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**Joint Polar Satellite System (JPSS)  
Common Data Format Control Book –  
External (CDFCB-X)  
Volume IV Part 1  
- IPs, ARPs, and Geolocation Data**

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The information provided herein does not contain technical data as defined in the International Traffic in Arms Regulations (ITAR) 22 CFC 120.10. This document has been approved For Public Release to the NOAA Comprehensive Large Array-data Stewardship System (CLASS).

**Block 1.2.4**



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**Joint Polar Satellite System (JPSS)**  
**Common Data Format Control Book - External**  
**Volume IV Part 1 - IPs, ARPs, and Geolocation Data**

**JPSS Electronic Signature Page**

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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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**NPOESS Common Data Format Control Book - External  
Volume IV - Part I - IPs, ARPs, and Geolocation Data**

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---	10/21/2005	Incorporation of the following ECRs: ECR 446C provides the Revision --- (initial submission) of this document. The following ECRs are included in this revision: D34659 CIS ICD ECR 216C - Initial "Draft" Release D31400-10 SARSAT System OPSCON SYS-020-060 ECR 229B - Rev A SY15-0007 System Specification ECR 274A - Active Fires classification to an ARP D34659 CIS ICD ECR 290C - Rev A D37005 NPP EDR-PR v1.8 ECR 431B - Requirements Updates D34862-01 CDFCB-X Vol. I ECR 445B - Rev A D34862-04-01 CDFCB-X Vol. IV Part 1 ECR 446C - Initial Release	All
A	09/10/2007	Incorporation of the following DCOs and ECRs: ECR 617A provides the Revision A of this document. The following ECRs/DCOs are included in this revision: ECR 515B, NPOESS Restructure Baseline - De-manifested and GFE Payload Performance ECR 479A, DCO A1 D34862-04-01 CDFCB-X Vol. IV Part I ECR 525E - Aerosol EDR ECR 530C, Two-sensor EDRs DCO A2 D34862-04-01 CDFCB-X Vol. IV Part I ECR 532 - UML Updates DCO A3 D34862-04-01 CDFCB-X Vol. IV Part 1 ECR 569C - Active Fires ARP DCO A4 D34862-04-01 CDFCB-X Vol. IV Part I ECR 576C - Cloud Data Products DCO A5 D34862-04-01 CDFCB-X Vol. IV Part I ECR 610A - CrIS IR Ozone IP and VIIRS TC SDR GEOs ECR 617A CIDP CDFCB-X Vol. III and Vol. IV This revision also incorporates the following: Product Profile consistency updates	All



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B	07/07/2008	<p>Incorporation of the following DCOs and ECRs: ECR 779A provides the Revision B of this document. The following ECRs/DCOs are included in this revision: ECR 779A Rev B Updates to D34862-04 CDFCB-X Vol IV, Parts 1-4</p> <ul style="list-style-type: none"> <li>• DCO B1 D34862-04-01 CDFCB-X Vol. IV Part I ECR 665A - CrIS IR Ozone</li> <li>• DCO B2 D34862-04-01 CDFCB-X Vol. IV Part I ECR 675A - Rev A - VIIRS Aerosol Geolocation Updates</li> <li>• DCO B3 D34862-04-01 CDFCB-X Vol. IV Part I ECR 676 - VIIRS Cloud Mask IP Updates <ul style="list-style-type: none"> <li>○ Incorporated ECR A-185</li> </ul> </li> <li>• DCO B4 D34862-04-01 CDFCB-X Vol. IV Part I ECR 708B - Update of the VIIRS &amp; CrIMSS EDR Geo Prod. Profile XML for the CDFCB-X Vol. IV</li> <li>• DCO B5 D34862-04-01 CDFCB-X Vol. IV Part I ECR 712A - N_Algorithm Version</li> <li>• DCO B6 D34862-04-01 CDFCB-X. Vol. IV Part I ECR 765A - QST Gridded IP &amp; CrIMSS NPOESS EDR Format Updates</li> <li>• ECR 749, CDFCB-X, Vol V DCO C4, Distributor Metadata, was incorporated with ECR 779A (This Document/Volume was listed as an impacted doc with ECR 749)</li> </ul>	All
C	01/23/2009	ECR 898B provides Rev C of this document. No DCOs have been incorporated into this revision.	All
D	06/04/2009	ECR 959A provides Rev D of this document. No DCOs have been incorporated into this revision.	All

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E	12/09/2009	ECR 1014A incorporates the following updates: <ul style="list-style-type: none"> <li>• Incorporates ECR 1012A - Updated Appendix A, DATA MNEMONIC TO INTERFACE MAPPING to reference D34862-01, CDFCB-X Volume I for the mapping. This was done based on user feedback on use of the mappings as well as eliminates duplication and precedence issues across the various volumes of the CDFCB-X</li> <li>• Added (N=Number of Granules) to Aggregate Dimension column in the Product Data Content Summary tables throughout the document based on user request for clarity as to what 'N' is</li> <li>• Updated text for clarity regarding geolocation packaging for IPs, ARPs, And EDRs (Generalized UML Diagram for statically sized HDF5 IP/EDR Files and Generalized UML Diagram for dynamically sized HDF5 IP/EDR Files)                             <ul style="list-style-type: none"> <li>○ WAS: N_GEO_Ref and inclusion of the GEO Group is dependent on the Packaging Option configured at the IDP. These elements are mutually exclusive</li> <li>○ IS: The inclusion of the N_GEO_Ref and the GEO Group is dependent on the existence of a separate geolocation product. If applicable, then either the N_GEO_Ref or the GEO Group will be included based on the Packaging Option selected by the IDP requestor. These elements are mutually exclusive.</li> </ul> </li> <li>• Incorporated ECR A-251B, VIIRS SDR Cal &amp; Geolocation Update</li> <li>• Update Section 2.4 CrIS IR Ozone IP to specify NPOESS era dynamic product FOR/FOV static layout also updated quality flag description (added Day/Night Flag, using spare)</li> <li>• Updated XML Product Profiles based on redlines to accompany document                             <ul style="list-style-type: none"> <li>○ D34862-04-01_NPOESS-CDFCB-X-Vol-IV-Part-1_E_CrIS-IR-OZ-Prof-IP-PP.xml</li> <li>○ D34862-04-01_NPOESS-CDFCB-X-Vol-IV-Part-1_E_VIIRS-AF-ARP-PP.xml</li> <li>○ D34862-04-01_NPOESS-CDFCB-X-Vol-IV-Part-1_E_VIIRS-CLD-AGG-GEO-PP.xml</li> </ul> </li> </ul>	10, 59-61, 66, 75, 76, 79, 80, 86-88, 92, 106, 107, 117, 118, 123-133



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Revision	Document Date	Revision/Change Description	Pages Affected
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## **1.0 INTRODUCTION**

### **1.1 Document Purpose and Scope**

The Joint Polar Satellite System (JPSS) Common Data Format Control Book - External (CDFCB-X) Volume IV - Part I - IPs, ARPs, and Geolocation Data contains the specifications for the format of Environmental Data Records (EDRs), Intermediate Products (IP), and Application Related Products (ARP). 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 National Polar-orbiting Operational Environmental Satellite System (NPOESS).

For an overview of the CDFCB-X and the list of reference documents, see the JPSS CDFCB-X Vol. I - Overview.

### **1.2 Document Overview**

For ease of reading, understanding, and use of this document, this volume has been separated into four parts. Each part is distinct in that it does not duplicate information. This is done because all of the parts together make up the content of the JPSS CDFCB-X Vol. IV- IP/ARP/EDRs as a whole; no parts are intended to be standalone.

The parts of this volume are organized in the following manner:

Part I: IP/ARP/Geolocation - Provides the overview of the volume, the document's purpose, and scope. This part also provides the generalized layout of the IPs, ARPs, and the Geolocation data, and describes the data format definitions for the IPs, the ARPs, and Geolocation general information.

Part II: Imagery, Atmospheric, and Cloud EDRs - Provides the data format definitions for the Imagery, Atmospheric, and Cloud EDRs.

Part III: Land and Ocean/Water EDRs - Provides the data format definitions for the Land and Ocean/Water EDRs.

Part IV: Earth Radiation Budget and Space EDRs - Provides the data format definitions for the Space and Earth Radiation Budget Sensor (ERBS) EDRs.

The sections of this volume are organized in the following manner:

#### **Notes:**

Fill Value information is documented in the JPSS CDFCB-X Vol. I, , Section 1.2, Document Overview.

The Product Profiles list the product data in the order that the information is stored within each data product.

**Section 1.0:** Introduction - Provides a brief overview of the document's purpose and scope. This section also includes the generalized representation of the IP, ARP, and EDR structures delivered by NPOESS.

**Section 2.0:** Intermediate Product Records - Provides IP details by product. This section only includes IPs that are deliverable NPOESS Data Products. Details of the IPs include granule information and HDF5 details.

**Section 3.0:** Application Related Product (ARP) - Provides ARP details by product. This section only includes ARPs that are deliverable NPOESS Data Products. Details of the ARPs include granule information and HDF5 details.

**Section 4.0:** Geolocation Data - Provides general information pertaining to the geolocation data provided with the NPOESS Data Products. For those products where the geolocation is specific to the product, the details of the data are included with the data product's definition.

**Section 5.0:** Environmental Data Records - Provides EDR details by product. This section is in the same order as provided in the System Specification. Details of the EDRs include granule information and HDF5 specifics.

**Appendix A:** Data Mnemonic to Interface Mapping - Provides a mapping from the NPOESS Data Product Data Mnemonics to their corresponding Logical Interfaces.

### **1.2.1 Intermediate Products and Environmental Data Records HDF5 Details - Statically Sized**

Figure 1.2.1-1, Generalized UML Diagram for statically sized HDF5 IP/ARP/EDR Files, depicts the HDF5 IP/ARP/EDR organization as a Unified Modeling Language (UML) class diagram. Each HDF5 IP/ARP/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 (1 .. n). 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 CDFCB-X Vol. V - Metadata. Attributes that are specific to a particular IP/ARP/EDR are listed with the specific IP/ARP/EDR's data format definition. For the generalized formats and packaging options for the Geolocation data, see the JPSS CDFCB-X Vol. I - Overview.



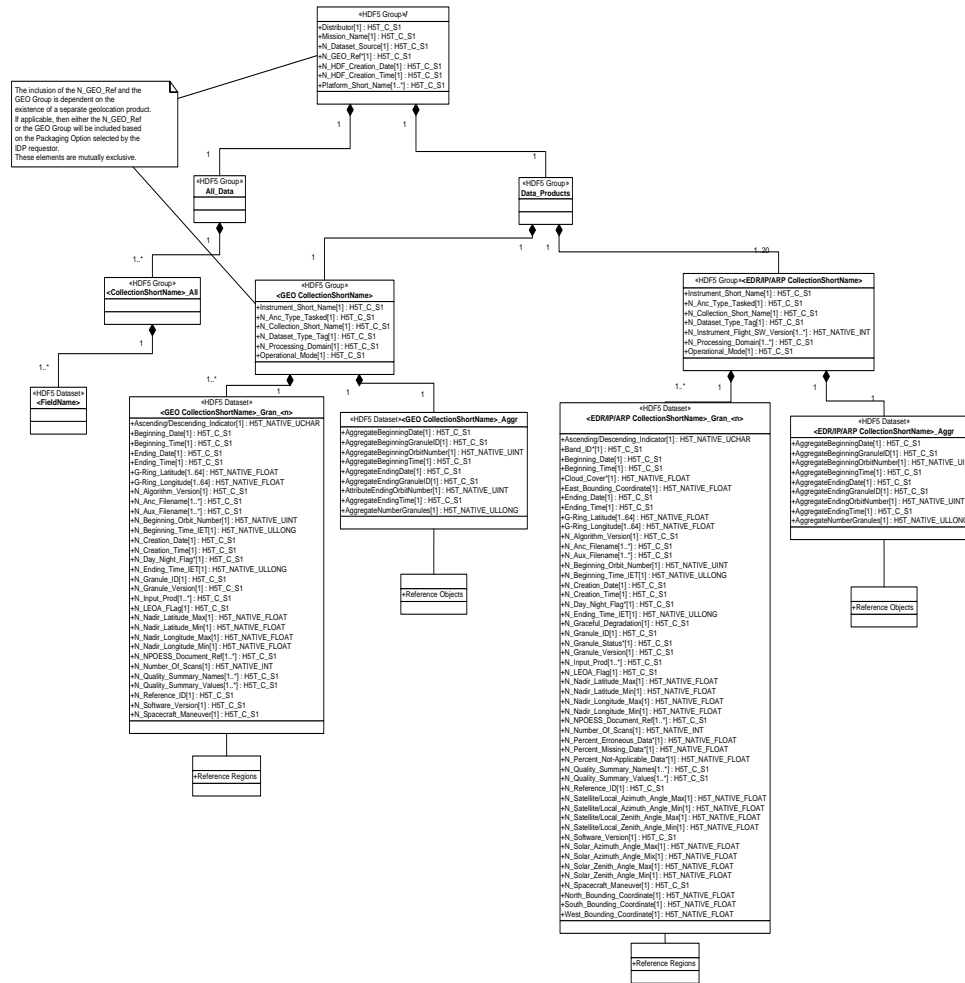


Figure 1.2.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files

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

Figure 1.2.2-1, Generalized UML Diagram for dynamically sized HDF5 IP/ARP/EDR Files, depicts the HDF5 IP/ARP/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".

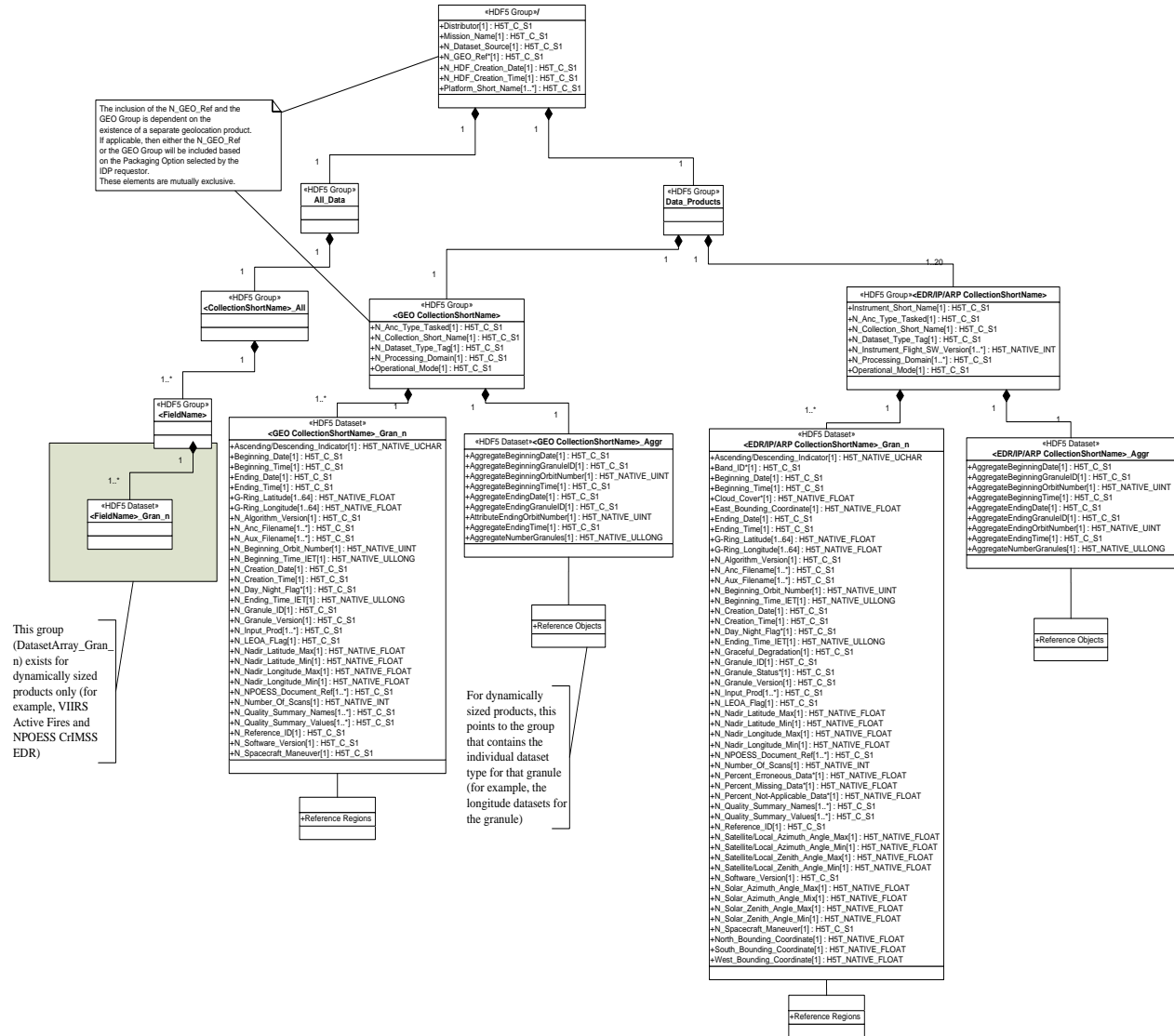


Figure 1.2.2-1, Generalized UML Diagram for dynamically sized HDF5 IP/EDR Files

**2.0 INTERMEDIATE PRODUCTS**

IPs are defined as a data subset or retrieval by-product that is required within another primary data product’s generation sequence or is used as an input to secondary processing or analysis. The IPs defined here are packaged and delivered to the end-user. Other IPs are generated during the creation of EDRs but are not delivered and are thus not documented here.

The NPP satellite will satisfy the IPs listed in Table 2.0-1, NPP Intermediate Products.

**Table 2.0-1, NPP Intermediate Products**

NPP EDR Name	CrIS/CrIMSS	OMPS	VIIRS
Cloud Mask			X
Quarterly Surface Type			X
Nadir Profile		X	
Infra-Red Ozone (Retrieved with CrIS Radiances and some ATMS inputs)	X		

The NPOESS satellites will satisfy the IPs listed in Table 2.0-2, NPOESS Intermediate Products

**Table 2.0-2, NPOESS Intermediate Products**

NPOESS EDR Name	CrIS/CrIMSS	OMPS	VIIRS
Cloud Mask			X
Quarterly Surface Type			X
Nadir Profile		X	
Infra-Red Ozone	X		

**2.1 Cloud Mask Intermediate Product**

<b>Data Mnemonic</b>	IMPE-CMIP-C0030 (Official) IMPE-CMIP-C0031 (Substitute)
<b>Description/ Purpose</b>	The VIIRS Cloud Mask (VCM) technique incorporates a number of cloud detection tests that determine whether a cloud obstructs a cell. If a cloud is detected, the VCM indicates whether its phase is water, ice, or mixed. Additionally, the VCM specifies whether aerosols, fire, or shadows are detected within the cell field of view (FOV). A spatial uniformity test is also performed on the scene. Sensors: VIIRS Effectivity: NPP and NPOESS
<b>File-Naming Construct</b>	See the JPSS CDFCB-X Vol. I, Section 3.0 for details.
<b>File Size</b>	Estimated Granule Size: 14.07 MiB This granule size includes Cloud Mask IP related fields only and is based on a VIIRS granule size consisting of 48 scans. Metadata attributes are not included. Additional size added by HDF5 packaging is also not included.
<b>File Format Type</b>	HDF5
<b>Data Content and Data Format</b>	The Cloud Mask IP contains cloud mask data for each pixel, scan, and granule regardless if the scan and/or granule is composed of all ocean or no ocean data. For each pixel, scan, and/or granule, the Cloud Mask IP contains: <ul style="list-style-type: none"> <li>• Cloud mask flags for all pixels</li> <li>• Scan All Ocean data for each scan</li> <li>• Scan No Ocean data for each scan</li> <li>• Granule All Ocean data for the entire granule</li> <li>• Granule No Ocean data for the entire granule</li> </ul> Since this is a global data mask, there are no fill values necessary. All of the cloud mask data defaults to zero until assigned by the algorithm.  See Section 2.1.1, Cloud Mask IP Data Content Summary See Section 2.1.2, Cloud Mask IP Product Profile See Section 2.1.3, Cloud Mask IP Details See Section 2.1.4, Cloud Mask IP Metadata Details See Section 2.1.5, Cloud Mask IP Geolocation Details

**2.1.1 Cloud Mask IP Data Content Summary****Table 2.1.1-1, Cloud Mask IP Data Content Summary**

Name	Description	Data Type	Aggregate Dimensions (N = Number of Granules)	Granule Dimensions	Units
QF1_VIIRSCMIP	Cloud Mask IP Quality Flags	8-bit unsigned char	[N*768, 3200]	[768, 3200]	unitless
QF2_VIIRSCMIP		8-bit unsigned char	[N*768, 3200]	[768, 3200]	unitless
QF3_VIIRSCMIP		8-bit unsigned char	[N*768, 3200]	768, 3200]	unitless
QF4_VIIRSCMIP		8-bit unsigned char	[N*768, 3200]	[768, 3200]	unitless
QF5_VIIRSCMIP		8-bit unsigned char	[N*768, 3200]	[768, 3200]	unitless
QF6_VIIRSCMIP		8-bit unsigned char	[N*768, 3200]	[768, 3200]	unitless
ScanAllOcean	Scan All Ocean Flag - one value per scan per M-Band detector	8-bit unsigned char	[N*768]	[768]	unitless
ScanNoOcean	Scan No Ocean Flag - one value per scan per M-Band detector	8-bit unsigned char	[N*768]	[768]	unitless
GranuleAllOcean	Granule All Ocean Flag	8-bit unsigned char	[N]	[1]	unitless
GranuleNoOcean	Granule No Ocean Flag	8-bit unsigned char	[N]	[1]	unitless

2.1.2 Cloud Mask IP Product Profile

Table 2.1.2-1, Cloud Mask IP Product Profile

Fields													
Name	Data Size	Dimensions											
QF1_VIIRSCMIP	1byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>							
		AlongTrack	Yes	No	768	768							
		CrossTrack	No	No	3200	3200							
		<b>Datum</b>											
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>		
		Cloud Mask Quality Pixel (# cloud test performed)/(# possible cloud tests)	0			unitless	No		2 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b>	<b>Value</b>	
											Poor (No cloud tests performed)	0	
											Low (0 < cloud tests performed < 50%)	1	
											Medium (50% <= cloud tests performed < 100%)	2	
											High (100% = cloud tests performed)	3	
Cloud Detection and Confidence Pixel	2			unitless	No		2 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b>	<b>Value</b>			
									Confidently Clear	0			
									Probably Clear	1			
									Probably Cloudy	2			
									Confidently Cloudy	3			
Day/Night Pixel (Day = Solar Zen Angle <= 85 deg)	4			unitless	No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b>	<b>Value</b>			
									Night	0			
									Day	1			
Snow/Ice Surface Pixel	5			unitless	No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b>	<b>Value</b>			
									No Snow/Ice	0			
									Snow/Ice	1			
Sun Glint Pixel	6			unitless	No		2 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b>	<b>Value</b>			
									None	0			
									Geometry Based	1			
									Wind Speed Based	2			
									Geometry and Wind Based	3			
QF2_VIIRSCMIP	1byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>							

		AlongTrack	Yes	No	768	768						
		CrossTrack	No	No	3200	3200						
		<b>Datum</b>										
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>	
		Land/Water Background Pixel	0			unitless	No		3 bit(s)	<b>Name Value</b>	<b>Name</b>	<b>Value</b>
											Land and Desert	0
											Land No Desert	1
											Inland Water	2
											Sea Water Coastal	3 5
		Shadow Detected Pixel	3			unitless	No		1 bit(s)	<b>Name Value</b>	<b>Name</b>	<b>Value</b>
									No	0		
									Yes	1		
Non Cloud Obstruction (Heavy Aerosol)	4			unitless	No		1 bit(s)	<b>Name Value</b>	<b>Name</b>	<b>Value</b>		
									No	0		
									Yes	1		
Fire Detected (Cloud Mask)	5			unitless	No		1 bit(s)	<b>Name Value</b>	<b>Name</b>	<b>Value</b>		
									No	0		
									Yes	1		
Cirrus (Solar RM9)	6			unitless	No		1 bit(s)	<b>Name Value</b>	<b>Name</b>	<b>Value</b>		
									No Cloud	0		
									Cloud	1		
Cirrus IR (BTM15-BTM16)	7			unitless	No		1 bit(s)	<b>Name Value</b>	<b>Name</b>	<b>Value</b>		
									No Cloud	0		
									Cloud	1		
QF3_VIIRSCMP	1byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		AlongTrack	Yes	No	768	768						
		CrossTrack	No	No	3200	3200						
<b>Datum</b>												
<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>			
IR Threshold Cloud Test (BTM15) Pixel	0			unitless	No		1 bit(s)	<b>Name Value</b>	<b>Name</b>	<b>Value</b>		
									No Cloud	0		
									Cloud	1		



	High Cloud (BTM12-BTM16) Test Pixel	1			unitless	No		1 bit(s)	<b>Name</b> No Cloud Cloud	<b>Value</b> 0 0 1
	IR Temperature Difference Test (BTM14-BTM15 and BTM15-BTM16 Pixel)	2			unitless	No		1 bit(s)	<b>Name</b> No Cloud Cloud	<b>Value</b> 0 0 1
	Temperature Difference Test (BTM15-BTM12) Pixel	3			unitless	No		1 bit(s)	<b>Name</b> No Cloud Cloud	<b>Value</b> 0 0 1
	Temperature Difference Test (BTM12-BTM13) Pixel	4			unitless	No		1 bit(s)	<b>Name</b> No Cloud Cloud	<b>Value</b> 0 0 1
	Visible Reflectance Test (RM5) Pixel	5			unitless	No		1 bit(s)	<b>Name</b> No Cloud Cloud	<b>Value</b> 0 0 1
	Visible Reflectance Test (RM7) Pixel; Also Visible Reflectance Test (RM1)	6			unitless	No		1 bit(s)	<b>Name</b> No Cloud Cloud	<b>Value</b> 0 0 1
	Visible Ratio Test (RM7/RM5) Pixel	7			unitless	No		1 bit(s)	<b>Name</b> No Cloud Cloud	<b>Value</b> 0 0 1

QF4_VIIRSCMIP	1byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>							
		AlongTrack	Yes	No	768	768							
		CrossTrack	No	No	3200	3200							
		<b>Datum</b>											
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>		
		Adjacent Pixel Cloud Confidence Pixel (Most extreme value is provided here of any of the 8 adjacent pixels. Confidently Cloudy is most extreme, followed by Probably Cloudy, Probably Clear, and Confidently Clear.)	0			unitless	No		2 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>	
											Confidently Clear	0	
											Probably Clear	1	
											Probably Cloudy	2	
											Confidently Cloudy	3	
Conifer Boreal Forest (Pixel is identified as Conifer Boreal Forest)	2			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>			
									False	0			
									True	1			
Spatial Uniformity Test (Pixel passed the Spatial Uniformity Test)	3			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>			
									False	0			
									True	1			
Dust Candidate (Indicates potential dust contaminated pixel)	4			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>			
									False	0			
									True	1			
Smoke Candidate (Indicates potential smoke contaminated pixel)	5			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>			
									False	0			
									True	1			
Dust or Volcanic Ash is present	6			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>			
									False	0			
									True	1			
Spare	7			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>			
QF5_VIIRSCMIP	1byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>							
		AlongTrack	Yes	No	768	768							
		CrossTrack	No	No	3200	3200							
		<b>Datum</b>											
<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>				
Spare	0			unitless	No		8 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>			
QF6_VIIRSCMIP	1byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>							

		AlongTrack Yes	No	768	768						
		CrossTrack No	No	3200	3200						
		<b>Datum</b>									
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>
		Cloud Phase	0			unitless	No		3 bit(s)	<b>Name Value</b>	<b>Name</b> <b>Value</b>
											Not Executed      0
											Clear      1
											Partly Cloudy (Probably Clear OR Probably Cloudy)      2
											Water Cloud      3
											Supercooled Water/Mixed Phase      4
											Opaque Ice Cloud      5
											Cirrus Cloud      6
											Cloud Overlap      7
		Thin Cirrus Present	3			unitless	No		1 bit(s)	<b>Name Value</b>	<b>Name</b> <b>Value</b>
											False      0
											True      1
		Ephemeral Water Detected	4			unitless	No		1 bit(s)	<b>Name Value</b>	<b>Name</b> <b>Value</b>
											False      0
											True      1
		Degraded: TOC NDVI (0.2 < TOC NDVI < 0.4)	5			unitless	No		1 bit(s)	<b>Name Value</b>	<b>Name</b> <b>Value</b>
											False      0
											True      1
		Degraded: Sun Glint in Pixel	6			unitless	No		1 bit(s)	<b>Name Value</b>	<b>Name</b> <b>Value</b>
											False      0
											True      1
		Degraded: Polar Night (pixel is in region poleward of 60 degrees N/S and nighttime condition)	7			unitless	No		1 bit(s)	<b>Name Value</b>	<b>Name</b> <b>Value</b>
											False      0
											True      1
ScanAllOcean	1byte(s)	<b>Name</b> <b>Granule Boundary</b> <b>Dynamic</b> <b>Min Array Size</b> <b>Max Array Size</b>									
		AlongTrack Yes	No	768	768						
		<b>Datum</b>									
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>
		Scan All Ocean Flag - one value per scan per M-Band detector	0			unitless	No		unsigned 8-bit char	<b>Name Value</b>	<b>Name</b> <b>Value</b>
											Scan for this M-Band      0

												detector does not contain all ocean pixels (some land pixels in scan)		
												Scan for this M-Band detector contains all ocean pixels	1	
ScanNoOcean	1byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>								
		AlongTrack	Yes	No	768	768								
		<b>Datum</b>												
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>			
Scan No Ocean Flag - one value per scan per M-Band detector	0			unitless	No		unsigned 8-bit char	<b>Name</b> <b>Value</b>	<b>Name</b>	<b>Value</b>				
									Scan for this M-Band detector contains at least one ocean pixel	0				
									Scan for this M-Band detector contains no ocean pixels	1				
GranuleAllOcean	1byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>								
		Granule	Yes	No	1	1								
		<b>Datum</b>												
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>			
Granule All Ocean Flag	0			unitless	No		unsigned 8-bit char	<b>Name</b> <b>Value</b>	<b>Name</b>	<b>Value</b>				
									Granule does not contain all ocean pixels (some land pixels in granule)	0				
									Granule contains all ocean pixels	1				
GranuleNoOcean	1byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>								
		Granule	Yes	No	1	1								
		<b>Datum</b>												
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>			
Granule No Ocean Flag	0			unitless	No		unsigned 8-bit char	<b>Name</b> <b>Value</b>	<b>Name</b>	<b>Value</b>				
									Granule contains at least one ocean pixel	0				
									Granule contains no ocean pixels	1				



**2.1.3 Cloud Mask IP HDF5 Details**

Figure 2.1.3-1, Cloud Mask IP UML Diagram, provides the details on the content and datatypes of the Cloud Mask IP. These UML diagrams provide details at the product level only. In addition to these UML diagrams, refer to Figure 1.2.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, for a complete UML rendering of this product.

<b>VIIRS-CM-IP</b>
+QF1_VIIRSCMIP : H5T_NATIVE_UCHAR
+QF2_VIIRSCMIP : H5T_NATIVE_UCHAR
+QF3_VIIRSCMIP : H5T_NATIVE_UCHAR
+QF4_VIIRSCMIP : H5T_NATIVE_UCHAR
+QF5_VIIRSCMIP : H5T_NATIVE_UCHAR
+QF6_VIIRSCMIP : H5T_NATIVE_UCHAR
+ScanAllOcean : H5T_NATIVE_UCHAR
+ScanNoOcean : H5T_NATIVE_UCHAR
+GranuleAllOcean : H5T_NATIVE_UCHAR
+GranuleNoOcean : H5T_NATIVE_UCHAR

**Figure 2.1.3-1, Cloud Mask IP UML Diagram**

**2.1.4 Cloud Mask IP HDF5 Metadata Details**

The HDF5 metadata elements associated with the Cloud Mask IP are listed in the JPSS CDFCB-X Vol. V, Section 4.3, HDF5 (Metadata) Hierarchy. The Cloud Mask IP metadata includes all common metadata at the root, product, aggregation, and granule level.

There are no granule level Quality Flags defined as metadata elements in the Cloud Mask IP. (The two granule level flags, GranuleAllOcean and GranuleNoOcean are written as HDF5 datasets for this product). Therefore, there are no entries in the N\_Quality\_Summary\_Name/Value metadata attributes for this product.

**2.1.5 Cloud Mask IP Geolocation Details**

Cloud Mask IP is produced on the VIIRS Moderate Resolution Geolocation (non-Terrain Corrected). See the JPSS CDFCB-X, Vol. III, Section 2.16.5, VIIRS SDR Moderate Resolution Geolocation, for details.

**2.2 Quarterly Surface Type Intermediate Product**

<b>Data Mnemonic</b>	IMPE-QSIP-C0030 (Official)
<b>Description/</b>	The Quarterly Surface Type (QST) IP is created from the previous

<b>Purpose</b>	<p>twelve monthly surface type data points (from the Surface Reflectance/Brightness Temperature/Vegetation Index (SR-BT-VI) Gridded IP).</p> <p>The QST IP contains a global 1 km grid of Quarterly Surface Types and is updated every three months.</p> <p>Sensors:                  VIIRS</p> <p>Effectivity: NPP and NPOESS</p>
<b>File-Naming Construct</b>	See the JPSS CDFCB-X Vol. I, Section 3.0 for details.
<b>File Size</b>	<p>Estimated File Size: 2.6 GiB</p> <p>Metadata attributes are not included. Additional size added by HDF5 packaging is also not included.</p>
<b>File Format Type</b>	HDF5
<b>Production Frequency</b>	Once per calendar quarter
<b>Data Content and Data Format</b>	<p>For each Tile Cell, the Quarterly Surface Type IP contains:</p> <ul style="list-style-type: none"> <li>• International Geosphere-Biosphere Programme (IGBP) Surface Type Classification</li> <li>• Associated Confidence for the Classification</li> <li>• Quality Flag</li> </ul> <p>The confidence value is provided in percent ranging from 0 - 100. The value of 247 in this field indicates that the surface type is defined by the NIMA Vector Map (VMap) Level 0.</p> <p>See Section 2.2.1, Quarterly Surface Type Data Content Summary                  See Section 2.2.2, Quarterly Surface Type Product Profile                  See Section 2.2.3, Quarterly Surface Type HDF5 Details                  See Section 2.2.4, Quarterly Surface Type Metadata Details                  See Section 2.2.5, Quarterly Surface Type Geolocation Details</p>

**2.2.1 Quarterly Surface Type Data Content Summary**

**Table 2.2.1-1, VIIRS Quarterly Surface Type IP Data Content Summary**

Name	Description	Data Type	Field Dimension	Units
SurfaceType	International Geosphere-Biosphere Programme (IGBP) Surface Type Classification	unsigned 8-bit char	[300,600,5184]	unitless

Name	Description	Data Type	Field Dimension	Units
Confidence	Confidence associated with IGBP Surface Type Classification. Values 0 - 100 = percent confidence. 247 = Surface Type defined by NIMA Vector Map (VMap) Level 0	unsigned 8-bit char	[300,600,5184]	percent
QF1_QSTIP	Quality Flag	unsigned 8-bit char	[300,600,5184]	unitless

IDPS will also receive 5184 tiles with the following content. This is the same information as the above table except there are 5184 files of 300x600 as opposed to a single file of 300x600x5184. The product profiles that follow reflect the single file. Separate product profiles for the tiles as described in Table 2.2.1-2 are not provided as the tiles are identical to the tiles as described in Table 2.2.1-1, except for the array arrangement (many separate 2-dimensional arrays vs. the 2-dimensional arrays being stacked into a single 3-dimensional array).

**Table 2.2.1-2, VIIRS Quarterly Surface Type IP Tile Data Content Summary**

Name	Description	Data Type	Field Dimension	Units
SurfaceType	International Geosphere-Biosphere Programme (IGBP) Surface Type Classification	unsigned 8-bit char	[300,600]	unitless
Confidence	Confidence associated with IGBP Surface Type Classification. Values 0 – 100 = percent confidence. 247 = Surface Type defined by NIMA Vector Map (VMap) Level 0	unsigned 8-bit char	[300,600]	percent
QF1_QSTIP	Quality Flag	unsigned 8-bit char	[300,600]	unitless



**2.2.2 Quarterly Surface Type Product Profile**

**Table 2.2.2-1, VIIRS Quarterly Surface Type IP Product Profile**

Fields														
Name	Data Size	Dimensions												
SurfaceType	1byte(s)	<b>Name</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>									
		cellRows	No	300	300									
		cellCols	No	600	600									
		TileID	No	5184	5184									
		<b>Datum</b>												
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>		
		International Geosphere-Biosphere Programme (IGBP) Surface Type Classification	0	0	31	unitless	No		unsigned 8-bit char	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>	
										NA_UINT8_FILL	255	Evergreen	1	
										MISS_UINT8_FILL	254	Needleleaf Forests		
										ONBOARD_PT_UINT8_FILL	253	Evergreen	2	
										ONGROUND_PT_UINT8_FILL	252	Broadleaf Forests		
										ERR_UINT8_FILL	251	Deciduous	3	
										ELINT_UINT8_FILL	250	Needleleaf Forests		
										VDNE_UINT8_FILL	249	Deciduous	4	
SOUB_UINT8_FILL	248									Broadleaf Forests				
									Closed Shrublands	6				
									Open Shrublands	7				
									Woody Savannas	8				
									Savannas	9				
									Grasslands	10				
									Permanent Wetlands	11				
									Croplands	12				
									Urban and Built-up	13				
									Cropland/Natural Vegetation Mosaics	14				
									Snow and Ice	15				
									Barren or sparsely vegetated	16				
									Water Bodies	17				
Confidence	1byte(s)	<b>Name</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>									

cellRows	No	300	300								
cellCols	No	600	600								
TileID	No	5184	5184								
<b>Datum</b>											
<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>	
Confidence associated with IGBP Surface Type Classification. Values 0 - 100 = percent confidence. 247 = Surface Type defined by NIMA Vector Map (VMap) Level 0	0	0	247	percent	No		unsigned 8-bit integer	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>
								NA_UINT8_FILL	255		

**Table 2.2.2-2, VIIRS Quarterly Surface Type IP Product Profile - Quality Flags**

Fields												
Name	Data Size	Dimensions										
QF1_QSTIP	1byte(s)	<b>Name</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>							
		cellRows	No	300	300							
		cellCols	No	600	600							
		TileID	No	5184	5184							
		<b>Datum</b>										
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>	
		Number of 8 greenest months that are NOT good observations. A value of less than 7 indicates the actual number of months. A value of 7 indicates 7 months or more.	0			unitless	No		3 bit(s)	Name Value	Name Value	
		Number of the 4 warmest months that are NOT good observations. A value of less than 3 indicates the actual number. A value of 3 indicates 3 months or more.	3			unitless	No		2 bit(s)	Name Value	Name Value	
		The Classification has changed from previous QST type for this tile cell	5			unitless	No		1 bit(s)	Name Value	Name Value False 0 True 1	
		Spare	6			unitless	No		2 bit(s)	Name Value	Name Value	

### 2.2.3 VIIRS Quarterly Surface Type HDF5 Details

Quarterly-ST-IP
+SurfaceType : H5T_NATIVE_UCHAR
+Confidence : H5T_NATIVE_UCHAR
+QF1_QSTIP : H5T_NATIVE_UCHAR

### 2.2.4 VIIRS Quarterly Surface Type HDF5 Metadata Detail

The HDF5 metadata elements associated with the QST IP are listed in the JPSS CDFCB-X Vol. V, Section 4.3, HDF5 (Metadata) Hierarchy. The QST IP metadata includes all common metadata at the root, product, aggregation, and tile/granule level.

There are no granule level Quality Flags defined as metadata elements in the QST IP. Therefore, there are no entries in the N\_Quality\_Summary\_Name/Value metadata attributes for this product.

### 2.2.5 VIIRS Quarterly Surface Type Geolocation Details

The QST Gridded IP is represented as an Earth grid of 1km<sup>2</sup> cells, 72 row tiles consisting of 300 cells (72 x 300 = 21,600 total row cells) and 72 column tiles consisting of 600 cells (72 x 600 = 43,200 total column cells), determined by a Sinusoidal projection. The Sinusoidal projection is referred to as an equal-area projection (i.e. the quadrilaterals formed by meridians and parallels have an area on the map proportional to their area on the globe). There are a total of 72 x 72 = 5184 tiles on the sinusoidal projection. This includes both Earth intersecting and non-Earth intersecting tiles. The delivered gridding and granulation software and documentation (OADs) provides details regarding grid to gran, gran to grid, and grid to Lat/Lon processes.

### 2.3 Nadir Ozone Profile Intermediate Product

<b>Data Mnemonic</b>	IMPE-NAOP-C0030 (Official) IMPE-NAOP-C0031 (Substitute)
<b>Description/ Purpose</b>	The Nadir Ozone Profile Intermediate Product reports profiles derived from total column ozone measurements. The profiles are reported in two forms: <ol style="list-style-type: none"> <li>1. Standard pressure layers(used for SBUV/2) which, except for the lowest and highest layers, are roughly 5km in height</li> <li>2. Ozone mixing ratios at 19 pressure levels</li> </ol> Sensors: OMPS Effectivity: NPP and NPOESS
<b>File-Naming Construct</b>	See the JPSS CDFCB-X Vol. I, Section 3.0 for details.
<b>File Size</b>	Estimated Granule Size: 763 bytes
<b>File Format Type</b>	HDF5
<b>Production Frequency</b>	As per request
<b>Data Content and Data Format</b>	The output data product consists of See Section 2.3.1, Nadir Ozone Profile Data Content Summary See Section 2.3.2, Nadir Ozone Profile Product Profile See Section 2.3.3, Nadir Ozone Profile HDF5 Details See Section 2.3.4, Nadir Ozone Profile Metadata Details See Section 2.3.5, Nadir Ozone Profile Geolocation Details

#### 2.3.1 Nadir Ozone Profile Data Content Summary

**Table 2.3.1-1, Nadir Ozone Profile Granule Data Content Summary**

Name	Description	Data Type	Aggregate Dimension	Granule Dimension	Units
NormalizedRadiance_380nm	Normalized radiance value for 380 nm wavelength	32-bit floating point	[N*1, 1]	[1, 1]	N Value

Name	Description	Data Type	Aggregate Dimension	Granule Dimension	Units
NormalizedRadiance_340nm_331nm_318nm_312nm	Total column sensor N values for the 340, 331, 318, and 312 nm channels	32-bit floating point	[N*1, 1, 4]	[1, 1, 4]	N Value
Wavelengths	13 Wavelengths of Observation	32-bit floating point	[N*1,1,13]	[1,1,13]	nm
A-PairTotalO3	Total ozone amount derived from the A-pair of wavelengths	32-bit floating point	[N*1, 1]	[1, 1]	milli-atm-cm (DU)
A-PairSensitivity	A pair sensitivity	32-bit floating point	[N*1, 1]	[1, 1]	(N-Value)/DU
A-PairReflectivity	A pair average reflectivity	32-bit floating point	[N*1, 1]	[1, 1]	percent
A-PairWeight	A pair weight (weighting factor in TOZ calc)	32-bit floating point	[N*1, 1]	[1, 1]	unitless
B-PairTotalO3	Total ozone amount derived from the B-pair of wavelengths	32-bit floating point	[N*1, 1]	[1, 1]	milli-atm-cm (DU)
B-PairSensitivity	B pair sensitivity	32-bit floating point	[N*1, 1]	[1, 1]	(N-Value)/DU
B-PairReflectivity	B pair average reflectivity	32-bit floating point	[N*1, 1]	[1, 1]	percent
B-PairWeight	B pair weight (weighting factor in TOZ calc)	32-bit floating point	[N*1, 1]	[1, 1]	unitless
ColumnAmountO3	Best estimate total ozone	32-bit floating point	[N*1, 1]	[1, 1]	milli-atm-cm (DU)
C-PairTotalO3	Total ozone amount derived from the C-pair of wavelengths	32-bit floating point	[N*1, 1]	[1, 1]	milli-atm-cm (DU)
reflSurfPressure	Pressure of reflecting surface	32-bit floating point	[N*1, 1]	[1, 1]	Atm
BestReflectivity	Best Reflectivity from retrieval	32-bit floating point	[N*1, 1]	[1, 1]	percent

Name	Description	Data Type	Aggregate Dimension	Granule Dimension	Units
C-PairSensitivity	C pair sensitivity	32-bit floating point	[N*1, 1]	[1, 1]	(N-Value)/DU
Ozone Error Flag for Best Ozone	Ozone Error Flag for Best Ozone - indicates error in retrieval Values range from 0 - 20	32-bit floating point	[N*1, 1]	[1, 1]	unitless
tableIndex	Table Selection Index 0 - Low Latitude; 1 - Mid Latitude; 2 - High Latitude	32-bit floating point	[N*1, 1]	[1, 1]	unitless
SnowIceCode	Snow/Ice Code	32-bit floating point	[N*1, 1]	[1, 1]	unitless
TerrainPressure	Terrain (ground) pressure	32-bit floating point	[N*1, 1]	[1, 1]	Atm
D-PairTotalO3	Total ozone amount derived from the D-pair of wavelengths	32-bit floating point	[N*1, 1]	[1, 1]	milli-atm-cm (DU)
SO2index	Sulfur Dioxide Index	32-bit floating point	[N*1, 1]	[1, 1]	DU
BPrime-PairTotalO3	Total ozone amount derived from the B Prime Pair of wavelengths	32-bit floating point	[N*1, 1]	[1, 1]	milli-atm-cm (DU)
N_Values_InterpolatedT oSBUVmon	N values interpolated from the radiances from the 147 wavelengths of the NP sensor to the SBUV/2 profiling wavelengths (for SBUV/2 were the n-values of the profiling wavelengths)	32-bit floating point	[N*1, 1, 8]	[1, 1, 8]	N Value
FirstGuessO3Profile	First guess profile for layers	32-bit floating point	[N*1, 1, 12]	[1, 1, 12]	milli-atm-cm (DU)
FirstGuessTotalO3	Total ozone for first guess	32-bit floating point	[N*1, 1]	[1, 1]	milli-atm-cm (DU)

Name	Description	Data Type	Aggregate Dimension	Granule Dimension	Units
QValues	Q-Value corrected for multiple scattering and surface reflectivity (listed in order from shorter to longer wavelengths ... 255.5 to 317.5 nm)	32-bit floating point	[N*1, 1, 10]	[1, 1, 10]	unitless
InitialResiduals	Initial residues of Q-Values	32-bit floating point	[N*1, 1, 10]	[1, 1, 10]	percent
QValuesCorrectionsLonger	Correction to Q-Values (pressure levels) for the five longer wavelength channels due to Multiple Scattering and Reflectivity (MSR); Listed from shorter to longer wavelength	32-bit floating point	[N*1, 1, 5]	[1, 1, 5]	unitless
ReflectivitiesLonger	Monochromator reflectivities for the five longer wavelengths; Listed from shorter to longer wavelength (297.5nm to 317.5nm)	32-bit floating point	[N*1, 1, 5]	[1, 1, 5]	percent
MultipleScatteringSensitivity	Multiple scattering sensitivity for five longer wavelengths (297.5 to 317.5 nm)	32-bit floating point	[N*1, 1, 5]	[1, 1, 5]	Q value)/DU
MultipleScatteringMix	Multiple scattering mixing fraction - The mixing fraction which parameterizes contributions of lower and higher latitude profiles in determination of MSR radiance from lookup tables	32-bit floating point	[N*1, 1, 5]	[1, 1, 5]	unitless
FinalQValueResidues	Final residues of Q-Values (percent) derived using obtained from final solution profile; Listed from shorter to longer wavelength (255.5nm to 317.5nm)	32-bit floating point	[N*1, 1, 10]	[1, 1, 10]	percent
FinalO3Profile	Solution profile individual ozone amounts (matm-cm) in 12 SBUV layers (SBUV layer 1 first)	32-bit floating point	[N*1, 1, 12]	[1, 1, 12]	milli-atm-cm (DU)
FinalO3Profile_Std	Standard deviations for solution profile individual ozone amounts (%) in 12 SBUV layers	32-bit floating point	[N*1, 1, 12]	[1, 1, 12]	percent



Name	Description	Data Type	Aggregate Dimension	Granule Dimension	Units
TotalO3SolutionProfile	Total ozone for solution profile (above 1 atm)	32-bit floating point	[N*1, 1]	[1, 1]	milli-atm-cm (DU)
Ozone Error Flag for Profile	Ozone Error Flag for Profile 0 - Good Profile (Ascending) 10 - Good Profile (Descending)	32-bit floating point	[N*1, 1]	[1, 1]	unitless
CParameter	C parameter for c-sigma calculation. Represents the ratio of atmospheric scale height to the ozone scale height in C-Sigma validity check; Sigma should range from 0.3 to 0.8 or an error code is assigned.	32-bit floating point	[N*1, 1]	[1, 1]	unitless
SigmaParameter	Sigma parameter for c-sigma calculation. Represents the ratio of atmospheric scale height to the ozone scale height in C-Sigma validity check; Sigma should range from 0.3 to 0.8 or an error code is assigned.	32-bit floating point	[N*1, 1]	[1, 1]	unitless
O3MixingRatio	Volume mixing ratio (from spline interpolation) of ozone at 19 pressure levels in order of increasing atmospheric pressure (0.3 mb to 100 mb)	32-bit floating point	[N*1, 1, 19]	[1, 1, 19]	ppmv
FirstGuessO3_Std	Standard deviations of first guess (a priori) profile individual ozone amounts (%) in 12 layers (SBUV layer 1 first)	32-bit floating point	[N*1, 1, 12]	[1, 1, 12]	percent
QValues_Std	Standard deviations for Q-values corrected for multiple scattering and reflectivity (255.5 nm through 317.5 nm) in %	32-bit floating point	[N*1, 1, 10]	[1, 1, 10]	unitless
Iterations	Number of iterations for profile solution	32-bit floating point	[N*1, 1]	[1, 1]	unitless

Name	Description	Data Type	Aggregate Dimension	Granule Dimension	Units
VolcanoContaminationIdx	Volcano Contamination Index (VCI): Can be used to whether the derived profiles below 5 mb are incorrect because of scattering by aerosols. VCI are in units of the climatological standard deviation of the tropospheric ozone value for a given latitude.	32-bit floating point	[N*1, 1]	[1, 1]	unitless
D-PairSensitivity	D pair sensitivity	32-bit floating point	[N*1, 1]	[1, 1]	(N-Value)/DU
BPrime-PairSensitivity	B Prime pair sensitivity	32-bit floating point	[N*1, 1]	[1, 1]	(N-Value)/DU
SAA	Spacecraft within South Atlantic Anomaly (extent in percent based on Climatological data)	unsigned 8-bit char	[N*1]	[1]	unitless
SunGlint	Sun glint indication (scattering angle and surface type thresholds)	unsigned 8-bit char	[N*1, 1]	[1, 1]	unitless
SolarEclipse	All or part of the IFOV is affected by a solar eclipse, umbra or penumbra viewing.	unsigned 8-bit char	[N*1, 1]	[1, 1]	unitless

2.3.2 Nadir Ozone Profile Product Profile

Table 2.3.2-1, Nadir Ozone Profile IP Product Profile

Fields														
Name	Data Size	Dimensions												
NormalizedRadiance_380nm	4byte(s)	<b>Name</b>		<b>Granule Boundary</b>		<b>Dynamic</b>		<b>Min Array Size</b>		<b>Max Array Size</b>				
		IP_SCANS_PER_GRANULE		Yes		No		1		1				
		IP_FOVS		No		No		1		1				
		<b>Datum</b>												
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scale</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>			<b>Legend Entries</b>	
		Normalized radiance value for 380 nm wavelength	0			N value	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>	
										NA_FLOAT32_FILL	-999.9			
										MISS_FLOAT32_FILL	-999.8			
										ERR_FLOAT32_FILL	-999.5			
										ELINT_FLOAT32_FILL	-999.4			
								VDNE_FLOAT32_FILL	-999.3					
NormalizedRadiance_340nm_331nm_318nm_312nm	4byte(s)	<b>Name</b>		<b>Granule Boundary</b>		<b>Dynamic</b>		<b>Min Array Size</b>		<b>Max Array Size</b>				
		IP_SCANS_PER_GRANULE		Yes		No		1		1				
		IP_FOVS		No		No		1		1				
		NP_IP_TC_SPECTRUM_SIZE_SANS_380NM		No		No		4		4				
		<b>Datum</b>												
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scale</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>			<b>Legend Entries</b>	
		Total column sensor N values for the 340, 331, 318, and 312 nm channels	0			N value	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>	
										NA_FLOAT32_FILL	-999.9			
										MISS_FLOAT32_FILL	-999.8			
										ERR_FLOAT32_FILL	-999.5			

											ELINT_FLOAT32_FILL	-			
											L	999.4			
											VDNE_FLOAT32_FILL	-			
											L	999.3			
Wavelengths	4byte(s)	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>								
		IP_SCANS_PER_GRANULE		Yes	No	1	1								
		IP_FOVS		No	No	1	1								
		Wavelength		No	No	13	13								
		<b>Datum</b>													
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scale</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>				<b>Legend Entries</b>	
		13 Wavelengths of Observation	0			nm	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>		
										NA_FLOAT32_FILL	-				
										MISS_FLOAT32_FILL	-				
										ERR_FLOAT32_FILL	-				
										ELINT_FLOAT32_FILL	-				
										L	999.4				
										VDNE_FLOAT32_FILL	-				
										L	999.3				
		A-PairTotalO3	4byte(s)	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
				IP_SCANS_PER_GRANULE		Yes	No	1	1						
IP_FOVS				No	No	1	1								
<b>Datum</b>															
<b>Description</b>	<b>Datum Offset</b>			<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scale</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>				<b>Legend Entries</b>	
Total ozone amount derived from the A-pair of wavelengths	0					milli-atm-cm (DU)	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>		
										NA_FLOAT32_FILL	-				
										MISS_FLOAT32_FILL	-				
										ERR_FLOAT32_FILL	-				
										ELINT_FLOAT32_FILL	-				
										L	999.4				
										VDNE_FLOAT32_FILL	-				
										L					

		L										999.3			
A-PairSensitivity	4byte(s) )	<b>Name</b>		<b>Granule Boundary</b>		<b>Dynamic</b>		<b>Min Array Size</b>		<b>Max Array Size</b>					
		IP_SCANS_PER_GRANULE		Yes		No		1		1					
		IP_FOVS		No		No		1		1					
		<b>Datum</b>													
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scale</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>				<b>Legend Entries</b>	
		A pair sensitivity	0			(N-Value)/DU	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>		
										NA_FLOAT32_FILL	-999.9				
										MISS_FLOAT32_FILL	-999.8				
										ERR_FLOAT32_FILL	-999.5				
										ELINT_FLOAT32_FILL	-999.4				
								VDNE_FLOAT32_FILL	-999.3						
A-PairReflectivity	4byte(s) )	<b>Name</b>		<b>Granule Boundary</b>		<b>Dynamic</b>		<b>Min Array Size</b>		<b>Max Array Size</b>					
		IP_SCANS_PER_GRANULE		Yes		No		1		1					
		IP_FOVS		No		No		1		1					
		<b>Datum</b>													
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scale</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>				<b>Legend Entries</b>	
		A pair average reflectivity	0			percent	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>		
										NA_FLOAT32_FILL	-999.9				
										MISS_FLOAT32_FILL	-999.8				
										ERR_FLOAT32_FILL	-999.5				
										ELINT_FLOAT32_FILL	-999.4				
								VDNE_FLOAT32_FILL	-999.3						
A-PairWeight	4byte(s) )	<b>Name</b>		<b>Granule Boundary</b>		<b>Dynamic</b>		<b>Min Array Size</b>		<b>Max Array Size</b>					
		IP_SCANS_PER_GRANULE		Yes		No		1		1					

		<table border="1"> <tr> <td>IP_FOVS</td> <td>No</td> <td>No</td> <td>1</td> <td>1</td> <td colspan="8"></td> </tr> <tr> <td colspan="14"><b>Datum</b></td> </tr> <tr> <th>Description</th> <th>Datum Offset</th> <th>Unscaled Valid Range Min</th> <th>Unscaled Valid Range Max</th> <th>Measurement Units</th> <th>Scale</th> <th>Scale Factor Name</th> <th>Data Type</th> <th colspan="2">Fill Values</th> <th colspan="2">Legend Entries</th> </tr> <tr> <td rowspan="5">A pair weight (weighting factor in TOZ calc)</td> <td rowspan="5">0</td> <td rowspan="5"></td> <td rowspan="5"></td> <td rowspan="5">unitless</td> <td rowspan="5">No</td> <td rowspan="5"></td> <td rowspan="5">32-bit floating point</td> <th>Name</th> <th>Value</th> <th>Name</th> <th>Value</th> </tr> <tr> <td>NA_FLOAT32_FILL</td> <td>-999.9</td> <td></td> <td></td> </tr> <tr> <td>MISS_FLOAT32_FILL</td> <td>-999.8</td> <td></td> <td></td> </tr> <tr> <td>ERR_FLOAT32_FILL</td> <td>-999.5</td> <td></td> <td></td> </tr> <tr> <td>ELINT_FLOAT32_FILL</td> <td>-999.4</td> <td></td> <td></td> </tr> <tr> <td>VDNE_FLOAT32_FILL</td> <td>-999.3</td> <td></td> <td></td> </tr> </table>												IP_FOVS	No	No	1	1									<b>Datum</b>														Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scale	Scale Factor Name	Data Type	Fill Values		Legend Entries		A pair weight (weighting factor in TOZ calc)	0			unitless	No		32-bit floating point	Name	Value	Name	Value	NA_FLOAT32_FILL	-999.9			MISS_FLOAT32_FILL	-999.8			ERR_FLOAT32_FILL	-999.5			ELINT_FLOAT32_FILL	-999.4			VDNE_FLOAT32_FILL	-999.3																												
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B-PairTotalO3	4byte(s)	<table border="1"> <tr> <th>Name</th> <th>Granule Boundary</th> <th>Dynamic</th> <th>Min Array Size</th> <th>Max Array Size</th> <td colspan="8"></td> </tr> <tr> <td>IP_SCANS_PER_GRANULE</td> <td>Yes</td> <td>No</td> <td>1</td> <td>1</td> <td colspan="8"></td> </tr> <tr> <td>IP_FOVS</td> <td>No</td> <td>No</td> <td>1</td> <td>1</td> <td colspan="8"></td> </tr> <tr> <td colspan="14"><b>Datum</b></td> </tr> <tr> <th>Description</th> <th>Datum Offset</th> <th>Unscaled Valid Range Min</th> <th>Unscaled Valid Range Max</th> <th>Measurement Units</th> <th>Scale</th> <th>Scale Factor Name</th> <th>Data Type</th> <th colspan="2">Fill Values</th> <th colspan="2">Legend Entries</th> </tr> <tr> <td rowspan="5">Total ozone amount derived from the B-pair of wavelengths</td> <td rowspan="5">0</td> <td rowspan="5"></td> <td rowspan="5"></td> <td rowspan="5">milli-atm-cm (DU)</td> <td rowspan="5">No</td> <td rowspan="5"></td> <td rowspan="5">32-bit floating point</td> <th>Name</th> <th>Value</th> <th>Name</th> <th>Value</th> </tr> <tr> <td>NA_FLOAT32_FILL</td> <td>-999.9</td> <td></td> <td></td> </tr> <tr> <td>MISS_FLOAT32_FILL</td> <td>-999.8</td> <td></td> <td></td> </tr> <tr> <td>ERR_FLOAT32_FILL</td> <td>-999.5</td> <td></td> <td></td> </tr> <tr> <td>ELINT_FLOAT32_FILL</td> <td>-999.4</td> <td></td> <td></td> </tr> <tr> <td>VDNE_FLOAT32_FILL</td> <td>-999.3</td> <td></td> <td></td> </tr> </table>												Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size									IP_SCANS_PER_GRANULE	Yes	No	1	1									IP_FOVS	No	No	1	1									<b>Datum</b>														Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scale	Scale Factor Name	Data Type	Fill Values		Legend Entries		Total ozone amount derived from the B-pair of wavelengths	0			milli-atm-cm (DU)	No		32-bit floating point	Name	Value	Name	Value	NA_FLOAT32_FILL	-999.9			MISS_FLOAT32_FILL	-999.8			ERR_FLOAT32_FILL	-999.5			ELINT_FLOAT32_FILL	-999.4			VDNE_FLOAT32_FILL	-999.3		
Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size																																																																																																										
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		Offset	Range Min	Range Max		r Name							
		0			(N-Value)/DU	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>	
									NA_FLOAT32_FILL	-999.9			
									MISS_FLOAT32_FILL	-999.8			
									ERR_FLOAT32_FILL	-999.5			
									ELINT_FLOAT32_FILL	-999.4			
									VDNE_FLOAT32_FILL	-999.3			
B-PairReflectivity	4byte(s)	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
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		IP_FOVS		No	No	1	1						
		<b>Datum</b>											
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scale</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>		
		B pair average reflectivity	0			percent	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>
										NA_FLOAT32_FILL	-999.9		
										MISS_FLOAT32_FILL	-999.8		
										ERR_FLOAT32_FILL	-999.5		
										ELINT_FLOAT32_FILL	-999.4		
										VDNE_FLOAT32_FILL	-999.3		
B-PairWeight	4byte(s)	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		IP_SCANS_PER_GRANULE		Yes	No	1	1						
		IP_FOVS		No	No	1	1						
		<b>Datum</b>											
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scale</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>		
		B pair weight	0			unitless	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>

		(weighting factor in TOZ calc)												g point	NA_FLOAT32_FILL	-	999.9																																																																																																						
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														ERR_FLOAT32_FILL	-	999.5				
														ELINT_FLOAT32_FILL	-	999.4				
														VDNE_FLOAT32_FILL	-	999.3				
RefiSurfPressure	4byte(s)	<b>Name</b>		<b>Granule Boundary</b>		<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>												
		IP_SCANS_PER_GRANULE		Yes		No	1	1												
		IP_FOVS		No		No	1	1												
		<b>Datum</b>																		
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scale</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>				<b>Legend Entries</b>						
		Pressure of reflecting surface	0			Atm	No		32-bit floating point											
										<b>Name</b>		<b>Value</b>		<b>Name</b>		<b>Value</b>				
										NA_FLOAT32_FILL		-999.9								
										MISS_FLOAT32_FILL		-999.8								
										ERR_FLOAT32_FILL		-999.5								
										ELINT_FLOAT32_FILL		-999.4								
										VDNE_FLOAT32_FILL		-999.3								
BestReflectivity	4byte(s)	<b>Name</b>		<b>Granule Boundary</b>		<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>												
		IP_SCANS_PER_GRANULE		Yes		No	1	1												
		IP_FOVS		No		No	1	1												
		<b>Datum</b>																		
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scale</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>				<b>Legend Entries</b>						
		Best Reflectivity from retrieval	0			percent	No		32-bit floating point											
										<b>Name</b>		<b>Value</b>		<b>Name</b>		<b>Value</b>				
										NA_FLOAT32_FILL		-999.9								
										MISS_FLOAT32_FILL		-999.8								
										ERR_FLOAT32_FILL		-999.5								
										ELINT_FLOAT32_FILL		-999.4								

												VDNE_FLOAT32_FILL - 999.3	
C-PairSensitivity	4byte(s)	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		IP_SCANS_PER_GRANULE		Yes	No	1	1						
		IP_FOVS		No	No	1	1						
		<b>Datum</b>											
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scale</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>	
		C pair sensitivity	0			(N-Value)/DU	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>
								NA_FLOAT32_FILL	- 999.9				
								MISS_FLOAT32_FILL	- 999.8				
								ERR_FLOAT32_FILL	- 999.5				
								ELINT_FLOAT32_FILL	- 999.4				
								VDNE_FLOAT32_FILL	- 999.3				
OzoneErrorFlagforBestOzone	4byte(s)	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		IP_SCANS_PER_GRANULE		Yes	No	1	1						
		IP_FOVS		No	No	1	1						
		<b>Datum</b>											
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scale</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>	
		Ozone Error Flag for Best Ozone - indicates error in retrieval	0	0	20	unitless	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>
								NA_FLOAT32_FILL	- 999.9				
								MISS_FLOAT32_FILL	- 999.8				
								ERR_FLOAT32_FILL	- 999.5				
								ELINT_FLOAT32_FILL	- 999.4				
								VDNE_FLOAT32_FILL	- 999.3				
tableIndex	4byte(s)	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		IP_SCANS_PER_GRANULE		Yes	No	1	1						

		IP_FOVS	No	No	1	1							
		<b>Datum</b>											
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scale</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>	
		Table Selection Index; 0 - Low Latitude; 1 - Mid Latitude; 2 - High Latitude	0			unitless	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>
										NA_FLOAT32_FILL	-999.9		
										MISS_FLOAT32_FILL	-999.8		
										ERR_FLOAT32_FILL	-999.5		
										ELINT_FLOAT32_FILL	-999.4		
										VDNE_FLOAT32_FILL	-999.3		
SnowIceCode	4byte(s)	<b>Name</b>											
		<b>Granule Boundary</b>		<b>Dynamic</b>		<b>Min Array Size</b>		<b>Max Array Size</b>					
		IP_SCANS_PER_GRANULE	Yes	No	1	1							
		IP_FOVS	No	No	1	1							
		<b>Datum</b>											
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scale</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>	
		Snow/Ice Code	0			unitless	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>
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										ELINT_FLOAT32_FILL	-999.4		
										VDNE_FLOAT32_FILL	-999.3		
TerrainPressure	4byte(s)	<b>Name</b>											
		<b>Granule Boundary</b>		<b>Dynamic</b>		<b>Min Array Size</b>		<b>Max Array Size</b>					
		IP_SCANS_PER_GRANULE	Yes	No	1	1							
		IP_FOVS	No	No	1	1							
		<b>Datum</b>											
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scale</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>	

			<b>Offset</b>	<b>Range Min</b>	<b>Range Max</b>			<b>r Name</b>					
		Terrain (ground) pressure	0			Atm	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>
										NA_FLOAT32_FILL	-999.9		
										MISS_FLOAT32_FILL	-999.8		
										ERR_FLOAT32_FILL	-999.5		
										ELINT_FLOAT32_FILL	-999.4		
										VDNE_FLOAT32_FILL	-999.3		
D-PairTotalO3	4byte(s)	<b>Name</b>		<b>Granule Boundary</b>		<b>Dynamic</b>	<b>Min Array Size</b>		<b>Max Array Size</b>				
		IP_SCANS_PER_GRANULE	Yes	No	1	1							
		IP_FOVS	No	No	1	1							
		<b>Datum</b>											
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scale</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>	
		Total ozone amount derived from the D-pair of wavelengths	0			milli-atm-cm (DU)	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>
										NA_FLOAT32_FILL	-999.9		
										MISS_FLOAT32_FILL	-999.8		
										ERR_FLOAT32_FILL	-999.5		
										ELINT_FLOAT32_FILL	-999.4		
										VDNE_FLOAT32_FILL	-999.3		
SO2index	4byte(s)	<b>Name</b>		<b>Granule Boundary</b>		<b>Dynamic</b>	<b>Min Array Size</b>		<b>Max Array Size</b>				
		IP_SCANS_PER_GRANULE	Yes	No	1	1							
		IP_FOVS	No	No	1	1							
		<b>Datum</b>											
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scale</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>	
		Sulfur Dioxide	0			unitless	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>

		Index							g point	NA_FLOAT32_FILL	-999.9			
										MISS_FLOAT32_FILL	-999.8			
										ERR_FLOAT32_FILL	-999.5			
										ELINT_FLOAT32_FILL	-999.4			
										VDNE_FLOAT32_FILL	-999.3			
BPrime-PairTotalO3	4byte(s)	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>							
		IP_SCANS_PER_GRANULE		Yes	No	1	1							
		IP_FOVS		No	No	1	1							
		<b>Datum</b>												
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scale</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>				<b>Legend Entries</b>
		Total ozone amount derived from the B Prime Pair of wavelengths	0			milli-atm-cm (DU)	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>	
										NA_FLOAT32_FILL	-999.9			
										MISS_FLOAT32_FILL	-999.8			
										ERR_FLOAT32_FILL	-999.5			
										ELINT_FLOAT32_FILL	-999.4			
								VDNE_FLOAT32_FILL	-999.3					
N_Values_InterpolatedToSBUVmon	4byte(s)	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>							
		IP_SCANS_PER_GRANULE		Yes	No	1	1							
		IP_FOVS		No	No	1	1							
		NP_NVALUE_FROM_NP_SPEC_SIZE		No	No	8	8							
		<b>Datum</b>												
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scale</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>				<b>Legend Entries</b>
		N values interpolated from the radiances from the 147 wavelengths	0			N Value	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>	
										NA_FLOAT32_FILL	-999.9			
										MISS_FLOAT32_FILL	-			

		of the NP sensor to the SBUV/2 profiling wavelengths (for SBUV/2 were the n-values of the profiling wavelengths )	<table border="1"> <tr><td></td><td>999.8</td></tr> <tr><td>ERR_FLOAT32_FILL</td><td>-</td></tr> <tr><td></td><td>999.5</td></tr> <tr><td>ELINT_FLOAT32_FILL</td><td>-</td></tr> <tr><td></td><td>999.4</td></tr> <tr><td>VDNE_FLOAT32_FILL</td><td>-</td></tr> <tr><td></td><td>999.3</td></tr> </table>		999.8	ERR_FLOAT32_FILL	-		999.5	ELINT_FLOAT32_FILL	-		999.4	VDNE_FLOAT32_FILL	-		999.3																																																																				
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QValuesCorrectionsLonger	4byte(s)	<b>Name</b>		<b>Granule Boundary</b>		<b>Dynamic</b>		<b>Min Array Size</b>		<b>Max Array Size</b>			
		IP_SCANS_PER_GRANULE		Yes		No		1		1			
		IP_FOVS		No		No		1		1			
		NP_IP_TC_SPECTRUM_SIZE		No		No		5		5			
		<b>Datum</b>											
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scale</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>	
		Correction to Q-Values (pressure levels) for the five longer wavelength channels due to Multiple Scattering and Reflectivity (MSR); Listed from shorter to longer wavelength	0			unitless	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>
										NA_FLOAT32_FILL	- 999.9		
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		IP_SCANS_PER_GRANULE		Yes		No		1		1			
		IP_FOVS		No		No		1		1			
		NP_IP_TC_SPECTRUM_SIZE		No		No		5		5			
		<b>Datum</b>											
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scale</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>	
		Monochromator reflectivities for the five longer wavelengths:	0			percent	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>
										NA_FLOAT32_FILL	- 999.9		



		Listed from shorter to longer wavelength (297.5nm to 317.5nm)										MISS_FLOAT32_FILL	-999.8	
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		IP_FOVS		No	No	1	1							
		NP_IP_TC_SPECTRUM_SIZE		No	No	5	5							
		<b>Datum</b>												
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scale</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>		
		Multiple scattering sensitivity for five longer wavelength (297.5 to 317.5 nm)	0			(Q-Value)/DU	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>	
										NA_FLOAT32_FILL	-999.9			
										MISS_FLOAT32_FILL	-999.8			
										ERR_FLOAT32_FILL	-999.5			
								ELINT_FLOAT32_FILL	-999.4					
								VDNE_FLOAT32_FILL	-999.3					
MultipleScatteringMix	4byte(s)	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>							
		IP_SCANS_PER_GRANULE		Yes	No	1	1							
		IP_FOVS		No	No	1	1							
		NP_IP_TC_SPECTRUM_SIZE		No	No	5	5							
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		Multiple scattering mixing fraction - The mixing fraction which parameterize	0			unitless	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>	
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SunGlint	1byte(s)	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>				
		IP_SCANS_PER_GRANULE		Yes	No	1	1				
		IP_FOVS		No	No	1	1				
		<b>Datum</b>									
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>
Sun glint indication (scattering angle and surface type thresholds)	0			unitless	No		unsigned 8-bit char	<b>Name</b>   <b>Value</b>	<b>Name</b>   <b>Value</b>		
									False 0		
									True 1		
SolarEclipse	1byte(s)	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>				
		IP_SCANS_PER_GRANULE		Yes	No	1	1				
		IP_FOVS		No	No	1	1				
		<b>Datum</b>									
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>
All or part of the IFOV is affected by a solar eclipse, umbra or penumbra viewing.	0			unitless	No		unsigned 8-bit char	<b>Name</b>   <b>Value</b>	<b>Name</b>   <b>Value</b>		
									False 0		
									True 1		

### 2.3.3 Nadir Ozone Profile HDF5 Details

The information provided in this section consists of the detailed datasets described in Section 1.2.1, Intermediate Products, Application Products, and Environmental Data Records HDF5 Details.

Figure 2.3.3-1, Nadir Ozone Profile UML Diagram, provides details on the contents and data types of the Nadir Ozone Profile product. This UML provides details at the product level detail only. In addition to this UML, refer to the JPSS CDFCB-X, Vol. IV, Part 1, Figure 1.2.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, for a complete UML rendering of this product.

OMPS-NP-IP
+NormalizedRadiance_380nm : H5T_NATIVE_FLOAT
+NormalizedRadiance_340nm_331nm_318nm_312nm : H5T_NATIVE_FLOAT
+Wavelengths : H5T_NATIVE_FLOAT
+A-PairTotalO3 : H5T_NATIVE_FLOAT
+A-PairSensitivity : H5T_NATIVE_FLOAT
+A-PairReflectivity : H5T_NATIVE_FLOAT
+A-PairWeight : H5T_NATIVE_FLOAT
+B-PairTotalO3 : H5T_NATIVE_FLOAT
+B-PairSensitivity : H5T_NATIVE_FLOAT
+B-PairReflectivity : H5T_NATIVE_FLOAT
+B-PairWeight : H5T_NATIVE_FLOAT
+ColumnAmountO3 : H5T_NATIVE_FLOAT
+C-PairTotalO3 : H5T_NATIVE_FLOAT
+reflSurfPressure : H5T_NATIVE_FLOAT
+BestReflectivity : H5T_NATIVE_FLOAT
+C-PairSensitivity : H5T_NATIVE_FLOAT
+OzoneErrorFlagforBestOzone : H5T_NATIVE_FLOAT
+tableIndex : H5T_NATIVE_FLOAT
+SnowIceCode : H5T_NATIVE_FLOAT
+TerrainPressure : H5T_NATIVE_FLOAT
+D-PairTotalO3 : H5T_NATIVE_FLOAT
+SO2index : H5T_NATIVE_FLOAT
+BPrime-PairTotalO3 : H5T_NATIVE_FLOAT
+N_Values_InterpolatedToSBUVmon : H5T_NATIVE_FLOAT
+FirstGuessO3Profile : H5T_NATIVE_FLOAT
+FirstGuessTotalO3 : H5T_NATIVE_FLOAT
+QValues : H5T_NATIVE_FLOAT

OMPS-NP-IP
+InitialResiduals : H5T_NATIVE_FLOAT
+QValuesCorrectionsLonger : H5T_NATIVE_UCHAR
+ReflectivitiesLonger : H5T_NATIVE_FLOAT
+MultipleScatteringSensitivity : H5T_NATIVE_FLOAT
+MultipleScatteringMix : H5T_NATIVE_FLOAT
+FinalQValueResidues : H5T_NATIVE_FLOAT
+FinalO3Profile : H5T_NATIVE_FLOAT
+FinalO3Profile_Std : H5T_NATIVE_FLOAT
+TotalO3SolutionProfile : H5T_NATIVE_FLOAT
+OzoneErrorFlagforProfile : H5T_NATIVE_FLOAT
+CParameter : H5T_NATIVE_FLOAT
+SigmaParameter : H5T_NATIVE_FLOAT
+O3MixingRatio : H5T_NATIVE_FLOAT
+FirstGuessO3_Std : H5T_NATIVE_FLOAT
+QValues_Std : H5T_NATIVE_FLOAT
+Iterations : H5T_NATIVE_FLOAT
+VolcanoContaminationIdx : H5T_NATIVE_FLOAT
+D-PairSensitivity : H5T_NATIVE_FLOAT
+BPrime-PairSensitivity : H5T_NATIVE_FLOAT
+SAA : H5T_NATIVE_UCHAR
+SunGlint : H5T_NATIVE_UCHAR
+SolarEclipse : H5T_NATIVE_UCHAR

**Figure 2.3.3-1, Nadir Ozone Profile UML Diagram**

**2.3.4 Nadir Ozone Profile Metadata Details**

The HDF5 metadata elements associated with the Nadir Ozone Profile are listed in the JPSS CDFCB-X Vol. V - Metadata, Section 4.3, HDF5 (Metadata) Hierarchy. The Nadir Ozone Profile metadata includes all common metadata at the root, product, aggregation, and granule levels.

In addition to the common metadata items for this product, Table 2.3.4-1, Nadir Ozone Profile N\_Quality\_Summary\_Name/N\_Quality\_Summary\_Value Granule Level Metadata Values, provides the following items as name/value pairs.

**Table 2.3.4-1, Nadir Ozone Profile N\_Quality\_Summary\_Name/N\_Quality\_Summary\_Value Granule Level Metadata Values**

N_Quality_Summary			
Name	Value	Description	Notes
OMPS NP Summary Quality	0 - 100	Percent of retrievals with high quality	
OMPS NP Input Data Quality	0 - 100	Percent of retrievals affected by poor input data	

### **2.3.5 Nadir Ozone Profile Geolocation Details**

Nadir Profile IP is produced on the OMPS NP SDR Geolocation. See the JPSS CDFCB-X Vol. III, Section 2.5.1.5, OMPS NP SDR Geolocation, for details.

## 2.4 CrIS IR Ozone Profile Intermediate Product

<p><b>Data Mnemonic</b></p>	<p>IMPE-IROZ-C0030 (Official)                  IMPE-IROZ-C0031 (Substitute)</p>									
<p><b>Description/ Purpose</b></p>	<p>The CrIS Ozone IP product is solved simultaneously with AVMP, AVTP and microwave and infrared surface parameters in the combined CrIS and ATMS retrieval. The ATMS is only weakly sensitive to ozone (there is weak absorption in the 150-190 GHz region); however, this dependence is not included in the microwave OSS forward model. Therefore, the CrIMSS ozone IP product is primarily derived from CrIS radiances, specifically the ozone band near 1000 cm<sup>-1</sup>. Given that this is a simultaneous retrieval on cloud cleared radiances there is a dependence on the microwave-only first guess and, in an indirect sense, the microwave observations included in the coupled ATMS+CrIS retrieval.</p> <p>For this format, the CrIMSS algorithm retrieves 1, 4, or 9 times per field of regard (FOR) to yield a minimum of 120 retrievals and a maximum of 1080 retrievals per granule (4 scans x 30 retrievals per scan up to 4 scans x 270 retrievals per scan).</p> <p>For State 1 (NPP only). CrIMSS retrieves once per field of regard (FOR) to yield a total of 120 retrievals per granule (4 scans x 30 retrievals per scan).</p> <p>The CrIS IR Ozone IP is reported on 101 levels as an average mixing ratio (ppmv) within a given vertical cell (layer). Each level is representative of the center of each layer.</p> <p>For the NPOESS era (States 2 and 3), the FOV layout is a static output and corresponds to each retrieval.</p> <p>For the 4 FOVs in an FOR, there will always be 4 separate retrievals per FOR and the order of the retrievals will be:                  (For the FOV layout represented as:</p> <div style="text-align: center; margin: 10px 0;"> <table border="0"> <tr><td>1</td><td>2</td><td>3</td></tr> <tr><td>4</td><td>5</td><td>6</td></tr> <tr><td>7</td><td>8</td><td>9</td></tr> </table> </div> <p>FOV #</p> <ul style="list-style-type: none"> <li>• 1, 2, 4, 5 = 1<sup>st</sup> Retrieval</li> <li>• 2, 3, 5, 6 = 2<sup>nd</sup> Retrieval</li> <li>• 4, 5, 7, 8 = 3<sup>rd</sup> Retrieval</li> <li>• 5, 6, 8, 9 = 4<sup>th</sup> Retrieval</li> </ul> <p>Sensors:                  CrIS</p>	1	2	3	4	5	6	7	8	9
1	2	3								
4	5	6								
7	8	9								

	<p>Effectivity: NPP and NPOESS</p> <p>Note 1: States 2 and 3 contain dynamically sized granules that are dependent on the number of retrievals. For this dynamically sized product, the aggregation is a set of object IDs that dereference to the corresponding group of the same name (rather than the corresponding dataset) under All_Data in the HDF5 file. The aggregation for a particular field is the set of all datasets under All_Data for that field (rather than a single dataset array as is the case for statically sized products). The Aggregation dimension is dependent on how users assemble the granules for each field into a data structure when reading from the HDF5 file. See section 1.2.2, Intermediate Products, Application Related Products and Environmental Records HDF5 Details - Dynamically Sized, for details regarding the HDF5 structure of dynamically sized products.</p>
<b>File-Naming Construct</b>	See the JPSS CDFCB-X Vol. I, Section 3.0 for details.
<b>File Size</b>	<p>Estimated Granule Sizes:</p> <p>Granule size is variable, dependent on the number of retrievals in the granule:</p> <p>Min: 54.31 KiB</p> <p>Max: 485.56 KiB</p> <p>This granule size includes CrIS IR Ozone related fields and quality flags only. Geolocation and metadata attributes are not included. Additional size added by HDF5 packaging is also not included.</p>
<b>File Format Type</b>	HDF5
<b>Production Frequency</b>	As per request
<b>Data Content and Data Format</b>	<p>See Section 2.4.1, CrIS IR Ozone Data Content Summary</p> <p>See Section 2.4.2, CrIS IR Ozone Product Profile</p> <p>See Section 2.4.3, CrIS IR Ozone HDF5 Details</p> <p>See Section 2.4.4, CrIS IR Ozone Metadata Details</p> <p>See Section 2.4.5, CrIS IR Ozone Geolocation Details</p>

**2.4.1 CrIS IR Ozone Data Content Summary**

**Table 2.4.1-1, CrIS IR Ozone Data Content Summary**

Name	Description	Data Type	Aggregate Dimension (N = Number of Granules)	Granule Dimension	Units
NumRetrievals	Number of retrievals for this granule	signed 32-bit integer	Statically Sized Granule: [N]  Dynamically Sized Granule: See Note 1	[1]	unitless
FORnum	Field of Regard Number (1-120)	signed 32-bit integer	Statically Sized Granule: [N*120]  Dynamically Sized Granule: See Note 1	[numRetrievals]	unitless
O3	Retrieved Ozone Profile	32-bit floating point	Statically Sized Granule: [N* numRetrievals, 101]  Dynamically Sized Granule: See Note 1	[numRetrievals, 101]	ppmv
PressureLevels_O3	Pressure levels for O3 retrieval	32-bit floating point	Statically Sized Granule: [N*101]  Dynamically Sized Granule: See Note 1	[101]	hPa
SurfacePressure	Surface Pressure	32-bit floating point	Statically Sized Granule: [N* numRetrievals]  Dynamically Sized Granule: See Note 1	[numRetrievals]	hPa



Name	Description	Data Type	Aggregate Dimension (N = Number of Granules)	Granule Dimension	Units
SkinTemperature	Surface Temperature	32-bit floating point	Statically Sized Granule: [N* numRetrievals]  Dynamically Sized Granule: See Note 1	[numRetrievals]	K
LandFraction	Land Fraction	32-bit floating point	Statically Sized Granule: [N* numRetrievals]  Dynamically Sized Granule: See Note 1	[numRetrievals]	unitless
Iterations	Number of iterations before convergence	signed 32-bit integer	Statically Sized Granule: [N* numRetrievals]  Dynamically Sized Granule: See Note 1	[numRetrievals]	Iterations
ChiSquareIR+MW	Chi Square value from joint IR-microwave radiance matching retrieval	32-bit floating point	Statically Sized Granule: [N* numRetrievals]  Dynamically Sized Granule: See Note 1	[numRetrievals]	unitless
ChiSquareMW1	Chi Sq value from microwave radiance matching - stage1	32-bit floating point	Statically Sized Granule: [N* numRetrievals]  Dynamically Sized Granule: See Note 1	[numRetrievals]	unitless
ChiSquareMW2	Chi Square value from microwave radiance matching retrieval - stage2	32-bit floating point	Statically Sized Granule: [N* numRetrievals]  Dynamically Sized Granule: See Note 1	[numRetrievals]	unitless

Name	Description	Data Type	Aggregate Dimension (N = Number of Granules)	Granule Dimension	Units
IR_NoiseAmplification	IR Noise Amplification Factors	32-bit floating point	Statically Sized Granule: [N* numRetrievals]  Dynamically Sized Granule: See Note 1	[numRetrievals]	unitless
ProfileDiff	The RMS difference between the seven lowest levels of the first (MW) and second (IR) stage retrievals.	32-bit floating point	Statically Sized Granule: [N* numRetrievals]  Dynamically Sized Granule: See Note 1	[numRetrievals]	unitless
OzoneSpectralSignature	(Indicates quality of retrieved ozone profile IP) Difference between ozone absorption radiance and the background radiance. This is a quality flag that indicates the strength of the IR ozone signal in the CrIS spectrum.	32-bit floating point	Statically Sized Granule: [N* numRetrievals]  Dynamically Sized Granule: See Note 1	[numRetrievals]	mW/(m <sup>2</sup> sr cm <sup>-1</sup> )
QF1_CrSIRO3	Granule Level Quality Flags	8-bit unsigned char	Statically Sized Granule: [N]  Dynamically Sized Granule: See Note 1	[1]	unitless

Name	Description	Data Type	Aggregate Dimension (N = Number of Granules)	Granule Dimension	Units
QF2_CrISIRO3		8-bit unsigned char	Statically Sized Granule: [N]  Dynamically Sized Granule: See Note 1	[1]	unitless
QF3_CrISIRO3		8-bit unsigned char	Statically Sized Granule: [N]  Dynamically Sized Granule: See Note 1	[1]	unitless
QF4_CrISIRO3		8-bit unsigned char	Statically Sized Granule: [N]  Dynamically Sized Granule: See Note 1	[1]	unitless
QF5_CrISIRO3	Retrieval Level Quality Flags	8-bit unsigned char	Statically Sized Granule: [N* numRetrievals]  Dynamically Sized Granule: See Note 1	[numRetrievals]	unitless
QF6_CrISIRO3		8-bit unsigned char	Statically Sized Granule: [N* numRetrievals]  Dynamically Sized Granule: See Note 1	[numRetrievals]	unitless
QF7_CrISIRO3		8-bit unsigned char	Statically Sized Granule: [N* numRetrievals]  Dynamically Sized Granule: See Note 1	[numRetrievals]	unitless

Name	Description	Data Type	Aggregate Dimension (N = Number of Granules)	Granule Dimension	Units
QF8_CrISIRO3		8-bit unsigned char	Statically Sized Granule: [N* numRetrievals]  Dynamically Sized Granule: See Note 1	[numRetrievals]	unitless
QF9_CrISIRO3		8-bit unsigned char	Statically Sized Granule: [N* numRetrievals]  Dynamically Sized Granule: See Note 1	[numRetrievals]	unitless
QF10_CrISIRO3		8-bit unsigned char	Statically Sized Granule: [N* numRetrievals]  Dynamically Sized Granule: See Note 1	[numRetrievals]	unitless
QF11_CrISIRO3		8-bit unsigned char	Statically Sized Granule: [N* numRetrievals]  Dynamically Sized Granule: See Note 1	[numRetrievals]	unitless
QF12_CrISIRO3		8-bit unsigned char	Statically Sized Granule: [N* numRetrievals]  Dynamically Sized Granule: See Note 1	[numRetrievals]	unitless
QF13_CrISIRO3		8-bit unsigned char	Statically Sized Granule: [N* numRetrievals]  Dynamically Sized Granule: See Note 1	[numRetrievals]	unitless

Name	Description	Data Type	Aggregate Dimension (N = Number of Granules)	Granule Dimension	Units
QF14_CrISIRO3		8-bit unsigned char	Statically Sized Granule: [N* numRetrievals]  Dynamically Sized Granule: See Note 1	[numRetrievals]	unitless
QF15_CrISIRO3		8-bit unsigned char	Statically Sized Granule: [N* numRetrievals]  Dynamically Sized Granule: See Note 1	[numRetrievals]	unitless
QF16_CrISIRO3		8-bit unsigned char	Statically Sized Granule: [N* numRetrievals]  Dynamically Sized Granule: See Note 1	[numRetrievals]	unitless

2.4.2 CrIS IR Ozone Product Profile

Table 2.4.2-1, CrIS IR Ozone Product Profile

Fields												
Name	Data Size	Dimensions										
NumRetrievals	4byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		Granule	Yes	No	1	1						
		<b>Datum</b>										
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>
Number of retrievals for this granule	0			unitless	No		32-bit integer	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>	
								NA_INT32_FILL	-999			
								MISS_INT32_FILL	-998			
								ERR_INT32_FILL	-995			
								VDNE_INT32_FILL	-993			
FORnum	4byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		Retrieval	Yes	Yes	120	1080						
		<b>Datum</b>										
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>
Field of Regard Number (1-120). Note that FOR 1-30 = scan 1, FOR 31-60 = scan 2, FOR 61-90 = scan 3, FOR 91-120 = scan 4	0			unitless	No		32-bit integer	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>	
								NA_INT32_FILL	-999			
								MISS_INT32_FILL	-998			
								ERR_INT32_FILL	-995			
								VDNE_INT32_FILL	-993			
O3	4byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		Retrieval	Yes	Yes	120	1080						
		Level	No	No	101	101						
		<b>Datum</b>										
<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>		
Retrieved Ozone Profile	0			ppmv	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>	
								NA_FLOAT32_FILL	-999.9			
								MISS_FLOAT32_FILL	-999.8			

											ERR_FLOAT32_FILL	-999.5																		
											VDNE_FLOAT32_FILL	-999.3																		
PressureLevels_O3	4byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>																								
		Levels	Yes	No	101	101																								
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Pressure levels for the ozone retrieval	0			hPa	No		32-bit floating point	<table border="1"> <tr> <td><b>Name</b></td> <td><b>Value</b></td> <td><b>Name</b></td> <td><b>Value</b></td> </tr> <tr> <td>NA_FLOAT32_FILL</td> <td>-999.9</td> <td></td> <td></td> </tr> <tr> <td>MISS_FLOAT32_FILL</td> <td>-999.8</td> <td></td> <td></td> </tr> <tr> <td>ERR_FLOAT32_FILL</td> <td>-999.5</td> <td></td> <td></td> </tr> <tr> <td>VDNE_FLOAT32_FILL</td> <td>-999.3</td> <td></td> <td></td> </tr> </table>	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>	NA_FLOAT32_FILL	-999.9			MISS_FLOAT32_FILL	-999.8			ERR_FLOAT32_FILL	-999.5			VDNE_FLOAT32_FILL	-999.3				
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SurfacePressure	4byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>																								
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Surface Pressure (Secondary Output)	0			hPa	No		32-bit floating point	<table border="1"> <tr> <td><b>Name</b></td> <td><b>Value</b></td> <td><b>Name</b></td> <td><b>Value</b></td> </tr> <tr> <td>NA_FLOAT32_FILL</td> <td>-999.9</td> <td></td> <td></td> </tr> <tr> <td>MISS_FLOAT32_FILL</td> <td>-999.8</td> <td></td> <td></td> </tr> <tr> <td>ERR_FLOAT32_FILL</td> <td>-999.5</td> <td></td> <td></td> </tr> <tr> <td>VDNE_FLOAT32_FILL</td> <td>-999.3</td> <td></td> <td></td> </tr> </table>	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>	NA_FLOAT32_FILL	-999.9			MISS_FLOAT32_FILL	-999.8			ERR_FLOAT32_FILL	-999.5			VDNE_FLOAT32_FILL	-999.3				
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Temperature at the terrain surface	0			kelvin	No		32-bit floating point	<table border="1"> <tr> <td><b>Name</b></td> <td><b>Value</b></td> <td><b>Name</b></td> <td><b>Value</b></td> </tr> <tr> <td>NA_FLOAT32_FILL</td> <td>-999.9</td> <td></td> <td></td> </tr> <tr> <td>MISS_FLOAT32_FILL</td> <td>-999.8</td> <td></td> <td></td> </tr> <tr> <td>ERR_FLOAT32_FILL</td> <td>-999.5</td> <td></td> <td></td> </tr> <tr> <td>VDNE_FLOAT32_FILL</td> <td>-999.3</td> <td></td> <td></td> </tr> </table>	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>	NA_FLOAT32_FILL	-999.9			MISS_FLOAT32_FILL	-999.8			ERR_FLOAT32_FILL	-999.5			VDNE_FLOAT32_FILL	-999.3				
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**Table 2.4.2-2, CrIS IR Ozone Product Profile - Quality Flags**

Fields											
Name	Data Size	Dimensions									
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		<b>Datum</b>									
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>
		CrIS Detector 1 Failed - LWIR	0			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>   <b>Value</b> False 0 True 1
		CrIS Detector 2 Failed - LWIR	1			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>   <b>Value</b> False 0 True 1
		CrIS Detector 3 Failed - LWIR	2			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>   <b>Value</b> False 0 True 1
		CrIS Detector 4 Failed - LWIR	3			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>   <b>Value</b> False 0 True 1
		CrIS Detector 5 Failed - LWIR	4			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>   <b>Value</b> False 0 True 1
		CrIS Detector 6 Failed - LWIR	5			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>   <b>Value</b> False 0 True 1
CrIS Detector 7 Failed - LWIR	6			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>   <b>Value</b> False 0 True 1		
CrIS Detector 8 Failed - LWIR	7			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>   <b>Value</b> False 0 True 1		

QF2_CrSIRO3	1byte(s) )	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		Granule	Yes	No	1	1						
		<b>Datum</b>										
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>	
		CrIS Detector 9 Failed - LWIR	0			unitless	No		1 bit(s)	Name Value	Name Value	
										False 0	True 1	
		CrIS Detector 1 Failed - MWIR	1			unitless	No		1 bit(s)	Name Value	Name Value	
										False 0	True 1	
		CrIS Detector 2 Failed - MWIR	2			unitless	No		1 bit(s)	Name Value	Name Value	
										False 0	True 1	
CrIS Detector 3 Failed - MWIR	3			unitless	No		1 bit(s)	Name Value	Name Value			
								False 0	True 1			
CrIS Detector 4 Failed - MWIR	4			unitless	No		1 bit(s)	Name Value	Name Value			
								False 0	True 1			
CrIS Detector 5 Failed - MWIR	5			unitless	No		1 bit(s)	Name Value	Name Value			
								False 0	True 1			
CrIS Detector 6 Failed - MWIR	6			unitless	No		1 bit(s)	Name Value	Name Value			
								False 0	True 1			
CrIS Detector 7 Failed - MWIR	7			unitless	No		1 bit(s)	Name Value	Name Value			
								False 0	True 1			

QF3_CrISIRO3	1byte(s) )	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		Granule	Yes	No	1	1						
		<b>Datum</b>										
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>	
		CrIS Detector 8 Failed - MWIR	0			unitless	No		1 bit(s)	Name Value	Name Value	
											False 0	True 1
		CrIS Detector 9 Failed - MWIR	1			unitless	No		1 bit(s)	Name Value	Name Value	
											False 0	True 1
		CrIS Detector 1 Failed - SWIR	2			unitless	No		1 bit(s)	Name Value	Name Value	
											False 0	True 1
CrIS Detector 2 Failed - SWIR	3			unitless	No		1 bit(s)	Name Value	Name Value			
									False 0	True 1		
CrIS Detector 3 Failed - SWIR	4			unitless	No		1 bit(s)	Name Value	Name Value			
									False 0	True 1		
CrIS Detector 4 Failed - SWIR	5			unitless	No		1 bit(s)	Name Value	Name Value			
									False 0	True 1		
CrIS Detector 5 Failed - SWIR	6			unitless	No		1 bit(s)	Name Value	Name Value			
									False 0	True 1		
CrIS Detector 6 Failed - SWIR	7			unitless	No		1 bit(s)	Name Value	Name Value			
									False 0	True 1		

QF4_CrISIRO3	1byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		Granule	Yes	No	1	1						
		<b>Datum</b>										
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>	
		CrIS Detector 7 Failed - SWIR	0			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>
											False	0
											True	1
		CrIS Detector 8 Failed - SWIR	1			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>
											False	0
											True	1
CrIS Detector 9 Failed - SWIR	2			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>		
									False	0		
									True	1		
Apodization Flag	3			unitless	No		2 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>		
									No Apodization Applied	0		
									Hamming	1		
									Blackmann	2		
Day/Night Flag	5			unitless	No		2 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>		
									Day	0		
									Night	1		
									Terminator	2		
Spare	7			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>   <b>Value</b>			

QF5_CrISIRO3	1byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		Retrieval	Yes	Yes	120	1080						
		<b>Datum</b>										
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>	
		Combined IR+MW retrieval did not converge	0			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>
									False	0		
									True	1		
MW only retrieval did not converge	1			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>		
									False	0		
									True	1		
Overall Retrieval Quality	2			unitless	No		2 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>		
									High (IR +	0		

												MW)	
												Low (IR Only)	1
												Non-Converged	2
		Difference between MW+IR temperature profile minus MW only temperature profile exceeds threshold	4			unitless	No		1 bit(s)	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>
												False	0
												True	1
		Cloudiness	5			unitless	No		2 bit(s)	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>
												Clear	0
												Partly Cloudy	1
												Cloudy	2
		Ice Mask	7			unitless	No		1 bit(s)	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>
												No Ice	0
												Ice on water	1
QF6_CrISIRO3	1byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>							
		Retrieval	Yes	Yes	120	1080							
		<b>Datum</b>											
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>		
		Non-LTE Flag	0			unitless	No		1 bit(s)	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>
												LTE	0
												Non-LTE	1
		Rain Flag: Precipitation detected within the FOR exceeding 2 mm/hr	1			unitless	No		1 bit(s)	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>
												False	0
												True	1
		Retrieval Cell Size (Number of FOVs used for this retrieval)	2			unitless	No		2 bit(s)	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>
												9 FOVs used	0
												4 FOVs used	1
												1 FOV used	2
												No Retrieval	3
		Temperature out of range: Atmospheric temperature at one or more of the pressure levels, or the surface skin temperature, is out of the expected range.	4			unitless	No		1 bit(s)	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>
												False	0
												True	1
		Spare	5			unitless	No		3 bit(s)	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>

QF7_CriSIRO3	1byte(s)	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		Retrieval		Yes	Yes	120	1080						
		<b>Datum</b>											
		<b>Description</b>			<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>
		Sun Glint present in retrieval			0			unitless	No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>
												False 0	True 1
		ATMS SDR Quality - Channel not used due to poor quality - Channel - 1			1			unitless	No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>
												False 0	True 1
		ATMS SDR Quality - Channel not used due to poor quality - Channel - 2			2			unitless	No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>
												False 0	True 1
ATMS SDR Quality - Channel not used due to poor quality - Channel - 3			3			unitless	No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>		
										False 0	True 1		
ATMS SDR Quality - Channel not used due to poor quality - Channel - 4			4			unitless	No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>		
										False 0	True 1		
ATMS SDR Quality - Channel not used due to poor quality - Channel - 5			5			unitless	No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>		
										False 0	True 1		
ATMS SDR Quality - Channel not used due to poor quality - Channel - 6			6			unitless	No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>		
										False 0	True 1		
ATMS SDR Quality - Channel not used due to poor quality - Channel - 7			7			unitless	No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>		
										False 0	True 1		



QF8_CriSIRO3	1byte(s)	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		Retrieval		Yes	Yes	120	1080						
		<b>Datum</b>											
		<b>Description</b>			<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>
		ATMS SDR Quality - Channel not used due to poor quality - Channel - 8			0			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>   <b>Value</b>
												False 0	True 1
		ATMS SDR Quality - Channel not used due to poor quality - Channel - 9			1			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>   <b>Value</b>
												False 0	True 1
		ATMS SDR Quality - Channel not used due to poor quality - Channel - 10			2			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>   <b>Value</b>
												False 0	True 1
ATMS SDR Quality - Channel not used due to poor quality - Channel - 11			3			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>   <b>Value</b>		
										False 0	True 1		
ATMS SDR Quality - Channel not used due to poor quality - Channel - 12			4			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>   <b>Value</b>		
										False 0	True 1		
ATMS SDR Quality - Channel not used due to poor quality - Channel - 13			5			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>   <b>Value</b>		
										False 0	True 1		
ATMS SDR Quality - Channel not used due to poor quality - Channel - 14			6			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>   <b>Value</b>		
										False 0	True 1		
ATMS SDR Quality - Channel not used due to poor quality - Channel - 15			7			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>   <b>Value</b>		
										False 0	True 1		

QF9_CrISIRO3	1byte(s)	<table border="1"> <tr> <th>Name</th> <th>Granule Boundary</th> <th>Dynamic</th> <th>Min Array Size</th> <th>Max Array Size</th> </tr> <tr> <td>Retrieval</td> <td>Yes</td> <td>Yes</td> <td>120</td> <td>1080</td> </tr> </table>					Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size	Retrieval	Yes	Yes	120	1080	<table border="1"> <thead> <tr> <th colspan="11">Datum</th> </tr> <tr> <th>Description</th> <th>Datum Offset</th> <th>Unscaled Valid Range Min</th> <th>Unscaled Valid Range Max</th> <th>Measurement Units</th> <th>Scaled</th> <th>Scale Factor Name</th> <th>Data Type</th> <th>Fill Values</th> <th colspan="2">Legend Entries</th> </tr> </thead> <tbody> <tr> <td>ATMS SDR Quality - Channel not used due to poor quality - Channel - 16</td> <td>0</td> <td></td> <td></td> <td>unitless</td> <td>No</td> <td></td> <td>1 bit(s)</td> <td>Name Value</td> <td>Name Value</td> <td>False 0 True 1</td> </tr> <tr> <td>ATMS SDR Quality - Channel not used due to poor quality - Channel - 17</td> <td>1</td> <td></td> <td></td> <td>unitless</td> <td>No</td> <td></td> <td>1 bit(s)</td> <td>Name Value</td> <td>Name Value</td> <td>False 0 True 1</td> </tr> <tr> <td>ATMS SDR Quality - Channel not used due to poor quality - Channel - 18</td> <td>2</td> <td></td> <td></td> <td>unitless</td> <td>No</td> <td></td> <td>1 bit(s)</td> <td>Name Value</td> <td>Name Value</td> <td>False 0 True 1</td> </tr> <tr> <td>ATMS SDR Quality - Channel not used due to poor quality - Channel - 19</td> <td>3</td> <td></td> <td></td> <td>unitless</td> <td>No</td> <td></td> <td>1 bit(s)</td> <td>Name Value</td> <td>Name Value</td> <td>False 0 True 1</td> </tr> <tr> <td>ATMS SDR Quality - Channel not used due to poor quality - Channel - 20</td> <td>4</td> <td></td> <td></td> <td>unitless</td> <td>No</td> <td></td> <td>1 bit(s)</td> <td>Name Value</td> <td>Name Value</td> <td>False 0 True 1</td> </tr> <tr> <td>ATMS SDR Quality - Channel not used due to poor quality - Channel - 21</td> <td>5</td> <td></td> <td></td> <td>unitless</td> <td>No</td> <td></td> <td>1 bit(s)</td> <td>Name Value</td> <td>Name Value</td> <td>False 0 True 1</td> </tr> <tr> <td>ATMS SDR Quality - Channel not used due to poor quality - Channel - 22</td> <td>6</td> <td></td> <td></td> <td>unitless</td> <td>No</td> <td></td> <td>1 bit(s)</td> <td>Name Value</td> <td>Name Value</td> <td>False 0 True 1</td> </tr> <tr> <td>ATMS data is Not available</td> <td>7</td> <td></td> <td></td> <td>unitless</td> <td>No</td> <td></td> <td>1 bit(s)</td> <td>Name Value</td> <td>Name Value</td> <td>False 0 True 1</td> </tr> </tbody> </table>										Datum											Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries		ATMS SDR Quality - Channel not used due to poor quality - Channel - 16	0			unitless	No		1 bit(s)	Name Value	Name Value	False 0 True 1	ATMS SDR Quality - Channel not used due to poor quality - Channel - 17	1			unitless	No		1 bit(s)	Name Value	Name Value	False 0 True 1	ATMS SDR Quality - Channel not used due to poor quality - Channel - 18	2			unitless	No		1 bit(s)	Name Value	Name Value	False 0 True 1	ATMS SDR Quality - Channel not used due to poor quality - Channel - 19	3			unitless	No		1 bit(s)	Name Value	Name Value	False 0 True 1	ATMS SDR Quality - Channel not used due to poor quality - Channel - 20	4			unitless	No		1 bit(s)	Name Value	Name Value	False 0 True 1	ATMS SDR Quality - Channel not used due to poor quality - Channel - 21	5			unitless	No		1 bit(s)	Name Value	Name Value	False 0 True 1	ATMS SDR Quality - Channel not used due to poor quality - Channel - 22	6			unitless	No		1 bit(s)	Name Value	Name Value	False 0 True 1	ATMS data is Not available	7			unitless	No		1 bit(s)	Name Value	Name Value	False 0 True 1
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QF10_CrISIRO3	1byte(s)	<table border="1"> <tr> <th>Name</th> <th>Granule Boundary</th> <th>Dynamic</th> <th>Min Array Size</th> <th>Max Array Size</th> </tr> <tr> <td>Retrieval</td> <td>Yes</td> <td>Yes</td> <td>120</td> <td>1080</td> </tr> </table>					Name	Granule Boundary	Dynamic	Min Array Size	Max Array Size	Retrieval	Yes	Yes	120	1080	<table border="1"> <thead> <tr> <th colspan="11">Datum</th> </tr> <tr> <th>Description</th> <th>Datum Offset</th> <th>Unscaled Valid Range Min</th> <th>Unscaled Valid Range Max</th> <th>Measurement Units</th> <th>Scaled</th> <th>Scale Factor Name</th> <th>Data Type</th> <th>Fill Values</th> <th colspan="2">Legend Entries</th> </tr> </thead> <tbody> <tr> <td>Day/Night Flag</td> <td>0</td> <td></td> <td></td> <td>unitless</td> <td>No</td> <td></td> <td>1 bit(s)</td> <td>Name Value</td> <td>Name Value</td> <td>Day 0 Night 1</td> </tr> <tr> <td>Spare</td> <td>1</td> <td></td> <td></td> <td>unitless</td> <td>No</td> <td></td> <td>1 bit(s)</td> <td>Name Value</td> <td>Name Value</td> <td></td> </tr> </tbody> </table>										Datum											Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries		Day/Night Flag	0			unitless	No		1 bit(s)	Name Value	Name Value	Day 0 Night 1	Spare	1			unitless	No		1 bit(s)	Name Value	Name Value																																																																			
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		Retrieval	Yes	Yes	120	1080																																																																																																																																		
		Datum																																																																																																																																						
Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries																																																																																																																															
Day/Night Flag	0			unitless	No		1 bit(s)	Name Value	Name Value	Day 0 Night 1																																																																																																																														
Spare	1			unitless	No		1 bit(s)	Name Value	Name Value																																																																																																																															

		CrIS SDR Quality (FOV #1 SWIR Quality)	2			unitless	No		2 bit(s)	<b>Name</b> Value	<b>Name</b> Value	<b>Name</b> Value
											Good	0
											Degraded	1
											Invalid	2
		CrIS SDR Quality (FOV #1 MWIR Quality)	4			unitless	No		2 bit(s)	<b>Name</b> Value	<b>Name</b> Value	<b>Name</b> Value
											Good	0
											Degraded	1
											Invalid	2
		CrIS SDR Quality (FOV #1 LWIR Quality)	6			unitless	No		2 bit(s)	<b>Name</b> Value	<b>Name</b> Value	<b>Name</b> Value
											Good	0
											Degraded	1
											Invalid	2
QF11_CrISIRO 3	1byte(s) )	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		Retrieval	Yes	Yes	120	1080						
		<b>Datum</b>										
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>	
		CrIS SDR Quality (FOV #2 SWIR Quality)	0			unitless	No		2 bit(s)	<b>Name</b> Value	<b>Name</b> Value	<b>Name</b> Value
											Good	0
											Degraded	1
											Invalid	2
		CrIS SDR Quality (FOV #2 MWIR Quality)	2			unitless	No		2 bit(s)	<b>Name</b> Value	<b>Name</b> Value	<b>Name</b> Value
											Good	0
											Degraded	1
											Invalid	2
		CrIS SDR Quality (FOV #2 LWIR Quality)	4			unitless	No		2 bit(s)	<b>Name</b> Value	<b>Name</b> Value	<b>Name</b> Value
											Good	0
											Degraded	1
											Invalid	2
		CrIS SDR Quality (FOV #3 SWIR Quality)	6			unitless	No		2 bit(s)	<b>Name</b> Value	<b>Name</b> Value	<b>Name</b> Value
											Good	0
											Degraded	1
											Invalid	2
QF12_CrISIRO 3	1byte(s) )	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		Retrieval	Yes	Yes	120	1080						
		<b>Datum</b>										
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>	
		CrIS SDR Quality (FOV #3 MWIR Quality)	0			unitless	No		2 bit(s)	<b>Name</b> Value	<b>Name</b> Value	<b>Name</b> Value
											Good	0

											Degraded	1
											Invalid	2
		CrIS SDR Quality (FOV #3 LWIR Quality)	2			unitless	No		2 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>	<b>Value</b>
											Good	0
											Degraded	1
											Invalid	2
		CrIS SDR Quality (FOV #4 SWIR Quality)	4			unitless	No		2 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>	<b>Value</b>
											Good	0
											Degraded	1
											Invalid	2
		CrIS SDR Quality (FOV #4 MWIR Quality)	6			unitless	No		2 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>	<b>Value</b>
											Good	0
											Degraded	1
											Invalid	2
QF13_CrISIRO 3	1byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		Retrieval	Yes	Yes	120	1080						
		<b>Datum</b>										
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>	
		CrIS SDR Quality (FOV #4 LWIR Quality)	0			unitless	No		2 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>	<b>Value</b>
											Good	0
											Degraded	1
											Invalid	2
		CrIS SDR Quality (FOV #5 SWIR Quality)	2			unitless	No		2 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>	<b>Value</b>
											Good	0
											Degraded	1
											Invalid	2
		CrIS SDR Quality (FOV #5 MWIR Quality)	4			unitless	No		2 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>	<b>Value</b>
											Good	0
											Degraded	1
											Invalid	2
		CrIS SDR Quality (FOV #5 LWIR Quality)	6			unitless	No		2 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>	<b>Value</b>
											Good	0
											Degraded	1
											Invalid	2
QF14_CrISIRO 3	1byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		Retrieval	Yes	Yes	120	1080						
		<b>Datum</b>										
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>	

		CrIS SDR Quality (FOV #6 0 SWIR Quality)	0			unitless	No		2 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>
											Good	0
											Degraded	1
											Invalid	2
		CrIS SDR Quality (FOV #6 2 MWIR Quality)	2			unitless	No		2 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>
											Good	0
											Degraded	1
											Invalid	2
		CrIS SDR Quality (FOV #6 4 LWIR Quality)	4			unitless	No		2 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>
											Good	0
											Degraded	1
											Invalid	2
		CrIS SDR Quality (FOV #7 6 SWIR Quality)	6			unitless	No		2 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>
											Good	0
											Degraded	1
											Invalid	2
QF15_CrISIRO 3	1byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		Retrieval	Yes	Yes	120	1080						
		<b>Datum</b>										
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>	
		CrIS SDR Quality (FOV #7 0 MWIR Quality)	0			unitless	No		2 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>
											Good	0
											Degraded	1
											Invalid	2
		CrIS SDR Quality (FOV #7 2 LWIR Quality)	2			unitless	No		2 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>
											Good	0
											Degraded	1
											Invalid	2
		CrIS SDR Quality (FOV #8 4 SWIR Quality)	4			unitless	No		2 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>
											Good	0
											Degraded	1
											Invalid	2
		CrIS SDR Quality (FOV #8 6 MWIR Quality)	6			unitless	No		2 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>
											Good	0
											Degraded	1
											Invalid	2
QF16_CrISIRO 3	1byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		Retrieval	Yes	Yes	120	1080						
		<b>Datum</b>										

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
CrIS SDR Quality (FOV #8 LWIR Quality)	0			unitless	No		2 bit(s)	Name	Value	Good	0
										Degraded	1
										Invalid	2
CrIS SDR Quality (FOV #9 SWIR Quality)	2			unitless	No		2 bit(s)	Name	Value	Good	0
										Degraded	1
										Invalid	2
CrIS SDR Quality (FOV #9 MWIR Quality)	4			unitless	No		2 bit(s)	Name	Value	Good	0
										Degraded	1
										Invalid	2
CrIS SDR Quality (FOV #9 LWIR Quality)	6			unitless	No		2 bit(s)	Name	Value	Good	0
										Degraded	1
										Invalid	2

### 2.4.3 CrIS IR Ozone HDF5 Details

Figure 2.4.3-1, CrIS IR Ozone UML Diagram, provides details on the contents and data types of the CrIS IR Ozone product. This UML provides details at the product level detail only. In addition to this UML, refer to Figure 1.2.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, for a complete UML rendering of this product.

The CrIS IR Ozone product within the HDF5 file can be found within the Data\_Product group with the group name of CrIS-IR-OZ-Prof-IP. The aggregation and granule(s) contain the data fields listed in the UML .The corresponding HDF5 data type for each field is also provided.

<b>CrIS-IR-OZ-Prof-IP</b>
+NumRetrievals : H5T_NATIVE_INT
+FORnum : H5T_NATIVE_FLOAT
+O3 : H5T_NATIVE_FLOAT
+PressureLevels_O3 : H5T_NATIVE_FLOAT
+SurfacePressure : H5T_NATIVE_FLOAT
+SkinTemperature : H5T_NATIVE_FLOAT
+LandFraction : H5T_NATIVE_FLOAT
+Iterations : H5T_NATIVE_INT
+ChiSquareIR+MW : H5T_NATIVE_FLOAT
+ChiSquareMW1 : H5T_NATIVE_FLOAT
+ChiSquareMW2 : H5T_NATIVE_FLOAT
+IR_NoiseAmplification : H5T_NATIVE_FLOAT
+ProfileDiff : H5T_NATIVE_FLOAT
+OzoneSpectralSignature : H5T_NATIVE_FLOAT
+QF1_CrISIRO3 : H5T_NATIVE_UCHAR
+QF2_CrISIRO3 : H5T_NATIVE_UCHAR
+QF3_CrISIRO3 : H5T_NATIVE_UCHAR
+QF4_CrISIRO3 : H5T_NATIVE_UCHAR
+QF5_CrISIRO3 : H5T_NATIVE_UCHAR
+QF6_CrISIRO3 : H5T_NATIVE_UCHAR
+QF7_CrISIRO3 : H5T_NATIVE_UCHAR
+QF8_CrISIRO3 : H5T_NATIVE_UCHAR
+QF9_CrISIRO3 : H5T_NATIVE_UCHAR
+QF10_CrISIRO3 : H5T_NATIVE_UCHAR
+QF11_CrISIRO3 : H5T_NATIVE_UCHAR
+QF12_CrISIRO3 : H5T_NATIVE_UCHAR
+QF13_CrISIRO3 : H5T_NATIVE_UCHAR
+QF14_CrISIRO3 : H5T_NATIVE_UCHAR
+QF15_CrISIRO3 : H5T_NATIVE_UCHAR
+QF16_CrISIRO3 : H5T_NATIVE_UCHAR

**Figure 2.4.3-1, CrIS IR Ozone HDF5 UML Diagram**

**2.4.4 CrIS IR Ozone HDF5 Metadata Details**

The HDF5 metadata elements associated with the CrIS IR Ozone are listed in the JPSS CDFCB-X Vol. V. The CrIS IR Ozone metadata includes all of the common metadata at the root, product, aggregation, and granule levels.

In addition to the common metadata items for this product, Table 2.4.4-1, CrIS IR Ozone N\_Quality\_Summary\_Name/N\_Quality\_Summary\_Value Granule Level Metadata Values, provides the following items as name/value pairs. The listed name/value pair items in the table are the granule level quality flags for the CrIS IR Ozone.

**Table 2.4.4-1, CrIS IR Ozone N\_Quality\_Summary\_Name/N\_Quality\_Summary\_Value Granule Level Metadata Values**

N_Quality_Summary			
Name	Value	Description	Notes
Summary Quality - CrIS IR Ozone Retrieval Quality	0 - 100	Percent of retrievals within granule with high quality of retrieval	
CrIS Input Data Quality	0 - 100	Percent of CrIS SDR input retrievals with high quality	
ATMS Input Data Quality	0 - 100	Percent of ATMS SDR input retrievals with high quality	

**2.4.5 CrIS IR Ozone Geolocation Data Content Summary**

The CrIS IR Ozone IP is retrieved within the CrIMSS EDR algorithm. See the JPSS CDFCB-X, Vol. IV, Part 2, Imagery, Atmospheric and Cloud EDRs, Sections 2.4.5 through 2.4.8 for CrIMSS EDR Geolocation details.



**2.5 VIIRS Ice Concentration Intermediate Product**

<b>Data Mnemonic</b>	IMPI_VIIC_R0100
<b>Description/ Purpose</b>	The VIIRS Ice Concentration IP contains the ice fractions and summed concentration weights for each pixel. This product is available at the VIIRS Imagery Resolution. Effectivity: NPP and NPOESS
<b>File-Naming Construct</b>	See the JPSS CDFCB-X Vol. I, 474-00001-01, Section 3.0 for details.
<b>File Size</b>	Data Granule Size: 78,643,200 bytes per granule 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.
<b>File Format Type</b>	HDF5
<b>Production Frequency</b>	As requested
<b>Data Content and Data Format</b>	The VIIRS ice concentration IP contains ice fraction and ice concentration weight, both datasets with the described formatting as shown in the following product profile tables See Section 2.5.1 VIIRS Ice Concentration IP Product Profile See Section 2.5.2 <b>Error! Reference source not found.</b> See Section <b>Error! Reference source not found.</b> <b>Error! Reference source not found.</b>

**2.5.1 VIIRS Ice Concentration IP Product Profile**

**Table 2.5.1-1, VIIRS Ice Concentration IP Product Profile**

Fields												
Name	Data Size	Dimensions										
iceFraction	4bytes	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		inTrack	Yes	No	1536	1536						
		crossTrack	No	No	6400	6400						
		<b>Datum</b>										
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>
		Ice Fraction		0.0	1.0	Unitless	No		Float32	<b>Name</b>	<b>Value</b>	<b>Name</b> <b>Value</b>
										NA_FLOAT32_FILL	-999.9	
										MISS_FLOAT32_FILL	-999.8	
										ONBOARD_PT_FLOAT32_FILL	-999.7	
										ONGROUND_PT_FLOAT32_FILL	-999.6	
								ERR_FLOAT32_FILL	-999.5			
								ELINT_FLOAT32_FILL	-999.4			
								VDNE_FLOAT32_FILL	-999.3			
								SOUB_FLOAT32_FILL	-999.2			
iceConcWeights	4bytes	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		inTrack	Yes	No	1536	1536						
		crossTrack	No	No	6400	6400						
		<b>Datum</b>										
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>
		Ice Concentration Weights		0.0	1.0	Unitless	No		Float32	<b>Name</b>	<b>Value</b>	<b>Name</b> <b>Value</b>
										NA_FLOAT32_FILL	-999.9	
										MISS_FLOAT32_FILL	-999.8	
										ONBOARD_PT_FLOAT32_FILL	-999.7	
										ONGROUND_PT_FLOAT32_FILL	-999.6	
								ERR_FLOAT32_FILL	-999.5			

											ELINT_FLOAT32_FILL	-999.4	
											VDNE_FLOAT32_FILL	-999.3	
											SOUB_FLOAT32_FILL	-999.2	

### **2.5.2 VIIRS Ice Concentration IP Metadata Details**

The product metadata elements contained in the VIIRS Ice Concentration IP are listed in the JPSS CDFCB-X Vol. V, Section 4.3, HDF5 (Metadata) Hierarchy. 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 Ice Concentration RIP. Therefore, there are no entries in the N\_Quality\_Summary\_Name/Value metadata attributes for this product.

### **2.5.3 VIIRS Ice Concentration IP Geolocation Details**

The Geolocation for the Ice Concentration IP uses the VIIRS Imagery Resolution Geolocation – Terrain Corrected for its Geolocation. See the JPSS CDFCB-X Vol. IV Pt. 1, 474-00001-04-01, Section 4.9 for geolocation details.

**2.6 VIIRS Surface Reflectance Intermediate Product**

<b>Data Mnemonic</b>	IMPI_VISR_R0100
<b>Description/ Purpose</b>	The VIIRS Surface Reflectance IP consists of surface reflectance values for VIIRS spectral bands I1, I2, I3, M1, M2, M3, M4, M5, M7, M8, M10, and M11. These values are Lambertian approximation atmospherically adjusted, adjacency adjusted, and Bidirectional Reflectance Distribution Function (BRDF) coupling-corrected. This product also includes associated land quality flags. The unitless IP surface reflectance values are arrayed by spectral band as shown in the data format tables below. The 6 octet per pixel quality flag array is produced at moderate resolution. Effectivity: NPP and NPOESS
<b>File-Naming Construct</b>	See the JPSS CDFCB-X Vol. I, 474-00001-01, section 3.0 for details.
<b>File Size</b>	Data Granule Size: 221,184,000 bytes/granule 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.
<b>File Format Type</b>	HDF5
<b>Production Frequency</b>	As requested
<b>Data Content and Data Format</b>	See Section 2.6.1 VIIRS Surface Reflectance IP Product Profile See Section <b>Error! Reference source not found.Error! Reference source not found.</b> See Section <b>Error! Reference source not found.Error! Reference source not found.</b>

2.6.1 VIIRS Surface Reflectance IP Product Profile

Table 2.6.1-1, VIIRS Surface Reflectance IP Product Profile

Fields													
Name	Data Size	Dimensions											
i1	4bytes	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		inTrack	Yes	No	1536	1536							
		crossTrack	No	No	6400	6400							
		<b>Datum</b>											
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>	
		Imagery Band 1 Reflectance		0	1.5	Unitless	No		Float32	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>
										NA_FLOAT32_FILL	-999.9		
										MISS_FLOAT32_FILL	-999.8		
										ONBOARD_PT_FLOAT32_FILL	-999.7		
										ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5				
								ELINT_FLOAT32_FILL	-999.4				
							VDNE_FLOAT32_FILL	-999.3					
							SOUB_FLOAT32_FILL	-999.2					
i2	4bytes	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		inTrack	Yes	No	1536	1536							
		crossTrack	No	No	6400	6400							
		<b>Datum</b>											
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>	
		Imagery Band 2 Reflectance		0	1.5	Unitless	No		Float32	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>
										NA_FLOAT32_FILL	-999.9		
										MISS_FLOAT32_FILL	-999.8		
										ONBOARD_PT_FLOAT32_FILL	-999.7		
										ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5				
							ELINT_FLOAT32_FILL	-999.4					

										VDNE_FLOAT32_FILL	-999.3		
										SOUB_FLOAT32_FILL	-999.2		
i3	4bytes	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>							
		inTrack	Yes	No	1536	1536							
		crossTrack	No	No	6400	6400							
		<b>Datum</b>											
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>	
		Imagery Band 3 Reflectance		0	1.5	Unitless	No		Float32	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>
										NA_FLOAT32_FILL	-999.9		
										MISS_FLOAT32_FILL	-999.8		
										ONBOARD_PT_FLOAT32_FILL	-999.7		
										ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5				
								ELINT_FLOAT32_FILL	-999.4				
							VDNE_FLOAT32_FILL	-999.3					
							SOUB_FLOAT32_FILL	-999.2					
m1	4bytes	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>							
		inTrack	Yes	No	768	768							
		crossTrack	No	No	3200	3200							
		<b>Datum</b>											
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>	
		Moderate Band 1 Reflectance		0	1.5	Unitless	No		Float32	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>
										NA_FLOAT32_FILL	-999.9		
										MISS_FLOAT32_FILL	-999.8		
										ONBOARD_PT_FLOAT32_FILL	-999.7		
										ONGROUND_PT_FLOAT32_FILL	-999.6		
								ERR_FLOAT32_FILL	-999.5				
								ELINT_FLOAT32_FILL	-999.4				
							VDNE_FLOAT32_FILL	-999.3					
							SOUB_FLOAT32_FILL	-999.2					

m2	4bytes	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		inTrack	Yes	No	768	768						
		crossTrack	No	No	3200	3200						
		<b>Datum</b>										
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>
		Moderate Band 2 Reflectance		0	1.5	Unitless	No		Float32	<b>Name</b>	<b>Value</b>	<b>Name</b> <b>Value</b>
										NA_FLOAT32_FILL	-999.9	
										MISS_FLOAT32_FILL	-999.8	
										ONBOARD_PT_FLOAT32_FILL	-999.7	
										ONGROUND_PT_FLOAT32_FILL	-999.6	
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								ELINT_FLOAT32_FILL	-999.4			
								VDNE_FLOAT32_FILL	-999.3			
								SOUB_FLOAT32_FILL	-999.2			
m3	4bytes	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		inTrack	Yes	No	768	768						
		crossTrack	No	No	3200	3200						
		<b>Datum</b>										
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>
		Moderate Band 3 Reflectance		0	1.5	Unitless	No		Float32	<b>Name</b>	<b>Value</b>	<b>Name</b> <b>Value</b>
										NA_FLOAT32_FILL	-999.9	
										MISS_FLOAT32_FILL	-999.8	
										ONBOARD_PT_FLOAT32_FILL	-999.7	
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								ELINT_FLOAT32_FILL	-999.4			
								VDNE_FLOAT32_FILL	-999.3			
								SOUB_FLOAT32_FILL	-999.2			
m4	4bytes	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		inTrack	Yes	No	768	768						
		crossTrack	No	No	3200	3200						
		<b>Datum</b>										



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	
Moderate Band 4 Reflectance		0	1.5	Unitless	No		Float32	NA_FLOAT32_FILL	-999.9			
								MISS_FLOAT32_FILL	-999.8			
								ONBOARD_PT_FLOAT32_FILL	-999.7			
								ONGROUND_PT_FLOAT32_FILL	-999.6			
								ERR_FLOAT32_FILL	-999.5			
								ELINT_FLOAT32_FILL	-999.4			
								VDNE_FLOAT32_FILL	-999.3			
								SOUB_FLOAT32_FILL	-999.2			
m5	4bytes	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>					
		inTrack	Yes	No	768	768						
		crossTrack	No	No	3200	3200						
		<b>Datum</b>										
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	
Moderate Resolution Band 5 Reflectance		0	1.5	Unitless	No		Float32	NA_FLOAT32_FILL	-999.9			
								MISS_FLOAT32_FILL	-999.8			
								ONBOARD_PT_FLOAT32_FILL	-999.7			
								ONGROUND_PT_FLOAT32_FILL	-999.6			
								ERR_FLOAT32_FILL	-999.5			
								ELINT_FLOAT32_FILL	-999.4			
								VDNE_FLOAT32_FILL	-999.3			
								SOUB_FLOAT32_FILL	-999.2			
m7	4bytes	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>					
		inTrack	Yes	No	768	768						
		crossTrack	No	No	3200	3200						
		<b>Datum</b>										
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	

		Moderate Resolution Band 7 Reflectance	0	1.5	Unitless	No		Float32	<table border="1"> <thead> <tr> <th>Name</th> <th>Value</th> <th>Name</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>NA_FLOAT32_FILL</td> <td>-999.9</td> <td></td> <td></td> </tr> <tr> <td>MISS_FLOAT32_FILL</td> <td>-999.8</td> <td></td> <td></td> </tr> <tr> <td>ONBOARD_PT_FLOAT32_FILL</td> <td>-999.7</td> <td></td> <td></td> </tr> <tr> <td>ONGROUND_PT_FLOAT32_FILL</td> <td>-999.6</td> <td></td> <td></td> </tr> <tr> <td>ERR_FLOAT32_FILL</td> <td>-999.5</td> <td></td> <td></td> </tr> <tr> <td>ELINT_FLOAT32_FILL</td> <td>-999.4</td> <td></td> <td></td> </tr> <tr> <td>VDNE_FLOAT32_FILL</td> <td>-999.3</td> <td></td> <td></td> </tr> <tr> <td>SOUB_FLOAT32_FILL</td> <td>-999.2</td> <td></td> <td></td> </tr> </tbody> </table>	Name	Value	Name	Value	NA_FLOAT32_FILL	-999.9			MISS_FLOAT32_FILL	-999.8			ONBOARD_PT_FLOAT32_FILL	-999.7			ONGROUND_PT_FLOAT32_FILL	-999.6			ERR_FLOAT32_FILL	-999.5			ELINT_FLOAT32_FILL	-999.4			VDNE_FLOAT32_FILL	-999.3			SOUB_FLOAT32_FILL	-999.2																																															
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m11	4bytes	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>												
		inTrack	Yes	No	768	768													
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		Moderate Resolution Band 11 Reflectances		0	1.5	Unitless	No		Float32	<b>Name</b>	<b>Value</b>								<b>Name</b> <b>Value</b>
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**Table 2.6.1-2, VIIRS Surface Reflectance IP Product Profile - Quality Flags**

Fields												
Name	Data Size	Dimensions										
QF1_VIIRSSRIPSDR	1bytes	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		inTrack	Yes	No	768	768						
		crossTrack	No	No	3200	3200						
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		Cloud Mask Quality	0	0	3	Unitless	No		2 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b>	<b>Value</b>
											Poor	0
											Low	1
											Medium	2
											High	3
Cloud Mask Confidence	2	0	3		No		2 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b>	<b>Value</b>		
									Confident Clear	0		
									Probably Clear	1		
									Probably Cloudy	2		
									Confident Cloudy	3		
Night	4	0	1		No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b>	<b>Value</b>		
									solar zenith angle <= 85 degrees	0		
									solar zenith angle > 85 degrees	1		
Low Sun	5	0	1		No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b>	<b>Value</b>		
									solar zenith angle <= 65 degrees	0		
									solar zenith angle > 65	1		

		Sun Glint Pixel	6	0	3			No			2 bit(s)			degrees	
														<b>Name</b>   <b>Value</b>	<b>Name</b>   <b>Value</b>
														None	0
														Geometry Based	1
														Wind Speed Based	2
														Geometry and Wind Based	3
QF2_VIIRSSRIPSDR	1bytes	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>									
		inTrack	Yes	No	768	768									
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		Land/Water Background Pixel	0	0	5	Unitless	No		3 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>			
											Land And Desert	0			
											Land No Desert	1			
											Inland Water	2			
											Sea Water	3			
											Coastal	5			
		Shadow Detected Pixel	3	0	1		No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>			
											No	0			
											Yes	1			
		Non-Cloud Obstruction (Heavy Aerosol)	4	0	1		No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>			
											No	0			
											Yes	1			
		Spare	5				No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>   <b>Value</b>				
		Thin Cirrus Reflective	6	0	1		No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>			
											No Cloud	0			
											Cloud	1			

		Thin Cirrus Emissive	7	0	1		No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>	
										No	0	
										Cloud	1	
QF3_VIIRSSRIPSDR	1bytes	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		inTrack	Yes	No	768	768						
		crossTrack	No	No	3200	3200						
		<b>Datum</b>										
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>	
		Bad M1 SDR Data Pixel	0	0	1	Unitless	No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>	
										No	0	
										Yes	1	
		Bad M2 SDR Data Pixel	1	0	1		No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>	
										No	0	
										Yes	1	
		Bad M3 SDR Data Pixel	2	0	1		No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>	
										No	0	
										Yes	1	
		Bad M4 SDR Data Pixel	3	0	1		No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>	
										No	0	
										Yes	1	
		Bad M5 SDR Data Pixel	4	0	1		No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>	
										No	0	
										Yes	1	
		Bad M7 SDR Data Pixel	5	0	1		No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>	
										No	0	
										Yes	1	
		Bad M8 SDR Data Pixel	6	0	1		No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>	
										No	0	
										Yes	1	
		Bad M10 SDR Data Pixel	7	0	1		No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>	
										No	0	
										Yes	1	
QF4_VIIRSSRIPSDR	1bytes	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		inTrack	Yes	No	768	768						

		crossTrack	No	3200	3200					
<b>Datum</b>										
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 Pixel	0	0	1	Unitless	No		1 bit(s)	Name Value	Name Value	
									No	0
									Yes	1
Bad I1 SDR Data Pixel	1	0	1		No		1 bit(s)	Name Value	Name Value	
									No	0
									Yes	1
Bad I2 SDR Data Pixel	2	0	1		No		1 bit(s)	Name Value	Name Value	
									No	0
									Yes	1
Bad I3 SDR Data Pixel	3	0	1		No		1 bit(s)	Name Value	Name Value	
									No	0
									Yes	1
Overall Quality of AOT Pixel Degraded	4	0	1		No		1 bit(s)	Name Value	Name Value	
									No	0
									Yes	1
Missing AOT Input Data Pixel	5	0	1		No		1 bit(s)	Name Value	Name Value	
									No	0
									Yes	1
Invalid Land AMI	6	0	1		No		1 bit(s)	Name Value	Name Value	Value
									Valid	0
									Invalid AMI over land, or over ocean	1
Missing PW Input Data Pixel	7	0	1		No		1 bit(s)	Name Value	Name Value	
									No	0
									Yes	1
QF5_VIIRSSRIPSDR	1 bytes	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>			
		inTrack	Yes	No	768	768				
		crossTrack	No	No	3200	3200				
<b>Datum</b>										

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	
Missing OZ Input Data Pixel	0	0	1	Unitless	No		1 bit(s)	Name	Value	Name	Value
										No	0
										Yes	1
Missing SP Input Data Pixel	1	0	1		No		1 bit(s)	Name	Value	Name	Value
										No	0
										Yes	1
Overall Quality M1 SR Data Degraded	2	0	1		No		1 bit(s)	Name	Value	Name	Value
										No	0
										Yes	1
Overall Quality M2 SR Data Degraded	3	0	1		No		1 bit(s)	Name	Value	Name	Value
										No	0
										Yes	1
Overall Quality M3 SR Data Degraded	4	0	1		No		1 bit(s)	Name	Value	Name	Value
										No	0
										Yes	1
Overall Quality M4 SR Data Degraded	5	0	1		No		1 bit(s)	Name	Value	Name	Value
										No	0
										Yes	1
Overall Quality M5 SR Data Degraded	6	0	1		No		1 bit(s)	Name	Value	Name	Value
										No	0
										Yes	1
Overall Quality M7 SR Data Degraded	7	0	1		No		1 bit(s)	Name	Value	Name	Value
										No	0
										Yes	1
QF6_VIIRSSRIPSDR	1bytes	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>					
		inTrack	Yes	No	768	768					
		crossTrack	No	No	3200	3200					
		<b>Datum</b>									
<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>		



	Overall Quality M8 SR Data Degraded	0	0	1	Unitless	No		1 bit(s)	<b>Name Value</b>	<b>Name Value</b>																																																																																																			
									No 0	Yes 1																																																																																																			
	Overall Quality M10 SR Data Degraded	1	0	1		No		1 bit(s)	<b>Name Value</b>	<b>Name Value</b>																																																																																																			
									No 0	Yes 1																																																																																																			
	Overall Quality M11 SR Data Degraded	2	0	1		No		1 bit(s)	<b>Name Value</b>	<b>Name Value</b>																																																																																																			
									No 0	Yes 1																																																																																																			
	Overall Quality I1 SR Data Degraded	3	0	1		No		1 bit(s)	<b>Name Value</b>	<b>Name Value</b>																																																																																																			
								No 0	Yes 1																																																																																																				
Overall Quality I2 SR Data Degraded	4	0	1		No		1 bit(s)	<b>Name Value</b>	<b>Name Value</b>																																																																																																				
								No 0	Yes 1																																																																																																				
Overall Quality I3 SR Data Degraded	5	0	1		No		1 bit(s)	<b>Name Value</b>	<b>Name Value</b>																																																																																																				
								No 0	Yes 1																																																																																																				
Spare	6					No		2 bit(s)	<b>Name Value</b>	<b>Name Value</b>																																																																																																			
									No 0	Yes 1																																																																																																			
QF7_VIIRSSRIPSDR	1bytes	<table border="1"> <tr> <td><b>Name</b></td> <td><b>Granule Boundary</b></td> <td><b>Dynamic</b></td> <td><b>Min Array Size</b></td> <td><b>Max Array Size</b></td> <td colspan="6"></td> </tr> <tr> <td>inTrack</td> <td>Yes</td> <td>No</td> <td>768</td> <td>768</td> <td colspan="6"></td> </tr> <tr> <td>crossTrack</td> <td>No</td> <td>No</td> <td>3200</td> <td>3200</td> <td colspan="6"></td> </tr> <tr> <td colspan="11"><b>Datum</b></td> </tr> <tr> <td><b>Description</b></td> <td><b>Datum Offset</b></td> <td><b>Unscaled Valid Range Min</b></td> <td><b>Unscaled Valid Range Max</b></td> <td><b>Measurement Units</b></td> <td><b>Scaled</b></td> <td><b>Scale Factor Name</b></td> <td><b>Data Type</b></td> <td><b>Fill Values</b></td> <td colspan="2"><b>Legend Entries</b></td> </tr> <tr> <td>Snow Present</td> <td>0</td> <td>0</td> <td>1</td> <td>Unitless</td> <td>No</td> <td></td> <td>1 bit(s)</td> <td><b>Name Value</b></td> <td colspan="2"><b>Name Value</b></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>No 0</td> <td colspan="2">Yes 1</td> </tr> <tr> <td>Adjacent to Cloud</td> <td>1</td> <td>0</td> <td>1</td> <td></td> <td>No</td> <td></td> <td>1 bit(s)</td> <td><b>Name Value</b></td> <td colspan="2"><b>Name Value</b></td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td>No 0</td> <td colspan="2">Yes 1</td> </tr> </table>									<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>							inTrack	Yes	No	768	768							crossTrack	No	No	3200	3200							<b>Datum</b>											<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>		Snow Present	0	0	1	Unitless	No		1 bit(s)	<b>Name Value</b>	<b>Name Value</b>										No 0	Yes 1		Adjacent to Cloud	1	0	1		No		1 bit(s)	<b>Name Value</b>	<b>Name Value</b>										No 0	Yes 1	
<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>																																																																																																									
inTrack	Yes	No	768	768																																																																																																									
crossTrack	No	No	3200	3200																																																																																																									
<b>Datum</b>																																																																																																													
<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>																																																																																																				
Snow Present	0	0	1	Unitless	No		1 bit(s)	<b>Name Value</b>	<b>Name Value</b>																																																																																																				
								No 0	Yes 1																																																																																																				
Adjacent to Cloud	1	0	1		No		1 bit(s)	<b>Name Value</b>	<b>Name Value</b>																																																																																																				
								No 0	Yes 1																																																																																																				

	Aerosol Quantity	2	0	3		No		2 bit(s)	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>
											Climatology	0
											Low	1
											Average	2
											High	3
	Thin Cirrus Flag	4	0	1		No		1 bit(s)	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>
											No	0
											Yes	1
	Spare	5	0	7		No		3 bit(s)	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>

### **2.6.2 VIIRS Surface Reflectance IP Metadata Details**

The product metadata elements contained in the VIIRS Surface Reflectance IP are listed in the JPSS CDFCB-X Vol. V, Section 4.3, HDF5 (Metadata) Hierarchy. 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 Surface Reflectance RIP. Therefore, there are no entries in the N\_Quality\_Summary\_Name/Value metadata attributes for this product.

### **2.6.3 VIIRS Surface Reflectance IP Geolocation Details**

VIIRS Surface Reflectance RIP uses the VIIRS Moderate Resolution Geolocation – Terrain Corrected for its Geolocation data. See the JPSS CDFCB-X Vol. IV Pt. 1, 474-00001-04-01, Section 4.9 for geolocation details.

### 3.0 APPLICATION RELATED PRODUCTS

An ARP is defined as an NPOESS deliverable data product which is created for use in the support of an EDR. An ARP is a subcategory of an EDR that is used in the application of another EDR.

#### 3.1 Active Fires Application Related Product

<b>Data Mnemonic</b>	ARPE-VRAF-C0030(Official) ARPE-VRAF-C0031 (Substitute)
<b>Description/ Purpose</b>	<p>Active surface fires are natural or anthropogenic fires.                  The Active Fires ARP provides:</p> <ul style="list-style-type: none"> <li>Geolocation of the pixels in which active fires are detected</li> <li>A mapping of pixels back to the moderate resolution SDR row/column</li> <li>Quality Flags</li> </ul> <p>The products for this application are desired during both day and night time for clear-sky conditions and within clear areas under conditions of broken clouds.</p> <p>The units for the Active Fires ARP are:</p> <ul style="list-style-type: none"> <li>Degrees latitude and longitude for geolocation</li> </ul> <p>Sensors:</p> <ul style="list-style-type: none"> <li>VIIRS</li> </ul> <p>Effectivity: NPP and NPOESS</p> <p>This ARP is dynamically sized and depends on the number of pixels in a granule that are identified as fire pixels. The maximum number of pixels in a granule is 768 rows x 3200 cols = 2,457,600. For Active Fire EDRs, if there are no fires identified in a granule, a Null Pointer (reference or pointer to Reference Region 0) is provided in the HDF5 file. This is done in order to still provide the relevant metadata for that granule.</p> <p>Note 1: The Active Fires ARP contains dynamically sized granules that are dependent on the number of retrievals. For this dynamically sized product, the aggregation is a set of object IDs that dereference to the corresponding group of the same name (rather than the corresponding dataset) under All_Data in the HDF5 file. The aggregation for a particular field is the set of all datasets under All_Data for that field (rather than a single dataset array as is the case for statically sized products).The Aggregation</p>

	dimension is dependent on how users assemble the granules for each field into a data structure when reading from the HDF5 file. See section 1.2.2, Intermediate Products, Application Related Products and Environmental Records HDF5 Details - Dynamically Sized, for details regarding the HDF5 structure of dynamically sized products
<b>File-Naming Construct</b>	See the JPSS CDFCB-X Vol. I, Section 3.4 for details.
<b>File Size</b>	Estimated Granule Size: Maximum size = 46.9 MiBs This granule size includes Active Fires ARP related fields only. Note that only those pixels in the granule identified as containing an Active Fire are included in the product. This size estimate is a “worst case” scenario where every pixel in the granule contains an Active Fire. Metadata attributes are not included. Additional size added by HDF5 packaging is also not included.
<b>File Format Type</b>	HDF5
<b>Production Frequency</b>	As per request
<b>Data Content and Data Format</b>	For each pixel, the Active Fires ARP contains: Active fire Latitude Active fire Longitude SDR row of active fire SDR column of active fire Quality Flags  See Section 3.1.1, Active Fires Data Content Summary See Section 3.1.2, Active Fires Product Profile See Section 3.1.3, Active Fires HDF5 Details See Section 3.1.4, Active Fires Metadata Details See Section 3.1.5, Active Fires Geolocation Details

### 3.1.1 VIIRS Active Fires Data Content Summary

**Table 3.1.1-1, VIIRS Active Fires Data Content Summary**

Name	Description	Data Type	Aggregate Dimension (N = Number of Granules)	Granule Dimension	Units

Name	Description	Data Type	Aggregate Dimension (N = Number of Granules)	Granule Dimension	Units
Latitude	Latitude of Fire Pixel	32-bit floating point	See Note 1	[NumFirePixels]	degrees
Longitude	Longitude of Fire Pixel	32-bit floating point	See Note 1	[NumFirePixels]	degrees
RowIndex	Index number of the SDR row this fire pixel originated from	32-bit signed integer	See Note 1	[NumFirePixels]	unitless
ColIndex	Index number of the SDR column this fire pixel originated from	32-bit signed integer	See Note 1	[NumFirePixels]	unitless
QF1_VIIRSAFARP	Quality Flags (pixel level)	unsigned char	See Note 1	[NumFirePixels]	unitless
QF2_VIIRSAFARP		unsigned char	See Note 1	[NumFirePixels]	unitless
QF3_VIIRSAFARP		unsigned char	See Note 1	[NumFirePixels]	unitless
QF4_VIIRSAFARP		unsigned char	See Note 1	[NumFirePixels]	unitless

3.1.2 VIIRS Active Fires Product Profile

Table 3.1.2-1, VIIRS Active Fires Product Profile

Fields											
Name	Data Size	Dimensions									
Latitude	4byte(s)	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>				
		Fire Pixel Latitude		Yes	Yes	0	2457600				
		<b>Datum</b>									
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>
Latitude of Fire Pixel	0	-90	90	degrees	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name Value</b>	
Longitude	4byte(s)	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>				
		Fire Pixel Longitude		Yes	Yes	0	2457600				
		<b>Datum</b>									
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>
Longitude of Fire Pixel	0	-180	180	degrees	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name Value</b>	
RowIndex	4byte(s)	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>				
		SDR Row Index		Yes	Yes	0	2457600				
		<b>Datum</b>									
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>
Index number of the SDR row this fire pixel originated from	0	0	767	unitless	No		32-bit signed integer	<b>Name Value</b>	<b>Name Value</b>		
ColIndex	4byte(s)	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>				
		SDR Col Index		Yes	Yes	0	2457600				
		<b>Datum</b>									
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>
Index number of the SDR column this fire pixel originated from	0	0	3199	unitless	No		32-bit signed integer	<b>Name Value</b>	<b>Name Value</b>		

**Table 3.1.2-2, VIIRS Active Fires Product Profile - Quality Flags**

Fields												
Name	Data Size	Dimensions										
QF1_VIIRSAFARP	1byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		Quality Flag 1	Yes	Yes	0	2457600						
		<b>Datum</b>										
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>	
		Adjacent Cloud Flag	0			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>
											No Cloud in adjacent pixel	0
											Cloud in adjacent pixel	1
		Adjacent Water Flag	1			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>
											No water in adjacent pixel	0
											Water in adjacent pixel	1
Search Size Window (Indicates the number of pixels used in the search window)	2	1	10	unitless	No		4 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>   <b>Value</b>			
Sun Glint	6			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>		
									No	0		
									Yes	1		
Sun Glint Override (Likely false alarms caused by sun glint contaminated background pixels)	7			unitless	No		1 bit(s)	<b>Name</b>   <b>Value</b>	<b>Name</b>	<b>Value</b>		
									No	0		
									Yes	1		
QF2_VIIRSAFARP	1byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		Quality Flag 2	Yes	Yes	0	2457600						
		<b>Datum</b>										
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>	



		Fire Test 1 Valid (Indicates whether Test 1 gave a valid result)	0			unitless	No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>	
											Results not valid	0	
												Results valid	1
		Fire Test 2 Valid (Indicates whether Test 2 gave a valid result)	1			unitless	No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>	
												Results not valid	0
												Results valid	1
		Fire Test 3 Valid (Indicates whether Test 3 gave a valid result)	2			unitless	No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>	
												Results not valid	0
										Results valid	1		
Fire Test 4 Valid (Indicates whether Test 4 gave a valid result)	3			unitless	No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>			
										Results not valid	0		
										Results valid	1		
Fire Test 5 Valid (Indicates whether Test 5 gave a valid result)	4			unitless	No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>			
										Results not valid	0		
										Results valid	1		
Fire Test 6 Valid (Indicates whether Test 6 gave a valid result)	5			unitless	No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>			
										Results not valid	0		
										Results valid	1		
Input Data Quality (AF quality poor due to bad SDR data in horizontal cell)	6			unitless	No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>			
										Good SDR Data	0		
										Bad SDR Data	1		
Day/Night (Night = SZA > 85 degrees)	7			unitless	No		1 bit(s)	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>	<b>Name</b> <b>Value</b>			
										Night	0		
										Day	1		
QF3_VIIRSAFARP	1byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>							
		Quality Flag 3	Yes	Yes	0	2457600							
		<b>Datum</b>											
		<b>Description</b>	<b>Datum</b>	<b>Unscaled</b>	<b>Unscaled</b>	<b>Measurement</b>	<b>Scaled</b>	<b>Scale</b>	<b>Data</b>	<b>Fill Values</b>	<b>Legend</b>		

			Offset	Valid Range Min	Valid Range Max	Units		Factor Name	Type		Entries
		False Alarm Override (likely false alarms due to excessive rejection of legitimate background pixels)	0			unitless	No		1 bit(s)	Name Value	Name Value No 0 Yes 1
		Water Contamination Override (likely false alarms caused by water contaminated background pixels - Flag will not be triggered for sparse array format since only fire pixels are written to output.)	1			unitless	No		1 bit(s)	Name Value	Name Value No 0 Yes 1
		Spare	2			unitless	No		6 bit(s)	Name Value	Name Value
QF4_VIIRSAFARP	1byte(s)	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>				
		Quality Flag 4	Yes	Yes	0	2457600					
		<b>Datum</b>									
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>
		Fire Detection Confidence (Pixel level fire confidence in percent for each of the fire pixels)	0	0	100	unitless	No		unsigned 8-bit char	Name Value	Name Value

### 3.1.3 VIIRS Active Fires HDF5 Details

Figure 3.1.3-1 provides detail on the content and datatypes of the Active Fires ARP. This UML diagram provides detail at the product level only. In addition to this UML diagram, refer to Figure 1.2.2-1, Generalized UML Diagram for dynamically sized HDF5 IP/EDR Files, for a complete UML rendering of this product.

VIIRS-AF-EDR
+Latitude : H5T_NATIVE_FLOAT
+Longitude : H5T_NATIVE_FLOAT
+RowIndex : H5T_NATIVE_LONG
+ColIndex : H5T_NATIVE_LONG
+QF1_VIIRSAFARP : H5T_NATIVE_UCHAR
+QF2_VIIRSAFARP : H5T_NATIVE_UCHAR
+QF3_VIIRSAFARP : H5T_NATIVE_UCHAR
+QF4_VIIRSAFARP : H5T_NATIVE_UCHAR

**Figure 3.1.3-1, VIIRS Active Fires ARP UML Model**

### 3.1.4 VIIRS Active Fires HDF5 Metadata Details

The HDF5 metadata elements associated with the Active Fires ARP are listed in the JPSS CDFCB-X Vol. V, Section 4.3, HDF5 (Metadata) Hierarchy. The Active Fires ARP metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for this product, Table 3.1.4-1, VIIRS Active Fires N\_Quality\_Summary\_Name/N\_Quality\_Summary\_Value Granule Level Metadata Values, provide the following items as name/value pairs. The listed name/value pair items in the table are the granule level quality flags for the VIIRS Active Fires ARPs.

**Table 3.1.4-1, VIIRS Active Fires N\_Quality\_Summary\_Name/N\_Quality\_Summary\_Value Granule Level Metadata Values**

N_Quality_Summary_Name	N_Quality_Summary_Value	Description of Value	Notes

N_Quality_Summary_Name	N_Quality_Summary_Value	Description of Value	Notes
Summary - Active Fire Product Quality	0 - 100	Percent of Fire Pixels that have 'high' quality	Note that any pixel identified as an active fire pixel will be designated as having 'low', 'medium', or 'high' quality. This is based on the Fire Detection Confidence as follows: High Quality: Confidence $\geq 80\%$ Medium Quality: $20\% \leq \text{Confidence} < 80\%$ Low Quality: Confidence $< 20\%$ This Summary Quality flag provides the percent of pixels with 'High' confidence (confidence $\geq 80\%$ ).

### 3.1.5 VIIRS Active Fires Geolocation Details

The VIIRS Active Fires ARP is a sparse array that includes the latitude and longitude of any pixel identified as containing an active fire. Therefore, no geolocation is defined for this product. However, the fields "RowIndex" and "ColIndex" correspond to the VIIRS Moderate Resolution SDR Geolocation.

#### **4.0 IP/ARP/EDR GEOLOCATION DETAILS BY SENSOR**

The following sections provide the geolocation details for IPs, ARPs, and EDRs. Each section is broken down by sensor and includes geolocation details for those products which share the information. For products that utilize very specific geolocation data, see the individual products' descriptions. For an overview of the structure of geolocation data, see the JPSS CDFCB-X Vol. I.

## **4.1 DELETED**

## **4.2 DELETED**

### **4.3 DELETED**



#### **4.4 DELETED**

## **4.5 DELETED**

#### **4.6 OMPS Geolocation Data**

OMPS TC EDR and NP IP geolocations are the OMPS TC SDR and OMPS NP SDR geolocations. Data formats are documented in the JPSS CDFCB-X, Vol. III:

- OMPS Nadir Profile SDR Geolocation: See the JPSS CDFCB-X, Vol. III, Sections 2.9.1.5 - 2.9.1.8
- OMPS Total Column SDR Geolocation: See the JPSS CDFCB-X, Vol. III, Sections 2.10.1.5 - 2.10.1.8

## **4.7 DELETED**

## **4.8 DELETED**

## 4.9 VIIRS Geolocation Data

The VIIRS geolocation data varies, not only by resolution class, but also by data product grid size.

A summary of VIIRS geolocation is provided in Table 4.9-1, VIIRS EDR Geolocation Summary. This table presents VIIRS geolocations grouped by geolocation type and size rather than by EDR product.

**Table 4.9-1, VIIRS EDR Geolocation Summary**

VIIRS Geolocation Type	Approximate Size
Imagery Resolution TC	375 m pixel
I-Band Imagery	400 m pixel (GTM)
Moderation Resolution SDR and Moderation Resolution TC	750 m pixel
NCC and M-Band Imagery	800 m pixel (GTM)
Cloud Aggregated	6 km x 6 km cell
Aerosol	6 pixel x 6 pixel cell (M-Band)
Net Heat Flux	12 km x 12 km cell

### 4.9.1 VIIRS I-Band Imagery Geolocation (GTM)

The VIIRS I-Band Imagery Geolocation is mapped from the imagery resolution SDR geolocation, non-terrain corrected and is described in the JPSS CDFCB-X, Vol. IV, Part 2, Section 5.1.1.5, VIIRS I-Band Imagery Geolocation Details.

#### **4.9.2 VIIRS M-Band Imagery Geolocation (GTM)**

The VIIRS M-Band Imagery Geolocation is mapped from the moderate resolution SDR geolocation, non-terrain corrected and is described in the JPSS CDFCB-X, Vol. IV, Part 2, Section 5.1.2.5, VIIRS M-Band Imagery Geolocation Details.

### **4.9.3 VIIRS NCC Imagery Geolocation (GTM)**

The VIIRS NCC Imagery Geolocation is mapped from the DNB SDR ellipsoidal geolocation, non-terrain corrected and is described in the JPSS CDFCB-X, Vol. IV, Part 2, Section 5.1.3.5, VIIRS NCC Imagery Geolocation Details.



#### **4.9.4 VIIRS Aerosol Geolocation**

The VIIRS Aerosol Geolocation is documented in the JPSS CDFCB-X, Vol. IV, Part 2, Imagery, Atmospheric and Cloud EDRs, Sections 5.2.2.2.5 - 5.2.2.2.8.

**4.9.5 VIIRS Moderate Resolution Geolocation - Terrain Corrected**

<b>Description/ Purpose</b>	The VIIRS Moderate Resolution SDR Geolocation parameters are corrected for terrain height and provided with applicable EDRs. The parameters are defined identically to their SDR counterpart but are adjusted to account for line of sight intersection with the digital elevation model as opposed to the ellipsoid.
<b>File-Naming Construct</b>	See the JPSS CDFCB-X Vol. I, Section 3.4 for details.
<b>File Size</b>	Estimated granule size: 77.35 MiB not including metadata or HDF5 overhead.
<b>File Format Type</b>	HDF5
<b>Data Content and Data Format</b>	<p>The VIIRS Moderate Resolution Geolocation - Terrain Corrected contains:</p> <ul style="list-style-type: none"> <li>Time Fields</li> <li>Geolocation Angular Fields</li> <li>Height and Satellite Range</li> <li>Spacecraft Position, Velocity, and Attitude</li> <li>Spacecraft Solar Zenith and Azimuth Angles</li> <li>Geolocation Quality Flags</li> </ul> <p>The format for this geolocation is identical to the (non-terrain corrected) format with differences noted below. See the format for the VIIRS M-Band SDR Geolocation, JPSS CDFCB-X Vol. III, sections 2.16.5 - 2.16.8 for details.</p> <p>Differences between the VIIRS M-Band SDR Geolocation format and the VIIRS Moderate Resolution Geolocation - Terrain Corrected format is that the Height field for the VIIRS Moderate Resolution Geolocation - Terrain Corrected Geolocation is the height above mean sea level, rather than the ellipsoid-Geod Separation.</p>

**4.9.6 VIIRS Imagery Resolution Geolocation - Terrain Corrected**

<b>Description/ Purpose</b>	The VIIRS Imagery Resolution SDR Geolocation parameters are corrected for terrain height and provided with applicable EDRs The parameters are defined identically to their SDR counterpart but are adjusted to account for line of sight intersection with the digital elevation model as opposed to the ellipsoid Corrected.
<b>File-Naming Construct</b>	See the JPSS CDFCB-X Vol. I, Section 3.4 for details.
<b>File Size</b>	Estimated granule size: 309.38 MiB not including metadata or HDF5 overhead.
<b>File Format Type</b>	HDF5
<b>Data Content and Data Format</b>	<p>For each aggregated cell, the VIIRS Imagery Resolution Geolocation - Terrain Corrected contains:</p> <ul style="list-style-type: none"> <li>Time Fields</li> <li>Geolocation Angular Fields</li> <li>Height and Satellite Range</li> <li>Spacecraft Position, Velocity, and Attitude</li> <li>Spacecraft Solar Zenith and Azimuth Angles</li> <li>Geolocation Quality Flags</li> </ul> <p>The format for this geolocation is identical to the (non-terrain corrected) format with differences noted below. See the format for the VIIRS I-Band SDR Geolocation, JPSS CDFCB-X, Vol. III, sections 2.17.5 - 2.17.8 for details.</p> <p>Differences between the VIIRS I-Band SDR Geolocation format and the VIIRS Imagery Resolution Geolocation - Terrain Corrected format is that the Height field for the VIIRS Imagery Resolution Geolocation - Terrain Corrected Geolocation is the height above mean sea level, rather than the ellipsoid-Geod Separation.</p>

**4.9.7 VIIRS Cloud Aggregated Geolocation**

<b>Description/ Purpose</b>	The VIIRS Moderate Resolution SDR geolocation (non terrain corrected) pixel positions are aggregated to produce the Cloud Aggregated (6 km x 6 km) geolocation. The geolocation indicates the location of a cell where the cloud resides, not the average cloud position.
<b>File-Naming Construct</b>	See the JPSS CDFCB-X Vol. I, Section 3.4 for details.
<b>File Size</b>	Estimated granule size: 1.17 MiB not including metadata or HDF5 overhead.
<b>File Format Type</b>	HDF5
<b>Data Content and Data Format</b>	<p>For each aggregated cell, the VIIRS Cloud Aggregated Geolocation contains:</p> <ul style="list-style-type: none"> <li>Time Fields</li> <li>Geolocation Angular Fields</li> <li>Spacecraft Position, Velocity, and Attitude</li> <li>Spacecraft Solar Zenith and Azimuth Angles</li> <li>Geolocation Quality Flags</li> </ul> <p>See Section 4.9.7.1, VIIRS Cloud Aggregated Geolocation Data Content Summary</p> <p>See Section 4.9.7.2, VIIRS Cloud Aggregated Geolocation Product Profiles</p> <p>See Section 4.9.7.3, VIIRS Cloud Aggregated Geolocation HDF5 Details</p> <p>See Section 4.9.7.4, VIIRS Cloud Aggregated Geolocation HDF5 Metadata Details</p>

**4.9.7.1 VIIRS Cloud Aggregated Geolocation Data Content Summary**

**Table 4.9.7.1-1, VIIRS Cloud Aggregated Geolocation Data Content Summary**

Name	Description	Data Type	Aggregate Dimension (N = Number of Granules)	Granule Dimension	Units
StartTime	Starting Time of each scan in IET (1/1/1958)	64-bit integer	[N*48]	[48]	Microsecond
MidTime	Mid-Time of each scan in IET (1/1/1958)	64-bit integer	[N*48]	[48]	Microsecond
Latitude	Latitude of each cell (positive North)	32-bit floating point	[N*96, 508]	[96, 508]	Degree
Longitude	Longitude of each cell (positive East)	32-bit floating point	[N*96, 508]	[96, 508]	Degree
SolarZenithAngle	Zenith angle of sun at each cell position	32-bit floating point	[N*96, 508]	[96, 508]	Degree
SolarAzimuthAngle	Azimuth angle of sun (measured clockwise positive from North) at each cell position	32-bit floating point	[N*96, 508]	[96, 508]	Degree
SatelliteZenithAngle	Zenith angle to Satellite at each cell position	32-bit floating point	[N*96, 508]	[96, 508]	Degree
SatelliteAzimuthAngle	Azimuth angle (measured clockwise positive from North) to Satellite at each cell position	32-bit floating point	[N*96, 508]	[96, 508]	Degree
SCPosition	Spacecraft position in ECR Coordinates (X, Y, Z) at the mid-time of scan	32-bit floating point	[N*48, 3]	[48, 3]	Meter

Name	Description	Data Type	Aggregate Dimension (N = Number of Granules)	Granule Dimension	Units
SCVelocity	Spacecraft velocity in ECR Coordinates (dx/dt, dy/dt, dz/dt) at the mid-time of scan	32-bit floating point	[N*48, 3]	[48, 3]	m/s
SCAttitude	Spacecraft attitude with respect to Geodetic Reference Frame Coordinates (roll, pitch, yaw) at the midtime of scan	32-bit floating point	[N*48, 3]	[48, 3]	arcsecond
SCSolarZenithAngle	The angle in the spacecraft reference frame from zenith vector (negative z-axis) to the solar vector	32-bit floating point	[N*48]	[48]	Degree
SCSolarAzimuthAngle	The angle in the spacecraft reference frame from x-axis to the solar vector projected onto the spacecraft x-y plane, measured counterclockwise (observer looking toward zenith (negative z-axis))	32-bit floating point	[N*48]	[48]	Degree
QF1_SCAN_VIIRSCLDAGGGE O	Scan Level Geolocation Quality Flags	unsigned 8-bit char	[N*48]	[48]	Unitless
QF2_VIIRSCLDAGGGE O	Cell Level Geolocation Quality Flags	unsigned 8-bit char	[N*96, 508]	[96, 508]	Unitless

**4.9.7.2 VIIRS Cloud Aggregated Geolocation Product Profile**

**Table 4.9.7.2-1, VIIRS Cloud Aggregated Geolocation Product Profile**

Fields												
Name	Data Size	Dimensions										
StartTime	8byte(s)	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>					
		Scan	Yes	No	48	48						
		<b>Datum</b>										
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>
		Starting Time of each scan in IET (1/1/1958)	0			microsecond	No		64-bit integer	<b>Name</b>	<b>Value</b>	<b>Name</b>
									NA_INT64_FILL	-999		
									MISS_INT64_FILL	-998		
									ERR_INT64_FILL	-995		
									VDNE_INT64_FILL	-993		
MidTime	8byte(s)	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>					
		Scan	Yes	No	48	48						
		<b>Datum</b>										
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>
		Mid-Time of each scan in IET (1/1/1958)	0			microsecond	No		64-bit integer	<b>Name</b>	<b>Value</b>	<b>Name</b>
									NA_INT64_FILL	-999		
									MISS_INT64_FILL	-998		
									ERR_INT64_FILL	-995		
									VDNE_INT64_FILL	-993		
Latitude	4byte(s)	<b>Name</b>		<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>					
		AlongTrack	Yes	No	96	96						
		CrossTrack	No	No	508	508						
		<b>Datum</b>										
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>
Latitude of each cell (positive North)	0			degree	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name</b>	<b>Value</b>	
									NA_FLOAT32_FILL	-999.9		
									MISS_FLOAT32_FILL	-999.8		
									ERR_FLOAT32_FILL	-999.5		
									ELINT_FLOAT32_FILL	-999.4		

		VDNE_FLOAT32_FILL -999.3																								
Longitude	4byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>																				
		AlongTrack	Yes	No	96	96																				
		CrossTrack	No	No	508	508																				
		<b>Datum</b>																								
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>															
Longitude of each cell (positive East)	0			degree	No		32-bit floating point	<table border="1"> <thead> <tr> <th>Name</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>NA_FLOAT32_FILL</td> <td>-999.9</td> </tr> <tr> <td>MISS_FLOAT32_FILL</td> <td>-999.8</td> </tr> <tr> <td>ERR_FLOAT32_FILL</td> <td>-999.5</td> </tr> <tr> <td>ELINT_FLOAT32_FILL</td> <td>-999.4</td> </tr> <tr> <td>VDNE_FLOAT32_FILL</td> <td>-999.3</td> </tr> </tbody> </table>	Name	Value	NA_FLOAT32_FILL	-999.9	MISS_FLOAT32_FILL	-999.8	ERR_FLOAT32_FILL	-999.5	ELINT_FLOAT32_FILL	-999.4	VDNE_FLOAT32_FILL	-999.3	<table border="1"> <thead> <tr> <th>Name</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table>		Name	Value		
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Name	Value																									
SolarZenithAngle	4byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>																				
		AlongTrack	Yes	No	96	96																				
		CrossTrack	No	No	508	508																				
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		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>															
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ELINT_FLOAT32_FILL	-999.4																									
VDNE_FLOAT32_FILL	-999.3																									
Name	Value																									
SolarAzimuthAngle	4byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>																				
		AlongTrack	Yes	No	96	96																				
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Azimuth angle of sun (measured clockwise positive from North) at each cell position	0			degree	No		32-bit floating point	<table border="1"> <thead> <tr> <th>Name</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>NA_FLOAT32_FILL</td> <td>-999.9</td> </tr> <tr> <td>MISS_FLOAT32_FILL</td> <td>-999.8</td> </tr> <tr> <td>ERR_FLOAT32_FILL</td> <td>-999.5</td> </tr> <tr> <td>ELINT_FLOAT32_FILL</td> <td>-999.4</td> </tr> <tr> <td>VDNE_FLOAT32_FILL</td> <td>-999.3</td> </tr> </tbody> </table>	Name	Value	NA_FLOAT32_FILL	-999.9	MISS_FLOAT32_FILL	-999.8	ERR_FLOAT32_FILL	-999.5	ELINT_FLOAT32_FILL	-999.4	VDNE_FLOAT32_FILL	-999.3	<table border="1"> <thead> <tr> <th>Name</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td></td> <td></td> </tr> </tbody> </table>		Name	Value		
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ELINT_FLOAT32_FILL	-999.4																									
VDNE_FLOAT32_FILL	-999.3																									
Name	Value																									
SatelliteZenithAngle	4byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>																				



		AlongTrack	Yes	No	96	96						
		CrossTrack	No	No	508	508						
		<b>Datum</b>										
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>
		Zenith angle to Satellite at each cell position	0			degree	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name Value</b>
										NA_FLOAT32_FILL	-999.9	
										MISS_FLOAT32_FILL	-999.8	
										ERR_FLOAT32_FILL	-999.5	
										ELINT_FLOAT32_FILL	-999.4	
										VDNE_FLOAT32_FILL	-999.3	
SatelliteAzimuthAngle	4byte(s)	<b>Name Granule Boundary Dynamic Min Array Size Max Array Size</b>										
		AlongTrack	Yes	No	96	96						
		CrossTrack	No	No	508	508						
		<b>Datum</b>										
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>
		Azimuth angle (measured clockwise positive from North) to Satellite at each cell position	0			degree	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name Value</b>
										NA_FLOAT32_FILL	-999.9	
										MISS_FLOAT32_FILL	-999.8	
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										ELINT_FLOAT32_FILL	-999.4	
										VDNE_FLOAT32_FILL	-999.3	
SCPosition	4byte(s)	<b>Name Granule Boundary Dynamic Min Array Size Max Array Size</b>										
		Scan	Yes	No	48	48						
		ECRCoordinate	No	No	3	3						
		<b>Datum</b>										
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>		<b>Legend Entries</b>
		Spacecraft position in ECR Coordinates (X, Y, Z) at the mid-time of scan	0			meter	No		32-bit floating point	<b>Name</b>	<b>Value</b>	<b>Name Value</b>
										NA_FLOAT32_FILL	-999.9	
										MISS_FLOAT32_FILL	-999.8	
										ERR_FLOAT32_FILL	-999.5	
										VDNE_FLOAT32_FILL	-999.3	
SCVelocity	4byte(s)	<b>Name Granule Boundary Dynamic Min Array Size Max Array Size</b>										
		Scan	Yes	No	48	48						
		ECRCoordinate	No	No	3	3						
		<b>Datum</b>										

		Description	Datum Offset	Unscaled Valid Range Min	Unscaled Valid Range Max	Measurement Units	Scaled	Scale Factor Name	Data Type	Fill Values	Legend Entries																																																				
		Spacecraft velocity in ECR Coordinates (dx/dt, dy/dt, dz/dt) at the mid-time of scan	0			m/s	No		32-bit floating point	<table border="1"> <thead> <tr> <th>Name</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>NA_FLOAT32_FILL</td> <td>-999.9</td> </tr> <tr> <td>MISS_FLOAT32_FILL</td> <td>-999.8</td> </tr> <tr> <td>ERR_FLOAT32_FILL</td> <td>-999.5</td> </tr> <tr> <td>VDNE_FLOAT32_FILL</td> <td>-999.3</td> </tr> </tbody> </table>	Name	Value	NA_FLOAT32_FILL	-999.9	MISS_FLOAT32_FILL	-999.8	ERR_FLOAT32_FILL	-999.5	VDNE_FLOAT32_FILL	-999.3	<table border="1"> <thead> <tr> <th>Name</th> <th>Value</th> </tr> </thead> <tbody> <tr> <td>NA_FLOAT32_FILL</td> <td>-999.9</td> </tr> <tr> <td>MISS_FLOAT32_FILL</td> <td>-999.8</td> </tr> <tr> <td>ERR_FLOAT32_FILL</td> <td>-999.5</td> </tr> <tr> <td>VDNE_FLOAT32_FILL</td> <td>-999.3</td> </tr> </tbody> </table>	Name	Value	NA_FLOAT32_FILL	-999.9	MISS_FLOAT32_FILL	-999.8	ERR_FLOAT32_FILL	-999.5	VDNE_FLOAT32_FILL	-999.3																																
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**Table 4.9.7.2-2, VIIRS Cloud Aggregated Geolocation - Quality Flags**

Fields												
Name	Data Size	Dimensions										
QF1_SCAN_VIIRSCLDAGGGE0	1byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		Scan	Yes	No	48	48						
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		Attitude and Ephemeris Availability Status	0			unitless	No		2 bit(s)	<b>Name Value</b>	<b>Name</b>	<b>Value</b>
											Nominal - E&A data available	0
											Missing Data <= Small Gap	1
											Small Gap < Missing Data < Granule Boundary	2
		Missing Data >= Granule Boundary	3									
		HAM/RTA Encoder Flag - Indicates the quality of the HAM and RTA encoder timestamps	2			unitless	No		2 bit(s)	<b>Name Value</b>	<b>Name</b>	<b>Value</b>
Good Data	0											
Bad Data - either HAM, RTA, or both are bad for the entire scan	1											
Degraded Data - either HAM, RTA, or both are corrupted within the scan.	2											
Missing Data - Missing encoder data for the scan	3											
Within South Atlantic Anomaly	4			unitless	No		1 bit(s)	<b>Name Value</b>	<b>Name</b>	<b>Value</b>		
									False	0		
									True	1		
Solar Eclipse during Earth view scan	5			unitless	No		1 bit(s)	<b>Name Value</b>	<b>Name</b>	<b>Value</b>		
									False	0		
									True	1		
Spare	6			unitless	No		1 bit(s)	<b>Name Value</b>	<b>Name</b>	<b>Value</b>		

		Half Angle Mirror side	7			unitless	No		1 bit(s)	<b>Name\Value</b>	<b>Name</b>	<b>Value</b>
											Mirror Side A	0
											Mirror Side B	1
QF2_VIIRSCLDAGGEO	1byte(s)	<b>Name</b>	<b>Granule Boundary</b>	<b>Dynamic</b>	<b>Min Array Size</b>	<b>Max Array Size</b>						
		AlongTrack	Yes	No	96	96						
		CrossTrack	No	No	508	508						
		<b>Datum</b>										
		<b>Description</b>	<b>Datum Offset</b>	<b>Unscaled Valid Range Min</b>	<b>Unscaled Valid Range Max</b>	<b>Measurement Units</b>	<b>Scaled</b>	<b>Scale Factor Name</b>	<b>Data Type</b>	<b>Fill Values</b>	<b>Legend Entries</b>	
		Invalid Input Data (Indicates that any of the Spacecraft Ephemeris or Attitude Data is Invalid or the encoder data is invalid)	0			unitless	No		1 bit(s)	<b>Name\Value</b>	<b>Name\Value</b>	False 0 True 1
		Bad Pointing (Indicates that the sensor LOS does not intersect the geoid or is near the limb based upon sensor zenith angle.)	1			unitless	No		1 bit(s)	<b>Name\Value</b>	<b>Name\Value</b>	False 0 True 1
		Bad Terrain (Indicates that the algorithm could not obtain a valid terrain value.)	2			unitless	No		1 bit(s)	<b>Name\Value</b>	<b>Name\Value</b>	False 0 True 1
		Invalid Solar Angles	3			unitless	No		1 bit(s)	<b>Name\Value</b>	<b>Name\Value</b>	False 0 True 1
		Spare	4			unitless	No		4 bit(s)	<b>Name\Value</b>	<b>Name\Value</b>	

**4.9.7.3 VIIRS Cloud Aggregated Geolocation HDF5 Details**

Figure 4.9.7.3-1, VIIRS Cloud Aggregated Geolocation UML Diagram, provides details on the content and datatypes of the Cloud Aggregated Geolocation. This UML diagram provides details at the product level only. In addition to this UML diagram, refer to Figure 1.2.1-1, Generalized UML Diagram for statically sized HDF5 IP/EDR Files, for a complete UML rendering of this product.

VIIRS-CLD-AGG-GEO
+StartTime : H5T_NATIVE_LLONG
+MidTime : H5T_NATIVE_LLONG
+Latitude : H5T_NATIVE_FLOAT
+Longitude : H5T_NATIVE_FLOAT
+SolarZenithAngle : H5T_NATIVE_FLOAT
+SolarAzimuthAngle : H5T_NATIVE_FLOAT
+SatelliteZenithAngle : H5T_NATIVE_FLOAT
+SatelliteAzimuthAngle : H5T_NATIVE_FLOAT
+SCPosition : H5T_NATIVE_FLOAT
+SCVelocity : H5T_NATIVE_FLOAT
+SCAttitude : H5T_NATIVE_FLOAT
+SCSolarZenithAngle : H5T_NATIVE_FLOAT
+SCSolarAzimuthAngle : H5T_NATIVE_FLOAT
+QF1_SCAN_VIIRSCLDAGGGEO : H5T_NATIVE_UCHAR
+QF2_VIIRSCLDAGGGEO : H5T_NATIVE_UCHAR

**Figure 4.9.7.3-1, VIIRS Cloud Aggregated Geolocation UML Diagram**

**4.9.7.4 VIIRS Cloud Aggregated Geolocation HDF5 Metadata Details**

The HDF5 metadata elements associated with the VIIRS Cloud Aggregated Geolocation are listed in the JPSS CDFCB-X Vol. V, Section 4.3, HDF5 (Metadata) Hierarchy. The Cloud Aggregated Geolocation metadata includes all common metadata at the root, product, aggregation, and granule level.

In addition to the common metadata items for the VIIRS Cloud Aggregated Geolocation, the following items are included as name/value pairs under the granule level metadata attribute “N\_Quality\_Summary”:

**Table 4.9.7.4-1, VIIRS Cloud Aggregated Geolocation N\_Quality\_Summary  
 Granule Level Metadata Values**

<b>N_Quality_Summary</b>			
<b>Name</b>	<b>Value</b>	<b>Description</b>	<b>Notes</b>
Percent Missing Data	0 - 100%	Percent of missing pixels in granule	
Percent Out-of-bounds	0 - 100%	Percent of pixels identified as out-of-bounds in granule	
Automatic Quality Flag	0	Retrieval Successful	
	1	Retrieval not Successful (one or more geolocation subroutines failed)	

#### **4.9.8 VIIRS Net Heat Flux Geolocation**

See the JPSS CDFCB-X, Vol. IV, Part 3, Sections 5.5.4.5 to 5.5.4.8 for Net Heat Flux Geolocation details.



#### **4.9.9 DELETED**

## **APPENDIX A: DATA MNEMONIC TO INTERFACE MAPPING**

See JPSS CDFCB-X Vol. I, Appendix A for the Data Mnemonic to Interface Mapping for IPs, ARPs, and Geolocation.