance of links in the metadata to these objects.

Table B-1. Summary of DMWG Meeting Defining Guidance for Levels of Metadata by View/Pyramid Layer

"PYRAMID" Service	Full Set of Attributes to Provide Material for Service	Intermediate	Limited
Directory (Searchable collection)	DIF+ ≤125 from core	DIF	DIF
Guide Documentation	V0 Guide + Other Docs (ATBDS) (Excluding docs in other services)	V0 Guide set of attributes on-line	Data producer provided documentation - h/c?
Inventory Locality Parameter Source Inv characteristic Contract	Full searchable parameters from CMS.	V0 system level V0 IMS populated valids	DIF - i.e. no inv
	Inventory - DAAC/Instrument specific of V0 IMS (local)		
Algorithm	All CMD DAP module content	Source code and documents (external)	None or minimum document description
Product History	Text + granule level as per CMS module	Textual description at collection level	None
QA	Granule level - full (history) Bob Lutz	Granule level - No history (sys level)	Collection level or none
Summary Stats	see QA		None
Browse	Granule level	Sample for whole collection	None
Reference paper	List + document content on line	List of citations on-line	None
Levels 0 - n Granule Manipulation	Services applicable to HDF-EOS	V0 services	None

The Table B-2 indicates at a high level the services supported by groups of metadata attributes. This applies to both Release A and B.

Table B-2. High Level Association Between Metadata and Services

Service	Metadata Modules (Classes) Required
temporal search (granule level)	Temporal
spatial search (granule level)	Spatial
search on other granule characteristics	Granule, DataOriginator
temporal search (collection levels)	Temporal, Spatial (SpatialKeywordClass)
spatial search (collection level)	Spatial
search on other collection characteristics	Collection, DataOriginator, (CSDTDescription), Delivered Algorithm Package
documentation	Document, Collection, DataOriginator, Spatial, Temporal, Contact
navigation between data types	...various pointers...

Further details of services are found in the summary tables and in individual sections.

B.2. Interpretation of Information

B.2.1 Introduction

The notation used in the body of this appendix is Bacchus Nauer Form (BNF). Section B.2.2 describes how to read it. The BNF usage is taken directly from the FGDC standard in terms both of the syntax and, where FGDC attributes are used, the production rules themselves for attribute selection.

The attributes/classes in **bold**, both in the summary tables (Section B.3.0) and in the BNF (Sections B.4.0, B.5.0 and B.6.0) indicate compound definitions which are decomposed in the compound definitions (Section B.6.0).

All attributes ending with the term ...Pointer implies a data object further specified in Appendix A rather than an individual attribute. The data producer has responsibility in most cases to produce the content of the instance of the data object pointed to. Pointers themselves provide navigation out of the database to the archived data objects.

Explanatory notes are in italics.

These lists refer to the population of metadata, rather than the distribution.

Those attributes added by ECS relate mostly to the navigation needs.

B.2.2 Explanation of BNF

<u>Production Rules</u>

A production rule specifies the relationship between a compound element, and data elements and other (lower-level) compound elements. Each production rule has a left side (identifier) and a right side (expression) connected by the symbol "=", meaning that the term on the left side is replaced

by or produces the term on the right side. Terms on the right side are either other compound elements or individual data elements. By making substitutions using matching terms in the production rules, one can explain higher-level concepts using data elements.

The symbols used in the production rules have the following meaning:

Symbol	Meaning
=	is replaced by, produces, consists of
+	and
[|]	selection-select one term from the list of enclosed terms (exclusive or). Terms are separated by " |".
m{}n	iteration - the term(s) enclosed is(are) repeated from"m" to "n" times.
()	optional - the term(s) enclosed is(are) optional

Examples:

a=b+c	"a consists of b and c"
a=[b|c]	"a consists of one of b or c"
a=4{b}6	"a consists of four to six occurrences of b"
a=b+(c)	"a consists of b and optionally c"

Interpreting the production rules:

- The terms bounded by parentheses, "(" and ")", are optional and are provided at the discretion of the data producer. If a producer chooses to provide information enclosed by parentheses, the producer shall follow the production rules for the enclosed information. For example, if the producer decides to provide the optional information described in the term: (a+b+c) the producer shall provide a and b and c. Only for terms bounded by parentheses does the producer have the discretion of deciding whether or not to provide the information.
- The variation among the ways in which geospatial data are produced and distributed, the fact that all geospatial data do not have the same characteristics, and the issue that all details of data sets that are in work or are planned may not be decided, caused the need to express the concept of "mandatory if applicable". This concept means that if the data set exhibits (or, for data sets that are in work or planned, it is known that the data set will exhibit) a defined characteristic, then the producer shall provide the information needed to describe that characteristic. This concept is described by the production rules:

  0{ term }1

  or 0{ term }n

B.3 Summary Tables

This section presents a summary of Sections B.4.0 and B.5.0 showing for collection and granule levels, the 3 categories and sources of population. Details to an individual attribute level are found in the BNF statements in Sections B.4.0 through B.6.0. The tables use only the highest level BNF attributes and classes. The lower level breakdowns of class/compound definitions are not represented in tabular form because of the loss of structure and the fact that the lower level BNF

classes do not change status between categories; i.e. the change in attribute status is at the highest level only.

Readers are advised to examine Sections B.4.0 and B.5.0 carefully to understand the summary tables since significant points are not clearly demonstrated in the summary tables.

Table B-3. Summary Status of Single Type Collection Level Attributes (1 of 2)

Attribute/Class	Source (5)	Limited	Intermediate	Full	Service provided
CollectionDescription Class	DP (2)	mandatory	mandatory	mandatory	search/ retrieve (1)
BoundingRectangle	DP	if applicable	mandatory	mandatory	spatial search/ retrieve
Temporal	DP	if applicable	mandatory	mandatory	temporal search/ retrieve
Archive Center	DAAC (3)	mandatory	mandatory	mandatory	search/ retrieve
Processing Center	DAAC	if applicable	if applicable	mandatory	search/ retrieve
Contact	DP	mandatory	mandatory	mandatory	search/ retrieve
MaintenanceandUpdateFrequency	DP	if applicable	mandatory	mandatory	search/ retrieve
ECSDisciplineKeyword	DP	mandatory	mandatory	mandatory	search/ retrieve
ECSTopicKeyword	DP	mandatory	mandatory	mandatory	search/ retrieve
ECSTermKeyword	DP	optional	mandatory	mandatory	search/ retrieve
ECSVariableKeyword	DP	optional	mandatory	mandatory	search/ retrieve
ECSParameter	DP	optional	optional	if applicable	search/ retrieve
AdditionalAttributes	PGE	optional	optional	optional	search/ retrieve of product specific
CitationforExternalPublication	DP	if applicable	if applicable (6)	if applicable	search/ retrieve
CollectionAssociation	DP	if applicable	if applicable	if applicable	search/ retrieve
Locality	DP	if applicable	if applicable	if applicable	search/ retrieve
Browse	DP/DSS (4)	if applicable	if applicable	if applicable	search/ retrieve

Table B-3. Summary Status of Single Type Collection Level Attributes (2 of 2)

Attribute/Class	Source (5)	Limited	Intermediate	Full	Service provided
RevisionDate	DP	if applicable	if applicable	if applicable	search/ retrieve
AccessConstraints	DP	if applicable	if applicable	if applicable	search/ retrieve
ProcessingLevel	DP	optional	if applicable	mandatory	search/ retrieve
SuggestedUsage	DP	optional	optional	optional	search/ retrieve
CollectionState	DP	optional	mandatory	mandatory	search/ retrieve
SpatialKeyword	DP	optional	mandatory	mandatory	search/ retrieve
TemporalKeyword	DP	optional	mandatory	mandatory	search/ retrieve
CSDTDescription	DP	optional	optional	optional	search/ retrieve
DataOriginator	DP	optional	mandatory	mandatory	search/ retrieve
DeliveredAlgorithm-Package	DP	optional	if applicable	mandatory	search/ retrieve
Guide	DP	optional	mandatory	mandatory	search/ retrieve
ReferencePaper	DP	optional	if applicable	mandatory	search/ retrieve
Spatial	DP	optional	if applicable	if applicable	spatial search/ retrieve
StorageMedium	DP	optional	optional	optional	search/ retrieve
EndsatPresentFlag	DSS	if applicable	if applicable	if applicable	retrieve
Review	DP	optional	if applicable	if applicable	search/ retrieve
AdvertismentPointer	DSS/DP (7)	mandatory	mandatory	mandatory	navigate
QualitytextCommentPointer	DSS/DP	if applicable	if applicable	if applicable	navigate
UserCommentDocumentPointer	DSS/DP	if applicable	if applicable	if applicable	navigate
GranulePointer	DSS/DP	if applicable	if applicable	if applicable	navigate
ProcessingReport	DSS/DP	if applicable	if applicable	if applicable	search/ retrieve
ProductionPlan	DSS/DP	if applicable	if applicable	if applicable	search/ retrieve
ValidationDocumentPointer	DSS/DP	if applicable	if applicable	if applicable	navigate

Notes:

1. Search/retrieve means that the attribute is used to search for the collection and that the collection information is retrieved.
2. DP means the data producer, most often being the IT or PI involved with the instrument processing software and algorithms; but could be other knowledgeable people.
3. DAAC in this context means operational staff at the DAAC who assist in setting up the metadata and documents.
4. DSS is data server subsystem and means that this subsystem provides the data object pointers (probably URs or URLs) which attached the database tables to the archive.
5. Same valids and definitions as found in Source content in section B.6.4.
6. 'If applicable' means 'mandatory if applicable' in line with FGDC definitions.
7. DSS/DP means that the DSS produces the pointer while the content of the pointed to object is populated by the producer.

Table B-4. Summary of Granule Level Attributes (1 of 2)

Attribute/Class	Source	Limited	Inter-mediate	Full	Service Provided
Shortname	DP	mandatory	mandatory	mandatory	none
PGEVersion	PGE	optional	if applicable	mandatory	search/retrieve
InputPointer	PGE(1)	if applicable	if applicable	mandatory	lineage of product granule
AncillaryInputPointer	PGE	if applicable	if applicable	if applicable	lineage of product granule
Review	DP	optional	if applicable	if applicable	search/retrieve
ReprocessingActual	PGE	optional	optional	mandatory	search/retrieve
ReprocessingPlanned	PGE	optional	optional	mandatory	search/retrieve
SizeMBECSDataGranule	PGE or DSS	optional	mandatory	mandatory	search/retrieve
QAFlags	PGE	optional	optional	mandatory	search/retrieve
QAStats	PGE	optional	optional	mandatory	search/retrieve
SpatialDomainCon-tainer	PGE	optional	mandatory	mandatory	spatial search/ retrieve
[**RangeDateTime** | **SingleDateTime**] (2)	PGE	optional	mandatory	mandatory	temporal search/ retrieve
ProcessingQA	DPS	optional	optional	if applicable	search/retrieve
ParameterValue	PGE	optional	if applicable	if applicable	search/retrieve of product parameter content
SensorCharacteristicsValue	PGE	optional	optional	optional	search/retrieve of sensor specific
OperationMode	PGE	optional	optional	optional	search/retrieve of instrument specific
BrowsePointer	DSS/DP	if applicable	if applicable	if applicable	navigate to browse (4)

Table B-4. Summary of Granule Level Attributes (2 of 2)

Attribute/Class	Source	Limited	Inter-mediate	Full	Service Provided
QAGranulePointer	DSS/DP	if applicable	if applicable	if applicable	navigate to QA file (4)
ProcessingHistoryPointer	DSS/DPS (3)	if applicable	if applicable	mandatory	navigate to processing history file (4)
GranulePointer	DSS/DP	if applicable	mandatory	mandatory	navigate to product granule itself (4)
OrbitParametersPointer	DSS/PGE	if applicable	if applicable	if applicable	navigate to file used in processing (4)
OrbitCalculatedSpatialDomain	PGE	if applicable	if applicable	if applicable	spatial search/ retrieve

Notes**:**

1. PGE is the product generation executive - processing software/algorithms generating the product granules.
2. BNF - an 'or' showing that one or the other time attribute must be used.
3. Provides pointer / provides content. DPS is data processing subsystem which manages PGEs as well as orbit files and the generation of the processing history file.
4. The pointer is found in the inventory record and provides a means of retrieving/relating the archived object.

B.4 Collection Level Metadata Specification

The following defines the production rules for the population of the ECS metadata for collections deemed to require limited, intermediate and full metadata content.

B.4.1 Metadata Requirement for Collections in Limited Class

The aim here is to provide minimum cataloging of collections while maintaining a reasonable level of service. The 'skinny DIF' is used as a baseline for mandatory attributes to which is added limited time and space measures.

Services available on a collection having these attributes populated would be:

Service	Attributes/Classes/Modules Used
spatial search	**BoundingRectangle**
keyword search	ECSDiscipline, ECSTopic, ECSTerm and ECSTerm keywords
temporal search	**Temporal**
search on other attributes	names, center, content keywords etc.
Navigation	..Pointers

Other attributes provide descriptive information.

SingleTypeCollection (limited) =

This Set Is Mandatory

CollectionDescriptionClass +

Archive Center +

Contact +

1{ECSDisciplineKeyword}n +

1{ECSTopicKeyword}n +

This set mandatory if applicable

0{MaintenanceandUpdateFrequency}1 +

0{**BoundingRectangle**}1 +

0{**Temporal**}1+

0{Processing Center}1 +

0{CitationforExternalPublication}1 +

(**CollectionAssociation**) +

(**Locality**)+

(**Browse**) +

0{RevisionDate}1 +

0{AccessConstraints}1 +

This set optional

(1{ECSTermKeyword}n) +

(1{ECSVariableKeyword}n) +

(**ECSParameter**) +

(**AdditionalAttributes**) +

(**ProcessingLevel**) +

(SuggestedUsage) +

(CollectionState) +

(0{SpatialKeyword}n) +

(0{TemporalKeyword}n) +

(0{**CSDTDescription**}1) +

(**DataOriginator**)+

(**DeliveredAlgorithmPackage**) +

(0{**Guide**}n) +

(0{**ReferencePaper**}n) +

(**Spatial**) +

(**Review**)+

(0{StorageMedium}n)

The following metadata attributes are provided by the ECS system and relate to the collection.

0{EndsatPresentFlag}1 +

0{QualitytextCommentPointer}1 +

0{UserCommentDocumentPointer}1 +

0{ValidationDocumentPointer}1+

0{GranulePointer}n+

0{**ProcessingReport**}n

0{**ProductionPlan**}n

B.4.2 Metadata Requirement for Collections in Intermediate Class

The aim here is to provide substantial cataloging of collections (especially when taken with intermediate granule level attributes) and a full set of services. The DIF is used as a baseline for mandatory attributes.

Services available on a collection having these attributes populated would be:

Service	Attributes/Classes/Modules Used
spatial search	**Spatial** module
keyword search	ECSDiscipline, ECSTopic, ECSTerm and ECSTerm keywords
temporal search	**Temporal** module, temporal keyword
search on other attributes	names, center, originator, status, content keywords, processing level & **QAFlags**
guide information	**Guide**
search /retrieve	**CSDTDescription**
Navigation	..Pointers

Other attributes provide descriptive information.

Single*TypeCollection (intermediate)* =

This set mandatory

CollectionDescriptionClass +

BoundingRectangle +

Temporal +

Archive Center +

Contact +

MaintenanceandUpdateFrequency +

1{ECSDisciplineKeyword}n +

1{ECSTopicKeyword}n +

1{ECSTermKeyword}n +

1{ECSVariableKeyword}n +

CollectionState +

1{SpatialKeyword}n +

1{TemporalKeyword}n +

Guide +

DataOriginator +

This set is mandatory if applicable

0{Processing Center}1 +

0{CitationforExternalPublication}1 +

(**CollectionAssociation**) +

(**Locality**)+

(**Browse**) +

0{RevisionDate}1 +

0{AccessConstraints}1 +

(**ProcessingLevel**)+

(**Spatial**) +

(**DeliveredAlgorithmPackage**)+

0{**ReferencePaper**}n+

(**Review**)+

This set is Optional

(0{**CSDTDescription**}1)+
(**AdditionalAttributes**) +
(**ECSParameter**)+
(SuggestedUsage) +
0(StorageMedium)n

The following metadata attributes are provided by the ECS system and relate to the collection.

0{EndsatPresentFlag}1 +
0{QualitytextCommentPointer}1 + *QA policy driven*
0{UserCommentDocumentPointer}1 +
0{ValidationDocumentPointer}1 + *QA policy driven*
0{GranulePointer}n+
0{**ProcessingReport**}n
0{**ProductionPlan**}n

B.4.3 Metadata Requirement for Collections in Full Class

The aim here is to provide maximum cataloging of collections(especially when taken with full granule level attributes) and a comprehensive set of services. All attributes applicable at the collection level from the core set are used.

Services available on a collection having these attributes populated would be:

Service	Attributes/Classes/Modules Used
spatial search	**Spatial** module
keyword search	ECSDiscipline, ECSTopic, ECSTerm and ECSTerm keywords and collection specific parameters
temporal search	**Temporal** module, temporal keyword
search on other attributes	names, center, originator, status, processing level & **QAFlags**
guide information	**Guide**
retrieval of delivered algorithm package	**DeliveredAlgorithmPackage**
reference paper search and retrieval	**ReferencePaper**
search /retrieve	**CSDTDescription**
Navigation	..Pointers

Other attributes provide descriptive information.

SingleTypeCollection (full) =

This set mandatory

CollectionDescriptionClass +

BoundingRectangle +

Temporal +

Archive Center +

Processing Center +

Contact +

MaintenanceandUpdateFrequency +

1{ECSDisciplineKeyword}n +

1{ECSTopicKeyword}n +

1{ECSTermKeyword}n +

1{ECSVariableKeyword}n +

CollectionState +

1{SpatialKeyword}n +

1{TemporalKeyword}n +

Guide +

DataOriginator +
ReferencePaper +
DeliveredAlgorithmPackage +
ProcessingLevel +

This set mandatory if applicable

0{CitationforExternalPublication}1 +

(**CollectionAssociation**) +

(**Locality**) +

(**Browse**) +

0{RevisionDate}n +

0{AccessConstraints}1 +

(**ECSParameter**) +
(**Spatial**) +
(**Review**) +

This Set optional

(**AdditionalAttributes**) +
(SuggestedUsage) +
0(StorageMedium)n+
(0{**CSDT Description**}1)

The following metadata attributes are provided by the ECS system and relate to the collection.

ProductionPlan +
ProcessingReport +
0{EndsatPresentFlag}1 +

0{QualitytextCommentPointer}n +

0{UserCommentDocumentPointer}1 +

0{ValidationDocumentPointer}1

0{GranulePointer}n

B.4.4 MultiType Collections

Multitype collections are made up of other single type or mutitype collections (or both). Services are the same as for the collections which comprise them with the addition that the aggregation attributes are searchable/retrievable. The specific policy surrounding Multiple Type Collections will be provided under a separte document which will be available for community review late September 1996.

MultiTypeCollection =

AggregationType +
AggregationRelationship +
AggregationValue +
0{SingleTypeCollection}n +
0{MultiTypeCollection}n+
0{GranulePointer}n

B.5 GranuleLevel Metadata

B.5.1 Metadata Requirement for Granules in Limited Class

granule metadata (limited) =

This set is mandatory

Shortname +

This set is mandatory if applicable

0{AncillaryInputPointer}n+

0{InputPointer}n +

0{BrowsePointer}n +

ProcessingHistoryPointer +

0{GranulePointer}n +

0{OrbitParameterPointer + (**OrbitCalculatedSpatialDomain)**}n +

This set is optional

PGEVersion+

LocalGranuleID+

(SizeMBECSDataGranule) +

(**SpatialDomainContainer**) +

([**RangeDateTime** | **SingleDateTime**])+

0{ParameterValue + [**AdditionalAttribute** | **ECSParameter**] + 0{**QAFlags**}n}n +

(ReprocessingActual) +

(ReprocessingPlanned) +

(**QAStats**) +

(**Review**) +

(OperationMode) +

(**ProcessingQA**) +

PGEVersion +

0{QAGranulePointer}n +

(UserCommentDocument)

B.5.2 Metadata Requirement for Granules in Intermediate Class

For granules in the intermediate class, a basic set of granule level attributes must be provided. Services available related to these metadata are search on time and space using whatever space measurement is provided. All client end searches are translated in the Data Server subsystem to the spatial data type appropriate to the collection. Pointers provide navigation out of the database into archive data objects.

granule metadata (intermediate) =

This set is mandatory

Shortname +

SizeMBECSDataGranule +

SpatialDomainContainer +

[RangeDateTime | SingleDateTime] +

This set is mandatory if applicable

PGEVersion+

0{AncillaryInputPointer}n+

0{InputPointer}n +

0{BrowsePointer}n+

ProcessingHistoryPointer +

0{GranulePointer}n +

0{OrbitParameterPointer + (**OrbitCalculatedSpatialDomain)**}n +

(**Review**) +

0{ParameterValue + [**AdditionalAttribute** | **ECSParameter**] + 0{**QAFlags**}n}n +

0{OperationMode}1 +

0{QAGranulePointer}n +

This set is optional

0(SensorCharacteristicValue)n +

LocalGranuleID+

(ReprocessingActual) +

(ReprocessingPlanned) +

(**QAStats**) +

(**ProcessingQA**) +

(UserCommentDocument)

Special note: for ancillary data processed to a new format inside ECS, **QAStats** and **QAFlags** are mandatory**.**

B.5.3 Metadata Requirement for Granules in Full Class

For granules in the full class, a significant suite of attributes is required. Services available related to these metadata are search on time and space using whatever space measurement is provided. All client end searches are translated in the Data Server Subsystem to the spatial data type appropriate to the collection. Search and retrieval of production history, browse, QA files, orbit parameter files, inputs and ancillary inputs are all allowed. Interrogation of inventoried QA measures and reprocessing status is allowed. Pointers provide navigation out of the database into archive data objects.

granule metadata (full) =

This set is mandatory

ShortName +

1{InputPointer}n +

ReprocessingActual +

ReprocessingPlanned +

SizeMBECSDataGranule +

QAStats +

SpatialDomainContainer +

[**RangeDateTime** | **SingleDateTime**]+

ProcessingHistoryPointer +

GranulePointer +

PGEVersion+

This set is mandatory if applicable

0{AncillaryInputPointer}n +

(**Review**) +

(**ProcessingQA**) +

0{ParameterValue + [**AdditionalAttribute** | **ECSParameter**] + 0{**QAFlags**}n}n +

0{BrowsePointer}n+

0{QAGranulePointer}n +

0{OperationMode}1 +

0{OrbitParameterPointer + (**OrbitCalculatedSpatialDomain)**}n +

This set is optional

LocalGranuleID+

0(SensorCharacteristicValue)n +

(UserCommentDocument)

B.5.4 Metadata Requirement for Browse Products

Browse granules are assumed to be produced alongside regular product granules. The attribute set required for browse products are not distinguished between product categories.

granule metadata (browse) =

This set is mandatory

Shortname +
VersionID+
GranulePointer+

This set is if applicable

BrowseDescription +
BrowseSize

Hence the following will be available in the inventory and accessible with the browse.

GranulePointer
BrowsePointer

B.6 Compound Definitions

The following are BNF definitions of the boldface classes referenced in Sections 4 and 5.

CollectionDescriptionClass =

LongName +
ShortName +

VersionID +
CollectionDescription

CollectionAssociation =

1{CollectionType +
CollectionUse +
CollectionDescriptionClass}n

Document = DocumentCreated +
DocumentUpdated +
DocumentVersion +
Title+

0{Author Name +
AuthorAffiliation}n +
0{ElectronicMailAddress)n +

[ProcessingReport | ReferencePaper | Guide | AlgorithmDescription | ProductionPlan]

Contact = 1{[**ContactPerson | ContactOrgnaization**]+
(ContactInstructions) +
(HoursofService) +
Role +
0{**ContactAddress**}n +
0{ElectronicMailAddress}n +
0{TelephoneNumberType +
TelephoneNumber}n}n

ContactPerson = 0{ContactJobPosition}1 + ContactFirstName +
ContactMiddleName +
ContactLastName+

0{**ContactOrganization**}n

ContactAddress =
StreetAddress +
City +
StateProvince +
PostalCode +
(Country)

ContactOrganization=

ContactOrganizationName+

0{**ContactPerson**}n

Browse =

1{BrowsePointer +
BrowseDescription +
BrowseSize}n

ProcessingLevel =
ProcessingLevelID+
ProcessingLevelDescription

AdditionalAttributes =
1{AdditionalAttributeName +
AdditionalAttributeDescription +
0{ParameterValue}n + 0{**PhysicalParameterDetails**}1+
AdditionalAttributeDataType}n

ECSParameter =
1{ECSParameterName +
ECSParameterDescription +
0{ParameterValue}n +
ECSParameterDataType +
0{**PhysicalParameterDetails**}1}n

ECSParameter class could be used as a means of documenting all parameters in the product - i.e. a distillation of the data product specification for the collection. This would provide a highly focused search starting with ECSDiscipline through ECSTopic, ECSTerm and ECSVariable parameter (all GCMD fixed domain) to ECSParameter.

PhysicalParameterDetails =
ParameterMeasurementResolution +
ParameterUnitsofMeasurement +
ParameterRange +
(ParameterValueAccuracy) +
(ParameterValueAccuracyExplanation)

Locality =
1{LocalityType +
LocalityDescription}n

QAFlags =
1{[AutomaticQualityFlag |
OperationalQualityFlag |
ScienceQualityFlag] +
QualityFlagExplanation }n

QAStats =
0{QAPercentInterpolatedData}n +
1{QAPercentMissingData}n +
0{QAPercentOutofBoundsData}n

ProcessingQA =
1{ProcessingQADescription +
ProcessingQAAttribute}n

Review =
1{FutureReviewDate +
0{ScienceReviewDate + ScienceReviewStatus}n }n

DataOriginator =
1{DataOriginatorShortName +
DataOriginatorLongName}n +
[**FieldCampaign | NonInstument | Instrument**]

FieldCampaign =
CampaignLongName +
CampaignShortName +
CampaignProjectStartDate +
CampaignProjectStopDate+FieldCampaignGuide+
0{**Instrument**}n +
0{**NonInstrument**}n

Instrument =
InstrumentLongName +
InstrumentShortName +
InstrumentTechnique +
0{OperationMode}n +
NumberofSensors +
0{**NonInstrument**}n +
0{**FieldCampaign**}n +
0{**Platform**}n +
0{**Sensor**}n + InstrumentGuide

Platform = PlatformShortName +
PlatformLongName +
0{PlatformCharacteristicName +
PlatformCharacteristicUnit +
PlatformCharacteristicValue +
PlatformCharacteristicType}n+PlatformGuide

Sensor = SensorLongName +
SensorShortName +
SensorTechnique +
0{SensorCharacteristicName +
SensorCharacteristicType +
SensorCharacteristicUnit +
SensorCharacteristicValue}n

NonInstrument = NonInstrumentLongName +
NonInstrumentShortName +
NonInstrumentTechnique +
0{ModelName}1+
0{ModelDescription}1 +

0{BoundaryData}1 +
0{DynamicStaticFlag}1 +NonInsturmentGuide +
0{**Instrument**}n + 0{**FieldCampaign**}n

DeliveredAlgorithmPackage=AlgorithmPackageName+
AlgorithmPackageVersion+
AlgorithmPackageMaturityCode+
AlgorithmPackageAcceptanceDate+
DeliveryPurpose+
DeliveryContentsListPointer+
AlgorithmDescription+
0{ContextDiagramsPointer}1+
0{ChangeLogPointer}1+
0{**Contact**}n+
PGEInfo

AlgorithmDescription=DescriptionType+
Document+
(SystemDescriptionPointer)+
(SWDevelopmentStandardPointer)+
(ProcessingFileDescriptionPointer)+
(ProgrammersGuidePointer)+
ATBDPointer+
(DetailedDesignPointer)+
1(TestPlanPointer)n+
(PerformanceTestResultsPointer)+
(OperationsManualPointer)

PGEInfo=DateLastModified+
ReceivedAlgorithmPackagePointer+
PGEName+
PGEFunction+
PGEIdentifier+
PGEConfigFilePointer+
1{PGEVersion+

ScSWExecutablePointer+
CompileInfoPointer}n+
Software+
(TestSiteConfigPointer)+
ProcessingDependenciesPointer+
0{PGEErrorLogPointer}1+
0{Contact}n

Software=SWDateLastModified+
1{ScSwSourceCodePointer}n+
1{ScSwScriptPointer}n+
1{LinkandCompileScriptPointer}n+
1{**TestSWContainer**}n

TestSWContainer=TestSourceCodePointer+
TestScriptPointer+
InputContainer+
(**OutputComparisonContainer**)

InputContainer=MetadataConfigurationFilePointer+
ProcessControlParametersandResourceFilePointer+
InstrumentScienceDataPointer+
(InstrumentEngineeringDataPointer)+
(PlatformAncillaryDataPointer)+
(ExternalDataPointer)+
(CalibrationFilesPointer)

OutputComparisonContainer= ResultsProductFilePointer+
ResultsReportPointer

Guide =
1{**Document** + DataCenter +
GuideName}n +
[ECSCollectionGuidePointer |
{ArchiveCenterGuidePointer |
{ProcessingCenterGuidePointer |
{FieldCampaignGuidePointer |
{DataOriginatorGuidePointer |

InstrumentGuidePointer |
NonInstrumentGuidePointer |
PlatformGuidePointer +|
SensorGuidePointer |
RegionalAreaDefinitionGuidePointer]

ReferencePaper =
Document + DateofReferencePaperPublication +
ReferencePaperReference +
ReferencePaperType +
AbstractPointer +
AccessInstructions +
[StandAloneDocumentPointer |
JournalArticleName + JournalArticlePointer]

ProductionPlan = DAACName + **Document**
ProductionPlan EndDate +
ProductionPlan StartDate +
ProductionPlan Forecast +
ProductionPlan Description +
PlannedDataSets +
ProductionPlanPointer

ProcessingReport =
Document +
ProcessingReportType +
ProcessingReportPeriod +
[ProcessingStatusReportPointer |
ProcessingErrorReportPointer |
ProcessingResourceUsageReportPointer]

Spatial =
1{SpatialCoverageType +
SpatialDomainContainer +
CoordinateSystemContainer}n

SpatialDomainContainer =
0{LocalityValue}n +
0{VerticalSpatialDomainValue+
VerticalSpatialDomainType}n +
0{**OrbitCalculatedSpatialDomain**}n +
0{**HorizontalSpatialDomainContainer**}n

HorizontalSpatialDomainContainer =
[**Point** |
GPolygonContainer |
Circle |
BoundingRectangle] +

one of these must be used . The search services within ECS are not dependent on the spatial type used since translators from the type used to gpolygon (in which searches are framed) will be incorporated (e.g. PGE calculated bounding rectangle to gpolyon). However, search accuracy will depend on the suitability and accuracy of the spatial type chosen to represent the granules in any one collection.

At least 1 bounding rectangle must be supplied for all collections apart from those dependent on swath

ZoneIdentifier

these are additional spatial statements which are optional and additional to the basic choice of spatial descriptors.

CoordinateSystem = (HorizontalCoordinateSystem) + (VerticalCoordinateSystem)

HorizontalCoordinateSystem = [GeographicCoordinateSystem | 1{PlanarCoordinateSystemContainer}n | LocalCoordinateSystem] + 0{GeodeticModel}1

GeodeticModel = DenominatorofFlatteningRatio +
EllipsoidName +
0{HorizontalDatumName}1+
SemiMajorAxis

GeographicCoordinateSystem =
LongitudeResolution +
LatitudeResolution +
GeographicCoordinateUnits

PlanarCoordinateSystemContainer =
[**MapProjection** |
GridCoordinateSystem | **LocalPlanarCoordinateSystem**] +
PlanarCoordinateInformation

MapProjection = MapProjectionName +
MapProjectionPointer

the parameters in this spec. must be filled out as applicable. They are used to support the subset/ subsample and display services.

GridCoordinateSystem =
GridCoordinateSystemName + ZoneIdentifier

LocalPlanarCoordinateSystem =
LocalPlanarCoordinateSystemDescription +
LocalPlanarGeoreferenceInformation

PlanarCoordinateInformation =
PlanarCoordinateEncodingMethod +
PlanarDistanceUnits +
[**CoordinateRepresentation** |
DistanceandBearingRepresentation]

CoordinateRepresentation =
AbscissaResolution +
OrdinateResolution

Distance&BearingRepresentation =
BearingReferenceMeridian +
BearingResolution +
BearingUnits +
DistanceResolution +
BearingReferenceDirection

VerticalCoordinateSystem = (AltitudeSystemDefinition) +
(DepthSystemDefinition)

AltitudeSystemDefinition = AltitudeDatumName +
AltitudeDistanceUnits +
AltitudeEncodingMethod +
1{AltitudeResolution}n

DepthSystemDefinition = DepthDatumName +
DepthDistanceUnits +
DepthEncodingMethod +
1{DepthResolution}n

BoundingRectangle = EastBoundingCoordinate +
NorthBoundingCoordinate +
SouthBoundingCoordinate +
WestBoundingCoordinate

Circle = Center latitude +
Center longitude +
RadiusValue +
RadiusUnits

GPolygonContainer = 1{**GRingPoint** + ExclusionGRingFlag}n

GRingPoint =
3{GRingPointSequenceNo + GRingPointLatitude + GRingPointLongitude}n

Point = PointLatitude + PointLongitude

OrbitCalculatedSpatialDomain =
[OrbitNumber

Temporal =

TimeType +

DateType +

TemporalRangeType +

PrecisionofSeconds +

[RegularPeriodic|MultipleDateTimePeriod|SingleDateTime|DiscontinuousMultipleRange|RangeDateTime]

RegularPeriodic = PeriodName +

Period1stDate +

Period1stTime +

PeriodCycleDurationUnit +

PeriodCycleDurationValue +

PeriodDurationUnit +

PeriodDurationValue

MultipleDateTimePeriod=MultipleDateName + 2{SingleDateTime}n

SingleDateTime =TimeofDay +CalendarDate

DiscontinuousMultipleRange=EnsatPresentFlag + 2{RangeDateTime}n

RangeDateTime = RangeBeginningTime +

RangeBeginningDate +

RangeEndingTime

RangeEndingDate +

CSDTDescription =

PrimaryCSDT +

Implementation +

(IndirectReference) +

(CSDTComments)

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Appendix C. Product Specific Data

C.1 Introduction

Tables C-1, C-2a and C-2b contain product specific metadata mapped to the core ECS metadata. The product specific metadata are grouped against logical servers. This means that groups of products similar in science terms are grouped and assumed to require similar product specific attributes.

Attributes derived from Release B work to further validate the model, provide server specific domains and alias information and define server specific search attributes was the major stage to this product specific work.

The product specific attributes are mapped in two distinct senses. First where metadata were analyzed for purposes of constructing the core metadata set and therefore map directly to core attributes (but often with different names), and secondly attributes which were judged sufficiently specific to warrant designation as non-core attributes

C.1.1 Mapping to Core Attributes (C-1)

The work done with Release B products in constructing the model is reflected through the mapping of certain domains and aliases to the core attributes. Table C-1 illustrates the results of this . Where a domain exists, this indicates that server utilizes this attribute. It also indicates that the attribute is server specific in respect of the domain which then overrides the core domain range (if one exists). This does not however imply that the server (and the products within the server) do not use other core attributes (this is determined by the mandatory set - see Appendix B of DID 311 of 12/95). The mapping of these values enables implementers to build suitable server specific constraints into the implemented tables.

C.1.2 Non Core Attributes (C-2)

Attributes derived from the analysis of these same products which did not warrant the addition of a core attribute are contained in the Information Content class of the data model. This is a self describing class used to capture attributes and attribute values of several types. This class comprises of Parameter and Additional Attributes. Information Content class can be used for:

- capturing the names, descriptions and data types of attributes which are to be used in addition to core attributes to search for the collection or instances of the granule. There are two caveats:
    a. Where the attribute has a value covering the entire collection, the value is included at some point with this collection metadata. Where the attribute applies to each granule (e.g. average sea surface temperature of each granule) then the value is supplied with other granule values.
    b. If the attribute is physical or geophysical, then this is described in the PhysicalParameterDetails Class.

- capturing the names, descriptions and data types of the content of the collection (i.e. generic granule content). This provides a data product description in metadata attribute form. Caveat 'a' above does not apply while caveat 'b' does.

Tables C-2 (a and b) contains attributes of the first type explained above (additional search capability) only. Additional to the attribute set (parameter name, data type, etc.) is a statement of the server to which the attribute set belongs. Also included is a statement of whether the attribute value is being supplied with each granule or at the collection level. This enables the implementers to build suitable table structures on a server by server basis as is appropriate.

C.2 Mapping of Specific Domains and Aliases to the Core Model (C-1)

Table C-1. Mapping of Specific Domains & Aliases (1 of 2)

Attribute	Module	Class	GSFC MODIS L1	GSFC MODIS L1
			domain	alias
BrowsePointer	Granule_v1	Browse		Browse Package Reference
ContactOrganizationName	Contact_v1	ContactOrganization		Point of Contact
EastBoundingCoordinate	LocalitySpatial_v1	BoundingRectangle		Easternmost_latitude
FutureReviewDate	Collection_v1	Review		Future Review Date
InstrumentName	DataOriginator_v1	Instrument		Satellite Short name
LocalityType	Collection_v1	Locality		Locality Type
NorthBoundingCoordinate	LocalitySpatial_v1	BoundingRectangle		Northernmost_latitude
InputGranuleID	Granule_v1	ECSDataGranule		Input Data Files
ProcessingLevelID	Collection_v1	ProcessingLevel		Processing Level ID
ProcessControlParameterandResourceFilesPointer	DeliveredAlgorithmPackage_v1	ProcessControlParameterandResourceFiles		Processing Control Inputs
ProcessControlParameterandResourceFilesPointer	DeliveredAlgorithmPackage_v1	ProcessControlParameterandResourceFiles		Processing Log Outputs
PlatformShortName	DataOriginator_v1	Platform		Satellite short name
ReprocessingActual	Granule_v1	ECSDataGranule		Reprocessing Status
ReprocessingPlanned	Granule_v1	ECSDataGranule		Reprocessing Status
ScienceReviewStatus	Collection_v1	Review		Science Review Status
ScienceReviewDate	Collection_v1	Review		Science Review Date
ScienceQualityFlag	Collection_v1	QACollectionStats		Quality Rating
SizeMBECSDataGranule	Granule_v1	ECSDataGranule	Mb	Product Size

Table C-1. Mapping of Specific Domains & Aliases (2 of 2)

Attribute	Module	Class	GSFC MODIS L1	GSFC MODIS L1
SpatialCoverageType	LocalitySpatial_v1	Spatial		Spatial Coverage Type
SpatialKeyword	Collection_v1	SpatialKeywordClass		Spatial Keyword
SouthBoundingCoordinate	LocalitySpatial_v1	BoundingRectangle		Southernmost_latitude
TemporalKeyword	Collection_v1	SingleTypeCollection		Temporal Keyword
TemporalRangeType	LocalityTemporal_v1	Temporal		Continuous_Range
WestBoundingCoordinate	LocalitySpatial_v1	BoundingRectangle		Westernmost_latitude

C.3 Non-core Attributes (C-2a and C-2b)

The column headings in this table are derived from the two earth science model classes, Parameter and PhysicalParameterDetails. They represent the non-core or product specific attributes whose derivation is described in Section C.1.2 above. The current set of attributes information includes all known ASTER attributes plus some MODIS (as designated by product name). Table C-2a is sorted by server while Table C-2b contains the same information but is sorted by attribute.

The two rightmost columns contain additional information as follows:

Granule/Collection

The column indicates the association of the attribute; i.e., the metadata class to which the attribute value should be linked in implementation. It can also be viewed as a 'rate of change' statement indicating that the attribute value updates either with each granule or is static and applicable only once to the whole collection. The vast majority of the non-core attributes are of the former type; i.e., each granule has a specific attribute value.

The product name and Product ID indicate the exact product to which the attribute belongs.

Table C-2a. Non-Core Attributes Sorted by Server (1 of 5)

ECS Parameter Name	ECS Parameter Description	ECS Parameter DataType	Granule / Collection	Product Name	Product ID
BAD_PIXEL_SWIR	Number of pixels rejected because SWIR dropout/saturation	char	GRANULE	Polar classification	AST13
BAD_PIXEL_TIR	Number of pixels rejected because TIR dropout/saturation	char	GRANULE	Polar classification	AST13
BAD_PIXEL_VNIR	Number of pixels rejected because VNIR dropout/saturation	char	GRANULE	Polar classification	AST13
LAND_PIXELS	Num. pixels classified as land	char	GRANULE	Polar classification	AST13
SHADOW_PIXELS	Num. pixels classified as shadow	char	GRANULE	Polar classification	AST13
SNOW/ ICE_PIXELS	Num. pixels classified as snow/ice	char	GRANULE	Polar classification	AST13
THICK_CLOUD_PIXELS	Num. pixels classified as thick cloud	char	GRANULE	Polar classification	AST13
THIN_CLOUD_PIXELS	Num. pixels classified as thin cloud	char	GRANULE	Polar classification	AST13
UNKNOWN_PIXELS	Num. pixels classified as unknown	char	GRANULE	Polar classification	AST13
WATER_PIXELS	Num. pixels classified as water	char	GRANULE	Polar classification	AST13
Cloud information	At a minimum, total cloud coverage for the scene, and also the cloud coverage for each of the (16--TBR) blocks within the scene.	char	GRANULE	Registered radiance at sensor	AST03
CLOUD_PIXELS	number of cloud pixels	char	GRANULE	Brightness temperature	AST04
PIXELS_SET_MAX	number of pixels which produced a super-max value on lookup, max reported	char	GRANULE	Brightness temperature	AST04
PIXELS_SET_MIN	number of pixels which produced a sub-min value on lookup, min reported	char	GRANULE	Brightness temperature	AST04
SCENE_CLASSIFICATION	Identification of scene classification used.	char	GRANULE	Surface emissivity	AST05 & AST08
CLOUD_PIXELS	Number of cloud pixels processed in stretching image	char	GRANULE	Decorrelation stretch--VNIR	AST06

Table C-2a. Non-Core Attributes Sorted by Server (2 of 5)

ECS Parameter Name	ECS Parameter Description	ECS Parameter DataType	Granule / Collection	Product Name	Product ID
CLOUD_STAT_PIXELS	Number of pixels rejected in gathering stats	char	GRANULE	Decorrelation stretch--VNIR	AST06
GOOD_PIXELS	Number of good pixels processed in stretching image	char	GRANULE	Decorrelation stretch--TIR	AST06
RTI_STAT_PIXEL_FREQUENCY	'Skip' factor in sampling for statistics	char	GRANULE	Decorrelation stretch--VNIR	AST06
SCENE_CLASSIFICATION_ID	ID of scene classification dataset used	char	GRANULE	Decorrelation stretch--VNIR	AST06
AEROSOL_OD_MEAN	mean for entire scene: aerosol optical depth	char	GRANULE	Surface reflectance	AST07
AEROSOL_SSA_MEAN	mean for entire scene: aerosol single scatter albedo	char	GRANULE	Surface reflectance	AST07
AEROSOL_SSA_SRC	source used for this product: aerosol single scatter albedo	char	GRANULE	Surface reflectance	AST07
DEM_MAX_SLOPE	maximum slope in scene	char	GRANULE	Surface reflectance	AST07
DEM_MIN_SLOPE	minimum slope (for entire scene)	char	GRANULE	Surface reflectance	AST07
MASK_USED	whether or not mask was used	char	GRANULE	Surface reflectance	AST07
MODTRAN_H2O_SRC	source used for this product: columnar water vapor profile	char	GRANULE	Surface reflectance	AST07
MODTRAN_O3_RES	x-y resolution of source: ozone profile	char	GRANULE	Surface reflectance	AST07
MODTRAN_O3_SRC	source used for this product: ozone profile	char	GRANULE	Surface reflectance	AST07
MODTRAN_PRESS_RES	x-y resolution of source: pressure profile	char	GRANULE	Surface reflectance	AST07
MODTRAN_PRESS_SRC	source used for this product: pressure profile	char	GRANULE	Surface reflectance	AST07
MODTRAN_TEMP_SRC	source used for this product: temperature profile	char	GRANULE	Surface reflectance	AST07
MOLECULAR_OD_SRC	source used for this product: molecular optical depth	char	GRANULE	Surface reflectance	AST07
AEROSOL_OD_MEAN	mean for entire scene: aerosol optical depth	char	GRANULE	Surface radiance--VNIR, SWIR	AST09

Table C-2a. Non-Core Attributes Sorted by Server (3 of 5)

ECS Parameter Name	ECS Parameter Description	ECS Parameter DataType	Granule / Collection	Product Name	Product ID
AEROSOL_OD_SRC	source used for this product: aerosol optical depth	char	GRANULE	Surface radiance--VNIR, SWIR	AST09
AEROSOL_SSA_MEAN	mean for entire scene: aerosol single scatter albedo	char	GRANULE	Surface radiance--VNIR, SWIR	AST09
AEROSOL_SSA_SRC	source used for this product: aerosol single scatter albedo	char	GRANULE	Surface radiance--VNIR, SWIR	AST09
DEM_MAX_SLOPE	maximum slope in scene	char	GRANULE	Surface radiance--TIR	AST09
DEM_MIN_ELEVATION	minimum elevation (for entire scene)	char	GRANULE	Surface radiance--TIR	AST09
DEM_MIN_SLOPE	minimum slope (for entire scene)	char	GRANULE	Surface radiance--TIR	AST09
DEM_SRC	source of dem	char	GRANULE	Surface radiance--TIR	AST09
MODTRAN_H2O_SRC	source used for this product: columnar water vapor profile	char	GRANULE	Surface radiance--VNIR, SWIR	AST09
MODTRAN_H2O_SRC	source used for this product: columnar water vapor profile	char	GRANULE	Surface radiance--TIR	AST09
MODTRAN_O3_SRC	source used for this product: ozone profile	char	GRANULE	Surface radiance--VNIR, SWIR	AST09
MODTRAN_O3_SRC	source used for this product: ozone profile	char	GRANULE	Surface radiance--TIR	AST09
MODTRAN_PRESS_SRC	source used for this product: pressure profile	char	GRANULE	Surface radiance--VNIR, SWIR	AST09
MODTRAN_TEMP_SRC	source used for this product: temperature profile	char	GRANULE	Surface radiance--VNIR, SWIR	AST09
MOLECULAR_OD_MEAN	mean for entire scene: molecular optical depth	char	GRANULE	Surface radiance--VNIR, SWIR	AST09
MOLECULAR_OD_SRC	source used for this product: molecular optical depth	char	GRANULE	Surface radiance--VNIR, SWIR	AST09
First Scan End Latitude (granule corner)		Float	granule	Modis Level 1A raw counts	MOD01

Table C-2a. Non-Core Attributes Sorted by Server (4 of 5)

ECS Parameter Name	ECS Parameter Description	ECS Parameter DataType	Granule / Collection	Product Name	Product ID
First Scan End Longitude (granule corner)		Float	granule	Modis Level 1A raw counts	MOD01
First Scan Start Latitude (granule corner)		Float	granule	Modis Level 1A raw counts	MOD01
First Scan Start Longitude (granule corner)		Float	granule	Modis Level 1A raw counts	MOD01
Granule Number within Orbit		Integer	granule	Modis Level 1A raw counts	MOD01
Last Scan End Latitude (granule corner)		Float	granule	Modis Level 1A raw counts	MOD01
Last Scan End Longitude (granule corner)		Float	granule	Modis Level 1A raw counts	MOD01
Last Scan Start Latitude (granule corner)		Float	granule	Modis Level 1A raw counts	MOD01
Last Scan Start Longitude (granule corner)		Float	granule	Modis Level 1A raw counts	MOD01
Max BB Frames (per scan)		Integer	granule	Modis Level 1A raw counts	MOD01
Max Earth Frames (per scan)		Integer	granule	Modis Level 1A raw counts	MOD01
Max SD Frames (per scan)		Integer	granule	Modis Level 1A raw counts	MOD01
Max SRCA Frames (per scan)		Integer	granule	Modis Level 1A raw counts	MOD01
Max SV Frames (per scan)		Integer	granule	Modis Level 1A raw counts	MOD01

Table C-2a. Non-Core Attributes Sorted by Server (5 of 5)

ECS Parameter Name	ECS Parameter Description	ECS Parameter DataType	Granule / Collection	Product Name	Product ID
Max Total Frames (per scan)		Integer	granule	Modis Level 1A raw counts	MOD01
Number of Day mode scans (in Granule)		Integer	granule	Modis Level 1A raw counts	MOD01
Number of Night mode scans (in Granule)		Integer	granule	Modis Level 1A raw counts	MOD01
Number of scans (in Granule)		Integer	granule	Modis Level 1A raw counts	MOD01
Scan Types in product	Day, Night, Mixed, Other	Text (10)	granule	Modis Level 1A raw counts	MOD01

Table C-2b. Non-Core Attributes Sorted by Attribute (1 of 5)

ECS Parameter Name	ECS Parameter Description	ECS Parameter DataType	Granule / Collection	Product Name	Product ID
AEROSOL_OD_MEAN	mean for entire scene: aerosol optical depth	char	GRANULE	Surface reflectance	AST07
AEROSOL_OD_MEAN	mean for entire scene: aerosol optical depth	char	GRANULE	Surface radiance--VNIR, SWIR	AST09
AEROSOL_OD_SRC	source used for this product: aerosol optical depth	char	GRANULE	Surface radiance--VNIR, SWIR	AST09
AEROSOL_SSA_MEAN	mean for entire scene: aerosol single scatter albedo	char	GRANULE	Surface reflectance	AST07
AEROSOL_SSA_MEAN	mean for entire scene: aerosol single scatter albedo	char	GRANULE	Surface radiance--VNIR, SWIR	AST09
AEROSOL_SSA_SRC	source used for this product: aerosol single scatter albedo	char	GRANULE	Surface reflectance	AST07
AEROSOL_SSA_SRC	source used for this product: aerosol single scatter albedo	char	GRANULE	Surface radiance--VNIR, SWIR	AST09
BAD_PIXEL_SWIR	Number of pixels rejected because SWIR dropout/saturation	char	GRANULE	Polar classification	AST13

Table C-2b. Non-Core Attributes Sorted by Attribute (2 of 5)

ECS Parameter Name	ECS Parameter Description	ECS Parameter DataType	Granule / Collection	Product Name	Product ID
BAD_PIXEL_TIR	Number of pixels rejected because TIR dropout/saturation	char	GRANULE	Polar classification	AST13
BAD_PIXEL_VNIR	Number of pixels rejected because VNIR dropout/saturation	char	GRANULE	Polar classification	AST13
Cloud information	At a minimum, total cloud coverage for the scene, and also the cloud coverage for each of the (16--TBR) blocks within the scene.	char	GRANULE	Registered radiance at sensor	AST03
CLOUD_PIXELS	Number of cloud pixels processed in stretching image	char	GRANULE	Decorrelation stretch--VNIR	AST06
CLOUD_PIXELS	number of cloud pixels	char	GRANULE	Brightness temperature	AST04
CLOUD_STAT_PIXELS	Number of pixels rejected in gathering stats	char	GRANULE	Decorrelation stretch--VNIR	AST06
DEM_MAX_SLOPE	maximum slope in scene	char	GRANULE	Surface reflectance	AST07
DEM_MAX_SLOPE	maximum slope in scene	char	GRANULE	Surface radiance--TIR	AST09
DEM_MIN_ELEVATION	minimum elevation (for entire scene)	char	GRANULE	Surface radiance--TIR	AST09
DEM_MIN_SLOPE	minimum slope (for entire scene)	char	GRANULE	Surface reflectance	AST07
DEM_MIN_SLOPE	minimum slope (for entire scene)	char	GRANULE	Surface radiance--TIR	AST09
DEM_SRC	source of dem	char	GRANULE	Surface radiance--TIR	AST09
First Scan End Latitude (granule corner)		Float	granule	Modis Level 1A raw counts	MOD01
First Scan End Longitude (granule corner)		Float	granule	Modis Level 1A raw counts	MOD01
First Scan Start Latitude (granule corner)		Float	granule	Modis Level 1A raw counts	MOD01

Table C-2b. Non-Core Attributes Sorted by Attribute (3 of 5)

ECS Parameter Name	ECS Parameter Description	ECS Parameter DataType	Granule / Collection	Product Name	Product ID
First Scan Start Longitude (granule corner)		Float	granule	Modis Level 1A raw counts	MOD01
GOOD_PIXELS	Number of good pixels processed in stretching image	char	GRANULE	Decorrelation stretch--TIR	AST06
Granule Number within Orbit		Integer	granule	Modis Level 1A raw counts	MOD01
LAND_PIXELS	Num. pixels classified as land	char	GRANULE	Polar classification	AST13
Last Scan End Latitude (granule corner)		Float	granule	Modis Level 1A raw counts	MOD01
Last Scan End Longitude (granule corner)		Float	granule	Modis Level 1A raw counts	MOD01
Last Scan Start Latitude (granule corner)		Float	granule	Modis Level 1A raw counts	MOD01
Last Scan Start Longitude (granule corner)		Float	granule	Modis Level 1A raw counts	MOD01
MASK_USED	whether or not mask was used	char	GRANULE	Surface reflectance	AST07
Max BB Frames (per scan)		Integer	granule	Modis Level 1A raw counts	MOD01
Max Earth Frames (per scan)		Integer	granule	Modis Level 1A raw counts	MOD01
Max SD Frames (per scan)		Integer	granule	Modis Level 1A raw counts	MOD01
Max SRCA Frames (per scan)		Integer	granule	Modis Level 1A raw counts	MOD01
Max SV Frames (per scan)		Integer	granule	Modis Level 1A raw counts	MOD01

Table C-2b. Non-Core Attributes Sorted by Attribute (4 of 5)

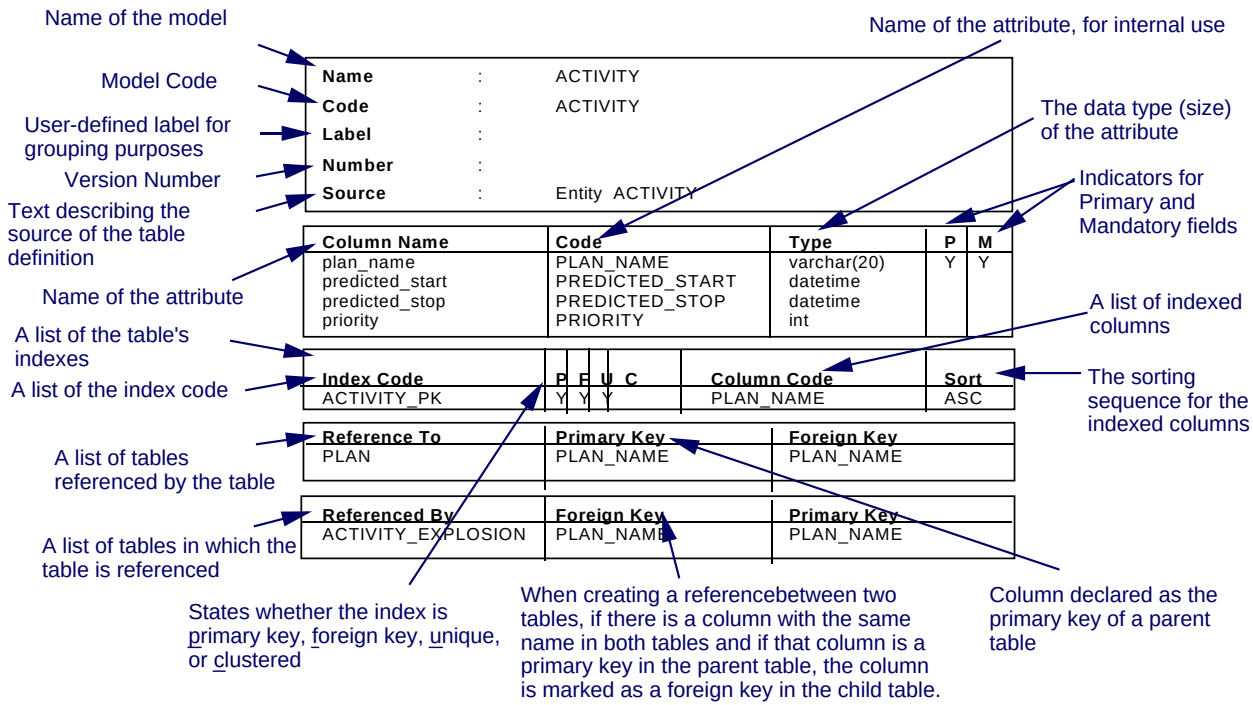
ECS Parameter Name	ECS Parameter Description	ECS Parameter DataType	Granule / Collection	Product Name	Product ID
Max Total Frames (per scan)		Integer	granule	Modis Level 1A raw counts	MOD01
MODTRAN_ H2O_SRC	source used for this product: columnar water vapor profile	char	GRANULE	Surface reflectance	AST07
MODTRAN_ H2O_SRC	source used for this product: columnar water vapor profile	char	GRANULE	Surface radiance--VNIR, SWIR	AST09
MODTRAN_ H2O_SRC	source used for this product: columnar water vapor profile	char	GRANULE	Surface radiance--TIR	AST09
MODTRAN_ O3_RES	x-y resolution of source: ozone profile	char	GRANULE	Surface reflectance	AST07
MODTRAN_ O3_SRC	source used for this product: ozone profile	char	GRANULE	Surface reflectance	AST07
MODTRAN_ O3_SRC	source used for this product: ozone profile	char	GRANULE	Surface radiance--VNIR, SWIR	AST09
MODTRAN_ O3_SRC	source used for this product: ozone profile	char	GRANULE	Surface radiance--TIR	AST09
MODTRAN_ PRESS_RES	x-y resolution of source: pressure profile	char	GRANULE	Surface reflectance	AST07
MODTRAN_ PRESS_SRC	source used for this product: pressure profile	char	GRANULE	Surface reflectance	AST07
MODTRAN_ PRESS_SRC	source used for this product: pressure profile	char	GRANULE	Surface radiance--VNIR, SWIR	AST09
MODTRAN_T EMP_SRC	source used for this product: temperature profile	char	GRANULE	Surface reflectance	AST07
MODTRAN_T EMP_SRC	source used for this product: temperature profile	char	GRANULE	Surface radiance--VNIR, SWIR	AST09
MOLECULAR _OD_MEAN	mean for entire scene: molecular optical depth	char	GRANULE	Surface radiance--VNIR, SWIR	AST09
MOLECULAR _OD_SRC	source used for this product: molecular optical depth	char	GRANULE	Surface reflectance	AST07
MOLECULAR _OD_SRC	source used for this product: molecular optical depth	char	GRANULE	Surface radiance--VNIR, SWIR	AST09
Number of Day mode scans (in Granule)		Integer	granule	Modis Level 1A raw counts	MOD01

Table C-2b. Non-Core Attributes Sorted by Attribute (5 of 5)

ECS Parameter Name	ECS Parameter Description	ECS Parameter DataType	Granule / Collection	Product Name	Product ID
Number of Night mode scans (in Granule)		Integer	granule	Modis Level 1A raw counts	MOD01
Number of scans (in Granule)		Integer	granule	Modis Level 1A raw counts	MOD01
PIXELS_SET_MAX	number of pixels which produced a super-max value on lookup, max reported	char	GRANULE	Brightness temperature	AST04
PIXELS_SET_MIN	number of pixels which produced a sub-min value on lookup, min reported	char	GRANULE	Brightness temperature	AST04
RTI_STAT_PIXEL_FREQUENCY	'Skip' factor in sampling for statistics	char	GRANULE	Decorrelation stretch--VNIR	AST06
Scan Types in product	Day, Night, Mixed, Other	Text (10)	granule	Modis Level 1A raw counts	MOD01
SCENE_CLASSIFICATION	Identification of scene classification used.	char	GRANULE	Surface emissivity	AST05 & AST08
SCENE_CLASSIFICATION_ID	ID of scene classification dataset used	char	GRANULE	Decorrelation stretch--VNIR	AST06
SHADOW_PIXELS	Num. pixels classified as shadow	char	GRANULE	Polar classification	AST13
SNOW/ICE_PIXELS	Num. pixels classified as snow/ice	char	GRANULE	Polar classification	AST13
THICK_CLOUD_PIXELS	Num. pixels classified as thick cloud	char	GRANULE	Polar classification	AST13
THIN_CLOUD_PIXELS	Num. pixels classified as thin cloud	char	GRANULE	Polar classification	AST13
UNKNOWN_PIXELS	Num. pixels classified as unknown	char	GRANULE	Polar classification	AST13
WATER_PIXELS	Num. pixels classified as water	char	GRANULE	Polar classification	AST13

SDesignor©

The S-Designor© table card report documents the physical implementation structure of a relational database table. It shows (optionally) all the items that are needed to specify the physical implementation of an entity and its relationships with other entities via the use of keys. An explanation of the report items follows:



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Appendix E. Usage Statistics

E.1 System Usage Statistics

User requests to each layer of the Data Pyramid (reference illustration and definition of the Data Pyramid in Section 6.5.1) by DAAC were analyzed based upon science user scenarios[1] collected, analyzed, and maintained by the ECS User Characterization Team and a detailed report of this analysis was issued on March 1, 1996. A user "request" is any service invocation (e.g., search, order, subset, display image, etc.) that is acting on data (metadata or other data). The Level 1Ato Level 4 data was updated in March 1996 with the EOSDIS Product Use Survey results (ECS document # 161-TP-001-001) and the revised user scenario database. The metadata information was updated using only the revised scenario database because the survey did not target metadata. The updated distribution of requests by layer of the pyramid is projected for ECS data in the Release B time frame. A summary of this report which includes only the totals at each layer without a breakout to DAACs is included in this section.

E.1.1 Basis for Statistical Analysis

In the case where a user requests information related to a layer in the data pyramid and this request consists of very general specifications, (i.e., it does not include a DAAC designation,) it is assumed that the search request can possibly be fulfilled by one or more ECS DAACs and also by at least one non-ECS connection. The parameter lists for the data products in the Science Processing Support Office (SPSO) list and the valid key words for the V0 client were used in preparing these statistics. Other sources of information for this analysis were the scenario database, the EOSDIS Product Use Survey, and system access rates from the ECS User Pull Technical Baseline (2/5/96 version). The scenario database was revised since the previous version of this document in two ways. First, the total number of science users was remapped to the 27 scenarios using the results of the EOSDIS Product Use Survey. Second, the services invoked in the scenarios were revised to reflect the current system architecture and functionality for Release B.

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

E.1.2 Caveats to Methods Employed

Many of the scenarios invoked services against data that are not considered to be part of the ECS, but are archived at affiliated data centers such as NOAA and NWS. While it is known that the ECS will be interoperable with NOAA and many other data centers, and that ECS users will access these centers via the ECS, it is not clear that these data centers have data pyramid layers that directly map to those of the ECS. For instance, the type of information contained in the ECS Guide layer may be the type of information that a non-ECS data center calls "Directory". Because the main goal of

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

the ECS User Characterization Team is to estimate usage of the ECS, no attempt was made to perform detailed estimates of the usage of the different metadata layers that may or may not exist at other data centers. Table 3-6a represents the usage of ECS by all science users, whereas Table 3-6b represents science users accessing other data centers via the ECS. Table 3-6b is provided as a general guideline for the access of other data centers by users via the ECS; it does NOT represent accesses of ECS by other data centers; this type of access is included in the data of Table 3-6a..

Each line item in the scenario database listing was analyzed. Reference the "ECS User's Scenario Notebook" June 1994, for the average number of times data/metadata is delivered per year. Level 0 data was not included since the data product list that was used with the scenarios was the SPSO list and no Level 0 products are included. Scenarios represent ECS data accesses during Release B. Since there are no specific scenarios for Release A that use different access patterns related to the data pyramid levels, it was assumed that the proportions to the levels of the data pyramid are the same for all releases. Thus, the charts shown Figures 3-2a and b can be applied to all epochs shown in Tables 3-6a and b.

E.1.3 Usage Statistics

Summary results of the analysis for ECS data usage are included in the following tables. The numeric values in the tables are the number of "requests" (as defined above) to Earth Science data and information. Again, the usage data represent the access of Earth Science-related data and information that is archived within the ECS; the data are not intended to represent usage of other data systems.

Table E-1a . Non-ECS Usage Estimate Totals - Number of Requests Per Year (1 of 2)

	Epoch 1 (Early 1997)		Epoch 2 (Early 1998)		Epoch 3 (Early 1999)		Epoch 4 (Mid 1999)		Epoch 5 (Jan. 2000)	
Pyramid Layer	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
Directory	207	366	2,974	4,539	3,697	6,103	3,898	6,185	4,417	6,827
Guide	23,047	40,697	332,533	507,441	412,955	682,264	435,962	691,478	493,635	762,951
Bibliogr. Ref.	6,925	12,230	100,052	152,849	124,415	205,523	131,257	208,254	148,687	229,846
Inventory	2,198	3,888	31,295	47,710	38,859	64,165	40,163	63,731	46,452	71,764
QA Stats	2,298	4,110	33,270	50,700	41,268	68,130	43,560	69,096	49,368	76,236
SummaryStats	3,380	6,029	48,835	74,462	60,621	100,083	63,958	101,479	72,502	111,977
Algorithm	1,148	2,029	16,200	24,749	20,165	33,268	21,230	33,689	24,102	37,188
Prod Hist	5,173	9,120	74,260	113,336	92,214	152,309	97,460	154,573	110,281	170,384
Browse	15,641	27,567	224,930	343,124	279,402	461,240	294,419	467,457	333,791	516,192
L4	41,466	73,388	637,239	973,636	738,231	1,218,089	778,243	1,234,217	882,078	1,363,160
L3	72,689	128,647	1,117,061	1,706,755	1,294,096	2,135,273	1,364,237	2,163,546	1,546,256	2,389,578

Table E-1a . Non-ECS Usage Estimate Totals - Number of Requests Per Year (2 of 2)

	Epoch 1 (Early 1997)		Epoch 2 (Early 1998)		Epoch 3 (Early 1999)		Epoch 4 (Mid 1999)		Epoch 5 (Jan. 2000)	
Pyramid Layer	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
L2	87,014	154,000	1,337,207	2,043,115	1,549,131	2,556,083	1,633,095	2,589,928	1,850,986	2,860,506
L1	16,348	28,933	251,230	383,854	291,046	480,229	306,821	486,588	347,758	537,423
Grand Total	277,533	491,004	4,207,086	6,426,270	4,946,100	8,162,759	5,214,302	8,270,222	5,910,313	9,134,031
Metadata Total	60,016	106,036	864,349	1,318,910	1,073,596	1,773,085	1,131,907	1,795,942	1,283,235	1,983,365

Table E-1bNon-ECS Usage Estimate Totals - Number of Requests per Year

	Epoch 1 (Early 1997)		Epoch 2 (Early 1998)		Epoch 3 (Early 1999)		Epoch 4 (Mid 1999)		Epoch 5 (Jan. 2000)	
Pyramid Layer	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**
Directory	0	0	0	0	0	0	0	0	0	0
Guide	27	47	368	561	461	755	481	768	548	842
Bibliogr. Ref.	43	73	562	849	699	1,145	729	1,162	832	1,278
Inventory	586	1,035	8,420	12,841	10,460	17,266	11,022	17,499	12,497	19,319
QA Stats	2,175	3,891	31,485	47,976	39,048	64,467	41,220	65,382	46,716	72,138
SummaryStats	545	969	7,887	9,808	16,181	100,083	10,336	16,406	11,716	18,102
Algorithm	95	170	1,375	1,705	2,815	33,268	1,800	2,855	2,040	3,150
Prod Hist	174	304	2,457	3,053	5,034	152,309	3,211	5,103	3,645	5,630
Browse	15,315	26,933	219,375	334,698	272,574	449,861	287,222	455,926	325,608	503,562
Grand Total	18,960	33,422	271,929	411,491	347,272	819,154	356,021	565,101	403,602	624,021

E.1.4 Summary Bar Chart of Usage Statistics

Figures E-1a and E-1b represent summaries of the usage statistics presented in Tables E-1a and E-1b above.

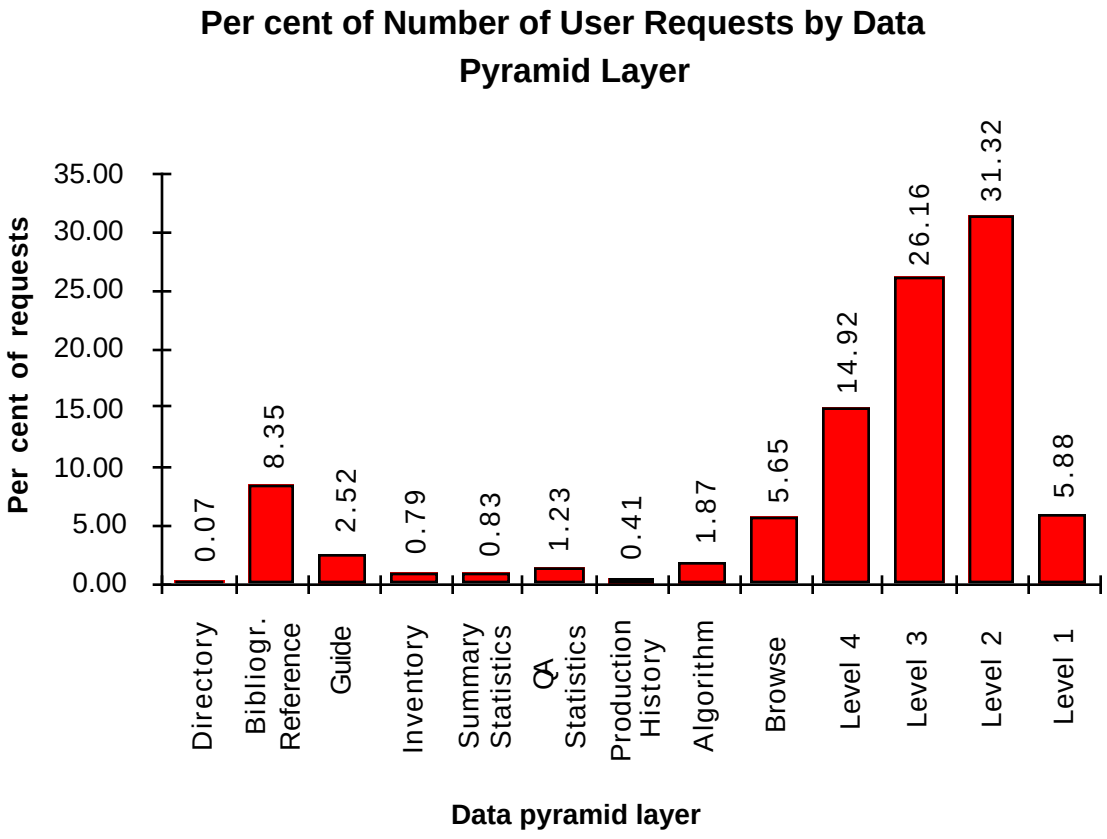

Figure E-1a. Usage Summary for ECS Data

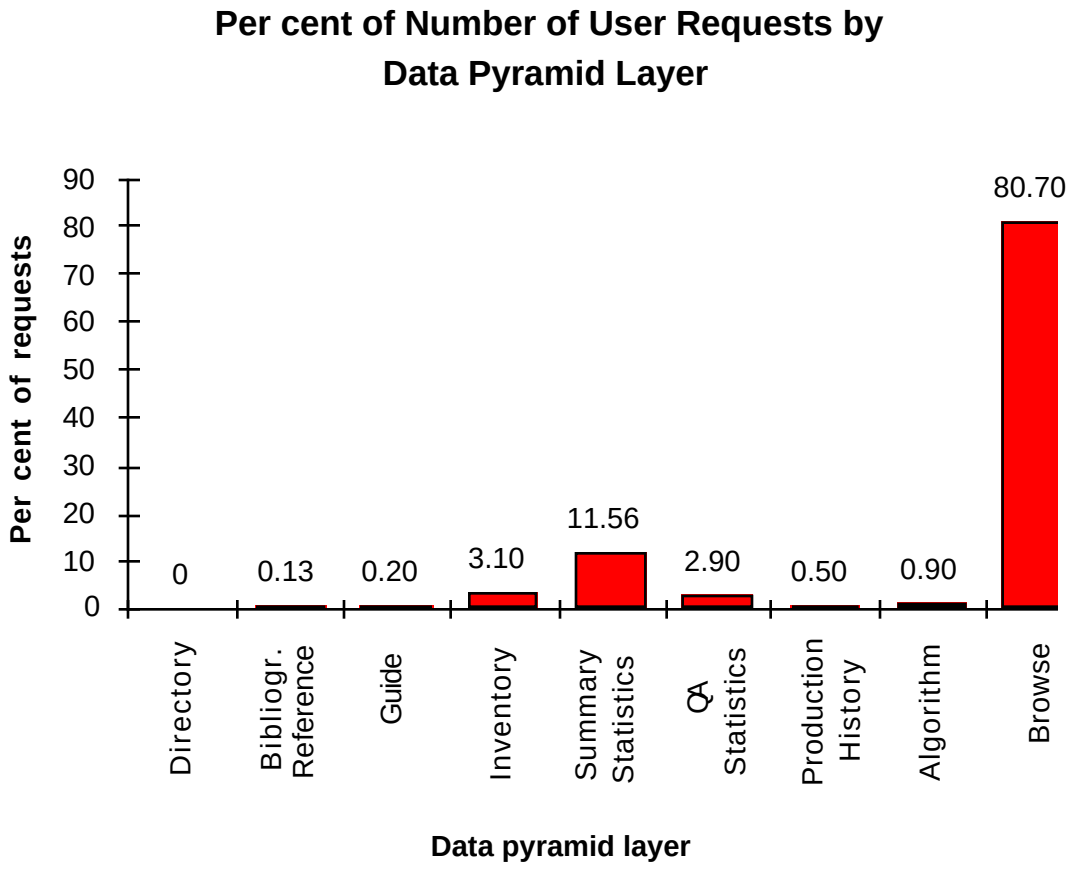

Figure E-1b. Usage Summary for Non-ECS Data

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Abbreviations and Acronyms

ACMHW	Access and Control Management HWCI
ADC	affiliated data center
ADSHW	Advertising Server HWCI
ADSRV	Advertising Service CSCI
AI&T	algorithm integration and test
AITHW	Algorithm Integration and Test HWCI
AITTL	Algorithm Integration and Test CSCI
AM-1	EOS AM Project spacecraft 1, morning spacecraft series -- ASTER, CERES, MISR, MODIS and MOPITT instruments
ANSI	American National Standards Institute
API	application program (or programming) interface
APID	application's process ID
AQAHW	Algorithm QA HWCI
ASCII	American Standard Code for Information Exchange
ASTER	Advanced Spaceborne Thermal Emission and Reflection Radiometer (formerly ITIR)
AVHRR	Advanced Very High-Resolution Radiometer
BER	bit error rate
BUFR	binary universal format for representation of data
CASE	Computer Aided Software Engineering
CCSDS	Consultative Committee for Space Data Systems
CD	contractual delivery 214-001
CD-ROM	compact disk -- read only memory
CDR	Critical Design Review
CDRL	contract data requirements list
CERES	Clouds and Earth's Radiant Energy System
CI	configuration item
COTS	commercial off-the-shelf (hardware or software)
CPU	central processing unit
CSCI	computer software configuration item
CSMS	Communications and Systems Management Segment (ECS)
DAAC	Distributed Active Archive Center
DAN	data availability notice

DAO	Data Assimilation Office
DAR	data acquisition request
DAS	data availability schedule
DBMS	Database Management System
DDICT	Data Dictionary CSCI
DDIST	Data Distribution Services CSCI
DDSRV	Document Data Server CSCI
DESKT	Desktop CSCI
DID	data item description
DIM	distributed information manager (SDPS)
DIMGR	Distributed Information Manager CSCI
DIPHW	Distribution and Ingest Peripheral Management HWCI
DMGHW	Data Management HWCI
DMWG	Data Management Working Group
DP	Data Provider
DPR	data processing request
DPREP	Science Data Preprocessing CSCI
DPS	Data Processing Subsystem
DRPHW	Data Repository HWCI
DSS	Data Server Subsystem
ECS	EOSDIS Core System
EDC	EROS Data Center
EDHS	ECS Data Handling System
EDOS	EOS Data and Operations System
EOS	Earth Observing System
EOS-AM	EOS Morning Crossing (Descending) Mission -- see AM-1
EOSDIS	Earth Observing System Data and Information System
EROS	Earth Resources Observation System
ESDIS	Earth Science Data and Information System (GSFC)
ESDT	Earth science data types
ESN	EOSDIS Science Network (ECS)
FDDI	fiber distributed data interface
FDF	flight dynamics facility
FDFEPHEM	FDF-generated definitive orbit data
FGDC	Federal Geographic Data Commuittee
FK	Foreign Key

FOO	Flight of Opportunity
FOS	Flight Operations Segment (ECS)
GB	gigabyte (10^9)
GNU	(recursive acronym: “GNU’s Not Unix”); a project supported by the Free Software Foundation dedicated to the delivery of free software
GPCP	Global Precipitation Climatology Project
GPCP	Global Precipitation Climatology Project
GPI	GOES Precipitation Index
GRIB	GRid In Binary
GSFC	Goddard Space Flight Center
GTWAY	Version 0 Interoperability Gateway CSCI
GUI	graphic user interface
GV	ground validation
HDF	hierarchical data format
HDF-EOS	an EOS proposed standard for a specialized HDF data format
HIPPI	high performance parallel interface
HMI	human machine interface
HTML	HyperText Markup Language
HTTP	Hypertext Transport Protocol
HWCI	hardware configuration item
I&T	integration and test
I/F	interface
I/O	input/output
ICD	interface control document
ICLHW	Ingest Client HWCI
ID	identification
IDE	Interactive Development Environments
IDR	Incremental Design Review
IERS	International Earth Rotation Service
IMS	Information Management System (obsolete ECS element name)
INGST	Ingest Services CSCI
IP	international partners
IR-1	Interim Release 1
IRD	interface requirements document
ISO	International Standards Organization
IV&V	independent verification and validation

JPL	Jet Propulsion Laboratory
L0-L4	Level 0 (zero) through Level 4
LaRC	Langley Research Center (DAAC)
LIM	local information manager (SDPS)
LIMGR	Local Information Manager CSCI
LIS	Lightning Imaging Sensor
LSM	local system management (ECS)
MB	megabyte (10^6)
MDT	mean downtime
MDT	mean downtime
MFLOPS	mega (millions of) floating-point operations (10^6) per second
MISR	Multi-Angle Imaging SpectroRadiometer
MODIS	Moderate-Resolution Imaging Spectrometer
MOPITT	Measurements of Pollution in the Troposphere
MSFC	Marshall Space Flight Center
MSS	System Management Subsystem (of CSMS)
MTBF	mean time between failure
MTPE	Mission to Planet Earth
MTTR	mean time to restore
N/A	not applicable
NAS	National Academy of Science
NASA	National Aeronautics and Space Administration
NESDIS	National Environmental Satellite Data and Information Service
NMC	National Meteorological Center (NOAA)
NOAA	National Oceanic and Atmospheric Administration
NSIDC	National Snow and Ice Data Center (DAAC)
O/A	orbit/altitude
ODC	other data center
OMT	Object Modeling Technique
OSI	Open System Interconnect
PDPS	Planning & Data Production System
PDR	Preliminary Design Review
PDS	production data set
PGE	Product Generation Executive
PGS	Product Generation System (obsolete ECS element name) (ASTER)
PK	Primary Key

PLANG	Production Planning CSCI
PLNHW	Planning HWCI
PLS	Planning Subsystem
POSIX	Portable Operating System Interface for Computer Environments
PR	Precipitation Radar (TRMM)
PRONG	Processing CSCI
QA	quality assurance
RMA	reliability, maintainability, availability
RTF	rich text format
SAA	satellite active archive
SAGE	Stratospheric Aerosol and Gas Experiment
SCF	Science Computing Facility
SDP	Science Data Processing
SDPF	Sensor Data Processing Facility (GSFC)
SDPS	Science Data Processing Segment (ECS)
SDPTK	SDP Toolkit CSCI
SDSRV	Science Data Server CSCI
SeaWIFS II	Sea-Viewing Wide Field-of-View Sensor II
SFDU	Standard Format Data Unit
SMC	System Management Center (ECS)
SPRHW	Science Processing HWCI
SRS	software requirements specification
SSM/I	Special Sensor for Microwave/Imaging (DMSP)
SST	sea surface temperature
STMGT	Storage Management Software CSCI
StP	Software through Pictures
TMI	TRMM Microwave Image
TOMS	Total Ozone Mapping Spectrometer
TONS	TDRS On-board Navigational System
TRMM	Tropical Rainfall Measuring Mission (joint US-Japan)
TSDIS	TRMM Science Data and Information System
USNO	US Naval Observatory
UT	universal time
UTC	universal time code
V0	Version 0
VIRS	Visible Infrared Scanner (TRMM)

WAIS	Wide Area Information Server
WKBCH	Workbench CSCI
WKSHW	Working Storage HWCI
WWW	World-Wide Web

Glossary

Advertisement A text description that announces the availability of ECS data or services to ECS users.

Advertising Service An ECS software component that announces the availability of data and services to ECS users.

Affiliated Data Center A facility not funded by NASA that processes, archives, and distributes Earth science data useful for Global Change research, with which a working agreement has been negotiated by the EOS program. The agreement provides for the establishment of the degree of connectivity and interoperability between EOSDIS and the ADC needed to meet the specific data access requirements involved in a manner consistent and compatible with EOSDIS services. Such data-related services to be provided to EOSDIS by the ADC can vary considerably for each specific case.

Algorithm Software delivered to the SDPS by a science investigator (PI, TL, or II) to be used as the primary tool in the generation of science products. The term includes executable code, source code, job control scripts, as well as documentation.

Alias Alternate name is any name besides the data element name by which a data item is known. *Note*: Often stored in data dictionaries. *Syn:* alternate name.

Ancillary Data Data other than instrument data required to perform an instrument's data processing. They include orbit data, attitude data, time information, spacecraft engineering data, calibration data, data quality information, and data from other instruments.

Archive Activity Log Log of all archive activity (insert, acquire)

Archive Tape Library Archive robotics unit

Averaging Standard data averaging involves extraction from a data granule of aggregate pixels formed by numerically averaging the N adjacent pixels in each of one or more dimensions of the granule. The number of pixels in each dimension to be averaged is characterized by the value of "N."

Batch Pertaining to a system or mode of operation in which inputs are collected and processed all at one time, rather than being processed as they arrive, and a job, once started, proceeds to completion without additional input or user interaction. Contrast with: conversational; interactive; on-line; real time.

Browse Data Product Subsets of a larger data set, other than the directory and guide, generated for the purpose of allowing rapid interrogation (i.e., browse) of the larger data set by a potential user. For example, the browse product for an image data set with multiple spectral bands and moderate spatial resolution might be an image in two spectral channels, at a degraded spatial resolution. The form of browse data is generally unique for each type of data set and depends on the nature of the data and the criteria used for data selection within the relevant scientific disciplines.

Calibration Data The collection of data required to perform calibration of the instrument science data, instrument engineering data, and the spacecraft engineering data. It includes pre-flight calibration measurements, in-flight calibrator measurements, calibration equation coefficients derived from calibration software routines, and ground truth data that are to be used in the data calibration processing routine.

Catalog Interoperability Refers to the capability of the user interface software of one data set directory or catalog to interact with the user interface at another data set directory or catalog. Three levels of Catalog Interoperability are recognized:

Level 1 Interoperability – simple network interconnectivity among systems.

Level 2 Interoperability – catalog systems can exchange limited search and user information.

Level 3 Interoperability – catalog systems exchange standard search protocols. This provides “virtual” similarity between different systems.

Client Requester of a service

Client A software component that issues service requests to another software component.

Commercial Off-The-Self (COTS)	"Commercial off-the-shelf" means a product, such as an item, material, software, component, subsystem, or system, sold or traded to the general public in the course of normal business operations at prices based on established catalog or market prices (see FAR 15.804-3(c) for explanation of terms).
Correctable BER	Rate of occurrence of correctable bit errors (bit errors that are generally corrected by the corresponding hardware)
Correlative Data	Scientific data from other sources used in the interpretation or validation of instrument data products, e.g., ground truth data and/ or data products of other instruments. These data are not utilized for processing instrument data.
Data Access Log	Log of all data access (retrieve) within the Data Server
Data Acquisition Request (DAR)	A request for future data acquisition by an instrument(s) that the user constructs and submits through the IMS.
Data Availability Acknowledgment	Status return when a Data Availability Notice cannot be satisfied (e.g., due to a validation error or transmission error)
Data Availability Notice	Notice from a client of data available for ingest
Data Availability Schedule	Schedule of predicted, future data availability for a client
Data Center	A facility storing, maintaining, and making available data sets for expected use in ongoing and/or future activities. Data centers provide selection and replication of data and needed documentation and, often, the generation of user tailored data products.
Data Collection	A logically organized set of related earth science data, including observation data, data products, and documents.
Data Distribution Request	Request to distribute data
Data Ingest Request	Request to ingest data
	Data Provider, usually instrument team people or allied investigators. These folks provide collection level attribute values into the DSS database via a Graphical User Interface(GUI).
Data Processing Request	Request to process data (sent from Data Server to PDPS)

Data Product Levels	Data levels 1 through 4 as defined in the EOS Data Panel Report. Consistent with the CODMAC and ESADS definitions. Raw Data – Data in their original packets, as received from the spacecraft and instruments, unprocessed by EDOS. Level 0 – Raw instrument data at original resolution, time ordered, with duplicate packets removed. Level 1A – Level 0 data, which may have been reformatted or transformed reversibly, located to a coordinate system, and packaged with needed ancillary and engineering data. Level 1B – Radiometrically corrected and calibrated data in physical units at full instrument resolution as acquired. Level 2 – 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.
Data Receipt Log	Log of all data received
Data Request	A request for data from the Data Server.
Data Retrieval Request	= Retrieval Request
Data Server	A logical association of services that provide access to a collection of earth science and related data.
Data Server Insert Request	Request to insert data into a Data Server
Data Set	A logically meaningful grouping or collection of similar or related data.
Data Set Documentation	Information describing the characteristics of a data set and its component granules, including format, source instrumentation, calibration, processing, algorithms, etc.
Definitive Attitude Data	Down-linked attitude data received with Level 0 data
Definitive Orbit Data	Down-linked orbit (ephemeris) data received with Level 0 data
Directive	Flowdown of policy.
Directory	A collection of uniform descriptions that summarize the contents of a large number of data sets. It provides information suitable for making an initial determination of the existence and contents of each data set. Each directory entry contains brief data set information (e.g., type of data, data set name, time and location bounds).

Distributed Active Archive Center	An EOSDIS facility which generates, archives, and distributes EOS Standard Products and related information for the duration of the EOS mission. An EOSDIS DAAC is managed by an institution such as a NASA field center or a university, per agreement with NASA. Each DAAC contains functional elements for processing data (the PGS), for archiving and disseminating data (the DADS), and for user services and information management (elements of the IMS).
Distribution Activity Log	Log of all distribution activity
ECSDiscipline	This class provides the highest level (of 5) levels of description of the collection content. A collection can conceivably cover several disciplines.
ECSParameter	This class is used to describe all (major) (science) parameters in the collection. This class provides for a detailed level 'data dictionary' description of the data product (i.e. content repeated in each granule). The parameter names 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.
ECSTerm	This class provides the third (of 5) levels of description of the collection content. GCMD keywords are used to populate the science parameter area of the collection. A collection can conceivably cover many such parameters.
ECSTopic	This class provides the second (of 5) level of description of the collection content. GCMD keywords are used to populate the general topic area of the collection. A collection can conceivably cover many such topics.
ECSVariable	This class provides the fourth (of 5) levels of description of the collection content. GCMD keywords are used to populate the specific science parameter content of the collection. A collection can conceivably cover many specific parameters. New keywords may be added through a managed procedure. The keyword valids are the lowest level physical parameter terms which are normally searched by a user; i.e. a user enters a keyword which when found may connect with one or more parameters from collections.

ECS-Supported	A hardware or software component that conforms to an ESDIS approved set of standards and has been fully tested by the ECS contractor.
EDOS Production Data Sets	Data sets generated by EDOS using raw instrument or spacecraft packets with space-to-ground transmission artifacts removed, in time order, with duplicate data removed, and with quality/ accounting (Q/A) metadata appended. Time span, number of packets, or number of orbits encompassed in a single data set are specified by the recipient of the data. These data sets are equivalent to level zero data formatted with Q/A metadata. For EOS, the data sets are composed of: instrument science packets, instrument engineering packets, spacecraft housekeeping packets, or onboard ancillary packets with quality and accounting information from each individual packet and the data set itself and with essential formatting information for unambiguous identification and subsequent processing.
EDOS Quick Look Production Data Sets	Data sets generated by EDOS using raw instrument or spacecraft packets from a single TDRSS acquisition session and made available for delivery to a user within 1 hour of receipt of the last packet in the session. Transmission artifacts are removed, but time ordering and duplicate packet removal is limited to packets received during the TDRSS contact period.
Electronic Distribution Request	Request to distribute data electronically (network)
Engineering Data	All data available on-board about health, safety, environment, or status of the spacecraft and instruments. Spacecraft Engineering Data – The subset of engineering data from spacecraft sensor measurements and on-board computations. Instrument Engineering Data – All non-science data provided by the instrument. Housekeeping Data – The subset of engineering data required for mission and science operations. These include health and safety, ephemeris, and other required environmental parameters.
Ephemeris Data	(See Orbit Data)
Event	In reference to subscriptions, the occurrence that triggers a subscription action
Facilities (IICF)	higher-level data sets.

Facility Instrument	An instrument defined by NASA as having broad significance to the EOS Program and provided by a designated NASA center or foreign agency.
Field-expandable	Storage hardware where the capacity or size of archival storage can be increased at the local site without removing the hardware from the local site
File Directory	Table of data granules and their locations in the archive
Granule	The smallest aggregation of data that is independently managed (i.e., described, inventoried, retrievable). Granules may be managed as logical granules and/or physical granules.
Ground Truth	Geophysical parameter data, measured or collected by other means than by the instrument itself, used as correlative or calibration data for that instrument data. It includes data taken on the ground or in the atmosphere. Ground truth data are another measurement of the phenomenon of interest; they are not necessarily more “true” or more accurate than the instrument data.
Horizontal Coordinate System	The reference frame or system from which linear or rectangular quantities are measured and assigned to the position that a point occupies.
Housekeeping Data	(See Engineering Data)
In Situ Data	(See Ground Truth)
Ingest Status Request	Request for status on a Data Ingest Request
Insert Request	Request to insert data into the archive
Institutional Facilities or Elements	Facilities established by an institution that take on some responsibility in support of EOSDIS, or elements of the EOSDIS that function as part of an institution, and represent both EOSDIS and the programs, goals and purpose of the institution.
Instrument	An instrument is formerly defined by ECS as: 'A hardware system that collects scientific or operational data. * Hardware-integrated collection of one or more sensors contributing data of one type to an investigation. * An integrated collection of hardware containing one or more sensors and associated controls designed to produce data on/in an observational environment' (V0 definition).

Instrument Data	Data specifically associated with the instrument, either because they were generated by the instrument or included in data packets identified with that instrument. These data consist of instrument science and engineering data, and possible ancillary data.
Instrument Housekeeping Data	(See Engineering Data)
Instrument or Elements	(See Engineering Data)
Instrument Science Data	Data produced by the science sensor(s) of an instrument, usually constituting the mission of that instrument.
Interdisciplinary	Project-provided facilities at interdisciplinary investigator locations
Intermediate Activity Log	Log of operations including file space allocations, file space deallocations, media mounts, media dismounts, media loads, media unloads, file writes, files reads, file deletions
Inventory Update Log	Checkpoint log of archive data and their locations. This log is used in conjunction with the File Directory to allow recovery of archive contents in the event of a system failure.
Investigator Computing	used to pursue EOS-approved investigations and produce
Investigator Working Group (IWG)	A group made up of the Principal Investigators and research
Local Coordinate System	A description of any coordinate system that is not aligned with the surface of the Earth.
Local Planar Coordinate System	Any right-handed planar coordinate system of which the z-axis coincides with a plump line through the origin that locally is aligned with the surface of the Earth.
Metadata	Information about data sets which is provided to the ECS by the data supplier or the generating algorithm and which provides a description of the content, format, and utility of the data set. Metadata may be used to select data for a particular scientific investigation.
Migration Coordination Message	Messages passed between Version 0 sites and ECS to coordinate Version 0 migration

Mutiple Type Collection	The essential characteristic of a mutitype collection is that attribute values in addition to time and space vary with granule. For example, (a) collections for which each granule comes from a different platform or (b) collections consisting of granules having a varying number of geophysical parameters. At the limit, a multiple type collection may be considered to consist of many single type collections each having one granule. This level of variability is extremely unlikely in practice, but the variation in 2-5 single type collection attribute values for each granule is quite likely (e.g., instrument, platform, ECSparameter, SuggestedUse).
off-line	Pertaining to a device or process that is not under the direct control of the central processing unit of a computer. *Contrast with:* on-line.
on-line	Pertaining to a system or mode of operation in which input data enter the computer directly from the point of origin or output data are transmitted directly to the point where they are used. For example, an airline reservation system. *Contrast with:* batch.
Operational Data	Data created by an operational instrument (i.e., NOAA AMRIR).
Operations Personnel	= Operations Staff
Operations Staff	One of the DAAC operations staff assigned to the Ingest or Data Server subsystems--i.e., Data Archive Analyst, Data Ingest Technician, Data Distribution Technician, Data Base Administrator
Orbit Data	Data that represent spacecraft locations. Orbit (or ephemeris) data include: Geodetic latitude, longitude and height above an adopted reference ellipsoid (or distance from the center of mass of the Earth); a corresponding statement about the accuracy of the position and the corresponding time of the position (including the time system); some accuracy requirements may be hundreds of meters while other may be a few centimeters.
Physical Media Class	Class of physical media (e.g., 3480 tape, D3 tape, M/O disk)
Physical Media Distribution Request	Request to distribute data on hard media (e.g., tape, optical disk, etc.)

Principal Investigator (PI)	An individual who is contracted to conduct a specific scientific investigation. (An Instrument PI is the person designated by the EOS Program as ultimately responsible for the delivery and performance of Standard Products derived from an EOS Instrument Investigation.)
Principal Investigator Computing Facility (PICF)	Project-provided facilities at PI locations used to develop and maintain algorithms, produce data sets, and validate data.
Principal Investigator Instrument	An instrument selected pursuant to the EOS Announcement of Opportunity and provided by a PI and his home institution.
Product Generation Executive	Data Provider code which populates metadata on a granule by granule basis.
Prototype Product	Data product generated as part of a research investigation, of wide research utility, requiring too much data or computer power for generation at the investigator SCF, and accepted as a candidate Standard Product by the IWG. Prototype Products will be generated at DAACs, but their routine generation is not guaranteed and will not interfere with other Standard Product generation.
Quick-Look Data	Data received during one TDRSS contact period which have been processed to Level 0 (to the extent possible for data from a single contact). These are data that have been identified to EDOS as requiring priority processing.
Quick-Look Product	Product produced at a PGS by applying science algorithms to Quick-Look Data
real-time	Pertaining to a system or mode of operation in which computation is performed during the actual time that an external process occurs, in order that the computation results can be used to control, monitor, or respond in a timely manner to the external process. Contrast with: batch.
Repaired Attitude Data	Attitude data received from the FDF to correct a specific portion of the definitive attitude data.
Repaired Orbit Data	Orbit data received from the FDF to correct a specific portion of the definitive orbit data.
Retrieval Request	Request to retrieve data from the archive

Scheduling	automatic scheduling of a full set of events. Incremental scheduling is interactive scheduling of selected events. For example, the initial generation of a schedule might use batch scheduling, while the addition of a single event with the desire to avoid perturbing previously scheduled events might use incremental scheduling.
Science Processing Library	The Science Processing Library (SPL) is a repository of software, contributed by scientists and other users, to which ECS will provide access in order to facilitate the reuse of software throughout the community. This software is made available as it was contributed with ECS performing only a cataloging function to identify for users what is available. ECS is not responsible for the validity or maintenance of the software contained in the Science Processing Library.
Service Class	A group of ECS services and their associated data.
Service Request	A message issued by a user or client which directs a component of the ECS system to perform a task.
Session	A mechanism that supports a related set of interactions between a client and a server, and manages the resources associated with those interactions.
Special Data Products	Data products which are considered part of a research investigation and are produced for a limited region or time period, or data products which are not accepted as standard products.
Standard Products	(1) Data products generated as part of a research investigation, of wide research utility, accepted by the IWG and the EOS Program Office, routinely produced, and in general spatially and/or temporally extensive. Standard Level 1 products will be generated for all EOS instruments; standard Level 2 products will be generated for most EOS instruments. (2) All data products which have been accepted for production at a PGS, including (1) above as well as prototype products. This may include browse data products that are generated as part of the product production process.
Status Request	Request for status of archive insert and retrieval requests (also need this for ingest and distribution status)

Subsampling	Standard subsampling involves extraction of a multi-dimensional rectangular array of pixels from a single data granule, where regularly-spaced, non-consecutive pixels are extracted from each array dimension. For each dimension, the size of the pixel array is characterized by the starting pixel location, the number of pixels to extract, and the pixel-spacing between extracted pixels.
Subscription	An event (or set of events) and the resultant action (or set of actions) requested by a client. The event is either future data arrival or the expiration of a timer. Actions are TBD.
Subscription Event	An event (or set of events) identified in a subscription. The event is either future data arrival or the expiration of a timer.
Subscription Request	A request to queue a subscription
Subsetting	Standard subsetting involves extraction of a multi-dimensional rectangular array of pixels from a single data granule, where consecutive pixels are extracted from each array dimension. For each dimension, the size of the pixel array is characterized by the starting pixel location and the number of pixels to extract.
Subscription	A request for notifications and data to be provided upon the occurrence of a specified event of set of events.. An event is either future data arrival or the expiration of a timer.
System Files	Internal files and other data used by Ingest or Data Server software.
Target of Opportunity (TOO)	A TOO is a science event or phenomenon that cannot be fully predicted in advance, thus requiring timely system response or high-priority processing.
Team Member Computing Facilities (TMCF)	Project-provided facilities at research instrument team member locations used to develop and test algorithms and assess data quality.
User	A person which interacts with the ECS system and issues service requests to the system.
User Pull Area	Staging space set up to allow users to retrieve data at a time of their convenience