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Goddard Space Flight Center
Greenbelt, Maryland

National Aeronautics and
Space Administration

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Joint Polar Satellite System (JPSS) Algorithm Specification Volume II: Data Dictionary for the Ancillary Data Handling Gridding and Granulation

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Preface

This document is under JPSS Ground ERB configuration control. Once this document is approved, JPSS approved changes are handled in accordance with Class I and Class II change control requirements as described in the JPSS Configuration Management Procedures, and changes to this document shall be made by complete revision.

Any questions should be addressed to:

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Change History Log

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0200F	Jun 07, 2016	This version incorporates 474-CCR-16-2939 which was approved by the JPSS Ground ERB on the effective date shown.	All

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Table of TBDs/TBRs

TBx	Type	ID	Text	Action
None				

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1 Introduction

1.1 Scope

The Joint Polar Satellite System (JPSS) Algorithm Specification for Ancillary Data Handling, Gridding and Granulation - Volume II: Data Dictionary contains the specifications for the format of the Ancillary Data Handling, and Gridding and Granulation Intermediate Products (IPs). This specification includes the format of the Hierarchical Data Format Release 5 (HDF5) files, as well as the product definitions. These formats are available to external users of the JPSS. For an overview of the data product formats, see 474-00001-01, JPSS CDFCB-X Vol I. For an overview of the metadata formats for data products, see 474-00448-02-01, JPSS Algorithm Specification Volume II: Data Dictionary for the Common Algorithms.

1.2 Organization

Section	Contents
Section 1	Provides information regarding the scope, and organization of this document, as reference material only.
Section 2	Lists parent documents and related documents that were used as sources of information for this document or that provide additional background information to aid understanding of the interface implementations.
Section 3	Provides an overview of the HDF5 UML for the data product types
Section 4	Provides a description of the contents of each JPSS Intermediate Product associated with this algorithm grouping.
Section 5	Provides a description of the contents of each JPSS EDR associated with this algorithm grouping.
Section 6	Provides a description of the Ancillary and Auxiliary Data Inputs if applicable.
Section 7	Provides a description of relevant Look-Up Tables (LUTs) and Processing Coefficient Tables (PCTs) associated with this algorithm grouping.
Appendix A	Provides the Data Mnemonic to Interface Mapping for the data products in this volume.
Appendix B	Provides a mapping of the quality flags by sensor and product that are reportable to the associated data product quality flag Test ID used in the processing environment
Appendix C	Reference 470-00041, JPSS Program Lexicon
Attachment A	Provides the list of applicable xml files for this Data Dictionary.

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2 Related Documentation

The latest JPSS documents can be obtained from URL: https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm. JPSS Project documents have a document number starting with 470, 472 or 474 indicating the governing Configuration Control Board (CCB) (Program, Flight, or Ground) that has the control authority of the document.

2.1 Parent Documents

The following reference document(s) is (are) the Parent Document(s) from which this document has been derived. Any modification to a Parent Document will be reviewed to identify the impact upon this document. In the event of a conflict between a Parent Document and the content of this document, the JPSS Program Configuration Change Board has the final authority for conflict resolution.

Document Number	Title
474-00448-01-07	JPSS Algorithm Specification Volume I: Software Requirements Specification (SRS) or the Ancillary Data Handling Gridding and Granulation

2.2 Applicable Documents

The following document(s) is (are) the Applicable Document(s) from which this document has been derived. Any modification to an Applicable Document will be reviewed to identify the impact upon this document. In the event of conflict between an Applicable Document and the content of this document, the JPSS Program Configuration Change Board has the final authority for conflict resolution.

Document Number	Title
NPR 7150.2A	NASA Software Engineering Requirements
474-00167	Joint Polar Satellite System (JPSS) Common Ground System (CGS) Requirements Document
474-00005	Joint Polar Satellite System (JPSS) Government Resource for Algorithm Verification, Independent Testing, and Evaluation (GRAVITE) Requirements Document
N/A	Hierarchical Data Format, Version 5 (HDF5), http://www.hdfgroup.org/HDF5/

2.3 Information Documents

The following documents are referenced herein and amplify or clarify the information presented in this document. These documents are not binding on the content of this document.

Document Number	Title
D0001-M01-S01-027	Joint Polar Satellite System (JPSS) VIIRS Earth Gridding Algorithm Theoretical Basis Document (ATBD)
474-00448-03-07	Joint Polar Satellite System (JPSS) Algorithm Specification Volume III: Operational Algorithm Description (OAD) for the Ancillary Data Handling Gridding and Granulation
474-00333	Joint Polar Satellite System (JPSS) Ground System (GS) Architecture Description Document (ADD)

Document Number	Title
474-00054	Joint Polar Satellite System (JPSS) Ground System (GS) Concept of Operations (ConOps)
470-00041	Joint Polar Satellite System (JPSS) Program Lexicon
474-00001-01	Joint Polar Satellite System (JPSS) Common Data Format Control Book, Vol I - Overview
474-00448-02-01	Joint Polar Satellite System (JPSS) Algorithm Specification Volume II: Data Dictionary for the Common Algorithms

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3 UML for HDF5 Products

The following paragraphs describe the structure and contents of the IP and EDR granules formed by the JPSS ground processing software.

3.1 Intermediate Products and Environmental Data Records HDF5 Details - Statically Sized

Figure 3.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, depicts the HDF5 IP/EDR organization as a Unified Modeling Language (UML) class diagram. Each HDF5 IP/EDR file contains an HDF5 Root Group, '/', a Data Products Group, Product Groups (Collection Short Name), an optional Geolocation Group (depending upon packaging option, see the JPSS CDFCB-X Vol. I, for a description of the geolocation packaging), and an All Data Group (dataset arrays). The Product Groups and Geolocation Group both contain datasets - an Aggregation Dataset (Collection Short Name_Agg) and Granule Datasets (Collection Short Name_Gran_n) - where n indicates the nth granule in a temporal aggregation of granules (0 .. n-1). A granule is a general term used to describe the minimum quanta of data collected per processing period, generally on the order of seconds. For the definition and organization of the metadata attributes contained in the HDF5 files, see the JPSS Algorithm Specification Volume II: Data Dictionary for the Common Algorithms - Metadata. Attributes that are specific to a particular IP/EDR are listed with the specific IP/EDR's data format definition. For the generalized formats and packaging options for the Geolocation data, see the JPSS CDFCB-X Vol. I - Overview.

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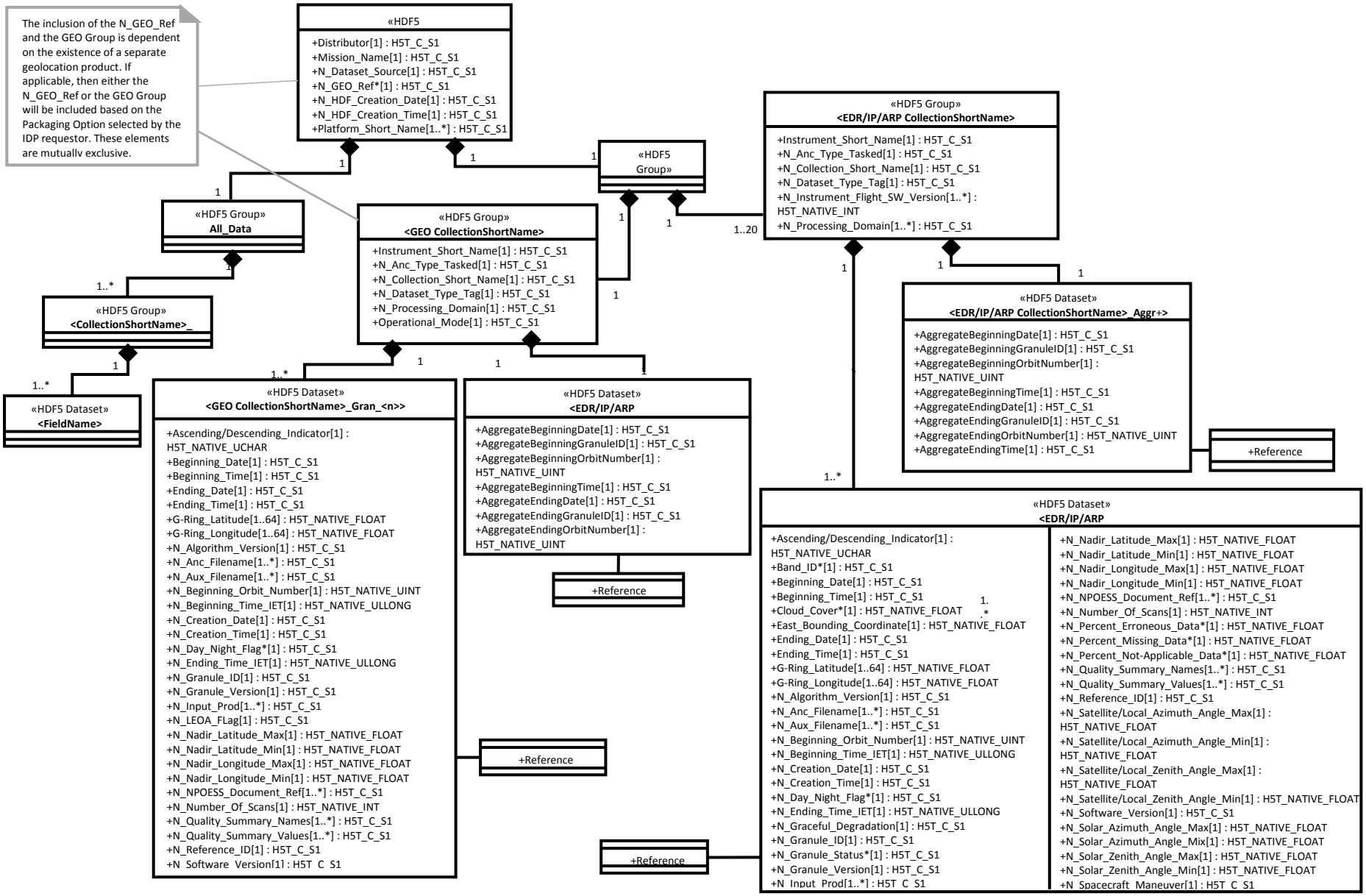

Figure: 3.1-1 Generalized UML Diagram for statically sized HDF5 IP/EDR Files

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3.2 Intermediate Products, Application Related Products and Environmental Data Records HDF5 Details - Dynamically Sized

Figure 3.2-1, Generalized UML Diagram for dynamically sized HDF5 IP/EDR Files, depicts the HDF5 IP/EDR organization as a Unified Modeling Language (UML) class diagram for products that contain dynamically sized fields. Dynamically sized means that a field's length will vary from granule to granule. The organization of the HDF5 file is identical to the statically sized HDF5 file with the exception of the aggregation and corresponding All_Data group.For statically sized products, the object ID stored in the aggregation array points to a Dataset_Array under the All_Data group. This Dataset_Array is a single HDF5 dataset for each field. This single HDF5 dataset contains all the data for all granules in the file for a given field. However, for dynamically sized products, the object ID stored in the aggregation array points to an HDF5 group instead. This HDF5 group contains one or more datasets - a separate dataset for each granule for a given field. The dataset is named "Dataset_Array_Gran_n".

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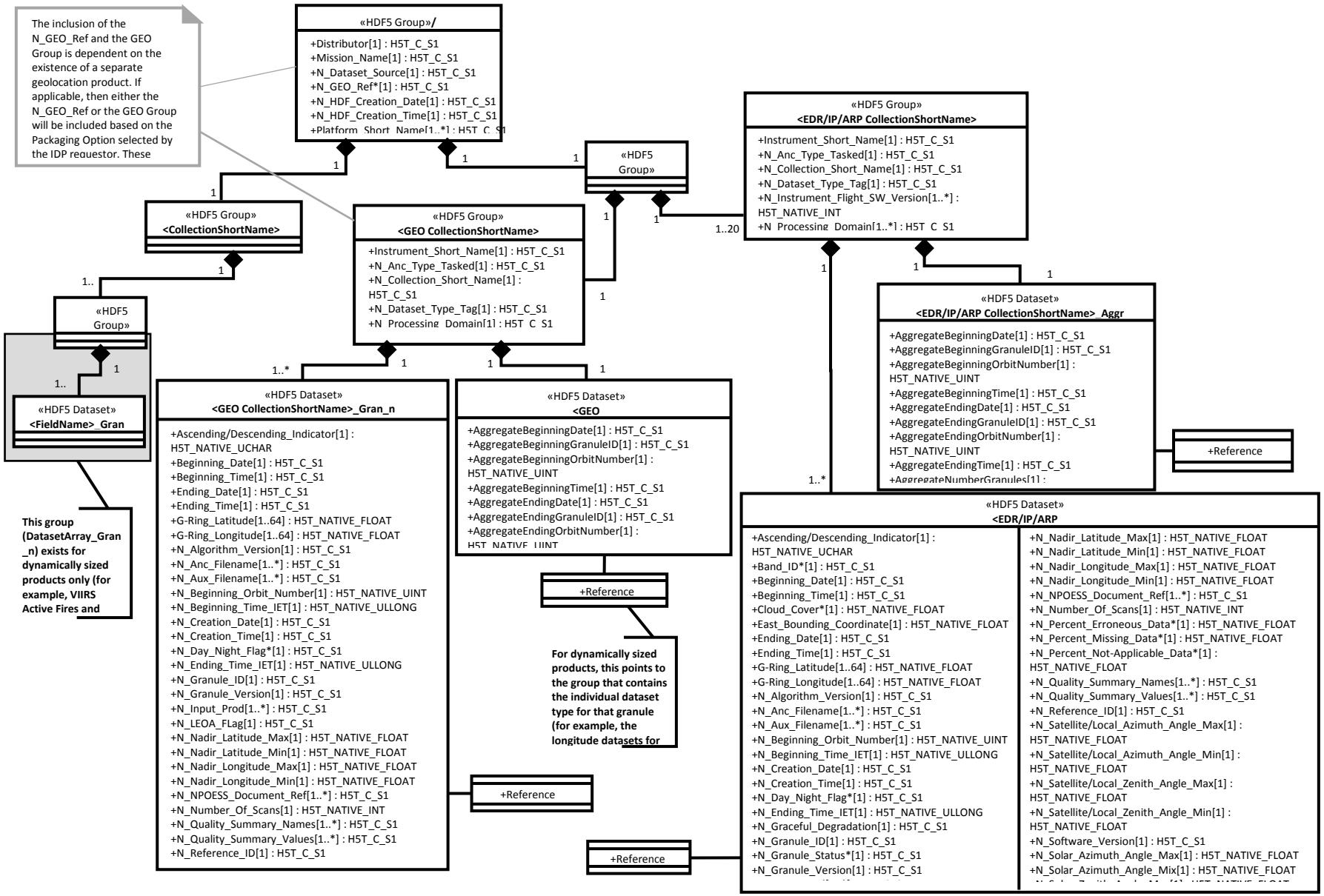

Figure: 3.2-1 Generalized UML Diagram for dynamically sized HDF5 IP/EDR Files

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3.3 Official Dynamic Ancillary Data HDF5 Details

The Official Dynamic Ancillary Data (ODAD) files are delivered as HDF5 files via IDPS. Externally provided ODAD files are encapsulated in HDF5 such that after extraction the original file is regenerated. The following information describes the HDF5 file's format via a Unified Modeling Language (UML) diagram. The UML diagram indicates the attributes, groups, and datasets used in the HDF5 file to describe the Ancillary Data file.

Figure 3.3-1, Generalized UML Diagram for HDF5 ODAD Files, depicts the HDF5 ODAD organization as a UML class diagram. Each HDF5 ODAD file contains an HDF5 Root Group, '/', an Ancillary Dataset, and an All Data Group (the actual data).

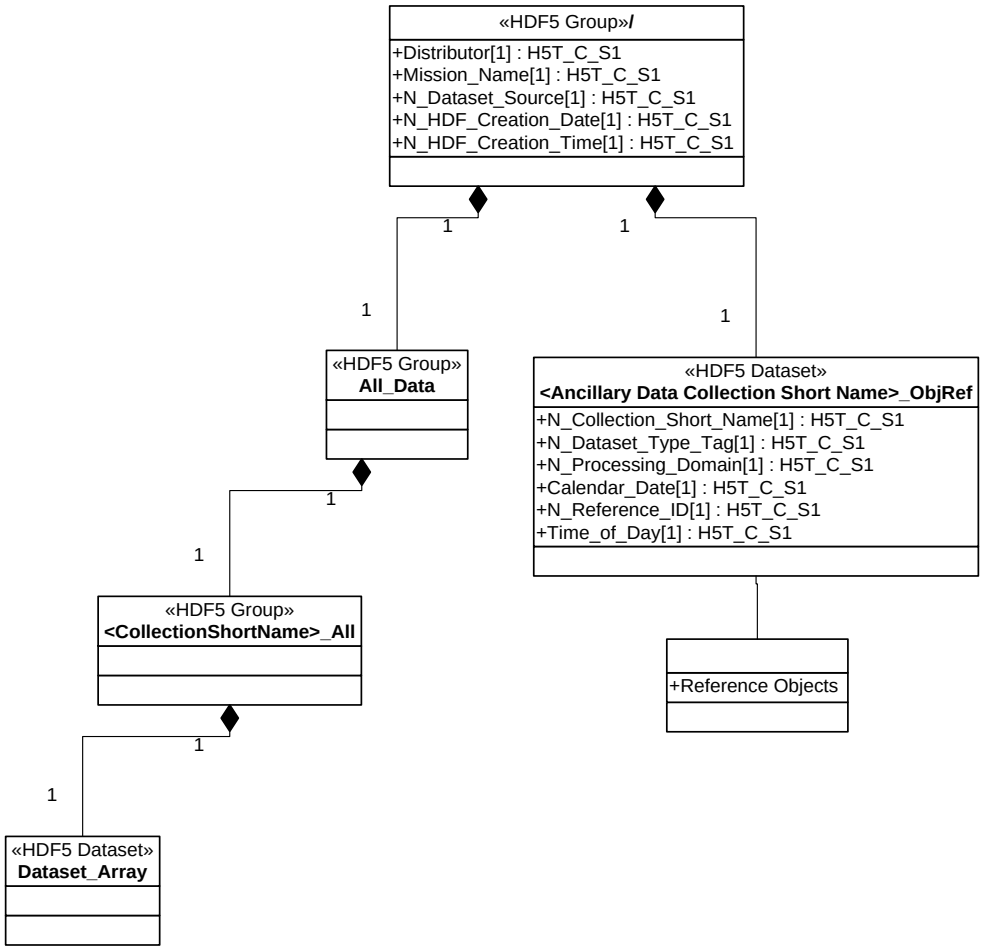


Figure: 3.3-1 Generalized UML Diagram for HDF5 ODAD Files

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

4 Intermediate Products (IPs)

This section contains the gridded Intermediate Products and granulated versions of gridded IPs.

4.1 Intermediate Products General Properties

IPs are formatted similar to Environmental Data Records (EDRs) as described in the JPSS Algorithm Specification Data Dictionaries (474-00448-02-02 to -29). However, some IPs are gridded products which are stored, packaged, and delivered differently than the granule-based JPSS Data Products.

Non-gridded IPs contain datasets, or data arrays that are partitioned into granules. Granules are data collections based on collection intervals as described in the JPSS CDFCB-X Vol. I, 474-00001-01.

Gridding is the process of accumulating, or compositing pixel data into earth-model grid cells. Most gridded products are composites of many observations obtained at the same location over a specified time interval. The compositing process combines these data through data selection, weighting, interpolation, and/or averaging to a single value per grid cell that is representative of the retrieval at that location or area during a specific time period. The composition rules are specific to each gridded product.

Section 3 provides the object structure for granulized IPs in a Unified Markup Language (UML) diagram for statically sized and dynamically sized IPs. Gridded IPs are structured slightly differently as shown Section 3, Generalized UML Diagram for HDF5 Gridded IP Files. An overview of the JPSS implementation of the HDF5 file format is provided in the JPSS CDFCB-X Vol. I, 474-00001-01.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

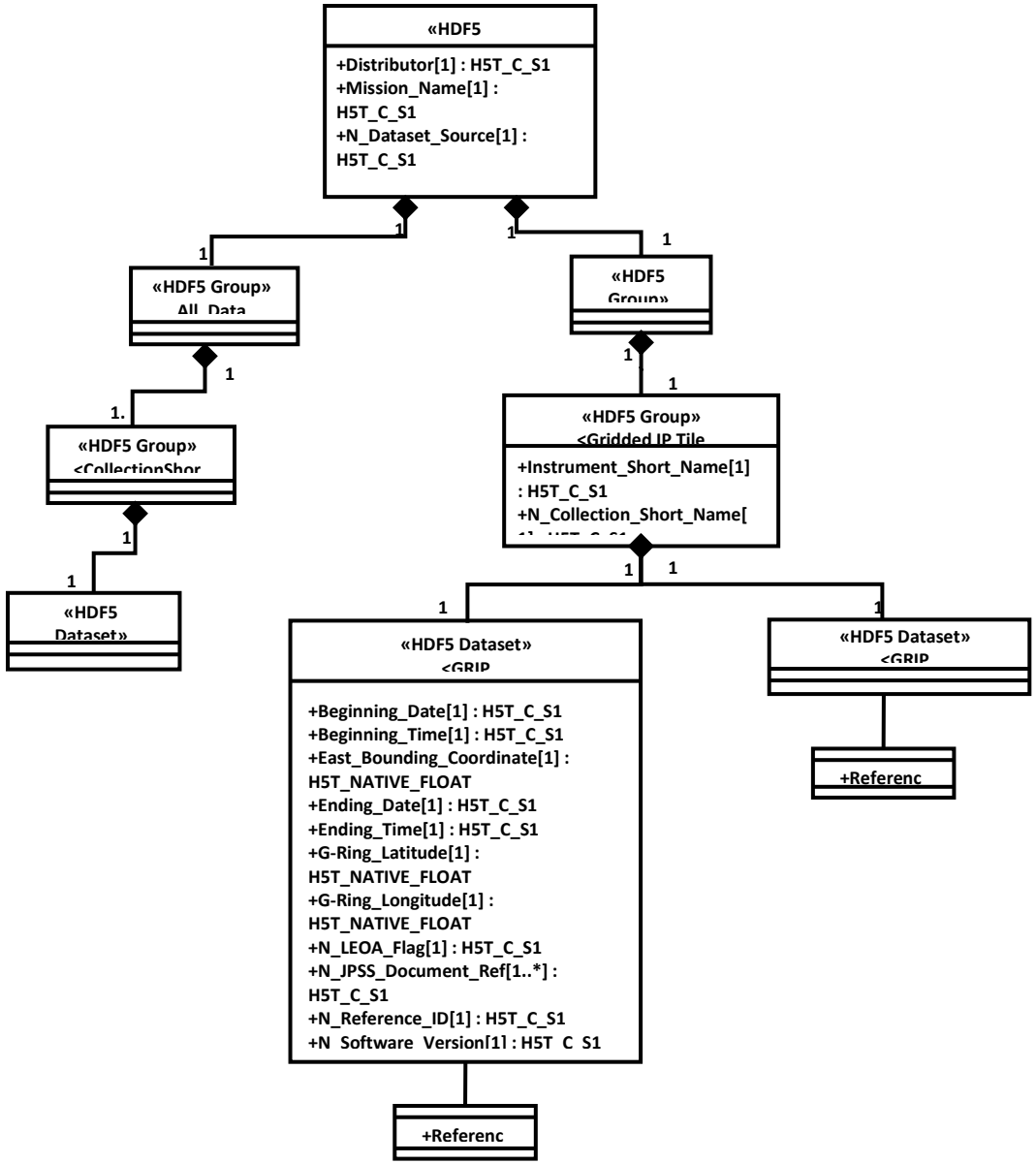


Figure: 4.1-1 Generalized UML Diagram for HDF5 Gridded IP Files

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

4.2 Dynamic Gridded Intermediate Products

Dynamic Indirect Indexed Gridded IPs are gridded products updated periodically by IDPS. These gridded IPs receive updates from ancillary data and/or granule products. They reflect the changing nature of the geographic area covered and help to increase the accuracy of the granule products provided by JPSS.

Indirect Indexing is an indexing method used to store Land Gridded IPs within the Data Management System (DMS). With this method, only those tiles that contain land are stored. Within those tiles only the cells that are marked as land are stored. Tiles that are all water are not created or stored. Indirect indexing uses an additional tiled product called the Master Land Index (MLI) to access the correct cell in the indirect-indexed products. This MLI acts as a map for all cells that contain land.

The MLI tiles utilize the Land-Water Mask (LWM) to determine whether a cell is land or not land. If the cell is land, the MLI cell is populated with the cell index. If a cell is not land, the MLI cell is populated with a FILL value. If all cells within an indirect indexed tile are water, the tile is not created. There are 3,436 tiles in the MLI.

Note that since the creation of the indirect indexing concept, the priorities of the program have changed such that the additional complication involved in creating new MLI tiles when the land-water mask changes is no longer justified by the storage and delivery savings. However, the effort of removing the code that performs indirect indexing was deemed too great to pursue. Therefore, IDPS still uses indirect indexing in the form described in this section. However, all tiles that contain any land are now being set to 100% land. This has the effect of increasing the overall size of land tiles in the DMS, and all cells within the land tiles that occur over water are now being populated with NA fill.

Figure 4.2-1, Indirect Indexing Conceptual Example, provides an illustrated example of the MLI mapping process.

An Indirect Indexed Gridded IP is therefore a structure that contains a series of cells. The number of cells depends on the tile. In addition, static data (scale/offset for example) is stored before the repeating cells within the tile. Figure 4.2-2, Indirect Indexing Tile Example - Land Surface Albedo Gridded IP, provides an illustration of the tile's format.

All static fields (fields that do not repeat within each cell) are stored at the beginning of the tile, before the repeating cells. The cells are ordered as identified by the indexing algorithm. The number of cells in each tile is stored within each Master Land Index tile itself. The Master Land Index tiles also contain the index assigned to each cell. This number is stored in the corresponding row/col of the MLI "indices" or "indices5k" field as shown in the Tile ID box in figure 4.2-2, Indirect-Indexed Tile Example - Land Surface Albedo Gridded IP.

The TileID is stored in both the filename of the Master Land Index tile and in the Gridded IP's metadata (N_Tile_ID - see Table 5-4, Metadata Delivered in JPSS Data Products, in JPSS Algorithm Specification Volume II: Data Dictionary for the Common Algorithm (474-00448-02-01)) in the HDF5 file. The correct indirect-indexed tile file can be retrieved using the tile ID. Each cell can then be matched to the corresponding row/col of the tile. Note that the tile data is stored as an array of unsigned 8-bit chars in the HDF5 file. The fields contained within this 8-bit char array for each Gridded IP are provided in this section.

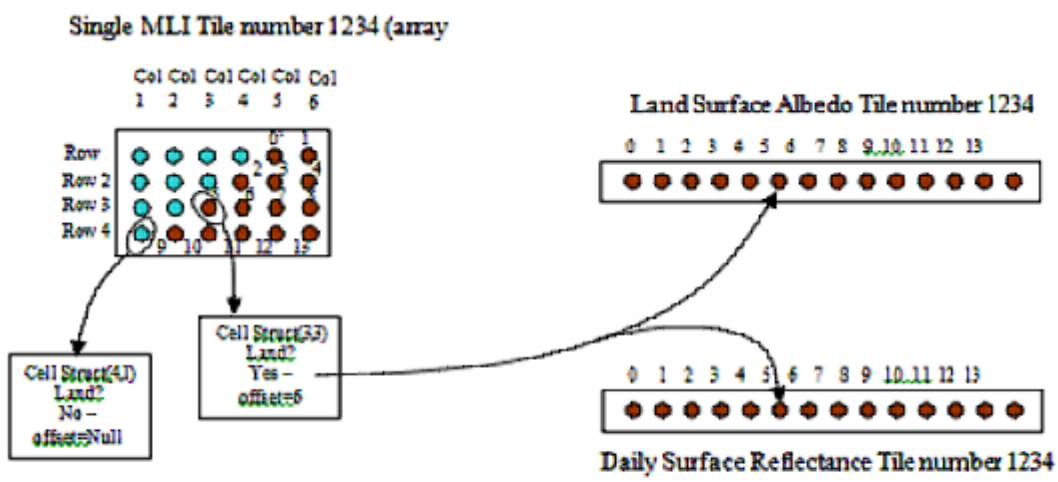
Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

The Land Gridded IPs that are stored using the land indexing method are:

1. VIIRS Global/Rolling 5-km NBAR NDVI Gridded IP (Uses prev 17-Day or Climo to eliminate FILL)
2. VIIRS Global/Monthly 5-km NBAR NDVI Gridded IP
3. VIIRS Daily Surface Reflectance Gridded IP
4. VIIRS Monthly Brightness Temperatures, Surface Reflectance & Vegetation Index Gridded IP
    a. Monthly
    b. Monthly Final GIP (Does not contain 2nd best field)
5. VIIRS Land Surface Albedo 17-day Tile Gridded IP
6. VIIRS BRDF Archetypal 17-Day Tile Gridded IP
7. VIIRS Annual Maximum/Minimum NDVI Gridded IP Quarterly Tile

The fields for Indirect-Indexed Gridded IPs are not stored as individual HDF5 datasets. Instead, the entire tile is stored as a single dataset under the All_Data group. The HDF5 data type for this dataset is an array of unsigned 8-bit chars.

Otherwise, the HDF5 structure and format follows the standard JPSS HDF5 structure. The tile and ObjRef object ID arrays are provided under the Data_Products group. Metadata, as with all other JPSS HDF5 products, is stored as HDF5 attributes attached to the tile dataset (as well as with the object reference dataset, the data product (CSN) group, and root group.)



• Note 1: These (0, 1, 2 …) numbers are for illustration only.

Figure: 4.2-1 Indirect Indexing Conceptual Example

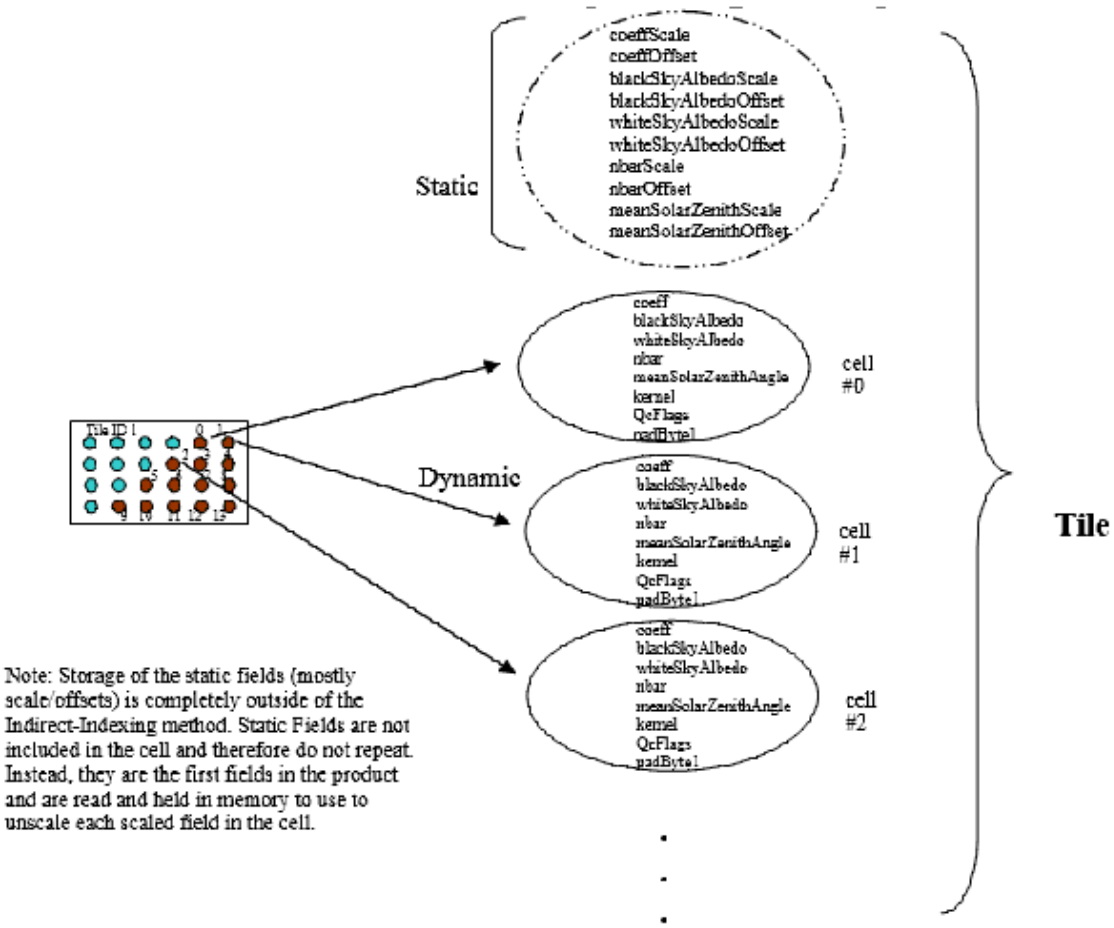


Figure: 4.2-2 Indirect Indexing Tile Example - Land Surface Albedo Gridded IP

4.2.1 File-Naming Convention for Dynamic S-NPP/JPSS Tiled Data Products

This section describes the file-naming convention for S-NPP/JPSS Tiled Data Products updated and delivered as HDF5 files by IDPS. The fields are delimited by underscores and can be of variable length. The file extension is separated from the fields by a period or dot. The extension is the standard extension for defining an HDF5 file. See Figure 4.2.1-1, S-NPP/JPSS Tiled Data Products File-Naming Convention, for a graphical depiction of the convention and Table 4.2.1-1, S-NPP/JPSS Tiled Data Products File-Naming Field Descriptions. All fields are case-sensitive. See Table 5-4, Metadata Delivered in JPSS Data Products, in JPSS Algorithm Specification Volume II: Data Dictionary for the Common Algorithm (474-00448-02-01) to find the Gridded IP unique metadata elements contained in an HDF5 file.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

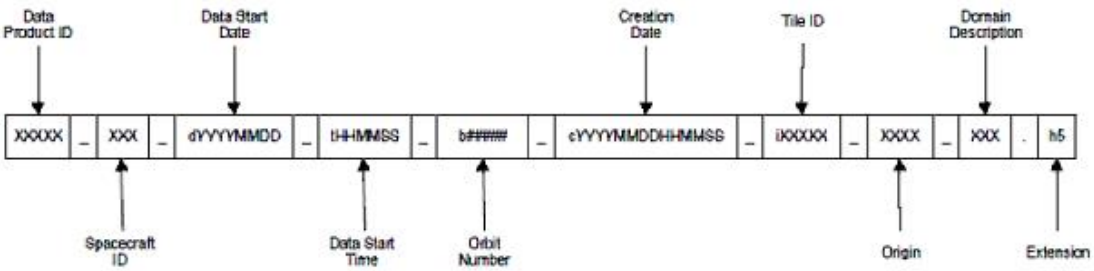


Figure: 4.2.1-1 Dynamic S-NPP/JPSS Tiled Data Products File-Naming Convention

Table: 4.2.1-1 Dynamic S-NPP/JPSS Tiled Data Products File-Naming Field Descriptions

Field Position	Description	Applicable Values
1	Data Product ID This field provides a five character identifier. For multiple data products contained in the file, each Data Product ID will be given, delimited by a dash, '-'and are in alphabetical order.	xxxxx See CDFCB-X Vol I Appendix A, Table A-1, IP Data Mnemonic to Interface Mapping
2	Field Separator	'_'
3	Spacecraft ID A three to eleven character field to accommodate a constellation of spacecraft being used. Each identifier is delimited by a hyphen and is lower case. Example: npp-j01	See the entry for Platform_Short_Name in Table 5-4, Metadata Delivered in JPSS Data Products, in JPSS Algorithm Specification Volume II: Data Dictionary for the Common Algorithm (474-00448-02-01) for a list of applicable spacecraft identifiers. The CONST identifier is not used for this field.
4	Field Separator	'_'
5	Data Start Date This field is identified with a 'd' followed by the year, month, and day of the start effectivity of the granule as described in the Beginning_Date metadata element in Table 5-4, Metadata Delivered in JPSS Data Products, in JPSS Algorithm Specification Volume II: Data Dictionary for the Common Algorithm (474-00448-02-01).	dYYYYMMDD YYYY=2005-2030 MM=01-12 DD=01-31
6	Field Separator	'_'
7	Data Start Time (UTC) This field is identified with a 't' followed by the hour, min, and sec of the start effectivity of the granule as described in the Beginning_Time metadata element in	tHHMMSS HH=00-23 MM=00-59 SS=00-60 S=0-9

Field Position	Description	Applicable Values
	Table 4.2.1-2, IP Unique Metadata Elements.	
10	Field Separator	'_'
11	Orbit Number This field is currently filled with the default value of a dash.	'-'
12	Field Separator	'_'
13	Creation Date (UTC) This field is identified with a 'c' followed by the year, month, day, hour, min, and sec, and microseconds. It is the creation date and time of the HDF5 file.	cYYYYMMDDHHMMSSSSSSSS YYYY=2005-2030 MM=01-12 DD=01-31 HH=00-23 MM=00-59 SS=00-60 SSSSSS=000000-999999
14	Field Separator	'_'
15	Tile ID This field is identified with an 'i' followed the 5 character tile identifier (ID) that the tile represents. Example: i00135	iXXXXX
16	Field Separator	'_'
17	Origin This field is a four-character alpha-numeric identifier for the originator of the file.	For a list of the possible identifiers for this field, see the JPSS CDFCB-X Vol. I, 474-00001-01, Table 3.4-2, Origin Identifiers
18	Field Separator	'_'
19	Domain Description This field is a three-character identifier which indicates the domain from which the data originated. These are the recognized domain values for JPSS. There is no specific domain for Field terminals.	For a list of the possible identifiers for this field, see the JPSS CDFCB-X Vol. I, 474-00001-01, Table 3.4-1, Domain Identifiers
20	Field Separator	'.'
21	Extension The extension indicates the format of the file S-NPP/JPSS Data Products are delivered in the HDF5 file format.	h5

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 4.2.1-2 Gridded IP Timestamp Effectivities

Gridded IP Collection Short Name	Timestamp Effectivity
GridIP-VIIRS-Nbar-Ndvi-Rolling-Tile	The GridToGrid processing will set the effectivity to the Task date plus 16 days
GridIP-VIIRS-Mth-SR-BT-VI-Monthly-Final-Tile	The GridToGrid processing will set the effectivity to the Start/End of the Month prior to the task date
GridIP-VIIRS-Land-Surf-Albedo-17Day-Tile	The GridToGrid processing will set the effectivity to be the current 17-day period, which is from 17 days prior to the task date up to 1 day before the task date
GridIP-VIIRS-Snow-Ice-Cover-Rolling-Tile	The Ingest Process only will set the effectivity from the file
GridIP-GMASI-Snow-Ice-Cover-Tile	AncToGrid processing will set the Start effectivity according to starting effectivity of the Internal Format GMASI dynamic ancillary data it is built from (which is in turn based on the original AutoSnow input filenames). End effectivity will be open-ended.

4.2.2 VIIRS Global/Rolling 5-km NBAR NDVI Gridded IP

Data Mnemonic	IMPI_VGNN_R0100
Description/ Purpose	A 5-km TOC NDVI database that is derived from the Nadir BRDF-Adjusted Reflectances (NBARs) plus update time stamp. These NBARs are available from the BRDF/Albedo product in VIIRS bands (i.e. 1-5, 7-8, and 10-11) after they are adjusted to a nadir view for the mean sun angle of each 17-day period. This product is an Indirect Indexed GIP. Collection Short Name: GridIP-VIIRS-Nbar-Ndvi-Rolling-Tile Effectivity: S-NPP and JPSS
File-Naming Construct	See the Section 4.2, File-Naming Convention for S-NPP/JPSS Tiled Data Products, for details.
File Size	See Table 4.2.2.1-1 VIIRS Global/Rolling 5-km NBAR NDVI Gridded IP Data Content Summary for size.
File Format Type	Little Endian Binary (Structure stored within HDF5 wrapper)
Production Frequency	As requested
Data Content and Data Format	See Section 4.2.2.1 VIIRS Global/Rolling 5-km NBAR NDVI Gridded IP Data Content Summary See Section 4.2.2.2 VIIRS Global/Rolling 5-km NBAR NDVI Gridded IP Product Profile See Section 4.2.2.3 VIIRS Global/Rolling 5-km NBAR NDVI Gridded IP Metadata Details See Section 4.2.2.4 VIIRS Global/Rolling 5-km NBAR NDVI Gridded IP Geolocation Details

All Land Gridded IPs that are created using the Indirect Indexing process contain a single dataset constructed as an array of unsigned 8-bit chars. This dataset stores a static section and a dynamic section. The static section consists of scale/offset values plus any other fields that do not change with each cell in the tile. The dynamic section stores the data for all cells in the tile.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Figure 4.2.2-1, VIIRS Global/Rolling 5-km NBAR NDVI Gridded IP Tile, illustrates the contents of the dataset.

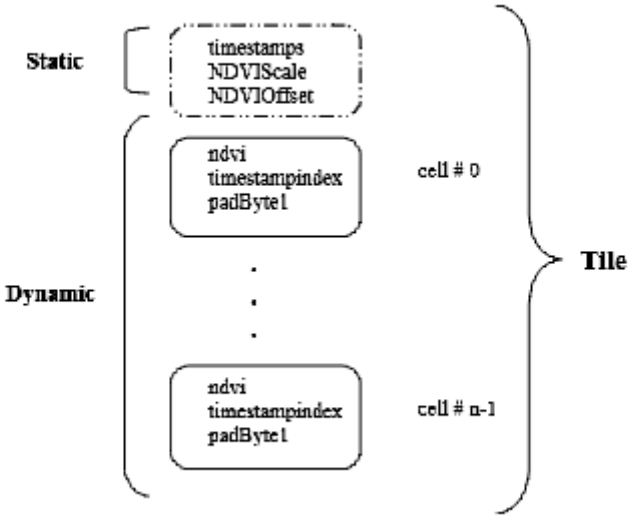


Figure: 4.2.2-1 VIIRS Global/Rolling 5-km NBAR NDVI Gridded IP Tile

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

4.2.2.1 VIIRS Global/Rolling 5-km NBAR NDVI Gridded IP Data Content Summary

Table: 4.2.2.1-1 VIIRS Global/Rolling 5-km NBAR NDVI Gridded IP Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
timestamps	The start effectivities of: 1) The previous 17 Day NBAR NDVI, 2) the second most recent 17 Day NBAR NDVI, 3) The previous year's monthly climatology NBAR NDVI	64-bit integer	[3]	[3]	IET
scale		32-bit floating point	[1]	[1]	Unitless
offset		32-bit floating point	[1]	[1]	Unitless
ndvi		unsigned 16-bit integer	[1]	[1]	Unitless
timestampIndex		unsigned 8-bit char	[1]	[1]	Unitless
pad		unsigned 8-bit char	[1]	[1]	Unitless
File Size	**36 Bytes**				

4.2.2.2 VIIRS Global 5-km NBAR NDVI Gridded IP Product Profile

Table: 4.2.2.2-1 VIIRS Global 5-km NBAR NDVI Gridded IP Product Profile

GridIP VIIRS Nbar Ndvi Rolling Tile Product Profile

Fields

Name	Data Size	Dimensions
timestamps	8byte(s)	
scale	4byte(s)	

timestamps — Dimensions:

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
inputIndex	No	No	3	3

timestamps — Datum:

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values (Name, Value)	Legend Entries (Name, Value)
timestamps	0	MIN_VAL	MAX_VAL	IET	No		64-bit integer		

scale — Dimensions:

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

scale — Datum:

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values (Name, Value)	Legend Entries (Name, Value)
scale	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

offset | 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
offset	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point	Name	Value	Name	Value

ndvi | 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
ndvi	0	-1	1	Unitless	Yes	scale	unsigned 16-bit integer	Name	Value	Name	Value
								NA_UINT16_FILL	65535		
								MISS_UINT16_FILL	65534		
								ONBOARD_PT_UINT16_FILL	65533		
								ONGROUND_PT_UINT16_FILL	65532		
								ERR_UINT16_FILL	65531		
								ELLIPSOID_UINT16_FILL	65530		
								VDNE_UINT16_FILL	65529		
								SOUB_UINT16_FILL	65528		

timestampIndex | 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
timestampIndex	0	0	2	Unitless	No		unsigned 8-bit char	Name	Value	Name	Value
										most recent 17-day NBAR NDVI value	0
										second most recent 17-day NBAR NDVI value	1
										monthly climatology NBAR NDVI value	2

pad | 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
padBytes1	No	No	1	1

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
pad	0	MIN_VAL	MAX_VAL	Unitless	No		unsigned 8-bit char	Name	Value	Name	Value

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

4.2.2.3 VIIRS Global 5-km NBAR NDVI Gridded IP Metadata Details

The product metadata elements contained in the VIIRS Global/Rolling 5-km NBAR NDVI Gridded IP are listed in Table 5-4, Metadata Delivered in JPSS Data Products, in JPSS Algorithm Specification, Vol II: Data Dictionary for the Common Algorithms (474-00448-02-01). These metadata elements include all common metadata at the root, product, aggregation, and tile/granule level.

There are no summary tile/granule-level Quality Flags defined as metadata elements in the VIIRS Global/Rolling 5-km NBAR NDVI Gridded IP. Therefore, there are no entries in the N_Quality_Summary_Name/Value metadata attributes for this product.

4.2.2.4 VIIRS Global 5-km NBAR NDVI Gridded IP Geolocation Details

The VIIRS Global/Rolling 5-km NBAR NDVI Gridded IP has no associated geolocation. See documentation on the sinusoidal projection.

4.2.3 VIIRS Land Surface Albedo 17-day Tile Gridded IP

Data Mnemonic	IMPI_VGLA_R0100
Description/ Purpose	The VIIRS Land Surface Albedo 17-day Tile Gridded IP is used by the Land Surface Albedo EDR as a first guess. It is produced from a collection of up to 17 days of surface reflectances assembled as daily surface reflectance along with a BRDF Archetypal GIP (Algorithm Support Function). This product is an Indirect Indexed GIP. Collection Short Name: GridIP-VIIRS-Land-Surf-Albedo-17Day-Tile Effectivity: S-NPP and JPSS
File-Naming Construct	See Section 4.2, File-Naming Convention for S-NPP/JPSS Tiled Data Products, for details.
File Size	See Table 4.2.3.1-1 VIIRS Land Surface Albedo Gridded Data Content Summary for size.
File Format Type	Little Endian Binary (Structure stored within HDF5 wrapper)
Production Frequency	As requested
Data Content and Data Format	See Section 4.2.3.1 VIIRS Land Surface Albedo Gridded IP Data Content Summary See Section 4.2.3.2 VIIRS Land Surface Albedo Gridded IP Product Profile See Section 4.2.3.3 VIIRS Land Surface Albedo Gridded IP Metadata Details See Section 4.2.3.4 VIIRS Land Surface Albedo Gridded IP Geolocation Details

All Land Gridded IPs that are created using the Indirect Indexing process contain a single dataset constructed as an array of unsigned 8-bit chars. This dataset stores a static section and a dynamic section. The static section consists of scale/offset values plus any other fields that do not change with each cell in the tile. The dynamic section stores the data for all cells in the tile. Figure 4.2.3-1, VIIRS Land Surface Albedo Gridded IP Tile, shows the tile static/dynamic structure and associated fields.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

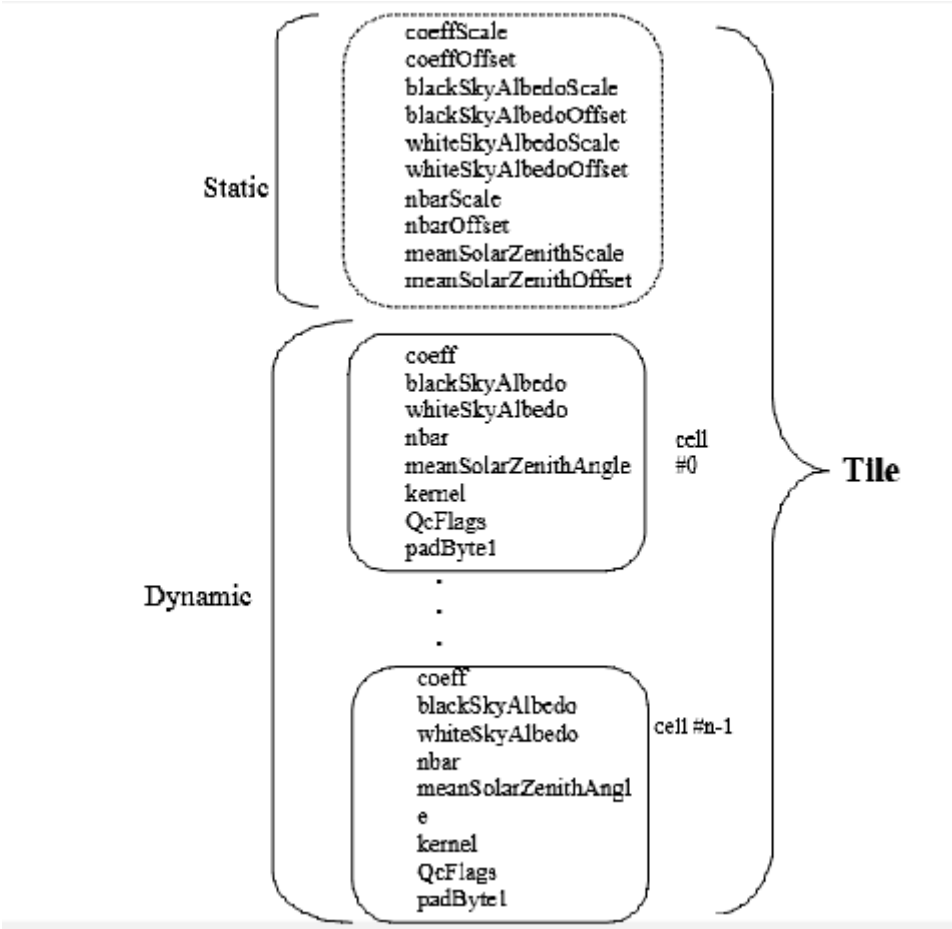


Figure: 4.2.3-1 VIIRS Land Surface Albedo Gridded IP Tile

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

4.2.3.1 VIIRS Land Surface Albedo Gridded Data Content Summary

Table: 4.2.3.1-1 VIIRS Land Surface Albedo Gridded Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
coeffScale		32-bit floating point	[1]	[1]	Unitless
coeffOffset		32-bit floating point	[1]	[1]	Unitless
blackSkyAlbedoScale		32-bit floating point	[1]	[1]	Unitless
blackSkyAlbedoOffset		32-bit floating point	[1]	[1]	Unitless
whiteSkyAlbedoScale		32-bit floating point	[1]	[1]	Unitless
whiteSkyAlbedoOffset		32-bit floating point	[1]	[1]	Unitless
nbarScale		32-bit floating point	[1]	[1]	Unitless
nbarOffset		32-bit floating point	[1]	[1]	Unitless
meanSolarZenithScale		32-bit floating point	[1]	[1]	Unitless
meanSolarZenithOffset		32-bit floating point	[1]	[1]	Unitless
coeff		unsigned 16-bit integer	[3, 3, 9]	[3, 3, 9]	Unitless
blackSkyAlbedo		unsigned 16-bit integer	[3, 9]	[3, 9]	Unitless
whiteSkyAlbedo		unsigned 16-bit integer	[3, 9]	[3, 9]	Unitless
nbar		unsigned 16-bit integer	[3, 9]	[3, 9]	Unitless
meanSolarZenith		unsigned 16-bit integer	[3]	[3]	radians
kernel		unsigned 8-bit char	[3, 2]	[3, 2]	Unitless

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
qcFlags		unsigned 8-bit char	[3]	[3]	Unitless
pad		unsigned 8-bit char	[1]	[1]	Unitless
File Size	**380 Bytes**				

4.2.3.2 VIIRS Land Surface Albedo Gridded IP Product Profile

Table: 4.2.3.2-1 VIIRS Land Surface Albedo Gridded IP Product Profile

VIIRS Land Surface Albedo GridIP 17Day Tile Product Profile

Fields

Name	Data Size	Dimensions
coeffScale	4byte(s)	**Name** **Granule Boundary** **Dynamic** **Min Array Size** **Max Array Size** **Datum** **Description** **Datum Offset** **Unscaled Valid Range Min** **Unscaled Valid Range Max** **Measurement Units** **Scaled** **Scale Factor Name** **Data Type** **Fill Values** **Legend Entries** coeffScale 0 MIN_VAL MAX_VAL Unitless No 32-bit floating point **Name** **Value** **Name** **Value**
coeffOffset	4byte(s)	**Name** **Granule Boundary** **Dynamic** **Min Array Size** **Max Array Size** **Datum** **Description** **Datum Offset** **Unscaled Valid Range Min** **Unscaled Valid Range Max** **Measurement Units** **Scaled** **Scale Factor Name** **Data Type** **Fill Values** **Legend Entries** coeffOffset 0 MIN_VAL MAX_VAL Unitless No 32-bit floating point **Name** **Value** **Name** **Value**
blackSkyAlbedoScale	4byte(s)	**Name** **Granule Boundary** **Dynamic** **Min Array Size** **Max Array Size** **Datum** **Description** **Datum Offset** **Unscaled Valid Range Min** **Unscaled Valid Range Max** **Measurement Units** **Scaled** **Scale Factor Name** **Data Type** **Fill Values** **Legend Entries** blackSkyAlbedoScale 0 MIN_VAL MAX_VAL Unitless No 32-bit floating point **Name** **Value** **Name** **Value**
blackSkyAlbedoOffset	4byte(s)	**Name** **Granule Boundary** **Dynamic** **Min Array Size** **Max Array Size** **Datum** **Description** **Datum Offset** **Unscaled Valid Range Min** **Unscaled Valid Range Max** **Measurement Units** **Scaled** **Scale Factor Name** **Data Type** **Fill Values** **Legend Entries** blackSkyAlbedoOffset 0 MIN_VAL MAX_VAL Unitless No 32-bit floating point **Name** **Value** **Name** **Value**
whiteSkyAlbedoScale	4byte(s)	**Name** **Granule Boundary** **Dynamic** **Min Array Size** **Max Array Size** **Datum** **Description** **Datum Offset** **Unscaled Valid Range Min** **Unscaled Valid Range Max** **Measurement Units** **Scaled** **Scale Factor Name** **Data Type** **Fill Values** **Legend Entries** whiteSkyAlbedoScale 0 MIN_VAL MAX_VAL Unitless No 32-bit floating point **Name** **Value** **Name** **Value**
whiteSkyAlbedoOffset	4byte(s)	**Name** **Granule Boundary** **Dynamic** **Min Array Size** **Max Array Size** **Datum** **Description** **Datum Offset** **Unscaled Valid Range Min** **Unscaled Valid Range Max** **Measurement Units** **Scaled** **Scale Factor Name** **Data Type** **Fill Values** **Legend Entries** whiteSkyAlbedoOffset 0 MIN_VAL MAX_VAL Unitless No 32-bit floating point **Name** **Value** **Name** **Value**
nbarScale	4byte(s)	**Name** **Granule Boundary** **Dynamic** **Min Array Size** **Max Array Size** **Datum** **Description** **Datum Offset** **Unscaled Valid Range Min** **Unscaled Valid Range Max** **Measurement Units** **Scaled** **Scale Factor Name** **Data Type** **Fill Values** **Legend Entries** nbarScale 0 MIN_VAL MAX_VAL Unitless No 32-bit floating point **Name** **Value** **Name** **Value**
nbarOffset	4byte(s)	**Name** **Granule Boundary** **Dynamic** **Min Array Size** **Max Array Size** **Datum** **Description** **Datum Offset** **Unscaled Valid Range Min** **Unscaled Valid Range Max** **Measurement Units** **Scaled** **Scale Factor Name** **Data Type** **Fill Values** **Legend Entries** nbarOffset 0 MIN_VAL MAX_VAL Unitless No 32-bit floating point **Name** **Value** **Name** **Value**

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Fields

meanSolarZenithScale (4byte(s))

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
meanSolarZenithScale	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point	Name	Value	Name	Value

meanSolarZenithOffset (4byte(s))

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
meanSolarZenithOffset	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point	Name	Value	Name	Value

coeff (2byte(s))

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
maxVegLayers	No	No	3	3
numBRDFCoeffs	No	No	3	3
numModVIIRSBands	No	No	9	9

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
coeff	0	0	(+1.0)	Unitless	Yes	coeffScale	unsigned 16-bit integer	Name	Value	Name	Value
								NA_UINT16_FILL	65535		
								MISS_UINT16_FILL	65534		
								ONBOARD_PT_UINT16_FILL	65533		
								ONGROUND_PT_UINT16_FILL	65532		
								ERR_UINT16_FILL	65531		
								ELLIPSOID_UINT16_FILL	65530		
								VDNE_UINT16_FILL	65529		
								SOUB_UINT16_FILL	65528		

blackSkyAlbedo (2byte(s))

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
maxVegLayers	No	No	3	3
numModVIIRSBands	No	No	9	9

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
blackSkyAlbedo	0	0	(+1.0)	Unitless	Yes	blackSkyAlbedoScale	unsigned 16-bit integer	Name	Value	Name	Value
								NA_UINT16_FILL	65535		
								MISS_UINT16_FILL	65534		
								ONBOARD_PT_UINT16_FILL	65533		
								ONGROUND_PT_UINT16_FILL	65532		
								ERR_UINT16_FILL	65531		
								ELLIPSOID_UINT16_FILL	65530		
								VDNE_UINT16_FILL	65529		
								SOUB_UINT16_FILL	65528		

whiteSkyAlbedo (2byte(s))

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
maxVegLayers	No	No	3	3
numModVIIRSBands	No	No	9	9

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
whiteSkyAlbedo	0	0	(+1.0)	Unitless	Yes	whiteSkyAlbedoScale	unsigned 16-bit integer	Name	Value	Name	Value
								NA_UINT16_FILL	65535		
								MISS_UINT16_FILL	65534		
								ONBOARD_PT_UINT16_FILL	65533		
								ONGROUND_PT_UINT16_FILL	65532		
								ERR_UINT16_FILL	65531		
								ELLIPSOID_UINT16_FILL	65530		
								VDNE_UINT16_FILL	65529		
								SOUB_UINT16_FILL	65528		

nbar (2byte(s))

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
maxVegLayers	No	No	3	3

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Fields

		numModVIIRSBands	No	No	9	9

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
nbar	0	0	(+1.0)	Unitless	No		unsigned 16-bit integer	**Name**	**Value**	**Name**	**Value**
								NA_UINT16_FILL	65535		
								MISS_UINT16_FILL	65534		
								ONBOARD_PT_UINT16_FILL	65533		
								ONGROUND_PT_UINT16_FILL	65532		
								ERR_UINT16_FILL	65531		
								ELLIPSOID_UINT16_FILL	65530		
								VDNE_UINT16_FILL	65529		
								SOUB_UINT16_FILL	65528		

meanSolarZenith — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
maxVegLayers	No	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
meanSolarZenith	0	0	(+1.48352986)	radians	Yes	meanSolarZenithScale	unsigned 16-bit integer	**Name**	**Value**	**Name**	**Value**
								NA_UINT16_FILL	65535		
								MISS_UINT16_FILL	65534		
								ONBOARD_PT_UINT16_FILL	65533		
								ONGROUND_PT_UINT16_FILL	65532		
								ERR_UINT16_FILL	65531		
								ELLIPSOID_UINT16_FILL	65530		
								VDNE_UINT16_FILL	65529		
								SOUB_UINT16_FILL	65528		

kernel — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
maxVegLayers	No	No	3	3
numBRDFKernels	No	No	2	2

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
kernel	0	0	7	Unitless	No		unsigned 8-bit char	**Name**	**Value**	**Name**	**Value**
								NA_UINT8_FILL	255		
								MISS_UINT8_FILL	254		
								ONBOARD_PT_UINT8_FILL	253		
								ONGROUND_PT_UINT8_FILL	252		
								ERR_UINT8_FILL	251		
								ELLIPSOID_UINT8_FILL	250		
								VDNE_UINT8_FILL	249		
								SOUB_UINT8_FILL	248		

qcFlags — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
maxVegLayers	No	No	3	3

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
spare	0	0	0	Unitless	No		3 bit(s)	**Name**	**Value**	**Name**	**Value**
criterion	3	0	3		No		2 bit(s)	**Name**	**Value**	**Name**	**Value**
										RMSE Heritage	0
										RMSE	1
										Coeffs Variance	2
										White-sky albedo variance	3
retrievalQuality	5	0	1		No		1 bit(s)	**Name**	**Value**	**Name**	**Value**
										poor	0
										good	1
inversionType	6	0	3		No		2 bit(s)	**Name**	**Value**	**Name**	**Value**

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Fields												
											N/A	0
											full inversion	1
											magnitude inversion	2
											history	3
pad	1byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**						
		Datum										
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**	**Legend Entries**	
		pad	0	0	0	Unitless	No		unsigned 8-bit char	**Name** **Value**	**Name** **Value**	

4.2.3.3 VIIRS Land Surface Albedo Gridded IP Metadata Details

The product metadata elements contained in the VIIRS Land Surface Albedo Gridded IP are listed in Table 5-4, Metadata Delivered in JPSS Data Products, in JPSS Algorithm Specification, Vol II - Data Dictionary for the Common Algorithms (474-00448-02-01). These metadata elements include all common metadata at the root, product, aggregation, and tile/granule level. There are no summary tile/granule-level Quality Flags defined as metadata elements in the VIIRS Land Surface Albedo Gridded IP. Therefore, there are no entries in the N_Quality_Summary_Name/Value metadata attributes for this product.

4.2.3.4 VIIRS Land Surface Albedo Gridded IP Geolocation Details

The VIIRS Land Surface Albedo Gridded IP has no associated geolocation. See documentation on the sinusoidal projection.

4.2.4 VIIRS Monthly Brightness Temperatures, Surface Reflectance & Vegetation Index Gridded IP (Monthly Final Tile)

Data Mnemonic	IMPI_VTRF_R0100
Description/ Purpose	The VIIRS Monthly Brightness Temperature, Surface Reflectance, and Vegetation Index Gridded IP is a monthly product (final for the month) containing globally-gridded Brightness Temperatures for the M12 - M16 spectral bands, Surface Reflectance for the M1, M2, M3, M4, M5, M7, M8, M10, M11 spectral bands from earth-gridded composite data, and globally-gridded monthly NDVI grids. This product is an Indirect Indexed GIP. Collection Short Name: GridIP-VIIRS-Mth-SR-BT-VI-Monthly-Final-Tile Effectivity: S-NPP and JPSS
File-Naming Construct	See Section 4.2, File-Naming Convention for S-NPP/JPSS Tiled Data Products, for details.
	See Table 4.2.4.1-1 VIIRS Monthly Brightness Temperatures, Surface Reflectance & Vegetation Index Gridded IP Data Content Summary for size.
File Format Type	Little Endian Binary (Structure stored within HDF5 wrapper)
Production Frequency	As requested
Data Content and Data Format	See Section 4.2.4.1 VIIRS Monthly Brightness Temperatures, Surface Reflectance & Vegetation Index Gridded IP Data Content Summary See Section 4.2.4.2 VIIRS Monthly Brightness Temperatures, Surface Reflectance & Vegetation Index Gridded IP Product Profile See Section 4.2.4.3 VIIRS Monthly Brightness Temperatures, Surface Reflectance & Vegetation Index Gridded IP Metadata Details See Section 4.2.4.4 VIIRS Monthly Brightness Temperatures, Surface Reflectance & Vegetation Index Gridded IP Geolocation Details

All Land Gridded IPs that are created using the Indirect Indexing process contain a single dataset constructed as an array of unsigned 8-bit chars. This dataset stores a static section and a dynamic section. The static section consists of scale/offset values plus any other fields that do not change with each cell in the tile. The dynamic section stores the data for all cells in the tile. Figure 4.2.4-

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1, VIIRS Monthly Brightness Temperatures, Surface Reflectance & Vegetation Index Gridded IP Tile, shows the tile static/dynamic structure and associated fields.

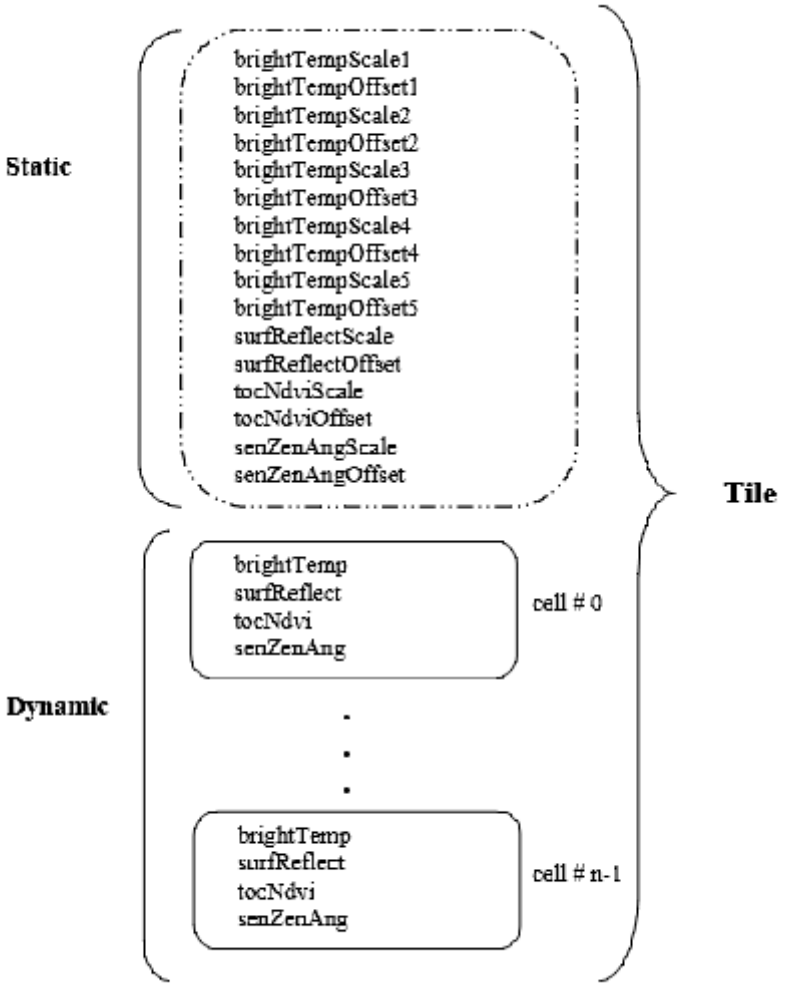

Figure: 4.2.4-1 VIIRS Monthly Brightness Temperatures, Surface Reflectance & Vegetation Index Gridded IP Tile

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

4.2.4.1 VIIRS Monthly Brightness Temperatures, Surface Reflectance & Vegetation Index Gridded IP Data Content Summary

Table: 4.2.4.1-1 VIIRS Monthly Brightness Temperatures, Surface Reflectance & Vegetation Index Gridded IP Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
brightTempScale1		32-bit floating point	[1]	[1]	Unitless
brightTempOffset1		32-bit floating point	[1]	[1]	Unitless
brightTempScale2		32-bit floating point	[1]	[1]	Unitless
brightTempOffset2		32-bit floating point	[1]	[1]	Unitless
brightTempScale3		32-bit floating point	[1]	[1]	Unitless
brightTempOffset3		32-bit floating point	[1]	[1]	Unitless
brightTempScale4		32-bit floating point	[1]	[1]	Unitless
brightTempOffset4		32-bit floating point	[1]	[1]	Unitless
brightTempScale5		32-bit floating point	[1]	[1]	Unitless
brightTempOffset5		32-bit floating point	[1]	[1]	Unitless
surfReflectScale		32-bit floating point	[1]	[1]	Unitless
surfReflectOffset		32-bit floating point	[1]	[1]	Unitless
tocNdviScale		32-bit floating point	[1]	[1]	Unitless
tocNdviOffset		32-bit floating point	[1]	[1]	Unitless
senZenAngScale		32-bit floating point	[1]	[1]	Unitless
senZenAngOffset		32-bit floating point	[1]	[1]	Unitless
brightTemp		unsigned 16-bit integer	[5]	[5]	Scaled Degrees Kelvin
surfReflect		unsigned 16-bit integer	[9]	[9]	Unitless
tocNdvi		unsigned 16-bit integer	[1]	[1]	Unitless
senZenAng		unsigned 16-bit integer	[1]	[1]	Radians
File Size	**96 Bytes**				

4.2.4.2 VIIRS Monthly Brightness Temperatures, Surface Reflectance & Vegetation Index Gridded IP Product Profile

Table: 4.2.4.2-1 VIIRS Monthly Brightness Temperatures, Surface Reflectance & Vegetation Index Gridded IP Product Profile

Grid IP VIIRS Monthly Surface Reflectance Brightness Temperature Vegetation Index Monthly Final Tile Product Profile

Fields						
Name	**Data Size**	**Dimensions**				
brightTempScale1	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Datum													
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
		brightTempScale1	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**
brightTempOffset1	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**							
		Datum											
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
		brightTempOffset1	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**
brightTempScale2	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**							
		Datum											
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
		brightTempScale2	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**
brightTempOffset2	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**							
		Datum											
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
		brightTempOffset2	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**
brightTempScale3	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**							
		Datum											
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
		brightTempScale3	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**
brightTempOffset3	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**							
		Datum											
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
		brightTempOffset3	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**
brightTempScale4	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**							
		Datum											
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
		brightTempScale4	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**
brightTempOffset4	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**							
		Datum											
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
		brightTempOffset4	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**
brightTempScale5	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**							
		Datum											
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
		brightTempScale5	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**
brightTempOffset5	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**							
		Datum											
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
		brightTempOffset5	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**
surfReflectScale	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**							
		Datum											
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
		surfReflectScale	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**
surfReflectOffset	4byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**							
		Datum											
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
		surfReflectOffset	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point	**Name**	**Value**	**Name**	**Value**

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Fields

tocNdviScale — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
tocNdviScale	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point				

tocNdviOffset — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
tocNdviOffset	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point				

senZenAngScale — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
senZenAngScale	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point				

senZenAngOffset — 4byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
senZenAngOffset	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point				

brightTemp — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
BTBands	No	No	5	5

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
brightTemp	0	103	683	Scaled Degrees Kelvin	Yes	brightTempScale5	unsigned 16-bit integer				
								NA_UINT16_FILL	65535		
								MISS_UINT16_FILL	65534		
								ONBOARD_PT_UINT16_FILL	65533		
								ONGROUND_PT_UINT16_FILL	65532		
								ERR_UINT16_FILL	65531		
								ELLIPSOID_UINT16_FILL	65530		
								VDNE_UINT16_FILL	65529		
								SOUB_UINT16_FILL	65528		

surfReflect — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
SRBands	No	No	9	9

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
surfReflect	0	0	1.5	Unitless	Yes	surfReflectScale	unsigned 16-bit integer				
								NA_UINT16_FILL	65535		
								MISS_UINT16_FILL	65534		
								ONBOARD_PT_UINT16_FILL	65533		
								ONGROUND_PT_UINT16_FILL	65532		
								ERR_UINT16_FILL	65531		
								ELLIPSOID_UINT16_FILL	65530		
								VDNE_UINT16_FILL	65529		
								SOUB_UINT16_FILL	65528		

tocNdvi — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
tocNdvi	0	-1	1	Unitless	Yes	tocNdviScale	unsigned 16-bit integer				
								NA_UINT16_FILL	65535		
								MISS_UINT16_FILL	65534		
								ONBOARD_PT_UINT16_FILL	65533		
								ONGROUND_PT_UINT16_FILL	65532		
								ERR_UINT16_FILL	65531		
								ELLIPSOID_UINT16_FILL	65530		

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

										VDNE_UINT16_FILL	65529	
										SOUB_UINT16_FILL	65528	
senZenAng	2byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**						
		Datum										
		Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**
		senZenAng	0	0	PI	Radians	Yes	senZenAngScale	unsigned 16-bit integer	**Name**	**Value**	**Name** **Value**
										NA_UINT16_FILL	65535	
										MISS_UINT16_FILL	65534	
										ONBOARD_PT_UINT16_FILL	65533	
										ONGROUND_PT_UINT16_FILL	65532	
										ERR_UINT16_FILL	65531	
										ELLIPSOID_UINT16_FILL	65530	
										VDNE_UINT16_FILL	65529	
										SOUB_UINT16_FILL	65528	

4.2.4.3 VIIRS Monthly Brightness Temperatures, Surface Reflectance & Vegetation Index Gridded IP Metadata Details

The product metadata elements contained in the VIIRS Monthly Brightness Temperatures, Surface Reflectance & Vegetation Index Gridded IP are listed in Table 5-4, Metadata Delivered in JPSS Data Products, in JPSS Algorithm Specification, Vol II - Data Dictionary for the Common Algorithms (474-00448-02-01). These metadata elements include all common metadata at the root, product, aggregation, and tile/granule level. There are no summary tile/granule-level Quality Flags defined as metadata elements in the VIIRS Monthly Brightness Temperatures, Surface Reflectance & Vegetation Index Gridded IP. Therefore, there are no entries in the N_Quality_Summary_Name/Value metadata attributes for this product.

4.2.4.4 VIIRS Monthly Brightness Temperatures, Surface Reflectance & Vegetation Index Gridded IP Geolocation Details

The VIIRS Monthly Brightness Temperatures, Surface Reflectance & Vegetation Index Gridded IP has no associated geolocation. See documentation on the sinusoidal projection.

4.2.5 VIIRS Snow/Ice Cover Rolling Tile Gridded Intermediate Product

Data Mnemonic	IMPI_VGSC_R0100
Description/ Purpose	The Snow/Ice Cover Gridded IP is used to provide pixel-level snow and ice information. The Snow/Ice Cover Gridded IP is updated with information of the Snow Cover EDR process. Ice information from the Ice Concentration IP, and fallback ancillary data from the daily NOAA Global Multisensor Automated Snow/Ice Map. This product is a Non-Indexed GIP. Collection Short Name: GridIP-VIIRS-Snow-Ice-Cover-Rolling-Tile Effectivity: S-NPP and JPSS
File-Naming Construct	See Section 4.2, File-Naming Convention for S-NPP/JPSS Tiled Data Products, for details.
File Size	See Table: 4.2.5.1-1 VIIRS Snow/Ice Cover Gridded IP Data Content Summary for size.
File Format Type	Little Endian Binary (HDF5)
Production Frequency	As requested. No more than once per day.
Data Content and Data Format	See Section 4.2.5.1 VIIRS Snow/Ice Cover Gridded IP Data Content Summary See Section 4.2.5.2 VIIRS Snow/Ice Cover Gridded IP Product Profile See Section 4.2.5.3 VIIRS Snow/Ice Cover Gridded IP HDF5 Details See Section 4.2.5.4 VIIRS Snow/Ice Cover Gridded IP Metadata Details See Section 4.2.5.5 VIIRS Snow/Ice Cover Gridded IP Geolocation Details

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

4.2.5.1 VIIRS Snow/Ice Cover Rolling Tile Gridded IP Data Content Summary

Table: 4.2.5.1-1 VIIRS Snow/Ice Cover Rolling Tile Gridded IP Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
snowIceCover	snowIceCover Pixel	unsigned 8-bit char	[300, 600]	[300, 600]	Unitless
geoError	geoError Pixel Geolocation error (0 at NADIR, 50 at edge of scan, 64 if ancillary-filled)	unsigned 8-bit char	[300, 600]	[300, 600]	Unitless
obsTime	Observation Time Pixel	64-bit integer	[300, 600]	[300, 600]	microsecond
File Size	**1,800,000 Bytes**				

4.2.5.2 VIIRS Snow/Ice Cover Gridded IP Product Profile

Table: 4.2.5.2-1 VIIRS Snow/Ice Cover Gridded IP Product Profile

Fields

Name	Data Size	Dimensions
snowIceCover	1byte(s)	
geoError	1byte(s)	
obsTime	8byte(s)	

snowIceCover — Dimensions:

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
cellRows	No	No	300	300
cellCols	No	No	600	600

snowIceCover — Datum:

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
snowIceCover	0	0	1	Unitless	No		unsigned 8-bit char	Name	Value	Name	Value
								NA_UINT8_FILL	255	no snow or ice	0
								MISS_UINT8_FILL	254	snow or ice	1
								ONBOARD_PT_UINT8_FILL	253		
								ONGROUND_PT_UINT8_FILL	252		
								ERR_UINT8_FILL	251		
								ELLIPSOID_UINT8_FILL	250		
								VDNE_UINT8_FILL	249		
								SOUB_UINT8_FILL	248		

geoError — Dimensions:

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
cellRows	No	No	300	300
cellCols	No	No	600	600

geoError — Datum:

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
geoError Pixel Geolocation error (0 at NADIR, through 50 at edge of scan, 64 if ancillary-filled)	0	0	64	Unitless	No		unsigned 8-bit char	Name	Value	Name	Value

obsTime — Dimensions:

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
cellRows	No	No	300	300

Fields

cellCols	No	No	600	600

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
obsTime	0	(-9223372036854775808)	(+9223372036854775807)	microsecond	No		64-bit integer				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

4.2.5.3 VIIRS Snow/Ice Cover Gridded IP HDF5 Details

Figure 4.2.5.3-1 provides the details on the content and data types of the VIIRS Snow/Ice Cover Gridded IP products. These UML diagrams provide details at the product level only. In addition to these UML diagrams, refer to figure 3.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, for a complete UML rendering of this product.

GridIP-VIIRS-Snow-Ice-Cover-Rolling-Tile
+geoErrorsnowIceCover : H5T_NATIVE_UCHAR +geoError obsTime : H5T_NATIVE_UCHARLLONG + snowIceCoverobsTime : H5T_NATIVE_LLONGUCHAR

Figure: 4.2.5.3-1 VIIRS Snow/Ice Cover Gridded IP HDF5 Details UML Diagram

4.2.5.4 VIIRS Snow/Ice Cover Gridded IP Metadata Details

The product metadata elements contained in the VIIRS Snow/Ice Cover Gridded IP are listed in Table 5-4, Metadata Delivered in JPSS Data Products, in JPSS Algorithm Specification, Vol II - Data Dictionary for the Common Algorithms (474-00448-02-01). These metadata elements include all common metadata at the root, product, aggregation, and granule level. There are no granule level Quality Flags defined as metadata elements in the VIIRS Snow/Ice Cover Gridded IP. Therefore, there are no entries in the N_Quality_Summary_Name/Value metadata attributes for this product.

4.2.5.5 VIIRS Snow/Ice Cover Gridded IP Geolocation Details

The VIIRS Snow/Ice Cover Gridded IP has no associated geolocation. See documentation on the sinusoidal projection.

4.2.6 GMASI Snow/Ice Cover Gridded IP

Data Mnemonic	IMPI_VGGC_R0100
Description/ Purpose	The Global Multisensor Automated Snow/Ice Map Gridded IP is used to supplement the update of the VIIRS Snow/Ice Cover Gridded IP in situations where no VIIRS Snow Cover EDR, or Ice Concentration IP data are available for extended periods of time. It is updated from the NOAA 2km resolution AutoSnow product for the Southern Hemisphere and 4km resolution the Northern Hemisphere. The GMASI Snow/Ice Cover Gridded IP is provided in the CLASS supporting data release package as part of the Seed Data contents. This product is a Non-Indexed GIP. Collection Short Name: GridIP-GMASI-Snow-Ice-Cover-Tile Effectivity: S-NPP and JPSS
File-Naming Construct	See Section 4.2, File-Naming Convention for S-NPP/JPSS Tiled Data Products, for details.
File Size	See Table 4.2.6.1-1 GMASI Snow/Ice Cover Gridded IP Data Content Summary for size
File Format Type	Little Endian Binary
Production Frequency	Part of CLASS Release Package
Data Content and Data Format	See Section 4.2.6.1 GMASI Snow/Ice Cover Gridded IP Data Content Summary

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Data Mnemonic	IMPI_VGGC_R0100
	See Section 4.2.6.2 GMASI Snow/Ice Cover Gridded IP Product Profile See Section 4.2.6.3 GMASI Snow/Ice Cover Gridded IP Metadata Details See Section 4.2.6.4 GMASI Snow/Ice Cover Gridded IP Geolocation Details

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

4.2.6.1 GMASI Snow/Ice Cover Gridded IP Data Content Summary

Table: 4.2.6.1-1 GMASI Snow/Ice Cover Gridded IP Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
snowIceCover	snowIceCover Pixel	unsigned 8-bit char	[300, 600]	[300, 600]	Unitless
geoError	geoError Pixel Geolocation error (0 at NADIR, 50 at edge of scan)	unsigned 8-bit char	[300, 600]	[300, 600]	Unitless
obsTime	Observation Time Pixel	64-bit integer	[300, 600]	[300, 600]	microsecond
File Size	**1,800,000 Bytes**				

4.2.6.2 GMASI Snow/Ice Cover Gridded IP Product Profile

Table: 4.2.6.2-1 GMASI Snow/Ice Cover Gridded IP Product Profile

Fields

Name	Data Size	Dimensions
snowIceCover	1bytes	
geoError	1bytes	
obsTime	8bytes	

snowIceCover — Dimensions:

Name	Dynamic	Min Array Size	Max Array Size
cellRows	No	300	300
cellCols	No	600	600

snowIceCover — Datum:

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
snowIceCover Pixel	0	0	1	Unitless	No		unsigned 8-bit char	NA_UINT8_FILL	255	no snow or ice	0
										snow or ice	1

geoError — Dimensions:

Name	Dynamic	Min Array Size	Max Array Size
cellRows	No	300	300
cellCols	No	600	600

geoError — Datum:

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
geoError Pixel Geolocation error (0 at NADIR, through 50 at edge of scan, 64 if ancillary-filled)	0	0	64	Unitless	No		unsigned 8-bit char				

obsTime — Dimensions:

Name	Dynamic	Min Array Size	Max Array Size
cellRows	No	300	300
cellCols	No	600	600

obsTime — Datum:

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
								Name	Value	Name	Value
observation Time Pixel	0	(-9223372036854775808)	(+9223372036854775807)	microseconds	No		64-bit integer				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

4.2.6.3 GMASI Snow/Ice Cover Gridded IP Metadata Details

The product metadata elements contained in the GMASI Snow/Ice Cover Gridded IP are listed in Table 5-4, Metadata Delivered in JPSS Data Products, in JPSS Algorithm Specification, Vol II: Data Dictionary for the Common Algorithms (474-00448-02-01). These metadata elements include all common metadata at the root, product, aggregation, and granule level.

There are no granule level Quality Flags defined as metadata elements in the GMASI Snow/Ice Cover Gridded IP. Therefore, there are no entries in the N_Quality_Summary_Name/Value metadata attributes for this product.

4.2.6.4 GMASI Snow/Ice Cover Gridded IP Geolocation Details

The GMASI Snow/Ice Cover Gridded IP has no associated geolocation. See documentation on the sinusoidal projection.

4.2.7 VIIRS Daily Surface Reflectance Gridded Intermediate Product

Data Mnemonic	IMPI_VGSR_R0100
Description/ Purpose	The Daily Surface Reflectance (DSR) Gridded IP is a collection of valid surface reflectance observations during the day. The VIIRS Daily Surface Reflectance Gridded IP is used to provide pixel level composite reflectance from the daily observations. The VIIRS Daily Surface Reflectance Gridded IP is required for producing the Gridded Surface Albedo IP. The Daily Surface Reflectance Template Gridded IP is provided in the CLASS supporting data release package as part of the Seed Data contents. The Template Gridded IP is used for initialization of new Daily Surface Reflectance Gridded IP products prior to the start of a new daily compositing period. The Daily Surface Reflectance Gridded IP is updated with information of the reflectance observation from satellite. Only the Template Gridded IP version is provided externally to CGS. This product is an Indirect Indexed GIP. Collection Short Name: GridIP-VIIRS-Daily-Surf-Refl-Daily-Tile Effectivity: S-NPP and JPSS
File-Naming Construct	See Section 4.2, File-Naming Convention for S-NPP/JPSS Tiled Data Products, for details.
File Size	See Section 4.2.7.1 VIIRS Daily Surface Reflectance Gridded IP Data Content Summary for Size
File Format Type	Little Endian Binary
Production Frequency	Part of CLASS Release Package
Data Content and Data Format	See Section 4.2.7.1 VIIRS Daily Surface Reflectance Gridded IP Data Content Summary See Section 4.2.7.2 VIIRS Daily Surface Reflectance Gridded IP Product Profile See Section 4.2.7.3 VIIRS Daily Surface Reflectance Gridded IP Metadata Details See Section 4.2.7.4 VIIRS Daily Surface Reflectance Gridded IP Geolocation Details

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

4.2.7.1 VIIRS Daily Surface Reflectance Gridded IP Data Content Summary

Table: 4.2.7.1-1 VIIRS Daily Surface Reflectance Gridded IP Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
maxObs		32-bit integer	[1]	[1]	Unitless
surfReflectScale		32-bit floating point	[1]	[1]	Unitless
surfReflectOffset		32-bit floating point	[1]	[1]	Unitless
solZenAngScale		32-bit floating point	[1]	[1]	Unitless
solZenAngOffset		32-bit floating point	[1]	[1]	Unitless
senZenAngScale		32-bit floating point	[1]	[1]	Unitless
senZenAngOffset		32-bit floating point	[1]	[1]	Unitless
relAziAngScale		32-bit floating point	[1]	[1]	Unitless
relAziAngOffset		32-bit floating point	[1]	[1]	Unitless
surfReflect		unsigned 16-bit integer	[15, 9]	[15, 9]	Unitless
solZenAng		unsigned 16-bit integer	[15]	[15]	Scaled Radians
senZenAng		unsigned 16-bit integer	[15]	[15]	Scaled Radians
relAziAng		unsigned 16-bit integer	[15]	[15]	Scaled Radians
numOfObs		unsigned 8-bit char	[1]	[1]	Unitless
lqfByte0		unsigned 8-bit char	[15]	[15]	Unitless
lqfByte1		unsigned 8-bit char	[15]	[15]	Unitless
lqfByte2		unsigned 8-bit char	[15]	[15]	Unitless
lqfByte3		unsigned 8-bit char	[15]	[15]	Unitless
lqfByte4		unsigned 8-bit char	[15]	[15]	Unitless
lqfByte5		unsigned 8-bit char	[15]	[15]	Unitless
Pad		unsigned 8-bit char	[1]	[1]	Unitless
File Size	**488 Bytes**				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

4.2.7.2 VIIRS Daily Surface Reflectance Gridded IP Product Profile

Table: 4.2.7.2-1 VIIRS Daily Surface Reflectance Gridded IP Product Profile

Grid IP VIIRS Daily Surface Reflectance Template Daily Tile Product Profile

Fields

Name	Data Size	Dimensions
maxObs	4byte(s)	
surfReflectScale	4byte(s)	
surfReflectOffset	4byte(s)	
solZenAngScale	4byte(s)	
solZenAngOffset	4byte(s)	
senZenAngScale	4byte(s)	
senZenAngOffset	4byte(s)	
relAziAngScale	4byte(s)	
relAziAngOffset	4byte(s)	
surfReflect	2byte(s)	

maxObs — Dimensions:

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum:

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
maxObs	0	0	15	Unitless	No		32-bit integer	Name Value	Name Value

surfReflectScale — Dimensions:

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum:

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
surfReflectScale	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point	Name Value	Name Value

surfReflectOffset — Dimensions:

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum:

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
surfReflectOffset	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point	Name Value	Name Value

solZenAngScale — Dimensions:

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum:

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
solZenAngScale	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point	Name Value	Name Value

solZenAngOffset — Dimensions:

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum:

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
solZenAngOffset	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point	Name Value	Name Value

senZenAngScale — Dimensions:

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum:

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
senZenAngScale	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point	Name Value	Name Value

senZenAngOffset — Dimensions:

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum:

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
senZenAngOffset	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point	Name Value	Name Value

relAziAngScale — Dimensions:

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum:

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
relAziAngScale	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point	Name Value	Name Value

relAziAngOffset — Dimensions:

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum:

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
relAziAngOffset	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point	Name Value	Name Value

surfReflect — Dimensions:

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
numObservations	No	Yes	2	15
numBands	No	No	9	9

Datum:

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
surfReflect	0	0	1.5	Unitless	Yes	surfReflectScale	unsigned 16-bit integer	Name Value	Name Value

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

										NA_UINT16_FILL	65535	
										MISS_UINT16_FILL	65534	
										ONBOARD_PT_UINT16_FILL	65533	
										ONGROUND_PT_UINT16_FILL	65532	
										ERR_UINT16_FILL	65531	
										ELLIPSOID_UINT16_FILL	65530	
										VDNE_UINT16_FILL	65529	
										SOUB_UINT16_FILL	65528	

solZenAng — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
numObservations	No	Yes	2	15

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
solZenAng	0	0	PI	Scaled Radians	Yes	solZenAngScale	unsigned 16-bit integer	Name	Value	Name	Value
								NA_UINT16_FILL	65535		
								MISS_UINT16_FILL	65534		
								ONBOARD_PT_UINT16_FILL	65533		
								ONGROUND_PT_UINT16_FILL	65532		
								ERR_UINT16_FILL	65531		
								ELLIPSOID_UINT16_FILL	65530		
								VDNE_UINT16_FILL	65529		
								SOUB_UINT16_FILL	65528		

senZenAng — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
numObservations	No	Yes	2	15

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
senZenAng	0	0	PI	Scaled Radians	Yes	senZenAngScale	unsigned 16-bit integer	Name	Value	Name	Value
								NA_UINT16_FILL	65535		
								MISS_UINT16_FILL	65534		
								ONBOARD_PT_UINT16_FILL	65533		
								ONGROUND_PT_UINT16_FILL	65532		
								ERR_UINT16_FILL	65531		
								ELLIPSOID_UINT16_FILL	65530		
								VDNE_UINT16_FILL	65529		
								SOUB_UINT16_FILL	65528		

relAziAng — 2byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
numObservations	No	Yes	2	15

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
relAziAng	0	0	2*PI	Scaled Radians	Yes	relAziAngScale	unsigned 16-bit integer	Name	Value	Name	Value
								NA_UINT16_FILL	65535		
								MISS_UINT16_FILL	65534		
								ONBOARD_PT_UINT16_FILL	65533		
								ONGROUND_PT_UINT16_FILL	65532		
								ERR_UINT16_FILL	65531		
								ELLIPSOID_UINT16_FILL	65530		
								VDNE_UINT16_FILL	65529		
								SOUB_UINT16_FILL	65528		

numOfObs — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
numOfObs	0	0	15	Unitless	No		unsigned 8-bit char	Name	Value	Name	Value

lqfByte0 — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
numObservations	No	Yes	2	15

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Cloud Mask Quality	0	0	3	Unitless	No		2 bit(s)	Name / Value	Name / Value: Poor 0; Low 1; Medium 2; High 3
Cloud Detection And Confidence	2	0	3		No		2 bit(s)	Name / Value	Name / Value: Confident Clear 0; Probably Clear 1; Probably Cloudy 2; Confident Cloudy 3
Day/Night	4	0	1		No		1 bit(s)	Name / Value	Name / Value: Night 0; Day 1
Low Sun	5	0	1		No		1 bit(s)	Name / Value	Name / Value: No Low Sun 0; Low Sun 1
Sun Glint	6	0	3		No		2 bit(s)	Name / Value	Name / Value: None 0; Geometry Based 1; Wind Speed Based 2; Geometry and Wind Based 3

lqfByte1 — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
numObservations	No	Yes	2	15

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Land/Water Background	0	0	5	Unitless	No		3 bit(s)	Name / Value	Name / Value: Land And Desert 0; Land No Desert 1; Inland Water 2; Sea Water 3; Coastal 5
Shadow Detected	3	0	1		No		1 bit(s)	Name / Value	Name / Value: No 0; Yes 1
Non Cloud Obstruction (Heavy Aerosol)	4	0	1		No		1 bit(s)	Name / Value	Name / Value: No 0; Yes 1
Fire Detected (Cloud Mask)	5	0	1		No		1 bit(s)	Name / Value	Name / Value: No 0; Yes 1
Thin Cirrus (Solar RM9)	6	0	1		No		1 bit(s)	Name / Value	Name / Value: No Cloud 0; Cloud 1
Thin Cirrus IR	7	0	1		No		1 bit(s)	Name / Value	Name / Value: No Cloud 0; Cloud 1

lqfByte2 — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
numObservations	No	Yes	2	15

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

		Bad M1 SDR Data	0	0	1	Unitless	No		1 bit(s)	Name Value	Name Value No 0 Yes 1
		Bad M2 SDR Data	1	0	1		No		1 bit(s)	Name Value	Name Value No 0 Yes 1
		Bad M3 SDR Data	2	0	1		No		1 bit(s)	Name Value	Name Value No 0 Yes 1
		Bad M4 SDR Data	3	0	1		No		1 bit(s)	Name Value	Name Value No 0 Yes 1
		Bad M5 SDR Data	4	0	1		No		1 bit(s)	Name Value	Name Value No 0 Yes 1
		Bad M7 SDR Data	5	0	1		No		1 bit(s)	Name Value	Name Value No 0 Yes 1
		Bad M8 SDR Data	6	0	1		No		1 bit(s)	Name Value	Name Value No 0 Yes 1
		Bad M10 SDR Data	7	0	1		No		1 bit(s)	Name Value	Name Value No 0 Yes 1
lqfByte3	1byte(s)										

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
numObservations	No	Yes	2	15

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Bad M11 SDR Data	0	0	1	Unitless	No		1 bit(s)	Name Value	Name Value No 0 Yes 1
Bad I1 SDR Data	1	0	1		No		1 bit(s)	Name Value	Name Value No 0 Yes 1
Bad I2 SDR Data	2	0	1		No		1 bit(s)	Name Value	Name Value No 0 Yes 1
Bad I3 SDR Data	3	0	1		No		1 bit(s)	Name Value	Name Value No 0 Yes 1
Overall Quality of AOT	4	0	1		No		1 bit(s)	Name Value	Name Value Quality Not Degraded 0 Quality Degraded 1
Missing AOT Input Data	5	0	1		No		1 bit(s)	Name Value	Name Value No 0 Yes 1
Missing AM Input Data	6	0	1		No		1 bit(s)	Name Value	Name Value No 0 Yes 1
Missing PW Input Data	7	0	1		No		1 bit(s)	Name Value	Name Value No 0 Yes 1

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

lqfByte4 — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
numObservations	No	Yes	2	15

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Missing OZ Input Data	0	0	1	Unitless	No		1 bit(s)	Name / Value	Name / Value: No 0; Yes 1
Missing SP Input Data	1	0	1		No		1 bit(s)	Name / Value	Name / Value: No 0; Yes 1
Overall Quality M1 SR Data	2	0	1		No		1 bit(s)	Name / Value	Name / Value: Quality Not Degraded 0; Quality Degraded 1
Overall Quality M2 SR Data	3	0	1		No		1 bit(s)	Name / Value	Name / Value: Quality Not Degraded 0; Quality Degraded 1
Overall Quality M3 SR Data	4	0	1		No		1 bit(s)	Name / Value	Name / Value: Quality Not Degraded 0; Quality Degraded 1
Overall Quality M4 SR Data	5	0	1		No		1 bit(s)	Name / Value	Name / Value: Quality Not Degraded 0; Quality Degraded 1
Overall Quality M5 SR Data	6	0	1		No		1 bit(s)	Name / Value	Name / Value: Quality Not Degraded 0; Quality Degraded 1
Overall Quality M7 SR Data	7	0	1		No		1 bit(s)	Name / Value	Name / Value: Quality Not Degraded 0; Quality Degraded 1

lqfByte5 — 1byte(s)

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
numObservations	No	Yes	2	15

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
Overall Quality M8 SR Data	0	0	1	Unitless	No		1 bit(s)	Name / Value	Name / Value: Quality Not Degraded 0; Quality Degraded 1
Overall Quality M10 SR Data	1	0	1		No		1 bit(s)	Name / Value	Name / Value: Quality Not Degraded 0; Quality Degraded 1
Overall Quality M11 SR Data	2	0	1		No		1 bit(s)	Name / Value	Name / Value: Quality Not Degraded 0; Quality Degraded 1
Overall Quality I1 SR Data	3	0	1		No		1 bit(s)	Name / Value	Name / Value: Quality Not Degraded 0; Quality Degraded 1
Overall Quality I2 SR Data	4	0	1		No		1 bit(s)	Name / Value	Name / Value: Quality Not Degraded 0; Quality Degraded 1
Overall Quality I3 SR Data	5	0	1		No		1 bit(s)	Name / Value	Name / Value: Quality Not Degraded 0; Quality Degraded 1
Snow/Ice	6	0	1		No		1 bit(s)	Name / Value	Name / Value: No Snow/Ice 0

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields

												Snow/Ice	1
		Spare	7	0	0		No		1 bit(s)	**Name** **Value**		**Name** **Value**	

pad	1byte(s)	**Name**	**Granule Boundary**	**Dynamic**	**Min Array Size**	**Max Array Size**
		padBytes1	No	No	1	1

Datum

Description	**Datum Offset**	**Unscaled Valid Range Min**	**Unscaled Valid Range Max**	**Measurement Units**	**Scaled**	**Scale Factor Name**	**Data Type**	**Fill Values**		**Legend Entries**	
pad	0	0	0	Unitless	No		unsigned 8-bit char	**Name**	**Value**	**Name**	**Value**

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

4.2.7.3 VIIRS Daily Surface Reflectance Gridded IP Metadata Details

The product metadata elements contained in the VIIRS Daily Surface Reflectance Gridded IP are listed in Table 4.2.1-2 and JPSS Algorithm Specification, Vol II - Data Dictionary for the Common Algorithms (474-00448-02-01). These metadata elements include all common metadata at the root, product, aggregation, and granule level. There are no granule level Quality Flags defined as metadata elements in the VIIRS Daily Surface Reflectance Gridded IP. Therefore, there are no entries in the N_Quality_Summary_Name/Value metadata attributes for this product.

4.2.7.4 VIIRS Daily Surface Reflectance Gridded IP Geolocation Details

The VIIRS Daily Surface Reflectance Gridded IP has no associated geolocation. See documentation on the sinusoidal projection.

4.2.8 VIIRS Snow/Ice Cover Mod Gran Gridded IP

Data Mnemonic	IMPI_VSIC_R0100
Description/ Purpose	The VIIRS Snow Ice Cover Mod Gran (Gran) Gridded IP is a granulated version (750m resolution) of the VIIRS Snow Ice Cover Gridded IP. This product is a Non-Indexed IP. Collection Short Name: VIIRS-GridIP-VIIRS-Snow-Ice-Cover-Mod-Gran Effectivity: S-NPP and JPSS
File-Naming Construct	See the JPSS CDFCB-X Vol I, 474-00001-01, Section 3.0 for details.
File Size	See Table: 4.2.8.1-1 VIIRS Snow/Ice Cover Mod Gran-GIP Data Content Summary for size. This granule size includes output related fields and quality flags only. Geolocation and metadata attributes are not included. Additional size added by HDF5 packaging is also not included.
File Format Type	Binary; single byte values, Endian independent (HDF5)
Production Frequency	As requested
Data Content and Data Format	See Section 4.2.8.1 VIIRS Snow Ice Cover Mod Gran-GIP Data Content Summary See Section 4.2.8.2 VIIRS Snow Ice Cover Mod Gran-GIP Product Profile See Section 4.2.8.3 VIIRS Snow Ice Cover Mod Gran-GIP HDF5 Details See Section 4.2.8.4 VIIRS Snow Ice Cover Mod Gran-GIP Metadata Details See Section 4.2.8.5 VIIRS Snow Ice Cover Mod Gran-GIP Geolocation Details

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

4.2.8.1 VIIRS Snow/Ice Cover Mod Gran GIP Data Content Summary

Table: 4.2.8.1-1 VIIRS Snow/Ice Cover Mod Gran GIP Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
snowIceCover		unsigned 8-bit char	[N*768, 3200]	[768, 3200]	Unitless
File Size	**2,457,600 Bytes**				

4.2.8.2 VIIRS Snow Ice Cover Mod Gran GIP Product Profile

Table: 4.2.8.2-1 VIIRS Snow Ice Cover Mod Gran GIP Product Profile

VIIRS Snow Ice Cover GridIP VIIRS Moderate Gran Product Profile

Fields

Name	Data Size	Dimensions
snowIceCover	1byte(s)	

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
M_VIIRS_SDR_ROWS	Yes	No	768	768
M_VIIRS_SDR_COLS	No	No	3200	3200

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values		Legend Entries	
snowIceCover	0	0	1	Unitless	No		unsigned 8-bit char	**Name**	**Value**	**Name**	**Value**
								NA_UINT8_FILL	255	no snow or ice	0
								MISS_UINT8_FILL	254	snow or ice	1
								ONBOARD_PT_UINT8_FILL	253		
								ONGROUND_PT_UINT8_FILL	252		
								ERR_UINT8_FILL	251		
								ELLIPSOID_UINT8_FILL	250		
								VDNE_UINT8_FILL	249		
								SOUB_UINT8_FILL	248		

4.2.8.3 VIIRS Snow Ice Cover Mod Gran IP HDF5 Details

Figure 4.2.8.3-1 provides the details on the content and data types of the VIIRS Snow/Ice Cover Mod Gran IP products. These UML diagrams provide details at the product level only.

VIIRS-GridIP-VIIRS-Snow-Ice-Cover-Mod-Gran
+snowIceCover : H5T_NATIVE_UCHAR

Figure: 4.2.8.3-1 VIIRS Snow/Ice Cover Mod Gran IP HDF5 Details UML Diagram

4.2.8.4 VIIRS Snow Ice Cover Mod Gran-GIP Metadata Details

The product metadata elements contained in the VIIRS Snow Ice Cover Mod Gran-GIP are listed in the EDR/IP marked items in Table 5-4, Metadata Delivered in JPSS Data Products, in JPSS Algorithm Specification, Vol II: Data Dictionary for the Common Algorithms (474-00448-02-01). These metadata elements include all common metadata at the root, product, aggregation, and granule level. There are no granule level Quality Flags defined as metadata elements in the VIIRS Snow/Ice Cover Gridded-GIP. Therefore, there are no entries in the N_Quality_Summary_Name/Value metadata attributes for this product.

4.2.8.5 VIIRS Snow Ice Cover Mod Gran-GIP Geolocation Details

The Geolocation for the VIIRS Snow Ice Cover Mod Gran-GIP uses the VIIRS Moderate Resolution Geolocation - Terrain Corrected for its Geolocation.

4.2.9 VIIRS Bidirectional Reflectance Distribution Function (BRDF) Archetypal Gridded Intermediate Product 17-Day Tile

Data Mnemonic	IMPI_VBRF_R0100
Description/Purpose	The VIIRS Gridded Daily surface reflectance data is used to produce a global grid containing land albedo. If surface reflectance data are not of good quality, historic data from Gridded BRDF Archetypal information contained in the Gridded BRDF Archetypal IP is used. If surface reflectance data is of good quality, the Gridded BRDF Archetypal IP information is updated with new values. The VIIRS BRDF Gridded IP 17-Day Tile is provided in the CLASS supporting data release package as part of the Seed Data contents. This product is an Indirect Indexed GIP. Collection Short Name: GridIP-VIIRS-Brdf-Arch-17Day-Tile Effectivity: S-NPP and JPSS
File-Naming Construct	See the JPSS CDFCB-X Vol I, 474-00001-01, Section 3.0 for details.
File Size	See Table: 4.2.9.1-1 VIIRS BRDF Gridded IP 17-Day Tile Data Content Summary for size.
File Format Type	Little Endian Binary
Production Frequency	Part of CLASS Release Package
Data Content and Data Format	See Section 4.2.9.1 VIIRS BRDF Gridded IP 17-Day Tile Data Content Summary See Section 4.2.9.2 VIIRS BRDF Gridded IP 17-Day Tile Product Profile

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

4.2.9.1 VIIRS BRDF Gridded IP 17-Day Tile Data Content Summary

Table: 4.2.9.1-1 VIIRS BRDF Gridded IP 17-Day Tile Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
coeffScale		32-bit floating point	[1]	[1]	Unitless
coeffOffset		32-bit floating point	[1]	[1]	Unitless
updateDate Array		signed 16-bit integer	[3]	[3]	IET microseconds
coeff Array		unsigned 16-bit integer	[3,3,9]	[3,3,9]	Unitless
kernel Array		unsigned 8-bit integer	[3,2]	[3,2]	Unitless
qcFlags		unsigned 8-bit integer	[3]	[3]	Unitless
pad Array		unsigned 8-bit integer	[5]	[5]	Unitless
File Size	**36,000,008 Bytes**				

4.2.9.2 VIIRS BRDF Gridded IP 17-Day Tile Product Profile

Table: 4.2.9.2-1 VIIRS BRDF Gridded IP 17-Day Tile Product Profile

Coefficient Factors

Fields

Name	Data Size	Field Offset	Dimensions
coeffScale	4bytes	0	**Name** | **Attribute Name** | **Granule Boundary** | **Location** | **Dynamic** | **Field Names** | **Max Index** | **Min Index** **Datum** **Name** | **Offset** | **Scale** | **Measurement Units** | **Range Min** | **Range Max** | **Data Type** | **Fill Values** | **Legend Entries** coeffScale | 0 | **Dynamic** | **Attribute Name** | **Data Type** | **Location** (No) | Unitless | Minfloat | Maxfloat | Float32 | **Name** | **Value** | **Name** | **Value**
coeffOffset	4bytes	1	**Name** | **Attribute Name** | **Granule Boundary** | **Location** | **Dynamic** | **Field Names** | **Max Index** | **Min Index** **Datum** **Name** | **Offset** | **Scale** | **Measurement Units** | **Range Min** | **Range Max** | **Data Type** | **Fill Values** | **Legend Entries** coeffOffset | 0 | **Dynamic** | **Attribute Name** | **Data Type** | **Location** | Unitless | Minfloat | Maxfloat | Float32 | **Name** | **Value** | **Name** | **Value**

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields													
					No								

BRDF ARCH 17 Day Land CellDimensions

Name	Attribute Name	Granule Boundary	Location	Dynamic	Field Names	Max Index	Min Index
landCells	landCells	Yes		Yes		180000	1

Fields

Name	Data Size	Field Offset	Dimensions
updateDate	8bytes	0	
coeff	2bytes	1	
kernel	1bytes	2	
qcFlags	1bytes	3	
pad	1bytes	4	

updateDate — Dimensions

Name	Attribute Name	Granule Boundary	Location	Dynamic	Field Names	Max Index	Min Index
maxVegLayers	maxVegLayers	No		No		3	3

Datum

Name	Offset	Scale				Measurement Units	Range Min	Range Max	Data Type	Fill Values	
		Dynamic	Attribute Name	Data Type	Location					Name	Value
updateDate	0	No				IET microseconds	MaxInt64	MaxInt64	Int64		

coeff — Dimensions

Name	Attribute Name	Granule Boundary	Location	Dynamic	Field Names	Max Index	Min Index
maxVegLayers	maxVegLayers	No		No		3	3
numBRDFCoeffs	numBRDFCoeffs	No		No		3	3
numModVIIRSBands	numModVIIRSBands	No		No		9	9

Datum

Name	Offset	Scale				Measurement Units	Range Min	Range Max	Data Type	Fill Values	
		Dynamic	Attribute Name	Data Type	Location					Name	Va
coeff	0	Yes	Coefficient Factors		DataSet	Unitless	MinUInt16	MaxUInt16	UInt16	NA_UINT16_FILL	65
										MISS_UINT16_FILL	65
										ONBOARD_PT_UINT16_FILL	65
										ONGROUND_PT_UINT16_FILL	65
										ERR_UINT16_FILL	65
										ELLIPSOID_UINT16_FILL	65
										VDNE_UINT16_FILL	65
										SOUB_UINT16_FILL	65

kernel — Dimensions

Name	Attribute Name	Granule Boundary	Location	Dynamic	Field Names	Max Index	Min Index
maxVegLayers	maxVegLayers	No		No		3	3
numBRDFKernels	numBRDFKernels	No		No		2	2

Datum

Name	Offset	Scale				Measurement Units	Range Min	Range Max	Data Type	Fill Values	
		Dynamic	Attribute Name	Data Type	Location					Name	Value
kernel	0	No				Unitless	0	255	UInt8		

qcFlags — Dimensions

Name	Attribute Name	Granule Boundary	Location	Dynamic	Field Names	Max Index	Min Index
maxVegLayers	maxVegLayers	No		No		3	3

Datum

Name	Offset	Scale				Measurement Units	Range Min	Range Max	Data Type	Fill Values		Legend
		Dynamic	Attribute Name	Data Type	Location					Name	Value	Name
spare	0	No				Unitless			3 bit(s)			
criterion	3	No					0	3	2 bit(s)			RMSE H RMSE Coeffs V White-sk variance
retrievalQuality	5	No					0	1	1 bit(s)			poor good
inversionType	6	No					0	3	2 bit(s)			N/A full inver magnitud history

pad — Dimensions

Name	Attribute Name	Granule Boundary	Location	Dynamic	Field Names	Max Index	Min Index
padBytes	padBytes	No		No		5	5

Datum

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Fields																
			Name	Offset	Scale				Measurement Units	Range Min	Range Max	Data Type	Fill Values	
					Dynamic	Attribute Name	Data Type	Location					Name	Value
			pad	0	No				Unitless			UInt8		

4.2.10 VIIRS Global/Monthly 5-km NBAR NDVI Gridded IP

Data Mnemonic	IMPI_VGNN_R0110
Description/Purpose	The VIIRS Monthly NBAR NDVI Gridded IP is the monthly compilation of the VIIRS Global/Rolling 5-km NBAR NDVI Gridded IP. It is provided in the CLASS supporting data release package as part of the Seed Data contents. Its format is the same as the Rolling 5-km NBAR NDVI Gridded IP with the exception being that it does not include an updated time stamp. This product is an Indirect Indexed GIP. Collection Short Name: GridIP-VIIRS-Nbar-Ndvi-Monthly-Tile Effectivity: S-NPP and JPSS
File-Naming Construct	See the Section 4.2, File-Naming Convention for S-NPP/JPSS Tiled Data Products, for details.
File Size	See Table 4.2.10.1-1 VIIRS Global/Monthly 5-km NBAR NDVI Gridded IP Data Content Summary for size.
File Format Type	Little Endian Binary
Production Frequency	Part of CLASS Release Package
Data Content and Data Format	See Section 4.2.10.1 VIIRS Global/Monthly 5-km NBAR NDVI Gridded IP Data Content Summary See Section 4.2.10.2 VIIRS Global/Monthly 5-km NBAR NDVI Gridded IP Product Profile

4.2.10.1 VIIRS Global/Monthly 5-km NBAR NDVI Gridded IP Data Content Summary

Table: 4.2.10.1-1 VIIRS Global/Monthly 5-km NBAR NDVI Gridded IP Data Content Summary

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
scale		32-bit floating point	[1]	[1]	Unitless
offset		32-bit floating point	[1]	[1]	Unitless
ndvi		unsigned 16-bit integer	[1]	[1]	Unitless
timestampIndex		unsigned 8-bit char	[1]	[1]	Unitless
pad		unsigned 8-bit char	[1]	[1]	Unitless

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
File Size	**36 Bytes**				

4.2.10.2 VIIRS Global Monthly 5-km NBAR NDVI Gridded IP Product Profile

Table: 4.2.10.2-1 VIIRS Global Monthly 5-km NBAR NDVI Gridded IP Product Profile

GridIP VIIRS Nbar Ndvi Monthly Tile Product Profile

Fields

Name	Data Size	Dimensions
scale	4byte(s)	
offset	4byte(s)	
ndvi	2byte(s)	
timestampIndex	1byte(s)	
pad	1byte(s)	

scale

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
scale	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point	Name Value	Name Value

offset

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
offset	0	MIN_VAL	MAX_VAL	Unitless	No		32-bit floating point	Name Value	Name Value

ndvi

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
ndvi	0	-1	1	Unitless	Yes	scale	unsigned 16-bit integer		

Name	Value
NA_UINT16_FILL	65535
MISS_UINT16_FILL	65534
ONBOARD_PT_UINT16_FILL	65533
ONGROUND_PT_UINT16_FILL	65532
ERR_UINT16_FILL	65531
ELLIPSOID_UINT16_FILL	65530
VDNE_UINT16_FILL	65529
SOUB_UINT16_FILL	65528

timestampIndex

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
timestampIndex	0	0	2	Unitless	No		unsigned 8-bit char	Name Value	

Name	Value
most recent 17-day NBAR NDVI value	0
second most recent 17-day NBAR NDVI value	1
monthly climatology NBAR NDVI value	2

pad

Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size
padBytes1	No	No	1	1

Datum

Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries
pad	0	MIN_VAL	MAX_VAL	Unitless	No		unsigned 8-bit char	Name Value	Name Value

4.3 Static Gridded Intermediate Products

Static Indirect Indexed and Non-Indexed Gridded IPs are gridded products infrequently updated and are introduced into IDPS by a process similar to the distribution of software updates. Static

Gridded IPs go through a Configuration Management (CM) process prior to its installation into the system. These products are used as inputs in granule product processing. Indirect Indexing is described in Section 4.2.

4.3.1 File-Naming Convention for Static S-NPP/JPSS Tiled Data Products

This section describes the file-naming convention for static S-NPP/JPSS Tiled Data Products. This convention provides a standard format by which the products can be ingested into IDPS.

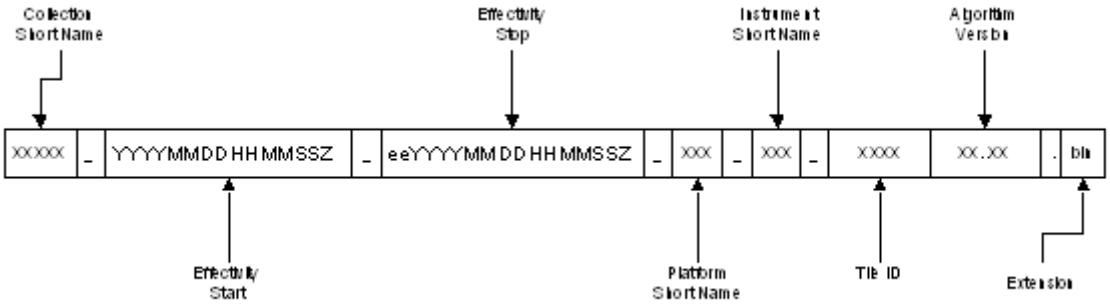

Figure: 4.3.1-1 S-NPP/JPSS Tiled Data Products File-Naming Convention

Table: 4.3.1-1 Static S-NPP/JPSS Tiled Data Products File-Naming Field Descriptions

Field Position	Description	Applicable Values
1	Collection Short Name	See CDFCB-X Vol I for S-NPP/JPSS Data Product Collection Short Names
2	Field Separator	‘ _ ’
3	Effectivity Start The Date/Time of the start of the useful temporal range of the data.	YYYYMMDDHHMMSSZ YYYY=2000-2030 MM=01-12 DD=01-31 HH=00-23 MM=00-59 SS=00-60
4	Field Separator	‘ _ ’
5	Effectivity Stop The effective stop time of the data - this date is an anticipated date and is not intended to indicate a hard stop period. Based on expected update frequency of the tile. This field is identified with ‘ee’ prepended to the timestamp. If the stop time does not apply, the default value of ee00000000000000Z will be used.	eeYYYYMMDDHHMMSSZ YYYY=2000-2030 MM=01-12 DD=01-31 HH=00-23 MM=00-59 SS=00-60
6	Field Separator	‘ _ ’
7	Platform Short Name	NPP

Field Position	Description	Applicable Values
	The identifier of the spacecraft for which the data is specified. This field is a placeholder for future use.	J01 J02 CONST - Represents an IP that is updated by more than one spacecraft
8	Field Separator	‘_’
9	Instrument Short Name The identifier of the sensor for which the data is specified. This field is a placeholder for future use.	VIIRS OMPS CrIS ATMS
10	Field Separator	‘_’
11	Tile ID The tile identifier for the particular tile	0000 - 5183 (sinusoidal grid)
12	Field Separator	‘_’
13	Algorithm Version The version of the algorithm used to generate the tile	Variable string of no more than 30 characters A mixture of letters, ‘A-Za-z’, numbers, ‘0-9’, “.” periods/punctuation, and hyphens, ‘-‘
18	Field Separator	‘.’
19	Extension The extension indicates the format of the file - binary.	bin

4.3.2 VIIRS Quarterly Surface Type Gridded IP Quarterly Tile

Data Mnemonic	IMPI_QSIP_R0010
Description/ Purpose	Quarterly Surface Type Grid IP tile contains a field for the International Geosphere-Biosphere Programme (IGBP) classification and associated field containing the confidence associated with IGBP Surface Type classification and a quality flag field. This product is a Non-Indexed GIP.
File-Naming Construct	See Section 4.3.1 File-Naming Convention for Static S-NPP/JPSS Tiled Data Products for File-Naming Convention details.
File Size	See Table 4.3.2-1 VIIRS Quarterly Surface Type GridIP Quarterly Tile for size
File Format Type	Little Endian Binary
Production Frequency	Static (Part of CLASS Release Package)
Data Content and Data Format	See Table 4.3.2-1 VIIRS Quarterly Surface Type GridIP Quarterly Tile

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 4.3.2-1 VIIRS Quarterly Surface Type GridIP Quarterly Tile

Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
SurfaceType	180000	unsigned 8-bit char	1 - 31	unitless	International Geosphere-Biosphere Programme (IGBP) Surface Type Classification 2 Dimensional Array: cellRows x cellCols Size of Dimension(s): 300 x 600
Confidence	180000	unsigned 8-bit char	100 - 255	percent	Confidence associated with IGBP Surface Type Classification. Values 0 - 100 = percent confidence. 247 = Surface Type defined by NIMA Vector Map (VMap) Level 0 2 Dimensional Array: cellRows x cellCols Size of Dimension(s): 300 x 600
QF1_QSTIP	180000	unsigned 8-bit char	0	Unitless	Quality Flag 2 Dimensional Array: cellRows x cellCols Size of Dimension(s): 300 x 600
File Size	**540,000 Bytes**				

4.3.3 VIIRS QST - Land Water Mask Gridded IP Quarterly Tile

Data Mnemonic	IMPI_QLMN_R0010
Description/ Purpose	Combined Quarterly Surface Type (QST) - Land Water Mask (LWM) tile contains a field for the combined QST/LWM value. This product is a Non-Indexed GIP.
File-Naming Construct	See Section 4.3.1 File-Naming Convention for Static S-NPP/JPSS Tiled Data Products for File-Naming Convention details.
File Size	See Table 4.3.3-1 VIIRS QST - Land Water Mask Gridded IP Quarterly Tile for size
File Format Type	Little Endian Binary
Production Frequency	Static (Part of CLASS Release Package)
Data Content and Data Format	See Table 4.3.3-1 VIIRS QST - Land Water Mask Gridded IP Quarterly Tile

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 4.3.3-1 VIIRS QST - Land Water Mask Gridded IP Quarterly Tile

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
Qstlwm	180000	unsigned 8-bit char	1 - 20	Unitless	2 Dimensional Array: cellRows x cellCols Size of Dimension(s): 300 x 600
File Size	**180,000 Bytes**				

4.3.4 VIIRS Annual Maximum/Minimum Normalized Difference Vegetation Index (NDVI) Gridded IP Quarterly Tile

Data Mnemonic	IMPI_AMMN_R0010
Description/ Purpose	VIIRS Annual Maximum / Minimum Normalized Difference Vegetation Index (NDVI) Gridded IP Quarterly Tile. This product is an Indirect Indexed GIP.
File-Naming Construct	See Section 4.3.1 File-Naming Convention for Static S-NPP/JPSS Tiled Data Products for File-Naming Convention details.
File Size	See Table 4.3.4-1 VIIRS Annual Maximum/Minimum Normalized Difference Vegetation Index (NDVI) Gridded IP Quarterly Tile Summary for size
File Format Type	Little Endian Binary
Production Frequency	Static (Part of CLASS Release Package)
Data Content and Data Format	See Table 4.3.4-1 VIIRS Annual Maximum/Minimum Normalized Difference Vegetation Index (NDVI) Gridded IP Quarterly Tile Summary

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 4.3.4-1 VIIRS Annual Maximum/Minimum Normalized Difference Vegetation Index (NDVI) Gridded IP Quarterly Tile Summary

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
maxNdviScale	4	32-bit floating point	MIN_VAL - MAX_VAL	Unitless	
maxNdviOffset	4	32-bit floating point	MIN_VAL - MAX_VAL	Unitless	
minNdviScale	4	32-bit floating point	MIN_VAL - MAX_VAL	Unitless	
minNdviOffset	4	32-bit floating point	MIN_VAL - MAX_VAL	Unitless	
maxNdvi	2	unsigned 16-bit integer	MIN_VAL - MAX_VAL	Unitless	
minNdvi	2	unsigned 16-bit integer	MIN_VAL - MAX_VAL	Unitless	
qcFlags	1	unsigned 8-bit char	0	Unitless	
padByte1	1	unsigned 8-bit char	0	Unitless	
File Size	**22 Bytes**				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

4.3.5 VIIRS Master Land Index Gridded IP Tile

Data Mnemonic	IMPI_VMLI_R0010
Description/Purpose	VIIRS Master Land Index Gridded IP Tile
File-Naming Construct	See Section 4.3.1 File-Naming Convention for Static S-NPP/JPSS Tiled Data Products for File-Naming Convention details.
File Size	See Table 4.3.5-1 VIIRS Master Land Index Gridded IP Tile Summary for size
File Format Type	Little Endian Binary
Production Frequency	Static (Part of CLASS Release Package)
Data Content and Data Format	See Table 4.3.5.1 VIIRS Master Land Index Gridded IP Tile Summary

Table: 4.3.5-1 VIIRS Master Land Index Gridded IP Tile Data Content Summary

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
indices	720000	signed 32-bit integer	0 - 179999	Unitless	4bytes * 300 * 600
indices5k	14400	unsigned 16-bit integer	0 - 7199	Unitless	2bytes * 60 * 120
numLandCells	4	signed 32-bit integer	0 - 180000	Unitless	
numLandCells5k	2	unsigned 16-bit integer	0 - 7200	Unitless	
wordBoundaryPad	2	signed 16-bit integer	0	Unitless	
File Size	**734,408 Bytes**				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

5 Environmental Data Records (EDRs)

Not Applicable

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6 Ancillary and Auxiliary Data Inputs

6.1 Official Ancillary Data

Official ancillary data is defined as the designated ancillary data that is used to produce the official set of JPSS data products that is delivered to the Comprehensive Large Array-data Stewardship System (CLASS). The JPSS product set created using the official ancillary data set is required to meet or exceed the performance requirements stated in the JPSS Ground System Requirements Document, Vol 2: Science Products Specification, 470-00067-02. Ancillary data is categorized as either static or dynamic.

6.1.1 Official Dynamic Ancillary Data HDF5 Files

The Official Dynamic Ancillary Data (ODAD) files are delivered as HDF5 files via IDPS. Externally provided ODAD files are encapsulated in HDF5 such that after extraction the original file is regenerated. The following information describes the HDF5 file's format via a Unified Modeling Language (UML) diagram. The UML diagram indicates the attributes, groups, and datasets used in the HDF5 file to describe the Ancillary Data file.

Figure 6.1.1-1, Generalized UML Diagram for HDF5 ODAD Files, depicts the HDF5 ODAD organization as a UML class diagram. Each HDF5 ODAD file contains an HDF5 Root Group, '/', an Ancillary Dataset, and an All Data Group (the actual data).

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

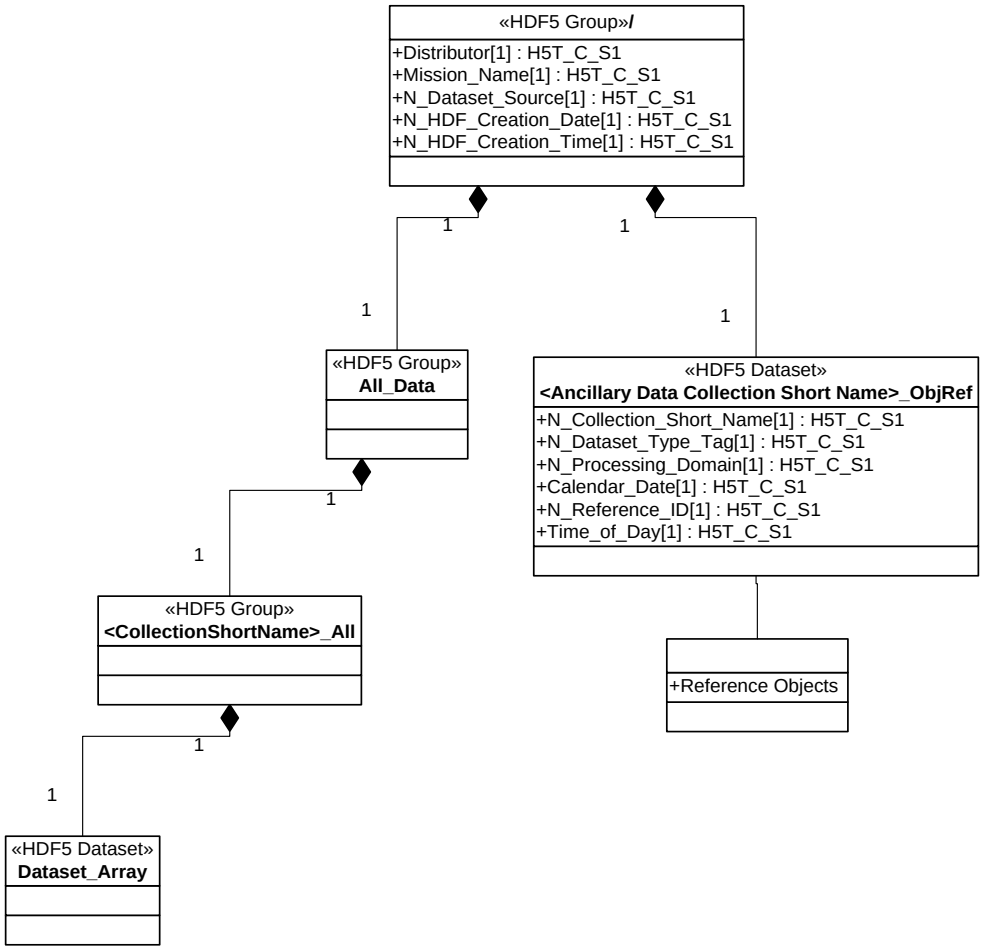

Figure: 6.1.1-1 Generalized UML Diagram for HDF5 ODAD Files

6.1.2 Official Dynamic Ancillary Data

Dynamic ancillary data is defined as data that is introduced into JPSS periodically, and is updated as often as every six hours. There are four sources for ODAD:

- National Centers for Environmental Prediction (NCEP)
- Fleet Numerical Meteorology and Oceanography Center (FNMOC)
- U.S. Naval Observatory (USNO)
- NOAA NESDIS Office of Satellite and Product Operations (OSPO)

The data parameters distributed by NCEP and FNMOC are in GRIB2 format, a World Meteorological Organization (WMO) accepted standard, and can be described in terms of the standard GRIB2 identifiers. For details on GRIB2 encoding, refer to WMO Publication 306, Manual on Codes, FM92 GRIB Edition 2 Version 2 of 5 Nov 2003, available at http://www.wmo.ch/web/www/DPS/grib-2.html.

6.1.2.1 Earth Orientation Finals 2000A

Data Mnemonic	AN_NP-L10330-003
Description/ Purpose	The IERS Finals 2000A data within the finals2000A.all file provides an Earth Orientation (a.k.a. Polar wander) with all EOP values since 02 January 1973 with dX & dY nutation series (with 1 year of predictions). The nutation series in dX and dY uses the International Astronomical Union (IAU) 2000A Nutation Theory. This information is used for geolocation. Note: Earth Orientation IERS Finals 2000A data is not a candidate for use in Substitute data processing since it is used in the SDR processing level.
File-Naming Construct	IDPS: See the File-Naming Convention for Ancillary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details. C3S: Files are named by provider.
File Size	~2 MiB
File Format Type	ASCII (Structure stored within HDF5 wrapper)
Production Frequency	Weekly
Data Content and Data Format	Data format/content is defined in the following files available at: http://maia.usno.navy.mil/ser7/ readme.finals2000A - Content description An overview of the IERS Earth Orientation products can be found at: http://maia.usno.navy.mil/

6.1.2.2 National Centers for Environmental Prediction Global Forecast System

NCEP runs numerical models that provide a global forecast for a wide variety of geophysical parameters that are used by JPSS algorithms to produce Environmental Data Records (EDRs). The official list of the parameters and how they are used in processing can be found in the various Algorithm Specifications, Vol 1 Software Requirements Specifications (474-00448-01-01 through 30). The numerical models are run at six-hour intervals and start with a snapshot of recent conditions at a time called the synoptic or analysis time. The models then produce multiple forecasts corresponding with different times in the future (e.g., three hours and six hours from the analysis time).

JPSS uses the Global Forecast System (GFS) output data sets produced by NCEP. GFS is produced for multiple forecast times in 3-hour intervals. NCEP bundles together all JPSS requested parameters to create a single NCEP GFS product per forecast time. The format for the GFS data set is described in Table 6.1.2.2-1, NCEP GFS Format.

The range of data values vary widely in Table 6.1.2.2-1, NCEP GFS Format, and should be considered approximate. The Product Definition Section (PDS) Octets describe the values of the GRIB2 message PDS octets 10 and 11, which are associated with the Field Names listed.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Data Mnemonic	AN_NP-L10000-030 (3-hour forecast) AN_NP-L10000-060 (6-hour forecast) AN_NP-L10000-090 (9-hour forecast) AN_NP-L10000-120 (12-hour forecast) AN_NP-L10000-150 (15-hour forecast) AN_NP-L10000-180 (18-hour forecast) AN_NP-L10000-210 (21-hour forecast) AN_NP-L10000-240 (24-hour forecast)
Description/ Purpose	The NCEP GFS Product consists of 3 to 24 hour forecasts for 0Z, 6Z, 12Z, and 18Z synoptic times. Each model run time and forecast time is a separate file which contains all the parameters listed in Table 6.1.2.2-1, NCEP GFS Format. The NCEP GFS data is used in numerous EDR algorithms. The horizontal resolution of this product is 0.5 degrees.
File-Naming Construct	See the File-Naming Convention for Ancillary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details.
File Size	Approximately 82 MiB each
File Format Type	GRIB2 (using JPEG2000 compression)(Structure stored within HDF5 wrapper)
Production Frequency	6 hours
Data Content and Data Format	See Table 6.1.2.2-1, NCEP GFS Format. The NCEP GFS Grid is a 259920-point (720x361) global equal angle longitude-latitude grid. Position (1,1) is located at (0E, 90N) increasing Easterly and Southerly

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 6.1.2.2-1 NCEP GFS Format

Field Name	Data Type	Range	Units	PDS	Octets
				10	11
Geopotential Height at 1000 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 975 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 950 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 925 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 900 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 850 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 800 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 750 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 700 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 650 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 600 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 550 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 500 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 450 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 400 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 350 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 300 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 250 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 200 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 150 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 100 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 70 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 50 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 30 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 20 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 10 mb	float32	10 - 33000	gpm	3	5
Temperature at 1000 mb	float32	150 - 320	K	0	0
Temperature at 975 mb	float32	150 - 320	K	0	0
Temperature at 950 mb	float32	150 - 320	K	0	0
Temperature at 925 mb	float32	150 - 320	K	0	0
Temperature at 900 mb	float32	150 - 320	K	0	0
Temperature at 850 mb	float32	150 - 320	K	0	0

Field Name	Data Type	Range	Units	PDS	Octets
Temperature at 800 mb	float32	150 - 320	K	0	0
Temperature at 750 mb	float32	150 - 320	K	0	0
Temperature at 700 mb	float32	150 - 320	K	0	0
Temperature at 650 mb	float32	150 - 320	K	0	0
Temperature at 600 mb	float32	150 - 320	K	0	0
Temperature at 550 mb	float32	150 - 320	K	0	0
Temperature at 500 mb	float32	150 - 320	K	0	0
Temperature at 450 mb	float32	150 - 320	K	0	0
Temperature at 400 mb	float32	150 - 320	K	0	0
Temperature at 350 mb	float32	150 - 320	K	0	0
Temperature at 300 mb	float32	150 - 320	K	0	0
Temperature at 250 mb	float32	150 - 320	K	0	0
Temperature at 200 mb	float32	150 - 320	K	0	0
Temperature at 150 mb	float32	150 - 320	K	0	0
Temperature at 100 mb	float32	150 - 320	K	0	0
Temperature at 70 mb	float32	150 - 320	K	0	0
Temperature at 50 mb	float32	150 - 320	K	0	0
Temperature at 30 mb	float32	150 - 320	K	0	0
Temperature at 20 mb	float32	150 - 320	K	0	0
Temperature at 10 mb	float32	150 - 320	K	0	0
Specific Humidity at 1000 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 975 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 950 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 925 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 900 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 850 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 800 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 750 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 700 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 650 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 600 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 550 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 500 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 450 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 400 mb	float32	0 - 0.04	kg/kg	1	1

Field Name	Data Type	Range	Units	PDS	Octets
Specific Humidity at 350 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 300 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 250 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 200 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 150 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 100 mb	float32	0 - 0.04	kg/kg	1	1
Pressure Reduced to MSL	float32	88000 - 108000	Pa	3	1
u Component of Surface Wind at 10m	float32	0 - 120	m/s	2	2
v Component of Surface Wind at 10m	float32	0 - 120	m/s	2	3
Surface Pressure	float32	30000 - 108000	Pa	3	0
Land/Water Temperature	float32	180 - 350	K	0	0
Air Temperature at 2m	float32	183 - 328	K	0	0
Total Precipitable Water	float32	0 - 130	kg/m2	1	3
Geopotential Height at 0m	float32	-400 - 8850	gpm	3	5
Specific Humidity at 2m	float32	0.002 - 0.040	kg/kg	1	0
Tropopause Geopotential Height	float32	5000 - 20000	gpm	3	5
Total Ozone	float32	80 - 650	DU	14	0

6.1.2.3 Navy Global Environmental Model Files

FNMOC runs numerical models that provide a global forecast for a wide variety of geophysical parameters that are used by JPSS algorithms to produce EDRs. The numerical models are run at six-hour intervals and start with a snapshot of recent conditions at a time called the synoptic or analysis time. The models then produce multiple forecasts corresponding with different times in the future (e.g., 3 hours and 6 hours from the analysis time).

JPSS uses the Navy Global Environmental Model (NAVGEM) output data sets produced by FNMOC. NAVGEM is produced for multiple forecast times in 3-hour intervals. FNMOC bundles together all JPSS requested parameters to create a single NAVGEM product per forecast time. The format for the NAVGEM data set is described in Table 6.1.2.3-1, NAVGEM Product Format.

The range of data values vary widely in Table 6.1.2.3-1, NAVGEM Product Format, and should be considered approximate. The PDS Octets describe the values of the GRIB2 message PDS octets 10 and 11, which are associated with the Field Names listed.

Data Mnemonic	AN_NP-L20000-030 (3-hour forecast) AN_NP-L20000-060 (6-hour forecast) AN_NP-L20000-090 (9-hour forecast) AN_NP-L20000-120 (12-hour forecast) AN_NP-L20000-150 (15-hour forecast) AN_NP-L20000-180 (18-hour forecast) AN_NP-L20000-210 (21-hour forecast) AN_NP-L20000-240 (24-hour forecast)
Description/ Purpose	The FNMOC NAVGEM Product consists of 3 to 24 hour forecasts for 0Z, 6Z, 12Z, and 18Z synoptic times. Each model run time and forecast time is a separate file which contains all the parameters listed in Table 6.1.2.3-1, NAVGEM Product Format. The NAVGEM data can be used in numerous EDR algorithms. The horizontal resolution of this product is 0.5 degrees.
File-Naming Construct	See the File-Naming Convention for Ancillary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details.
File Size	Approximately 12 MiB
File Format Type	GRIB2 (using JPEG2000 compression)(Structure stored within HDF5 wrapper)
Production Frequency	6 hours
Data Content and Data Format	See Table 6.1.2.3-1, NAVGEM Product Format, for details. For JPSS the NAVGEM Grid duplicates the geometry of the NCEP GFS Grid, it is a 259920-point (720x361) global equal angle longitude-latitude grid. Position (1, 1) is located at (0E, 90N) increasing Easterly and Southerly. Note: The NAVGEM products delivered to JPSS thus have different grid geometry from the NAVGEM products available to other users directly from FNMOC. The generally available NAVGEM Grid is a 259920-point (720x361) global equal angle longitude-latitude grid, with Latitude -90.000000 to 90.000000 by 0.500000 and Longitude 0.000000 to -0.500000 by 0.500000. Therefore, for the standard NAVGEM Grid position (1, 1) is located at (0E, 90S) increasing Easterly and Northerly.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 6.1.2.3-1 NAVGEM Product Format

Field Name	Data Type	Data Range	Units	PDS	Octets
				10	11
Geopotential Height at 1000 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 975 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 950 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 925 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 900 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 850 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 800 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 750 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 700 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 650 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 600 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 550 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 500 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 450 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 400 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 350 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 300 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 250 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 200 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 150 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 100 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 70 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 50 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 30 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 20 mb	float32	10 - 33000	gpm	3	5
Geopotential Height at 10 mb	float32	10 - 33000	gpm	3	5
Temperature at 1000 mb	float32	150 - 320	K	0	0
Temperature at 975 mb	float32	150 - 320	K	0	0
Temperature at 950 mb	float32	150 - 320	K	0	0
Temperature at 925 mb	float32	150 - 320	K	0	0
Temperature at 900 mb	float32	150 - 320	K	0	0
Temperature at 850 mb	float32	150 - 320	K	0	0

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Field Name	Data Type	Data Range	Units	PDS	Octets
Temperature at 800 mb	float32	150 - 320	K	0	0
Temperature at 750 mb	float32	150 - 320	K	0	0
Temperature at 700 mb	float32	150 - 320	K	0	0
Temperature at 650 mb	float32	150 - 320	K	0	0
Temperature at 600 mb	float32	150 - 320	K	0	0
Temperature at 550 mb	float32	150 - 320	K	0	0
Temperature at 500 mb	float32	150 - 320	K	0	0
Temperature at 450 mb	float32	150 - 320	K	0	0
Temperature at 400 mb	float32	150 - 320	K	0	0
Temperature at 350 mb	float32	150 - 320	K	0	0
Temperature at 300 mb	float32	150 - 320	K	0	0
Temperature at 250 mb	float32	150 - 320	K	0	0
Temperature at 200 mb	float32	150 - 320	K	0	0
Temperature at 150 mb	float32	150 - 320	K	0	0
Temperature at 100 mb	float32	150 - 320	K	0	0
Temperature at 70 mb	float32	150 - 320	K	0	0
Temperature at 50 mb	float32	150 - 320	K	0	0
Temperature at 30 mb	float32	150 - 320	K	0	0
Temperature at 20 mb	float32	150 - 320	K	0	0
Temperature at 10 mb	float32	150 - 320	K	0	0
Specific Humidity at 1000 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 975 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 950 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 925 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 900 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 850 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 800 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 750 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 700 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 650 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 600 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 550 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 500 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 450 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 400 mb	float32	0 - 0.04	kg/kg	1	1

Field Name	Data Type	Data Range	Units	PDS	Octets
Specific Humidity at 350 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 300 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 250 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 200 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 150 mb	float32	0 - 0.04	kg/kg	1	1
Specific Humidity at 100 mb	float32	0 - 0.04	kg/kg	1	1
Pressure Reduced to MSL	float32	88000 - 108000	Pa	3	1
u Component of Surface Wind at 10m	float32	0 - 120	m/s	2	2
v Component of Surface Wind at 10m	float32	0 - 120	m/s	2	3
Surface Pressure	float32	30000 - 108000	Pa	3	0
Land/Water Temperature	float32	180 - 350	K	0	0
Air Temperature at 2m	float32	183 - 328	K	0	0
Total Precipitable Water	float32	0 - 130	kg/m^2	1	3
Geopotential Height at 0m	float32	9250	gpm	3	5
Specific Humidity at 2m	float32	0.002 - 0.040	kg/kg	1	0
Tropopause Geopotential Height	float32	5000 - 20000	gpm	3	5
Total Ozone	float32	80 - 650	DU	14	0

6.1.2.4 Navy Aerosol Analysis and Prediction System

Data Mnemonic	AN_NP-L10015-030 (3-hour forecast) AN_NP-L10015-060 (6-hour forecast) AN_NP-L10015-090 (9-hour forecast) AN_NP-L10015-120 (12-hour forecast) AN_NP-L10015-150 (15-hour forecast) AN_NP-L10015-180 (18-hour forecast) AN_NP-L10015-210 (21-hour forecast) AN_NP-L10015-240 (24-hour forecast)
Description/ Purpose	The Navy Aerosol Analysis and Prediction System (NAAPS) Product consists of 3 to 24 hour forecasts for 0Z, 6Z, 12Z, and 18Z synoptic times. Each model run time and forecast time is a separate file which contains all the parameters listed in Table 6.1.2.4-1, NAAPS Product Format. The horizontal resolution of this product is 0.5 degrees. The Naval Research Laboratory in Monterey, CA, developed this global model which predicts in near-real-time the distribution of tropospheric aerosols. This model uses meteorological fields produced from NAVGEM. This product is used in the production of VIIRS EDRs.
File-Naming Construct	See the File-Naming Convention for Ancillary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details.
File Size	~425 KiB each
File Format Type	GRIB2 (Structure stored within HDF5 wrapper)
Production Frequency	Every 6 hours at 0Z, 6Z, 12Z, and 18Z.
Data Content and Data Format	See Table 6.1.2.4-1, NAAPS Product Format, for details. For JPSS the NAAPS Grid duplicates the geometry of the NCEP GFS Grid, it is a 259920-point (720x361) global equal angle longitude-latitude grid. Position (1, 1) is located at (0E, 90N) increasing Easterly and Southerly.

Table: 6.1.2.4-1 NAAPS Product Format

Field Name	Data Type	Data Range	Units	PDS	Octets
				10	11
Total Column Aerosol Optical Thickness (AOT) at 550 nm	Float32	0 - 3	unitless	13	192

6.1.2.5 NOAA Global Multisensor Automated Snow/Ice Map - Northern Hemisphere

Data Mnemonic	AN_NP-L10400-001 (Northern Hemisphere)
Description / Purpose	The NOAA NESDIS Office of Satellite and Product Operations (OSPO) operationally produces daily global (Northern Hemisphere and Southern Hemisphere) maps from combined snow/ice retrievals with several satellite sensors operating in the visible/infrared and in the microwave spectral band. Observations from both polar orbiting and geostationary satellites are incorporated. Since December 2010, the snow/and ice mapping system processes and uses observations from the following sensors: METOP AVHRR, MSG SEVIRI, GOES-E and GOES-W Imagers, and DMSP SSMIS.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Data Mnemonic	AN_NP-L10400-001 (Northern Hemisphere)
File-naming Construct	See the File-Naming Convention for Ancillary Data Formats, CDFCB-X Volume I, 474-00001-01, Section 3.4 for details.
File Size	~19.3 MiB each
File Format Type	Binary; single byte values, Endian independent (Structure stored within HDF5 wrapper)
Production Frequency	Daily
Data Content and Data Format	See Table 6.1.2.5-1, NOAA Global Multisensor Automated Snow/Ice Map Product Format, for details. The Northern Hemisphere map grid is a 20250000-point (9000 longitude x 2250 latitude) hemispheric equal angle (0.04 degree) longitude-latitude grid. Position (1, 1) is located at (180W, 90N) increasing Easterly and Southerly. The map is stored in the binary file in column-major order. It is single-byte, non-bit field data, and therefore byte-order agnostic.

Table: 6.1.2.5-1 NOAA Global Multisensor Automated Snow/Ice Map Product Format - Northern Hemisphere

Field Name	Data Type	Data Range	Units
Snow/Ice Cover	uint8	0-3, 20, 21, 200, as follows: 0: Open water, no ice 1: Land, no snow 2: Snow (over land) 3: Ice (over water) 20: Open water (no-ice masked region) 21: Land (no-ice masked region) 200: Fill	unitless

6.1.2.6 NOAA Global Multisensor Automated Snow/Ice Map - Southern Hemisphere

Data Mnemonic	AN_NP-L10400-002 (Southern Hemisphere)
Description / Purpose	The NOAA NESDIS Office of Satellite and Product Operations (OSPO) operationally produces daily global (Northern Hemisphere and Southern Hemisphere) maps from combined snow/ice retrievals with several satellite sensors operating in the visible/infrared and in the microwave spectral band. Observations from both polar orbiting and geostationary satellites are incorporated. Since December 2010, the snow/and ice mapping system processes and uses observations from the following sensors: METOP AVHRR, MSG SEVIRI, GOES-E and GOES-W Imagers, and DMSP SSMIS.
File-naming Construct	See the File-Naming Convention for Ancillary Data Formats, CDFCB-X Volume I, 474-00001-01, Section 3.4 for details.
File Size	~77.2 MiB each
File Format Type	Binary; single byte values, Endian independent (Structure stored within HDF5 wrapper)
Production Frequency	Daily
Data Content and Data Format	See Table 6.1.2.6-1, NOAA Global Multisensor Automated Snow/Ice Map Product Format, for details.

Data Mnemonic	AN_NP-L10400-002 (Southern Hemisphere)
	The Southern Hemisphere map grid is a 81000000-point (18000 longitude x 4500 latitude) hemispheric equal angle (0.02 degree) longitude-latitude grid. Position (1, 1) is located at (180E, 0N) increasing Easterly and Southerly. The map is stored in the binary file in column-major order. It is single-byte, non-bit field data, and therefore byte-order agnostic.

Table: 6.1.2.6-1 NOAA Global Multisensor Automated Snow/Ice Map Product Format - Southern Hemisphere

Field Name	Data Type	Data Range	Units
Snow/Ice Cover	uint8	0-3, 100, 101, 200, as follows: 0: Open water, no ice 1: Land, no snow 2: Snow (over land) 3: Ice (over water) 100: Open water (no-ice masked region) 101: Land (no-ice masked region) 200: Fill	unitless

Example A-4, External Mission Support Data Server Data List Example

Current:

e:\ftproot\MSDS\ANC\ODAD:
off_NAAPS-06HR-ANC_NAAPS_FNMOC_006f_20030125_200301250000z_20030125000000z_ee20100101000000z_np.grib2
off_NCEP-GFS-06HR-ANC_GFS_NCEP_006f_20020906_200209060600z_20020906060000z_ee20020906085959z_np.grib2
off_NCEP-GFS-06HR-ANC_GFS_NCEP_006f_20020907_200209070600z_20020907060000z_ee20020907085959z_np.grib2
off_NCEP-GFS-06HR-ANC_GFS_NCEP_006f_20020908_200209080600z_20020908060000z_ee20020908085959z_np.grib2
off_USNO-PolarWander-UT1-ANC_Ser7_USNO_000f_20030120_200301200000z_20030120000000z_ee20100101000000z_np.dat

Revised:

e:\ftproot\MSDS\ANC\ODAD:
off_NAAPS-06HR-ANC_NAAPS_FNMOC_006f_20030125_200301250000z_20030125000000z_ee20100101000000z_np.grib2
off_NCEP-GFS-06HR-ANC_GFS_NCEP_006f_20020906_200209060600z_20020906060000z_ee20020906085959z_np.grib2
off_NCEP-GFS-06HR-ANC_GFS_NCEP_006f_20020907_200209070600z_20020907060000z_ee20020907085959z_np.grib2
off_NCEP-GFS-06HR-ANC_GFS_NCEP_006f_20020908_200209080600z_20020908060000z_ee20020908085959z_np.grib2

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

off_USNO-PolarWander-UT1-ANC_Ser7_USNO_000f_20030120_200301200000z_20030120000000z_ee20100101000000z_np.dat
off_NOAA-Multisensor-SnowIce-SH_GMASI_OSPO_000f_20130131_201301310300Z_20130131030000Z_ee00000000000000Z_np.bin

6.1.3 Official Static Ancillary Data

Static Ancillary Data is defined as ancillary data that is infrequently updated and is introduced into JPSS by a process similar to the distribution of software updates. Static ancillary data goes through a Configuration Management (CM) process prior to its installation into the system. For files unaltered by JPSS, rather than duplicating the format information here, a link is provided to the data source controlling entity. Binary format types are stored as little endian.

6.1.3.1 Aerosol Optical Thickness Climatology Files

Data Mnemonic	AN_NP-L10010-001
Description/ Purpose	AOT Climatology is based on the Goddard Institute for Space Studies Global Aerosol Climatology Project (GACP) data set.
File-Naming Construct	See the File-Naming Convention for Ancillary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details. Version Number Field provides Provenance Version Identifier
File Size	9652 bytes
File Format Type	Little Endian Binary Institute of Electrical & Electronics Engineers (IEEE) 754
Production Frequency	Static
Data Content and Data Format	See Table 6.1.3.1-1, AOT Climatology Format, for details.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 6.1.3.1-1 AOT Climatology Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
wavelengths	42	32-bit floating point	412 - 3750	nm	13 elements
lonbound	120	32-bit floating point	-pi to pi	radians	15 x 2 elements
latbound	120	32-bit floating point	-pi/2 to pi/2	radians	15 x 2 elements
mtau	9360	32-bit floating point	0 to 1	unitless	15 climateModels x 12 months x 13 bands

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.1.3.2 NASA Code 916 Cloud Top Pressure Files

Data Mnemonic	AN_NP-L10020-001
Description/ Purpose	This data set was developed by the National Aeronautics and Space Administration (NASA) code 916, based on OMI cloud pressure data from OMCLDRR version 1.6.0 (Collection 3), reduced for years 2004-2007 to 1x1 degree. It is used to process the Ozone Mapping and Profiler Suite (OMPS) data.
File-Naming Construct	See the File-Naming Convention for Ancillary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details. Version Number Field provides Provenance Version Identifier
File Size	2.97 MiB
File Format Type	Little Endian Binary IEEE 754
Production Frequency	Static
Data Content and Data Format	The file format shown is applicable for all 12 files. See Table 6.1.3.2-1, NASA Code 916 Cloud Top Pressure Format, for details.

Table: 6.1.3.2-1 NASA Code 916 Cloud Top Pressure Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
CLDPRES	3110400	32-bit floating point	0 - 1000 (Nominal values should range from 100 to 900)	mbar	Single binary file with dimensions of 12 x 180 x 360, 12 months, 180 latitudes and 360 longitudes - 1 degree resolution. -99.99 indicates a missing value.

6.1.3.3 Nitrate Depletion Temperature Files

Data Mnemonic	AN_NP-L10120-001
Description/ Purpose	The Nitrate Depletion Temperature (NDT) database was produced using an algorithm based on the approach presented by Kamykowski [Kamykowski, D., a preliminary biophysical model of the relationship between temperature and plant nutrients in the upper ocean, *Deep Sea Res., Part A*, 34, 1067-1079, 1987]. This data is used in the production of the VIIRS Ocean Color EDR.
File-Naming Construct	See the File-Naming Convention for Ancillary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details. Version Number Field provides Provenance Version Identifier
File Size	8.207 MiB
File Format Type	Little Endian Binary IEEE 754
Production Frequency	Static
Data Content and Data Format	See Table 6.1.3.3-1, NDT Format, for details.

Table: 6.1.3.3-1 NDT Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
Temperature Difference Array	8388608	32-bit floating point	269 - 302	K	Data is stored as a cylindrical equidistant array of 1024 x 2048. The format of the file is 2048 values spanning the longitude 0 to 360 E and 1024 values spanning the latitude from 90 N to 90 S. The value at (1, 1) corresponds to the cell next to the North pole on the Greenwich meridian.

6.1.3.4 Ozone Profile: Fortuin and Kelder Climatology, 1998 Files

Data Mnemonic	AN_NP-L10135-001
Description/ Purpose	The Stratospheric Processes And Their Role in Climate (SPARC) reference climatology project generated this ozone climatology, which is based on data from Fortuin and Kelder. This data is representative of the period 1980-1991. OMPS uses this data set.
File-Naming Construct	See the File-Naming Convention for Ancillary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details. Version Number Field provides Provenance Version Identifier
File Size	12,441,600 Bytes
File Format Type	Little Endian Binary IEEE 754
Production Frequency	Static
Data Content and Data Format	See Table 6.1.3.4-1, Ozone Profile Climatology Format

Table: 6.1.3.4-1 Ozone Profile Climatology Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
Ozone	12441600	32-bit floating point	0 - 150	ppm	Data is stored as a 12 x 4 x 180 x 360 array. (month x umkuhr x latitude x longitude) 2nd Dimension of 4 is Umkuhr layers which are: 1) 1013 to 253 hPa, 2) 253 to 127 hPa 3) 127 to 63.3 hPa 4) 63.3 to 31.3 mb.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
					Grid is 1 degree (180 x 360) with upper left at 90N, 180W

6.1.3.5 Surface Pressure (TUG87) Climatology Files

Data Mnemonic	AN_NP-L20210-002
Description/ Purpose	This Surface Pressure Climatology data set is based on the global terrain model TUG87 and was developed by M. Weiser at the Technical Institute of Graz in Austria. It is delivered in the OMPS Nadir Sensor Data Records (SDR) software and is used in the CrIS, VIIRS AOT, VIIRS Atmospheric Correction over Oceans, VIIRS Cloud Tops, VIIRS Sea Ice, and VIIRS Surface Reflectance.
File-Naming Construct	See the File-Naming Convention for Ancillary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details. Version Number Field provides Provenance Version Identifier.
File Size	1012.5 KiB
File Format Type	Little Endian Binary IEEE 754
Production Frequency	Static
Data Content and Data Format	See Table 6.1.3.5-1, Surface Pressure Climatology Format, for details.

Table: 6.1.3.5-1 Surface Pressure Climatology Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
Surface Pressure	1036800	32-bit floating point	475.376 to 1013.25	mbar	Single binary file with dimensions of 360 x 720. Grid is 1/2 degree (360 latitudes x 720 longitudes) with first point (upper left) at 90N, 180W.

6.1.3.6 Surface Reflectivity Files

Data Mnemonic	AN_NP-L10220-001
Description/ Purpose	This Surface Reflectivity data set is based on data developed by J.R. Herman and E. Celarier. Information can be found in “Earth Surface Reflectivity Climatology at 340 nm to 380 nm from Total Ozone Mapping Spectrometer (TOMS) Data,” published in 1997 in Volume 102 of the Journal for Geophysical Research. This data set is used to process OMPS nadir total column and limb profile data.
File-Naming Construct	See the File-Naming Convention for Ancillary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Data Mnemonic	AN_NP-L10220-001
	Version Number Field provides Provenance Version Identifier.
File Size	2.97 MiB
File Format Type	Little Endian Binary IEEE 754
Production Frequency	Static
Data Content and Data Format	See Table 6.1.3.6-1, Surface Reflectivity Format, for details.

Table: 6.1.3.6-1 Surface Reflectivity Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
Reflectivity	3110400	32-bit floating point	0.01 to 9.99 (9.99 is fill value, nominal values no higher than 1.00)	Fraction	Single binary file with dimensions of 12 x 180 x 360, representing resolution of one-degree longitude by one-degree latitude by 12 months.

6.1.3.7 IDPS Terrain Database

Data Mnemonic	AN_NP-L10100-003
Description/ Purpose	The IDPS Terrain Database is used to efficiently store several static ancillary data types. The external sources for these data include: • Shuttle Radar Topography Mission 30 Plus (SRTM30 Plus) (Depth of ocean/Bathymetry) data from University of California, San Diego. • Terrain height from NASA SRTM30 version 2. • Ellipsoid-Geoid separation from National Imagery and Mapping Agency (NIMA) EGM96 model. The data that are stored in the Terrain Database includes: 1. Mean Sea Level (MSL) Earth Surface height based on Shuttle Radar Topography Mission 30 Plus (SRTM30 Plus) data set. 2. Maximum MSL surface height, within 28 kilometers of each point. 3. Minimum MSL height within 28 kilometers of each point. 4. Bathymetric depth based on the SRTM30 plus 5. Geopotential Height of the Earth's surface as calculated from the MSL height and latitude 6. Ellipsoid - Geoid Separation height based on the NIMA EGM96 model. 7. Initial JPSS Quarterly Surface Type provided by NGAS (Note: the QST data in this database isn't the IDPS operational source). All elevations are in meters referenced to the WGS84/EGM96 geoid as documented at http://www.NGA.mil/GandG/. Elevations can range from -32767 to 32767. These data also contain occasional voids from a number of

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Data Mnemonic	AN_NP-L10100-003
	causes such as shadowing, phase unwrapping anomalies, or other radar-specific causes. Voids have been filled in using linear interpolation. These data are used for general geolocation computations.
File-Naming Construct	See the File-Naming Convention for the IDPS Terrain Database, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details. Version Number Field provides Provenance Version Identifier
File Size	A single tile file size is approximately 33 MB.
File Format Type	Little Endian Binary
Production Frequency	Static
Data Content and Data Format	See Table 6.1.3.7-1, IDPS Terrain Database Format, for details. Figure 6.1.3.7-1, The Northern Hemisphere Terrain Database, and Figure 6.1.3.7-2, The Southern Hemisphere Terrain Database, show the database maps and how tiles are laid on the maps. Each tile consists of 1664 rows and columns. There are 32 tiles in each row, and 32 rows of tiles. The tiles in the corners of the database are never created. So there are 48 tiles missing from each corner, but the tiles of the database are numbered as if those tiles existed. This makes the tile number easier to calculate. The grid in the upper left corner of tile 528 is exactly on the pole. This is achieved by establishing the grid with 53,249 rows and columns, instead of 53,248. The last row and column of the grid are outside all tiles and are never used anyway. Each tile is individually initialized. Points that are more than 2 kilometers outside the Equator are initialized with a flag value so that they are never used.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 6.1.3.7-1 IDPS Terrain Database Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
mslhgt Array	5537792 [1664 x 1664]	short	-500 to 9400	meters	Surface height (NASA SRTM 30 v2 between 60N and 60S; USGS GTOPO30 otherwise)
maxhgt Array	5537792 [1664 x 1664]	short	-500 to 9400	meters	Maximum terrain height within radius of 28 KM MH_RADIUS kilometers
minhgt Array	5537792 [1664 x 1664]	short	-500 to 9400	meters	Minimum terrain height within radius of 28 KM MH_RADIUS kilometers
bathy Array	5537792 [1664 x 1664]	short	1 to -12000	meters	Ocean depth from SRTM30+
sfcgp	5537792 [1664 x 1664]	short	-500 to 9400	meters	Surface Geopotential Height
egSep Array	2768896 [1664x 1664]	char	-126 to 78	meters	NIMA EGM 96 Geoid Ellipsoid separation
sfcType Array	2768896 [1664x 1664]	uInt8	0 to 20	unitless	Initial Quarterly Surface Type (QST) indicator Not used in operations
upIET_mslhgt	8	uint64	Varies	IET microseconds	Time SRTM30 height updated
upIET_mmhgt	8	uint64	Varies	IET microseconds	Time max/min height updated
upIET_bathy	8	uint64	Varies	IET microseconds	Time bathymetric depth of water updated
upIET_sfcgp	8	uint64	Varies	IET microseconds	Time surface geopotential height updated
upIET_egs	8	uint64	Varies	IET microseconds	Time EG separation height updated
upIET_qst	8	uint64	Varies	IET microseconds	Time QST-Land Water Mask (LWM) data updated Not used in operations
upIET_resolv	8	uint64	Varies	IET microseconds	Conflict resolution time
updated_IET	8	uint64	Varies	IET microseconds	Store time
boxfile Array	32	char	Varies	unitless	Box File Name
boxnum	4	int	11 to 1012	unitless	Box Number

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
boxrow	4	int	0 to 32	unitless	Database (DB) Box Row
boxcol	4	int	0 to 32	unitless	DB Box Column
ulrow_offset	4	int	Varies	unitless	DB grid row of the upper left corner
ulcol_offset	4	int	Varies	unitless	DB grid column of the upper left corner
num_nofill	4	int	0 to 1536	unitless	number of points well outside Equator never filled by data
nOrS	1	char	N or S	unitless	North/South Hemisphere
pad Array	7	char	N/A	unitless	pad

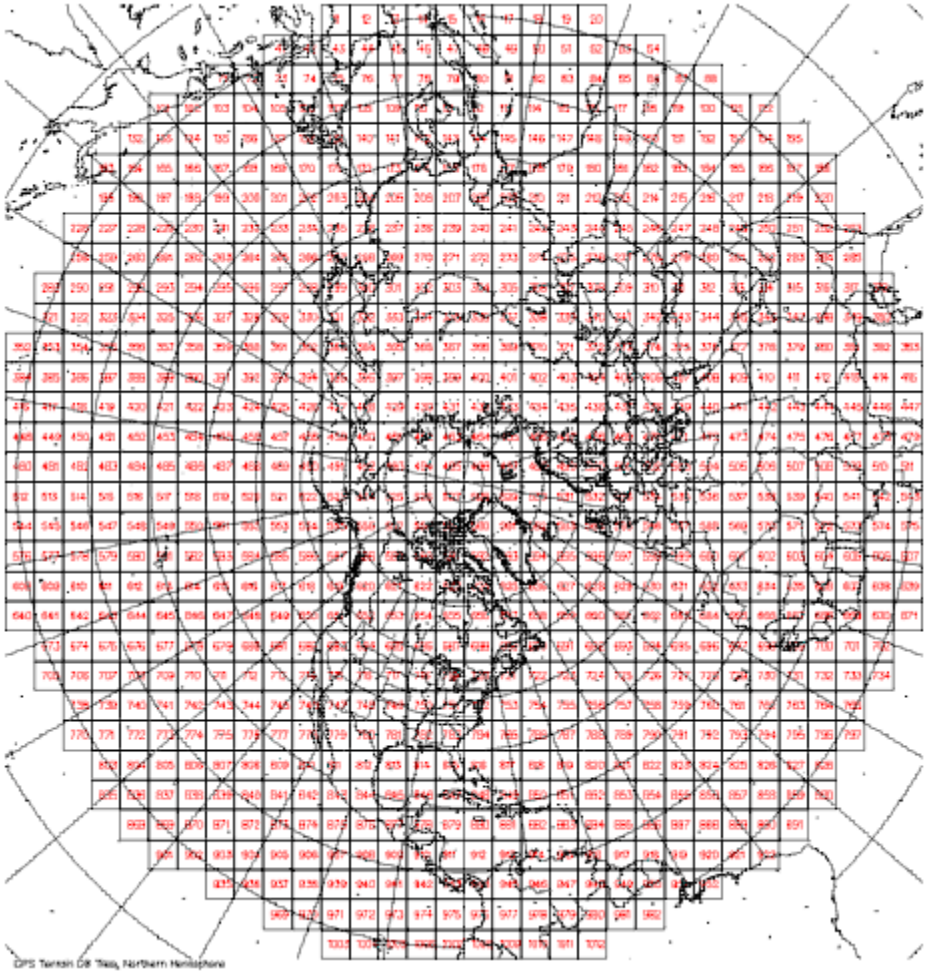

Figure: 6.1.3.7-1 The Northern Hemisphere Terrain DB

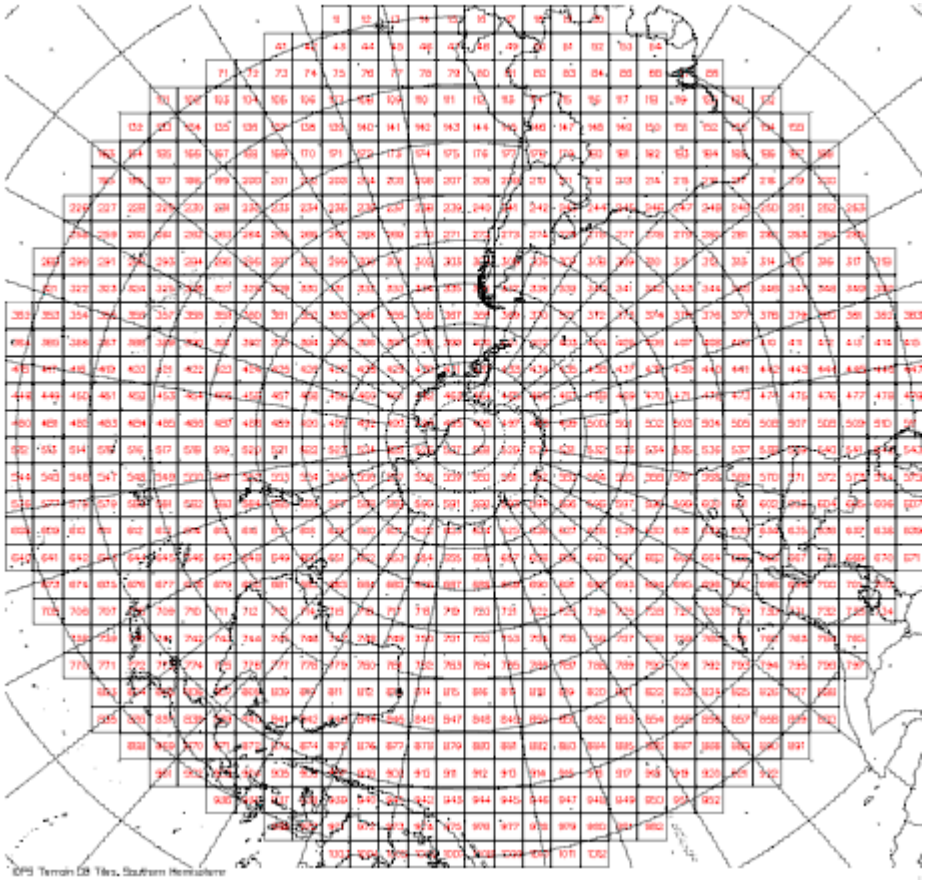

Figure: 6.1.3.7-2 The Southern Hemisphere Terrain DB

6.1.3.8 Isobaric Level Temperature Climatology Files

Data Mnemonic	AN_NP-L20310-002
Description/ Purpose	NCEP/National Center for Atmospheric Research (NCAR) Reanalysis Project Climate Data Assimilation System -1 (CDAS-1) global, monthly temperature profile on 26 pressure levels from the intrinsic grid. The data used by IDPS is interpolated to a standard 1 degree by 1 degree grid. Used for graceful degradation when ODAD is not available. (S-NPP and JPSS during Blocks 2 and 3)
File-Naming Construct	See the File-Naming Convention for Ancillary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details. Version Number Field provides Provenance Version Identifier.
File Size	78975 KiB
File Format Type	Little Endian Binary IEEE 754
Production Frequency	Static
Data Content and Data Format	See Table 6.1.3.8-1, Isobaric Level Temperature Climatology Format, for details.

Table: 6.1.3.8-1 Isobaric Level Temperature Climatology Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
Temperature	80,870,400	32-bit floating point	150 - 320	K	Dimensions of array represent month x pressure level x latitude x longitude: [12, 26, 180, 360]. The pressure levels match the NCEP GFS levels specified in Table 2.1.2.3-1. Starting grid point is January, 1000 hPa, 90N, 0E.

6.1.3.9 Tropopause Geopotential Height Climatology Files

Data Mnemonic	AN_NP-L20320-002
Description/ Purpose	NCEP/NCAR Reanalysis Project CDAS-1 global, monthly geopotential heights at the tropopause from the intrinsic grid. The data used by IDPS is interpolated to a standard 1 degree by 1 degree grid. Used for graceful degradation when ODAD is not available. (S-NPP and JPSS during Blocks 2 and 3)

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Data Mnemonic	AN_NP-L20320-002
File-Naming Construct	See the File-Naming Convention for Ancillary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details. Version Number Field provides Provenance Version Identifier.
File Size	3037.5 KiB
File Format Type	Little Endian Binary IEEE 754
Production Frequency	Static
Data Content and Data Format	See Table 6.1.3.9-1, Tropopause Geopotential Height Climatology Format, for details.

Table: 6.1.3.9-1 Tropopause Geopotential Height Climatology Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
GeopotentialHeight	3,110,400	32-bit floating point	5000 - 20000	gpm	Dimensions of array represent month x latitude x longitude: [12, 180, 360]. Starting grid point is January, 90N, 0E.

6.1.3.10 Ozone Climatology Files

Data Mnemonic	AN_NP-L20130-003
Description/ Purpose	Fortuin and Kelder's monthly ozone total column climatology. The data used by IDPS is interpolated to a standard 1 degree by 1 degree grid. (S-NPP and JPSS during Blocks 2 and 3)
File-Naming Construct	See the File-Naming Convention for Ancillary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details. Version Number Field provides Provenance Version Identifier.
File Size	3037.5 KiB
File Format Type	Little Endian Binary IEEE 754
Production Frequency	Static
Data Content and Data Format	See Table 6.1.3.10-1, Ozone Climatology Format, for details.

Table: 6.1.3.10-1 Ozone Climatology Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
Ozone	3,110,400	32-bit floating point	50 - 650	DU	Dimensions of array represent month x latitude x longitude: [12,

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
					180, 360]. Starting grid point is January, 90N, 0E.

6.1.3.11 Surface Wind Climatology Files

Data Mnemonic	AN_NP-L20250-002
Description/ Purpose	NCEP/NCAR Reanalysis Project CDAS-1 global, monthly geopotential heights at the tropopause from the diagnostic grid. The data used by IDPS is interpolated to a standard 1 degree by 1 degree grid. Used for algorithm graceful degradation when ODAD is not available. (S-NPP and JPSS during Blocks 2 and 3)
File-Naming Construct	See the File-Naming Convention for Ancillary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details. Version Number Field provides Provenance Version Identifier.
File Size	6075 KiB
File Format Type	Little Endian Binary IEEE 754
Production Frequency	Static
Data Content and Data Format	See Table 6.1.3.11-1, Surface Wind Climatology Format, for details.

Table: 6.1.3.11-1 Surface Wind Climatology Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
u-component	3,110,400	32-bit floating point	0 - 120	m/s	Dimensions of array represent month x latitude x longitude: [12, 180, 360]. Starting grid point is January, 90N, 0E.
v-component	3,110,400	32-bit floating point	0 - 120	m/s	Dimensions of array represent month x latitude x longitude: [12, 180, 360]. Starting grid point is January, 90N, 0E.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.1.3.12 Temperature at Surface Climatology Files

Data Mnemonic	AN_NP-L20230-002
Description/ Purpose	NCEP/NCAR Reanalysis Project CDAS-1 global, monthly Temperatures at the Surface (2m air) (including maximum and minimum) from the diagnostic grid. The data used by IDPS is interpolated to a standard 1 degree by 1 degree grid. Used for algorithm graceful degradation when ODAD is not available. (S-NPP and JPSS during Blocks 2 and 3)
File-Naming Construct	See the File-Naming Convention for Ancillary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details. Version Number Field provides Provenance Version Identifier.
File Size	9112.5 KiB
File Format Type	Little Endian Binary IEEE 754
Production Frequency	Static
Data Content and Data Format	See Table 6.1.3.12-1, Temperature at Surface Climatology Format, for details.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 6.1.3.12-1 Temperature at Surface Climatology Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
Temperature	3,110,400	32-bit floating point	183 - 328	K	Dimensions of array represent month x latitude x longitude: [12, 180, 360]. Starting grid point is January, 90N, 0E.
MinTemperature	3,110,400	32-bit floating point	183 - 328	K	Dimensions of array represent month x latitude x longitude: [12, 180, 360]. Starting grid point is January, 90N, 0E.
MaxTemperature	3,110,400	32-bit floating point	183 - 328	K	Dimensions of array represent month x latitude x longitude: [12, 180, 360]. Starting grid point is January, 90N, 0E.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.1.3.13 Surface (Skin) Temperature Climatology Files

Data Mnemonic	AN_NP-L20230-003
Description/ Purpose	NCEP/NCAR Reanalysis Project CDAS-1 global, monthly Temperatures at the Surface (Skin or Land/Water) from the diagnostic grid. The data used by IDPS is interpolated to a standard 1 degree by 1 degree grid. Used for algorithm graceful degradation when ODAD is not available. (S-NPP and JPSS during Blocks 2 and 3)
File-Naming Construct	See the File-Naming Convention for Ancillary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details. Version Number Field provides Provenance Version Identifier
File Size	3037.5 KiB
File Format Type	Little Endian Binary IEEE 754
Production Frequency	Static
Data Content and Data Format	See Table 6.1.3.13-1, Surface (Skin) Temperature Climatology Format.

Table: 6.1.3.13-1 Surface (Skin) Temperature Climatology Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
Temperature	3,110,400	32-bit floating point	180 - 350	K	Dimensions of array represent month x latitude x longitude: [12, 180, 360]. Starting grid point is January, 90N, 0E.

6.1.3.14 Surface Pressure Climatology Files

Data Mnemonic	AN_NP-L20210-003
Description/ Purpose	NCEP/NCAR Reanalysis Project CDAS-1 global, monthly Surface Pressure from the intrinsic grid. The data used by IDPS is interpolated to a standard 1 degree by 1 degree grid. Used for algorithm graceful degradation when ODAD is not available. (S-NPP and JPSS during Blocks 2 and 3)
File-Naming Construct	See the File-Naming Convention for Ancillary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details. Version Number Field provides Provenance Version Identifier
File Size	3037.5 KiB
File Format Type	Little Endian Binary IEEE 754
Production Frequency	Static

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Data Mnemonic	AN_NP-L20210-003
Data Content and Data Format	See Table 6.1.3.14-1, Surface Pressure Climatology Format, for details.

Table: 6.1.3.14-1 Surface Pressure Climatology Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
Pressure	3,110,400	32-bit floating point	30000 - 108000	hPa	Dimensions of array represent month x latitude x longitude: [12, 180, 360].Starting grid point is January, 90N, 0E.

6.1.3.15 Precipitable Water Climatology Files

Data Mnemonic	AN_NP-L20290-002
Description/ Purpose	NCEP/NCAR Reanalysis Project CDAS-1 global, monthly Precipitable Water from the intrinsic grid. The data used by IDPS is interpolated to a standard 1 degree by 1 degree grid. Used for algorithm graceful degradation when ODAD is not available. (S-NPP and JPSS during Blocks 2 and 3)
File-Naming Construct	See the File-Naming Convention for Ancillary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details. Version Number Field provides Provenance Version Identifier
File Size	3037.5 KiB
File Format Type	Little Endian Binary IEEE 754
Production Frequency	Static
Data Content and Data Format	See Table 6.1.3.15-1, Precipitable Water Climatology Format, for details.

Table: 6.1.3.15-1 Precipitable Water Climatology Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
PrecipitableWater	3,110,400	32-bit floating point	0 - 130	kg/m^2	Dimensions of array represent month x latitude x longitude: [12, 180, 360].Starting grid point is January, 90N, 0E.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.1.3.16 Specific Humidity at Surface Climatology Files

Data Mnemonic	AN_NP-L20200-002
Description/ Purpose	NCEP/NCAR Reanalysis Project CDAS-1 global, monthly Specific Humidity at Surface from the diagnostic grid. The data used by IDPS is interpolated to a standard 1 degree by 1 degree grid. Used for algorithm graceful degradation when ODAD is not available. (S-NPP and JPSS during Blocks 2 and 3)
File-Naming Construct	See the File-Naming Convention for Ancillary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details. Version Number Field provides Provenance Version Identifier
File Size	3037.5 KiB
File Format Type	Little Endian Binary IEEE 754
Production Frequency	Static
Data Content and Data Format	See Table 6.1.3.16-1, Specific Humidity at Surface Climatology Format, for details.

Table: 6.1.3.16-1 Specific Humidity at Surface Climatology Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
SpecificHumidity	3,110,400	32-bit floating point	0.002 - 0.04	kg/kg	Dimensions of array represent month x latitude x longitude: [12, 180, 360].Starting grid point is January, 90N, 0E.

6.1.3.17 Geopotential Height at Pressure Levels Climatology Files

Data Mnemonic	AN_NP-L20090-002
Description/ Purpose	NCEP/NCAR Reanalysis Project CDAS-1 global, monthly geopotential height profile on 26 pressure levels from the intrinsic grid. The data used by IDPS is interpolated to a standard 1 degree by 1 degree grid. Used for graceful degradation when ODAD is not available. (S-NPP and JPSS during Blocks 2 and 3)
File-Naming Construct	See the File-Naming Convention for Ancillary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details. Version Number Field provides Provenance Version Identifier
File Size	78975 KiB
File Format Type	Little Endian Binary IEEE 754
Production Frequency	Static
Data Content and Data Format	See Table 6.1.3.17-1, Geopotential Height at Pressure Levels Climatology Format, for details.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 6.1.3.17-1 Geopotential Height at Pressure Levels Climatology Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
GeopotentialHeight	80,870,400	32-bit floating point	10 - 33000	gpm	Dimensions of array represent month x pressure level x latitude x longitude: [12, 26, 180, 360]. The pressure levels match the NCEP GFS levels specified in Table 2.1.2.3-1. Starting grid point is January, 1000 hPa, 90N, 0E.

6.1.3.18 Specific Humidity at Pressure Levels Climatology Files

Data Mnemonic	AN_NP-L20110-002
Description/ Purpose	NCEP/NCAR Reanalysis Project CDAS-1 global, monthly specific humidity profile on 21 pressure levels from the intrinsic grid. The data used by IDPS is interpolated to a standard 1 degree by 1 degree grid. Used for graceful degradation when ODAD is not available. (S-NPP and JPSS during Blocks 2 and 3)
File-Naming Construct	See the File-Naming Convention for Ancillary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details. Version Number Field provides Provenance Version Identifier
File Size	63787.5 KiB
File Format Type	Little Endian Binary IEEE 754
Production Frequency	Static
Data Content and Data Format	See Table 6.1.3.18-1, Specific Humidity at Pressure Levels Climatology Format, for details.

Table: 6.1.3.18-1 Specific Humidity at Pressure levels Climatology Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
SpecificHumidity	65,318,400	32-bit floating point	0.0 - 0.04	kg/kg	Dimensions of array represent month x pressure level x latitude x longitude: [12, 21, 180, 360].

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
					The pressure levels match the NCEP GFS levels specified for Specific Humidity in Table 2.1.2.3-1. Starting grid point is January, 1000 hPa, 90N, 0E.

6.1.3.19 Geopotential Height of Surface Climatology Files

Data Mnemonic	AN_NP-L10080-002
Description/ Purpose	NCEP/NCAR Reanalysis Project CDAS global, monthly geopotential heights at the surface from the intrinsic grid. The data used by IDPS is interpolated to a standard 1 degree by 1 degree grid. Used for graceful degradation when ODAD is not available. (S-NPP and JPSS during Blocks 2 and 3)
File-Naming Construct	See the File-Naming Convention for Ancillary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details. Version Number Field provides Provenance Version Identifier
File Size	3037.5 KiB
File Format Type	Little Endian Binary IEEE 754
Production Frequency	Static
Data Content and Data Format	See Table 6.1.3.19-1, Geopotential Height of Surface Climatology Format, for details.

Table: 6.1.3.19-1 Geopotential Height of Surface Climatology Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
GeopotentialHeight	3,110,400	32-bit floating point	5000 - 20000	gpm	Dimensions of array represent month x latitude x longitude: [12, 180, 360]. Starting grid point is January, 90N, 0E.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.1.3.20 Leap Seconds

Data Mnemonic	AN_NP-L10330-001
Description/ Purpose	Data file is used to convert IET to UTC and UTC to IET
File-Naming Construct	See the File-Naming Convention for Ancillary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details. Version Number Field provides Provenance Version Identifier
File Size	1863 bytes (not fixed) (80 character lines)
File Format Type	ASCII
Production Frequency	Notice is given in Bulletin C every 6 months. This bulletin can be viewed at http://hpiers.obspm.fr/eoppc/bul/bulc/bulletinc.dat
Data Content and Data Format	See Table 6.1.3.20-1, Leap Seconds Format, for details

Table: 6.1.3.20-1 Leap Seconds Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
Date	13	String	> 1972	N/A	Calendar Date " YYYY MMM DD"
Text	4	String	"=JD"	N/A	
Julian Day	9	Float	> 2441317.5	Days	
Text	10	ASCII	" TAI-UTC="	N/A	
LeapSeconds	13	Float	> 10.0	Seconds	
Text	4	ASCII	"S + "	N/A	
Correction	26	ASCII	0.0	Seconds	Correction term to maintain format legacy
Text	1	ASCII	"S"	N/A	

6.1.3.21 Planetary Ephemeris

Data Mnemonic	AN_NP-L10340-001
Description/ Purpose	JPSS Internal binary format of the Planetary ephemeris (DE200) from Jet Propulsion Laboratory (JPL). Used by IDPS to determine solar and lunar vectors during JPSS Mission Data processing. This internal format has been modified slightly from the DE200 format to accommodate use within JPSS without modifying the content or general layout of the source DE200 data. The layout, content, and description of the JPL DE200 Planetary Ephemeris can be found at the following URL: http://ssd.jpl.nasa.gov/?planet_eph_export.
File-Naming Construct	See the File-Naming Convention for Ancillary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details. Version Number Field provides Provenance Version Identifier
File Size	3698 KiB per 50 year block. (UNXP2000.200)
File Format Type	Little Endian Binary

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Data Mnemonic	AN_NP-L10340-001
Production Frequency	Static
Data Content and Data Format	See Table 6.1.3.21-1, Planetary Ephemeris Format, for details.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 6.1.3.21-1 Planetary Ephemeris Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
tjdStart	8	64-bit float	Varies	Julian Day	Terrestrial Dynamic Time of start of ephemeris, expressed as a Julian Day (DE200 Group 1070, 1st value of first coefficients sub-group)
tjdEnd	8	64-bit float	Varies	Julian Day	Terrestrial Dynamic Time of end of ephemeris, expressed as a Julian Day (DE200 Group 1070, 2nd value of last coefficients sub-group)
span	8	64-bit float	Varies	Days	Span of ephemeris (i.e., number of days of ephemeris data in coeffs array)
au	8	64-bit float	Constant	km	Constant: size, in kilometers, of 1 Astronomical Unit (AU) (DE200 Group 1041, 7th value--third row, 1st number)
emrat	8	64-bit float	Constant	unitless	Constant: ratio of mass of Earth to mass of Moon (DE200 Group 1041, 8th value--third row, 2nd number)
ipt Array	156	32-bit int	Varies	unitless	Index array (13 x 3) indicating location of orbital parameters in coefficients table which correspond to each of 11 Solar System objects, plus nutation

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
					tables. Earth-Moon system is addressed through indices [2,1], [2,2], and [2,3]. The 13th item would be indices for libration tables, but DE200 does not include those, so these index slots are zeros. (DE200 Group 1050)
pad Array	4	byte	Varies	n/a	4 byte pad to adjust “coeffs” array to 8-byte longword boundary
coeffs Array	3039680	64-bit float	Varies	unitless	Data array is 460 x 826. Contains ephemeris timestamps, position and velocity tables for all 11 Solar System objects, and nutation tables. 460 DE200 data subblocks of 826 entries each. (DE200 Group 1070)

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

6.1.3.22 TOMS V8 Temperature Climatology

Data Mnemonic	AN_NP-L20230-004
Description/ Purpose	TOMS V8 Temperature Climatology on 11 Umkehr layers. Used for OMPS Total Column EDR generation.
File-Naming Construct	See the File-Naming Convention for Ancillary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details. Version Number Field provides Provenance Version Identifier
File Size	9504 Bytes
File Format Type	Little Endian Binary IEEE 754
Production Frequency	Static
Data Content and Data Format	See Table 6.1.3.22-1, TOMS V8 Temperature Climatology Format, for details.

Table: 6.1.3.22-1 TOMS V8 Temperature Climatology

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
Temperature	9,504	32-bit floating point	185 - 290	K	Dimensions of array represent month x umkehrLayer x latitude zone x longitude zone: [12, 11, 18, 1]. Starting grid point is January, Bottom of the atmosphere, 90N.

6.1.3.23 Normalized Ozone Profile Climatology

Data Mnemonic	AN_NP-L10135-002
Description/ Purpose	This climatology ozone profile data is a combination of the UARS (Upper Atmosphere Research Satellite) Reference Atmosphere ozone profile data, the ECMWF (European Center for Medium range Weather Forecasting) ozone profile data, and the CIRA-86 (COSPAR International Reference Atmosphere: 1986, 0 km to 120 km) temperature and height profile data. The combined monthly mean ozone profiles cover each month of the year over 41 latitudinal zones from -80° to 80°. Each profile provides the normalized ozone mass mixing ratio (i.e., kg/kg DU^{-1}) at 38 pressure levels spanning from 1000 mbar to 0.1 mbar. The ozone profiles have been normalized by the computed total column amount. The data is used in the Net Heat Flux algorithm.
File-Naming Construct	See the File-Naming Convention for Ancillary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 for details. Version Number Field provides Provenance Version Identifier
File Size	74936 Bytes

Data Mnemonic	AN_NP-L10135-002
File Format Type	Little Endian Binary IEEE 754
Production Frequency	Static
Data Content and Data Format	See Table 6.1.3.23-1, Normalized Ozone Profile Climatology Format, for details.

Table: 6.1.3.23-1 Normalized Ozone Profile Climatology Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
PressureLevels	152	32-bit floating point	0.1 - 1000.0	hPa	38 levels on which the ozone profile is provided.
NormalizedOzone	74784	32-bit floating point	1.0E-10 - 3.0E-8	(kg/kg) DU^{-1}	Dimensions of array represent month x latitude x pressure level [12, 41, 38] starting January at 80S; pressure levels as provided above for indices 0 - 37. Latitude range is -80 to 80.

6.2 Substitute Ancillary Data

A Central may have specific needs in terms of parameter qualities and decide to substitute certain Official Dynamic Ancillary Data with a data set of their own choosing. The ancillary data set used in this situation is called Substitute Ancillary Data and is used in place of the Official Dynamic Ancillary Data to produce Suomi National Polar-orbiting Partnership (S-NPP)/JPSS Data Products. Substitute Ancillary Data is provided by a Central to its local IDP for operations use. Substitute Ancillary Data may be comprised of one, several, or the complete set of data records which make up the Ancillary Data file required by operations. Substitute S-NPP/JPSS Data Products are produced from the Substitute Ancillary Data sets, and differ from the baseline S-NPP/JPSS Data Products which are produced using the Official Ancillary Data set. IDPS uses the same algorithms to generate Substitute S-NPP/JPSS Data Products as the algorithms used to generate S-NPP/JPSS Official Data Products. Because of this, all Substitute Ancillary Data needs to be in the identical file format (including units) currently accepted by IDPS to be compatible with the baseline algorithms. Substitute Ancillary Data should be renamed by the respective Central to conform to the Ancillary Data File-Naming Convention, as annotated in JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4.Table 6.2-1, Substitutable

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Dynamic Ancillary Data, lists the Dynamic Ancillary data files which may be substituted into the IDPS processing.

Table: 6-2 Substitutable Dynamic Ancillary Data

Product	Data Mnemonic
NCEP Forecast files	AN_NP_L10000-030 AN_NP_L10000-060 AN_NP_L10000-090 AN_NP_L10000-120 AN_NP_L10000-150 AN_NP_L10000-180 AN_NP_L10000-210 AN_NP_L10000-240
FNMOC Forecast files	AN_NP-L20000-030 AN_NP-L20000-060 AN_NP-L20000-090 AN_NP-L20000-120 AN_NP-L20000-150 AN_NP-L20000-180 AN_NP-L20000-210 AN_NP-L20000-240
NAAPS Forecast files	AN_NP-L10015-030 AN_NP-L10015-060 AN_NP-L10015-090 AN_NP-L10015-120 AN_NP-L10015-150 AN_NP-L10015-180 AN_NP-L10015-210 AN_NP-L10015-240

[1] Currently accepted data is in reference to the relevant Official Dynamic Ancillary Data sets.

6.3 Auxiliary Data

Auxiliary Data is data other than that included in the sensor application packets, which is produced internally by JPSS, and is used to produce the JPSS Data Products. For a description of Auxiliary Data Files, see 474-00001-06, JPSS CDFCB-X Vol VI.

6.4 Provenance Data

Provenance files are used to capture the historical information for select Auxiliary Data and Static Ancillary files maintained by the JPSS Program. The following data format is used to describe these files.

6.4.1 Provenance Files

Data Mnemonic	NP_NU-LM1010-000
Description/ Purpose	The provenance files provide structured text information on the source and change history of specified versions of their associated Auxiliary Data or Static Ancillary Data files. A single provenance file contains the history of all versions of the referenced file.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Data Mnemonic	NP_NU-LM1010-000
	Note that not all Auxiliary Data or Static Ancillary Data files will require an associated Provenance file.
File-Naming Construct	<Collection Short Name>.prv Where <Collection Short Name> is that of the file which the Provenance File is associated with. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	1 KiB to 100 KiB
File Format Type	ASCII
Production Frequency	As needed
Data Content and Data Format	For details see Table 6.4.1-1, Provenance Files Data Format. An example is provided in Example 6.4.1-1, Provenance File example.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 6.4.1-1 Provenance Files Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
Short Name	Varies	String	Collection Short Name	N/A	Collection Short Name of the associated file for this provenance file
Separator	18	String	“----------“	N/A	Version separator
Revision Date	Varies	String	“Revision Date: “ + Valid Date (MM/DD/YYYY)	N/A	Date of update
Source	Varies	Parent Element	“Source:” Sub-elements: ECR Number Science Version Tech Memo Science Files	N/A	Section heading
ECR Number	Varies	String	• “ECR: “+ text	N/A	Provides the ECR number associated with the update. May be “None”
Source Version	Varies	String	• “Source version: ” + text	N/A	Identifies the SCM VOB identifier containing the science drop source data. May be “N/A”
Tech Memo	Varies	String	• “Tech Memo: ” + text	N/A	• Identifies the technical memo by Identifier. May be “None”
Source Files	Varies	Parent Element	“Source File(s): ” Sub-elements: • Filename	N/A	• Optional Section heading
Filename	Varies	String	• One or more file names	N/A	• Name(s) of the source file(s) translated to create the LUT. May be “N/A” if no translation or name change was required.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
Provenance Version ID	Varies	String	"Provenance Version ID: " + Text	N/A	• See the Version ID Description of the File-Naming Convention for Auxiliary or Ancillary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4 or 3.5.
Build Identifier	Varies	String	• "Build Identifier:" + Text	N/A	• Configuration Management Build Identifier of initial version release.
MD5SUM	Varies	String	• "MD5SUM:" + Text	N/A	• Optional MD5SUM of deployed file for the version defined in this section. May be "N/A"
Notes	Varies	String	• Free text	N/A	• Description of the source changes and applicability of the version defined in this section.
Separator	18	String	• "----------"	N/A	• Version separator
Repeat above sections starting with Revision Date					• Each Provenance version will have a completely repeated section from Date to Notes.

Table: 6.4.1-2 Provenance Files Data Format - ATMS-SDR-CC.prv

ATMS-SDR-CC

Revision Date: 05/15/2007
Source:
ECR: None
Source Version: ISTN_ATMS_NPP_PROXY_DATA_NGST_002
Tech Memo: None
Source File(s)
Constants_set1.dat
Provenance Version ID: 1-D-NPP-4
Build Identifier: 1.5.0.X1
MD5SUM: N/A
Notes: Chain Testing Table

Revision Date: 04/11/2007
Source:
ECR: A116
Source Version: ISTN_ATMS_NGST_3.1
Tech Memo: TM2007.510.0044 - Diagnostic mode processing
Source File(s):
Constants_set1.dat
Provenance Version ID: 1-D-NPP-1
Build Identifier: 1.5.0.X1
MD5SUM: 576A3B76335
Notes: Data used for Standalone IPAC testing, last digit of Version ID corresponds to Data Set Used
---
Revision Date: 04/11/2007
Source:
ECR: A116
Source Version: ISTN_ATMS_NGST_3.1
Tech Memo: TM2007.510.0044 - Diagnostic mode processing
Source File(s)
Constants_set2.dat
Provenance Version ID: 1-D-NPP-2
Build Identifier: 1.5.0.X1
MD5SUM: N/A
Notes: Data used for Standalone IPAC testing, last digit of Version ID corresponds to Data Set Used
---
Revision Date: 04/11/2007
Source:
ECR: A116
Source Version: ISTN_ATMS_NGST_3.1
Tech Memo: TM2007.510.0044 - Diagnostic mode processing
Source File(s)
Constanst_set3.dat
Provenance Version Number: 1-D-NPP-3
Build Identifier: 1.5.0.X1
MD5SUM: N/A
Notes: Data used for Standalone IPAC testing, last digit of Version ID corresponds to Data Set Used
---

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

7 Look-up Tables and Processing Coefficient Tables

The template used for these formats in this document is described below.

Data Mnemonic: This is a unique identifier. JPSS CDFCB-X Vol. I, 474-00001-01 describes the data mnemonic definition methodology.

Description/Purpose: A brief description of the data format and its purpose.

Instrument: Identification of the Instrument associated with the table.

File-Naming Construct: A description of the file-naming constructs for those data units that apply. JPSS CDFCB-X Vol. I, 474-00001-01 defines file-naming conventions.

File Size: The size of the data file.

File Format Type: The format type of the data file.

Production Frequency: Production frequency is the interval of time for data generation. A production frequency equal to dynamic implies that it is only as requested or as needed.

Data Format/Structure: This defines the actual data format. The definitions provide information for every data element in the data unit.

The following rules apply to all tables:

1. All field names mandatory, unless specified otherwise.
2. Fill data is specified, where applicable.
3. Strings are left-aligned and integers are right-aligned, unless specified otherwise.
4. For information regarding Coordinated Universal Time (UTC) and IDPS Epoch Time (IET) conventions, see the JPSS CDFCB-X Vol. I, 474-00001-01.
5. For all references of the ASCII Standard, the corresponding International Standards Organization (ISO) standard is ISO/IEC 10646. The specific Unicode is UTF8, unless stated otherwise.
6. The fields are presented in order (either top - down or most significant first), unless stated otherwise.

7.1 Ancillary Data Handling Gridding and Granulation Look Up Tables (LUTs)

7.1.1 VIIRS Gridded SIN Tiles Earth Land LUT

Data Mnemonic	NP_NU-LM0233-074
Description/ Purpose	The VIIRS Sinusoidal Map Earth/Land LUT file contains earth/off-earth information for each tile on the Sinusoidal Grid. This file is used in the VIIRS GridToGran algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.

Data Mnemonic	NP_NU-LM0233-074
File Size	See Table: 7.1.1-1 VIIRS Gridded SIN Tiles Earth Land LUT Data Format for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see Table 7.1.1-1, VIIRS Gridded SIN Tiles Earth/Land LUT Data Format

Table: 7.1.1-1 VIIRS Gridded SIN Tiles Earth Land PC Data Format

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
classification	5184	unsigned 8-bit char	[0, 1, 3]	unitless	0 = off the earth 1 = on the earth - not land 3 = on the earth - land 2 Dimensional Array: SinusoidalGrid Row x SinusoidalGrid Col Size of Dimension(s): 72 x 72
File Size	**5,184 Bytes**				

7.2 Processing Coefficient Tables (PCTs)

PCTs are files containing parameters used in the creation of S-NPP/JPSS Data Products by ground processing.

7.2.1 Automated PCs

Not Applicable

7.2.2 Manual Processing Coefficients

Manual PCTs are files that contain PC parameters used in the creation of S-NPP/JPSS Data Products. All of these files require human review prior to their insertion into the operational processing environment.

Initialization PCTs are files containing the initial sets of PC parameters used to create S-NPP/JPSS Data Products and are not updated frequently.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Ephemeral PCTs are files containing the processing coefficient parameters used to create S-NPP/JPSS Data Products and are updated frequently. Ephemeral PC updates follow the data format definition provided below.

The following sections indicate the parameters included in each respective file.

7.2.2.1 VIIRS Gran to Grid Snow Ice Cover Ephemeral PCT

Data Mnemonic	DP_NU-LM2020-018
Description/ Purpose	The VIIRS Gran to Grid Snow Ice Cover Ephemeral PC file contains threshold values and On/Off switching to turn on gridding. This file is used in the VIIRS GridToGran algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.2.2.1-1 VIIRS Gran to Grid Snow Ice Cover Ephemeral PCs for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see 7.2.2.1-1 VIIRS Gran to Grid Snow Ice Cover Ephemeral PCs

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.2.2.1-1 VIIRS Gran to Grid Snow Ice Cover Ephemeral PCs

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
iceFractionThreshold	4	32-bit floating point	0.0 - 1.0(initially set to 0.5)	unitless	Ice concentration threshold
concWeightThreshold	4	32-bit floating point	0.0 - 1.0(initially set to 0.04)	unitless	Concentration weight threshold
forceUpdateDayThreshold	4	32-bit integer	0.0 - MaxInt(initially set to 10)	Days	Force Update Day Threshold - maximum time before the GIP must be updated
viirsSnowCoverGriddingONswitch	4	32 bit integer	0 - 1(initially set to 0)	unitless	Switch to turn ON or OFF gridding of VSCMO (VIIRS Snow Cover Binary Map) data OFF = 0; ON = 1
viirsSeaIceGriddingONswitch	4	32 bit integer	0 - 1 (initially set to 0)	unitless	Switch to turn ON or OFF gridding of IVIIC (VIIRS Sea Ice Concentration IP) data OFF = 0; ON = 1
File Size	**20 Bytes**				

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

7.2.2.2 VIIRS GridToGrid LSA Ephemeral PCT

Data Mnemonic	DP_NU-LM2020-019
Description/ Purpose	The VIIRS Grid to Grid LSA Ephemeral PC This file is used in the VIIRS GridToGran algorithm.
File-Naming Construct	See the File-Naming Convention for Auxiliary Data Formats, JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.4. The Collection Short Name used in the filename is based on the table - see the JPSS CDFCB-X Vol. I, 474-00001-01, for the applicable Collection Short Names.
File Size	See Table: 7.2.2.2-1 VIIRS Grid to Grid LSA Ephemeral PCs for size.
File Format Type	Little Endian Binary
Production Frequency	As needed
Data Content and Data Format	For details see 7.2.2.2-1 VIIRS Grid to Grid LSA Ephemeral PCs

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Table: 7.2.2.2-1 VIIRS GridToGrid LSA Ephemeral PC

Field Name	Length (Bytes)	Data Type	Range of Values	Units	Comments
fullInversionMinCount	4	32-bit integer	7	unitless	Full Inversion Minimum Count
magInversionMinCount	4	32-bit integer	3	unitless	Magnitude Inversion Minimum Count
thresholdRMSELow	4	32-bit floating point	0.1	unitless	Threshold RMSE Low
thresholdRMSEHi	4	32-bit floating point	0.3	unitless	Threshold RMSE Hi
thresholdVarianceLow	4	32-bit floating point	0.75	unitless	Threshold Variance Low
thresholdVarianceHi	4	32-bit floating point	1.25	unitless	Threshold Variance Hi
thresholdMaxAlbedoVarianceLow	4	32-bit floating point	1.5	unitless	Threshold Maximum Albedo Variance Low
thresholdMaxAlbedoVarianceHi	4	32-bit floating point	2.5	unitless	Threshold Maximum Albedo Variance Hi
ndviThreshold	4	32-bit floating point	0.15	unitless	NDVI Threshold
hkThetaSInterval	4	32-bit floating point	0.00872665	unitless	Solar Zenith Angle increment in each of the LUT files
hkThetaSMax	4	32-bit floating point	1.4748	unitless	Maximum Solar Zenith Angle value in the LUT files
implicit_pad0	4	unsigned 8-bit char	-MIN_VAL - MAX_VAL	unitless	Pad byte to align on word boundary 1 Dimensional Array: Size of Dimension(s): 4
crownRelHeightParamLISparse	8	64-bit floating point	2.0	unitless	
crownRelShapeParamLISparse	8	64-bit floating point	1.0	unitless	
crownRelHeightParamLIDense	8	64-bit floating point	2.0	unitless	
crownRelShapeParamLIDense	8	64-bit floating point	1.0	unitless	
crownRelShapeParamRoujean	8	64-bit floating point	1.0	unitless	
File Size	**88 Bytes**				

Appendix A. Data Mnemonic to Interface Mapping

For a complete list of Data Mnemonic to Interface Mapping, see 474-00001-01, JPSS CDFCB-X Vol I. The CDFCB contains Data Mnemonics, Identifiers, Collection Short Names, Interface Documents, and Collection Long Names for each JPSS Data Product and Geolocation data.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Appendix B. DQTT Quality Flag Mapping

Not Applicable

Appendix C. Abbreviations and Acronyms

See 470-00041 JPSS Program Lexicon for abbreviations and acronyms.

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.

Attachment A XML Formats for Related Products

Table: ATT-1 XML Formats for Related Products

File Number	XML Filename
1	474-00448-02-07_JPSS-ANC-DD-Part-7_0200F_GridIP-VIIRS-Land-Surf-Albedo-17Day-Tile-PP.xml
2	474-00448-02-07_JPSS-ANC-DD-Part-7_0200F_GridIP-VIIRS-Nbar-Ndvi-Rolling-Tile-PP.xml
3	474-00448-02-07_JPSS-ANC-DD-Part-7_0200F_GridIP-VIIRS-Nbar-Ndvi-Monthly-Tile-PP.xml
4	474-00448-02-07_JPSS-ANC-DD-Part-7_0200F_GridIP-VIIRS-Brdf-Arch-17Day-Tile-PP.xml
5	474-00448-02-07_JPSS-ANC-DD-Part-7_0200F_GridIP-VIIRS-Snow-Ice-Cover-Rolling-Tile-PP.xml
6	474-00448-02-07_JPSS-ANC-DD-Part-7_0200F_VIIRS-GridIP-VIIRS-Snow-Ice-Cover-Mod-Gran-PP.xml
7	474-00448-02-07_JPSS-ANC-DD-Part-7_0200F_GridIP-VIIRS-Mth-SR-BT-VI-Monthly-Final-Tile-PP.xml
8	474-00448-02-07_JPSS-ANC-DD-Part-7_0200F_GridIP-VIIRS-Qst-Quarterly-Tile-PP.xml
9	474-00448-02-07_JPSS-ANC-DD-Part-7_0200F_GridIP-VIIRS-Daily-Surf-Refl-Daily-Tile-PP.xml
10	474-00448-02-07_JPSS-ANC-DD-Part-7_0200F_GridIP-GMASI-Snow-Ice-Cover-Tile-PP.xml
11	474-00448-02-07_JPSS-ANC-DD-Part-7_0200F_GridIP-VIIRS-Qst-Lwm-Quarterly-Tile-PP.xml
12	474-00448-02-07_JPSS-ANC-DD-Part-7_0200F_GridIP-VIIRS-Ann-Max-Min-Ndvi-Tile-PP.xml
13	474-00448-02-07_JPSS-ANC-DD-Part-7_0200F_GridIP-VIIRS-MLI-Tile-PP.xml

Check the JPSS MIS Server at https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm to verify that this is the correct version prior to use.