Sentinel-3 Core PDGS Instrument Processing Facility (IPF) Implementation

Auxiliary Data Format Specification

Ref: S3IPF.PDS.007
Issue: 1.13

Date: 28 May 2015

ESA Unclassified - For Internal Use

This Page is intentionally Left Blank

Customer:	**ESA/ESRIN**	**Document Ref:**	**S3IPF.PDS.007**
Contract No:	**VEGA/SUB/4000101720/004**	**Issue Date:**	**28 May 2015**
WP No :		**Issue :**	**1.13**

Title: Auxiliary Data Format Specification

Author: Deimos Team

Author: ACRI Team

Author: CLS Team

Approved: Olivier Sardou, ACRI PA Manager

Author: Telespazio VEGA Team

Approved: Ian Shaw, Telespazio VEGA QA Manager Manager

Authorised: Frederic Rouffi
Frederic Rouffi
cn=Frederic Rouffi, c=FR, o=ACRI-ST, ou=SOIL, email=frederic.rouffi@acri-st.fr
2015.05.27 16:42:38 +02'00'
Frédéric Rouffi, ACRI S3-IPF Project Manager

Authorised: Richard Corkill, Telespazio VEGA S3 Core PDGS Project Manager

Accepted by VEGA:

Accepted by ESA:

Filename: D073.9_S3IPF PDS 007 - i1r13 - Auxiliary Data Format Specification.docx

Telespazio VEGA Deutschland GmbH
Europaplatz 5, 64293 Darmstadt, Germany
Tel: +49 (0)6151 8257-0   Fax: +49 (0)6151 8257-799
www.telespazio-vega.de

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

AMENDMENT POLICY

This document shall be amended by releasing a new edition of the document in its entirety. The Amendment Record Sheet below records the history and issue status of this document.

Amendment Record Sheet

ISSUE	DATE	REASON
1.0	24 Jul 2012	DR0 data-package release
1.1	01 Oct 2012	DR0 data-package update and DR1 data-package release
1.2	18 Dec 2012	DR1 data-package update and DR2 data-package release
1.3	12 Feb 2013	Change of template
1.4	11 Mar 2013	Table 2-2: Added Auxiliary file size Section 10 and 11: At DR2 colocation was clarified that POD auxiliary data will be described in the POD PFS documentation. Section 10.1 and subsection in section 11 have been removed and reference to POD documentation will be added in section 11 when it will became available. DR2 RIDs implementation CDR RIDs implementation
1.5	30 Jan 2014	SLSTR L1 Thermal Infrared Characterisation Data File alignment SLSTR L1 continuity implementation
1.6	17 Feb 2014	Integration of SYNERGY auxiliary files InformationPackageMap update
1.7	05 March 2014	Update of the SYNERGY ADF InformationPackageMap clarification
1.8	15 May 2014	Update for OLCI Level 1, Level 2, SLSTR Level 2, SRAL Level 2 (SAMOSA) and BROWSE
1.9	23 July 2014	RID corrections and updates
1.10	13 October 2014	Minor updates and corrections
1.11	16 December 2014	MWR V3 update
1.12	10 February 2015	Reference update
	23 March 2015	Account for Agencies feedback
1.13	28 May 2015	Update relative to launch critical changes

Document Change Record

No.	Change in Issue	Description	Affected Section
1	1.1	S3IPF-5: - Reference and Version Number agreed Vega / ACRI - linked to S3IPF-114 – Header and footer changed after agreement Vega / ACRI	
2	1.1	S3IPF-6: NRT POD information is left as in the original on section 11 and section 2.2	2.2, 11
3	1.1	S3IPF-7 : Manifest is updated on section 3.1	3.1
4	1.1	S3IPF-8: Instances for AX___MAN when referring to AX___DEM are corrected (note that AX___MAN is a valid file type, but for ECMWF files)	
5	1.1	S3IPF-110: a list of files is agreed for the ICD (deliverable DI-6)	
6	1.1	S3IPF-111: AX__Man is corrected as per S3IPF-8	
7	1.1	S3IPF-144: document is returned to its original state in terms of total number of sections and files described; in particular POD information (section 11), etc. Note that track changes show those files that were deleted from the original (for instance section 8.11). The changes in this RID are also linked to S3IPF-145	e.g. 8.11
8	1.1	S3IPF-145: the RID updates the corrections S3IPF-144 so that the configuration files in section. Orbit files for L0 (which are the main Aux data for L0P) are included in section 4.13.	4.13
9	1.1	S3IPF-148: closed by clarification (no update needed)	

No.	Change in Issue	Description	Affected Section
10	1.1	S3IPF-156: former Table 4-1 has been changed (it has a new caption not available before). However, DEM files is indicated, and a clarification concerning OPT / ACE2 is included in any case.	
11	1.1	S3IPF-157: this is an action for DR1 to check possible combination of L1 masks: merging not addressed at this stage.	
12	1.1	S3IPF-158: the USO file (section 8.4) is further identified in the context of SALP	8.4
13	1.1	S3IPF-160: clarification on SALP documentation	
14	1.1	S3IPF-229: according the disposition, this is a typo on the CR1 OLCI to account for in the ADD L0	
15	1.2	S3IPF-158: USO DORIS file description is updated with information fromS3A-ID-M-00D12-CN S3_PDGS-SALP_ICD v0.2, section 8.2.1	8.2.1
16	1.2	S3IPF-327: manifest consolidated in Excel file (S3IPF.PDS.008 – i1r8)	
17	1.2	S3IPF-349: adding the description of the Processing Control Parameters (configuration files) in sections 8.2.3 and 8.3.7	8.2.3, 8.3.6
18	1.2	S3IPF-352 and S3IPF-380: adding of the POD service Orbit files (§8.1) and Platform files (§0) definition	8.1, 8.3
19	1.2	S3IPF-379: separation of the L1 and L2 auxiliary files: one section for the common files (§8.1), one section for the L1 files (§8.2) and one section for the L2 files (§0)	8.1, 8.2, 8.3
20	1.2	S3IPF-381 and S3IPF-437: document structure reviewed	

No.	Change in Issue	Description	Affected Section
21	1.2	S3IPF-382: section 4.4 remains in this version, but contents indicate the product is removed	4.4
22	1.2	S3IPF-412: TDI_switch removed	
23	1.2	S3IPF-436 and S3IPF-446: redundant information removed from the ICD and kept in ADFS	
24	1.2	S3IPF-443: list of AD/RD reviewed	
25	1.2	S3IPF-446: XML files description harmonized	
26	1.2	S3IPF-449: dependency with the instrument (actually it is done with the task name to add more flexibility) on L0 parameters	4.12
27	1.2	S3IPF-499: clarification on the binX	4.12
28	1.2	S3IPF-502: GCP DB ADF removed	
29	1.3	Change of template.	Entire document
30	1.4	Change of the Product Type of the MWR L1b Satellite Temperature Data	2.2.6
31	1.4	S3IPF-961: Clarification of the configuration parameters for the SRAL L1 LTM Update task	8.2.3
32	1.4	S3IPF-841: Adding the description of the format of the MWR L1 configuration file (processing parameters)	9.1
33	1.4	S3IPF-976/960/738/736: Description of the content of the Netcdf files in a tabular form as specified in the Product Structure Volume	8.2.2, 8.3.25, 8.3.34, 9.3, 9.5, 9.6
34	1.4	Adding the description of Orbit Files for the MWR processing	9.2
35	1.4	S3IPF-889: Adding the activation/deactivation flag in the Processing Control Parameters file of the SRAL L2 processing	10.3.6

No.	Change in Issue	Description	Affected Section
36	1.4	Adding of a processing parameter (spectrum oversampling factor) for ALT_CAL_PTR_08 algorithm	10.2.3.1
37	1.4	Adding of two processing parameters: one to be used by ALT_PHY_BAC_02 algorithm and the other to be used by ALT_PHY_BAC_03 algorithm	10.2.3.2
38	1.4	Removal of two processing parameters which are no more used in ALT_CAL_PTR_04 and ALT_CAL_PTR_05 algorithms	10.2.3.1
39	1.4	S3IPF-784: Adding the description of the Meteo Altimeter Gaussian Grid	10.3.7
40	1.4	S3IPF-1186: Precision regarding the fact that for the LTM files no specific Global Attributes are defined	10.2.2, 11.6
41	1.4	S3IPF-979: Re-organization of the processing control parameters of SRAL L2 processing per group of parameters	10.3.6
42	1.4	S3IPF-739/500/333/960: Adding the format description of the Characterization and Calibration Data Base (CCDB) for SRAL and MWR	10.1.6, 11.4
43	1.4	S3IPF-994: Removal of the TBC regarding the CF convention for the Netcdf files (set to 1.6)	8.2.2, 9.5, 9.6
44	1.4	Adding the description of the format of the Marine/Land mask	10.3.42
45	1.4	S3IPF-886: Introduction of Activation/Deactivation Flags in the PCP	8.3.6
46	1.4	11 March 2013	Table 2-2, section 10 and section 11
47	1.4	Missing reference for ECMWF to S3 PDGS ICD	Applicable documents section 1.3.1

No.	Change in Issue	Description	Affected Section
48	1.4	CDR RIDs implementation PDGS-163	2.2.1, 4.5, 4.6
49	1.4	S3IPF-842: PCP for SLSTR L2 to be removed if necessary	6.2.1
50	1.4	S3IPF-856: Include on more level in the TOC	TOC
51	1.4	S3IPF-863: Include AC switch in OLCI L2 PCP	5.2.1
52	1.4	S3IPF-824: browse PCP sub-sampling description updated	12.2.1.1
53	1.4	S3IPF-827: List of AD/RD updated	1.3
54	1.4	S3IPF-740 and 741: Section 10 and 11 removed: They will be documented as part of the POD documentation	10, 11
55	1.4	Unused file type AX___CN0_AX removed	4.12
56	1.5	Alignment of Thermal Infrared Characterisation Data File	Table 40
57	1.5	Change in PCP table for SLSTR L1 continuity:	Table 37
58	1.5	Calibration time dimention set to "views" for SLSTR L1 continuity:	Table 42
59	1.6	Integration of SYNERGY ADFs	2.2.4, 7
60	1.6	Update the informationPackageMap structure description	3.1.1.1
61	1.6	Introduce the new SYN distance map file	7.1.3
62	1.7	Update of the SYN ADFs	7.1
63	1.7	Clarify the informationPackageMap for annotation and measurement	Table 15 (action 14 from FAT V2.3)
64	1.8	Adding the SAMOSA Look-up Tables for SRAL/MWR L2 (3 tables)	2.2.5.3 8.3.39.1, 8.3.39.2, 8.3.39.3
65	1.8	S3IPF-1804: update the file extension of the NRT GNSS orbit file (SRAL L1 and L2)	2.2.5.1 8.1.1

No.	Change in Issue	Description	Affected Section
66	1.8	Update the SRAL/MWR L2 Configuration Data File (SAMOSA retracking Processing Control Parameters)	8.3.7
67	1.8	Correction of the Platform POD file type	8.3.1
68	1.8	OLCI L1 PCP: add new invalid_in_row_threshold variable	5.1.1
69	1.8	OLCI L1 INS and CAL ADFs: fix minor issues in several variables unit	5.1.5 and 5.1.6
70	1.8	OLCI L2 PPP: add new L_typ and sigma_typ variables	5.2.2
71	1.8	SLSTR L2 LST Coeffs, WV and Error ADFs: correction of typos in dimensions name and removing several wrong dimensions fixed values	6.2.14 and 6.2.17
72	1.8	SRAL/MWR L2 : Adding the NRT POD Platform file description	Table 11 and 8.3.1
73	1.8	SRAL/MWR L2 : Update the STC/NTC POD and SALP Platform file description	8.3.2 8.3.3
74	1.8	Addition and description of the SLSTR L2 PCP file	6.2.1
75	1.8	SLSTR L1 PCP : improvement and alignement with physical PCP file	6.1.1
76	1.8	S3IPF RID 1829 : update and correction of SYN L1 PCP	7.1.1
77	1.8	S3IPF RID 1226 : correction of the update frequency of OLCI calibration Data file	2.2.2.1
78	1.8	S3IPF RID 1851 : Correction of the update frequency of SLSTR Viscal file	2.2.3.1
79	1.8	Addition of Unpacking parameters in SYN L2 PCP file and addition of two parameter linked to cloud shadow algorithm	7.2.1

No.	Change in Issue	Description	Affected Section
80	1.8	Precision regarding the possible use of 3D-meteo data with a number of layers lower than the original one	4.2
81	1.9	S3IPF RID 2000: clarification on the use of the pitch and roll activation flag in the SR_2_CON processing control parameters file	8.3.7
82	1.9	FATDV2_A.6: update of the format description of the SALP and POD auxilidary data files	8.1.3, 8.1.4, 8.1.5, 8.3.1, 8.3.2, 8.3.3
83	1.9	Remove SLST_SW_SELECT from SYN L1 PCP	7.1.1
84	1.9	Add two missing groups in the SLSTR ancillary ADF	6.1.2
85	1.9	OLCI L2: fix minor issues/typos	5.2
86	1.9	SLSTR L1 cloud LUT updated	6.1.9
87	1.9	Update ECMWF frequency to 6 hours instead of 12	2.2.1, 4.2
88	1.10	SLSTR L2P SST Algorithms Data File: JIRA open point 1944: it was decided to manually include the missing ICE threshold	6.2.9
89	1.10	Correct the reference source for VISCAL	2.2.3.1
90	1.10	Replace suffix .EEF by .EOF for Orbit Scenario File (. S3PDGS-1707)	2.2.1
91	1.10	Adding reference_time in the LST_Water Vapour data file	6.2.17
92	1.10	Addition of the GeoTiff description tables	6.2.15
93	1.10	Addition of SLSTR reference document description	1.3.2
94	1.11	Update the MWR Characterization and Calibration Data Base (Table 147)	9.3
95	1.11	Correction of the unit of the inverted barometer coefficient (Processing control parameters for the Level 2 processing - Table 84)	8.3.7

No.	Change in Issue	Description	Affected Section
96	1.12	Reference update	1.3
97	1.12	Update the original file type of the OPT masks	2.2.1
98	1.12	Corrections linked to the updated nominal configuration : A and B stripe always processed instead of TDI	6.1.1
99	1.13	Update of the SLSTR Auxiliary Files with parameters associated with BB calibration	6.1.2

1. INTRODUCTION

1.1 Purpose and Scope

This document is aim to identify and specify the format of the Sentinel 3 Auxiliary Data Files.

The Product Data Format specifications have to be intended as living documents. They are based on instrument information supplied so far. Parameters and values given in these documents may change as the Instrument Processing Facilities (IPFs) become better defined.

Note: Even though some elements are present in the document, the SYNERGY ADF will be fully described in the next version of the document.

1.2 Structure of the Document

After this introduction, the document is divided into a number of major sections that are briefly described below:

<table>
<tr><th>Chapter Number</th><th>Title</th><th>Contents</th></tr>
<tr><td>1</td><td>INTRODUCTION</td><td>This section</td></tr>
<tr><td>2</td><td>S3 PDGS AUXILIARY DATA FILES</td><td>Provides the naming convention and summarizes the files in this document</td></tr>
<tr><td>3</td><td>S3 PDGS AUXILIARY DATA STRUCTURE</td><td>Includes the associated manifest for the auxiliary files (note that the IPFs do not write AUX files; only L0 products with own manifest described in own documentation) and the NetCDF conventions used throughout the document</td></tr>
<tr><td>4</td><td>COMMON AUXILIARY DATA FILES</td><td>Provides the detailed structure of auxiliary files common to all IPF</td></tr>
<tr><td>5</td><td>OLCI AUXILIARY DATA FILES</td><td rowspan="5">The sections to the left provide the detailed structure of auxiliary files grouped by sensor (one section per sensor and one subsection per sensor processing level): OLCI, SLSTR, SYN, SRAL and MWR</td></tr>
<tr><td>6</td><td>SLSTR AUXILIARY DATA FILES</td></tr>
<tr><td>7</td><td>SYN AUXILIARY DATA FILES</td></tr>
<tr><td>8</td><td>SRAL AUXILIARY DATA FILES</td></tr>
<tr><td>9</td><td>MWR AUXILIARY DATA FILES</td></tr>
<tr><td>10</td><td>BROWSE PROCESSING AUXILIARY DATA FILES</td><td>Provides the detailed structure of Browse processing auxiliary files</td></tr>
</table>

Table 1: Document Structure

1.3 Applicable and Reference Documents

1.3.1 Applicable documents

The following table lists the documents with a direct bearing on the content of this document.

ID	Document	Reference
AD- 1	Sentinel 3 PDGS File Naming Convention	EUM/LEO-SEN3/SPE/10/0070 GMES-S3GS-EOPG-TN-09-0009, i1r3, 07/11/2012
AD- 2	S-3 Core PDGS Implementation, Directory of Acronyms, Abbreviations and Definitions	S3PDGS.GLO.001, i5r1, 08/07/2014
AD- 3	Drivers for the S3 PDGS Processing Function Implementation	EUM/LEO-SEN3/TEN/09/0183, Issue 1G, 12/10/2013 GMES-GSEG-EOPG-TN-11-0062, i1r7, 27/06/2014
AD- 4	Sentinels FOS File Format Specifications	GM-IC-ESC-FS-3001, Issue 1.7, 28/03/2014
AD- 5	Sentinel3 PDGS <-> SALP ICD	S3A-ID-M-00012-CN, Issue 0.2, 27/09/2010
AD- 6	GMES Sentinels POD Service File Format Specification	GMES-GSEG-EOPG-FS-10-0075, Issue 1.2, 15/06/2011
AD- 7	Metadata Specification.xlsx	S3IPF.PDS.008, i3r0.6
AD- 8	GMES Sentinels - ECMWF to S3 PDGS ICD	GMES-GSEG-EOPG-IC-11-0049, Issue 2.1, 07/04/2014
AD- 9	Product Data Format Specification - Level 0	S3IPF.PDS.001, Issue 1.7, 10/02/2015
AD- 10	Product Data Format Specification - Product Structures	S3IPF.PDS.002, Issue 1.6, 10/02/2015
AD- 11	Product Data Format Specification – OLCI	S3IPF.PDS.004, Issue 1.9 10/02/2015
AD- 12	Product Data Format Specification – SLSTR	S3IPF.PDS.005, Issue 1.10, 10/02/2015
AD- 13	Product Data Format Specification – SYNERGY	S3IPF.PDS.006, Issue 1.5, 10/02/2015
AD- 14	Product Data Format Specification – SRAL-MWR	S3IPF.PDS.003, Issue 1.9, 10/02/2015
AD- 15	Sentinel-3 Mission Planning File Format Specifications IssueRevision	ES-GSEG-EOPG-TN-11-0007, Issue 1.5, 15/04/2014

1.3.2 Reference documents

The following reference documents contain information supporting this document.

ID	Document	Reference
RD- 1	CCSDS 661.0-B-0 XFDU structure and construction rules	Issue Sept. 2008
RD- 2	Standard Archive Format for Europe. Control Book. Volume 1. Core Specifications	PGSI-GSEG-EOPG-FS-05-0001, i1r7, 2 Mar. 2009
RD- 3	Earth Observation Mission CFI Software EO_DATA_HANDLING Software User Manual	EO-MA-DMS-GS-0007
RD- 4	Sentinel-3 Level 0, Level 1a/b/c Products Definition Part 2: Optical Products Volume 2: OLCI L0, L1b Products (SY-4)	S3-RS-ACR-SY-00004, Issue: i7r1, 23/07/2013
RD- 5	Sentinel-3 Level 0, Level 1a/b/c Products Definition Part 2: Optical Products Volume 2: SLSTR L0, L1b Products (SY-4)	S3-RS-RAL-SY-00003, Issue: i6r2, 23/08/2013
RD- 6	Level 0, Level 1 Products Definition Part 2 : Optical Products Volume 5: Common Auxiliary Data Files	S3-RS-ACR-SY-00002, Issue: i7r1, 21/08/2013
RD- 7	Sentinel-3 Optical products and Algorithm Definition: OLCI Level 2 Input Output Data Description	S3-L2-SD-08-C-ACR-IODD, Issue: i2r11 , 07/02/2014
RD- 8	Sentinel-3 Optical products and Algorithm Definition: SLSTR Level 2 Input Output Data Description	S3-L2-SD-08-T-RAL-IODD, Issue: i2r8 , 08/10/2012
RD- 9	Surface Topography Mission (STM) L2 SRAL/MWR Input Output Data Definition	S3PAD-RS-CLS-SD08-00018 Issue: i10r0, 07/12/2012

1.4 Terms, Definitions and Abbreviated Terms

Terms, Definitions and Abbreviated Terms are identified in [AD- 10].

1.5 Intellectual property rights for specific parts this document

ACRI-ST and CLS&CNES retains the intellectual property rights for those sections in this document that are specified in the list below. The content of these sections may only be reproduced in whole or in part, stored in a retrieval system, transmitted in any form, or by any means electronically, mechanically, or by photocopying, or otherwise, with the prior written permission of ACRI-ST and CLS&CNES.

Section	Copyright Owner	IPR/Document Reference
Section 5.1 and sub-sections	ACRI-ST	Document Title: Sentinel-3 Level 0, Level 1a/b/c Products Definition Part 2: Optical Products Volume 2: OLCI L0, L1b Products (SY-4) Document Reference: S3-RS-ACR-SY-00004 Issue: i7r1 Date: 23/07/2013
Section 4.7, 4.8, 4.9, 4.10 and sub-sections	ACRI-ST	Document Title: Level 0, Level 1 Products Definition Part 2 : Optical Products Volume 5: Common Auxiliary Data Files Document Reference: S3-RS-ACR-SY-00002 Issue: i7r1 Date: 21/08/2013
Section 5.2 and sub-sections	ACRI-ST	Document Title: Sentinel-3 Optical products and Algorithm Definition: OLCI Level 2 Input Output Data Description Document Reference: S3-L2-SD-08-C-ACR-IODD Issue: i2r11 Date: 07/02/2014
Section 8.1.7	CLS&CNES	Document Title: Surface Topography Mission (STM) L2 SRAL/MWR Input Output Data Definition Document Reference: S3PAD-RS-CLS-SD08-00018 Issue: i10.0 Date: 07/12/2012
Section 8.3 and sub-sections	CLS&CNES	Document Title: Surface Topography Mission (STM) L2 SRAL/MWR Input Output Data Definition Document Reference: S3PAD-RS-CLS-SD08-00018 Issue: i10.0 Date: 07/12/2012

2. S3 PDGS AUXILIARY DATA FILES

Auxiliary Data Files (ADFs) are used in the Sentinel-3 Instrument Processing Facilities to process, calibrate or improve the payload science data. The Auxiliary Data File can be either of static or dynamic nature, from sources either internal or external to the Sentinel-3 PDGS. This may include calibration data that is measured on board or generated from external sources other than the satellite,

2.1 Naming Convention

The names of the Auxiliary Data Files comply with the Sentinel-3 file naming convention [AD- 1].

2.2 S-3 Auxiliary Data Files List

Tables below provides the full list of Auxiliary Data Files used within the Sentinel-3 PDGS, divided per instrument.

The size are provided in MB.

2.2.1 Common Auxiliary Data Files List

Table 2 Common Auxiliary Data Files List

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
FOS Orbit File (Predicted)	L0, L1, L2	E	D	FOS	Daily	Data File in Earth Explorer Format containing both Header and Data Block information (.EOF) [GM-IC-ESC-FS-3001]	MPL_ORBPRE	**AX___FPO_AX**	0.01
FOS Orbit File (Restituted)	L0, L1, L2	E	D	FOS	Daily	Data File in Earth Explorer Format containing both Header and Data Block information (.EOF) [GM-IC-ESC-FS-3001]	MPL_ORBRES	**AX___FRO_AX**	1.7
ECMWF Meteorological Data (Forecast) FC SFC and FC PL	L1, L2	E	D	ECMWF	6 hours	GRIB-1 [GMES-GSEG-EOPG-IC-11-0049]	-	**AX___MF1_AX**	360
ECMWF meteo forecast data complementary to analysis data - FC SFC parameter	L1	E	D	ECMWF	6 hours	GRIB-1 [GMES-GSEG-EOPG-IC-11-0049]	-	**AX___MFA_AX**	50
ECMWF Meteorological Data (Analysis) AN SFC + PL	L1, L2	E	D	ECMWF	6 hours	GRIB-1 [GMES-GSEG-EOPG-IC-11-0049]	-	**AX___MA1_AX**	820
ECMWF Meteorological Data (Analysis) AN ML	L2	E	D	ECMWF	6 hours	GRIB-2 [GMES-GSEG-EOPG-IC-11-0049]	-	**AX___MA2_AX**	750

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
ECMWF Meteorological Data (Forecast) FC ML	L2	E	D	ECMWF	6 hours	GRIB-2 [GMES-GSEG-EOPG-IC-11-0049]	-	**AX___MF2_AX**	3000
Universal Constants File	L1, L2	I	S	PDGS (L1 GPP)	Infrequently	ASCII [GNSS IODD L0/L1b - SY-04/SY-21]	-	**AX___CST_AX**	0.01
Reference Orbit Scenario File	L0, L1, L2	E	D	Mission Planning	6 months	Data File composed of Fixed Header and Data Block included in a single file *. EOF and then tarred andcompressed as a *.TGZ [ES-GSEG-EOPG-TN-11-0007]	MPL_ORBSCT	**AX___OSF_AX**	0.03
Digital Elevation Model (GETASSE30V2, composed of a set of 288 files at 30 seconds resolution)	L1	I	S	PDGS (delivered with L1 O-GPP) http://corp.array.ca/nest-web/help/visat/GETASSE30ElevationModel.html	Infrequently	Binary	-	**AX___DEM_AX**	6.3 MB / file
Land/Water Mask File	L1	I	S	PDGS (delivered with L1 O-GPP)	Infrequently	*GeoTIFF containing 129600 x 64800 pixels, using one bit per pixel (set to 1 when flag is raised, 0 otherwise), in equidistant latitude/longitude projection thus 0.00277 deg per pixel*	land_water_bitmask_geo.tif	**AX___LWM_AX**	20
Open Ocean Mask File	L1	I	S	PDGS (delivered with L1 O-GPP)	Infrequently		open_ocean_bitmask_geo.tif	**AX___OOM_AX**	8.5
Coastline Mask File	L1	I	S	PDGS (delivered with L1 O-GPP)	Infrequently		coastline_bitmask_geo.tif	**AX___CLM_AX**	8.5
Tidal Regions Mask File	L1	I	S	PDGS (delivered with L1 O-GPP)	Infrequently		tidal_regions_bitmask_geo.tif	**AX___TRM_AX**	5.8

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
IERS Bulletin B	L0, L1	E	D	IERS	Monthly	ASCII	bulletinb.xxx where xxx is the bulletin B number. The file is in ASCII format	**AX___BB2_AX**	0.018

2.2.2 OLCI Auxiliary Data Files List

2.2.2.1 OLCI Level 1 Auxiliary Data Files List

Table 3 OLCI Level 1 Auxiliary Data Files List

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
Processing Control Parameter file for EO mode	L1	I	S	IPF Consortium (OLCI L1P TDS)	Infrequently	NetCDF4	1_AX_1EO	**OL_1_EO__AX**	0.04
Processing Control Parameter file for RC mode	L1	I	S	IPF Consortium (OLCI L1P TDS)	Infrequently	NetCDF4	1_AX_1RAC	**OL_1_RAC_AX**	0.02
Processing Control Parameter file for SC mode	L1	I	S	IPF Consortium (OLCI L1P TDS)	Infrequently	NetCDF4	1_AX_1SPC	**OL_1_SPC_AX**	0.02
Classification Thresholds LUTs Data File	L1	I	S	derived from the OLCI CCDB before the launch and then update by ESL	Infrequently	NetCDF4	1_AX_CLUT	**OL_1_CLUTAX**	0.04
Characterisation and Models Data File	L1	I	S	derived from the OLCI CCDB before the launch and then update by ESL	Infrequently	NetCDF4	1_AX_CHAR	**OL_1_INS_AX**	430
Calibration Data File	L1	I	D	derived from the OLCI CCDB before the launch and then update by ESL	Infrequently	NetCDF4	1_AX_CALI	**OL_1_CAL_AX**	1
Programmation Data File	L1	I	S	derived from the OLCI CCDB before the launch and then update by ESL	Infrequently	NetCDF4	1_AX_PROG	**OL_1_PRG_AX**	0.05

2.2.2.2 OLCI Level 2 Auxiliary Data Files List

Table 4 OLCI Level 2 Auxiliary Data Files List

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
Processing Control Parameter File	L2	I	S	IPF Consortium (OLCI L2P TDS)	Infrequently	NetCDF4	OL_2_PCP_AX	**OL_2_PCP_AX**	0.01
Pre-Processing Data File	L2	I	S	L2 O-PAD TDS	Infrequently	NetCDF4	OL_2_PPP_AX	**OL_2_PPP_AX**	3.7
Water Vapour Data File	L2	I	S	L2 O-PAD TDS	Infrequently	NetCDF4	OL_2_WVP_AX	**OL_2_WVP_AX**	74.5
Atmospheric Correction Data File	L2	I	S	L2 O-PAD TDS	Infrequently	NetCDF4	OL_2_ACP_AX	**OL_2_ACP_AX**	364.8
Ocean Colour Data File	L2	I	S	L2 O-PAD TDS	Infrequently	NetCDF4	OL_2_OCP_AX	**OL_2_OCP_AX**	2.2
Vegetation Data File	L2	I	S	L2 O-PAD TDS	Infrequently	NetCDF4	OL_2_VGP_AX	**OL_2_VGP_AX**	0.02
Climatology Data File	L2	I	S	L2 O-PAD TDS	Infrequently	NetCDF4	-	**OL_2_CLP_AX**	100

2.2.3 SLSTR Auxiliary Data Files List

2.2.3.1 SLSTR Level 1 Auxiliary Data Files List

Table 5 SLSTR Level 1 Auxiliary Data Files List

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
Processing Control Parameter File	L1	I	S	IPF Consoritum (SLSTR L1P TDS)	Infrequently	XML	SL_1_PCP_AX	**SL_1_PCP_AX**	0.05
Ancillary Data File	L1	I	S	SCCDB	Infrequently	NetCDF4		**SL_1_ANC_AX**	0.2

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
Thermal Infrared Characterisation Data File	L1	I	S	SCCDB	Infrequently	10 files in NetCDF4 format		**SL_1_N_S7AX SL_1_N_S8AX SL_1_N_S9AX SL_1_N_F1AX SL_1_N_F2AX SL_1_O_S7AX SL_1_O_S8AX SL_1_O_S9AX SL_1_O_F1AX SL_1_O_F2AX**	0.04 MB / file
Visible and Shortwave Infrared Characterisation Data File	L1	I	S	SCCDB	Infrequently	18 files in NetCDF4 format		**SL_1_N_S1AX SL_1_N_S2AX SL_1_N_S3AX SL_1_O_S1AX SL_1_O_S2AX SL_1_O_S3AX SL_1_NAS4AX SL_1_NAS5AX SL_1_NAS6AX SL_1_NBS4AX SL_1_NBS5AX SL_1_NBS6AX SL_1_OAS4AX SL_1_OAS5AX SL_1_OAS6AX SL_1_OBS4AX SL_1_OBS5AX SL_1_OBS6AX**	0.03 MB / file
VISCAL Data File	L1	I	D	SLSTR L1 IPF	Every Orbit	NetCDF4		**SL_1_VSC_AX**	2.3
Vicarious Calibration Data File	L1	I	D	derived from the SCCDB before the launch	Infrequently	NetCDF4		**SL_1_VIC_AX**	13
Geometry Data File	L1	I	S	derived from the SCCDB before the launch	Infrequently	NetCDF4		**SL_1_GEO_AX**	80

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
Geometric Calibration Data File	L1	I	S	derived from the SCCDB before the launch	Infrequently	NetCDF4		**SL_1_GEC_AX**	0.44
Cloud LUT Data File	L1	I	S	PDGS (delivered with L1 O-GPP)	Infrequently	NetCDF4		**SL_1_CLO_AX**	0.08

2.2.3.2 SLSTR Level 2 Auxiliary Data Files List

Table 6 SLSTR Level 2 Auxiliary Data Files List

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
Processing Control Parameter File	L2	I	S	IPF Consoritum (SLSTR L2P TDS	Infrequently	XML		**SL_2_PCP_AX**	0.02
S6 Nadir Shortwave Infrared Noise Data File	L2	I	S	PDGS (delivered with L2 PAD)	Infrequently	NetCDF4		**SL_2_S6N_AX**	0.032
Thermal Infrared (TIR) Noise Data File	L2	I	S	PDGS (delivered with L2 PAD)	Infrequently	NetCDF4		**SL_2_S7N_AX** **SL_2_S8N_AX** **SL_2_S9N_AX** **SL_2_F1N_AX** **SL_2_F2N_AX** **SL_2_S7O_AX** **SL_2_S8O_AX** **SL_2_S9O_AX**	0.032 MB / file
N2 SST Coefficients Data File	L2	I	S	PDGS (delivered with L2 PAD)	Infrequently	NetCDF4		**SL_2_N2_CAX**	0.024
N3R SST Coefficients Data File	L2	I	S	PDGS (delivered with L2 PAD)	Infrequently	NetCDF4		**SL_2_N3RCAX**	0.024
N3 SST Coefficients Data File	L2	I	S	PDGS (delivered with L2 PAD)	Infrequently	NetCDF4		**SL_2_N3_CAX**	0.024
D2 SST Coefficients Data File	L2	I	S	PDGS (delivered with L2 PAD)	Infrequently	NetCDF4		**SL_2_D2_CAX**	0.088

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
D3 SST Coefficients Data File	L2	I	S	PDGS (delivered with L2 PAD)	Infrequently	NetCDF4		**SL_2_D3_CAX**	0.112
L2P SST Algorithms Data File	L2	I	S	PDGS (delivered with L2 PAD)	Infrequently	NetCDF4		**SL_2_SST_AX**	0.016
SDI3 Saharan Dust Index Coefficients Data File	L2	I	S	PDGS (delivered with L2 PAD)	Infrequently	NetCDF4		**SL_2_SDI3AX**	0.016
SDI2 Saharan Dust Index Coefficients Data File	L2	I	S	PDGS (delivered with L2 PAD)	Infrequently	NetCDF4		**SL_2_SDI2AX**	0.016
L2P SSES Data File	L2	I	D	PDGS (delivered with L2 PAD)	6 months	NetCDF4		**SL_2_SSESAX**	0.016
L4 SST Analysis Data File	L2	E	D	MetOffice	daily	NetCDF4		**SL_2_SSTAAX**	29
LST Coefficients Data File	L2	I	S	PDGS (delivered with L2 PAD)	Infrequently	NetCDF4		**SL_2_LSTCAX**	0.016
LST Biome Data File	L2	I	S	PDGS (delivered with L2 PAD)	Infrequently	*GeoTIFF tiled containing a two-dimensional array, using one byte per pixel in a regular equidistant latitude/longitude projection*		**SL_2_LSTBAX**	80
LST Vegetation Fraction Data File	L2	I	S	PDGS (delivered with L2 PAD)	Infrequently	TIFF		**SL_2_LSTVAX**	850
LST Water Vapour Data File	L2	I	S	PDGS (delivered with L2 PAD)	Infrequently	NetCDF4		**SL_2_LSTWAX**	16
LST Error Data File	L2	I	S	PDGS (delivered with L2 PAD)	Infrequently	NetCDF4		**SL_2_LSTEAX**	0.008
FRP Test Data File	L2	I	S	PDGS (delivered with L2 PAD)	Infrequently	XML		**SL_2_FRPTAX**	0.008
S7 Thermal Infrared (TIR) Characterisation Data File	L2	I	S	PDGS (delivered with L2 PAD)	Infrequently	NetCDF4		**SL_1_N_S7AX**	0.04
F1 Thermal Infrared (TIR) Characterisation Data File	L2	I	S	PDGS (delivered with L2 PAD)	Infrequently	NetCDF4		**SL_1_N_F1AX**	0.04

2.2.4 SYN Auxiliary Data Files List

2.2.4.1 SYN Level 1 Auxiliary Data Files List

Table 7 SYN Level 1 Auxiliary Data Files List

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
Processing Control Parameter File	L1	I	S	IPF consortium (SYN IPF TDS)	Infrequently	XML	SY_1_PCP_AX	**SY_1_PCP_AX**	0.03
Ground control Points Data Base	L1	I	S	PDGS (delivered with O-GPP)	Infrequently	NetCDF4	1_AX_TPDB	**SY_1_GCPBAX**	0.2
OLCI Inter-channel Misregistration Characterization Data File	L1	I	S	SCCDB	Infrequently	NetCDF4	1_AX_OLIC	**OL_1_MCHDAX**	0.4
SLSTR Inter-channel Misregistration Characterization Data File	L1	I	S	SCCDB	Infrequently	NetCDF4	1_AX_SLIC	**SL_1_MCHDAX**	1.3
Map file of the distance to the coast	L1	I	S	ESA	Infrequently	geotiff	-	**SY_1_CDIBAX**	16 800

2.2.4.2 SYN Level 2 Auxiliary Data Files List

Table 8 SYN Level 2 Auxiliary Data Files List

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
Processing Control Parameter File SYN L2	L2	I	S	IPF consortium (SYN IPF TDS)	Infrequently	XML	SY_2_SYCPAX	**SY_2_PCP_AX**	0.03
SYN L2 Radiative Transfer Simulation Data File	L2	I	S	IPF consortium (SYN IPF TDS)	Infrequently	NetCDF4	SY_2_SYRTAX	**SY_2_RAD_AX**	135
VGT P radiative Transfer Simulation Data File	L2	I	S	IPF consortium (SYN IPF TDS)	Infrequently	NetCDF4	SY_2_VPRTAX	**SY_2_RADPAX**	50

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
VGT P Spectral Response Function Data File	L2	I	S	IPF consortium (SYN IPF TDS)	Infrequently	NetCDF4	SY_2_VPSRAX	**SY_2_SPCPAX**	0.032
VGT S Radiative Transfer Simulation Data File	L2	I	S	IPF consortium (SYN IPF TDS)	Infrequently	NetCDF4	SY_2_VSRTAX	**SY_2_RADSAX**	21
Processing control parameter file VGT-S	L2	I	S	IPF consortium (SYN IPF TDS)	Infrequently	NetCDF4	SY_2_VSCPAX	**SY_2_PCPSAX**	0.008

2.2.5 SRAL Auxiliary Data Files List

2.2.5.1 SRAL Common Levels 1 and 2 Auxiliary Data Files List

Table 9 SRAL Common Levels 1 and 2 Auxiliary Data Files List

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
NRT GNSS Restituted Orbit File (POD)	L1, L2	I	D	NRT POD	Daily (1 per orbit)	Data file formed by a single file (*.EOF) containing both the Header and the Datablock Sections [GMES-GSEG-EOPG-FS-10-0075]	SR___ROE_AX	**SR___ROE_AX**	0.8
Medium Orbit Ephemerides (MOE) Orbit File	L1, L2	E	D	POD	Daily	GMES-GSEG-EOPG-FS-10-0075	AUX_MOEORB	**SR___MGNPAX**	5
STC Preliminary Orbit File (SALP)	L1, L2	E	D	SALP	Daily	Data file consists of one unique file, with the extension .EEF [S3A-ID-M-00012-CN]	SR___MDO_AX	**SR___MDO_AX**	0.16

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
NTC Precise Orbit File (POD)	L1, L2	E	D	POD	(n+1) 26-hours files per n-days (sub) cycle, 20 days after data acquisition	[GMES-GSEG-EOPG-FS-10-0075]	AUX_POEORB	**SR___POEPAX**	0.8
NTC Precise Orbit File (SALP)	L1, L2	E	D	SALP	Weekly (7 files are transferred to the PDGS once per week), 30 days after data acquisition.	Data file consists of one unique file, with the extension .EEF [S3A-ID-M-00012-CN]	SR___POE_AX	**SR___POESAX**	0.8
Instrumental Characterization Data (2 files): • nominal path • redundant path	L1, L2	I	D	CCDB	Infrequently	[S3-DA-CCDB-19-03-2102]		**SR___CHDNAX** **SR___CHDRAX**	0.160
Land/Sea Mask	L1, L2	I	S	PDGS (L2 PAD)	Infrequently	Binary File [S3-IF-CLS-SY-00006] [S3PAD-RS-CLS-SD08-00018]	AX___LSM_AX	**SR___LSM_AX**	56

2.2.5.2 SRAL Level 1 Auxiliary Data Files List

Table 10 SRAL Level 1 Auxiliary Data Files List

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
USO frequency (SALP)	L1	E	D	SALP	Daily	Data file is composed of an XML header (.HDR) and a Data Block File (.DBL). Each product shall be compacted in one unique file with the extension .TGZ [S3A-ID-M-00012-CN]	SR_1_USO_AX	**SR_1_USO_AX**	Variable (see section 8.2.1)

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
Internal calibration Long Term Monitoring Parameters (4 files): • CAL1_LRM_LTM • CAL1_SAR_LTM • CAL2_Ku_LTM • CAL2_C_LTM	L1	I	D	SRAL L1 CAL IPF	Daily	netCDF		**SR_1_CA1LAX** **SR_1_CA1SAX** **SR_1_CA2KAX** **SR_1_CA2CAX**	0.05
Configuration Data File (2 files: one for the CAL, one for the MEAS)	L1	I	S	PDGS (L1 GPP)	Infrequently	XML		**SR_1_CONCAX** **SR_1_CONMAX**	0.008

2.2.5.3 SRAL Level 2 Auxiliary Data Files List

Table 11 SRAL Level 2 Auxiliary Data Files List

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
NRT Platform File	L2	E	D	POD	Near Real-time files = once for each GNSS and NAVATT Level0 data dump (supporting the generation of SRAL STC Mission products)	GMES-GSEG-EOPG-FS-10-0075	SR_2_NRPPAX	**SR_2_NRPPAX**	< 0.065
Preliminary Platform File	L2	E	D	POD	Predicted files = once per day (supporting the generation of SRAL STC Mission products)	GMES-GSEG-EOPG-FS-10-0075	AUX_PRLPTF	**SR_2_PMPPAX**	0.065

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
Precise Platform File	L2	E	D	POD	Restituted files = within 20 days after data acquisition (supporting the generation of SRAL NTC Mission products)	GMES-GSEG-EOPG-FS-10-0075	AUX_PRCPTF	**SR_2_PCPPAX**	0.065
Preliminary Platform File	L2	E	D	SALP	Predicted files = once per day (supporting the generation of SRAL NRT/STC Mission products)	Data file is composed of an XML header (.HDR) and a Data Block File (.DBL). Each product shall be compacted in one unique file with the extension .TGZ [S3A-ID-M-00012-CN]	SR_2_PMP_AX	**SR_2_PMPSAX**	0.065
Precise Platform File	L2	E	D	SALP	Restituted files = within 20 days after data acquisition (supporting the generation of SRAL NTC Mission products)	Data file is composed of an XML header (.HDR) and a Data Block File (.DBL). Each product shall be compacted in one unique file with the extension .TGZ [S3A-ID-M-00012-CN]	SR_2_PCP_AX	**SR_2_PCPSAX**	0.065
Preliminary Ocean Barotropic Correction - MOG2D Data (SALP)	L2	E	D	SALP	Twice a day (3 files at 08:00 UTC and 1 file at 20:00 UTC)	Data file is composed of an XML header (.HDR) and a Data Block File (.DBL). Each product shall be compacted in one unique file with the extension .TGZ [S3A-ID-M-00012-CN]	SR_2_RMO_AX	**SR_2_RMO_AX**	2

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
Precise Ocean Barotropic Correction - MOG2D Data (SALP)	L2	E	D	SALP	Twice a day (3 files at 08:00 UTC and 1 file at 20:00 UTC)	Data file is composed of an XML header (.HDR) and a Data Block File (.DBL). Each product shall be compacted in one unique file with the extension .TGZ [S3A-ID-M-00012-CN]	SR_2_PMO_AX	**SR_2_PMO_AX**	2
Pole Location (SALP)	L2	E	D	SALP	generated twice a week	Data file is composed of an XML header (.HDR) and a Data Block File (.DBL). Each product shall be compacted in one unique file with the extension .TGZ [S3A-ID-M-00012-CN]	SR_2_POL_AX	**SR_2_POL_AX**	Variable (see section 8.3.4)
Along-track Ionospheric Data (GIM) for NRT processing	L2	E	D	SALP	Daily	Data file is composed of an XML header (.HDR) and a Data Block File (.DBL). Each product shall be compacted in one unique file with the extension .TGZ [S3A-ID-M-00012-CN]	SR_2_PGI_AX	**SR_2_PGI_AX**	0.350
Along-track Ionospheric Data (GIM) for STC and NTC processing	L2	E	D	SALP	Daily	Data file is composed of an XML header (.HDR) and a Data Block File (.DBL). Each product shall be compacted in one unique file with the extension .TGZ [S3A-ID-M-00012-CN]	SR_2_RGI_AX	**SR_2_RGI_AX**	0.350
Configuration Data File	L2	I	S	PDGS (L2 PAD)	Infrequently	XML	SR_2_CON_AX	**SR_2_CON_AX**	0.08
Meteo Altimeter Gaussian Grid	L2	I	S	PDGS (L2 PAD)	Infrequently	ASCII	SR_2_MAG_AX	**SR_2_MAG_AX**	62

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
Sea-Ice Concentration	L2	E	D	UCL/MSSL	Daily	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	SR_2_SIC_AX	**SR_2_SIC_AX**	64
Modelled Instrumental Corrections (10 files)	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___IC01AX AX___IC02AX AX___IC03AX AX___IC04AX AX___IC05AX AX___IC06AX AX___IC07AX AX___IC08AX AX___IC09AX AX___IC10AX	**SR_2_IC01AX** **SR_2_IC02AX** **SR_2_IC03AX** **SR_2_IC04AX** **SR_2_IC05AX** **SR_2_IC06AX** **SR_2_IC07AX** **SR_2_IC08AX** **SR_2_IC09AX** **SR_2_IC10AX**	0.012 MB / file
Coefficients map for the diurnal and semi-diurnal elastic ocean tide calculation	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___EOT1AX AX___EOT2AX	**SR_2_EOT1AX** **SR_2_EOT2AX**	20 349
Coefficients map for the tidal loading effect calculation	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___LT1_AX AX___LT2_AX	**SR_2_LT1_AX** **SR_2_LT2_AX**	10 175
Coefficients map for long period ocean tide calculation	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___LNEQAX	**SR_2_LNEQAX**	127
Mean sea surface height map (Solution 1)	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___MSS1AX	**SR_2_MSS1AX**	445
Mean sea surface height map (Solution 2)	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___MSS2AX	**SR_2_MSS2AX**	890
Geoid height map	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___GEO_AX	**SR_2_GEO_AX**	36
Bathymetry/topography map	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___ODLEAX	**SR_2_ODLEAX**	1 800
Wind table LRM mode	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___WNDLAX	**SR_2_WNDLAX**	0.004
Wind table SAR mode	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___WNDSAX	**SR_2_WNDSAX**	0.004

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
Expected Ku-band Sigma0 table (LRM)	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___SIGLAX	**SR_2_SIGLAX**	0.016
Expected Ku-band Sigma0 table (SAR)	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___SIGSAX	**SR_2_SIGSAX**	0.016
Cartwright and Edden tide potential amplitudes for the solid earth tide and the equilibrium long period ocean tide height calculation	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___SET_AX	**SR_2_SET_AX**	0.016
Surface slopes models	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___SSM_AX	**SR_2_SSM_AX**	18
Map of the slopes of the MSS/geoid with respect to the ellipsoid	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___MSMGAX	**SR_2_MSMGAX**	445
Climatological pressure grids (4 files)	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___CP00AX AX___CP06AX AX___CP12AX AX___CP18AX	**SR_2_CP00AX** **SR_2_CP06AX** **SR_2_CP12AX** **SR_2_CP18AX**	24 MB / file
S1 and S2 tide grids of monthly means of global amplitude (2 files)	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___S1AMAX AX___S2AMAX	**SR_2_S1AMAX** **SR_2_S2AMAX**	2.4 MB / file
S1 and S2 tide grids of monthly means of global phase (2 files)	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___S1PHAX AX___S2PHAX	**SR_2_S1PHAX** **SR_2_S2PHAX**	2.4 MB / file
Mean Dynamic Topography height map	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___MDT_AX	**SR_2_MDT_AX**	8
Theoretical distance to shore	L2	I	S	PDGS (L2 PAD)	Infrequently	NetCDF [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___SHDIAX	**SR_2_SHD_AX**	64
SSB correction table (LRM)	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___SSBLAX	**SR_2_SSBLAX**	0.036
SSB correction table (SAR)	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___SSBSAX	**SR_2_SSBSAX**	0.036

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
Snow depth climatology (12 files containing gridded snow depth: one for each calendar month of the year)	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___SD01AX AX___SD02AX AX___SD03AX AX___SD04AX AX___SD05AX AX___SD06AX AX___SD07AX AX___SD08AX AX___SD09AX AX___SD10AX AX___SD11AX AX___SD12AX	**SR_2_SD01AX** **SR_2_SD02AX** **SR_2_SD03AX** **SR_2_SD04AX** **SR_2_SD05AX** **SR_2_SD06AX** **SR_2_SD07AX** **SR_2_SD08AX** **SR_2_SD09AX** **SR_2_SD10AX** **SR_2_SD11AX** **SR_2_SD12AX**	64 MB / file
Sea-ice concentration climatology (12 files, monthly medium ice concentration)	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___SI01AX AX___SI02AX AX___SI03AX AX___SI04AX AX___SI05AX AX___SI06AX AX___SI07AX AX___SI08AX AX___SI09AX AX___SI10AX AX___SI11AX AX___SI12AX	**SR_2_SI01AX** **SR_2_SI02AX** **SR_2_SI03AX** **SR_2_SI04AX** **SR_2_SI05AX** **SR_2_SI06AX** **SR_2_SI07AX** **SR_2_SI08AX** **SR_2_SI09AX** **SR_2_SI10AX** **SR_2_SI11AX** **SR_2_SI12AX**	64 MB / file
Sea surface temperature seasonal tables	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___SSTSAX	**SR_2_SST_AX**	0.175
Lapse rate climatology table	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___LRCTAX	**SR_2_LRC_AX**	0.172
Seasonal freezing level table	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___SFLTAX	**SR_2_SFL_AX**	0.068
Freezing level table	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___FLT_AX	**SR_2_FLT_AX**	0.088
Rain rate correction table	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___RRC_AX	**SR_2_RRC_AX**	0.016

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
Coastal configuration type	L2	I	S	PDGS (L2 PAD)	Infrequently	NetCDF [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___CCT_AX	**SR_2_CCT_AX**	1 600
Surface classification mask	L2	I	S	PDGS (L2 PAD)	Infrequently	Binary [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___SURFAX	**SR_2_SURFAX**	890
Default_stack weights	L2	I	S	PDGS (L2 PAD)	Infrequently	ASCII [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___RET_AX	**SR_2_RET_AX**	0.360
Look-up Table for the f0 function (SAMOSA retracking)	L2	I	S	PDGS (L2 PAD)	Infrequently	ASCII [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___LUTFAX	**SR_2_LUTFAX**	4.6
Look-up Table for the Epoch parameter (SAMOSA retracking)	L2	I	S	PDGS (L2 PAD)	Infrequently	ASCII [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___LUTEAX	**SR_2_LUTEAX**	0.166
Look-up Table for the SWH parameter (SAMOSA retracking)	L2	I	S	PDGS (L2 PAD)	Infrequently	ASCII [L2 IODD S3PAD-RS-CLS-SD08-00018]	AX___LUTSAX	**SR_2_LUTSAX**	0.166
Land and Marine masks	L2	I	S	ESA/IPF Consortium (SRAL L2 IPF TDS)	Infrequently	netcdf	SR_2_MLM_AX	**SR_2_MLM_AX**	10

2.2.6 MWR Auxiliary Data Files List

Table 12 MWR Auxiliary Data Files List

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
Side Lobe correction file	L1	I	S	PDGS (L1 GPP)	Infrequently	NetCDF	MW_1_SLC_AX	**MW_1_SLC_AX**	3.6
Instrumental characterization and calibration data (2 files): • nominal path • redundant path	L1, L2	I	S	CCDB	Infrequently	NetCDF [MMWR &SRAL CCDB S3-DA-CCDB-19-03-2010]	-	**MW___CHDNAX** **MW___CHDRAX**	1.1 MB / file
Satellite Temperature data file	L1	I	S	PDGS (L1 GPP)	Infrequently	NetCDF	MW___STD_AX	**MW___STD_AX**	0.144

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
Internal calibration and Monitoring Long Term Monitoring parameters (3 files): • MWR_CAL_NIR_LTM • MWR_CAL_DNB_LTM • MWR_MON_LTM	L1	I	D	MWR L1 CAL IPF	Daily	NetCDF	MW_1_NIR_AX MW_1_DNB_AX MW_1_MON_AX	**MW_1_NIR_AX** **MW_1_DNB_AX** **MW_1_MON_AX**	Variable (see section 9.5)

2.2.7 Browse Processing Auxiliary Data Files List

Table 13 Browse Processing Auxiliary Data Files List

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
OLCI Level 1 Browse Processing Control Parameter File	L1	I	S	IPF Consortium (BW TDS)	Infrequently	XML	OL_1_PCPBAX	**OL_1_PCPBAX**	0.008
SLSTR Level 1 Browse Processing Control Parameter File	L1	I	S	IPF Consortium (BW TDS)	Infrequently	XML	SL_1_PCPBAX	**SL_1_PCPBAX**	0.008
SLSTR Level 1 Browse Processing Palette Auxiliary File	L1	I	S	IPF Consortium (BW TDS)	Infrequently	ASCII	SL_1_PLTBAX	**SL_1_PLTBAX**	0.008
OLCI Level 2 Browse Processing Control Parameter File	L2	I	S	IPF Consortium (BW TDS)	Infrequently	XML	OL_2_PCPBAX	**OL_2_PCPBAX**	0.008
OLCI Level 2 Browse Processing Palette Auxiliary File	L2	I	S	IPF Consortium (BW TDS)	Infrequently	ASCII	OL_2_PLTBAX	**OL_2_PLTBAX**	0.008
SLSTR Level 2 Browse Processing Control Parameter File	L2	I	S	IPF Consortium (BW TDS)	Infrequently	XML	SL_2_PCPBAX	**SL_2_PCPBAX**	0.008
SLSTR Level 2 Browse Processing Palette Auxiliary File	L2	I	S	IPF Consortium (BW TDS)	Infrequently	ASCII	SL_2_PLTBAX	**SL_2_PLTBAX**	0.008
SYN Level 2 Browse Processing Control Parameter File	L2	I	S	IPF Consortium (BW TDS)	Infrequently	XML	SY_2_PCPBAX	**SY_2_PCPBAX**	0.008

File	Proc. Level	Internal/ External	Static/ Dynamic	Reference Source	Generation Frequency	Format	Product Type Original	Product Type PDGS	Auxiliary Data Size
SYN Level 2 Browse Processing Palette Auxiliary File	L2	I	S	IPF Consortium (BW TDS)	Infrequently	ASCII	SY_2_PLTBAX	**SY_2_PLTBAX**	0.008
SYN VGT-P Level 2 Browse Processing Control Parameter File	L2	I	S	IPF Consortium (BW TDS)	Infrequently	XML	SY_2_CVPBAX	**SY_2_CVPBAX**	0.008
SYN VGT-P Level 2 Browse Processing Palette Auxiliary File	L2	I	S	IPF Consortium (BW TDS)	Infrequently	ASCII	SY_2_PVPBAX	**SY_2_PVPBAX**	0.008
SYN VGT-S Level 2 Browse Processing Control Parameter File	L2	I	S	IPF Consortium (BW TDS)	Infrequently	XML	SY_2_CVSBAX	**SY_2_CVSBAX**	0.008
SYN VGT-S Level 2 Browse Processing Palette Auxiliary File	L2	I	S	IPF Consortium (BW TDS)	Infrequently	ASCII	SY_2_PVSBAX	**SY_2_PVSBAX**	0.008

3. S3 PDGS AUXILIARY DATA STRUCTURE

Auxiliary Data Files follow the same format guidelines as the PDGS Products. Every Auxiliary Data file includes a Manifest and a Measurement Data File. The manifest follows the standard manifest structure of the S3 product as described in [AD- 7 and AD- 10].

Auxiliary data which originates outside the PDGS will be converted to the S3 Format by the ADC Component upon entry into the PDGS, just adding a Manifest and filling the relevant fields. The manifest file includes a Data Object Section pointing to the original auxiliary file received from the External Provider. The original file is kept as received.
Mapping of the auxiliary files with their original format is given in and described starting from section 4.

3.1 Manifest

The structure of the Manifest used for Auxiliary Data Files is the same as that used for products [AD- 10]. The Metadata section, and in particular the Wrapped Metadata is as shown in the following table. For auxiliary data which originates from the satellite, all the metadata fields will be relevant. For auxiliary data which does not originate from the satellite, some sections of the Manifest will not be relevant, and fields not pertinent will be blanked or set to zero (depending on the field type).

*< Complete primary metadata is described in details in [*AD- 7*].*
The content of this table will be embedded in the document when it will be finalize>

Table 14 S-3 PDGS Auxiliary Data Files – Manifest

3.1.1 Manifest File Description

The purpose of this section is to describe in detail all the data sets that are included with any of the Sentinel-3 Auxiliary data. Most of the description are common to the products and are therefore described in [AD-3].

3.1.1.1 InformationPackageMap

The Information Package Map associated to the Auxiliary data file is reported in the next table.

Name				Description	Data Type	Value	Occ.
contentUnit				The information package map contains one content unit that includes the product data component included in the product.	Content Unit Type		1
	ID			Content unit identifier	S	'packageUnit'	1
	unitType			Describes the type of data referenced by this content unit	S	‘Information Package’	0..1
	textInfo			Textual description of the content unit	S	‘SENTINEL-3 ADF Package’	0..1

Name				Description	Data Type	Value	Occ.
	pdiID			Identifier of the Preservation Description;Information applicable to this content unit	S	‘processing’	1
	dmdID			Identifier of the Metadata applicable to this content unit	S	In any order : ‘qualityInformation" ‘generalProductInformation’ ‘processing’	1
	contentUnit						1…
		ID		Object identifier	S	'ADFUnit'**	1
		unitType		Describes the type of data referenced by this object	S	‘Measurement Data Unit’ or 'Annotation Data Unit' *	1
		textInfo		Object description text	S	‘Description of the object´	0..1
		dmdID		Attribute: Description Metadata Identifier	S		0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObje ctID	Data Object element ID	S	'ADFData'**	1

Table 15 Information Package Map structure for ADF

<u>* Unit type</u>

Use of annotation or measurement depends on the type of ADF – static (annotation) or dynamic ie generated or updated by the IPF (measurement) – see specific cases below.

All the ADFs described in the present specification document are static except the followings that are (re)generated by the IPFs and therefore considered as measurement:

- SLSTR L1 VISCAL: " SL_1_VSC_AX"
- MWR L1:
  - MW_1_NIR_AX
  - MW_1_DNB_AX
  - MW_1_MON_AX
- SRAL L1:
  - SR_1_CA1LAX
  - SR_1_CA1SAX
  - SR_1_CA2KAX
  - SR_1_CA2CAX

<u>** Content unit and data object ID</u>

The naming rule of the identifier for the content unit and data object depends on the number of files that are included in the ADF package.

Most of the ADF only contains only one file (manifest excluded). The rule applied in this case is then to use a unique identifier that helps the IPF to point on the file to be actually used:

- ADFUnit: as the identifier for the contentUnit element
- ADFData: as the identifier for the dataObjectID element

When more than one file is included in the ADF (still manifest excluded), a numbered list of identifier is used. This concerns only the following ADFs for which a specific rule shall be applied:

- AX___DEM_AX: this file contains 288 tiles and one xml file interface to the CFI library called the DEM configuration file. In this case, the rule shall be:

    - ADFUnit and ADFData for the DEM configuration file
    - (ADF001Unit, ADF001Data) to (ADF288Unit, ADF288Data) for the DEM tiles
- SLSTR Level 2:
    - LST water vapour auxiliary dataset SL_2_LSTWAX
        - (ADF000Unit, ADF000Data) to (ADF013Unit, ADF013Data) with (ADF0xxUnit, ADF0xxData) corresponding to SL_2_LTWVxx
    - LST vegetation fraction auxiliary datasets SL_2_LSTVAX
        - (ADF000Unit, ADF000Data) to (ADF013Unit, ADF013Data) with (ADF0xxUnit, ADF0xxData) corresponding to SL_2_LTFRxx

3.2 NetCDF Format

The NetCDF binary format and conventions used in the frame of the project are described in [AD- 10].

4. COMMON AUXILIARY DATA FILES

4.1 FOS Orbit Files

The Orbit Files contain State Vectors are at epochs of ascending node crossings, i.e. one per orbital revolution. The file will be used by the PDGS for X-Band station planning.

The Orbit files are used by the STM and Optical Instrument Processing Facilities.
The following section describes the product structure of the FOS Predicted (FPO) and Restituted orbit (FRO) files. The predicted orbit lets to propagate the information to the future, while the restituted makes possible to propagate backwards (that is, to the past). Note that future and past are measured respect to the times when the FPO / FRO orbits are defined.

FILE Type	Update rate	Size
AX___FPO_AX	Daily	12 KB
AX___FRO_AX	Daily	1.7 MB

The original data file consists of a single file (*.EOF) containing both the Header and the Datablock sections. The Data Block consists of a list of OSVs (Orbit State Vector), where each OSV has the format as described in AD- 4. The format is described in [AD- 4]. Examples can be found on http://eop-cfi.esa.int/CFI/EE_CFI_SCHEMAS/example_files/.

Table 16 FOS Orbit File – Data Block

XML Tag	Type	Unit	Description
TAI	S	-	TAI date and time of OSV, in ASCII standard time format, including time reference and micro-seconds. TAI=yyyy-mm-ddThh:mm:ss.ssssss
UTC	S	-	UTC date and time of OSV, in ASCII standard time format, including time reference and micro-seconds. UTC=yyyy-mm-ddThh:mm:ss.ssssss
UT1	S	-	UT1 date and time of OSV, in ASCII standard time format, including time reference and micro-seconds. UT1=yyyy-mm-ddThh:mm:ss.ssssss
Absolute_Orbit	I		Absolute orbit counter This counter is incremented by a single unit from one record to the next. It must be differentiated with the real absolute orbit number on which the state vector belongs i.e : If the Z value of the OSV is >= 0 then “real” absolute orbit number equals the absolute orbit counter. if the Z value of the OSV is < 0 then “real” absolute orbit number equals the absolute orbit counter minus 1.
X	float	m	X position in earth-fixed coordinate system ITRF
Y	float	m	Y position in earth-fixed coordinate system ITRF
Z	float	m	Z position in earth-fixed coordinate system ITRF
VX	float	m/s	X velocity in earth-fixed coordinate system ITRF
VY	float	m/s	Y velocity in earth-fixed coordinate system ITRF
VZ	float	m/s	Z velocity in earth-fixed coordinate system ITRF
Quality	S	-	This parameter is added to keep format compatibility with Cryosat format. Default (“not used”) value is “0000000000000”

4.2 ECMWF Meteorological Data Files

The ECMWF data files contain meteo information and they are of four types: *Forecast (MF1, MF2 and MFA) data* and *Analysis data (MA1 and MA2)*. For details on dissemination of data refer to http://www.ecmwf.int/services/dissemination/

- ENFO - Forecast data is used in NRT processing (note that default mode for IPFs is NRT)

- MAED – multi-analysis data is used during STC/NTC processing.

The following section describes the product structure of the ECMWF Files.

FILE Type	Update rate	Size
AX___MF1_AX	6 hours	360 MB
AX___MF2_AX	6 hours	3000 MB
AX___MA1_AX	6 hours	820 MB
AX___MA2_AX	6 hours	750 MB
AX___MFA_AX	6 hours	50 MB

The files are in GRIB1 format except for AX___MA2_AX which is in GRIB2.

Refer to http://www.ecmwf.int/products/data/software/grib_api.html for details.

For the STM part, a meteorological field files series is made of 2 files, decomposed as follows:

- File 1 : GRIB-1 file containing all 2D (single level data) parameters:
    - The U-component of the wind vector file (ECMWF code: 165)
    - The V-component of the wind vector file (ECMWF code: 166)
    - The surface pressure file (ECMWF code: 134)
    - The mean sea level pressure file (ECMWF code: 151)
    - The orography file (ECMWF code: 129)
- File 2 : GRIB-2 file containing all 3D (model level) parameters:
    - The temperature file (ECMWF code: 130)
    - The specific humidity file (ECMWF code: 133)

Note about the 3D (model level) data used for the STM part: on ECMWF's side, the Integrated Forecasting System enables to compute these parameters over a given number of model levels (currently 137 ML since June 2013). However it is possible to use a lower number of model levels. Hence, the data provided in input can either contain the full set of model levels, or only the N lowest model levels.

4.3 Universal Constants File

The universal constants file includes all the physical constants necessary for the IPF processors. It is also the placeholder for other dimensioning constants unless those are already covered by SCCDB PDGS files.

- Light velocity
- Earth radius
- Semi major axis of the reference ellipsoid
- Flattening coefficient of the reference ellipsoid

The universal constants file is used by the SRAL and GNSS Instrument Processing Facilities.

FILE Type	Update rate	Size
AX___CST_AX	Infrequently	< 10 KB

The original data file is stored in an ASCII file.

Table 17 Universal Constant Data File – Data Block

Name	Type	Unit	Description
Light_Vel	FLOAT32	m	Light velocity
Earth_Rad	FLOAT32	m	Earth radius
SM_Axis	FLOAT32	m	Semi major axis of the reference ellipsoid
Flattening	FLOAT32	N/A	Flattening coefficient of the reference ellipsoid

4.4 TAI/UTC

This product is de-scoped because time transformations are done on the fly by the IPF processors as needed using the EOCFI libraries.

Refer to the specific interface documents for each IPF to know which file(s) are used to initialize those libraries.

4.5 Reference Orbit Scenario File

The Reference Orbit Scenario File (OSF) is a scenario file composed with orbital information per repeat cycle: state vectors corresponding to the ANX. The data are enclosed into datasets understood as "orbit changes"

FILE Type	Update rate	Size
AX___OSF_AX	6 months	< 30 KB

This file is composed of Fixed Header and Data Block included in a single file *.EOF and then tarred and compressed as a *.TGZ, compliant with EO-CFI libraries, fully described in [AD- 15, RD- 3].

4.6 Digital Elevation Model (DEM)

The Digital Elevation Model (DEM) gives the height of the Earth surface above the ellipsoid, that will be used in L1 geolocation processing chain to provide the geodetic latitude, and the longitude both ortho-rectified from the DEM (the model used is GETASSE30 version 2). It is composed of a set of 288 files at 30 seconds resolution, each one associated to one tile of the Earth Surface and used by the Optical Instrument Processing Facilities.

The following section describes the structure of the file.

FILE Type	Update rate	Size
AX___DEM_AX	Infrequently	6.3 MB/file

The data format is compliant with EO Mission CFI requirements.

4.7 Land/Water Mask File

The Land/Water Mask File contains a bitmap mask that is set to 1 if the pixel is over the land, and 0 if it is above any water, including internal fresh waters (e.g. lakes, rivers, etc.).
The land/water file is used by the Optical (OLCI and SLSTR) instrument processing facilities.

FILE Type	Update rate	Size
AX___LWM_AX	Infrequently	20 MB

The file is in GeoTIFF format, containing 129600 x 64800 pixels, using one bit per pixel (set to 1 when flag is raised, 0 otherwise), in equidistant latitude/longitude projection thus 0.00277 deg per pixel. In order to improve drastically file size and random access performances, the GeoTIFF is structured internally into TIFF's tiles of 256x256 pixels and use the TIFF's DEFLATE compression.

4.8 Open Ocean Mask File

The Open Ocean Mask File enables to distinguish between waters belonging to the oceans and sea and the land regions. It is set to 1 above land (including internal fresh waters) and to 0 above saline waters.
The open ocean mask file is used by the Optical (OLCI and SLSTR) instrument processing facilities.

FILE Type	Update rate	Size
AX___OOM_AX	Infrequently	8.5 MB

The file is in GeoTIFF format, containing 129600 x 64800 pixels, using one bit per pixel (set to 1 when flag is raised, 0 otherwise), in equidistant latitude/longitude projection thus 0.00277 deg per pixel. In order to improve drastically file size and random access performances, the GeoTIFF is structured internally into TIFF's tiles of 256x256 pixels and use the TIFF's DEFLATE compression.

4.9 Coastline Mask File

The Coastline Mask File contains a bitmap mask (not a vector one). It is set to 1 whenever the pixel is located above the coastline.

The Coastline Mask file is used by the Optical (OLCI and SLSTR) instrument processing facilities.

FILE Type	Update rate	Size
AX___CLM_AX	Infrequently	8.5 MB

The file is in GeoTIFF format, containing 129600 x 64800 pixels, using one bit per pixel (set to 1 when flag is raised, 0 otherwise), in equidistant latitude/longitude projection thus 0.00277 deg per pixel. In order to improve drastically file size and random access performances, the GeoTIFF is structured internally into TIFF's tiles of 256x256 pixels and use the TIFF's DEFLATE compression.

4.10 Tidal Regions Mask File

The Tidal Regions Mask File aims at identifying the regions with "significant" tidal signal. Pixels located in such a region are set to 1.

The Tidal Regions Mask file is used by the Optical (OLCI and SLSTR) instrument processing facilities.

FILE Type	Update rate	Size
AX___TRM_AX	Infrequently	5.8 MB

The file is in GeoTIFF format, containing 129600 x 64800 pixels, using one bit per pixel (set to 1 when flag is raised, 0 otherwise), in equidistant latitude/longitude projection thus 0.00277 deg per pixel. In order to improve drastically file size and random access performances, the GeoTIFF is structured internally into TIFF's tiles of 256x256 pixels and use the TIFF's DEFLATE compression.

4.11 IERS Bulletin B

IERS Bulletins provide current information on the Earth's orientation in the IERS Reference System. This includes Universal Time, coordinates of the terrestrial pole, and celestial pole offsets. The standard solution is given monthly in Bulletin B. It is issued by the IERS Earth Orientation Centre at the Paris Observatory (http://hpiers.obspm.fr/ or **ftp://hpiers.obspm.fr/iers/bul/bulb_new/**).

FILE Type	Update rate	Size
AX___BB2_AX	Monthly	< 18 KB

The file is provided in ASCII format. It is fully described here:

http://www.iers.org/IERS/EN/Publications/Bulletins/bulletins.html

Note that the publication of the IERS Bulletin B in the formats IAU1980 and IAU2000 have ceased in January 2010, therefore the file type AX___BB1_AX has been discarded.

5. OLCI AUXILIARY DATA FILES

The following sections describe the Auxiliary data files used by the OLCI Processing chains.

5.1 OLCI Level 1 Auxiliary Data Files

5.1.1 Processing Control Parameter File for EO mode

The OLCI L1 Processing Control Parameter File used in Earth Observation mode contains the following information:

- Processing Switches, enabling/disabling stray-light and Non-Linearity corrections
- Processing Switches, selecting the dark offset computation method
- Stray-light Correction parameters
- Products Grid Parameters, defining the Tie Points grid
- OLCI L1b Products Quality Parameters, including the default radiance with which saturated samples shall be filled, all thresholds to compute the quality flags of the R products, and the geometrical limit parameters defining the application limits of FR and RR re-sampling step
- Saturation recovery Parameter, corresponding to the spatial sampling distance to the pixel in which sun-glint has been observed
- Unpacking Parameters, i.e. the scaling factors and offsets to be used for the radiances defined at each band

FILE Type	Update rate	Size *(may vary if LUTs dimensions change)*
OL_1_EO__AX	Infrequently	< 40 KB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 18 Detailed structure of the OLCI L1 Processing Control Parameter File for EO mode

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
switches				
bands_total	Number of bands (including smear)	22		
non_linearity_correction	Switch enabling/disabling non-linearity correction on numerical counts	[0, 1]	uc	1
straylight_correction	Switch enabling/disabling Stray-Light (SL) correction/computation algorithm 0: Disable SL 1: Enable SL in Spectrometer only 2: Enable SL in Ground Imager only 3: Enable SL in both Spectrometer & Ground Imager	[0, 3]	uc	1
dark_correction	Dark correction method switch for all bands and smear band, either 0 (use of Dark_Offset_Coef) or 1 (use of Dark_Current_Coef)	[0, 1]	uc	bands_total
error_estimates	Switch enabling error estimate calculations	[0, 1]	uc	1
rr_product	Switch enabling calculation of the Reduced Resolution output product	[0, 1]	uc	1
fr_product	Switch enabling calculation of the Full Resolution output product	[0, 1]	uc	1
straylight				
NS_SP	Sub-sampling step in spectral direction for the spectrometer stray light estimation		us	1
NK_SP	Sub-sampling step in across-track direction for the spectrometer stray light estimation		us	1
NF_GI	Sub-sampling step in along-track direction for the ground imager stray light estimation		us	1
NK_GI	Sub-sampling step in across-track direction for the ground imager stray light estimation		us	1
lambda0_max	Maximum wavelength of spectral range to be considered in SL Spectro correction	[1020, 1100]	fl	1

Element name	Description	Range or value	T	D
units	UDUNITS unit name	nm	S	1
lambda0_min	**Minimum wavelength of spectral range to be considered in SL Spectro correction**	**[300, 400]**	**fl**	**1**
units	UDUNITS unit name	nm	S	1
tie_points				
SSP_tie_point_index	**Index of Tie Point matching the SSP (starting from 1)**	**[0,]**	**fl**	**1**
distance_AC_tie_points	**AC distance between two Tie Points**	**~16000**	**us**	**1**
units	UDUNITS unit name	m	S	1
AC_tie_points_number	**Number of Tie Points within a Tie Frame (i.e. AC dimension)**	**~77**	**us**	**1**
AL_subsampling_factor	**FR frames to Tie Frames sub-sampling factor**	**4**	**us**	**1**
AC_subsampling_factor	**FR product pixel to Tie Point sub-sampling factor**	**64**	**us**	**1**
quality_thresholds				
transmission_error_threshold	**Threshold defining the limit above which the transmission errors are too numerous**	**[0, 100]**	**us**	**1**
units	UDUNITS unit name	%	S	1
format_error_threshold	**Threshold defining the limit above which the format errors are too numerous**	**[0, 100]**	**us**	**1**
units	UDUNITS unit name	%	S	1
ADF_inconsistency_threshold	**Threshold defining the number of ISPs with identical errors in the header wrt references above which L1b processing shall stop**		**us**	**1**
nominal_time_step_ECMWF	**Reference time sampling between two successive ECMWF files**	**0.25**	**fl**	**1**
units	UDUNITS unit name	days	S	1
invalid_in_row_threshold	**Percentage of unfilled pixels above which a line of the image is considered affected by a gap**	**[0, 100]**	**us**	**1**

Element name	Description	Range or value	T	D
units	UDUNITS unit name	%	S	1
quality_classification_thresholds				
min_RR_valid_pix_ratio	**Minimum acceptable ratio of valid instrument pixels to derive a valid RR product pixel**	**[0, 1]**	**fl**	**1**
min_RR_cosmetic_pix_ratio	**Minimum ratio of cosmetic instrument pixels to consider a RR product pixel as cosmetic**	**[0, 1]**	**fl**	**1**
min_RR_sun_glint_risk_pix_ratio	**Minimum ratio of instrument pixels for which there is a risk of Sun-glint to flag a RR product pixel with the Sun-glint risk flag**	**[0, 1]**	**fl**	**1**
min_ratio_land_RR	**Minimum ratio of instrument pixels composing one RR product pixel above which it can be considered as land**	**[0, 1]**	**fl**	**1**
min_ratio_inland_water_RR	**Minimum ratio of instrument pixels composing one RR product pixel above which it can be considered as inland water**	**[0, 1]**	**fl**	**1**
geometry_thresholds				
max_frame_offset_RR	**Maximum frame offset allowing considering an RR pixel as in-swath.**		**fl**	**1**
max_AC_pointing_angle_diff_FR	**Maximum AC pointing angle difference allowing nearest neighbour filling of an FR product pixel**		**fl**	**1**
units	UDUNITS unit name	degrees	S	1
max_AC_pointing_angle_diff_RR	**Maximum AC pointing angle difference (between RR product pixel external edge and centre of first/last instrument pixel) allowing to consider an RR pixel as in-swath.**		**fl**	**1**
units	UDUNITS unit name	degrees	S	1
AC_product_size				
n_cols_FR	**Number of the columns in the FR product.** **Fully dependent on the values provided for the AC_tie_points_number and the AC_subsampling_factor parameters:** ***n*_cols_FR = 1 + (AC_*tie*_points_*number* - 1) * AC_subsampling_factor**	**4865**	**us**	**1**

Element name	Description	Range or value	T	D
n_cols_RR	Number of columns in the RR product. Fully dependent on the values provided for the AC_tie_points_number and the AC_subsampling_factor parameters: n_cols_RR = 1 + (AC_tie_points_number - 1) * (AC_subsampling_factor / 4)	1217	us	1
n_removed_pix	Number of removed pixels in the product	125	us	1
saturation_recovery				
recovery_SSD	Spatial sampling distance within which the instrument recovers from bright target	[0, 50]	us	1
unpacking_parameters				
bands	Number of bands (excluding smear)	21		
add_offsets	Value to be added to the packed data to unpack them (after its scaling by the scale_factor), for each band		fl	bands
scale_factors	Value to be multiplied to packed data to unpack it, for each band		fl	bands
footprint				
tie_points_AC_subsampling_factor	Tie Points AC sub-sampling factor used to build the FootPrint metadata	12	ul	1
tie_points_AL_subsampling_factor	Tie Points AL sub-sampling factor used to build the FootPrint metadata	200	ul	1
AL_max_nb_points	Maximum AL number of points to build the FootPrint metadata	150	ul	1
breakpoints				
frame_start	Breakpoints start frame		us	1
frame_stop	Breakpoints stop frame		us	1
frame_subsampling	Breakpoints frames subsampling		us	1

Element name	Description	Range or value	T	D
module_start	**Breakpoints start module**		**us**	**1**
module_stop	**Breakpoints stop module**		**us**	**1**
module_subsampling	**Breakpoints modules subsampling**		**us**	**1**

5.1.2 Processing Control Parameter File for RC mode

The OLCI L1 Processing Control Parameter File used in Radiometric Calibration mode contains the following information:

- Processing Switches, as defined for the EO mode (stray-light and dark offset correction)
- Stray-light Correction parameters
- Quality thresholds to derive radiometric coefficient averages from measurement acquired during a calibration window

FILE Type	Update rate	Size *(may vary if LUTs dimensions change)*
OL_1_RAC_AX	Infrequently	< 20 KB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 19 Detailed structure of the OLCI L1 Processing Control Parameter File for RC mode

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			

Element name	Description	Range or value	T	D
switches				
bands_total	**Number of bands (including smear)**	**22**		
non_linearity_correction	**Switch enabling/disabling non-linearity correction on numerical counts**	**[0, 1]**	**uc**	**1**
straylight_correction	**Switch enabling/disabling Stray-Light (SL) correction/computation algorithm** **0: Disable SL** **1: Enable SL in Spectrometer only** **2: Enable SL in Ground Imager only** **3: Enable SL in both Spectrometer & Ground Imager**	**[0, 3]**	**uc**	**1**
dark_correction	**Dark correction method switch for all bands and smear band, either 0 (use of Dark_Offset_Coef) or 1 (use of Dark_Current_Coef)**	**[0, 1]**	**uc**	**bands_total**
straylight				
NS_SP	**Sub-sampling step in spectral direction for the spectrometer stray light estimation**		**us**	**1**
NK_SP	**Sub-sampling step in across-track direction for the spectrometer stray light estimation**		**us**	**1**
NF_GI	**Sub-sampling step in along-track direction for the ground imager stray light estimation**		**us**	**1**
NK_GI	**Sub-sampling step in across-track direction for the ground imager stray light estimation**		**us**	**1**
lambda0_max	**Maximum wavelength of spectral range to be considered in SL Spectro correction**	**[1020, 1100]**	**fl**	**1**
units	UDUNITS unit name	nm	S	1
lambda0_min	**Minimum wavelength of spectral range to be considered in SL Spectro correction**	**[300, 400]**	**fl**	**1**
units	UDUNITS unit name	nm	S	1
quality_thresholds				
transmission_error_threshold	**Threshold defining the limit above which the transmission errors are too numerous**	**[0, 100]**	**us**	**1**
units	UDUNITS unit name	%	S	1

Element name	Description	Range or value	T	D
format_error_threshold	**Threshold defining the limit above which the format errors are too numerous**	**[0, 100]**	**us**	**1**
units	UDUNITS unit name	%	S	1
ADF_inconsistency_threshold	**Threshold defining the number of ISPs with identical errors in the header wrt references above which L1b processing shall stop**		**us**	**1**
dark_offset_confidence_threshold	**Threshold defining the limit above which the number of invalid dark-offset coefficients is too high in the product**	**[0, 100]**	**us**	**1**
units	UDUNITS unit name	%	S	1
invalid_dark_offset_coeff_threshold	**Threshold defining the limit under which the number of acquired pixels used in the average (i.e. not invalid, and not saturated whatever the band) for computation of each dark-offset coefficient is too low**	**[0, 100]**	**us**	**1**
units	UDUNITS unit name	%	S	1
gain_confidence_threshold	**Threshold defining the limit above which the number of invalid gain coefficients is too high in the product**	**[0, 100]**	**us**	**1**
units	UDUNITS unit name	%	S	1
invalid_gain_coeff_threshold	**Threshold defining the limit under which the number of acquired pixels used in the average (i.e. not invalid, and not saturated whatever the band) for computation of each gain coefficient is too low**	**[0, 100]**	**us**	**1**
units	UDUNITS unit name	%	S	1
saturation_recovery				
recovery_SSD	**Spatial sampling distance within which the instrument recovers from bright target**	**[0, 50]**	**us**	**1**

5.1.3 Processing Control Parameter File for SC mode

The OLCI L1 Processing Control Parameter File used in Spectral Calibration mode contains a unique type of information, i.e. the absorption lines configuration parameters, corresponding to all parameters necessary to define the specific spectral programmation to be used in this mode.

FILE Type	Update rate	Size *(may vary if LUTs dimensions change)*
OL_1_SPC_AX	Infrequently	< 20 KB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 20 Detailed structure of the OLCI L1 Processing Control Parameter File for SC mode

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
switches				
microbands	**Number of microbands (including smear)**	**46**		
non_linearity_correction	**Switch enabling/disabling non-linearity correction on numerical counts**	**[0, 1]**	**uc**	**1**
dark_correction	**Dark correction method switch for all microbands and smear microband, either 0 (use of Dark_Offset_Coef) or 1 (use of Dark_Current_Coef)**	**[0, 1]**	**uc**	**microbands**
spectral				
abs_lines	**Number of absorption lines covered by the OLCI spectral calibration band setting**	**3**		
max_abs_spectral_shift	**Absolute maximum spectral deviation of OLCI (i.e. wavelength calibration range)**		**fl**	**1**

Element name	Description	Range or value	T	D
units	UDUNITS unit name	nm	S	1
abs_lines_microband_index	**Index of first micro-band (bluest) for each absorption line**	**[1, 46]**	**us**	**abs_lines**
abs_lines_microband_number	**Number of micro-bands dedicated to absorption for each absorption line**	**[1, 46]**	**us**	**abs_lines**
abs_lines_wavelength	**Reference value of central wavelength of first micro-band (bluest) for each absorption line**	**[390, 1040]**	**fl**	**abs_lines**
units	UDUNITS unit name	nm	S	1
quality_thresholds				
transmission_error_threshold	**Threshold defining the limit above which the transmission errors are too numerous**	**[0, 100]**	**us**	**1**
units	UDUNITS unit name	%	S	1
format_error_threshold	**Threshold defining the limit above which the format errors are too numerous**	**[0, 100]**	**us**	**1**
units	UDUNITS unit name	%	S	1
ADF_inconsistency_threshold	**Threshold defining the number of ISPs with identical errors in the header wrt references above which L1b processing shall stop**		**us**	**1**
wavelengths_confidence_threshold	**Threshold defining the limit above which the number of invalid absolute central wavelengths per camera is too high in the product**	**[0, 100]**	**us**	**1**
units	UDUNITS unit name	%	S	1
invalid_dark_offset_coeff_threshold	**Threshold defining the limit under which the number of acquired pixels used in the average (i.e. not invalid, and not saturated whatever the band) for computation of each dark-offset coefficient is too low. It applies to both calibration sequences.**	**[0, 100]**	**us**	**1**
units	UDUNITS unit name	%	S	1
invalid_fit_model_threshold	**Threshold defining the maximal residual error of the least square fitting between the measured reflectance and the reference one above which the coefficients {aj}j, {bj}j of the linear scaling model are considered as invalid. (The flag "Invalid_Wv" is raised if the scaling model used at optimal spectral shift jmin has been obtained with a residual error above this threshold, or if at least one of the dark offsets used to compute the measured reflectance is flagged as invalid)**	**[0, 100]**	**fl**	**1**

Element name	Description	Range or value	T	D
saturation_recovery				
recovery_SSD	**Spatial sampling distance within which the instrument recovers from bright target**	**[0, 50]**	**us**	**1**

5.1.4 Classification Thresholds LUTs Data File

The OLCI L1 Classification Thresholds LUTs Data File contains the LUTs of thresholds enabling to derive the bright pixel, and the sun-glint risk flags, respectively depending on the sun and viewing geometries, and on the sun zenith angle and the amplitude of the wind at pixel. The bright test LUT is expressed as thresholds to be directly compared with the reflectance at pixel, whereas the sun-glint risk LUT is expressed as a wave angle characterising the scattering angle around the specular direction.

FILE Type	Update rate	Size *(may vary if LUTs dimensions change)*
OL_1_CLUTAX	Infrequently	< 40 KB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 21 Detailed structure of the OLCI L1 Classification Thresholds LUTs Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]	degrees	S	1
bright_reflectance				

Element name	Description	Range or value	T	D
SZA	**Number of Sun Zenith Angles**	**12**		
OZA	**Number of Observation Zenith Angles**	**12**		
RAA	**Number of Relative Azimuth angles**	**19**		
SZA	**Sun Zenith Angles**	**[0, 90]**	**fl**	**SZA**
units	UDUNITS unit name	degrees	S	1
OZA	**Observation Zenith Angles**	**[0, 90]**	**fl**	**OZA**
units	UDUNITS unit name	degrees	S	1
RAA	**Relative Azimuth Angles**	**[0, 90]**	**fl**	**RAA**
units	UDUNITS unit name	degrees	S	1
thresholds_LUT	**Reflectance thresholds LUT for Bright test**	**[0, 1]**	**fl**	**SZA** **OZA** **RAA**
reference_band	Index of band on which the reflectance threshold applies	[1, 21]	us	1
sun_glint_risk				
SZA	**Number of Sun Zenith Angles**	**12**		
wind_speeds	**Number of wind speeds**	**6**		
SZA	**Sun Zenith Angle**	**[0, 90]**	**fl**	**SZA**
units	UDUNITS unit name	degrees	S	1
wind_speeds	**Wind speeds**	**[0, 30]**	**fl**	**wind_speeds**
units	UDUNITS unit name	m.s-1	S	1
thresholds_LUT	**Wave angle thresholds LUT for the Sun-Glint Risk test**	**[0, 90]**	**fl**	**SZA** **wind_speeds**
units	UDUNITS unit name	degrees	S	1

5.1.5 Characterisation and Models Data File

The OLCI L1 Characterisation and Models Data File contains data acquired during the on-ground instrument characterisation campaign, as well as few reference values that are inherent to the instrument. The data is described in the following table, gathered by topic in groups.

Table 22 Groups of the OLCI L1 Characterisation and Models Data File

Name	Description
transmission	gathering the overall transmissions of the main optical components of each module (i.e. the imaging sub-assembly composed of the Ground Imager and the Scrambling Window, and the Spectrometer), as well as their uniformity within its FOV
CCD_spectral_responsivity	giving the per channel average spectral responsivity of the CCD detector
CCD_offset_compensation	containing the coefficients of the linear relation linking the correction factor to be applied to the dark current of the instrument (at nominal CCD temperature) to the per module CCD temperature variation along the orbit
gain_values	describing all electronic gains of the detection chain of each module of the instrument
white_diffuser_geometry	providing the observation angles under which the white diffusers (the nominal one and the one dedicated to ageing calibration) are viewed by each pixel ; this group gives as well the normal vectors for each of these diffusers
white_diffuser_ageing_model	gathering all parameters (i.e. reference time, polynom degree and polynom coefficients for each white diffuser) of the polynom describing the ageing model of each of the white diffusers
white_diffuser_BRDF_model	giving all parameters necessary to entirely define the BRDF models to be used for the nominal diffuser and the one dedicated to the ageing calibration
pink_diffuser_BRDF_model	giving the relative spectral BRDF spectrum to be used as a reference for the spectral calibration processing
non_linearity_LUT_inverse	corresponding to the LUT that enables to correct the count from the overall instrument non-linearity; it is given at micro-band level for each of the 8 programmable gains
pixel_pointing_vectors_IF	providing the (x,y) components in the instrument frame of the OLCI pointing unit vectors for each pixel of each module ; it is given at one reference wavelength identified as well in this group
quantity	gathering all parameters that are linked to the instrument design (e.g. number of bands, micro-bands, CCD lines in total and dedicated to the smear band, dark and blank pixels, …)
band_definition	providing the nominal definition of OLCI bands
nadir_alongtrack_SSD	giving the distance on the ellipsoid between two successive frames, and the corresponding angle as viewed from the satellite
nominal_temperature	providing the nominal temperatures, in particular the one of the CCD to be used in the computation of a corrective factor to be applied to the instrument offset to correct it for the CCD temperature during the data calibration
time_parameters	gathering all reference time parameters linked to OLCI design, and in particular the offset between the ISP time and the real time at mid-exposure of the CCD
calibration_mechanism	containing the references for the Calibration Mechanism targets names and angular positions
straylight_PSF_GI_diaphragmless	giving the spatial PSF characterising the stray-light contamination occurring in the Ground Imager, including the scrambling window

Name	Description
straylight_PSF_spectro	giving the spatio-spectral PSF characterising the stray-light contamination occurring in the Spectrometer

FILE Type	Update rate	Size *(may vary if LUTs dimensions change)*
OL_1_INS_AX	Infrequently	< 430 MB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 23 Detailed structure of the OLCI L1 Characterisation and Models Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
modules	**Number of modules**	**5**		
bands	**Number of bands (excluding smear)**	**21**		
module_pixels	**Number of CCD pixels per module (accross_track dimension)**	**740**		
VAM_prog_gains	**Number of programmable gains**	**8**		
transmission				
T1_wavelengths	**Number of wavelengths for which the T1 is characterised**	**21**		
T2_wavelengths	**Number of wavelengths for which the T2 is characterised**	**21**		
TU_wavelengths	**Number of wavelengths for which the TU is characterised**	**41**		
TU_kFOV	**Number of points in the FOV for which the TU is characterised**	**5**		
T1_wavelengths	**Wavelengths for which the T1 is characterised**	**[390, 1040]**	**D**	**T1_wavelengths**
units	UDUNITS unit name	nm	S	1

Element name	Description	Range or value	T	D
accuracy	Accuracy of the data	0.5	D	1
T1_transmission	**Transmission of the imaging sub-assembly (Ground Imager + Scrambling Window)**	**[0, 1]**	**D**	**modules T1_wavelengths**
accuracy	Accuracy of the data	0.01	D	1
T2_wavelengths	**Wavelengths for which the T2 is characterised**	**[390, 1040]**	**D**	**T2_wavelengths**
units	UDUNITS unit name	nm	S	1
accuracy	Accuracy of the data	0.5	D	1
T2_transmission	**Transmission of the spectrometer**	**[0, 1]**	**D**	**modules T2_wavelengths**
accuracy	Accuracy of the data	0.005	D	1
TU_wavelengths	**Wavelengths for which the TU is characterised**	**[390, 1040]**	**D**	**TU_wavelengths**
units	UDUNITS unit name	nm	S	1
accuracy	Accuracy of the data	0.1	D	1
TU_kFOV	**Position ACT of the points for which the TU is characterised**	**[1, module_pixels]**	**D**	**TU_kFOV**
TU_transmission	**Uniformity of the transmission of the module (including T1, T2 and CCD responsivity)**	**[0, 1]**	**D**	**modules TU_wavelengths TU_kFOV**
accuracy	Accuracy of the data	0.01	D	1
CCD_spectral_responsivity				
wavelengths	**Number of wavelengths for which the spectral responsivity is characterised**	**21**		
CCD_lines_useful	**Number of useful lines in the CCD array (spectral dimension, excluding smear)**	**530**		
wavelengths	**Wavelengths for which the CCD spectral responsivity is characterised**	**[390, 1040]**	**D**	**wavelengths**
units	UDUNITS unit name	nm	S	1

Element name	Description	Range or value	T	D
accuracy	Accuracy of the data	1	D	1
spectral_responsivity	**CCD Detector Spectral Responsivity (taking into account quantum efficiency and photon energy). The reponsivity is the average value over all the spatial pixels of all the spectral rows (TBC) of a spectral channel of the ratio of CCD output voltage by the incident irradiance in this channel. The detector incident irradiance is taken 0.5 Emax, where Emax is the detector irradiance for an instrument incident radiation of Lmax.**	**[0, 600]**	**D**	**modules wavelengths**
units	UDUNITS unit name	mA/W	S	1
row_spectral_responsivity	**CCD Detector Spectral Responsivity provided per spectral rows (interpolation of CCD_spectral_responsivity)**	**[0, 600]**	**D**	**modules CCD_lines_useful**
units	UDUNITS unit name	mA/W	S	1
CCD_offset_compensation				
compensation_function_A_coeff	**A coefficients of the linear function modeling the variation of the dark current according to the CCD temperature T: Fdc(T)=A*(T-Tccd_nom)+B. With: - Fdc(T) the multiply factor to be applied to correct the DC offset. - Tccd_nom the nominal CCD temperature defined in nominal_temperature_data/CCD_nominal_temperature.**		**fl**	**modules**
units	UDUNITS unit name	K-1	S	1
compensation_function_B_coeff	**B coefficients of the linear function modeling the variation of the dark current according to the CCD temperature T: Fdc(T)=A*(T-Tccd_nom)+B. With: - Fdc(T) the multiply factor to be applied to correct the DC offset. - Tccd_nom the nominal CCD temperature defined in nominal_temperature_data/CCD_nominal_temperature.**		**fl**	**modules**
gain_values				
VAM_prog_gains	**Programmable electronic gain values for the module and each gain setting (8 programmable gains). These gains do not include ADC contribution**	**[1, 10]**	**D**	**modules VAM_prog_gains**

Element name	Description	Range or value	T	D
white_diffuser_geometry				
3D_vector	**Dimension of a 3D vector**	**3**		
wdiff1_normal_vector	**Normal vector to the diffuser 1 in instrument frame**		**D**	**3D_vector**
wdiff2_normal_vector	**Normal vector to the diffuser 2 in instrument frame**		**D**	**3D_vector**
wdiff1_oza	**Observation Zenithal angle of each ACT position (wrt diffuser 1 normal)**	**[0, 90]**	**D**	**modules module_pixels**
units	UDUNITS unit name	degrees	S	1
wdiff1_oaa	**Observation Azimuthal angle of each ACT position (wrt diffuser 1 normal)**	**[0, 360]**	**D**	**modules module_pixels**
units	UDUNITS unit name	degrees	S	1
wdiff2_oza	**Observation Zenithal angle of each ACT position (wrt diffuser 2 normal)**	**[0, 90]**	**D**	**modules module_pixels**
units	UDUNITS unit name	degrees	S	1
wdiff2_oaa	**Observation Azimuthal angle of each ACT position (wrt diffuser 2 normal)**	**[0, 360]**	**D**	**modules module_pixels**
units	UDUNITS unit name	degrees	S	1
white_diffuser_ageing_model				
polynom_degree_plus_1	**Degree of the polynomial ageing model plus 1 (number of coef). The ageing function depends on the wavelength and the elapsed time since the reference time polynom_t0**			
polynom_t0	**Reference t0 date for the ageing polynomial function in the UTC YYYY-MM-DDThh:mm:ssZ CCSDS format**		**S**	**1**
wdiff1_polynom_params	**Coefficients of the polynomial ageing model (nominal diffuser), zero order first.** **Each polynomial gives the ageing factor according to the elapsed time in second since wdiff_ageing_polynom_t0.** **Bands 1 to 21 from the smaller to the higher wavelength (i.e. ESA SRD order)**		**D**	**bands polynom_degree_plus_1**

Element name	Description	Range or value	T	D
wdiff2_polynom_params	Coefficients of the polynomial ageing model (ageing diffuser), zero order first. Each polynomial gives the ageing factor according to the elapsed time in second since wdiff_ageing_polynom_t0. Bands 1 to 21 from the smaller to the higher wavelength (i.e. ESA SRD order)		D	bands polynom_degree_plus_1
white_diffuser_BRDF_model				
wavelengths	Number of wavelengths at which BRDF of the white diffuser has been characterised and modelled	7		
model_params	Number of parameters of the polynomial BRDF model			
wdiff1_charac_date	Date of the characterization of the nominal white diffuser in the UTC YYYY-MM-DDThh:mm:ssZ CCSDS format		S	1
wdiff2_charac_date	Date of the characterization of the nominal ageing diffuser in the UTC YYYY-MM-DDThh:mm:ssZ CCSDS format		S	1
model_name	BRDF model of the “white” diffuser		S	1
wavelengths	Set of wavelengths at which BRDF of the white diffuser has been characterised and modelled	[390, 1040]	D	wavelengths
units	UDUNITS unit name	nm	S	1
wdiff1_BRDF_model_params	BRDF model parameters of the nominal white diffuser for the set of wavelengths		D	wavelengths model_params
wdiff2_BRDF_model_params	BRDF model parameters of the ageing white diffuser for the set of wavelengths		D	wavelengths model_params
pink_diffuser_BRDF_model				
spectrum	Number of points of the reference relative spectral BRDF spectrum (0.05 nm over the spectral domain)	14201		
range_min	Minimum wavelength associated to the relative spectral BRDF of the spectral diffuser	[390, 1100]	D	1
units	UDUNITS unit name	nm	S	1
range_max	Maximum wavelength associated to the relative spectral BRDF of the spectral diffuser	[390, 1100]	D	1

Element name	Description	Range or value	T	D
units	UDUNITS unit name	nm	S	1
sampling_step	**Reference spectrum sampling step**		**D**	**1**
units	UDUNITS unit name	nm	S	1
subsampling	**Sub-sampling factor between OLCI measurements sampling (1.25 nm) and reference spectrum sampling (0.05 nm)**		**D**	**1**
spectrum	**Reference relative spectral BRDF spectrum. (Characterised at 0,1 nm and interpolated to provide values at 0,05 nm)**	**[0, 1]**	**D**	**spectrum**
non_linearity_LUT_inverse				
LUT	**Equal to 2^14 - 1**	**16383**		
LUT	**Non-linearity correction look-up table at micro-band level for the 8 programmable gains. The non-linearity takes into account the whole chain (CCD, FPA, VAM, ADC)**		**fl**	**modules VAM_prog_gains LUT**
pixel_pointing_vectors_IF				
wavelength	**Wavelength for which the pixel pointing vector are characterised**		**D**	**1**
units	UDUNITS unit name	nm	S	1
X	**Pixels pointing unit vectors X coordinate (in instrument frame) for one reference band**		**fl**	**modules module_pixels**
Y	**Pixels pointing unit vectors Y coordinate (in instrument frame) for one reference band**		**fl**	**modules module_pixels**
quantity				
pixels_dark1	**Number of dark pixels at the beginning of the line**	**5**	**us**	**1**
pixels_dark2	**Number of dark pixels at the end of the line**	**5**	**us**	**1**
pixels_blanck	**Number of blanck pixels at the end of the line**	**4**	**us**	**1**

Element name	Description	Range or value	T	D
CCD_lines_useful	**Number of useful lines in the CCD array (spectral dimension, excluding smear)**	**530**	**us**	**1**
CCD_lines_total	**Total number of CCD lines**	**576**	**us**	**1**
CCD_first_spectral_row	**Index of the first spectral row (after smear lines)**	**49, 49, 49, 49, 49**	**us**	**modules**
CCD_first_exposure_row	**Index of the first exposure row (after the mask)**	**44, 44, 44, 44, 44**	**us**	**modules**
CCD_nominal_spectral_sampling	**Nominal spectral sampling of the CCD**	**1.25**	**fl**	**1**
units	UDUNITS unit name	nm	S	1
band_definition				
name	**Bands name**		**S**	**bands**
wavelength	**Bands central wavelength**		**fl**	**bands**
units	UDUNITS unit name	nm	S	1
width	**Bandwidths**		**fl**	**bands**
units	UDUNITS unit name	nm	S	1
lmin	**L min**		**fl**	**bands**
units	UDUNITS unit name	mW.m-2.sr-1.nm-1	S	1
lref	**L ref**		**fl**	**bands**
units	UDUNITS unit name	mW.m-2.sr-1.nm-1	S	1
lsat	**L sat**		**fl**	**bands**
units	UDUNITS unit name	mW.m-2.sr-1.nm-1	S	1
lmax	**L max**		**fl**	**bands**
units	UDUNITS unit name	mW.m-2.sr-1.nm-1	S	1
nadir_alongtrack_SSD				

Element name	Description	Range or value	T	D
SSD	**Along-track space sample distance at nadir (separation between two frames). Ref to OLCI instrument performance and calibration analysis, S3-TN-TAF-OL-00942, iss. 1, 09/07/2008**		**sl**	**1**
units	UDUNITS unit name	m	S	1
SSA	**Along-track space sample angle at nadir (separation between two frames). Equal to alongtrack_SSD/average_altitude (815km)**		**fl**	**1**
units	UDUNITS unit name	rad	S	1
nominal_temperature				
CCD	**Nominal temperature of the CCD detector (i.e. the target regulation temperature)**		**D**	**modules**
units	UDUNITS unit name	deg_C	S	1
VAM	**Nominal temperature of the VAM**		**D**	**modules**
units	UDUNITS unit name	deg_C	S	1
hk_thermistor	**Housekeeping thermistor reference temperature**		**D**	**modules**
units	UDUNITS unit name	deg_C	S	1
time_parameters				
sampling_time	**OLCI time sampling step**		**ul**	**1**
units	UDUNITS unit name	micros	S	1
midacquisition_offset	**ISP to mid-acquisition time offset**		**sl**	**1**
units	UDUNITS unit name	micros	S	1
integration_time	**OLCI integration time**		**ul**	**1**
units	UDUNITS unit name	micros	S	1
transfer_time	**Overall charge transfer time of the CCD frame**		**ul**	**1**
units	UDUNITS unit name	micros	S	1

Element name	Description	Range or value	T	D
calibration_mechanism				
positions	**Number of positions**	**5**		
angle	**Angular position of the calibration mechanism**		**fl**	**positions**
units	UDUNITS unit name	degrees	S	1
target	**Calibration target**		**S**	**positions**
straylight_PSF_GI_diaphragmless				
wavelengths	**Number of wavelengths for which the PSF is characterised**	**3**		
ACT	**Size of the PSF for the ACT dimension**	**2521**		
ALT	**Size of the PSF for the ALT dimension**	**401**		
kmin_position	**Limit inferior ACT to be applied to get the PSF for a given camera. PSF_GI_camera(m) = PSF_GI[ACT_centre+kmin, ACT_centre+kmax][ALT_centre+lmin, ALT_centre+lmax]**		**ss**	**modules**
kmax_position	**Limit superior ACT to be applied to get the PSF for a given camera. PSF_GI_camera(m) = PSF_GI[ACT_centre+kmin, ACT_centre+kmax][ALT_centre+lmin, ALT_centre+lmax]**		**ss**	**modules**
lmin_position	**Limit inferior ALT to be applied to get the PSF for a given camera. PSF_GI_camera(m) = PSF_GI[ACT_centre+kmin, ACT_centre+kmax][ALT_centre+lmin, ALT_centre+lmax]**		**ss**	**modules**
lmax_position	**Limit superior ALT to be applied to get the PSF for a given camera. PSF_GI_camera(m) = PSF_GI[ACT_centre+kmin, ACT_centre+kmax][ALT_centre+lmin, ALT_centre+lmax]**		**ss**	**modules**
wavelengths	**Wavelengths for which the PSF is characterised**		**D**	**wavelengths**
units	UDUNITS unit name	nm	S	1
ACT_centre	**Position of its centre in the ACT dimension within the PSF array**	**[1, ACT]**	**us**	**1**

Element name	Description	Range or value	T	D
ALT_centre	Position of its centre in the ALT dimension within the PSF array	[1, ALT]	us	1
kernel	Stray-light PSF convolution kernel related to the Ground Imager	[0, 1]	D	modules wavelengths ALT ACT
straylight_PSF_spectro				
kFOV	Number of points in the FOV for which the PSF is characterised	5		
wavelengths	Number of wavelengths for which the PSF is characterised	5		
ACT	Size of the PSF for the ACT dimension	740		
spectral	Size of the PSF for the spectral dimension	530		
kFOV	Position ACT of the points in the FOV for which the PSF is characterised	[1, ACT]	us	kFOV
wavelengths	Wavelengths for which the PSF is characterised		D	wavelengths
units	UDUNITS unit name	nm	S	1
ACT_centre	Position of its centre in the ACT dimension within the PSF array, for each characterised kFOV position	[1, ACT]	us	kFOV
spectral_centre	Position of its centre in the spectral dimension within the PSF array, for each characterised wavelength	[1, spectral]	us	wavelengths
kernel	Stray-light PSF convolution kernel related to the Spectrometer	[0, 1]	D	modules wavelengths kFOV spectral ACT

5.1.6 Calibration Data File

The OLCI L1 Calibration Data File contains data updated during the life of the Satellite according to the calibration coefficients and parameters computed through the calibration processing. The data is described in the following table gathered by topic in groups.

Table 24 Groups of the OLCI L1 Calibration Data File

Name	Description
central_wavelength_and_bandwidth	providing the true actual characterisation of the central wavelength and bandwidth for each OLCI bands at each wavelength
inband_extraterrestrial_solar_irradiance	giving the in-band equivalent solar irradiance (linked to the current OLCI bands characterisation) at reference Sun-Earth distance (provided in the same group)
reference_calibration_coefficients	gathering the calibration coefficients, i.e. the overall dark offsets, and gains given at a reference time (provided in the same group) for each band and each pixel
instrument_gain_temporal_degradation	giving the coefficients of the model describing the overall temporal degradation of the instrument
thermoelastic_model_EO	providing for Earth Observation mode the four quaternions characterising the thermo-elastic deformation model defined as per module rotation from instrument to SC frames
thermoelastic_model_RC	Providing for Calibration mode the four quaternions characterising the thermo-elastic deformation model defined as per module rotation from instrument to SC frames
sampling_maps	gathering the re-sampling map identifying the valid pixels for OLCI re-sampling process, as well as the anomalous samples map identifying all samples (i.e. radiometric pixel value provided at each band) that are considered as anomalous

FILE Type	Update rate	Size *(may vary if LUTs dimensions change)*
OL_1_CAL_AX	nominally every 2 or 4 weeks	< 1 MB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 25 Detailed structure of the OLCI L1 Calibration Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			

Element name	Description	Range or value	T	D
modules	**Number of modules**	**5**		
bands	**Number of bands (excluding smear)**	**21**		
bands_total	**Number of bands (including smear)**	**22**		
module_pixels	**Number of CCD pixels per module (accross_track dimension)**	**740**		
central_wavelength_and_bandwidth				
pixels_wavelength	**Pixels characterized central wavelength.** ***Note: Bands 1 to 21 from the smaller to the higher wavelength (i.e. ESA SRD order).***		**fl**	**bands** **modules** **module_pixels**
units	UDUNITS unit name	nm	S	1
pixels_bandwidth	**Pixels characterized bandwidth (Full Width at Half Maximum).** ***Note: Bands 1 to 21 from the smaller to the higher wavelength (i.e. ESA SRD order).***		**fl**	**bands** **modules** **module_pixels**
units	UDUNITS unit name	nm	S	1
inband_extraterrestrial_solar_irradiance				
ref_sun_earth_dist_white_diff	**Reference Sun-Earth distance used to characterise the BRDF of the diffuser**		**D**	**1**
units	UDUNITS unit name	m	S	1
ref_solar_flux	**In-band equivalent Sun irradiance at OLCI samples at reference Sun-Earth distance.** ***Note: Bands 1 to 21 from the smaller to the higher wavelength (i.e. ESA SRD order).***		**fl**	**bands** **modules** **module_pixels**
units	UDUNITS unit name	mW.m-2.nm-1	S	1
reference_calibration_coefficients				
time	**Reference time for calibration coefficients in the UTC YYYY-MM-DDThh:mm:ss.dddddZ CCSDS format**		**S**	**1**

Element name	Description	Range or value	T	D
dark_offset	**Reference dark offset coefficient for sample b, m, k (at a reference temperature).** ***Note: Bands 1 to 21 from the smaller to the higher wavelength (i.e. ESA SRD order). Smear is band 22.***		**fl**	**bands_total modules module_pixels**
dark_current	**Reference dark current coefficient for sample b, m, k (at a reference temperature).** ***Note: Bands 1 to 21 from the smaller to the higher wavelength (i.e. ESA SRD order). Smear is band 22.***		**fl**	**bands_total modules module_pixels**
gain_coeff	**Gain coefficient for sample b, m, k (at a reference time and a reference temperature).** ***Note: Bands 1 to 21 from the smaller to the higher wavelength (i.e. ESA SRD order).***		**fl**	**bands modules module_pixels**
units	UDUNITS unit name	(mW.m-2.sr-1.nm-1)-1	S	1
instrument_gain_temporal_degradation				
beta	**Amplitude of the degradation.** ***Note: Bands 1 to 21 from the smaller to the higher wavelength (i.e. ESA SRD order).***		**fl**	**bands modules module_pixels**
delta	**Period of the degradation.** ***Note: Bands 1 to 21 from the smaller to the higher wavelength (i.e. ESA SRD order).***		**fl**	**bands modules module_pixels**
units	UDUNITS unit name	(days since 2000-01-01 00:00:00)-1	S	1
thermoelastic_model_EO				
julian_days	**Number of Julian days for which the deformations are characterised in EO mode**			
on_orbit_positions	**Number of in orbit position for which the deformations are characterised in EO mode**			
julian_days	**Number of the Julian days for which the quaternions are provided for EO mode**	**[1, 366]**	**ss**	**julian_days**
on_orbit_positions_angle	**On orbit position angle**	**[0, 360]**	**fl**	**modules julian_days on_orbit_positions**

Element name	Description	Range or value	T	D
units	UDUNITS unit name	degrees	S	1
quaternions_1	**Quaternion first component (real part). The thermo-elastic deformations of the line of sight of the module are provided as quaternions covering one orbital revolution for a number of days in the year. The quaternions provide rotation data from instrument to SC frames.**	**[0, 1]**	**fl**	**modules julian_days on_orbit_positions**
quaternions_2	**Quaternion second component**	**[0, 1]**	**fl**	**modules julian_days on_orbit_positions**
quaternions_3	**Quaternion third component**	**[0, 1]**	**fl**	**modules julian_days on_orbit_positions**
quaternions_4	**Quaternion fourth component**	**[0, 1]**	**fl**	**modules julian_days on_orbit_positions**
thermoelastic_model_ RC				
julian_days	**Number of Julian days for which the deformations are characterised in RC mode**			
on_orbit_positions	**Number of in orbit position for which the deformations are characterised in RC mode**			
julian_days	**Number of the Julian days for which the quaternions are provided for RC mode**	**[1, 366]**	**ss**	**julian_days**
on_orbit_positions_angle	**On orbit position angle**	**[0, 360]**	**fl**	**modules julian_days on_orbit_positions**
units	UDUNITS unit name	degrees	S	1
quaternions_1	**Quaternion first component (real part). The thermo-elastic deformations of the line of sight of the module are provided as quaternions covering one orbital revolution for a number of days in the year. The quaternions provide rotation data from instrument to SC frames.**	**[0, 1]**	**fl**	**modules julian_days on_orbit_positions**
quaternions_2	**Quaternion second component**	**[0, 1]**	**fl**	**modules julian_days on_orbit_positions**

Element name	Description	Range or value	T	D
quaternions_3	Quaternion third component	[0, 1]	fl	modules julian_days on_orbit_positions
quaternions_4	Quaternion fourth component	[0, 1]	fl	modules julian_days on_orbit_positions
sampling_maps				
resampling	Re-sampling map allowing to select instrument pixels m, k as valid for product pixel filling	[0, 1]	uc	modules module_pixels
anomalous	Map of radiometrically anomalous CCDs samples m, k (1 bit for each spectral sample b set to 1 if considered anomalous)	[0, 1]	ul	modules module_pixels

5.1.7 Programmation Data File

The OLCI L1 Programmation Data File contains data related to the instrument programmation. The data is described in the following table gathered by topic in groups.

Table 26 Groups of the OLCI L1 Programmation Data File

Name	Description
microband_band_settings	giving the programmation of the microbands and bands for the nominal and the spectral calibration modes
microband_gain_settings	giving the index of the VAM programmable gains used for each microband at module level
calibration_sequence	providing for each calibration sequence, the number of frames acquired while shutter is ON, and the one while diffuser is ON

FILE Type	Update rate	Size *(may vary if LUTs dimensions change)*
OL_1_PRG_AX	Infrequently	< 50 KB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 27 Detailed structure of the OLCI L1 Programmation Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
modules	**Number of modules**	**5**		
microbands	**Number of microbands (including smear)**	**46**		
bands_total	**Number of bands (including smear), in spectrally relaxed mode**	**22**		
microband_band_settings				
CCD_first_line_mb_EO_RC	**Index of "reddest" CCD line exposed to light for each microband of each camera (in IMDD reference, i.e. with smear microband starting at line 1; shall be set to _FillValue for the microbands that are not used) used during EO and radiometric calibration (calibration sequence 1, 4, 5). (last used microband=smear)**	**[1, 576]**	**sl**	**modules microbands**
_FillValue	Default value for unused elements	0	sl	1
CCD_nb_lines_mb_EO_RC	**Number of CCD lines exposed to light for each microband of each camera (shall be set to _FillValue for the microbands that are not used) used during EO and radiometric calibration (calibration sequence 1, 4, 5). (last used microband=smear)**	**[1, 63]**	**sl**	**modules microbands**
_FillValue	Default value for unused elements	0	sl	1

Element name	Description	Range or value	T	D
CCD_first_line_mb_SC	**Index of “reddest” CCD line exposed to light for each microband of each camera (in IMDD reference, i.e. with smear microband starting at line 1; shall be set to _FillValue for the microbands that are not used) used during SC calibration (calibration sequence 2, 3). (last used microband=smear)**	**[1, 576]**	**sl**	**modules microbands**
_FillValue	Default value for unused elements	0	sl	1
CCD_nb_lines_mb_SC	**Number of CCD lines exposed to light for each microband of each camera (shall be set to _FillValue for the microbands that are not used) used during SC calibration (calibration sequence 2, 3). (last used microband=smear)**	**[1, 63]**	**sl**	**modules microbands**
_FillValue	Default value for unused elements	0	sl	1
first_mb_band	**Index of first microband used to build each band. Highest microband and band indices are smear microband/band, band index increase with centre wavelength.**	**[1, 46]**	**sl**	**bands_total**
nb_mb_band	**Number of microbands used to build each band. Highest band index is smear band, band index increase with centre wavelength.**	**[1, 4]**	**sl**	**bands_total**
microband_gain_settings				
VAM_prog_gain_band_EO_RC	**Table of VAM programmable gain indices for each band including the smear band used during EO and radiometric calibration (calibration sequence 1, 4, 5) (band22=smear)**	**[1, 8]**	**us**	**modules bands_total**
VAM_prog_gain_microband_SC	**Table of VAM programmable gain indices for each microband including the smear microband used during spectral calibration (calibration sequence 2, 3) (highest microband=smear)**	**[1, 8]**	**us**	**modules microbands**
calibration_sequence				
sequences	**Number of calibration sequences**	**9**		
sequences_id	**Calibration sequence id (1: RADIOMETRIC CALIBRATION no 1, 2: SPECTRAL CALIBRATION no 1 at ORBIT N, 3: SPECTRAL CALIBRATION no 1 at ORBIT N+1, 4: DIFFUSER AGEING at ORBIT N, 5: DIFFUSER AGEING at ORBIT N+1, 6: ORBITAL STABILITY, 7: SPECTRAL CALIBRATION no 2, 8: RADIOMETRIC CALIBRATION no 2, 9: OBSERVATION of atmospheric absorption lines (SPECTRAL CALIBRATION))**	**[1, 9]**	**uc**	**sequences**

Element name	Description	Range or value	T	D
diffusers_id	**Diffuser id used during calibration (0: none, 1: nominal white diffuser, 2: redundant (or ageing) white diffuser, 3: spectral diffuser)**	**[0, 3]**	**uc**	**sequences**
dark_frames	**Number of dark frames**		**us**	**sequences**
diffuser_frames	**Number of diffuser frames**		**us**	**sequences**

5.2 OLCI Level 2 Auxiliary Data Files

5.2.1 Processing Control Parameter File

The OLCI L2 Processing Control Parameter File contains the L2 processor configuration parameters.

FILE Type	Update rate	Size *(may vary if LUTs dimensions change)*
OL_2_PCP_AX	Infrequently	< 10 KB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 28 Detailed structure of the OLCI L2 Processing Control Parameter File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
bands	**Number of bands**	**21**		

Element name	Description	Range or value	T	D
pair	**Number of elements in a pair**	**2**		
lambda_theo	**Theoretical wavelengths**		**fl**	**bands**
units	UDUNITS unit name	nm	S	1
ac_switch	**Switch selecting the atmospheric correction model:** **0 = Paralell branches** **1 = Baseline** **2 = Alternate**	**[0, 2]**	**us**	**1**
land_ref_corr_switches	**Switches enabling Smile Effect Correction for land pixels reflectance for each band**		**us**	**bands**
land_ref_corr_bands	**Pair of band indices (lower first, then upper) for land pixels estimation of reflectance spectral derivative for each band**		**us**	**bands** **pair**
water_ref_corr_switches	**Switches enabling Smile Effect Correction for water pixels reflectance for each band**		**us**	**bands**
water_ref_corr_bands	**Pair of band indices (lower first, then upper) for water pixels estimation of reflectance spectral derivative for each band**		**us**	**bands** **pair**
error_estimates_switch	**Switch enabling error estimate calculations**	**[0, 1]**	**us**	**1**
theta_s_limit	**Limit on SZA above which HISOLZEN flag is set**		**fl**	**1**
add_offset_rxxx	**add_offset value for the Rxxx products**		**fl**	**1**
add_offset_adg_443_NN	**add_offset value for the ADG443_NN product**		**fl**	**1**
units	UDUNITS unit name	lg(re m-1)	S	1
add_offset_chl	**add_offset value for the CHL_OC4ME and CHL_NN products**		**fl**	**1**
units	UDUNITS unit name	lg(re mg.m-3)	S	1
add_offset_TSM_NN	**add_offset value for the TSM_NN product**		**fl**	**1**
units	UDUNITS unit name	lg(re g.m-3)	S	1

Element name	Description	Range or value	T	D
add_offset_kd_490_m07	**add_offset value for the KD490_M07 product**		**fl**	**1**
units	UDUNITS unit name	lg(re m-1)	S	1
add_offset_PAR	**add_offset value for the PAR product**		**fl**	**1**
units	UDUNITS unit name	microeinstein.m-2.s	S	1
add_offset_a_865	**add_offset value for the A865 product**		**fl**	**1**
add_offset_t_865	**add_offset value for the T865 product**		**fl**	**1**
add_offset_IWV	**add_offset value for the IWV product**		**fl**	**1**
units	UDUNITS unit name	kg.m-2	S	1
add_offset_OGVI	**add_offset value for the OGVI product**		**fl**	**1**
add_offset_rc_681	**add_offset value for the RC681 product**		**fl**	**1**
add_offset_rc_865	**add_offset value for the RC865 product**		**fl**	**1**
add_offset_OTCI	**add_offset value for the OTCI product**		**fl**	**1**
scale_factor_rxxx	**scale_factor value for the Rxxx products**		**fl**	**1**
scale_factor_adg_443_NN	**scale_factor value for the ADG443_NN product**		**fl**	**1**
units	UDUNITS unit name	lg(re m-1)	S	1
scale_factor_chl	**scale_factor value for the CHL_OC4ME and CHL_NN products**		**fl**	**1**
units	UDUNITS unit name	lg(re mg.m-3)	S	1
scale_factor_TSM_NN	**scale_factor value for the TSM_NN product**		**fl**	**1**
units	UDUNITS unit name	lg(re g.m-3)	S	1

Element name	Description	Range or value	T	D
scale_factor_kd_490_m07	**scale_factor value for the KD490_M07 product**		**fl**	**1**
units	UDUNITS unit name	lg(re m-1)	S	1
scale_factor_PAR	**scale_factor value for the PAR product**		**fl**	**1**
units	UDUNITS unit name	microeinstein.m-2.s	S	1
scale_factor_a_865	**scale_factor value for the A865 product**		**fl**	**1**
scale_factor_t_865	**scale_factor value for the T865 product**		**fl**	**1**
scale_factor_IWV	**scale_factor value for the IWV product**		**fl**	**1**
units	UDUNITS unit name	kg.m-2	S	1
scale_factor_OGVI	**scale_factor value for the OGVI product**		**fl**	**1**
scale_factor_rc_681	**scale_factor value for the RC681 product**		**fl**	**1**
scale_factor_rc_865	**scale_factor value for the RC865 product**		**fl**	**1**
scale_factor_OTCI	**scale_factor value for the OTCI product**		**fl**	**1**

5.2.2 Pre-Processing Data File

The OLCI L2 Pre-Processing Data File contains the parameters used by the pixel classification step. The data is described in the following table, gathered by topic in groups.

Table 29 Groups of the OLCI L2 Pre-Processing Data File

Name	Description

Name	Description
classification_1	giving the the parameters dedicated to the clouds/snow/ice classification
gas_correction	providing the gas correction parameters
classification_2	providing the consolidated land/water classification parameters

FILE Type	Update rate	Size *(may vary if LUTs dimensions change)*
OL_2_PPP_AX	Infrequently	< 5 MB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 30 Detailed structure of the OLCI L2 Pre-Processing Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
bands	**Number of bands**	**21**		
pair	**Number of elements in a pair**	**2**		
SZA_classif	**Number of Sun Zenith Angles in several classification LUTs**			
VZA_classif	**Number of View Zenith Angles in several classification LUTs**			
RAA_classif	**Number of Relative Azimuth Angles in several classification LUTs**			
tau_rayleigh	**Rayleigh optical thickness at standard pressure for all bands**		**fl**	**bands**
standard_pressure	**Standard value of the surface pressure**		**fl**	**1**

Element name	Description	Range or value	T	D
units	UDUNITS unit name	hPa	S	1
pressure_scale_height	**Pressure scale height**		**fl**	**1**
units	UDUNITS unit name	m	S	1
L_typ	**Typical TOA radiance level for clear waters**		**fl**	**bands**
units	UDUNITS unit name	mW.m-2.sr-1.nm-1	S	1
sigma_typ	**Typical radiometric uncertainty at typical radiance level**		**fl**	**bands**
units	UDUNITS unit name	mW.m-2.sr-1.nm-1	S	1
classification_1				
ti_rayleigh	**Number of rayleigh transmittance coefficients**	**3**		
tau_ray_alb	**Number of optical thickness in ray_alb_LUT**			
wind_az_rho_g	**Number of wind azimuth angles in rho_g_LUT**			
VZA_rho_g	**Number of View Zenith Angles in rho_g_LUT**			
RAA_rho_g	**Number of Relative Azimuth Angles in rho_g_LUT**			
windm_rho_g	**Number of wind speed modulus in rho_g_LUT**			
SZA_rho_g	**Number of Sun Zenith Angles in rho_g_LUT**			
fourier_poly_orders	**Number of Fourier polynomial coefficient orders in ray_scatt_coeff_LUT**	**4**		
fourier_series	**Number of Fourier series terms in ray_scatt_coeff_LUT**	**3**		
wavelengths_t_o2	**Number of wavelengths in several pressure LUTs**			

Element name	Description	Range or value	T	D
SZA_t_o2	Number of Sun Zenith Angles in several pressure LUTs			
VZA_t_o2	Number of View Zenith Angles in several pressure LUTs			
pressures_t_o2_atm	Number of pressure layers in t_o2_atm_LUT			
scatt_angles_APF_junge	Number of scattering angles in APF_junge_LUT	181		
angles_fresnel_coeff	Number of angles in fresnel_coeff_LUT	91		
a_b_rayleigh	Coefficients to correct for molecule anisotropy		fl	pair
ti_rayleigh	Rayleigh transmittance coefficients		fl	ti_rayleigh
b_bright_land	Index of band for test on Rayleigh corrected reflectance over land	[1, 21]	us	1
b_bright_water	Index of band for test on Rayleigh corrected reflectance over water	[1, 21]	us	1
b_bright_toa	Index of band for test on TOA reflectance over water	[1, 21]	us	1
b_slope1_n	Index of numerator band for slope test 1	[1, 21]	us	1
b_slope1_d	Index of denominator band for slope test 1	[1, 21]	us	1
b_slope2_n	Index of numerator band for slope test 2	[1, 21]	us	1
b_slope2_d	Index of denominator band for slope test 2	[1, 21]	us	1
b1_ODSI	First band index for ODSI computation (bluest band)	[1, 21]	us	1
b2_ODSI	Second band index for ODSI computation (redest band)	[1, 21]	us	1
slope1_low	Lower limit of slope range for test 1		fl	1
slope1_high	Upper limit of slope range for test 1		fl	1
slope2_low	Lower limit of slope range for test 2		fl	1

Element name	Description	Range or value	T	D
slope2_high	**Upper limit of slope range for test 2**		**fl**	**1**
rho_toa_threshold	**Thresholds on TOA reflectance at band b_bright_toa**		**fl**	**pair**
ODSI_threshold	**Threshold on ODSI**		**fl**	**1**
p1_threshold	**Apparent pressure threshold over land, far and close to coast**		**fl**	**pair**
units	UDUNITS unit name	hPa	S	1
rho_754_threshold	**Minimum b754 reflectance value to consider apparent pressure over land**		**fl**	**1**
p_scatt_threshold	**Apparent pressure threshold over water**		**fl**	**1**
units	UDUNITS unit name	hPa	S	1
r_754_779_threshold	**Minimum b754-b779 spectral slope value to consider apparent pressure over water**		**fl**	**1**
high_glint_threshold	**High glint threshold**		**fl**	**1**
wind_az_rho_g	**Wind azimuth angles of rho_g_LUT**		**fl**	**wind_az_rho_g**
units	UDUNITS unit name	degrees	S	1
VZA_rho_g	**View Zenith Angles of rho_g_LUT**		**fl**	**VZA_rho_g**
units	UDUNITS unit name	degrees	S	1
RAA_rho_g	**Relative Azimuth Angles of rho_g_LUT**		**fl**	**RAA_rho_g**
units	UDUNITS unit name	degrees	S	1
windm_rho_g	**Wind speed modulus of rho_g_LUT**		**fl**	**windm_rho_g**
units	UDUNITS unit name	m.s-1	S	1
SZA_rho_g	**Sun Zenith Angles of rho_g_LUT**		**fl**	**SZA_rho_g**

Element name	Description	Range or value	T	D
units	UDUNITS unit name	degrees	S	1
rho_g_LUT	**Sun glint reflectance LUT**		**fl**	**wind_az_rho_g VZA_rho_g RAA_rho_g windm_rho_g SZA_rho_g**
tau_ray_alb	**Optical thickness of ray_alb_LUT**		**fl**	**tau_ray_alb**
ray_alb_LUT	**Rayleigh spherical albedo as a function of optical thickness**		**fl**	**tau_ray_alb**
SZA_classif	**Sun Zenith Angles of several classification LUTs**		**fl**	**SZA_classif**
units	UDUNITS unit name	degrees	S	1
VZA_classif	**View Zenith Angles of several classification LUTs**		**fl**	**VZA_classif**
units	UDUNITS unit name	degrees	S	1
RAA_classif	**Relative Azimuth Angles of several classification LUTs**		**fl**	**RAA_classif**
units	UDUNITS unit name	degrees	S	1
ray_scatt_coeff_LUT	**LUT of polynomial coefficients for the Fourier series terms used to compute the correction factor for Rayleigh multiple scattering**		**fl**	**fourier_poly_orders fourier_series SZA_classif VZA_classif**
rho_rc_LUT	**LUT of brightness thresholds on Rayleigh corrected reflectance for land first, then water**		**fl**	**pair SZA_classif VZA_classif RAA_classif**
wavelengths_t_o2	**Wavelengths of several pressure LUTs**		**fl**	**wavelengths_t_o2**
units	UDUNITS unit name	nm	S	1
SZA_t_o2	**Sun Zenith Angles of several pressure LUTs**		**fl**	**SZA_t_o2**

Element name	Description	Range or value	T	D
units	UDUNITS unit name	degrees	S	1
VZA_t_o2	**View Zenith Angles of several pressure LUTs**		**fl**	**VZA_t_o2**
units	UDUNITS unit name	degrees	S	1
t_o2_ray_LUT	**O2 Rayleigh transmittance LUT**		**fl**	**wavelengths_t_o2 SZA_t_o2 VZA_t_o2**
t_o2_atm_aero_LUT	**O2 aerosol atmospheric transmittance LUT for Ha=2km**		**fl**	**wavelengths_t_o2 SZA_t_o2 VZA_t_o2**
t_o2_fresnel_LUT	**O2 aerosol Fresnel LUT**		**fl**	**wavelengths_t_o2 SZA_t_o2 VZA_t_o2**
pressures_t_o2_atm	**Pressure of t_o2_atm_LUT**		**fl**	**pressures_t_o2_atm**
units	UDUNITS unit name	hPa	S	1
t_o2_atm_LUT	**O2 atmospheric transmittance LUT**		**fl**	**wavelengths_t_o2 pressures_t_o2_atm SZA_t_o2 VZA_t_o2**
APF_junge_LUT	**LUT of the APF of the reference Junge aerosol model**		**fl**	**scatt_angles_APF_junge**
fresnel_coeff_LUT	**Fresnel coefficients LUT**		**fl**	**angles_fresnel_coeff**
gas_correction				
h2o_max_bins	**Max number of water vapour absorption bins (all bands)**			
h2o_max_bins_709	**Max number of water vapour absorption bins (b709)**			
lambda_h2o_709	**Number of reference wavelengths for water vapour absorption at 709nm**			

Element name	Description	Range or value	T	D
SZA_t_o2	**Number of Sun Zenith Angles in t_o2_LUT**			
VZA_t_o2	**Number of View Zenith Angles in t_o2_LUT**			
RAA_t_o2	**Number of Relative Azimuth Angles in t_o2_LUT**			
lambda_t_o2	**Number of wavelengths in t_o2_LUT**			
LN_t_o2	**Number of normalized water leaving radiances in t_o2_LUT**			
u_t_o2	**Number of O2 absorber amounts in t_o2_LUT**			
tau_o3_norm	**Ozone optical thickness for 1 kg.m-2**		**fl**	**bands**
tau_h2o_norm	**Water vapour optical thickness for 1 kg.m-2 for all bands**		**fl**	**bands** **h2o_max_bins**
h2o_relative_weights	**Relative weights of water vapour absorption bins for all bands**		**fl**	**bands** **h2o_max_bins**
h2o_abs_bins	**Actual number of water vapour absorption bins for each band**		**us**	**bands**
lambda_h2o_709	**Reference wavelengths for water vapour absorption at 709nm**		**fl**	**lambda_h2o_709**
units	UDUNITS unit name	nm	S	1
tau_h2o_709_norm	**Water vapour optical thickness for 1 kg.m-2 for all wavelengths around 709nm**		**fl**	**lambda_h2o_709** **h2o_max_bins_709**
h2o_709_relative_weights	**Relative weights of water vapour absorption around 709nm bins for all wavelengths**		**fl**	**lambda_h2o_709** **h2o_max_bins_709**
h2o_709_abs_bins	**Actual number of water vapour absorption bins for each wavelengths around 709nm**		**us**	**h2o_max_bins_709**
tau_no2_norm	**Nitrogen dioxide optical thickness for 1 kg.m-2**		**fl**	**bands**
SZA_t_o2	**Solar Zenith Angles of t_o2_LUT**		**fl**	**SZA_t_o2**
units	UDUNITS unit name	degrees	S	1

Element name	Description	Range or value	T	D
VZA_t_o2	**View Zenith Angles of t_o2_LUT**		**fl**	**VZA_t_o2**
units	UDUNITS unit name	degrees	S	1
RAA_t_o2	**Relative Azimuth Angles of t_o2_LUT**		**fl**	**RAA_t_o2**
units	UDUNITS unit name	degrees	S	1
lambda_t_o2	**Wavelengths of t_o2_LUT**		**fl**	**lambda_t_o2**
units	UDUNITS unit name	nm	S	1
LN_t_o2	**Normalized water leaving radiance of t_o2_LUT**		**fl**	**LN_t_o2**
units	UDUNITS unit name	sr-1	S	1
u_t_o2	**O2 absorber amounts of t_o2_LUT**		**fl**	**u_t_o2**
p_ref_t_o2	**Reference pressure to derive the O2 absorber amount from surface pressure**		**fl**	**1**
units	UDUNITS unit name	hPa	S	1
t_o2_LUT	**LUT for O2 correction at 779 nm**		**fl**	**u_t_o2 lambda_t_o2 LN_t_o2 SZA_t_o2 VZA_t_o2 RAA_t_o2**
classification_2				
z_max_inland	**Maximal altitude for a reliable land/water re-classification**		**fl**	**1**
units	UDUNITS unit name	m	S	1
beta_L	**Threshold on spectral slope used in in-land waters screening over land**		**fl**	**1**
beta_W	**Threshold on spectral slope used in island screening over waters**		**fl**	**1**

Element name	Description	Range or value	T	D
alpha_threshold_LW	**Constant applying to threshold value derived from land/water reclassification LUT, 1st value for inland waters, 2nd for islands**		**fl**	**pair**
b_LW	**Indices of bands to be used for comparison with threshold within the island and in-land waters screening**	**[1, 21]**	**us**	**pair**
rho_threshold_LUT	**LUT containing threshold values for in-land waters first, then islands screening**		**fl**	**pair** **SZA_classif** **VZA_classif** **RAA_classif**

5.2.3 Water Vapour Data File

The OLCI L2 Water Vapour Data File contains the parameters used by the water vapour retrieval step.

FILE Type	Update rate	Size *(may vary if LUTs dimensions change)*
OL_2_WVP_AX	Infrequently	< 100 MB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 31 Detailed structure of the OLCI L2 Water Vapour Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
SZA	**Number of Sun Zenith Angles**			

Element name	Description	Range or value	T	D
SZA_ocean_scatt_corr	Number of Sun Zenith Angles in ocean_scatt_corr LUTs			
VZA	Number of View Zenith Angles			
VZA_ocean_scatt_corr	Number of View Zenith Angles in ocean_scatt_corr LUTs			
RAA	Number of Relative Azimuth angles			
tau_land_scatt_corr	Number of aerosol optical thickness in land_scatt_corr LUTs			
tau_ocean_scatt_corr	Number of aerosol optical thickness in ocean_scatt_corr LUTs			
ALB_land_scatt_corr	Number of albedo in land_scatt_corr LUTs			
wind_speeds	Number of wind speeds in ocean_scatt_corr LUTs			
WV_scatt_corr	Number of Water Vapour in scatt_corr LUTs			
pressures	Number of pressure levels			
pressures_bounds	Number of pressure levels boundaries (pressures + 1)			
T_profiles	Number of temperature profiles			
NDVI	Number of NDVI in delta_albedo_900_LUT			
coefficients	Number of coefficients in coeffs LUTs			
tau_alpha_coeffs	Number of aerosol optical thickness in alpha_coeffs_LUT			
ALB_tau_coeffs	Number of albedo in tau_coeffs_LUT			
max_WV_abs_bins_885	Maximum number of water vapour absorption bins per temperature profile in 885 channel			
max_WV_abs_bins_900	Maximum number of water vapour absorption bins per temperature profile in 900 channel			
LN_wind_speed	Number of normalized luminances in wind_speed_LUT			

Element name	Description	Range or value	T	D
RAA_wind_speed	**Number of Relative Azimuth Angles in wind_speed_LUT**			
VZA_wind_speed	**Number of View Zenith Angles in wind_speed_LUT**			
SZA_wind_speed	**Number of Solar Zenith Angles in wind_speed_LUT**			
tau_wind_speed	**Number of aerosol optical thickness in wind_speed_LUT**			
high_glint_threshold	**Water Vapour high glint threshold**		**fl**	**1**
sliding_radius	**Radius of sliding window considered for averaging**		**us**	**1**
R_err_tol	**Convergence criteria on transmittance ratio**		**fl**	**1**
delta_R_err_tol	**Threshold on iterative progression**		**fl**	**1**
tau_default	**Aerosol optical thickness, default case**		**fl**	**1**
tau_perturb	**Aerosol optical thickness, perturbed case (high aerosol layer)**		**fl**	**1**
SZA	**Solar Zenith Angles**		**fl**	**SZA**
units	UDUNITS unit name	degrees	S	1
SZA_ocean_scatt_corr	**Solar Zenith Angles of ocean_scatt_corr LUTs**		**fl**	**SZA_ocean_scatt_corr**
units	UDUNITS unit name	degrees	S	1
VZA	**View Zenith Angles**		**fl**	**VZA**
units	UDUNITS unit name	degrees	S	1
VZA_ocean_scatt_corr	**View Zenith Angles of ocean_scatt_corr LUTs**		**fl**	**VZA_ocean_scatt_corr**
units	UDUNITS unit name	degrees	S	1

Element name	Description	Range or value	T	D
RAA	**Relative Azimuth Angles of scatt_corr LUTs**		**fl**	**RAA**
units	UDUNITS unit name	degrees	S	1
tau_land_scatt_corr	**Aerosol optical thickness of land_scatt_corr LUTs**		**fl**	**tau_land_scatt_corr**
tau_ocean_scatt_corr	**Aerosol optical thickness of ocean_scatt_corr LUTs**		**fl**	**tau_ocean_scatt_corr**
ALB_land_scatt_corr	**Albedo of land_scatt_corr LUTs**		**fl**	**ALB_land_scatt_corr**
wind_speeds	**Wind speeds of ocean scatt_corr LUTs**		**fl**	**wind_speeds**
units	UDUNITS unit name	m.s-1	S	1
WV_scatt_corr	**Water Vapour of scatt_corr LUTs**		**fl**	**WV_scatt_corr**
units	UDUNITS unit name	kg.m-2	S	1
land_scatt_corr_LUT	**Scattering correction factor LUT, Land case**		**fl**	**WV_scatt_corr tau_land_scatt_corr ALB_land_scatt_corr RAA VZA SZA**
ocean_scatt_corr_LUT	**Scattering correction factor LUT, Ocean case**		**fl**	**WV_scatt_corr tau_ocean_scatt_corr wind_speeds RAA VZA_ocean_scatt_corr SZA_ocean_scatt_corr**

Element name	Description	Range or value	T	D
HAL_land_scatt_corr_LUT	**Scattering correction factor LUT, Land perturbed case (high aerosol layer)**		**fl**	**WV_scatt_corr tau_land_scatt_corr ALB_land_scatt_corr RAA VZA SZA**
HAL_ocean_scatt_corr_LUT	**Scattering correction factor LUT, Ocean perturbed case (high aerosol layer)**		**fl**	**WV_scatt_corr tau_ocean_scatt_corr wind_speeds RAA VZA_ocean_scatt_corr SZA_ocean_scatt_corr**
pressures_bounds	**Pressure levels of profiles of WV_T_profile_LUT**		**fl**	**pressures_bounds**
units	UDUNITS unit name	hPa	S	1
WV_T_profile_LUT	**Atmosphere temperature profiles LUT**		**fl**	**T_profiles pressures_bounds**
units	UDUNITS unit name	K	S	1
WV_valid_min	**Water vapour valid minimum**		**fl**	**1**
units	UDUNITS unit name	kg.m-2	S	1
WV_valid_max	**Water vapour valid maximum**		**fl**	**1**
units	UDUNITS unit name	kg.m-2	S	1
NDVI	**NDVI of delta_albedo_900_LUT**		**fl**	**NDVI**
delta_albedo_900_LUT	**LUT of sensitivity of albedo to NDVI**		**fl**	**NDVI**

Element name	Description	Range or value	T	D
tau_alpha_coeffs	**Aerosol optical thickness of alpha_coeffs_LUT**		**fl**	**tau_alpha_coeffs**
alpha_coeffs_LUT	**LUT of surface albedo coefficients**		**fl**	**coefficients tau_alpha_coeffs RAA VZA SZA**
ALB_tau_coeffs	**Albedo of tau_coeffs_LUT**		**fl**	**ALB_tau_coeffs**
tau_coeffs_LUT	**LUT of aerosol optical thickness coefficients**		**fl**	**coefficients ALB_tau_coeffs RAA VZA SZA**
var_inst	**Instrumental contribution to uncertainty**		**fl**	**1**
alpha_885_min	**Albedo value above which transmittance ratio shall be corrected for albedo**		**fl**	**1**
alpha_900_min	**Floor value for albedo in uncertainty computation**		**fl**	**1**
WV_abs_bins_885	**Number of water vapour absorption bins in 885 channel for each temperature profile**		**us**	**T_profiles**
tau_WV_885_LUT	**Optical thickness of water vapour absorption bins in 885 channel**		**fl**	**T_profiles pressures max_WV_abs_bins_885**
_FillValue	Default value for unused elements	-999	fl	1
weights_WV_885_LUT	**Relative weights of water vapour absorption bins in 885 channel**		**fl**	**T_profiles max_WV_abs_bins_885**
_FillValue	Default value for unused elements	-999	fl	1
WV_abs_bins_900	**Number of water vapour absorption bins in 900 channel for each temperature profile**		**us**	**T_profiles**

Element name	Description	Range or value	T	D
tau_WV_900_LUT	**Optical thickness of water vapour absorption bins in 900 channel**		**fl**	**T_profiles pressures max_WV_abs_bins_900**
_FillValue	Default value for unused elements	-999	fl	1
weights_WV_900_LUT	**Relative weights of water vapour absorption bins in 900 channel**		**fl**	**T_profiles max_WV_abs_bins_900**
_FillValue	Default value for unused elements	-999	fl	1
TCWV_layers_LUT	**Partial reference total column water vapour above a certain pressure level for each temperature profile**		**fl**	**pressures T_profiles**
units	UDUNITS unit name	kg.m-2	S	1
tau_ratio_865	**Multiplicative factor for aerosol optical thickness at 865 nm**		**fl**	**1**
tau_ratio_885	**Multiplicative factor for aerosol optical thickness at 885 nm**		**fl**	**1**
rho_885_min	**Reflectance threshold below which AOT computation is required**		**fl**	**1**
nb_iter_max	**Maximum number of iterations**		**us**	**1**
WV_err_valid_max	**Maximum valid water vapour uncertainty**		**fl**	**1**
LN_wind_speed	**Normalized luminances of wind_speed_LUT**		**fl**	**LN_wind_speed**
RAA_wind_speed	**Relative Azimuth Angles of wind_speed_LUT**		**fl**	**RAA_wind_speed**
units	UDUNITS unit name	degrees	S	1
VZA_wind_speed	**View Zenith Angles of wind_speed_LUT**		**fl**	**VZA_wind_speed**
units	UDUNITS unit name	degrees	S	1
SZA_wind_speed	**Solar Zenith Angles of wind_speed_LUT**		**fl**	**SZA_wind_speed**

Element name	Description	Range or value	T	D
units	UDUNITS unit name	degrees	S	1
tau_wind_speed	**Aerosol optical thickness of wind_speed_LUT**		**fl**	**tau_wind_speed**
wind_speed_LUT	**LUT of wind speeds**		**fl**	**LN_wind_speed** **RAA_wind_speed** **VZA_wind_speed** **SZA_wind_speed** **tau_wind_speed**
units	UDUNITS unit name	m.s-1	S	1

5.2.4 Atmospheric Correction Data File

The OLCI L2 Atmospheric Correction Data File contains the parameters used by the atmospheric correction step. The data is described in the following table, gathered by topic in groups.

Table 32 Groups of the OLCI L2 Atmospheric Correction Data File

Name	Description
glint_whitecaps	containing the glint and whitecaps correction parameters
bright_waters_NIR	giving the the parameters dedicated to the case 2 NIR reflectance estimation
standard_AC	providing the standard atmosphere correction parameters
alternate_AC	providing the alternate atmosphere correction parameters

FILE Type	Update rate	Size *(may vary if LUTs dimensions change)*

FILE Type	Update rate	Size *(may vary if LUTs dimensions change)*
OL_2_ACP_AX	Infrequently	< 370 MB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 33 Detailed structure of the OLCI L2 Atmospheric Correction Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
bands	**Number of bands**	**21**		
glint_whitecaps				
SZA	**Number of Sun Zenith Angles in blue_rho_gc_threshold_LUT**			
VZA	**Number of View Zenith Angles in blue_rho_gc_threshold_LUT**			
RAA	**Number of Relative Azimuth Angles in blue_rho_gc_threshold_LUT**			
gain_vicarious	**Vicarious adjustment gains**		**fl**	**bands**
_FillValue	Default value for unused elements		fl	1
low_glint_threshold	**Threshold for low glint (lower limit of significance)**		**fl**	**1**
medium_glint_threshold	**Threshold for medium glint (upper limit of high confidence on correction)**		**fl**	**1**
whitecaps_threshold	**Wind speed threshold for whitecaps**		**fl**	**1**
units	UDUNITS unit name	m.s-1	S	1
whitecaps_alpha	**Multiplicative coefficient for the white cap reflectances**		**fl**	**1**
units	UDUNITS unit name	s-3.m-3	S	1
whitecaps_beta	**Additive coefficient for the white cap reflectances**		**fl**	**1**

Element name	Description	Range or value	T	D
units	UDUNITS unit name	m.s-1	S	1
pressure_threshold	**Threshold for low pressure water**		**fl**	**1**
units	UDUNITS unit name	hPa	S	1
SZA	**Sun Zenith Angles of blue_rho_gc_threshold_LUT**		**fl**	**SZA**
units	UDUNITS unit name	degrees	S	1
VZA	**View Zenith Angles of blue_rho_gc_threshold_LUT**		**fl**	**VZA**
units	UDUNITS unit name	degrees	S	1
RAA	**Relative Azimuth Angles of blue_rho_gc_threshold_LUT**		**fl**	**RAA**
units	UDUNITS unit name	degrees	S	1
blue_rho_gc_threshold_LUT	**LUT giving the glint corrected reflectance threshold at 412 nm**		**fl**	**SZA VZA RAA**
units	UDUNITS unit name	hPa	S	1
bright_waters_NIR				
BW_AC_bands	**Number of bands in the bright waters AC algorithm**	**4**		
pair	**Number of elements in a pair**	**2**		
coefficients	**Number of coefficients in f_p_LUT**			
SZA	**Number of Sun Zenith Angles in f_p_LUT**			
VZA	**Number of View Zenith Angles in f_p_LUT**			
RAA	**Number of Relative Azimuth Angles in f_p_LUT**			
wind_speeds	**Number of wind speeds in f_p_LUT**			
alpha_scatt_threshold	**Threshold on marine backscatter spectral slope estimate**		**fl**	**1**
a_to_bbp_c	**Specific absorption, case of coccoliths, b in {b709, b779, b865, b885}**		**fl**	**BW_AC_bands**
units	UDUNITS unit name	m2.g-1	S	1

Element name	Description	Range or value	T	D
a_to_bbp_p	**Specific absorption, case of particulate, b in {b709, b779, b865, b885}**		**fl**	**BW_AC_bands**
units	UDUNITS unit name	m2.g-1	S	1
aw	**Absorption of pure water**		**fl**	**bands**
units	UDUNITS unit name	m-1	S	1
bbw	**Backscattering of pure water**		**fl**	**bands**
units	UDUNITS unit name	m-1	S	1
bbp_779_ie	**Initial estimate of backscatter at 779 for LOW and HIGH band sets**		**fl**	**pair**
units	UDUNITS unit name	m-1	S	1
bbp_init	**Initial value of bbp to initialize rho_w_to_bbp routine**		**fl**	**1**
units	UDUNITS unit name	m-1	S	1
bbp_star_c	**Specific backscattering of sediment, case of coccoliths, b in {b709, b779, b865, b885}**		**fl**	**BW_AC_bands**
units	UDUNITS unit name	m2.g-1	S	1
bbp_star_p	**Specific backscattering of sediment, case of particulates, b in {b709, b779, b865, b885}**		**fl**	**BW_AC_bands**
units	UDUNITS unit name	m2.g-1	S	1
bbp_tol	**Convergence criteria on bbp in the BPAC iterations**		**fl**	**1**
angstrom_init	**Initial estimate of the Angstrom exponent**		**fl**	**1**
LN_min_709	**Minimum normalised radiance measurable by OLCI at b709**		**fl**	**1**
rho_w_to_bbp_nb_iter	**Number of iterations in the rho_w_to_bbp routine**		**us**	**1**
BPAC_nb_iter	**Number of iterations in BPAC for LOW and HIGH bandset**		**us**	**pair**
rho_w_bbp_tol	**Convergence criteria on bbp in the rho_w_to_bbp routine**		**fl**	**1**
rho_w_779_do_both_threshold	**Threshold on rho_w at 779 to activate the HIGH bandset**		**fl**	**1**
rho_w_779_do_high_threshold	**Threshold on rho_w at 779 to desactivate the LOW bandset**		**fl**	**1**
TSM_c2_threshold	**Threshold on TSM concentration to identify sediment dominated waters**		**fl**	**1**
SZA	**Sun Zenith Angles of f_p_LUT**		**fl**	**SZA**

Element name	Description	Range or value	T	D
units	UDUNITS unit name	degrees	S	1
VZA	**View Zenith Angles of f_p_LUT**		**fl**	**VZA**
units	UDUNITS unit name	degrees	S	1
RAA	**Relative Azimuth Angles of f_p_LUT**		**fl**	**RAA**
units	UDUNITS unit name	degrees	S	1
wind_speeds	**Wind speeds of f_p_LUT**		**fl**	**wind_speeds**
units	UDUNITS unit name	m.s-1	S	1
f_p_LUT	**LUT of coefficients of F' to IOPs relation**		**fl**	**coefficients BW_AC_bands SZA VZA RAA wind_speeds**
standard_AC				
aerosol_lists	**Number of aerosol lists**			
max_aerosols_per_list	**Maximum number of aerosol per list**	**20**		
aerosols	**Total number of actual aerosol models**			
blue_aerosols	**Total number of blue aerosol models**			
tau_a	**Number of optical thickness nodes in specdep and tau_a_865 LUTs**			
coeff_x_c	**Number of coefficients in x_c_LUT**			
wind_speeds	**Number of wind speeds in several atmosphere LUTs**			
SZA	**Number of Sun Zenith Angles in several atmosphere LUTs**			
VZA	**Number of View Zenith Angles in several atmosphere LUTs**			
RAA	**Number of Relative Azimuth Angles in several atmosphere LUTs**			
months_aero_clim_ocean	**Number of months in aero_clim_ocean_LUT**			

Element name	Description	Range or value	T	D
lat_aero_clim_ocean	**Number of latitudes in aero_clim_ocean_LUT**			
lon_aero_clim_ocean	**Number of longitudes in aero_clim_ocean_LUT**			
climato_aux	**Switch to activate the use of a climatology**	**[0, 1]**	**uc**	**1**
chl_mean	**Mean value of chlorophyll concentration**		**fl**	**1**
units	UDUNITS unit name	mg.m-3	S	1
delta_rho_510_limit	**Limit of delta_rho_510 to set the annotation flag**		**fl**	**1**
delta_rho_510_B_threshold	**Threshold for the blue aerosol test at 510 nm**		**fl**	**1**
delta_rho_510_D_threshold	**Threshold for the absorbing aerosol test at 510 nm**		**fl**	**1**
nadir_f_over_q	**Value of f/Q factor at nadir**		**fl**	**1**
aerosols	**Lists of aerosol models**	**[1, aerosols]**	**ss**	**aerosol_lists max_aerosols_per_list**
_FillValue	Default value for unused elements	-1	ss	1
blue_aerosols	**Lists of blue aerosol models (may be empty)**	**[1, aerosols]**	**ss**	**blue_aerosols**
_FillValue	Default value for unused elements	-1	ss	1
tau_a_max	**Maximum allowed value for aerosol optical thickness**		**fl**	**1**
nb_passes	**Maximum allowed number of passes in aerosol identification**		**us**	**1**
pressure_tolerance	**Threshold to activate a correction for pressure**		**fl**	**1**
rho_w_negative_thresholds	**LUT of negative water-leaving reflectance threshold**		**fl**	**bands**
tau_a_865_threshold	**Threshold for flagging the aerosol optical thickness**		**fl**	**1**
nadir_theta_p	**Value of theta_p for nadir view**		**fl**	**1**
tau_a_865	**LUT of the optical thickness of the aerosol assemblage at 865 nm**		**fl**	**aerosols tau_a**
tau_a_spectral_dependency	**LUT of the spectral dependence of the aerosol optical thickness**		**fl**	**aerosols bands tau_a**

Element name	Description	Range or value	T	D
wind_speeds	**Wind speeds of several atmosphere LUTs**		**fl**	**wind_speeds**
units	UDUNITS unit name	m.s-1	S	1
SZA	**Sun Zenith Angles of several atmosphere LUTs**		**fl**	**SZA**
units	UDUNITS unit name	degrees	S	1
VZA	**View Zenith Angles of several atmosphere LUTs**		**fl**	**VZA**
units	UDUNITS unit name	degrees	S	1
RAA	**Relative Azimuth Angles of several atmosphere LUTs**		**fl**	**RAA**
units	UDUNITS unit name	degrees	S	1
rho_rayleigh_LUT	**LUT containing the Rayleigh reflectances**		**fl**	**bands wind_speeds SZA VZA RAA**
x_c_LUT	**LUT for polynomial coefficients linking the ratio rho_path / rho_rayleigh to the aerosol optical thickness**		**fl**	**aerosols bands wind_speeds SZA VZA RAA coeff_x_c**
t_down_LUT	**LUT for downward diffuse transmittance**		**fl**	**aerosols bands SZA tau_a wind_speeds**
t_up_LUT	**LUT for downward diffuse transmittance**		**fl**	**aerosols bands VZA tau_a**
f_a_LUT	**LUT for the aerosol forward scattering probability f_a**		**fl**	**aerosols bands**

Element name	Description	Range or value	T	D
w_a_LUT	**LUT for the aerosol single scattering albedo w_a**		**fl**	**aerosols bands**
months_aero_clim_ocean	**Months of aero_clim_ocean_LUT (integer values meaning mid-month)**	**[0.5, 12.5]**	**fl**	**months_aero_clim_ocean**
units	UDUNITS unit name	day	S	1
lat_aero_clim_ocean	**Latitudes of aero_clim_ocean_LUT**	**[-90, 90]**	**fl**	**lat_aero_clim_ocean**
units	UDUNITS unit name	degrees_north	S	1
lon_aero_clim_ocean	**Longitudes of aero_clim_ocean_LUT**	**[0, 360]**	**fl**	**lon_aero_clim_ocean**
units	UDUNITS unit name	degrees_east	S	1
aero_clim_ocean_LUT	**Map of aerosol climatology over ocean**		**uc**	**months_aero_clim_ocean lat_aero_clim_ocean lon_aero_clim_ocean**
alternate_AC				
RL_TOSA	**Number of Alternate AC input bands**	**15**		
NN_size	**Storage size of neural net objects (bytes)**			
standard_u_o3	**Standard O3 content**		**fl**	**1**
units	UDUNITS unit name	kg.m-2	S	1
RL_TOSA_valid_min	**Minimum acceptable value for RLTOSA**		**fl**	**RL_TOSA**
units	UDUNITS unit name	sr-1	S	1
RL_TOSA_valid_max	**Maximum acceptable value for RLTOSA**		**fl**	**RL_TOSA**
units	UDUNITS unit name	sr-1	S	1
out_of_scope_index_threshold	**Threshold on Out Of Scope Index**		**fl**	**1**

Element name	Description	Range or value	T	D
units	UDUNITS unit name	sr-1	S	1
auto_NN	**Auto-associative neural network for RL_TOSA scope checks**		**uc**	**NN_size**
aerosol_NN	**Neural network for aerosol load retrieval**		**uc**	**NN_size**
RL_w_NN	**Neural network for water-leaving radiance-reflectance retrieval**		**uc**	**NN_size**

5.2.5 Ocean Colour Data File

The OLCI L2 Ocean Colour Data File contains the parameters used by the ocean colour algorithms step.

FILE Type	Update rate	Size *(may vary if LUTs dimensions change)*
OL_2_OCP_AX	Infrequently	< 2.5 MB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 34 Detailed structure of the OLCI L2 Ocean Colour Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
tau_a_FOQ	**Number of aerosol optical thickness in f_over_q_LUT**			
wind_speeds_FOQ	**Number of wind speeds in f_over_q_LUT**			
wavelengths_FOQ	**Number of wavelengths in f_over_q_LUT**			

Element name	Description	Range or value	T	D
SZA_FOQ	Number of Sun Zenith Angles in f_over_q_LUT			
PZA_FOQ	Number of refracted viewing zenith angles in f_over_q_LUT			
RAA_FOQ	Number of Relative Azimuth Angles in f_over_q_LUT			
chl_FOQ	Number of chlorophyll in f_over_q_LUT			
PZA_r_goth	Number of refracted viewing zenith angles in r_goth_LUT			
wind_speeds_r_goth	Number of wind speeds in r_goth_LUT			
wavelengths_f0	Number of wavelengths in f0_LUT			
chl_f0	Number of chlorophyll in f0_LUT			
range	Number of elements in a range	2		
chl_oc4me_HWLR	Number of polynomial coefficients to compute HWLR_threshold			
log10_coeff	Number of coefficients in log10_coeff_LUT			
NN_size	Storage size of neural net objects (bytes)			
pair	Number of elements in a pair	2		
kd_490_m07_a_x	Number of coefficients for the Morel 2007 diffuse attenuation coefficient calculation			
angstrom_PAR	Number of Angstrom exponents in PAR_LUT			
u_o3_PAR	Number of ozone concentrations in PAR_LUT			
tau_a_PAR	Number of aerosol optical thickness (at 865 nm) in PAR_LUT			
w_t_PAR	Number of total column water vapour in PAR_LUT			
water_refraction_index	Water refraction index		fl	1

Element name	Description	Range or value	T	D
tau_a_FOQ	**Aerosol optical thickness of f_over_q_LUT**		**fl**	**tau_a_FOQ**
wind_speeds_FOQ	**Wind speeds of f_over_q_LUT**		**fl**	**wind_speeds_FOQ**
units	UDUNITS unit name	m.s-1	S	1
wavelengths_FOQ	**Wavelengths of f_over_q_LUT**		**fl**	**wavelengths_FOQ**
units	UDUNITS unit name	nm	S	1
SZA_FOQ	**Sun Zenith Angles of f_over_q_LUT**		**fl**	**SZA_FOQ**
units	UDUNITS unit name	degrees	S	1
PZA_FOQ	**Refracted viewing zenith angles of f_over_q_LUT**		**fl**	**PZA_FOQ**
units	UDUNITS unit name	degrees	S	1
RAA_FOQ	**Relative Azimuth Angles of f_over_q_LUT**		**fl**	**RAA_FOQ**
units	UDUNITS unit name	degrees	S	1
chl_FOQ	**Chlorophyll of f_over_q_LUT**		**fl**	**chl_FOQ**
units	UDUNITS unit name	mg.m-3	S	1
f_over_q_LUT	**LUT for the bidirectional factor f_over_q (case1 waters)**		**fl**	**tau_a_FOQ wind_speeds_FOQ wavelengths_FOQ SZA_FOQ PZA_FOQ RAA_FOQ chl_FOQ**
PZA_r_goth	**Refracted viewing zenith angles of r_goth_LUT**		**fl**	**PZA_r_goth**
units	UDUNITS unit name	degrees	S	1

Element name	Description	Range or value	T	D
wind_speeds_r_goth	**Wind speeds of r_goth_LUT**		**fl**	**wind_speeds_r_goth**
units	UDUNITS unit name	m.s-1	S	1
r_goth_LUT	**LUT for the ocean-atmosphere reflection factor**		**fl**	**PZA_r_goth wind_speeds_r_goth**
chl_oc4me_init	**Initial algal pigment index value**		**fl**	**1**
units	UDUNITS unit name	mg.m-3	S	1
chl_oc4me_nb_iter	**Number of iterations for chl_oc4me calculation**		**us**	**1**
wavelengths_f0	**Wavelengths of f0_LUT**		**fl**	**wavelengths_f0**
units	UDUNITS unit name	nm	S	1
chl_f0	**Chlorophyll of f0_LUT**		**fl**	**chl_f0**
units	UDUNITS unit name	mg.m-3	S	1
f0_LUT	**Factor relating irradiance reflectance to water IOPs (with Sun at zenith), bands in {443, 490, 510 , 560}**		**fl**	**wavelengths_f0 chl_f0**
r_ratio_valid_range	**Irradiance reflectance ratio validity range for chl_oc4me computation (min first, then max)**		**fl**	**range**
NA1	**Highest order of coefficients to use in log10_coeff_LUT**		**us**	**1**
log10_coeff_LUT	**Polynomial coefficients for algal pigment index retrieval in case 1 waters**		**fl**	**log10_coeff**
chl_oc4me_epsilon	**Convergence criterium for iterative Chl calculation**		**fl**	**1**
chl_oc4me_valid_range	**chl_oc4me validity range (min first, then max)**		**fl**	**range**
units	UDUNITS unit name	mg.m-3	S	1
chl_oc4me_HWLR	**Polynomial coefficients to compute HWLR_threshold**		**fl**	**chl_oc4me_HWLR**

Element name	Description	Range or value	T	D
chl_oc4me_high_threshold	**Threshold to identify high algal pigment index**		**fl**	**1**
units	UDUNITS unit name	mg.m-3	S	1
imt_inverse_NN	**Neural net object for case 2 waters IOP inverse modelling**		**uc**	**NN_size**
imt_forward_NN	**Neural net object for case 2 waters IOP forward modelling**		**uc**	**NN_size**
imt_uncertainty_NN	**Neural net object for case 2 waters IOP uncertainty estimates modelling**		**uc**	**NN_size**
NN_in_rho_valid_min	**Minimum valid value for reflectances at neural net input**		**fl**	**1**
inv_abs_chl_NN	**Conversion factors for Chl_NN (first factor is in mg.m-3 and second is dimensionless)**		**fl**	**pair**
inv_scatt_TSM_NN	**Conversion factor for TSM_NN**		**fl**	**1**
units	UDUNITS unit name	g.m-3	S	1
NN_out_chi2_threshold	**Threshold on the output Chi2 to raise the (low) confidence flag**		**fl**	**1**
kd_490_m07_a_x	**Coefficients for the Morel 2007 diffuse attenuation coefficient calculation**		**fl**	**kd_490_m07_a_x**
kw_490	**Pure water vertical attenuation coefficient at 490 nm**		**fl**	**1**
kd_490_m07_valid_range	**kd_490_m07 validity range (min first, then max)**		**fl**	**range**
units	UDUNITS unit name	m-1	S	1
r_560_min	**Low reflectance threshold at 560 nm**		**fl**	**1**
angstrom_PAR	**Angstrom exponents of PAR_LUT**		**fl**	**angstrom_PAR**
u_o3_PAR	**Ozone concentrations of PAR_LUT**		**fl**	**u_o3_PAR**
units	UDUNITS unit name	kg.m-2	S	1
tau_a_PAR	**Aerosol optical thickness (at 865 nm) of PAR_LUT**		**fl**	**tau_a_PAR**

Element name	Description	Range or value	T	D
w_t_PAR	**Total column water vapour of PAR_LUT**		**fl**	**w_t_PAR**
units	UDUNITS unit name	kg.m-2	S	1
PAR_LUT	**LUT giving PAR**		**fl**	**angstrom_PAR u_o3_PAR tau_a_PAR w_t_PAR**
units	UDUNITS unit name	microeinstein.m-2.s-1	S	1

5.2.6 Vegetation Data File

The OLCI L2 Vegetation Data File contains the parameters used by the vegetation index retrieval step.

FILE Type	Update rate	Size *(may vary if LUTs dimensions change)*
OL_2_VGP_AX	Infrequently	< 30 KB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 35 Detailed structure of the OLCI L2 Vegetation Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
OGVI_bands	**Number of bands used for OGVI computation**	**3**		

Element name	Description	Range or value	T	D
classes	Number of surface types	2		
sets	Number of sets of polynomial coefficients	5		
orders	Number of polynomial coefficients	11		
range	Number of elements in a range	2		
OGVI_blue_band	Blue band index number		us	1
OGVI_red_band	Red band index number		us	1
OGVI_NIR_band	Near infrared band index number		us	1
OGVI_L_coeff	OGVI polynomial coefficients used for computing the polynomial ratio		fl	sets orders
K_OGVI	K_i OGVI coefficients; class in {VEG, BRIGHT} and band in {blue, red, NIR}		fl	classes OGVI_bands
theta_OGVI	Theta OGVI coefficients; class in {VEG, BRIGHT} and band in {blue, red, NIR}		fl	classes OGVI_bands
const_rho	Const_rho OGVI coefficients; class in {VEG, BRIGHT} and band in {blue, red, NIR}		fl	classes OGVI_bands
max_rho	Maximum acceptable TOA reflectance; band in {blue, red, NIR}		fl	OGVI_bands
NIR_to_ref_threshold	Near infrared to Red reflectance maximum ratio		fl	1
OTCI_valid_range	Range limits for OTCI (min first, then max)		fl	range
OTCI_red_band	Red band number for OTCI		us	1
OTCI_NIR1_band	Near infrared band 1 for OTCI		us	1
OTCI_NIR2_band	Near infrared band 2 for OTCI		us	1
OTCI_NIR3_band	Near infrared band 3 for OTCI		us	1

Element name	Description	Range or value	T	D
rho_red_max	**Maximum value of rho_top in red band to allow OTCI computation**		**fl**	**1**
rho_nir2_min	**Minimum value of rho_top in NIR2 band to allow OTCI computation**		**fl**	**1**
rho_diff_min1	**Minimum value of the reflectances difference between NIR1 and red to allow OTCI computation**		**fl**	**1**
rho_diff_min2	**Minimum value of the reflectances difference between NIR3 and red to allow OTCI computation**		**fl**	**1**
OTCI_SZA_max	**Maximum Sun Zenith Angle for OCTI quality**		**fl**	**1**
units	UDUNITS unit name	degrees	S	1
OTCI_VZA_max	**Maximum View Zenith Angle for OCTI quality**		**fl**	**1**
units	UDUNITS unit name	degrees	S	1

5.2.7 Climatology Data File

The OLCI L2 Climatology Data File contains several climatology maps used in different steps of the processing chain.

FILE Type	Update rate	Size *(may vary if LUTs dimensions change)*
OL_2_CLP_AX	Infrequently	< 100 MB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 36 Detailed structure of the OLCI L2 Climatology Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
mid_month_julian_days	**Number of months in mid_month_julian_days**	**12**		
months_rho_w_510	**Number of months in rho_w_510_mean_LUT and rho_w_510_sigma_LUT**			
lat_rho_w_510	**Number of latitudes in rho_w_510_mean_LUT and rho_w_510_sigma_LUT**			
lon_rho_w_510	**Number of longitudes in rho_w_510_mean_LUT and rho_w_510_sigma_LUT**			
months_no2_clim	**Number of months in no2_clim_LUT**			
lat_no2_clim	**Number of latitudes in no2_clim_LUT**			
lon_no2_clim	**Number of longitudes in no2_clim_LUT**			
months_salinity_clim	**Number of months in salinity_clim_LUT**			
lat_salinity_clim	**Number of latitudes in salinity_clim_LUT**			
lon_salinity_clim	**Number of longitudes in salinity_clim_LUT**			
months_SST_clim	**Number of months in SST_clim_LUT**			
lat_SST_clim	**Number of latitudes in SST_clim_LUT**			
lon_SST_clim	**Number of longitudes in SST_clim_LUT**			
mid_month_julian_days	**Day of year at mid-months**	**[0, 366]**	**fl**	**mid_month_julian_ days**
units	UDUNITS unit name	day	S	1
months_rho_w_510	**Months of rho_w_510_mean_LUT and rho_w_510_sigma_LUT (integer values meaning mid-month)**	**[0.5, 12.5]**	**fl**	**months_rho_w_510**
units	UDUNITS unit name	day	S	1
lat_rho_w_510	**Latitudes of rho_w_510_mean_LUT and rho_w_510_sigma_LUT**	**[-90, 90]**	**fl**	**lat_rho_w_510**
units	UDUNITS unit name	degrees_north	S	1
lon_rho_w_510	**Longitudes of rho_w_510_mean_LUT and rho_w_510_sigma_LUT**	**[0, 360]**	**fl**	**lon_rho_w_510**

Element name	Description	Range or value	T	D
units	UDUNITS unit name	degrees_east	S	1
rho_w_510_mean_LUT	**Climatology giving the mean rho_w at 510 nm**		**uc**	**months_rho_w_510 lat_rho_w_510 lon_rho_w_510**
_FillValue	Default value for unused elements		uc	1
scale_factor	The data must be multiplied by this factor after reading		fl	1
add_offset	This offset must be added to the data after reading (and after scaling if needed)		fl	1
rho_w_510_sigma_LUT	**Climatology giving the rho_w variability at 510 nm**		**uc**	**months_rho_w_510 lat_rho_w_510 lon_rho_w_510**
_FillValue	Default value for unused elements		uc	1
scale_factor	The data must be multiplied by this factor after reading		fl	1
add_offset	This offset must be added to the data after reading (and after scaling if needed)		fl	1
months_no2_clim	**Months of no2_clim_LUT (integer values meaning mid-month)**	**[0.5, 12.5]**	**fl**	**months_no2_clim**
units	UDUNITS unit name	day	S	1
lat_no2_clim	**Latitudes of no2_clim_LUT**	**[-90, 90]**	**fl**	**lat_no2_clim**
units	UDUNITS unit name	degrees_north	S	1
lon_no2_clim	**Longitudes of no2_clim_LUT**	**[0, 360]**	**fl**	**lon_no2_clim**
units	UDUNITS unit name	degrees_east	S	1
no2_clim_LUT	**Map of NO2**		**fl**	**months_no2_clim lat_no2_clim lon_no2_clim**
units	UDUNITS unit name	kg.m-2	S	1
months_salinity_clim	**Months of salinity_clim_LUT (integer values meaning mid-month)**	**[0.5, 12.5]**	**fl**	**months_salinity_clim**
units	UDUNITS unit name	day	S	1

Element name	Description	Range or value	T	D
lat_salinity_clim	**Latitudes of salinity_clim_LUT**	**[-90, 90]**	**fl**	**lat_salinity_clim**
units	UDUNITS unit name	degrees_north	S	1
lon_salinity_clim	**Longitudes of salinity_clim_LUT**	**[0, 360]**	**fl**	**lon_salinity_clim**
units	UDUNITS unit name	degrees_east	S	1
salinity_clim_LUT	**Map of Sea Surface Salinity**		**fl**	**months_salinity_clim lat_salinity_clim lon_salinity_clim**
units	UDUNITS unit name	PSU	S	1
months_SST_clim	**Months of SST_clim_LUT (integer values meaning mid-month)**	**[0.5, 12.5]**	**fl**	**months_SST_clim**
units	UDUNITS unit name	day	S	1
lat_SST_clim	**Latitudes of SST_clim_LUT**	**[-90, 90]**	**fl**	**lat_SST_clim**
units	UDUNITS unit name	degrees_north	S	1
lon_SST_clim	**Longitudes of SST_clim_LUT**	**[0, 360]**	**fl**	**lon_SST_clim**
units	UDUNITS unit name	degrees_east	S	1
SST_clim_LUT	**Map of Sea Surface Temperature**		**fl**	**months_SST_clim lat_SST_clim lon_SST_clim**
units	UDUNITS unit name	deg_C	S	1

6. SLSTR AUXILIARY DATA FILES

The following sections describe the Auxiliary data files used by the SLSTR Processing chains.

6.1 SLSTR Level 1 Auxiliary Data Files

6.1.1 Processing Control Parameter File

The SLSTR L1 Processing Control Parameter contains the L1 processor configuration parameters.

FILE Type	Update rate	Size *(may vary if LUTs dimensions change)*
SL_1_PCP_AX	Infrequently	< 50 KB

The file is in XML format. The detailed structure and content of this file is presented in table below.

Table 37 Detailed structure of the SLSTR L1 Processing Control Parameter File

Element name	Description	Range or value	Unit	T	C
General_switches					
S4A_nad	Switch to activate the S4 nadir A grid processing	1		B	1
S4B_nad	Switch to activate the S4 nadir B grid rocessing	1		B	1
S4TDI_nad	Switch to activate the S4 nadir TDI grid processing	0		B	1
S4A_obl	Switch to activate the S4 oblique A grid processing	1		B	1
S4B_obl	Switch to activate the S4 oblique B grid rocessing	1		B	1
S4TDI_obl	Switch to activate the S4 oblique TDI grid processing	0		B	1

Element name	Description	Range or value	Unit	T	C
S5A_nad	Switch to activate the S5 nadir A grid processing	1		B	1
S5B_nad	Switch to activate the S5 nadir B grid rocessing	1		B	1
S5TDI_nad	Switch to activate the S5 nadir TDI grid processing	0		B	1
S5A_obl	Switch to activate the S5 oblique A grid processing	1		B	1
S5B_obl	Switch to activate the S5 oblique B grid rocessing	1		B	1
S5TDI_obl	Switch to activate the S5 oblique TDI grid processing	0		B	1
S6A_nad	Switch to activate the S6 nadir A grid processing	1		B	1
S6B_nad	Switch to activate the S6 nadir B grid rocessing	1		B	1
S6TDI_nad	Switch to activate the S6 nadir TDI grid processing	0		B	1
S6A_obl	Switch to activate the S6 oblique A grid processing	1		B	1
S6B_obl	Switch to activate the S6 oblique B grid rocessing	1		B	1
S6TDI_obl	Switch to activate the S6 oblique TDI grid processing	0		B	1
SW_err_estimates	switch disabling/enabling the computation and outputting of error estimates. if this switch is equal to 0, the computataion is disabled	0		uc	1
General_information					
Test_offset	Offset used in the Scan time Inconsistency Check	0.08	s	fl	1
Delta_T_nad	Delay in seconds between the SSP associated with one nadir scan and the crossing point defined by this scan and the satellite track.	11		S	1

Element name	Description	Range or value	Unit	T	C
Delta_T_obl	Delay in seconds between the SSP associated with one oblique scan and the crossing point defined by this scan and the satellite track.	140		S	1
delta_S_nad	Curvature of SLSTR nadir scan expressed in number of included scans.	240		S	1
delta_S_obl	Curvature of SLSTR oblique scan expressed in number of included scans.	45		S	1
B	Number of channel used in SLSTR	11		S	1
B_SWIR	Total number of SLSTR bands in the SWIR channels	3		S	1
B_TIR	Total number of SLSTR bands in the thermal infrared including fire channels	5		S	1
B_VNS	Total number of SLSTR bands in the visible NIR, SWIR domains	6		S	1
N_dect	Maximum number of detector index	8		S	1
N_dect_VIS	Number of detector index associated to VIS channel	4		S	1
N_interv	Maximum index for PIX05SYNC interval	2		S	1
N_targets	Maximum number of target ID	8		S	1
N_type	Number of ISPs type	97		S	1
N_view	Total number of SLSTR views	2		S	1
percentage_missing_pixels	Percentage of unfilled pixels above which an image line is considered as affected by a gap	75	%	S	1
Validity_flag_values					
F_basic	Value of the validity flag for an initial test	1		us	1
F_BB_ov_PRT	Value of the validity flag when the final test in Black Body over range check fails	64		us	1

Element name	Description	Range or value	Unit	T	C
F_BB_ov_range	Value of the validity flag when the initial test in Black Body over range check fails	32		us	1
F_BB_resist_val	Value of the validity flag when the test on reference resistor fails	128		us	1
F_dect_IR_VIS	Value of the validity flag when the test on Detector temperature values fails	256		us	1
F_para_BB	Value of the validity flag when the check of the paraboloid mirror temperatures fails	8		us	1
F_para_TAEO	Value of the validity flag when the test of the paraboloid mirror temperatures transducteurs fails	16		us	1
F_valid_conv	Value of the validity flag when the verification of the validity of converted KH value (other than the ones associated to black bodies) fails	2		us	1
F_valid_conv_BB	Value of the validity flag when the verification of the validity of converted KH value associated to black bodies fails	4		us	1
Index_information					
j1st_scan	First index for ISP type referring to a scan packet	88		us	1
jHK	ISP type corresponding to House keeping file	96		us	1
Timing_information					
Cycle_period	Scan cycle period	0.6	s	D	1
pix10sync	Rate of sampling of thermal channels	81.74	micros	D	1
Grid_conversions					
km_per_tie_point	Across-track tie point resolution	16		ss	1
cycles_per_tie_point	Along-track tie point resolution	4		ss	1
scans_per_cycle	Scans in scan cycle	2		ss	1

Element name	Description	Range or value	Unit	T	C
acquisitions_per_scan	Number of acquisition for each scan	3670			1
Grid_sizes					
N_scan_min	Minimum number of scans that should be present in the calibration window to apply the processing	8		s	1
N_max_scan_orbit	Maximum number of scans included between ANX and ANX +1	19 354		us	1
qc_num_ac_tie_nad	Quasi-cartesian grid : Number of QC tie points in the nadir view and across-track direction	130		s	1
qc_num_ac_tie_obl	Quasi-cartesian grid : Number of QC tie points in the oblique view and across-track direction	130		s	1
qc_num_ac_tie_lgt_nad	Quasi-cartesian grid : Number of QC tie points on the left part of the grid wrt the ground track velocity for the nadir view (excluding the pixel located on the SSP track)	64		s	1
qc_num_ac_tie_lgt_obl	Quasi-cartesian grid : Number of QC tie points on the left part of the grid wrt the ground track velocity for the oblique view (excluding the pixel located on the SSP track)	64		s	1
qc_num_al_margin	Quasi-cartesian grid : additional QC tie point pre-pended along-track to cover both views	64		us	1
Nadir_pixel_tie_start	Absolute pixel position of first nadir view scan tie point	2144		s	1
Num_tie_nadir_pixels	Number of nadir view scan tie pixels	101		s	1
Oblique_pixel_tie_start	Absolute pixel position of first oblique view scan tie point	775		s	1
Num_tie_oblique_pixels	Number of oblique view scan tie pixels	40		s	1
image_num_ac_1km_nad	1 km image grid : Total number of pixels at 1 km resolution in the across track direction for the nadir view	1568		us	1
image_num_ac_1km_obl	1 km image grid : Total number of pixels at 1 km resolution in the across track direction for the oblique view	1072		us	1
image_num_ac_1km_lgt_nadir	1 km image grid : Number of pixels at 1 km resolution on the left part of the grid wrt the ground track velocity for the nadir view (excluding the pixel located on the SSP track)	1032		us	1
image_num_ac_1km_lgt_oblique	1 km image grid : Number of pixels at 1 km resolution on the left part of the grid wrt the ground track velocity for the oblique view (excluding the pixel located on the SSP track)	536		us	1

Element name	Description	Range or value	Unit	T	C
tpix_num_ac_tie_nad	Tpix grid : Total number of tie point pixels in the across-track direction for the nadir view	101		s	1
tpix_num_ac_tie_obl	Tpix grid : Total Number of tie point pixels in the across-track direction for the oblique view	40		s	1
tpix_pixel_tie_start_nad	Tpix grid : Absolute 1 km pixel (acquisition) number of first nadir view tie point pixel	2144		s	1
tpix_pixel_tie_start_obl	Tpix grid : Absolute 1 km pixel (acquisition) number of first oblique view tie point pixel	775		s	1
tpix_int_p	Tie point pixel grid : Pixel tie point interval in across-track direction (1 km)	16		s	1
Nk_orphan	Maximum number of orphans included in one SLSTR image line on the 1 km grid	496		us	1
Footprint					
tie_points_AC_subsampling_factor	Tie Points AC sub-sampling factor used to build the FootPrint metadata	12		ul	1
tie_points_AL_subsampling_factor	Tie Points AL sub-sampling factor used to build the FootPrint metadata	200		ul	1
AL_max_nb_points	Maximum AL number of points to build the FootPrint metadata	150		ul	1
Detector_Pixel_Indexing					
S1_pixel_index	Mapping of S1 pixels	[0, 3]		uc	1
S2_pixel_index	Mapping of S2 pixels	[0, 3]		uc	1
S3_pixel_index	Mapping of S3 pixels	[0, 3]		uc	1
S4_pixel_index	Mapping of S4 pixels	[0, 7]		uc	1
S5_pixel_index	Mapping of S5 pixels	[0, 7]		uc	1
S6_pixel_index	Mapping of S6 pixels	[0, 7]		uc	1
S7_pixel_index	Mapping of S7 pixels	[0, 1]		uc	1
S8_pixel_index	Mapping of S8 pixels	[0, 1]		uc	1
S9_pixel_index	Mapping of S9 pixels	[0, 1]		uc	1

Element name	Description	Range or value	Unit	T	C
F1_pixel_index	Mapping of F1 pixels	[0, 1]		uc	1
F2_pixel_index	Mapping of F2 pixels	[0, 1]		uc	1
VISCAL_extraction_parameters					
detection_channel	Channel used to detect VISCAL signal	S3		S	1
detection_element	Detector element used to dectect VISCAL signal	1		S	1
detection_threshold	Detection threshold	1000		ss	1
search_window_halfwidth	Half width of search window	600	s	D	1
averaging_window_lower	Averaging window lower limit relative to VISCAL centre (cycles)	25		ss	1
averaging_window_upper	Averaging window upper limit relative to VISCAL centre (cycles)	25		ss	1
sm_int	Smoothing interval	4		ss	1
Time_offset	Period between full illumination and the day-night boundary	288	s	D	1
Black_body_parameters					
BB_cycles	Scan cycles in BB calibration averages	8		ss	1
N_BB	Blackbody number	2		us	1
Geolocation					
Relative_scan	Estimate of relative scan position (nadir and oblique)		s	D	1
First_nadir_pixel_number	The number of the first pixel in the nadir view		s	D	1
First_oblique_pixel_number	The number of the first pixel in the oblique view		s	D	1

Element name	Description	Range or value	Unit	T	C
max_length	Maximum value of target length	1495		D	1
SW_GeoCal	Switch enabling the geometric calibration according to the thermo-elastic model instead of the static instrument misalignment characterisation. User defined: 1: use misalignement characterisation only 2: use thermoelastic model only 3: use both of them	[1, 3]		us	1
Surface_classification_thresholds					
day_threshold_solar_zenith	Threshold on Sun Zenith Angle to determine the day flag	90	degrees	D	1
twilight_threshold_solar_zenith	Threshold on Sun Zenith Angle to determine the twilight flag	102	degrees	D	1
Cloud_test_information					
b11_12_na1	First reference TIR band used for the 11/12 microns nadir/along track test	8		us	1
b11_12_na2	Second reference TIR band used for the 11/12 microns nadir/along track test	9		us	1
b12	Reference temperature used in the spatial coherence test included in 1.6 or 2.25 microm histogram test	9		us	1
Delta_bin	Bin size of the 1.6 or 2.25 histogram	0.1			1
b16_hist	Reference band used for the 1.6 microm histogram test	5		us	1
b25_hist	Reference band used for the 2.25 microm histogram test	6		us	1
Sizesub_group_AC	Size of sub-group used in the spatial coherence test included in 1.6 or 2.25 microm histogram test in across track direction	4		us	1
Sizesub_group_AL	Size of sub-group used in the spatial coherence test included in 1.6 or 2.25 microm histogram test in along track direction	3		us	1

Element name	Description	Range or value	Unit	T	C
Sizesub_arr	Dimension of the sub-array taken into for 1.6 or 2.25 micron histogram test	32		us	1
THcard_group	Threshold about the cardinality of sub-groups taken into account in the spatial coherence test included in 1.6 or 2.25 microm histogram test	2		us	1
b137_test	Reference band used in the 1.375 micron threshold test	4		us	1
b37_11_na1	First reference TIR band used for the 3.7/11 microns nadir/along track test	7		us	1
b37_11_na2	Second reference TIR band used for the 3.7/11 microns nadir/along track test	8		us	1
bfog_low_stratus1	First reference TIR band used for the fog/low stratus test	8		us	1
bfog_low_stratus2	Second reference TIR band used for the fog/low stratus test	7		us	1
bgross_cloud	Reference TIR band used in the gross cloud test	9		us	1
Delta_binIR	Size of bin for the IR histogram	0.1		fl	1
bIR_hist1	First band used in the IR histogram test	8		us	1
bIR_hist2	Second band used in the IR histogram test	9		us	1
diffmax	Maximum brightness difference taken into account when IR histogram is generated	80		us	1
diffmin	Minimum brightness difference taken into account when IR histogram is generated	-20		ss	1
bmedium_high1	First reference TIR band used for the medium high level cloud test	7		us	1
bmedium_high2	Second reference TIR band used for the medium high level cloud test	9		us	1
NBT_THmh	Number of brightness temperature tabulated within THmedium_high_LUT	121		us	1

Element name	Description	Range or value	Unit	T	C
rBT_THmh	Step between two brightness temperatures tabulated within MED_HIGH_THRES	0.5	K	fl	1
BTref_THmh	Reference temperature from which the indBT_THmh is computed	250	K	fl	1
bNDSI1	First band used to compute the NDSI	1		us	1
bNDSI2	Second band used to compute the NDSI	5		us	1
bsnow_covered1	First band used in the snow covered surface test after the couple of bands bNDSI1, bNDSI2	3		us	1
bsnow_covered2	Second band used in the snow covered surface test after the couple of bands bNDSI1, bNDSI2	8		us	1
bNDI21	First band used to compute the NDI2	2		us	1
bNDI22	Second band used to compute the NDI2	1		us	1
bNDVI1	First band used to compute the NDVI	3		us	1
bNDVI2	Second band used to compute the NDVI	2		us	1
bspat_coh1	First band used in the spatial coherence test	8		us	1
bspat_coh2	Second band used in the spatial coherence test	9		us	1
Nspat_coh	Size of the groups used in 11 μm spatial coherence test	3		us	1
bthin_cirrus1	First reference TIR band used for the thin cirrus test	8		us	1
bthin_cirrus2	Second reference TIR band used for the thin cirrus test	9		us	1
NBT_THtc	Number of brightness temperature tabulated within THIN_CIRRUS_THRESHOLD	61		us	1
Nlat	Number of latitude indices within THIN_CIRRUS_THRESHOLD	180		us	1

Element name	Description	Range or value	Unit	T	C
rBT_THtc	Step between two brightness temperatures tabulated within THIN_CIRRUS_THRESHOLD	1		us	1
BTref_THtc	Reference temperature from which the indBT_THtc is computed	250	K	fl	1
nACzone1	First AC zone at the edge of the product grid	0		us	1
nACzone2	Last AC zone at the edge of the product grid	9		us	1
Nband_AC	Number of across track band number	10		us	1
Nmonth	Number of months in the year	12		us	1
SEAlimit	Sun Elevation Angle related to the limit between day and night data	5	degrees	ss	1
VIS_SWIR_MDS_Annotations					
S1_scale_factor	Scale factor multiplying field		mW.m-2.sr-1.nm-1	D	1
S1_add_offset	Offset added to scaled field		mW.m-2.sr-1.nm-1	D	1
S2_scale_factor	Scale factor multiplying field		mW.m-2.sr-1.nm-1	D	1
S2_add_offset	Offset added to scaled field		mW.m-2.sr-1.nm-1	D	1
S3_scale_factor	Scale factor multiplying field		mW.m-2.sr-1.nm-1	D	1
S3_add_offset	Offset added to scaled field		mW.m-2.sr-1.nm-1	D	1
S4_scale_factor	Scale factor multiplying field		mW.m-2.sr-1.nm-1	D	1
S4_add_offset	Offset added to scaled field		mW.m-2.sr-1.nm-1	D	1

Element name	Description	Range or value	Unit	T	C
S5_scale_factor	Scale factor multiplying field		mW.m-2.sr-1.nm-1	D	1
S5_add_offset	Offset added to scaled field		mW.m-2.sr-1.nm-1	D	1
S6_scale_factor	Scale factor multiplying field		mW.m-2.sr-1.nm-1	D	1
S6_add_offset	Offset added to scaled field		mW.m-2.sr-1.nm-1	D	1
TIR_MDS_Annotations					
S7_scale_factor	Scale factor multiplying BT field		K	D	1
S7_add_offset	Offset added to scaled BT field		K	D	1
S8_scale_factor	Scale factor multiplying BT field		K	D	1
S8_add_offset	Offset added to scaled BT field		K	D	1
S9_scale_factor	Scale factor multiplying BT field		K	D	1
S9_add_offset	Offset added to scaled BT field		K	D	1
F1_scale_factor	Scale factor multiplying BT field		K	D	1
F1_add_offset	Offset added to scaled BT field		K	D	1
F2_scale_factor	Scale factor multiplying BT field		K	D	1
F2_add_offset	Offset added to scaled BT field		K	D	1
TIR_ADS_quality_annotations					

Element name	Description	Range or value	Unit	T	C
FEE_offset_scale_factor	Scale factor multiplying voltage offset added to detector signal		V	D	1
FEE_offset_add_offset	Offset added to voltage offset added to detector signal		V	D	1
FEE_gain_scale_factor	Scale factor multiplying voltage gain applied to detector signal			D	1
FEE_gain_add_offset	Offset added to voltage gain applied to detector signal			D	1
VIS_SWIR_ADS_quality_annotations					
FEE_offset_scale_factor	Scale factor multiplying voltage offset added to detector signal		V	D	1
FEE_offset_add_offset	Offset added to voltage offset added to detector signal		V	D	1
FEE_gain_scale_factor	Scale factor multiplying voltage gain applied to detector signal			D	1
FEE_gain_add_offset	Offset added to voltage gain applied to detector signal			D	1
Scan_pixel_detector_ADS_annotations					
Pix_add_offset	Offset added to gridded pixel number			D	1
Cartesian_Orthogeolocation_ADS_Annotations					
x_scale_factor	Scale factor multiplying j field		m	D	1
x_add_offset	Offset added to scaled j field		m	D	1
y_scale_factor	Scale factor multiplying j field		m	D	1
y_add_offset	Offset added to scaled j field		m	D	1
Geodetic_Coordinates_ADS_Annotations					

Element name	Description	Range or value	Unit	T	C
latitude_scale_factor	Scale factor multiplying j field		degrees_north	D	1
latitude_add_offset	Offset added to scaled j field		degrees_north	D	1
longitude_scale_factor	Scale factor multiplying j field		degrees_east	D	1
longitude_add_offset	Offset added to scaled j field		degrees_east	D	1
elevation_scale_factor	Scale factor multiplying j field			D	1
elevation_add_offset	Offset added to scaled j field			D	1

6.1.2 Ancillary Data File

The SLSTR L1 Ancillary Data File defines the sizes and offsets of the SLSTR ancillary data variables in the ancillary ISP, and lists the calibration functions and parameters that should be applied to each variable. It will be determined during the ground characterisation of the instrument and will be fixed before launch. Additional entries define bit masks and validation limits for the raw data and surveillance limits for calibrated data. The data is described in the following table gathered by topic in groups.

Table 38 Groups of the SLSTR L1 Ancillary Data File

Name	Description

Name	Description
ISP_ancillary_...	one group per each ancillary item giving the specific parameters to read and decode it; there is a total of 81 ancillary items with the following group names: • (3) ISP_ancillary_gain_*xx* with *xx* = S1, S2, S3 • (5) ISP_ancillary_bias_*xx* with *xx* = S4, S5, S6, S71, S72 • (8) ISP_ancillary_int_*xx* with *xx* = S4, S5, S6, S7, S8, S9, F1, F2 • (11) slstr_ISP_ancillary_offset_xx with xx = S1,S2,S3,S4,S5,S6,S7,S8pix1,S8pix2,S9pix1,S9pix2 • (9) ISP_ancillary_temp_*xx* with *xx* = S1 to S9 • (6) ISP_ancillary_bbs1_*xx* with *xx* = prt1 to prt6 • (2) ISP_ancillary_bbs1_*xx* with *xx* = ref1, ref2 • (6) ISP_ancillary_bbs2_*xx* with *xx* = prt1 to prt6 • (2) ISP_ancillary_bbs2_*xx* with *xx* = ref1, ref2 • (8) ISP_ancillary_taeo_*xx* with *xx* = prt1 to prt8 • (32) ISP_ancillary_taeo_*xx* with *xx* = th1 to th29 • (1) slstr_ISP_ancillary_viscal_monitoring
ISP_ancillary_additional_checks	providing additional parameters for specialised checks of ancillary data
ISP_mirror_angles_encoder_LUTs	providing the mirror angles to encoder positions LUT

FILE Type	Update rate	Size *(may vary if LUTs dimensions change)*
SL_1_ANC_AX	Infrequently	< 200 KB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 39 Detailed structure of the SLSTR L1 Ancillary Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			

Element name	Description	Range or value	T	D
ISP_ancillary_...				
parameters_or_LUT	Number of parameters for the conversion function or dimension of the LUT (= 2 x number of X-Y pairs)			
ID	Ancillary item identifier		S	1
offset	Byte number in packet containing ancillary item (starting from 0)		us	1
length	Length of the ancillary item in bytes	[1, 4]	us	1
extraction_mask	Mask to extract the ancillary item from byte, word or double word		ul	1
bit_shift	Shift to normalise		us	1
function_ID	Conversion function identifier (including use of a LUT)	[0, 20]	uc	1
function_parameters_or_LUT	Function parameters or LUT values (X-values then Y-values)		D	parameters_or_LUT
validation_valid_min	Ancillary item validation lower limit		ul	1
validation_valid_max	Ancillary item validation upper limit		ul	1
surveillance_valid_min	Surveillance lower limit		fl	1
surveillance_valid_max	Surveillance upper limit		fl	1
ISP_ancillary_additional_checks				
views	Number of views (nadir and oblique)	2		
black_bodies	Number of Black Bodies	2		
reference_resistors	Number of reference resistors	2		
black_bodies_thermistors	Number of Black Body thermistors	6		

Element name	Description	Range or value	T	D
nb_total_ancillary_items	**Number of items in the science data part of House keeping file**		**us**	**1**
OAP_PRT_max_diff	**Expected difference between PRT sensors on OAP mount**		**db**	**views**
units	UDUNITS unit name	K	S	1
HBB_PRT_max_diff	**Expected difference between PRT sensors on heated BB baseplate**		**db**	**black_bodies**
units	UDUNITS unit name	K	S	1
CBB_PRT_max_diff	**Expected difference between PRT sensors on cold BB baseplate**		**db**	**black_bodies**
units	UDUNITS unit name	K	S	1
IR_detector_temperatures_max_diff	**Expected difference between IR detector temperatures**		**db**	**1**
units	UDUNITS unit name	K	S	1
VIS_detector_temperatures_max_diff	**Expected difference between VIS detector temperatures**		**db**	**1**
units	UDUNITS unit name	K	S	1
reference_resistors_value	**Resistance values of BB reference resistors**		**db**	**black_bodies reference_resistors**
units	UDUNITS unit name	ohm	S	1
reference_resistors_variance	**Maximum variance of BB reference resistors**		**db**	**black_bodies reference_resistors**
units	UDUNITS unit name	ohm	S	1
theoretical_scans_timedelta	**Theoretical expected time interval between two scans**		**db**	**1**
units	UDUNITS unit name	ms	S	1
flip_instantaneous_threshold	**Threshold used to test the absolute position of flip mirror**		**db**	**1**

Element name	Description	Range or value	T	D
units	UDUNITS unit name	arcsecond	S	1
flip_rms_threshold	**Threshold used to the value of the RMS in flip mirror test**		**db**	**1**
units	UDUNITS unit name	arcsecond	S	1
flip_total_threshold	**Threshold used to test the average position of flip mirror**		**db**	**1**
units	UDUNITS unit name	arcsecond	S	1
flip_nominal_position	**Nominal position for flip mirror at each view (nadir first, then oblique)**		**db**	**views**
units	UDUNITS unit name	degrees	S	1
scan_instantaneous_threshold	**Threshold used to test the absolute difference between actual and expected value of scan mirror position**		**db**	**1**
units	UDUNITS unit name	arcsecond	S	1
scan_rms_threshold	**Threshold used to test RMS value of the absolute pixel error in scan mirror test**		**db**	**1**
units	UDUNITS unit name	arcsecond	S	1
scan_total_threshold	**Threshold used to test the sum of the absolute pixel value in scan mirror test**		**db**	**1**
units	UDUNITS unit name	arcsecond	S	1
thermometers_position	**Position of each thermometer depending on the SLSTR house keeping item: 1=center, 2=edge, 3=baffle**	**[1, 3]**	**us**	**black_bodies_thermistors**
BB1_Weights	**Weighting factors for BB1 PRTs for Nadir and Oblique Scanner**	**[0, 1]**	**db**	**views**
BB2_Weights	**Weighting factors for BB2 PRTs for Nadir and Oblique Scanner**	**[0, 1]**	**db**	**views**
ISP_mirror_angles_encoder_LUTs				
flip_mirror_angles	**Number of flip mirror angles**	**51**		

Element name	Description	Range or value	T	D
nadir_scan_mirror_angles	**Number of nadir scan mirror angles**	**3670**		
oblique_scan_mirror_angles	**Number of oblique scan mirror angles**	**3670**		
flip_mirror_angles	**Flip mirror angles**		**fl**	**flip_mirror_angles**
units	UDUNITS unit name	degrees	S	1
flip_mirror_encoded_angles	**Encoder count value of each flip mirror angle**		**us**	**flip_mirror_angles**
nadir_scan_mirror_angles	**Nadir scan mirror angles**		**fl**	**nadir_scan_mirror_angles**
units	UDUNITS unit name	degrees	S	1
nadir_scan_mirror_encoded_angles	**Encoder count value of each nadir scan mirror angle**		**ul**	**nadir_scan_mirror_angles**
oblique_scan_mirror_angles	**Oblique scan mirror angles**		**fl**	**oblique_scan_mirror_angles**
units	UDUNITS unit name	degrees	S	1
oblique_scan_mirror_encoded_angles	**Encoder count value of each oblique scan mirror angle**		**ul**	**oblique_scan_mirror_angles**

6.1.3 Thermal Infrared Characterisation Data File

The SLSTR L1 Thermal Infrared Characterisation Data File defines radiance-to-temperature look-up tables and non-linearity correction tables, as well as general calibration parameters for the thermal infrared channels. These data are generated during ground calibration of the instrument. There are two NetCDF files for each of channels S7, S8, S9, F1 and F2, one each for the nadir and oblique views.

FILE Type	Update rate	Size *(may vary if LUTs dimensions change)*
SL_1_N_S7AX	Infrequently	< 32 KB
SL_1_N_S8AX	Infrequently	< 32 KB
SL_1_N_S9AX	Infrequently	< 32 KB
SL_1_N_F1AX	Infrequently	< 36 KB
SL_1_N_F2AX	Infrequently	< 36 KB
SL_1_O_S7AX	Infrequently	< 32 KB
SL_1_O_S8AX	Infrequently	< 32 KB
SL_1_O_S9AX	Infrequently	< 32 KB
SL_1_O_F1AX	Infrequently	< 36 KB
SL_1_O_F2AX	Infrequently	< 36 KB

The files are in NetCDF format. The detailed structure and content of them is presented in table below.

Table 40 Detailed structure of the SLSTR L1 Thermal Infrared Characterisation Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
detectors	**Number of detectors**	**2**		
radiances_LUT	**Number of radiance-to-temperature LUT entries**			
offsets_LUT	**Number of commandable voltage offset LUT entries**			

Element name	Description	Range or value	T	D
non_linearities_LUT	**Number of non-linearity LUT entries**			
bands_centre	**Detector filter bands centre**		**D**	**detectors**
units	UDUNITS unit name	microm	S	1
bandwidths	**Detector filter bandwidths**		**D**	**detectors**
units	UDUNITS unit name	microm	S	1
BB1_emissivity	**Black body 1 emissivity**		**D**	**detectors**
BB2_emissivity	**Black body 2 emissivity**		**D**	**detectors**
radiances	**Radiance abscissa of the radiance-to-temperature LUT**		**D**	**detectors radiances_LUT**
units	UDUNITS unit name	W.m-2.sr-1	S	1
temperatures	**Temperature ordinate of the radiance-to-temperature LUT**		**D**	**radiances_LUT**
units	UDUNITS unit name	K	S	1
Voffsets	**Commandable voltage offset abscissa for signal channel**		**D**	**offsets_LUT**
Coffsets	**Offset value for commanded Voffset**		**D**	**offsets_LUT**
detectors_count	**Detector count abscissa of the non-linearity LUT**		**D**	**non_linearities_LUT**
non_linearities	**Non-linearity abscissa of the non-linearity LUT**		**D**	**detectors non_linearities_LUT**

6.1.4 Visible and Shortwave Infrared Characterisation Data File

The SLSTR L1 Visible and Shortwave Infrared Characterisation Data File defines non-linearity correction tables and general calibration parameters for the visible and shortwave infrared channels. These data are generated during ground calibration of the instrument. There are two NetCDF files for each of channels S1, S2 and S3, one each for the nadir and oblique views, and four NetCDF files for each of channels S4, S5, S6, representing the permutations of the two views and the “A stripe” and “B stripe” detector groupings.

FILE Type	Update rate	Size *(may vary if LUTs dimensions change)*
SL_1_N_S1AX	infrequently	< 24 KB
SL_1_N_S2AX	infrequently	< 24 KB
SL_1_N_S3AX	infrequently	< 24 KB
SL_1_O_S1AX	infrequently	< 24 KB
SL_1_O_S2AX	infrequently	< 24 KB
SL_1_O_S3AX	infrequently	< 24 KB
SL_1_NAS4AX	infrequently	< 24 KB
SL_1_NAS5AX	infrequently	< 24 KB
SL_1_NAS6AX	infrequently	< 24 KB
SL_1_NBS4AX	infrequently	< 24 KB
SL_1_NBS5AX	infrequently	< 24 KB
SL_1_NBS6AX	infrequently	< 24 KB
SL_1_OAS4AX	infrequently	< 24 KB
SL_1_OAS5AX	infrequently	< 24 KB
SL_1_OAS6AX	infrequently	< 24 KB
SL_1_OBS4AX	infrequently	< 24 KB
SL_1_OBS5AX	infrequently	< 24 KB
SL_1_OBS6AX	infrequently	< 24 KB

The files are in NetCDF format. The detailed structure and content of them is presented in table below.

Table 41 Detailed structure of the SLSTR L1 Visible and Shortwave Infrared Characterisation Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
detectors	**Number of detectors**	**4**		
LUT	**Number of LUT entries**			
channels	**Number of channels for the commandable voltage offset LUTs**	**5**		
bands_centre	**Detector filter bands centre**		**D**	**detectors**
units	UDUNITS unit name	microm	S	1
bandwidths	**Detector filter bandwidths**		**D**	**detectors**
units	UDUNITS unit name	microm	S	1
solar_irradiances	**Solar irradiances at 1AU separation**		**D**	**detectors**
units	UDUNITS unit name	mW.m-2.nm-1	S	1
reflectance_factors	**VISCAL reflectance factor**		**D**	**detectors**
Voffsets	**Commandable voltage offset abscissa for signal channel**		**D**	**channels**
Coffsets	**Offset value for commanded Voffset**		**D**	**channels**
detectors_count	**Detector count abscissa of the non-linearity LUT**		**D**	**detectors LUT**
non_linearities	**Non-linearity abscissa of the non-linearity LUT**		**D**	**detectors LUT**

6.1.5 VISCAL Data File

The SLSTR L1 VISCAL Data File contains summary visible and shortwave infrared calibration information derived from the VISCAL solar illumination period located within a previous product, typically for the orbit immediately preceding the current product.

FILE Type	Update rate	Size *(may vary if LUTs dimensions change)*
SL_1_VSC_AX	Daily	< 2.3 MB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 42 Detailed structure of the SLSTR L1 VISCAL Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
visible_detectors	**Number of visible detector elements S1-S3**	**4**		
swir_detectors	**Number of SWIR detector elements**	**8**		
views	**Number of views (nadir and oblique)**	**2**		
integrators	**Number of integrators**	**2**		
ANX_time	**Time of ascending node crossing in the UTC YYYY-MM-DDThh:mm:ss.ddddddZ CCSDS format**		**S**	**1**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	time	S	1
calibration_time	**Time of calibration in the UTC YYYY-MM-DDThh:mm:ss.ddddddZ CCSDS format**		**S**	**views**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	time	S	1

Element name	Description	Range or value	T	D
monitor_mean	**Monitor diode average counts**		**fl**	**1**
monitor_SD	**Monitor diode noise counts**		**fl**	**1**
S1_solar_irradiances	**555 nm solar irradiances**		**fl**	**visible_detectors views**
units	UDUNITS unit name	mW.m-2.nm-1	S	1
S2_solar_irradiances	**659 nm solar irradiances**		**fl**	**visible_detectors views**
units	UDUNITS unit name	mW.m-2.nm-1	S	1
S3_solar_irradiances	**865 nm solar irradiances**		**fl**	**visible_detectors views**
units	UDUNITS unit name	mW.m-2.nm-1	S	1
S4_solar_irradiances	**1.375 microm solar irradiances**		**fl**	**swir_detectors views**
units	UDUNITS unit name	mW.m-2.nm-1	S	1
S5_solar_irradiances	**1.61 microm solar irradiances**		**fl**	**swir_detectors views**
units	UDUNITS unit name	mW.m-2.nm-1	S	1
S6_solar_irradiances	**2.25 microm solar irradiances**		**fl**	**swir_detectors views**
units	UDUNITS unit name	mW.m-2.nm-1	S	1
S1_slopes	**555 nm slopes**		**fl**	**visible_detectors views int**
S2_slopes	**659 nm slopes**		**fl**	**visible_detectors views int**

Element name	Description	Range or value	T	D
S3_slopes	865 nm slopes		fl	visible_detectors views int
S4_slopes	1.375 microm slopes		fl	swir_detectors views int
S5_slopes	1.61 microm slopes		fl	swir_detectors views int
S6_slopes	2.25 microm slopes		fl	swir_detectors views int
S1_VISCAL_means	555 nm VISCAL average counts		fl	visible_detectors views int
S2_VISCAL_means	659 nm VISCAL average counts		fl	visible_detectors views int
S3_VISCAL_means	865 nm VISCAL average counts		fl	visible_detectors views int
S4_VISCAL_means	1.375 microm VISCAL average counts		fl	swir_detectors views int
S5_VISCAL_means	1.61 microm VISCAL average counts		fl	swir_detectors views int
S6_VISCAL_means	2.25 microm VISCAL average counts		fl	swir_detectors views int
S1_VISCAL_SD	555 nm VISCAL noise counts		fl	visible_detectors views int

Element name	Description	Range or value	T	D
S2_VISCAL_SD	659 nm VISCAL noise counts		fl	visible_detectors views int
S3_VISCAL_SD	865 nm VISCAL noise counts		fl	visible_detectors views int
S4_VISCAL_SD	1.375 microm VISCAL noise counts		fl	swir_detectors views int
S5_VISCAL_SD	1.61 microm VISCAL noise counts		fl	swir_detectors views int
S6_VISCAL_SD	2.25 microm VISCAL noise counts		fl	swir_detectors views int
S1_BB1_means	555 nm BB1 average counts		fl	visible_detectors views int
S2_BB1_means	659 nm BB1 average counts		fl	visible_detectors views int
S3_BB1_means	865 nm BB1 average counts		fl	visible_detectors views int
S4_BB1_means	1.375 microm BB1 average counts		fl	swir_detectors views int
S5_BB1_means	1.61 microm BB1 average counts		fl	swir_detectors views int
S6_BB1_means	2.25 microm BB1 average counts		fl	swir_detectors views int

Element name	Description	Range or value	T	D
S1_BB1_SD	**555 nm BB1 noise counts**		**fl**	**visible_detectors views int**
S2_BB1_SD	**659 nm BB1 noise counts**		**fl**	**visible_detectors views int**
S3_BB1_SD	**865 nm BB1 noise counts**		**fl**	**visible_detectors views int**
S4_BB1_SD	**1.375 microm BB1 noise counts**		**fl**	**swir_detectors views int**
S5_BB1_SD	**1.61 microm BB1 noise counts**		**fl**	**swir_detectors views int**
S6_BB1_SD	**2.25 microm BB1 noise counts**		**fl**	**swir_detectors views int**

6.1.6 Vicarious Calibration Data File

The SLSTR L1 Vicarious Calibration Data File comprises a table of scaling factors for each VIS-SWIR band (S1-S6) that allows corrections for long-term drift. There is a drift correction factor provided for each day of the S3 mission. The default values for the scaling factors shall be set to 1, i.e. no correction to be applied to the data.

FILE Type	Update rate	Size *(may vary if LUTs dimensions change)*
SL_1_VIC_AX	Infrequently	< 13 MB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 43 Detailed structure of the SLSTR L1 Vicarious Calibration Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
views	**Number of views (nadir and oblique)**	**2**		
channels	**Number of VIS-SWIR channels**	**6**		
calibration_times	**Number of calibration times**			
bands_centre	**Detector filter bands centre**		**D**	**channels**
units	UDUNITS unit name	microm	S	1
calibration_times	**Time abscissa for vicarious calibration table**	**[0, 20000]**	**fl**	**calibration_times**
units	UDUNITS unit name	days since 2000-01-01 00:00:00	S	1
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	time	S	1
calibration_factors	**Calibration factor LUT ordinate**		**D**	**channels views calibration_times**
calibration_factors_uncertainty	**Calibration factor uncertainty LUT ordinate**		**D**	**channels views calibration_times**

6.1.7 Geometry Data File

The SLSTR L1 Geometry Data File defines the instrument geometry parameters needed for the LoS and geolocation.

FILE Type	Update rate	Size *(may vary if LUTs dimensions change)*
SL_1_GEO_AX	Infrequently	< 60 KB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 44 Detailed structure of the SLSTR L1 Geometry Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
views	**Number of views (nadir and oblique)**	**2**		
scan_positions	**Number of scan positions**	**3670**		
scan_1km_detectors	**Number of 1 km detector elements**	**2**		
scan_500m_detectors	**Number of 500 m detector elements**	**8**		
scans_cone_angle	**Cone angle for each scan (nadir first, then oblique)**	**[46.493, 46.653]**	**D**	**views**
units	UDUNITS unit name	degrees	S	1
accuracy	Characterization accuracy	0.08	D	1
scans_mirror_offset	**Mirror offset angle relative to SCANSYNC for each scanner (nadir first, then oblique) so that 0 degree is aligned to the +Y axis**	**[0, 360]**	**D**	**views**
units	UDUNITS unit name	degrees	S	1
accuracy	Characterization accuracy	degrees	D	1
scans_inclination_nadir	**Scan inclination for nadir scan**		**D**	**1**
units	UDUNITS unit name	degrees	S	1

Element name	Description	Range or value	T	D
accuracy	Characterization accuracy	0.08	D	1
encoder_error	**Scan encoder error as a function of scan position and view (nadir first, then oblique)**	**[-100, 100]**	**D**	**views scan_positions**
units	UDUNITS unit name	arcsecond	S	1
cos_lambda_centre_500m	**Direction cosine lambda for 500 m detector centres (for reference band S3)**		**D**	**scan_500m_detectors**
cos_mu_centre_500m	**Direction cosine mu for 500 m detector centres (for reference band S3)**		**D**	**scan_500m_detectors**
cos_nu_centre_500m	**Direction cosine nu for 500 m detector centres (for reference band S3)**		**D**	**scan_500m_detectors**
cos_lambda_centre_1km	**Direction cosine lambda for 1 km detector centres (for reference band S7)**		**D**	**scan_1km_detectors**
cos_mu_centre_1km	**Direction cosine mu for 1 km detector centres (for reference band S7)**		**D**	**scan_1km_detectors**
cos_nu_centre_1km	**Direction cosine nu for 1 km detector centres (for reference band S7)**		**D**	**scan_1km_detectors**
X_misalignment_correction	**Misalignment between SLSTR reference frame and satellite reference frame, around Xsat**		**D**	**1**
units	UDUNITS unit name	degrees	S	1
Y_misalignment_correction	**Misalignment between SLSTR reference frame and satellite reference frame, around Ysat**		**D**	**1**
units	UDUNITS unit name	degrees	S	1
Z_misalignment_correction	**Misalignment between SLSTR reference frame and satellite reference frame, around Zsat**		**D**	**1**
units	UDUNITS unit name	degrees	S	1

Note: the x, y, z misalignment corrections in this table are fixed values obtained from the pre-launch alignment tests. These will be substituted with the corrections derived from the misalignment quaternians derived from the in-orbit pointing calibration.

6.1.8 Geometric Calibration Data File

The SLSTR L1 Geometry Calibration Data File provides the quaternions characterising the biases and thermo-elastic deformation model for nadir and for oblique view, defined as rotation from instrument to SC frames.

FILE Type	Update rate	Size *(may vary if LUTs dimensions change)*
SL_1_GEC_AX	Infrequently	< 1 MB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 45 Detailed structure of the SLSTR L1 Geometry Calibration Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
views	**Number of views (nadir and oblique)**	**2**		
julian_days	**Number of Julian days for which the deformations are characterised**	**4**		
on_orbit_positions	**Number of in orbit position for which the deformations are characterised**	**4**		
julian_days	**Number of the Julian days for which the quaternions are provided**	**[1, 366]**	**ss**	**julian_days**
on_orbit_positions_angle	**On orbit position angle (nadir view first, then oblique)**	**[0, 360]**	**fl**	**views** **julian_days** **on_orbit_positions**
units	UDUNITS unit name	degrees	S	1
quaternions_1	**Quaternion first component (real part, nadir view first, then oblique).** **The thermo-elastic deformations are provided as quaternions covering one orbital revolution for a number of days in the year. The quaternions provide rotation data from instrument to SC frames.**	**[0, 1]**	**fl**	**views** **julian_days** **on_orbit_positions**

Element name	Description	Range or value	T	D
quaternions_2	**Quaternion second component (nadir view first, then oblique)**	**[0, 1]**	**fl**	**views julian_days on_orbit_positions**
quaternions_3	**Quaternion third component (nadir view first, then oblique)**	**[0, 1]**	**fl**	**views julian_days on_orbit_positions**
quaternions_4	**Quaternion fourth component (nadir view first, then oblique)**	**[0, 1]**	**fl**	**views julian_days on_orbit_positions**

6.1.9 Cloud LUT Data File

The SLSTR L1 Cloud LUT Data File provides parameters used by the cloud clearing algorithms. The data is described in the following table.

FILE Type	Update rate	Size *(may vary if LUTs dimensions change)*
SL_1_CLO_AX	Infrequently	< 130 KB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 46 Detailed structure of the SLSTR L1 Cloud LUT Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
TEMP_levels	**Number of temperature levels**	**61**		
N_PIX	**Number of pixels**	**1431**		

Element name	Description	Range or value	T	D
N_BAND	**Number of across-track bands**	**29**		
TEMP_levels2	**Number of temperature levels**	**121**		
N_Months	**Number of months**	**12**		
N_Latitude	**Number of latitudes**	**180**		
N_VERTICES	**Number of vertices in a zone**	**26**		
N_ZONES	**Number of defined zones**	**5**		
N_SIDES	**Number of vertices in a zone**	**5**		
r137_threshold_na	**1.37 micron nadir threshold**		**fl**	**1**
r137_threshold_ob	**1.37 micron oblique threshold**		**fl**	**1**
spread_1_6_na	**1.6 micron nadir histogram spread**		**fl**	**1**
units	UDUNITS unit name	%	S	1
spread_1_6_ob	**1.6 micron oblique histogram spread**		**fl**	**1**
units	UDUNITS unit name	%	S	1
peak_factor_1_6_na	**1.6 micron nadir histogram peak count factor**		**ss**	**1**
peak_factor_1_6_ob	**1.6 micron oblique histogram peak count factor**		**ss**	**1**
min_for_histogram_1_6	**Minimum number of valid pixels for histogram**		**ss**	**1**
tilt_threshold_1_6	**Tilt threshold**		**fl**	**1**
units	UDUNITS unit name	degrees	S	1
threshold_3_1_6	**Parameter used to compute the standard deviation threshold**		**fl**	**1**
near_glint_range_1_6	**Near glint range**		**fl**	**1**

Element name	Description	Range or value	T	D
units	UDUNITS unit name	degrees	S	1
min_for_passed_1_6	**Minimum number of clear pixels taken into account**		**ss**	**1**
search_range_for_peak_1_6	**Threshold for the search range for peak**		**fl**	**1**
units	UDUNITS unit name	%	S	1
tilt_weight_limit_1_6	**Tilt weight limit**		**fl**	**1**
units	UDUNITS unit name	degrees	S	1
range_weight_limit_1_6	**Threshold for bin range**		**fl**	**1**
units	UDUNITS unit name	degrees	S	1
tilt_weight_factor_1_6	**Factor used to compute the tilt weight**		**fl**	**1**
min_peak_value_1_6	**Min peak value**		**ss**	**1**
min_for_detrend_1_6	**Threshold to decide if the reflectances will be de-trended**		**ss**	**1**
max_glint_threshold_1_6	**Max glint threshold**		**fl**	**1**
units	UDUNITS unit name	%	S	1
spread_2_25_na	**2.25 micron nadir histogram spread**		**fl**	**1**
units	UDUNITS unit name	%	S	1
spread_2_25_ob	**2.25 micron oblique histogram spread**		**fl**	**1**
units	UDUNITS unit name	%	S	1
peak_factor_2_25_na	**2.25 micron nadir histogram peak count factor**		**ss**	**1**
peak_factor_2_25_ob	**2.25 micron oblique histogram peak count factor**		**ss**	**1**
min_for_histogram_2_25	**Minimum number of valid pixels for histogram**		**ss**	**1**
tilt_threshold_2_25	**Tilt threshold**		**fl**	**1**

Element name	Description	Range or value	T	D
units	UDUNITS unit name	degrees	S	1
threshold_3_2_25	**Parameter used to compute the standard deviation threshold**		**fl**	**1**
near_glint_range_2_25	**Near glint range**		**fl**	**1**
units	UDUNITS unit name	degrees	S	1
min_for_passed_2_25	**Minimum number of clear pixels taken into account**		**ss**	**1**
search_range_for_peak_2_25	**Threshold for the search range for peak**		**fl**	**1**
units	UDUNITS unit name	%	S	1
tilt_weight_limit_2_25	**Tilt weight limit**		**fl**	**1**
units	UDUNITS unit name	degrees	S	1
range_weight_limit_2_25	**Threshold for bin range**		**fl**	**1**
units	UDUNITS unit name	degrees	S	1
tilt_weight_factor_2_25	**Factor used to compute the tilt weight**		**fl**	**1**
min_peak_value_2_25	**Min peak value**		**ss**	**1**
min_for_detrend_2_25	**Threshold to decide if the reflectances will be de-trended**		**ss**	**1**
max_glint_threshold_2_25	**Max glint threshold**		**fl**	**1**
units	UDUNITS unit name	%	S	1
sea_max_dev	**Threshold for sea pixels**		**fl**	**1**
units	UDUNITS unit name	K	S	1
scale_factor	Scale factor	0.01	fl	1
land_day_max_dev	**Threshold for land pixels sampled during daytime**		**fl**	**1**
units	UDUNITS unit name	K	S	1
land_night_max_dev	**Threshold for land pixels sampled during night time**		**fl**	**1**

Element name	Description	Range or value	T	D
units	UDUNITS unit name	K	S	1
coherence_reset_thresh	**Threshold for brightness temperature difference**		**fl**	**1**
units	UDUNITS unit name	K	S	1
coh_area_size_y	**Size of sub-area in across-track dimensions**		**fl**	**1**
units	UDUNITS unit name	km	S	1
area_size_y	**Size of sub-area in along-track dimensions**		**fl**	**1**
units	UDUNITS unit name	km	S	1
coh_fraction_passed	**Threshold for validity of sub-area**		**fl**	**1**
coh_adj_thresh_land	**Parameter used to compute TH_spat_coh**		**fl**	**1**
units	UDUNITS unit name	K	S	1
coh_adj_dif_land	**Parameter used to compute TH_diff**		**fl**	**1**
coh_area_dif_na	**Intermediary threshold for sub-area (nadir)**		**fl**	**1**
units	UDUNITS unit name	K	S	1
coh_area_dif_int	**Intermediary threshold for sub-area (intermediate)**		**fl**	**1**
units	UDUNITS unit name	K	S	1
coh_area_dif_ob	**Intermediary threshold for sub-area (oblique)**		**fl**	**1**
units	UDUNITS unit name	K	S	1
coh_min_dif_na	**Threshold corresponding to BT_diff_sa (nadir)**		**fl**	**1**
units	UDUNITS unit name	K	S	1
coh_min_dif_int	**Threshold corresponding to BT_diff_sa (intermediate)**		**fl**	**1**
units	UDUNITS unit name	K	S	1

Element name	Description	Range or value	T	D
coh_min_dif_ob	**Threshold corresponding to BT_diff_sa (oblique)**		**fl**	**1**
units	UDUNITS unit name	K	S	1
coh_area_thresh_na	**Final threshold (nadir)**		**fl**	**1**
units	UDUNITS unit name	K	S	1
coh_area_thresh_int	**Final threshold (intermediate)**		**fl**	**1**
units	UDUNITS unit name	K	S	1
coh_area_thresh_ob	**Final threshold (oblique)**		**fl**	**1**
units	UDUNITS unit name	K	S	1
cloudy_box_thresh	**Dependency test flag**		**ss**	**1**
gross_cloud_threshold_na	**Thresholds for sea pixels (nadir)**		**fl**	**N_Months N_Latitude**
units	UDUNITS unit name	K	S	1
gross_cloud_threshold_int	**Thresholds for sea pixels (intermediate)**		**fl**	**N_Months N_Latitude**
units	UDUNITS unit name	K	S	1
gross_cloud_threshold_ob	**Thresholds for sea pixels (oblique)**		**fl**	**N_Months N_Latitude**
units	UDUNITS unit name	K	S	1
gross_land_threshold_na	**Thresholds for land pixels (nadir)**		**fl**	**N_Months N_Latitude**
units	UDUNITS unit name	K	S	1
gross_land_threshold_int	**Thresholds for land pixels (intermediate)**		**fl**	**N_Months N_Latitude**
units	UDUNITS unit name	K	S	1

Element name	Description	Range or value	T	D
gross_land_threshold_ob	**Thresholds for land pixels (oblique)**		**fl**	**N_Months N_Latitude**
units	UDUNITS unit name	K	S	1
thin_cirrus_threshold_na	**Thin cirrus threshold (nadir)**		**fl**	**N_BAND TEMP_levels**
units	UDUNITS unit name	K	S	1
_FillValue	Default value for unused elements	9999.99	fl	1
thin_cirrus_threshold_ob	**Thin cirrus threshold (oblique)**		**fl**	**N_BAND TEMP_levels**
units	UDUNITS unit name	K	S	1
_FillValue	Default value for unused elements	9999.99	fl	1
med_high_level_thresh_na	**Medium high level cloud threshold (nadir)**		**fl**	**TEMP_levels2**
units	UDUNITS unit name	K	S	1
med_high_level_thresh_ob	**Medium high level cloud threshold (oblique)**		**fl**	**TEMP_levels2**
units	UDUNITS unit name	K	S	1
ac_band_na	**Band index at each pixel (nadir)**		**ss**	**N_PIX**
ac_band_ob	**Band index at each pixel (oblique)**		**ss**	**N_PIX**
fog_low_stratus_threshold_na	**Fog/low stratus threshold (nadir)**		**fl**	**N_BAND**
units	UDUNITS unit name	K	S	1
_FillValue	Default value for unused elements	1	fl	1
fog_low_stratus_threshold_ob	**Fog/low stratus threshold (oblique)**		**fl**	**N_BAND**
units	UDUNITS unit name	K	S	1

Element name	Description	Range or value	T	D
_FillValue	Default value for unused elements	1	fl	1
a0	**Constant coefficient**	**43., 50.**	**fl**	**N_BAND**
a1	**Linear coefficient**	**0.75, 0.99**	**fl**	**N_BAND**
view_diff_thresh_11_12	**Threshold**		**fl**	**1**
units	UDUNITS unit name	K	S	1
b0	**Constant coefficient**	**113., 140.**	**fl**	**N_BAND**
b1	**Linear coefficient**	**0.22, 0.4**	**fl**	**N_BAND**
b2	**Quadratic coefficient**	**-0.0003, -0.00018**	**fl**	**N_BAND**
view_diff_thresh_37_11	**Threshold**		**fl**	**1**
units	UDUNITS unit name	K	S	1
min_for_11_12_histogram	**Constant coefficient**		**ss**	**1**
peak_frac_min	**Parameter used in the search for a valid minimum in IR histogram value**		**fl**	**1**
latitude_thresh	**Central latitude threshold**		**fl**	**1**
units	UDUNITS unit name	degrees_east	S	1
second_low_fraction	**Parameter used in the test for an invalid minor peak**		**fl**	**1**
half_width_m_na	**Parameters to compute TH_half_width (nadir)**		**fl**	**1**

Element name	Description	Range or value	T	D
half_width_m_ob	**Parameters to compute TH_half_width (oblique)**		**fl**	**1**
half_width_b_na	**Parameters to compute TH_half_width (nadir)**		**fl**	**1**
half_width_b_ob	**Parameters to compute TH_half_width (oblique)**		**fl**	**1**
max_dif_ave_chan_1	**Accepted difference between average_BT12 affected to any histogram bin and the maximum calculated over the whole histogram**		**fl**	**1**
units	UDUNITS unit name	K	S	1
max_dif_peak_chan_1	**Accepted difference between average_BT12 affected to minor and major peaks**		**fl**	**1**
units	UDUNITS unit name	K	S	1
ratio_b	**Parameter used in to find klow**		**fl**	**1**
ir_spread_na	**Histogram spread (nadir)**		**fl**	**1**
ir_spread_ob	**Histogram spread (oblique)**		**fl**	**1**
slope_max_allowed	**Slope threshold**		**fl**	**1**
ir_peak_min	**Threshold used on minor and major peak value**		**fl**	**1**
X1_IR_hist	**limits defining the different parts of the nadir swath**		**fl**	**1**
units	UDUNITS unit name	km	S	1
vertex_x_na	**X coordinate of vertices of each zone in the classification plan (nadir)**		**fl**	**N_VERTICES**

Element name	Description	Range or value	T	D
vertex_x_int	**X coordinate of vertices of each zone in the classification plan (intermediate)**		**fl**	**N_VERTICES**
vertex_x_ob	**X coordinate of vertices of each zone in the classification plan (oblique)**		**fl**	**N_VERTICES**
vertex_y_na	**Y coordinate of vertices of each zone in the classification plan (nadir)**		**fl**	**N_VERTICES**
vertex_y_int	**Y coordinate of vertices of each zone in the classification plan (intermediate)**		**fl**	**N_VERTICES**
vertex_y_ob	**Y coordinate of vertices of each zone in the classification plan (oblique)**		**fl**	**N_VERTICES**
Izone	**Zones identifier**		**ss**	**N_ZONES**
Short_id	Short description	"Clo+Sea,Sea+Clo,Cloud,Clo+Veg,Veg+Clo"	S	1
Full_id	Short description	"thin cloud over sea,very thin cloud over sea,cloud,thin cloud over vegetation,possibly slight cloud over vegetation"	S	1
Vertex_Id	**Vertex indentifier**		**ss**	**N_ZONES N_SIDES**
NDSI_Threshold	**NDSI threshold**		**fl**	**1**
R87_Threshold	**Threshold to be used on input data at b_snow_covered1**		**fl**	**1**
units	UDUNITS unit name	%	S	1
T11_Threshold	**Threshold to be used on input data at b_snow_covered2**		**fl**	**1**
units	UDUNITS unit name	K	S	1
X1	**X-coord defining inner nadir swath**		**fl**	**1**
X2	**X-coord defining intermediate swath**		**fl**	**1**

6.2 SLSTR Level 2 Auxiliary Data Files

6.2.1 Processing Control Parameter File

The SLSTR L2 Processing Control Parameter contains the L2 processor configuration parameters.

FILE Type	Update rate	Size
SL_2_PCP_AX	Infrequently	0.02 MB

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
switches				
SW_SST	**Switch determining the activation of SST processing and the inclusion of SST parameters in the output**	**[0, 1]**	**uc**	**1**
SW_L2P	**Switch determining the activation of L2P processing and the inclusion of L2Pparameters in the output**	**[0, 1]**	**uc**	**1**
SW_LST	**Switch determining the activation of LST processing and the inclusion of LST parameters in the output**	**[0, 1]**	**uc**	**1**
SW_FRP	**Switch determining the activation of FRP processing and the inclusion of FRP parameters in the output**	**[0, 1]**	**uc**	**1**
SW_N2_err	**Switch enabling the computation and the outputting of N2 SST_uncertainty**	**[0, 1]**	**uc**	**1**
SW_N3_err	**Switch enabling the computation and the outputting of N3 SST_uncertainty**	**[0, 1]**	**uc**	**1**
SW_N3R_err	**Switch enabling the computation and the outputting of N3R SST_uncertainty**	**[0, 1]**	**uc**	**1**
SW_D2_err	**Switch enabling the computation and the outputting of D2 SST_uncertainty**	**[0, 1]**	**uc**	**1**

Element name	Description	Range or value	T	D
SW_D3_err	Switch enabling the computation and the outputting of D3 SST_uncertainty	[0, 1]	uc	1
SW_LUT	Switch allowing the use of two additionnal dimensions, depending on time and detector temperature, for the SST retrieval.	[0, 1]	uc	1
SW_BT	Switch determining the copying of the brightness temperature field from SLSTR L1b product into the L2 product	[0, 1]	uc	1
SW_L2P_err	Switch enabling the computataion and the outputting of SST theoretical error included in L2P file	[0, 1]	uc	1
SW_LST_err	Switch enabling the computation and the outputting of LST_uncertainty	[0, 1]	uc	1
SW_coeff	Switch enabling the temporal interpolation of LST coefficients	[0, 1]	uc	1
SW_TCWV	Switch enabling the use of the LST total column water vapour climatology auxiliary file. If this switch is FALSE, the SLSTR L2 processing has to use the L1b Meteo annotataions files	[0, 1]	uc	1
SW_FRP_err	Switch enabling the computation and the outputting of FRP_uncertainty	[0, 1]	uc	1
Global parameters				
T_missing	Percentage of unfilled pixels above which a line of the image is considered affected by a gap	75	us	1
SST unpacking_parameters				
N2_SST_add_offset	Offset used to in decoding packed N2 SST		fl	1
N2_SST_scale_factor	Scaling factor used in decoding packed N2 SST		fl	1
N3_SST_add_offset	Offset used to in decoding packed N3 SST		fl	1
N3_SST_scale_factor	Scaling factor used in decoding packed N3 SST		fl	1
N3R_SST_add_offset	Offset used to in decoding packed N3R SST		fl	1
N3R_SST_scale_factor	Scaling factor used in decoding packed N3R SST		fl	1
D2_SST_add_offset	Offset used to in decoding packed D2 SST		fl	1

Element name	Description	Range or value	T	D
D2_SST_scale_factor	Scaling factor used in decoding packed D2 SST		fl	1
D3_SST_add_offset	Offset used to in decoding packed D3 SST		fl	1
D3_SST_scale_factor	Scaling factor used in decoding packed D3 SST		fl	1
N2_DSST_add_offset	Offset used to in decoding packed N2 sea surface temperature uncertainty		fl	1
N2_DSST_scale_factor	Scaling factor used in decoding packed N2 sea surface temperature uncertainty		fl	1
N3_DSST_add_offset	Offset used to in decoding packed N3 sea surface temperature uncertainty		fl	1
N3_DSST_scale_factor	Scaling factor used in decoding packed N3 sea surface temperature uncertainty		fl	1
N3R_DSST_add_offset	Offset used to in decoding packed N3R sea surface temperature uncertainty		fl	1
N3R_DSST_scale_factor	Scaling factor used in decoding packed N3R sea surface temperature uncertainty		fl	1
D2_DSST_add_offset	Offset used to in decoding packed D2 sea surface temperature uncertainty		fl	1
D2_DSST_scale_factor	Scaling factor used in decoding packed D2 sea surface temperature uncertainty		fl	1
D3_DSST_add_offset	Offset used to in decoding packed D3 sea surface temperature uncertainty		fl	1
D3_DSST_scale_factor	Scaling factor used in decoding packed D3 sea surface temperature uncertainty		fl	1
L2P unpacking_parameters				
L2P_ADI_add_offset	Offset used to in decoding packed L2P Aerosol contamination indicator		fl	1
L2P_ADI_scale_factor	Scaling factor used in decoding packed L2P Aerosol contamination indicator		fl	1
L2P_bias_add_offset	Offset used to in decoding packed L2P Single Sensor Error Statistic bias estimate		fl	1
L2P_bias_scale_factor	Scaling factor used in decoding packed L2P Single Sensor Error Statistic bias estimate		fl	1
L2P_BT_add_offset	Offset used to in decoding packed L2P brightness temperature		fl	1

Element name	Description	Range or value	T	D
L2P_BT_scale_factor	Scaling factor used in decoding packed L2P brightness temperature		fl	1
L2P_DSST_add_offset	Offset used to in decoding packed L2P SST total uncertainty		fl	1
L2P_DSST_scale_factor	Scaling factor used in decoding packed L2P SST total uncertainty		fl	1
L2P_DT_add_offset	Offset used to in decoding packed L2P SST time deviation from reference time		fl	1
L2P_DT_ADI_add_offset	Offset used to in decoding packed L2P Time difference of ADI data from SST measurement		fl	1
L2P_DT_ADI_scale_factor	Scaling factor used in decoding packed L2P Time difference of ADI data from SST measurement		fl	1
L2P_DT_ice_add_offset	Offset used to in decoding packed Time difference between sea ice fraction data from SST measurement		fl	1
L2P_DT_ice_scale_factor	Scaling factor used in decoding packed L2P Time difference between sea ice fraction data from SST measurement		fl	1
L2P_DT_scale_factor	Scaling factor used in decoding packed L2P SST time deviation from reference time		fl	1
L2P_DT_WS_add_offset	Offset used to in decoding packed L2P Time difference of wind speed measurement from SST measurement		fl	1
L2P_DT_WS_scale_factor	Scaling factor used in decoding packed L2P Time difference of wind speed measurement from SST measurement		fl	1
L2P_DTana_add_offset	Offset used to in decoding packed L2P SST deviation from analysis field		fl	1
L2P_DTana_scale_factor	Scaling factor used in decoding packed L2P SST deviation from analysis field		fl	1
L2P_ice_add_offset	Offset used to in decoding packed L2P Fractional sea ice contamination in a pixel		fl	1
L2P_ice_scale_factor	Scaling factor used in decoding packed L2P Fractional sea ice contamination in a pixel		fl	1
L2P_nedt_add_offset	Offset used to in decoding packed L2P Top-of-atmosphere noise equivalent brightness temperature		fl	1
L2P_nedt_scale_factor	Scaling factor used in decoding packed L2P Top-of-atmosphere noise equivalent brightness temperature		fl	1

Element name	Description	Range or value	T	D
L2P_scale_factor	Scaling factor used in decoding packed L2P SST		fl	1
L2P_std_add_offset	Offset used to in decoding packed L2P Single Sensor Error Statistic standard deviation estimate		fl	1
L2P_std_scale_factor	Scaling factor used in decoding packed L2P Single Sensor Error Statistic standard deviation estimate		fl	1
L2P_SZA_add_offset	Offset used to in decoding packed L2P satellite zenith Angle		fl	1
L2P_SZA_scale_factor	Scaling factor used in decoding packed L2P satellite zenith Angle		fl	1
L2P_WS_add_offset	Offset used to in decoding packed L2P Wind speed		fl	1
L2P_WS_scale_factor	Scaling factor used in decoding packed L2P Wind Speed		fl	1
LST unpacking_parameters				
LST_add_offset	Offset used to in decoding packed LST		fl	1
LST_scale_factor	Scaling factor used in decoding packed LST		fl	1
DLST_add_offset	Offset used to in decoding packed LST uncertainty		fl	1
DLST_scale_factor	Scaling factor used in decoding packed LST uncertainty		fl	1
fraction_add_offset	Offset used to in decoding packed Fraction		fl	1
fraction_scale_factor	Scaling factor used in decoding packed Fraction		fl	1
TCWV_add_offset	Offset used to in decoding packed TCWV		fl	1
TCWV_scale_factor	Scaling factor used in decoding packed TCWV		fl	1
NDVI_add_offset	Offset used to in decoding packed NDVI		fl	1
NDVI_scale_factor	Scaling factor used in decoding packed NDVI		fl	1

6.2.2 S6 Nadir Shortwave Infrared Noise Data File

The SLSTR L2 S6 Nadir Shortwave Infrared Noise Data File contains a LUT which maps measurements of detector noise over the SLSTR internal calibration black bodies to estimates of noise for individual S6 nadir measurement pixels.

FILE Type	Update rate	Size
SL_2_S6N_AX	Infrequently	0.032 MB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 47 Detailed structure of the SLSTR L2 S6 Nadir Shortwave Infrared Noise Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
integrators	**Number of integrators**	**[1, 2]**		
detectors	**Number of nadir detectors**	**4**		
radiances	**Number of radiances in NEdL_LUT**	**~100**		
T_detectors	**Number of detector temperatures in NEdL_LUT**	**~10**		
radiances	**Radiances of NEdL_LUT**		**D**	**radiances**
units	UDUNITS unit name	W.m-2.sr-1.nm-1	S	1
T_detectors	**Detector temperatures of NEdL_LUT**		**D**	**T_detectors**
units	UDUNITS unit name	K	S	1
NEdL_LUT	**S6 nadir single pixel NEdL estimate LUT**		**D**	**integrators detectors radiances T_detectors**
units	UDUNITS unit name	W.m-2.sr-1.nm-1	S	1

6.2.3 Thermal Infrared (TIR) Noise Data File

The SLSTR L2 Thermal Infrared (TIR) Noise Data file contains LUTs which map measurements of detector noise over the SLSTR internal calibration black bodies to estimates of noise for individual measurement pixels. There are two NetCDF files for each of channels S7, S8, S9, one each for the nadir and oblique views and one NetCDF file for channels F1 – nadir view:

- S7 nadir thermal infrared noise dataset
- S8 nadir thermal infrared noise dataset
- S9 nadir thermal infrared noise dataset
- F1 nadir thermal infrared noise dataset
- F2 nadir thermal infrared noise dataset
- S7 oblique thermal infrared noise dataset
- S8 oblique thermal infrared noise dataset
- S9 oblique thermal infrared noise dataset

FILE Type	Update rate	Size
SL_2_S7N_AX SL_2_S8N_AX SL_2_S9N_AX SL_2_F1N_AX SL_2_F2N_AX SL_2_S7O_AX SL_2_S8O_AX SL_2_S9O_AX	Infrequently	0.032 MB / file

The files are in NetCDF format. The detailed structure and content of them is presented in table below.

Table 48 Detailed structure of the SLSTR L2 Thermal Infrared (TIR) Noise Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
integrators	**Number of integrators**	**[1, 2]**		
detectors	**Number of nadir detectors**	**2**		
B_temperatures	**Number of brightness temperatures in NEdT_LUT**	**~100**		
T_detectors	**Number of detector temperatures in NEdT_LUT**	**~10**		
B_temperatures	**Brightness temperatures of NEdT_LUT**		**D**	**B_temperatures**
units	UDUNITS unit name	K	S	1
T_detectors	**Detector temperatures of NEdT_LUT**		**D**	**T_detectors**
units	UDUNITS unit name	K	S	1
NEdT_LUT	**S7 nadir single pixel NEdT estimate LUT**		**D**	**integrators detectors B_temperatures T_detectors**
units	UDUNITS unit name	K	S	1

6.2.4 N2 SST Coefficients Data File

The SLSTR N2 (single view, two channel) SST Coefficients Data File contains tabulated coefficients for the retrieval of SST using the N2 retrieval algorithm and for water vapour and proximity error estimate calculations.

FILE Type	Update rate	Size
SL_2_N2_CAX	Infrequently	0.024 MB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 49 Detailed structure of the SLSTR L2 N2 SST Coefficients Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
coefficients	**Number of SST coefficients**			
detectors	**Number of nadir detectors**	**2**		
paths	**Number of nadir path length LUT tie-points**			
TCWV	**Number of water vapour LUT tie-points**	**13**		
water_coeffs	**Number of TCWV error estimate coefficients**	**2**		
cloud_coeffs	**Number of cloud error estimate coefficients**	**2**		
land_coeffs	**Number of land error estimate coefficients**	**2**		
times	**Number of times**			
detector_temperatures	**Number of detector temperatures**			
paths	**Normalised nadir path length of coefficients_LUT**		**D**	**paths**
TCWV	**TCWV of coefficients_LUT**		**D**	**TCWV**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	atmosphere_mass_content_of_water_vapor	S	1
units	UDUNITS unit name	kg.m-2	S	1
times	**Times of coefficients_LUT**		**sl**	**times**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	time	S	1
units	UDUNITS unit name		S	1
detector_temperatures	**Detector temperatures of coefficients_LUT**		**D**	**detector_temperatures**

Element name	Description	Range or value	T	D
units	UDUNITS unit name	K	S	1
coefficients_LUT	**N2 SST retrieval coefficients**		**D**	**coefficients detectors paths TCWV times detector_temperatures**
units	UDUNITS unit name	K	S	1
dT_water	**N2 SST symmetric retrieval water error coefficients (polynomial on TCWV)**		**D**	**water_coeffs**
dT_cloud	**N2 SST asymmetric cloud error coefficients (polynomial on pixel count)**		**D**	**cloud_coeffs**
units	UDUNITS unit name	K	S	1
dT_land	**N2 SST asymmetric land error coefficients (polynomial on pixel count)**		**D**	**land_coeffs**
units	UDUNITS unit name	K	S	1

6.2.5 N3R SST Coefficients Data File

The SLSTR N3R (single view, three channel, aerosol robust) SST Coefficients Data File contains tabulated coefficients for the retrieval of SST using the N3R retrieval algorithm and for water vapour and proximity error estimate calculations.

FILE Type	Update rate	Size
SL_2_N3RCAX	Infrequently	0.024 MB

The file is in NetCDF format. The detailed structure and content of this file is identical to that of the N2 SST Coefficients Data File section 6.2.4.

6.2.6 N3 SST Coefficients Data File

The SLSTR N3 (single view, three channel) SST Coefficients Data File contains tabulated coefficients for the retrieval of SST using the N3 retrieval algorithm and for water vapour and proximity error estimate calculations.

FILE Type	Update rate	Size
SL_2_N3_CAX	Infrequently	0.024 MB

The file is in NetCDF format. The detailed structure and content of this file is identical to that of the N2 SST Coefficients Data File section 6.2.4.

6.2.7 D2 SST Coefficients Data File

The SLSTR D2 (dual view, two channel) SST Coefficients Data File contains tabulated coefficients for the retrieval of SST using the D2 retrieval algorithm and for water vapour and proximity error estimate calculations.

FILE Type	Update rate	Size
SL_2_D2_CAX	Infrequently	0.088 MB

The file is in NetCDF format. The detailed structure and content of this file is identical to that of the N2 SST Coefficients Data File section 6.2.4, except that the “paths” and “detectors” dimensions are now defined for the oblique and the nadir view, i.e. “oblique_paths” and “nadir_paths” in this order.

6.2.8 D3 SST Coefficients Data File

The SLSTR D3 (dual view, three channel) SST Coefficients Data File contains tabulated coefficients for the retrieval of SST using the D3 retrieval algorithm and for water vapour and proximity error estimate calculations.

FILE Type	Update rate	Size
SL_2_D3_CAX	Infrequently	0.112 MB

The file is in NetCDF format. The detailed structure and content of this file is identical to that of the N2 SST Coefficients Data File section 6.2.4, except that the “paths” and “detectors” dimensions are now defined for the oblique and the nadir view, i.e. “oblique_paths” and “nadir_paths” in this order.

6.2.9 L2P SST Algorithms Data File

The SLSTR L2 L2P SST Algorithms Data File contains the SST algorithm code to be used to transformate: dust, aerosol present; swath centre or edge; and daylight in the nadir and oblique views. It also contains the latitude range over which aerosol may be present.

FILE Type	Update rate	Size
SL_2_SST_AX	Infrequently	0.016 MB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 50 Detailed structure of the SLSTR L2 L2P SST Algorithms Data File

Element name	Description	Range or value	T	D

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
dusts	**Number of dust states**	**2**		
aerosols	**Number of aerosol states**	**2**		
centres	**Number of swath parts**	**2**		
nadir_days	**Number of nadir day states**	**2**		
oblique_days	**Number of oblique day states**	**2**		
range	**Number of elements in a range**	**2**		
SST_algorithms	**Number of SST algorithms**	**6**		
SST_quality_thresholds	**Number of SST quality level thresholds**	**4**		
SST_algorithms_LUT	**L2P SST algorithm code**		**uc**	**dusts aerosols centres nadir_days oblique_days**
flag_values	CF list of flag values (see Table 51)	0, 1, 2, 3, 4, 5	uc	SST_algorithms
flag_meanings	CF space-separated list of flag meanings (see Table 51)	no_retrieval N2_retrieval N3R_retrieval N3_retrieval D2_retrieval D3_retrieval	S	1
latitude_range	**Latitude bounds for high-aerosol region (min first, then max)**		**D**	**range**
units	UDUNITS unit name	degrees_north	S	1
SST_quality_thresholds	**SST error thresholds for quality levels**		**D**	**SST_quality_thresholds**
units	UDUNITS unit name	K	S	1
L4_range	**Allowable tolerances on L4 time, relative to L2P time**		**sl**	**range**

Element name	Description	Range or value	T	D
units	UDUNITS unit name	days	S	1

Table 51 SST algorithm codes

Flag value	Code	Description
0	no_retrieval	No retrieval
1	N2_retrieval	Nadir view, two channel retrieval
2	N3R_retrieval	Nadir view, three channel, aerosol robust retrieval
3	N3_retrieval	Nadir view, three channel retrieval
4	D2_retrieval	Dual view, two channel retrieval
5	D3_retrieval	Dual view, three channel retrieval

6.2.10 SDI3 Saharan Dust Index Coefficients Data File

The SLSTR L2 SDI3 Saharan Dust Index Coefficients Data File contains the coefficients required to retrieve a three channel, single view Saharan dust index.

FILE Type	Update rate	Size
SL_2_SDI3AX	Infrequently	0.016 MB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 52 Detailed structure of the SLSTR L2 SDI3 Saharan Dust Index Coefficients Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
coefficients	**Number of SDI coefficients**	**4**		
detectors	**Number of nadir detectors**	**2**		
nadir_paths	**Number of nadir path length tie points in coefficients_LUT**	**2**		
nadir_paths	**SDI3 normalised nadir path length tie points of coefficients_LUT**		**D**	**nadir_paths**
coefficients_LUT	**SDI3 retrieval coefficients LUT**		**D**	**coefficients** **detectors** **nadir_paths**

6.2.11 SDI2 Saharan Dust Index Coefficients Data File

The SLSTR L2 SDI2 Saharan Dust Index Coefficients Data File contains the coefficients required to retrieve a two channel, dual view Saharan dust index.

FILE Type	Update rate	Size
SL_2_SDI2AX	Infrequently	0.016 MB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 53 Detailed structure of the SLSTR L2 SDI2 Saharan Dust Index Coefficients Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
coefficients	**Number of SDI coefficients**	**4**		
oblique_detectors	**Number of oblique detectors**	**2**		
nadir_detectors	**Number of nadir detectors**	**2**		
oblique_paths	**Number of oblique path length tie points in coefficients_LUT**	**~10**		
nadir_paths	**Number of nadir path length tie points in coefficients_LUT**	**~10**		
oblique_paths	**SDI2 normalised oblique path length tie points of coefficients_LUT**		**D**	**oblique_paths**
nadir_paths	**SDI2 normalised nadir path length tie points of coefficients_LUT**		**D**	**nadir_paths**
coefficients_LUT	**SDI2 retrieval coefficients LUT**		**D**	**coefficients oblique_detectors nadir_detectors oblique_paths nadir_paths**

6.2.12 L2P SSES Data File

The SLSTR L2 SSES Data File contains tabulated estimates of the biass and standard deviations of SLSTR L2P SSTs derived from comparisons with independent SST measurements.

FILE Type	Update rate	Size
SL_2_SSESAX	6 months	0.016 MB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 54 Detailed structure of the SLSTR L2 L2P SSES Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
water_types	**Number of water types**	**2**		
SST_algorithms	**Number of SST algorithms**	**6**		
quality_levels	**Number of quality levels**	**6**		
water_types	**Water types index**		**uc**	**water_types**
flag_values	CF list of flag values (see Table 55)	0, 1	uc	water_types
flag_meanings	CF space-separated list of flag meanings (see Table 55)	ocean inland_water	S	1
SST_algorithms	**SST algorithms index**		**uc**	**SST_algorithms**
flag_values	CF list of flag values (see Table 51)	0, 1, 2, 3, 4, 5	uc	SST_algorithms
flag_meanings	CF space-separated list of flag meanings (see Table 51)	no_retrieval N2_retrieval N3R_retrieval N3_retrieval D2_retrieval D3_retrieval	S	1
quality_levels	**SST measurement quality indicator index**		**uc**	**quality_levels**
flag_values	CF list of flag values (see in [AD-12])	0, 1, 2, 3, 4, 5	uc	quality_levels
flag_meanings	CF space-separated list of flag meanings (see in [AD-12])	no_data cloud worst_quality low_quality acceptable_qualit y best_quality	S	1

Element name	Description	Range or value	T	D
SSES_bias_LUT	**Table of SSES biases**		**D**	**water_types SST_algorithms quality_levels**
units	UDUNITS unit name	K	S	1
SSES_standard_deviation_LUT	**Table of SSES standard deviations**		**D**	**water_types SST_algorithms quality_levels**
units	UDUNITS unit name	K	S	1

Table 55 Water types codes

Flag value	Code	Description
0	ocean	Open ocean
1	inland_water	Inland water

6.2.13 L4 SST Analysis Data File

The SLSTR L2 L4 SST Analysis Data File is used by the SLSTR L2 processor as reference for a quality indicator in the L2P SST dataset. An SST climatology is also encoded as an alternative source of SST information when the L4 analysis file is not available.

FILE Type	Update rate	Size
SL_2_SSTAAX	Daily	29 MB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 56 Detailed structure of the SLSTR L2 L4 SST Analysis Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
times	**Number of SST field reference times**	**unlimited**		
latitudes	**Number of latitudes**			
longitudes	**Number of longitudes**			
times	**SST reference time**		**sl**	**times**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	time	S	1
units	UDUNITS unit name		S	1
latitudes	**Latitudes**	**[-90, 90]**	**fl**	**latitudes**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	latitude	S	1
units	UDUNITS unit name	degrees_north	S	1
longitudes	**Longitudes**	**[-180, 180]**	**fl**	**longitudes**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	longitude	S	1
units	UDUNITS unit name	degrees_east	S	1
analysed_SST	**SST measurement quality indicator index**		**ss**	**times latitudes longitudes**
units	UDUNITS unit name	K	S	1
_FillValue	Default value for unused elements		ss	1
scale_factor	The data must be multiplied by this factor after reading		D	1
add_offset	This offset must be added to the data after reading (and after scaling if needed)		D	1
mask	**Land/ice/lake mask**		**uc**	**times latitudes longitudes**

Element name	Description	Range or value	T	D
flag_values	CF list of flag values		uc	5
flag_meanings	CF space-separated list of flag meanings		S	1

6.2.14 LST Coefficients Data File

The SLSTR L2 LST Coefficients Data File contains the coefficients and switches required to generate land surface temperature retrievals.

FILE Type	Update rate	Size
SL_2_LSTCAX	Infrequently	0.016 MB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 57 Detailed structure of the SLSTR L2 LST Coefficients Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
time_references	**Number of coefficient time references**	**[1, 14]**		
time_bounds	**Number of time bounds**	**2**		
detectors	**Number of nadir detectors**	**2**		
coeffs_per_algo	**Number of coefficients per algorithm**	**3**		
biomes	**Number of biome surface types**			
skip_biomes	**Number of excluded biome surface types**			
biomes_validation	**Number of biome validation status flags**			

Element name	Description	Range or value	T	D
semi_diurnal_cycles	**Night/day**	**2**		
vegetation_covers	**No/full vegetation cover**	**2**		
time_references	**Reference times of coefficient fields**	**[0, 366]**	**ss**	**time_references**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	time	S	1
units	UDUNITS unit name	days since…	S	1
axis	Coordinate axis identifier	T	S	1
bounds	Reference to boundary variable	time_bounds	S	1
time_bounds	**Start and stop validity times of coefficient fields**	**[0, 366]**	**ss**	**time_references time_bounds**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	time	S	1
units	UDUNITS unit name	days since…	S	1
biomes	**Biome codes corresponding to biome index**		**uc**	**biomes**
flag_values	CF list of flag values (see the Table “LST surface classification codes” of [RD-8])		uc	biomes
flag_meanings	CF space-separated list of flag meanings (see the Table “LST surface classification codes” of [RD-8])		S	1
skip_biomes	**Biome codes where LST should not be calculated**		**uc**	**skip_biomes**
flag_values	CF list of flag values (see the Table “LST surface classification codes” of [RD-8])		uc	skip_biomes
flag_meanings	CF space-separated list of flag meanings (see the Table “LST surface classification codes” of [RD-8)		S	1
d_factors	**Water vapour sensitivity factor**		**D**	**biomes**
m_factors	**View angle sensitivity factor**		**D**	**biomes**
day_night_SZA_threshold	**Day/night solar zenith angle theshold**		**D**	**time_references**
units	UDUNITS unit name	degrees	S	1
biomes_validation	**LST validation status for biome class**		**uc**	**biomes_validation**
flag_values	CF list of flag values (see the Table “LST validation codes” of [RD-8])		uc	**biomes_validation**
flag_meanings	CF space-separated list of flag meanings (see the Table “LST validation codes” of [RD-8)		S	1

Element name	Description	Range or value	T	D
coefficients_LUT	**Table of LST retrieval coefficients**		**D**	**time_references detectors coeffs_per_algo biomes semi_diurnal_cycles vegetation_covers**

6.2.15 LST Biome Data File

The SLSTR L2 LST Biome Data File is a reduced-resolution (~1 km) version of the Globcover Land Cover product.

FILE Type	Update rate	Size
SL_2_LSTBAX	Infrequently	80

The file is in GeoTIFF tiled containing a two-dimensional array, using one byte per pixel, in a regular equidistant latitude/longitude projection. TIFF's packbits compression is used to drastically reduce the size of the file. Each pixel contains one of the 24 codes listed in the Table "LST surface classification codes" of [RD- 7].

Table 58 Detailed structure of the SLSTR L2 LST Biome Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
flag_values	CF list of flag values (see the Table "LST surface classification codes" of [RD-8])		uc	24
flag_meanings	CF space-separated list of flag meanings (see the Table "LST surface classification codes" of [RD-8])		S	1

Table 59: GeoTIFF user GeoKey extensions

GeoKey	Key ID	Type	Description
GMESSContactGeoKey	32768	STRING	URI or email of supporting organisation
GMESVersionGeoKey	32769	STRING	Dataset version
GMESStartTimeGeoKey	32770	STRING	Dataset start validity time (ISO 8601)
GMESStopTimeGeoKey	32771	STRING	Dataset stop validity time (ISO 8601)
GMESReferenceTimeGeoKey	32772	STRING	Dataset reference time (ISO 8601)
GMESImageScaleGeoKey	32773	DOUBLE	Scale factor multiplying image count
GMESImageOffsetGeoKey	32774	DOUBLE	Offset added to scaled image count
GMESImageUnitsGeoKey	32775	STRING	UDUNITS unit name
GMESImageMasksGeoKey	32776	SHORT	Array of flag masks
GMESImageValuesGeoKey	32777	SHORT	Array of flag values
GMESImageMeaningsGeoKey	32778	STRING	Pipe-separated (“|”) list of flag meanings

Table 60: Mappings from TIFF Tags and GeoTIFF GeoKeys to netCDF attributes

GeoTIFF (Tag, GeoKey)	netCDF (attribute)	Comments
Artist	institution	
Software	processor_version	
DateTime	creation_time	not ISO 8601
ImageDescription	title, comment, long_name	File contains single data field
GTCitationGeoKey	references	
GMESContactGeoKey	contact	
GMESVersionGeoKey	dataset_version	
GMESStartTimeGeoKey	start_time	
GMESStopTimeGeoKey	stop_time	
GMESReferenceTimeGeoKey	reference_time	
GMESImageScaleGeoKey	scale_factor	
GMESImageOffsetGeoKey	add_offset	
GMESImageUnitsGeoKey	units	
GMESImageMasksGeoKey	flag_masks	
GMESImageValuesGeoKey	flag_values	
GMESImageMeaningsGeoKey	flag_meanings	

6.2.16 LST Vegetation Fraction Data File

The SLSTR L2 LST Vegetation Fraction Data File contains monthly vegetation fraction climatology. Climatologies for one year consist of 14 individual datasets (one for each of twelve months plus two “end-stops” for interpolations near the year boundaries).

FILE Type	Update rate	Size
SL_2_LSTVAX	Infrequently	850 MB

The file is in GeoTIFF tiled containing a two-dimensional array, using two bytes per pixel, in a regular equidistant latitude/longitude projection. TIFF’s packbits compression is used to drastically reduce the size of the file. Each pixel contains one of the 24 codes listed in the table “LST surface classification codes” of [RD- 7].

Table 61 Detailed structure of the SLSTR L2 LST Vegetation Fraction Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
scale_factor	The data must be multiplied by this factor after reading	2e-5	D	1

6.2.17 LST Water Vapour Data File

The SLSTR L2 LST Water Vapour Data File contains a monthly total column water vapour climatology. Climatologies for one year of operations consist of 14 individual datasets (one for each of twelve months plus two “end-stops” for interpolations near the year boundaries). Each field is be a two-dimensional array of cells on a regular latitude/longitude grid on the WGS 84 geoid.

FILE Type	Update rate	Size
SL_2_LSTWAX	Infrequently	16 MB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 62 Detailed structure of the SLSTR L2 LST Water Vapour Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
times	**Number of synoptic times**	**4**		
latitudes	**Number of latitudes**			
longitudes	**Number of longitudes**			
reference_time	**Reference time of each file**			

Element name	Description	Range or value	T	D
times	**Synoptic times**	**0, 6, 12, 18**	**sc**	**times**
units	UDUNITS unit name	hours	S	1
latitudes	**Latitudes**	**[-90, 90]**	**D**	**latitudes**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	latitude	S	1
units	UDUNITS unit name	degrees_north	S	1
longitudes	**Longitudes**	**[-180, 180]**	**D**	**longitudes**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	longitude	S	1
units	UDUNITS unit name	degrees_east	S	1
TCWV	**Total column water vapour**		**ss**	**times latitudes longitudes**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	atmosphere_water_vapor_content	S	1
units	UDUNITS unit name	kg.m-2	S	1
_FillValue	Default value for unused elements	-32768	ss	1
scale_factor	The data must be multiplied by this factor after reading		D	1
add_offset	This offset must be added to the data after reading (and after scaling if needed)		D	1

6.2.18 LST Error Data File

The SLSTR L2 LST Error data File contains a look-up table of the estimated algorithmic error for a single retrieved LST pixel.

FILE Type	Update rate	Size
SL_2_LSTEAX	Infrequently	0.008 MB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 63 Detailed structure of the SLSTR L2 LST Error Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
biomes	**Number of biome surface types**	**≤ 24**		
latitudes	**Number of latitudes**	**~18**		
TCWV	**Number of total column water vapours**	**~20**		
biomes	**GlobCover surface classification code**		**uc**	**biomes**
flag_values	CF list of flag values (see the Table “LST surface classification codes” of [RD- 7]])		uc	biomes
flag_meanings	CF space-separated list of flag meanings (see the Table “LST surface classification codes” of [RD- 7]])		S	1
biomes_error	**Estimate of LST error due to biome**	**[0, 366]**	**D**	**biomes**
units	UDUNITS unit name	K	S	1
latitudes	**Latitudes**	**[-90, 90]**	**D**	**latitudes**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	latitude	S	1
units	UDUNITS unit name	degrees_north	S	1
latitudes_error	**Estimate of LST error due to latitude**		**D**	**latitudes**
units	UDUNITS unit name	K	S	1
TCWV	**Total content of water vapour**		**D**	**TCWV**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	atmosphere_water_vapor_ content	S	1
units	UDUNITS unit name	kg.m-2	S	1
TCWV_error	**Estimate of LST error due to TCWV**		**D**	**TCWV**
units	UDUNITS unit name	kg.m-2	S	1

6.2.19 FRP Test Data File

The SLSTR L2 FRP Test Data File contains the fire radiative power test thresholds and other values.

FILE Type	Update rate	Size
SL_2_FRPTAX	Infrequently	0.008 MB

The file is encoded in XML. The detailed structure and content of this file is presented in table below.

Table 64 Detailed structure of the SLSTR L2 FRP Test Data File

Element name	Description	Range or value	Unit	T	C
Solar geometry Test					
zenith_threshold	Nadir solar zenith angle threshold for day/night		degrees	D	1
Water Tests					
NDVI_threshold	NDVI threshold			D	1
S6_threshold	S6 radiance threshold		W.m-2.sr-1.nm-1	D	1
S3_threshold	S3 radiance threshold		W.m-2.sr-1.nm-1	D	1
Cloud Tests					
l1b_mask	L1b cloud flags mask			us	1
bayesian_mask	Bayesian cloud flags mask			us	1

Element name	Description	Range or value	Unit	T	C
S2S3_threshold1	First S2 + S3 reflectance threshold			D	1
S9_threshold1	First S9 brightness temperature threshold		K	D	1
S2S3_threshold2	Second S2 + S3 reflectance threshold			D	1
S9_threshold2	Second S9 brightness temperature threshold		K	D	1
Sun glint Tests					
angle_threshold1	First angle test (16a)		degrees	D	1
S2_threshold	S2 reflectance test (16b)			D	1
angle_threshold2	Second angle test (16c, part 1)		degrees	D	1
S7S3_factor	S7/S3 ratio test (16c, part 2)			D	1
Sub-scene Tests					
nj	Sub-scene along track dimension (nadir 1km pixels)			ss	1
ni	Sub-scene across track dimension (nadir 1km pixels)			ss	1
land_factor	Validity test (fraction of land pixels)			D	1
cloud_factor	Validity test (fraction of cloud-free pixels)			D	1
box_min	Minimum sub-scene cell range to search when patching statistics			ss	1
box_max	Maximum sub-scene cell range to search when patching statistics			ss	1
neighbour_threshold	Minimum number of neighbour cells for successful patch			ss	1
Spectral Tests					
S8dynamic_threshold	S8 BT difference threshold (10c)		K	D	1
S7day_threshold	S7 BT default daytime threshold (10c sic)		K	D	1
S7S8day_threshold	S7-S8 BT difference default daytime threshold (10d)		K	D	1

Element name	Description	Range or value	Unit	T	C
S8day_threshold	S8 BT default daytime threshold (= 0)		K	D	1
S7night_threshold	S7 BT default night time threshold (10e)		K	D	1
S7S8night_threshold	S7-S8 BT difference default night time threshold (10f)		K	D	1
S8night_threshold	S8 BT default night time threshold (= 0)		K	D	1
zenith_factor	S7 BT daytime threshold correction (10a, 10c)		K.degrees-1	D	1
Spatial Tests					
kernel_min	Minimum kernel size			ss	1
kernel_max	Maximum kernel size			ss	1
sd_factor	Pixel test against background standard deviation (11)			D	1
sd_threshold	Default threshold test			D	1
Absolute Tests					
S7day_threshold	S7 BT daytime threshold (13a)		K	D	1
S7night_threshold	S7 BT night time threshold (13b)		K	D	1
S6_factor	S6 radiance noise factor (13c)			D	1
Background Tests					
S7day_threshold	S7 BT daytime threshold (12c)		K	D	1
S7S8day_threshold	S7-S8 BT daytime threshold (12d)		K	D	1
S7night_threshold	S7 BT night time threshold (12c)		K	D	1
S7S8night_threshold	S7-S8 BT night time threshold (12d)		K	D	1
window_min	Minimum window range			ss	1
window_max	Maximum window range			ss	1
window_exclude	Absolute threshold minimum window range			ss	1

Element name	Description	Range or value	Unit	T	C
window_absolute	Absolute threshold maximum window range			ss	1
window_factor	Valid pixels fraction of total pixels			D	1
window_threshold	Valid pixels absolute threshold			ss	1
Contextual threshold tests					
S7S8_factor	S7-S8 BT fraction of S7-S8 BT MAD (14b)		K	D	1
S7S8_threshold	S7-S8 BT offset (14c)		K	D	1
S7_factor	S7 BT fraction of S7 BT MAD (14d)			D	1
S8_threshold	S8 BT fraction of S8 BT MAD (14e)		K	D	1
S7_threshold	S7 BT MAD threshold (14f)		K	D	1
Desert false alarm tests					
nv_factor	Nf fraction of Nv (17a)			D	1
nf_threshold	Nf threshold (17b)			ss	1
S3_threshold	S3 reflectance threshold (17c)			D	1
S7bf_threshold	S7 BT threshold (17d)		K	D	1
S7bfmad_threshold	S7 BT MAD threshold (17e)		K	D	1
S7bfmad_factor	S7 BT fraction of S7 BT MAD (17f)			D	1
Fire radiative power calculations					
S7_solid_angle	S7 detector pixel solid angle		sr	D	1
F1_solid_angle	F1 detector pixel solid angle		sr	D	1
thickness_coeff	TCWV-to-optical thickness polynomial			D	3
path_coeff	cos(zenith)-to-path correction polynomial			D	3
frp_factor	Planck-to-Stefan conversion factor		sr.micr om	D	1

Element name	Description	Range or value	Unit	T	C
law_error	Power law conversion error			D	1
transmittance_error	Atmospheric transmittance uncertainty			D	1
Confidence Tests					
c1low_day_threshold	S7 daytime low threshold (23)		K	D	1
c1high_day_threshold	S7 daytime high threshold (23)		K	D	1
c1low_night_threshold	S7 night time low threshold (29)		K	D	1
c1high_night_threshold	S7 night time high threshold (29)		K	D	1
c2low_threshold	S7 Z-score low threshold (24)			D	1
c2high_threshold	S7 Z-score high threshold (24)			D	1
c3low_threshold	S7-S8 Z-score low threshold (24)			D	1
c3high_threshold	S7-S8 Z-score high threshold (24)			D	1
c4low_threshold	Nc low threshold (26)			D	1
c4high_threshold	Nc high threshold (26)			D	1
c5low_threshold	Nv low threshold (26)			D	1
c5high_threshold	Nv high threshold (26)			D	1
low_threshold	Fire low confidence threshold			D	1
mid_threshold	Fire medium confidence threshold			D	1
high_threshold	Fire high confidence threshold			D	1

6.2.20 S7 Thermal Infrared (TIR) Characterisation Data File

The SLSTR S7 Thermal Infrared (TIR) Characterisation Data File is a L1 auxiliary data file which contains LUTs for the conversion of brightness temperature into radiance for the S7 nadir channel. It is fully described in the L1 section 6.1.3.

FILE Type	Update rate	Size
SL_1_N_S7AX	Infrequently	0.04 MB

6.2.21 F1 Thermal Infrared (TIR) Characterisation Data File

The F1 Thermal Infrared (TIR) Characterisation Data File is a L1 auxiliary data file which contains LUTs for the conversion of brightness temperature into radiance for the F1 nadir channel. It is fully described in the L1 section 6.1.3.

FILE Type	Update rate	Size
SL_1_N_F1AX	Infrequently	0.04 MB

7. SYN AUXILIARY DATA FILES

The following sections describe the Auxiliary data files used by the SYN Processing chains.

7.1 SYN Level 1 Auxiliary Data Files

7.1.1 Processing Control Parameter File

The SYN L1 Processing Control Parameter File contains all parameters necessary to control the SYN L1 processing.

FILE Type	Update rate	Size
SY_1_PCP_AX	Infrequently	< 100 KB *(may vary if LUTs dimensions change)*

The file is in XML format. The detailed structure and content of this file is presented in table below.

Table 65 Detailed structure of the SYN L1 Processing Control Parameter File

Element name	Description	Range or value	Unit	T	C
<global common attributes>	Common global attributes as defined in [RD- 4]				
OL_bands_total	**Total number of OLCI bands**	**21**			
SL_bands_total	**Total number of SLSTR bands**	**11**			
SL_SWIR	**Number of SWIR SLSTR channels**	**3**		**fl**	**1**
L1_OLCI_ref_band	**OLCI reference band at SYN level 1**	**[1, 21]**		**sc**	**1**
L1_SLSTR_ref_band	**SLSTR reference (visible) band at SYN level 1**	**[1, 6]**		**sc**	**1**
OLC_band	**Correspondence between OLCI channels included in OLCI L1b products and OLCI channels taken into account in SYN L2 processing. If the channel is unused in SYN processing, its corresponding value in this vector is set to 0**	**[0, 18]**		**sc**	**OL_bands _total**

Element name	Description	Range or value	Unit	T	C
SLN_band	Correspondence between SLSTR channels included in SLSTR nadir view L1b products and SLSTR channels taken into account in SYN L2 processing. If the channel is unused in SYN processing, its corresponding value in this vector is set to 0	[19,24]		sc	SL_bands _total
SLO_band	Correspondence between SLSTR channels included in SLSTR oblique view L1b products and SLSTR channels taken into account in SYN L2 processing. If the channel is unused in SYN processing, its corresponding value in this vector is set to 0	[25,30]		sc	SL_bands _total
L1_General Switches					
SW_processed	Switch disabling/enabling the computation of unused channels : 0: all channels are processed 1 : only used channels are processed	[0,1]		B	1
SW_SYN	Switch disabling/enabling the entire SYNERGY level 2 processing	[0,1]		B	1
SW_VGT	Switch disabling/enabling the entire VGT processing	[0,1]		B	1
SW_ERR_RAD	Switch enabling the computation of the error estimates for radiances at SYN Level 1	[0,1]		B	1
SW_ERR_SDR	Switch enabling the computation of the error estimates for surface reflectance at SYN Level 2	[0,1]		B	1
L1_PRP_Parameters					
UNIT_CONV_PARAM	Parameter to control the conversion of reference bands from TOA radiance unit to TOA reflectance or to normalized TOA reflectance.			B	1
GCP_SELECT_SWITCH	Switch to choose the method for selecting the Ground Control points in the processed image (from a database, regularly with steps given, regularly with the number of GCP given or from an external file)	{“DB”, “REGULAR_STEP”, “REGULAR_N”, “EXT”}		S	1
OLC_SEGMENT_SIZE	Segment size for tie-point search if GCP_SELECT_SWITCH = “DB”			us	1
ACT_GCP_STEP	Across-track sampling step (in OLCI pixels) between to Ground Control Points, if GCP_SELECT_SWITCH = “REGULAR_STEP”	[1, N_DET_CAM]		us	1
ALT_GCP_STEP	Along-track sampling step (in OLCI pixels) between to Ground Control Points, if GCP_SELECT_SWITCH = “REGULAR_STEP”	[1, N_DET_CAM]		us	1

Element name	Description	Range or value	Unit	T	C
ACT_GCP_NUM	Number of Ground Control Points required in the across-track direction, if GCP_SELECT_SWITCH = "REGULAR_N"	[1, N_DET_CAM]		us	1
ALT_GCP_NUM	Number of Ground Control Points required in the along-track direction, if GCP_SELECT_SWITCH = "REGULAR_N"	[1, N_DET_CAM]		us	1
E_ACT_GCP_MARGIN	Margin for rejecting Ground Control Points too close of the East edge of the image acquired by each OLCI camera module. Should be greater than CW_K_RADIUS and SW_Interp_Shannon_Param.Nsha	[1, N_DET_CAM/2]		us	1
W_ACT_GCP_MARGIN	Margin for rejecting Ground Control Points too close of the West edge of the image acquired by each OLCI camera module. Should be greater than CW_K_RADIUS and SW_Interp_Shannon_Param.Nsha	[1, N_DET_CAM/2]		us	1
T_WATER_PIX_GCP	Threshold on the proportion of "water" pixels in the Context imagette (when Ground Control Points are automatically regularly selected)	[0, 100]	%	fl	1
ALT_GCP_MARGIN	Margin for rejecting Ground Control Points too close of the North or South edges of the images acquired by any OLCI camera module. Should be greater than CW_K_RADIUS and SW_Interp_Shannon_Param.Nsha			us	1
SLST_LAT_MARGIN	Margin for defining coarse along-track boundaries of the SLSTR nadir and oblique views		degrees	fl	1
p_ref_OL_TS	Index number of the reference (SSP pointing) OLCI pixel for SYNL1 OLCI time-stamps definition			us	1
AC_ref_SL_NAD_05km_TS	The absolute Across-track index of the reference SLSTR nadir view 500m pixel (satellite trace pointing) providing SYN L1 SLSTR nadir view 500m time-stamps definition.			us	1
AC_ref_SL_NAD_1km_TS	The absolute Across-track index of the reference SLSTR nadir view 1km pixel (satellite trace pointing) providing SYN L1 SLSTR nadir view 1km time-stamps definition.			us	1
AC_ref_SL_OBL_05km_TS	The absolute Across-track index of the reference SLSTR oblique view 500m pixel (satellite trace pointing) providing SYN L1 SLSTR oblique view 500m time-stamps definition.			us	1
AC_ref_SL_OBL_1km_TS	The absolute Across-track index of the reference SLSTR oblique view 1km pixel (satellite trace pointing) providing SYN L1 SLSTR oblique view 1km time-stamps definition.			us	1
L1_Inter_instrument Parameters					

Element name	Description	Range or value	Unit	T	C
GCP_LIST_DATAFILE_NAME	Name of the datafile including the Ground Control Points lists to be used by the Inter-Instrument Spatial Misregistration Estimation Module, when GCP_SELECT_SWITCH = "EXT"			S	1
T_SIZE_CW	Minimum acceptable size (in pixels) of a context window in OLCI Oref channel to perform correlation. Must be greater than CW_K_RADIUS when CW_SIZE_SWITCH == "FIXED"			us	1
CW_SIZE_SWITCH	Switch to indicate if the size of the Context Window is fixed or is automatically computed at level 1C from the TP_size data tie to each tie-point in the tie-pints database. Forced to "FIXED" if GCP_SELECT_SWITCH ≠ "DB"	{"AUTO", "FIXED"}		S	1
CW_K_RADIUS	Fixed radius of the Context Window in the K direction (lines) to be used at level 1. Mandatory if CW_SIZE_SWITCH = "FIXED"			uc	1
T_CLOUD_PIX_CW	Threshold on the acceptable proportion of OLCI cloudy pixels in the area involved in the construction of the context window	[0, 100]	%	uc	1
T_INVALID_PIX_CW	Threshold on the acceptable proportion of OLCI Invalid pixels in the area involved in the construction of the context window	[0, 100]	%	fl	1
T_LOW_QUALITY_FLAGS_CW	Threshold on the acceptable proportion of OLCI potentially Low quality pixels in the area involved in the construction of the context window	[0, 100]	%	fl	1
T_GRAD_K_CW	Thresholds used to perform a preliminary quality test on the radiometric content of the Context imagette (based on gradient computation)			fl	1
T_GRAD_J_CW				fl	1
T_GRAD_K_RATIO_CW		[0,100]	%	fl	1
T_GRAD_J_RATIO_CW		[0,100]	%	fl	1
T_GRAD_K_SW	Thresholds used to perform a preliminary quality test on the radiometric content of the Search imagette (based on gradient computation)			fl	1
T_GRAD_J_SW				fl	1
T_GRAD_K_RATIO_SW		[0,100]	%	fl	1
T_GRAD_J_RATIO_SW		[0,100]	%	fl	1
DELTA_SHIFT	Maximum deregistration shift expected between Oq and Su in OLCI geometry		dl	uc	1
SW_INTERP_METHOD	Indicates the interpolation method of radiometric values of Su channel for constructing the Search window	{BICUBIC; SHANNON}		st	1

Element name	Description	Range or value	Unit	T	C
Nsha_interp	Radius of the Shannon kernel, used in the construction of the Search window if switch SW_INTERP_METHOD == "SHANNON"			uc	1
alpha_interp	Parameter of the apodization window. 0.5 for a Hann window and 0.54 for Hamming window	{0.54, 0.5}		fl	1
a_ bic_global	Bicubic interpolation parameter used in the construction of the Search window if switch SW_INTERP_METHOD == "BICUBIC"			fl	1
T_CLOUD_PIX_SW	Threshold on the acceptable proportion of SLSTR cloudy pixels in the area involved in the construction of the search window	[0, 100]	%	fl	1
T_QI_FLAGS_SW	Threshold on the acceptable proportion of SLSTR low quality pixels in the area involved in the construction of the search window	[0, 100]	%	fl	1
T_EXCEPTION_FLAGS_SW	Threshold on the acceptable proportion of exception flags set among pixels in the area involved in the construction of the search window	[0, 100]	%	fl	1
T_MAX_CORREL	Threshold on the maximum value of the correlation surface	[0, 1]		fl	1
T_CORREL_SHAPE	Threshold to assess the quality of the correlation surface shape	[0, 2]		fl	1
T_MAXMEAN_DIFF_COR	Threshold on the difference between the maximum and mean value of the correlation surface	[0, 2]		fl	1
T_MAXMAX_DIFF_COR	Threshold on the difference between the maximum of the correlation surface and the maximum on the correlation surface without a 3x3 neighborhood around the maximum	[0, 2]		fl	1
DICHO_SEARCH_INTERP_METHOD	Indicates the interpolation method to be used by the dichotomic search algorithm to find the correlation surface maximum	{"BICUBIC", "BILINEAR"}		S	1
DICHO_SEARCH_INTERP_SZE	Size of the zooming window used by the dichotomic search algorithm to find the correlation surface maximum	{1, 2}		uc	1
N_ITER_DICHO	Maximum number of iterations allowed to find the sub-pixel surface correlation maximum			us	1
T_DICHO_CONV	Threshold on convergence speed used as 2nd stop criterion of the dichotomic search algorithm			fl	1
N_TILES_ROW	Desired number of tiles in the row dimension to compute the Smooth Deformation Model			ul	1
N_TILES_COL	Desired number of tiles in the column dimension to compute the Smooth Deformation Model			ul	1

Element name	Description	Range or value	Unit	T	C
R_OVL_ROW	Rate of overlapping area between tiles in the row dimension to compute the Smooth Deformation Model	[0, 0.5]		fl	1
R_OVL_COL	Rate of overlapping area between tiles in the row dimension to compute the Smooth Deformation Model	[0, 0.5]		fl	1
T_N_GCP_TILE	Threshold representing the minimum tolerated number of Ground Control points in any tile of the Smooth Deformation Model			ul	1
LOC_DEF_MDL_SWITCH	Switch indicating whether the computation of the Local Deformation Model (TPS) must be performed or not	{“YES”, “NO”}		S	1
LAMBDA_TPS_COL	Rigidity parameter of the Thin-Plate Spline Model used to estimate the column component of the deformation	[0,]		fl	1
LAMBDA_TPS_ROW	Rigidity parameter of the Thin-Plate Spline Model used to estimate the row component of the deformation	[0,]		fl	1
DELTA_AGCP_ROW	Pitch between two adjacent new Ground Control Points in the computation of the Local (Piecewise Linear) Deformation Model in the row direction			us	1
DELTA_AGCP_COL	Pitch between two adjacent new Ground Control points in the computation of the Local (Piecewise Linear) Deformation Model in the column direction			us	1
MAX_DELTA_EST	Threshold on the maximal expected deregistration shift value (OLCI Oref pixels)			uc	1
GCP_REJECTION_TESTS_SWITCHES					
GCP_REJECTION_SW1	Test for Rejection of (regularly) selected tie-points over water (pre-processing stage)			B	1
GCP_REJECTION_SW2	CW_QT_1 (test on the size of the context window)			B	1
GCP_REJECTION_SW3	CW_QT_2 (test on the proportion of cloudy pixels in the context window)			B	1
GCP_REJECTION_SW4	CW_QT_3 (test on the proportion of invalid pixels in the context window			B	1
GCP_REJECTION_SW5	CW_QT_4 (test on the proportion of low quality pixels in the context window)			B	1
GCP_REJECTION_SW6	CW_QT_5 (test on the gradient of the context window)			B	1
GCP_REJECTION_SW7	SW_QT_1 (test on the proportion of cloudy pixels in the search window)			B	1
GCP_REJECTION_SW8	SW_QT_2 (test on the proportion of low quality pixels in the search window			B	1

Element name	Description	Range or value	Unit	T	C
GCP_REJECTION_SW9	SW_QT_3 (test on the proportion of invalid pixels in the search window)			B	1
GCP_REJECTION_SW10	SW_QT_4 (test on the gradient of the search window)			B	1
GCP_REJECTION_SW11	Switch set to ‘1’ if the test on the value of the maximum of the correlation surface is to be applied			B	1
GCP_REJECTION_SW12	switch set to ‘1’ if the test on the shape of the correlation surface around maximum is to be applied			B	1
GCP_REJECTION_SW13	switch set to ‘1’ if the test on the ratio between the maximum and mean value of the correlation surface is to be applied			B	1
GCP_REJECTION_SW14	switch set to ‘1’ if the test on the possible presence of a second maximum in the correlation surface is to be applied			B	1
L1_Correspondence Parameters					
NO_CORRESP_VAL	Values attributed to the pixels of the final correspondence grids when pixels of OLCI Oqm channel are not in the common swath			ul	1
COLLOC_NN_RADIUS	Maximum radius for the neighbouring search in the computation of correspondence grid for orphan pixels				
LOC Function Parameters					
INTERP_METHOD	Switch indicating the interpolatioon method to be used	{“BICUBIC”, “BILINEAR”}		S	1
a_bic_LOC	Bicubic interpolation parameter used in the LOC function			fl	1
INV_LOC Function Parameters					
TOL_UNIT_SWITCH	Switch indicating if the tolerance on precision is specified as a tolerance in lat/lon or in meters on ground	{“LON/LAT”, “GRD_DIST”}		S	1
INVLOC_TOL_LATLON	Required precision on the solution (in lat/lon)		microdeg rees	us	1
INVLOC_TOL_GRD_DIST	Required precision on the solution (in meters)		m	fl	1
N_ITER_MAX	Maximum number of iterations allowed to find a solution			us	1

Element name	Description	Range or value	Unit	T	C
EPSILON_INV_LOC	Step used to compute the derivative of the location function			fl	1
OUTSIDE_GRID_VAL	Exceptional value given to the output coordinates of the inverse geolocation function, when the computation aborts because the solution is not found in the input ortho-rectified geolocation grid		microdeg rees	us	1
INVLOC_NO_CVG_VAL	Exceptional value given to the output coordinates of the inverse geolocation function, when the computation did not reach the required precision in the N_ITER_MAX iterations		microdeg rees	us	1
INVLOC_JCB_ERR_VAL	Exceptional value given to the output coordinates of the inverse geolocation function, when the computation aborts due to numerical ill-conditioning (Jacobian)		microdeg rees	us	1
DET_J_COND	Parameter used to determine if Jacobian matrix is well conditioned			D	1
SYN L1 – OLCI – Unpacking parameters					
row_shift_scale_factor	Value to be multiplied to packed data to unpack them			D	1
col_shifts_scale_factor	Value to be multiplied to packed data to unpack them			D	1
SYN L1 – SLSTR nadir_500m – Unpacking Parameters					
row_corresp_scale_factor	Value to be multiplied to packed data to unpack them			D	1
row_corresp_ add_offset	Value to be added to the packed data after their scaling by the scale_factor attribute to unpack them			D	1
col_corresp_ scale_factor	Value to be multiplied to packed data to unpack them			D	1
col_corresp_ add_offset	Value to be added to the packed data after their scaling by the scale_factor attribute to unpack them			D	1
SYN L1 – SLSTR nadir 1 km – Unpacking Parameters					
row_corresp_ scale_factor	Value to be multiplied to packed data to unpack them			D	1
row_corresp_ add_offset	Value to be added to the packed data after their scaling by the scale_factor attribute to unpack them			D	1
col_corresp_scale_factor	Value to be multiplied to packed data to unpack them			D	1
col_corresp_add_offset	Value to be added to the packed data after their scaling by the scale_factor attribute to unpack them			D	1

Element name	Description	Range or value	Unit	T	C
SYN L1 – SLSTR oblique 500 m – Unpacking Parameters					
row_corresp_scale_factor	Value to be multiplied to packed data to unpack them			D	1
row_corresp_add_offset	Value to be added to the packed data after their scaling by the scale_factor attribute to unpack them			D	1
col_corresp_scale_factor	Value to be multiplied to packed data to unpack them			D	1
col_correp_add_offset	Value to be added to the packed data after their scaling by the scale_factor attribute to unpack them			D	1
SYN L1 – SLSTR oblique 1 km – Unpacking Parameters					
row_corresp_scale_factor	Value to be multiplied to packed data to unpack them			D	1
row_corresp_add_offset	Value to be added to the packed data after their scaling by the scale_factor attribute to unpack them			D	1
col_corresp_scale_factor	Value to be multiplied to packed data to unpack them			D	1
col_corresp_add_offset	Value to be added to the packed data after their scaling by the scale_factor attribute to unpack them			D	1

7.1.2 Ground Control Points Data Base

The SYN L1 Tie Points Data Base is a global database of geographical coordinates (Ground Control points) and associated window sizes required for SYN (OPT branch) processing. A ground Control point locates an area that is known to be “salient” when observed in a chosen spectral band by OLCI or SLSTR. It means that the imagette extracted around this point will have good correlation properties. The database will be constructed during commissioning phase based on a core database (e.g. VEGETATION 1 mission GCP database) and possibly improved during early operational phase of Sentinel 3. The database might also be regularly updated during the satellite life.

FILE Type	Update rate	Size
SY_1_GCPBAX	Infrequently	< 1 MB *(may vary if LUTs dimensions change)*

The file is in NetCDF format including coordinates and size variables, sorted by decreasing geodetic latitude. The auxiliary data file includes, for each Ground control point:

- longitude, geodetic latitude, altitude coordinates
- size of the context window to be extracted around the GC-point (on ground, in meters).

The detailed structure and content of this file is presented in table below.

Table 66 Detailed structure of the SYN L1 Ground Control Points Data Base

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
gcp_points	**Number of ground control point in the database**			
latitudes	**Latitudes of the ground control points**	**[-90, 90]**	**sl**	**gcp points**
units	UDUNITS unit name	degrees_north	S	1
_FillValue	Default value for unused elements	-2147483648	sl	1
scale_factor	The data must be multiplied by this factor after reading		D	1
longitudes	**Longitudes of the ground control points**	**[-180, 180]**	**sl**	**gcp_points**
units	UDUNITS unit name	degrees_east	S	1
_FillValue	Default value for unused elements	-2147483648	sl	1

Element name	Description	Range or value	T	D
scale_factor	The data must be multiplied by this factor after reading		D	1
altitudes	**Altitudes of the ground control points**	**[-1000, 9000]**	**ss**	**gcp_points**
units	UDUNITS unit name	m	S	1
_FillValue	Default value for unused elements	-32768	ss	1
scale_factor	The data must be multiplied by this factor after reading		D	1
add_offset	This offset must be added to the data after reading (and after scaling if needed)		D	1
sizes	**Radius of the area of interest around each ground control point**		**us**	**gcp_points**
units	UDUNITS unit name	m	S	1

7.1.3 Map file of the distance to the coast

The SYN L1 processing selects the ground control points according to their distance to the coast: the distance map file.

This map is constituted with 32 tiles at 2 km resolution (0.0028 degree). For each pixel is given the distance to the coast in km.

For pixels approaching the coast:
- On land side: value decreases from -35 to 0
- On Sea side: value decreases from 1001 to

FILE Type	Update rate	Size
SY_1_CDIBAX	Infrequently	525 MB per file

The file is in GeoTIFF tiled uncompressed format containing a two-dimensional array of pixels (16200x16200) providing the distance as short integers in a regular equidistant latitude/longitude projection.

7.1.4 OLCI Inter-channel Spatial Misregistration Characterization Data File

The SYN L1 OLCI Inter-channel Spatial Misregistration Data File contains – for each OLCI channel Od d=1,…,21, d≠dref – a group of two 2D variables representing the misregistration shift along columns and rows axis (in OLCI pixel unit) between each detector of the OLCI reference channel Oref and the corresponding detector in channel Od, for each camera.

FILE Type	Update rate	Size
OL_1_MCHDAX	Infrequently	< 500 KB *(may vary if LUTs dimensions change)*

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 67 Detailed structure of the SYN L1 OLCI Inter-channel Spatial Misregistration Characterization Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
modules	**Number of modules**	**5**		
module_pixels	**Number of CCD pixels per module (accross_track dimension)**	**740**		
Oa1				
row_shifts	**Misregistration shifts with reference band pixels along rows axis**	**[-2, 2]**	**ss**	**modules module_pixels**
_FillValue	Default value for unused elements	-32768	ss	1
scale_factor	The data must be multiplied by this factor after reading		D	1
col_shifts	**Misregistration shifts with reference band pixels along columns axis**	**[-2, 2]**	**ss**	**modules module_pixels**
_FillValue	Default value for unused elements	-32768	ss	1
scale_factor	The data must be multiplied by this factor after reading		D	1
Oa2				
…				

7.1.5 SLSTR Inter-channel Spatial Misregistration Characterization Data File

The SYN L1 SLSTR Inter-channel Spatial Misregistration Data File contains (i) one group for each visible (excepted Su) and 1 km channel (including fire channels) and (ii) 3 groups for each SWIR channels (for “A”, “B” and TDI sub-bands).

Each group contains the correspondence grid between each pixel acquired during one scan by the SLSTR nadir view reference channel Su and the corresponding location in the other 500 m and 1 km nadir view channels/sub-bands Sb. These data are assumed to be static data coming from instrument characterization.

Each grid is represented by two matrix *row_corresp* and *col_corresp*.

Let $k^{b}_{\det}$ = *row_corresp*(k_{det},*j*) and j^b = *col_corresp*(k_{det},*j*) then ($k^{b}_{\det}$, j^b) is the sub-pixel location in the SLSTR nadir view S_b channel corresponding to pixel (k,j) in SLSTR nadir view S_u channel. k_{det} = 0 to 3 is the detector number of the pixel and j = 0 to nadir_scan_500m_pixels - 1 is the pixel number (along scan).

FILE Type	Update rate	Size
SL_1_MCHDAX	Infrequently	< 2 MB *(may vary if LUTs dimensions change)*

The file is in NetCDF format. The detailed structure and content of the group S1 is presented in table below.

Table 68 Detailed structure of the SYN L1 SLSTR Inter-channel Spatial Misregistration Characterization Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
500m_detectors	**Number of SLSTR detectors in the 500 m channel**	**4**		
nadir_scan_500m_pixels	**Number of 500 m pixels acquired by a single detector in one SLSTR scan when targeting earth**			
S1				
row_corresp	**Gives the sub-pixel rows in the nadir view S1 channel corresponding to pixels in the SLSTR nadir view Su channel**	**[-2, 7]**	**ul**	**500m_detectors nadir_scan_500m_pixels**
_FillValue	Default value for unused elements	4294967295	ul	1
scale_factor	The data must be multiplied by this factor after reading		D	1
add_offset	This offset must be added to the data after reading (and after scaling if needed)		D	1
col_corresp	**Gives the sub-pixel columns in the nadir view S1 channel corresponding to pixels in the SLSTR nadir view Su channel**	**[-4, 2392]**	**ul**	**500m_detectors nadir_scan_500m_pixels**
_FillValue	Default value for unused elements	4294967295	ul	1
scale_factor	The data must be multiplied by this factor after reading		D	1
add_offset	This offset must be added to the data after reading (and after scaling if needed)		D	1
S2				
…				

7.2 SYN/VGT Level 2 Auxiliary Data Files

7.2.1 Processing Control Parameter File

The SYN L2/VGT Processing Control Parameter File contains all parameters necessary to control the L2 processing.

FILE Type	Update rate	Size
SY_2_PCP_AX		< 100 KB (may vary if LUTs dimensions change)

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 69 Detailed structure of the SYN L2 Processing Control Parameter File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
SYN_band	**Number of channels taken into account in the SYNERGY Level 2 processing**	**30**		**1**
OLC_band	**Number of OLCI wavebands taken into account in the SYNERGY Level 2 processing**	**18**		**1**
SLS_band	**Number of SLSTR visible and SWIR wavebands taken into account in the SYNERGY Level 2 processing**	**6**		**1**
SLS_view	**Number of SLSTR view**	**2**		**1**
AMIN	**Number of Aerosol models used in the processing**	**3**		**1**
NDVI	**Number of vertices for NDVI axis**	**4**		**1**

Element name	Description	Range or value	T	D
NDV_channel	Number of channels used in the computation of NDVI	2		1
L2_General_Switches				
SW_Delta_AOT	Switch enabling the computation of error of the aerosol optical thickness	[0,1]	ub	1
SW_Delta_Rsurf	Switch enabling the computation of error of the surface Reflectance	[0,1]	ub	1
L2_General_Parameters				
AMIN	Aerosol models used in SYN L2 processing		us	AMIN
NDV_channel	Index Numbers of red and NIR channels used in the computation of NDVI	9,17	us	NDV_channel
SYN_band	SYN channel index number	[1,30]	us	SYN_band
OLC_band	OLCI waveband index numbers used in SYN L2 processing	[1,..13, 16..19, 21]	us	OLC_band
SLS_band	SLSTR wavebands index numbers used in SYN L2 processing	[1,6]	us	SLS_band
SLS_view	SLSTR view index number (1 = nadir, 2 = oblique)	[1,2]	us	SLS_view
ave_square	Height and width of averaging square	8	ub	1
T_missing	Percentage of unfilled pixels above which a line of the image is considered affected by a gap	75	us	1
L2_Aerosol_Retrieval_Parameters				
NDVI	Normalised Difference vegetation index	[-1.0; 1.0]	fl	NDVI
R_soil	Idealised reflectance of soil		fl	SYN_band
R_veg	Idealised reflectance of vegetation		fl	SYN_band
weight_spec	Weight of spectral error metric terms	[0.05, 1.00]	fl	SYN_band
weight_ang	Weight of Angular error metric terms	[0.5, 1.5]	fl	SLS_view SLS_band
weight_ang_tot	Total weight of Angular error metric terms	[0.5, 1]	fl	NDVI
L2_First_Guess_Parameters				

Element name	Description	Range or value	T	D
T550_ini	Initial guess for Aerosol optical thickness	0.1	fl	1
v_ini	Initial guess for surface parameters depending on view	0.5, 0.3	fl	SLS_view
w_ini	Initial_guess for surface parameters depending on wavelength	0.1	fl	SLS_band
L2_Specific_Constant				
gamma	Fraction contributing to higher order scattering	0.3	fl	1
kappa	Constant used for calculating aerosol optical thickness standard error	1.58	fl	1
L2_unpacking parameters				
A550_add_offset	Add_offset associated with Angstrom exponent		fl	1
A550_scale_factor	Scale factor associated with Angstrom exponent		fl	1
DT550_scale_factor	Scale factor associated with error estimates of aerosol optical thickness		fl	1
lat_scale_factor	Scale factor associated with latitude		fl	1
lon_scale_factor	Scale factor associated with longitude		fl	1
saa_scale_factor	Scale factor associated with solar azimuth angle		fl	1
sza_scale_factor	Scale factor associated with solar zenith angle		fl	1
vaa_scale_factor	Scale factor associated with viewing azimuth angle		fl	1
vza_scale_factor	Scale factor associated with viewing zenith angle		fl	1
T550_scale_factor	Scale factor associated with aerosol optical thickness		fl	1
SYN_R_scale_factor	Scale factor associated with surface reflectance for each SYN channel		fl	SYN_band
SYN_DR_scale_factor	Scale factor associated with error estimates of the surface reflectance for each SYN channel		fl	SYN_band
VGT_Thresholds				
HYP_channels	Number of hyperspectral channels	914		1
VGT_channels	Number of VGT channels	4		1

Element name	Description	Range or value	T	D
tcl_length	Number of thresholds used for cloud detection	4		1
tsn_length	Number of thresholds used for snow detection	5		1
tsh_length	Number of thresholds used for cloud shadow detection	1		1
tcl	Thresholds needed for cloud detection	[0.09; 0.36]	fl	tcl_length
tsn	Thresholds needed for snow detection	[-0.3865; 0.3075	fl	tsn_length
tsh	Thresholds needed for cloud shadow detection	0.2	fl	tsh_length
VGT_General_Switches				
SW_DSC	Switch enabling the use of SYN L2 surface reflectance in the dowscaling section	1	ub	1
VGT_General_Parameters				
N_B0	Number of indices in the selection of SYN channels used in the combination of B0 channel	2		1
N_B2	Number of indices in the selection of SYN channels used in the combination of B2 channel	5		1
N_B3	Number of indices in the selection of SYN channels used in the combination of B3 channel	5		1
N_MIR	Number of indices in the selection of SYN channels used in the combination of MIR channel	2		1
N_NAD	Number of indices in the selection of SYN channels associated with OLCI or SLSTR nadir view	24		1
AMIN_climato	Aerosol model index number in case the climatology is used	22	us	1
ch_B0	index number of the B0 channel in VGT product	1	us	1
ch_B2	index number of the B2 channel in VGT product	2	us	1
ch_B3	index number of the B2 channel in VGT product	3	us	1
ch_MIR	index number of the MIR channel in VGT product	4	us	1

Element name	Description	Range or value	T	D
B0_SYN_ch	Set of Index numbers of the SYN channels used in the combination of B0 channel	{2,3}	us	N_B0
B2_SYN_ch	Set of Index numbers of the SYN channels used in the combination of B2 channel	{6,…,10}	us	N_B2
B3_SYN_ch	Set of Index numbers of the SYN channels used in the combination of B3 channel	{14, …, 18}	us	N_B3
MIR_SYN_ch	Set of Index numbers of the SYN channels used in the combination of MIR channel	{23, 24}	us	N_MIR
NAD_channels	Set of Index numbers of the SYN channels associated with OLCI or SLSTR nadir view	{1, …24}	us	N_NAD
ch_NDVI1	First index number of the channels used in the computation of the NDVI	2	us	1
ch_NDVI2	Second index number of the channels used in the computation of the NDVI	3	us	1
R_earth	Arithmetic mean radius of Earth defined following WGS 84 in meters	$6, 371\ 10^{6}$	fl	1
R_shadow	Initial distance between cloud and shadow pixels used to build the path of potential flagged pixels (in kilometers)	100	fl	1
VGT_Plate_Carree_Characteristics				
Vertices	Number of vertices	2	us	1
conf_lat_max	maximum latitude of the global Plate Carrée grid	75	db	1
conf_lat_min	minimum latitude of the global Plate Carrée grid	-56	db	1
conf_lon_max	maximum longitude of the global Plate Carrée grid	180	db	1
conf_lon_min	minimum longitude of the global Plate Carrée grid	-180	db	1
conf_lat_resol	Resolution of the plate carrée grid on latitude dimension	1/112	db	1
conf_lon_resol	Resolution of the plate carrée grid on lonigutude dimension	1/112	db	1
conf_lat_TP_resol	Resolution of the sub-sampled plate carrée grid on latitude dimension	1/112	db	1
conf_lon TP_resol	Resolution of the sub-sampled plate carrée grid on longitude dimension	16/112	db	1
VGT_unpacking parameters				
og_scale_factor	scale factor associated with total column ozone		fl	1
R_scale_factor	scale factor associated with TOA reflectance for each VGT channel		fl	VGT_channels

Element name	Description	Range or value	T	D
wvg_scale_factor	scale factor associated with water column vapour		fl	1
T550_scale_factor	scale factor associated with aerosol optical thickness		fl	1
saa_scale_factor	scale factor associated with solar zenith angle		fl	1
sza_scale_factor	scale factor associated with solar zenith angle		fl	1
vaa_scale_factor	scale factor associated with viewing azimuth angle		fl	1
vza_scale_factor	scale factor associated with viewing zenith angle		fl	1
VGK_unpacking parameters				
NDVI_add_offset	add_offset associated with NDVI parameter		fl	1
NDVI_scale_factor	scale factor associated with NDVI parameter		fl	1
lat_scale_factor	Scale factor associated with latitude		fl	1
lon_scale_factor	Scale factor associated with longitude		fl	1
saa_scale_factor	Scale factor associated with solar azimuth angle		fl	1
sza_scale_factor	Scale factor associated with solar zenith angle		fl	1
vaa_scale_factor	Scale factor associated with viewing azimuth angle		fl	1
vza_scale_factor	Scale factor associated with viewing zenith angle		fl	1
T550_scale_factor	scale factor associated with aerosol optical thickness		fl	1
og_scale_factor	scale factor associated with total column ozone		fl	1
R_scale_factor	scale factor associated with TOA reflectance for each VGT channel		fl	VGT_channels
wvg_scale_factor	scale factor associated with water column vapour		fl	1

7.2.2 SYN L2 Radiative Transfer Simulation Data File

The SYN L2 Radiative Transfer Simulation Data File contains all parameters necessary to retrieve the aerosol parameters and perform the optimization included in the aerosol retrieval section.

FILE Type	Update rate	Size
SY_2_RAD_AX	Infrequently	135 MB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 70 Detailed structure of the SYN L2 Radiative Transfer Simulation Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
AMIN	**Number of aerosol models**	**3**	**us**	**1**
ADA	**Number of vertices for azimuth difference angle**	**31**	**us**	**1**
SZA	**Number of vertices for solar zenith angle**	**21**	**us**	**1**
OLC_VZA	**Number of vertices for OLCI view zenith angle**	**18**	**us**	**1**
SLN_VZA	**Number of vertices for SLSTR nadir view zenith angle**	**18**	**us**	**1**
SLO_VZA	**Number of vertices for SLSTR oblique view zenith angle**	**1**	**us**	**1**
air_pressure	**Number of vertices for air pressure at sea surface**	**4**	**us**	**1**
water_vapour	**Number of vertices for water vapour**	**3**	**us**	**1**

Element name	Description	Range or value	T	D
T550	Number of vertices of aerosol optical thickness	11	us	1
OLC_band	Number of OLCI SYNERGY channel	18	us	1
SLN_band	Number of SLSTR nadir view SYNERGY channel	6	us	1
SLO_band	Number of SLSTR oblique view SYNERGY channel	6	us	1
SYN_band	Number of SYNERGY channel	30	us	1
SLS_band	Number of SLSTR visible and SWIR channel used in SYN L2 processing	6	us	1
ADA	Azimuth difference angle	[0,180]	fl	ADA
units	UDUNITS unit name	degrees	st	1
SZA	Solar zenith Angles	[0,70]	fl	SZA
units	UDUNITS unit name	degrees	st	1
OLC_VZA	OLCI view zenith angle	[0, 55]	fl	OLC_VZA
units	UDUNITS unit name	degrees	st	1
SLN_VZA	SLSTR nadir view zenith angle	[6,58]	fl	SLN_VZA
units	UDUNITS unit name	degrees	st	1
SLO_VZA	SLSTR oblique view zenith angle	55	fl	SLO_VZA
units	UDUNITS unit name	degrees	st	1
Air pressure	Air pressure at sea surface level	[800, 1030]	fl	air_pressure

Element name	Description	Range or value	T	D
units	UDUNITS unit name	hPa	st	1
water_vapour	Total column water vapour	[0, 5]	fl	water_vapour
units	UDUNITS unit name	g.cm-2	st	1
AMIN	Aerosol model index number	[1,40]	ss	AMIN
T550	Aerosol optical thickness	[0, 4.0]	fl	T550
OLC_band	SYN channel index number of OLCI channels	[1,18]	ss	OLC_band
SLN_band	SYN channel index number of SLSTR nadir view channels	[19,24]	ss	SLN_band
SLO_band	SYN channel index number of SLSTR oblique view channels	[25,30]	ss	SLO_band
SYN_band	SYN channel index number	[1,30]	ss	SYN_band
SLS_band	SLSTR waveband index number	[1,6]	ss	SLS_band
OLC_R_atm	Atmopsheric scattering term for OLCI channels	[0, 250]	ub	ADA SZA OLC_SZA air_pressure water_vapour T550 AMIN OLC_band
scale_factor	The data must be multiplied by this factor after reading	0.004	D	1

Element name	Description	Range or value	T	D
SLN_R_atm	Atmopsheric scattering term for SLSTR nadir view channels	[0, 250]	ub	ADA SZA SLN_SZA air_pressure water_vapour T550 AMIN SLN_band
scale_factor	The data must be multiplied by this factor after reading	0.004	D	1
SLO_R_atm	Atmopsheric scattering term for SLSTR oblique view channels	[0, 250]	ub	ADA SZA SLO_SZA air_pressure water_vapour T550 AMIN SLO_band
scale_factor	The data must be multiplied by this factor after reading	0.004	D	1

Element name	Description	Range or value	T	D
t	Atmospheric transmission	[0,1]	fl	SZA air_pressure water_vapour T550 AMIN SYN_band
rho_atm	Atmopsheric bi-hemispherical Albedo	[0,1]	fl	air_pressure water_vapour T550 AMIN SYN_band
D	fraction of diffuse irradiance for SLSTR visible and SWIR wavebands	[0,1]	fl	SZA air_pressure T550 AMIN SLS_band
C_O3	Ozone correction factor	[0, 0.01]	fl	SYN_band
A550	Aerosol angstrom exponent at 550 nm for all aerosol models	[-0.5, 2.5]	fl	AMIN
delta_rt	Error of radiative transfer modelling	0.005	fl	1

Note: This section will be fully addressed in the next release of the present document.

7.2.3 VGT-P Radiative Transfer Simulation Data File

The VGT P Radiative Transfer Simulation Data File contains all parameters necessary to retrieve the aerosol parameters and perform the conversion into Top of Atmopshere reflectances for hyperspectral bands.

FILE Type	Update rate	Size
SY_2_RADPAX	Infrequently	50 MB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 71 Detailed structure of the VGT P Radiative Transfer Simulation Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
AMIN	**Number of aerosol models**	**1**	**us**	**1**
ADA	**Number of vertices for azimuth difference angle**	**11**	**us**	**1**
SZA	**Number of vertices for solar zenith angle**	**8**	**us**	**1**
VZA	**Number of vertices for view zenith angle**	**7**	**us**	**1**
air_pressure	**Number of vertices for air pressure at sea surface**	**4**	**us**	**1**
water_vapour	**Number of vertices for water vapour**	**3**	**us**	**1**
T550	**Number of vertices of aerosol optical thickness**	**6**	**us**	**1**

Element name	Description	Range or value	T	D
HYP_band	**Number of vertices for hyperspectral wavelengths**	**914**	**us**	**1**
ADA	**Azimuth difference angle**	**[0,180]**	**fl**	**ADA**
units	UDUNITS unit name	degrees	st	1
SZA	**Solar zenith Angles**	**[0,70]**	**fl**	**SZA**
Units	UDUNITS unit name	degrees	st	1
VZA	**View zenith angle**	**[0, 55]**	**fl**	**VZA**
Units	UDUNITS unit name	degrees	st	1
Air pressure	**Air pressure at sea surface level**	**[800, 1030]**	**fl**	**air_pressure**
units	UDUNITS unit name	hPa	st	1
water_vapour	**Total column water vapour**	**[0, 5]**	**fl**	**water_vapour**
units	UDUNITS unit name	g.cm-2	st	1
T550	**Aerosol optical thickness**	**[0, 4.0]**	**fl**	**T550**
HYP_band	**Hyperspectral wavelength**	**[410, 1800]**	**fl**	**HYP_band**
units	UDUNITS unit name	nm	st	1

Element name	Description	Range or value	T	D
R_atm	**Atmopsheric scattering term**	**[0, 250]**	**uc**	**ADA** **SZA** **SZA** **air_pressure** **water_vapour** **T550** **AMIN** **HYP_band**
scale_factor	The data must be multiplied by this factor after reading	**0.004**	D	1
t	**Atmospheric transmission**	**[0,1]**	**fl**	**SZA** **air_pressure** **water_vapour** **T550** **AMIN** **HYP_band**
rho_atm	**Atmopsheric bi-hemispherical Albedo**	**[0,1]**	**fl**	**air_pressure** **water_vapour** **T550** **AMIN** **HYP_band**
C_O3	**Ozone correction factor**	**[0, 1.0]**	**fl**	**HYP_band**

7.2.4 VGT P Spectral Response Function Data File

This file is taken into accountin the VGT processing to convert surface reflectance computed on SYN channels to reflectances on hyperspectral channels.

FILE Type	Update rate	Size
SY_2_SPCPAX	Infrequently	32 KB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 72 Detailed structure of the VGT P Spectral Response function Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
HYP_band	**Number of vertices for hyperspectral wavelegnthss**	**914**	**us**	**1**
HYP_band	**Hyperspectral wavelength**	**[410, 1800]**	**fl**	**HYP_band**
units	UDUNITS unit name	nm	st	1
B0_SRF	**Response of B0 channel**	**[0,1]**	**fl**	**HYP_band**
B2_SRF	**Response of B2 channel**	**[0,1]**	**fl**	**HYP_band**

Element name	Description	Range or value	T	D
B3_SRF	**Response of B3 channel**	**[0,1]**	**fl**	**HYP_band**
MIR_SRF	**Response of MIR channel**	**[0,1]**	**fl**	**HYP_band**
Solar_irradiance	**Hyperspectral solar irradiance**	**[0, 10000.0]**		**HYP_band**
units	UDUNITS unit name	mW m-2 nm-1	st	1

7.2.5 VGT S Radiative Transfer Simulation Data File

The VGT S Radiative Transfer Simulation Data File contains all parameters necessary to perform the atmospheric correction on VGT channels.

FILE Type	Update rate	Size
SY_2_RADSAX	Infrequently	21 MB

The file is in NetCDF format. The detailed structure and content of this file is presented in table below.

Table 73 Detailed structure of the VGT S Radiative Transfer Simulation Data File

Element name	Description	Range or value	T	D
<global common attributes>	Common global attributes as defined in [RD- 4]			
AMIN	**Number of aerosol models**	**3**	**us**	**1**

Element name	Description	Range or value	T	D
ADA	**Number of vertices for azimuth difference angle**	**31**	**us**	**1**
SZA	**Number of vertices for solar zenith angle**	**21**	**us**	**1**
VZA	**Number of vertices for view zenith angle**	**18**	**us**	**1**
air_pressure	**Number of vertices for air pressure at sea surface**	**4**	**us**	**1**
water_vapour	**Number of vertices for water vapour**	**3**	**us**	**1**
T550	**Number of vertices of aerosol optical thickness**	**11**	**us**	**1**
VGT_band	**Number of VGT channels**	**4**	**us**	**1**
ADA	**Azimuth difference angle**	**[0,180]**	**fl**	**ADA**
Units	UDUNITS unit name	degrees	st	1
SZA	**Solar zenith Angles**	**[0,70]**	**fl**	**SZA**
Units	UDUNITS unit name	degrees	st	1
VZA	**View zenith angle**	**[0, 55]**	**fl**	**VZA**
Units	UDUNITS unit name	degrees	st	1
air pressure	**Air pressure at sea surface level**	**[800, 1030]**	**fl**	**air_pressure**
Units	UDUNITS unit name	hPa	st	1
water_vapour	**Total column water vapour**	**[0, 5]**	**fl**	**water_vapour**
units	UDUNITS unit name	g.cm-2	st	1
AMIN	**Aerosol model index number**	**[1, 40]**	**ss**	**AMIN**
T550	**Aerosol optical thickness**	**[0, 4.0]**	**fl**	**T550**

Element name	Description	Range or value	T	D
VGT_band	**channel index number of VGT channels**	**[1,4]**	**ss**	**VGT_band**
VGT_R_atm	**Atmopsheric scattering term for VGT channels**	**[0, 250]**	**uc**	**ADA** **SZA** **SZA** **air_pressure** **water_vapour** **T550** **AMIN** **VGT_band**
scale_factor	The data must be multiplied by this factor after reading	**0.004**	D	1
t	**Atmospheric transmission**	**[0,1]**	**fl**	**SZA** **air_pressure** **water_vapour** **T550** **AMIN** **VGT_band**
rho_atm	**Atmopsheric bi-hemispherical Albedo**	**[0,1]**	**fl**	**air_pressure** **water_vapour** **T550** **AMIN** **VGT_band**
C_O3	**Ozone correction factor**	**[0, 1.0]**	**fl**	**VGT_band**

7.2.6 VGT-S Processing control parameter File

FILE Type	Update rate	Size
SY_2_PCPSAX	Infrequently	8 KB

The file is in XML format. The detailed structure and content of this file is presented in table below.

Table 74 Detailed structure of the VGT S Processing Control Parameter Data File

Element name	Description	Range or value	Unit	T	C
VGT-S Processing Limits					
Lon_min	Longitude minimum of the processing window	-180	degrees east	fl	1
Lon_max	Longitude maximum of the processing window	180	degrees east	fl	1
Lat_min	Latitude minimum of the processing window	-56	degrees north	fl	1
Lat_max	Latitude maximum of the processing window	75	degrees north	fl	1
Grid Resolution					
Lon_resolution	Longitude resolution of the output grid	1/112	degrees	fl	1
Lat_resolution	Latitude resolution of the output grid	1/112	degrees	fl	1
VGS_unpacking parameters					
B0_scale_factor	scale factor associated with B0 surface reflectance			fl	1
B2_scale_factor	scale factor associated with B2 surface reflectance			fl	1
B3_scale_factor	scale factor associated with B3 surface reflectance			fl	1

Element name	Description	Range or value	Unit	T	C
MIR_scale_factor	scale factor associated with MIR surface reflectance			fl	1
NDVI_scale_factor	scale factor associated with NDVI parameter			fl	1
saa_scale_factor	Scale factor associated with solar azimuth angle			fl	1
sza_scale_factor	Scale factor associated with solar zenith angle			fl	1
vaa_scale_factor	Scale factor associated with viewing azimuth angle			fl	1
vza_scale_factor	Scale factor associated with viewing zenith angle			fl	1
T550_scale_factor	scale factor associated with aerosol optical thickness			fl	1
og_scale_factor	scale factor associated with total column ozone			fl	1
wvg_scale_factor	scale factor associated with water column vapour			fl	1

8. SRAL AUXILIARY DATA FILES

8.1 SRAL Common Levels 1 and 2 Auxiliary Data Files

8.1.1 NRT GNSS Restituted Orbit File (POD)

The NRT Restituted Orbit State Vectors (OSV) is based on the orbit determination performed by the NRT POD Facility. The State Vectors are in Earth-fixed reference.

The NRT Restituted Orbit File is generated for each GNSS Level0 data and the coverage is equal to the input file coverage plus at least 5 OSV (TBC) before and after the period of the data in input. The values of the overlapping OSV will be the same in two consecutive files. Each file contains OSVs at fixed time steps of 10 seconds interval (TBC). Every file will be generated within 30 minutes from the reception of input data.

FILE Type	Update rate	Size
SR___ROE_AX	One per orbit	800K

The NRT Restituted Orbit File is formatted using XML-tags. It consists of a single file (*.EOF) containing both the Header and the Datablock sections. The Data Block consists of a list of OSVs.

The format of the original file is described in [AD- 6].

8.1.2 Medium Orbit Ephemerides (MOE) Orbit File

This file contains the Medium Orbit Ephemerides (MOE), corresponding to the Preliminary Restituted Orbit State Vectors (OSV) based on the orbit determination performed by the POD Service. The State Vectors will be in Earth-fixed reference. It is used for supporting the generation of the STC production.

FILE Type	Update rate	Size
SR___MGNPAX	Daily	5 MB

The POD orbit files are formatted using XML-tags as described in [AD- 6]. Orbit File consists of a single file (*.EOF) containing both the Header and the Datablock sections. The Data Block consists of a list of OSVs.

One file will be generated per day covering approximately 26 hours: 1 26-hours file per day (d) for extrapolated and restituted MOE – Data for d-2 22h to d-1 24h. Each file contains OSVs at fixed time steps of 10 seconds interval (TBC). The time intervals are configurable.

The format of the original file is described in [AD- 6].

8.1.3 STC Preliminary Orbit File (SALP)

The operational preliminary orbit file is generated by SALP and is used for supporting the generation of the STC production.

FILE Type	Update rate	Size
SR___MDO_AX	Daily	160KB

The Operational Preliminary Orbit file is described in [AD- 5] and is delivered daily. The Preliminary Orbit file covering the day d is available day d+1 at 12:00 UTC. The production delay will be longer in case of contingency cases (out of plane manoeuvre, DORIS incident, etc.) and during Cal-Val phase to account for POD processing chain validation and parameterization tuning (delay may be from 3 to 5 days).

Each Preliminary Orbit File covers approximately 26 hours: Data for d-1 21:56h to d+1 00:24h. It contains OSVs identifying the satellite location at step of one minute along the orbit.

The format of the original file is described in [AD- 5]. Each orbit file consists in a tar-gzipped file with a TGZ extension, containing a single *.EEF file holding a header part and a data block section.

8.1.4 NTC Precise Orbit File (POD)

This file contains the Precise Orbit Ephemerides (POE) Restituted Orbit State Vectors based on the orbit determination performed by the POD Service. The State Vectors will be in Earth-fixed reference. It is used for supporting the generation of the NTC production.

FILE Type	Update rate	Size
SR___POEPAX	Daily, 20 days after data acquisition.	800KB

The POD orbit files are formatted using XML-tags as described in [AD- 6]. Orbit File consists of a single file (*.EOF) containing both the Header and the Datablock sections. The Data Block consists of a list of OSVs.

Each file covers approximately 26 hours and contains OSVs at fixed time steps of 10 seconds intervals (TBC). The time intervals are configurable.

Files frequency generation: n+1 26-hours files per n-days (sub) cycle.

The format of the original file is described in [AD- 6].

8.1.5 NTC Precise Orbit File (SALP)

The NTC Precise Orbit File is generated by SALP and it is used for supporting the generation of the NTC production.

FILE Type	Update rate	Size
SR___POESAX	Weekly (7 files are transferred to the PDGS once per week), 30 days after data acquisition.	800KB

The NTC Precise Orbit State Vector Files is delivered weekly (seven Precise Orbit State Vector files are transferred to the PDGS). In nominal routine case, the precise orbit files are delivered 30 days after data acquisition. In contingency cases (out of plane manoeuvre, DORIS or GNSS incident) the delay may be longer.

The Precise Orbit File covers approximately 26 hours: Data for d-1 21:56h to d+1 00:24h. It contains OSVs identifying the satellite location at step of one minute along the orbit.

The format of the original file is described in [AD- 5]. Each orbit file consists in a tar-gzipped file with a TGZ extension, containing a single *.EEF file holding a header part and a data block section.

8.1.6 Instrumental Characterization Data

The SRAL characterization parameters (SRAL CCDB) will be provided into 2 files: one file for the nominal path and one file for the redundant path. The format is identical for both files.

FILE Type	Update rate	Size
SR___CHDNAX SR___CHDRAX	Infrequently	160 KB

The SRAL Instrumental Characterization data is a NetCDF file, whose content is described in the table below:

Element name	Description	Range or value	T	D
SRAL_Datation_features				
Time_Shift_LRM	**Time shift accounting for internal delays to reference the midlle of the tracking cycle in LRM mode (to be added to the on-board datation)**		**D**	**1**
units	UDUNITS unit name	s	S	1
Time_Shift_SAR	**Time shift accounting for internal delays to reference the midlle of the burst in SAR mode (to be added to the on-board datation)**		**D**	**1**
units	UDUNITS unit name	s	S	1
Nb_PRI_C_Ku	**Number of pulse repetition intervals between the transmissions of the first (respectively last) C pulse and the first (respectively last) Ku pulse of a burst in SAR mode**		**D**	**1**
units	UDUNITS unit name	none	S	1
USO_Nominal_feature				
USO_Freq_Nom	**Nominal DORIS USO frequency**		**D**	**1**
units	UDUNITS unit name	Hz	S	1
SRAL_pulse_and_burst_features				
Pulse_Duration	**Pulse duration**		**fl**	**1**
units	UDUNITS unit name	s	S	1
Sign_Slope	**Sign of the slope of the transmitted chirp**		**sl**	**1**
units	UDUNITS unit name	none	S	1
N_Burst	**Number of bursts per tracking cycle**		**sl**	**1**
units	UDUNITS unit name	none	S	1

Element name	Description	Range or value	T	D
Burst_Duration	**Burst duration of Ku-band pulses**		**fl**	**1**
units	UDUNITS unit name	s	S	1
NbPulsesBurst	**Total number of pulses per burst in SAR mode**		**sl**	**1**
units	UDUNITS unit name	none	S	1
Freq_Ku	**Emitted frequency - Ku band**		**fl**	**1**
units	UDUNITS unit name	Hz	S	1
Freq_C	**Emitted frequency - C band**		**fl**	**1**
units	UDUNITS unit name	Hz	S	1
Band_Ku	**Emitted bandwidth - Ku band**		**fl**	**1**
units	UDUNITS unit name	Hz	S	1
Band_C	**Emitted bandwidth – C band**		**fl**	**1**
units	UDUNITS unit name	Hz	S	1
Abs_Ref_Track_Ku	**Abscissa of the reference sample for tracking in LRM mode - Ku band**		**sl**	**1**
units	UDUNITS unit name	none	S	1
Abs_Ref_Track_C	**Abscissa of the reference sample for tracking in LRM mode - C band**		**sl**	**1**
units	UDUNITS unit name	none	S	1
SRAL_PTR_FFT_features				
Ratio_PTR_FFT	**Ratio PTR width / FFT step for L2 Processing**		**fl**	**1**
units	UDUNITS unit name	none	S	1

Element name	Description	Range or value	T	D
FFT_Step_Freq_Ku	**FFT step in frequency - Ku band**		**fl**	**1**
units	UDUNITS unit name	Hz	S	1
FFT_Step_Freq_C	**FFT step in frequency - C band**		**fl**	**1**
units	UDUNITS unit name	Hz	S	1
FFT_Step_Time_Ku	**FFT step in time - Ku band**		**fl**	**1**
units	UDUNITS unit name	s	S	1
FFT_Step_Time_C	**FFT step in time - C band**		**fl**	**1**
units	UDUNITS unit name	s	S	1
Ind_0_Freq	**Index of the 0-frequency sample**		**sl**	**1**
units	UDUNITS unit name	none	S	1
SRAL_Antenna				
Ant_3dB_BW_Ku	**Antenna beamwidth - Ku band**		**fl**	**1**
units	UDUNITS unit name	degree	S	1
Ant_3dB_BW_C	**Antenna beamwidth - C band**		**fl**	**1**
units	UDUNITS unit name	degree	S	1
Ant_Gain_Ku	**Antenna gain - Ku band**		**fl**	**1**
units	UDUNITS unit name	dB	S	1
Ant_Gain_C	**Antenna gain - C band**		**fl**	**1**
units	UDUNITS unit name	dB	S	1

Element name	Description	Range or value	T	D
SRAL_AGC_Correction_Table				
type_sral_AGC_table	**AGC_ref;** **AGC_corr;**		**fl** **fl**	
dim_AGC_Table		**63**		
AGC_Table_Ku	**AGC correction table (=ATTCODE) - 63 values (AGC real value vs AGC expected value) - Ku band**		**type_sral_AGC_table**	**dim_AGC_Table**
units	UDUNITS unit name	dB	S	1
AGC_Table_C	**AGC correction table (=ATTCODE) - 63 values (AGC real value vs AGC expected value) - C band**		**type_sral_AGC_table**	**dim_AGC_Table**
units	UDUNITS unit name	dB	S	1
SRAL_Calibration_Path				
Ratio_TRC_Ku	**Ratio of the losses between the transmission/Reception and the Calibration paths - Ku band**		**fl**	**1**
units	UDUNITS unit name	dB	S	1
Ratio_TRC_C	**Ratio of the losses between the transmission/Reception and the Calibration paths - C band**		**fl**	**1**
units	UDUNITS unit name	dB	S	1
Dist_Dup_Ant_Ku	**2 ways Distance between the duplexer and the antenna reference point - Ku band**		**fl**	**1**
units	UDUNITS unit name	m	S	1
Dist_Dup_Ant_C	**2 ways Distance between the duplexer and the antenna reference point – C band**		**fl**	**1**
units	UDUNITS unit name	m	S	1
SRAL_prelaunch_PTR_LRM				

Element name	Description	Range or value	T	D
PTR_Ref_Power_LRM_Ku	**Reference total power of the PTR - Ku band**		**fl**	**1**
units	UDUNITS unit name	FFT p.u.	S	1
PTR_Ref_Power_LRM_C	**Reference total power of the PTR - C band**		**fl**	**1**
units	UDUNITS unit name	FFT p.u.	S	1
Half_Width_PTR_Ref_Power_LRM_Ku	**Half width in frequency, of the analysis window used to compute the reference total power of the PTR - Ku band**		**fl**	**1**
units	UDUNITS unit name	Hz	S	1
Half_Width_PTR_Ref_Power_LRM_C	**Half width in frequency, of the analysis window used to compute the reference total power of the PTR - C band**		**fl**	**1**
units	UDUNITS unit name	Hz	S	1
Ref_Width_Main_Lobe_LRM_Ku	**Reference width of the main lobe - Ku band**		**fl**	**1**
units	UDUNITS unit name	Hz	S	1
Ref_Width_Main_Lobe_LRM_C	**Reference width of the main lobe - C band**		**fl**	**1**
units	UDUNITS unit name	Hz	S	1
Ref_Diff_Trav_LRM_Ku	**Reference difference of travel (internal path) - Ku band**		**fl**	**1**
units	UDUNITS unit name	m	S	1
Ref_Diff_Trav_LRM_C	**Reference difference of travel (internal path) - C band**		**fl**	**1**
units	UDUNITS unit name	m	S	1
AGC1_PTR_PL_LRM_Ku	**AGC1 : first attenuation applied on-board - Ku band**		**sl**	**1**
units	UDUNITS unit name	dB	S	1

Element name	Description	Range or value	T	D
AGC1_PTR_PL_LRM_C	**AGC1 : first attenuation applied on-board - C band**		**sl**	**1**
units	UDUNITS unit name	dB	S	1
AGC2_PTR_PL_LRM_Ku	**AGC2 : second attenuation applied on-board - Ku band**		**sl**	**1**
units	UDUNITS unit name	dB	S	1
AGC2_PTR_PL_LRM_C	**AGC2 : second attenuation applied on-board - C band**		**sl**	**1**
units	UDUNITS unit name	dB	S	1
Np_PTR_PL_LRM_Ku	**Number of pulses (total number over the sequence) - Ku band**		**sl**	**1**
units	UDUNITS unit name	none	S	1
Np_PTR_PL_LRM_C	**Number of pulses (total number over the sequence) - C band**		**sl**	**1**
units	UDUNITS unit name	none	S	1
FFT_PTR_F_PL_LRM_Ku	**FFT step in frequency - Ku band - I,Q mode**		**fl**	**1**
units	UDUNITS unit name	Hz	S	1
FFT_PTR_F_PL_LRM_C	**FFT step in frequency - C band - I,Q mode**		**fl**	**1**
units	UDUNITS unit name	Hz	S	1
SRAL_prelaunch_PTR_SAR				
PTR_Ref_Power_SAR_Ku	**Reference total power of the PTR - Ku band**		**fl**	**1**
units	UDUNITS unit name	FFT p.u.	S	1
PTR_Ref_Power_SAR_C	**Reference total power of the PTR - C band**		**fl**	**1**
units	UDUNITS unit name	FFT p.u.	S	1

Element name	Description	Range or value	T	D
Half_Width_PTR_Ref_Power_SAR_Ku	**Half width in frequency, of the analysis window used to compute the reference total power of the PTR - Ku band**		**fl**	**1**
units	UDUNITS unit name	Hz	S	1
Half_Width_PTR_Ref_Power_SAR_C	**Half width in frequency, of the analysis window used to compute the reference total power of the PTR - C band**		**fl**	**1**
units	UDUNITS unit name	Hz	S	1
Ref_Width_Main_Lobe_SAR_Ku	**Reference width of the main lobe - Ku band**		**fl**	**1**
units	UDUNITS unit name	Hz	S	1
Ref_Width_Main_Lobe_SAR_C	**Reference width of the main lobe - C band**		**fl**	**1**
units	UDUNITS unit name	Hz	S	1
Ref_Diff_Trav_SAR_Ku	**Reference difference of travel (internal path) - Ku band**		**fl**	**1**
units	UDUNITS unit name	m	S	1
Ref_Diff_Trav_SAR_C	**Reference difference of travel (internal path) - C band**		**fl**	**1**
units	UDUNITS unit name	m	S	1
AGC1_PTR_PL_SAR_Ku	**AGC1 : first attenuation applied on-board - Ku band**		**sl**	**1**
units	UDUNITS unit name	dB	S	1
AGC1_PTR_PL_SAR_C	**AGC1 : first attenuation applied on-board - C band**		**sl**	**1**
units	UDUNITS unit name	dB	S	1
AGC2_PTR_PL_SAR_Ku	**AGC2 : second attenuation applied on-board - Ku band**		**sl**	**1**
units	UDUNITS unit name	dB	S	1

Element name	Description	Range or value	T	D
AGC2_PTR_PL_SAR_C	**AGC2 : second attenuation applied on-board - C band**		**sl**	**1**
units	UDUNITS unit name	dB	S	1
Np_PTR_PL_SAR_Ku	**Number of pulses (total number over the sequence) - Ku band**		**sl**	**1**
units	UDUNITS unit name	none	S	1
Np_PTR_PL_SAR_C	**Number of pulses (total number over the sequence) - C band**		**sl**	**1**
units	UDUNITS unit name	none	S	1
FFT_PTR_F_PL_SAR_Ku	**FFT step in frequency - Ku band**		**fl**	**1**
units	UDUNITS unit name	Hz	S	1
FFT_PTR_F_PL_SAR_C	**FFT step in frequency - C band**		**fl**	**1**
units	UDUNITS unit name	Hz	S	1
SRAL_prelaunch_GPRW				
Width_Half_Band_Ku	**Half width, in frequency, of the analysis window to compute the DC component - Ku band**		**fl**	**1**
units	UDUNITS unit name	Hz	S	1
Width_Half_Band_C	**Half width, in frequency, of the analysis window to compute the DC component – C band**		**fl**	**1**
units	UDUNITS unit name	Hz	S	1
Pre_Left_Mean_Ku	**Mean value of the left side of the GPRW spectrum - Ku band**		**fl**	**1**
units	UDUNITS unit name	dB	S	1
Pre_Left_Mean_C	**Mean value of the left side of the GPRW spectrum - C band**		**fl**	**1**

Element name	Description	Range or value	T	D
units	UDUNITS unit name	dB	S	1
Pre_Right_Mean_Ku	**Mean value of the right side of the GPRW spectrum - Ku band**		**fl**	**1**
units	UDUNITS unit name	dB	S	1
Pre_Right_Mean_C	**Mean value of the right side of the GPRW spectrum - C band**		**fl**	**1**
units	UDUNITS unit name	dB	S	1
Pre_Left_Std_Ku	**Standard deviation value of the left side of the GPRW spectrum - Ku band**		**fl**	**1**
units	UDUNITS unit name	dB	S	1
Pre_Left_Std_C	**Standard deviation value of the left side of the GPRW spectrum - C band**		**fl**	**1**
units	UDUNITS unit name	dB	S	1
Pre_Right_Std_Ku	**Standard deviation value of the right side of the GPRW spectrum - Ku band**		**fl**	**1**
units	UDUNITS unit name	dB	S	1
Pre_Right_Std_C	**Standard deviation value of the right side of the GPRW spectrum - C band**		**fl**	**1**
units	UDUNITS unit name	dB	S	1
Pre_Left_Diff_Ku	**Difference between min and max value for the left side of the GPRW spectrum - Ku band**		**fl**	**1**
units	UDUNITS unit name	dB	S	1
Pre_Left_Diff_C	**Difference between min and max value for the left side of the GPRW spectrum - C band**		**fl**	**1**
units	UDUNITS unit name	dB	S	1
Pre_Right_Diff_Ku	**Difference between min and max value for the right side of the GPRW spectrum - Ku band**		**fl**	**1**

Element name	Description	Range or value	T	D
units	UDUNITS unit name	dB	S	1
Pre_Right_Diff_C	**Difference between min and max value for the right side of the GPRW spectrum - C band**		**fl**	**1**
units	UDUNITS unit name	dB	S	1
Pre_Left_Slope_Ku	**Slope value of the left side of the GPRW spectrum - Ku band**		**fl**	**1**
units	UDUNITS unit name	dB/Hz	S	1
Pre_Left_Slope_C	**Slope value of the left side of the GPRW spectrum - C band**		**fl**	**1**
units	UDUNITS unit name	dB/Hz	S	1
Pre_Right_Slope_Ku	**Slope value of the right side of the GPRW spectrum - Ku band**		**fl**	**1**
units	UDUNITS unit name	dB/Hz	S	1
Pre_Right_Slope_C	**Slope value of the right side of the GPRW spectrum - C band**		**fl**	**1**
units	UDUNITS unit name	dB/Hz	S	1
Pre_Left_Std_Slope_Ku	**Value of the standard deviation about the slope for the left side of the GPRW spectrum - Ku band**		**fl**	**1**
units	UDUNITS unit name	dB	S	1
Pre_Left_Std_Slope_C	**Value of the standard deviation about the slope for the left side of the GPRW spectrum - C band**		**fl**	**1**
units	UDUNITS unit name	dB	S	1
Pre_Right_Std_Slope_Ku	**Value of the standard deviation about the slope for the right side of the GPRW spectrum - Ku band**		**fl**	**1**
units	UDUNITS unit name	dB	S	1

Element name	Description	Range or value	T	D
Pre_Right_Std_Slope_C	**Value of the standard deviation about the slope for the right side of the GPRW spectrum - C band**		**fl**	**1**
units	UDUNITS unit name	dB	S	1
SRAL_CAL1_LRM_routine_identifiers				
Cal1_LRM_Nom_Att_Status	**CAL1 configuration / Attenuator status ("enabled" or "disabled") - The identifier is a bit code in the TM defined as per Software ICD**		**S**	**1**
units	UDUNITS unit name	none	S	1
Cal1_LRM_Nom_Instr_Mode	**CAL1 configuration / Instrument mode ("acquisition" or "LRM") - The identifier is a bit code in the TM defined as per Software ICD**		**S**	**1**
units	UDUNITS unit name	none	S	1
Cal1_LRM_Nom_Nb_Cycle	**Number of cycles**		**sl**	**1**
units	UDUNITS unit name	none	S	1
Cal1_LRM_Nom_AGC1_Ku	**AGC1 : first attenuation applied on-board - Ku band**		**sl**	**1**
units	UDUNITS unit name	dB	S	1
Cal1_LRM_Nom_AGC1_C	**AGC1 : first attenuation applied on-board - C band**		**sl**	**1**
units	UDUNITS unit name	dB	S	1
Cal1_LRM_Nom_AGC2_Ku	**AGC2 : second attenuation applied on-board - Ku band**		**sl**	**1**
units	UDUNITS unit name	dB	S	1
Cal1_LRM_Nom_AGC2_C	**AGC2 : second attenuation applied on-board - C band**		**sl**	**1**
units	UDUNITS unit name	dB	S	1
Cal1_LRM_Nom_Synth_Freq	**Synthetiser frequency ("649 MHz", "650MHz" or "651 MHz") - The identifier is a bit code in the TM defined as per Software ICD**		**S**	**1**

Element name	Description	Range or value	T	D
units	UDUNITS unit name	none	S	1
Np_PTR_LRM_Ku	**Total Number of pulses per cycle - Ku band**		**sl**	**1**
units	UDUNITS unit name	none	S	1
Np_PTR_LRM_C	**Total Number of pulses per cycle - C band**		**sl**	**1**
units	UDUNITS unit name	none	S	1
FFT_PTR_F_LRM_Ku	**FFT step in frequency - Ku band**		**fl**	**1**
units	UDUNITS unit name	Hz	S	1
FFT_PTR_F_LRM_C	**FFT step in frequency - C band**		**fl**	**1**
units	UDUNITS unit name	Hz	S	1
SRAL_CAL1_SAR_routine_identifiers				
Cal1_SAR_Nom_Att_Status	**CAL1 configuration / Attenuator status ("enabled" or "disabled") - The identifier is a bit code in the TM defined as per Software ICD**		**S**	**1**
units	UDUNITS unit name	none	S	1
Cal1_SAR_Nom_Instr_Mode	**CAL1 configuration / Automatic calibration status ("normal" or "automatic") - The identifier is a bit code in the TM defined as per Software ICD**		**S**	**1**
units	UDUNITS unit name	none	S	1
Cal1_SAR_Nom_Nb_Cycle	**Number of cycles**		**sl**	**1**
units	UDUNITS unit name	none	S	1
Cal1_SAR_Nom_AGC1_Ku	**AGC1 : first attenuation applied on-board - Ku band**		**sl**	**1**
units	UDUNITS unit name	dB	S	1

Element name	Description	Range or value	T	D
Cal1_SAR_Nom_AGC1_C	**AGC1 : first attenuation applied on-board - C band**		**sl**	**1**
units	UDUNITS unit name	dB	S	1
Cal1_SAR_Nom_AGC2_Ku	**AGC2 : second attenuation applied on-board - Ku band**		**sl**	**1**
units	UDUNITS unit name	dB	S	1
Cal1_SAR_Nom_AGC2_C	**AGC2 : second attenuation applied on-board - C band**		**sl**	**1**
units	UDUNITS unit name	dB	S	1
Cal1_SAR_Nom_Synth_Freq	**Synthetiser frequency ("649 MHz", "650MHz" or "651 MHz") - The identifier is a bit code in the TM defined as per Software ICD**		**S**	**1**
units	UDUNITS unit name	none	S	1
Np_PTR_SAR_Ku	**Total Number of pulses per cycle - Ku band**		**sl**	**1**
units	UDUNITS unit name	none	S	1
Np_PTR_SAR_C	**Total Number of pulses per cycle - C band**		**sl**	**1**
units	UDUNITS unit name	none	S	1
FFT_PTR_F_SAR_Ku	**FFT step in frequency - Ku band**		**fl**	**1**
units	UDUNITS unit name	Hz	S	1
FFT_PTR_F_SAR_C	**FFT step in frequency - C band**		**fl**	**1**
units	UDUNITS unit name	Hz	S	1
SRAL_CAL2_routine_identifiers				
Cal2_Nom_Nb_Cycle_Ku	**Number of cycles - Ku band**		**sl**	**1**
units	UDUNITS unit name	none	S	1

Element name	Description	Range or value	T	D
Cal2_Nom_Nb_Cycle_C	**Number of cycles - C band**		**sl**	**1**
units	UDUNITS unit name	none	S	1
Cal2_Nom_AGC1_Ku	**AGC1 : first attenuation applied on-board - Ku band**		**sl**	**1**
units	UDUNITS unit name	dB	S	1
Cal2_Nom_AGC1_C	**AGC1 : first attenuation applied on-board - C band**		**sl**	**1**
units	UDUNITS unit name	dB	S	1
Cal2_Nom_AGC2_Ku	**AGC2 : second attenuation applied on-board - Ku band**		**sl**	**1**
units	UDUNITS unit name	dB	S	1
Cal2_Nom_AGC2_C	**AGC2 : second attenuation applied on-board - C band**		**sl**	**1**
units	UDUNITS unit name	dB	S	1
SRAL_reference_GPRW				
dim_ref_GPRW		**8256**		
GPRW_Over_Ref_Ku	**Samples of the reference GPRW (128*64 I2+Q2 samples) - Ku band**		**fl**	**dim_ref_GPRW**
units	UDUNITS unit name	FFT p.u.	S	1
GPRW_Over_Ref_C	**Samples of the reference GPRW (128*64 I2+Q2 samples) - C band**		**fl**	**dim_ref_GPRW**
units	UDUNITS unit name	FFT p.u.	S	1
SRAL_CAL1_autocal_parameters				
NB_AGC_Couples	**Number of AGC couples**		**sl**	**1**
units	UDUNITS unit name	none	S	1

Element name	Description	Range or value	T	D
Cal1_SAR_Nom_Instr_Mode	**CAL1 configuration / Automatic calibration status ("normal" or "automatic") - The identifier is a bit code in the TM defined as per Software ICD**		**S**	**1**
units	UDUNITS unit name	none	S	1
Cal1_SAR_Nom_Nb_Cycle	**Number of cycles**		**sl**	**1**
units	UDUNITS unit name	none	S	1
Cal1_SAR_Nom_Synth_Freq	**Synthetiser frequency ("649 MHz", "650MHz" or "651 MHz") - The identifier is a bit code in the TM defined as per Software ICD**		**S**	**1**
units	UDUNITS unit name	none	S	1
Np_PTR_AGC_Ku	**Number of pulses - Ku band**		**sl**	**1**
units	UDUNITS unit name	none	S	1
FFT_PTR_F_AGC_Ku	**FFT step in frequency - Ku band**		**fl**	**1**
units	UDUNITS unit name	Hz	S	1
SRAL_radar_data_base				
type_sral_AGC_Ref_table	**AGCref; AGC1; AGC2;**		**ss ss ss**	
type_sral_AGC_Cal_sequence	**AGC1; AGC2; Switch;**		**ss ss ss**	
dim_AGC_table_Ku		**76**		
dim_AGC_ref_table		**63**		
PRF_LRM	**Nominal pulse repetition frequency in LRM mode (LRM_DELTA_RI)**		**D**	**1**
units	UDUNITS unit name	Hz	S	1

Element name	Description	Range or value	T	D
PRF_SAR	**Nominal pulse repetition frequency within the burst in SAR mode (SAR_DELTA_PRI)**		**D**	**1**
units	UDUNITS unit name	Hz	S	1
BRF	**Nominal burst repetiton frequency (SAR_BRI)**		**fl**	**1**
units	UDUNITS unit name	Hz	S	1
N_Pulse	**Total number of pulses per tracking cycle in LRM mode (TRACK_NIMP)**		**sl**	**1**
units	UDUNITS unit name	/	S	1
N_Pulse_Ku	**Number of pulses per tracking cycle in LRM mode - Ku band (TRACK_NIMP_KU)**		**sl**	**1**
units	UDUNITS unit name	/	S	1
N_Pulse_C	**Number of pulses per tracking cycle in LRM mode - C band (TRACK_NIMP_C)**		**sl**	**1**
units	UDUNITS unit name	/	S	1
G_CFA_Trk_LRM_Ku	**"Fine trigger delay" FFT gain in LRM tracking mode - Ku band (TRACK_G_FAI_I2Q2_KU)**		**fl**	**1**
units	UDUNITS unit name	none	S	1
G_CFA_Trk_LRM_C	**"Fine trigger delay" FFT gain in LRM tracking mode - C band (TRACK_G_FAI_I2Q2_C)**		**fl**	**1**
units	UDUNITS unit name	none	S	1
G_ACCU_Trk_LRM_Ku	**"Accumulation" FFT gain in LRM tracking mode - Ku band (TRACK_G_ACCU_I2Q2_KU)**		**fl**	**1**
units	UDUNITS unit name	none	S	1
G_ACCU_Trk_LRM_C	**"Accumulation" FFT gain in LRM tracking mode - C band (TRACK_G_ACCU_I2Q2_C)**		**fl**	**1**
units	UDUNITS unit name	none	S	1

Element name	Description	Range or value	T	D
G_CFA_Trk_SAR_Ku	**"Fine trigger delay" FFT gain in SAR tracking mode - Ku band (TRACK_G_FAI_I2Q2_KU))**		**fl**	**1**
units	UDUNITS unit name	none	S	1
G_CFA_Trk_SAR_C	**"Fine trigger delay" FFT gain in SAR tracking mode - C band (TRACK_G_FAI_I2Q2_C))**		**fl**	**1**
units	UDUNITS unit name	none	S	1
G_ACCU_Trk_SAR_Ku	**"Accumulation" FFT gain in SAR tracking mode - Ku band (TRACK_G_ACCU_I2Q2_KU)**		**fl**	**1**
units	UDUNITS unit name	none	S	1
G_ACCU_Trk_SAR_C	**"Accumulation" FFT gain in SAR tracking mode - C band (TRACK_G_ACCU_I2Q2_C)**		**fl**	**1**
units	UDUNITS unit name	none	S	1
G_CFA_Cal1_LRM_Ku	**"Fine trigger delay" FFT gain in CAL1 LRM mode - Ku band (CAL1_G_FAI_I2Q2_KU)**		**fl**	**1**
units	UDUNITS unit name	none	S	1
G_CFA_Cal1_LRM_C	**"Fine trigger delay" FFT gain in CAL1 LRM mode - C band (CAL1_G_FAI_I2Q2_C)**		**fl**	**1**
units	UDUNITS unit name	none	S	1
G_ACCU_Cal1_LRM_Ku	**"Accumulation" FFT gain in CAL1 LRM mode - Ku band (CAL1_G_ACCU_I2Q2_KU)**		**fl**	**1**
units	UDUNITS unit name	none	S	1
G_ACCU_Cal1_LRM_C	**"Accumulation" FFT gain in CAL1 LRM mode - C band (CAL1_G_ACCU_I2Q2_C)**		**fl**	**1**
units	UDUNITS unit name	none	S	1
Cal1_AGC_sequence	**Table describing AGC combinations for CAL1 autocal (C_RDB_TAB_CAL1_SAR_ATT2_ATT1)**		**type_sral_AGC_Cal_sequence**	**dim_AGC_table_Ku**
units	UDUNITS unit name	dB	S	1

Element name	Description	Range or value	T	D
AGC_ref_table	**Table which contains th Att1/Att2 combinations for the tracking sequences for a given ATT command (C_RDB_TAB_ATT_ATT2_ATT1_KU)**		**type_sral_AGC_Ref_table**	**dim_AGC_ref_table**
units	UDUNITS unit name	dB	S	1
Amb_Order	**Ambiguity order in LRM mode**		**sl**	**1**
units	UDUNITS unit name	none	S	1

Table 75 Content of the SRAL Characterization and Calibration Data Base

8.1.7 Land/Sea Mask

The Land/Sea Mask classifies points on the earth surface as Land/Sea or Coastline, land ice or lakes. It is used for supporting the generation of the L1 and L2 products.

FILE Type	Update rate	Size
SR___LSM_AX	Infrequently	56 MB

The land/sea mask file consists of a single file, containing one Header (one record) and one Datablock section. The data block format is binary and it consists of a list of records, where each record corresponds to one tabulated longitude value.

The land/sea mask values are the following:

- 0 = “open ocean or semi-enclosed seas”
- 1 = “enclosed seas or lakes”
- 2 = “continental ice”
- 3 = “land”

The following tables describe the header and one data set record.

Table 76 Land/Sea Mask Data File – Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Name of the model or file origin	/	/
2	132	Character	Format (1)	/	/
3-10	132	Character	Spare	/	/
11	4	Integer	Number of parameters at each grid point (Nb_Par)	1	/
12	4	Integer	Record length (RL)	5400	bytes
13	4	Integer	Default value of the parameters (Def_Val)	0	/
14	4	Integer	Number of grid points in the longitude axis (Nb_lon)	10800	/
15	4	Integer	Number of grid points in the latitude axis (Nb_Lat)	5400	/
16	4	Integer	Spare	/	/
17	8	Real	Grid step in the longitude axis (Lon_Step)	2	minutes
18	8	Real	First tabulated longitude value (Lon_First)	0	minutes
19	8	Real	Last tabulated longitude value (Lon_Last)	21598	minutes
20	8	Real	Grid step in the latitude axis (Lat_Step)	2	minutes
21	8	Real	First tabulated latitude value (Lat_First)	-5400	minutes
22	8	Real	Last tabulated latitude value (Lat_Last)	5398	minutes

(1) ‘BIGE’ + 128 blank characters for Big Endian, ‘LITE’ + 128 blank characters for Little Endian

Table 77 Land/Sea Mask Data File – Data Block

Field Number	Type	Unit	Content
1	I (1 byte)	/	Land/sea mask value for Lat_First
2	I (1 byte)	/	Land/sea mask value for Lat_First + Lat_Step
…	…	…	…
Nb_Lat	I (1 byte)	/	Integer Land/sea mask value for Lat_First + Lat_Step*(Nb_Lat-1)
Nb_Lat+1[1]	I (1 byte)	/	spare

8.2 SRAL Level 1 Auxiliary Data Files

8.2.1 USO Frequency (SALP)

This file contains DORIS USO drift information. It provides with the long term monitoring of the on-board DORIS USO frequency. This is used to correct the DORIS datation measurement and the altimeter range measurement

FILE Type	Update rate	Size
SR_1_USO_AX	Daily	Each DORIS USO drift file is n*65 bytes longer than the file received the day before (n is up to 7, depending on the number of master beacons available)

One DORIS USO drift file is generated and transferred to the PDGS every day in the nominal routine case. The file covering the day D is available at day D+1 at 12:00UTC. This file is a by-product of the operational preliminary ephemeris processing. So it will be generated with the same delay than the STC ephemeris.

Each DORIS USO drift file covers the time elapsed since the beginning of the mission. This file is updated incrementally. Every day the previous version of the file is being upgraded with new records corresponding to master beacons over flights.

The format of the original file is described in [AD- 5]. Data file is composed of an XML header (.HDR) and a Data Block File (.DBL). Each product shall be compacted in one unique file with the extension .TGZ .

[1] *This field exists only if Nb_Lat is not a multiple of 4. In this case, N = 1, 2 or 3 so as Nb_Lat + N is a multiple of 4.*

8.2.2 Internal Calibration Long Term Monitoring Parameters

The Internal calibration Long Term Monitoring files are generated by the SRAL Level 1 Processor. The Long Term Monitoring parameters are stored in four NetCDF files:

- One file for CAL1 internal calibration in LRM Mode: CAL1_LRM_LTM file
- One file for CAL1 internal calibration in SAR Mode: CAL1_SAR_LTM file
- One file for CAL2 internal calibration – Ku band (SAR Mode): CAL2_Ku_LTM file
- One file for CAL2 internal calibration – C band (SAR Mode): CAL2_C_LTM file

Each of these four files is initialised with a record built from pre-launch measurements. During the mission life, new records are added as soon as new measurements are performed and processed.

FILE Type	Update rate	Size
SR_1_CA1LAX	Daily	48KB
SR_1_CA1SAX	Daily	32KB
SR_1_CA2KAX	Daily	32KB
SR_1_CA2CAX	Daily	32KB

For all the LTM files, no specific global attributes' information is defined. The common ones defined in [AD- 10] are applicable.

The content of these files is described in the following tables.

8.2.2.1 CAL1_LRM_LTM file

Element name	Description	Range or value	T	D
time	**Number of CAL1_LRM_LTM measurements**			
<common global attributes>	Not Applicable			
UTC_time	**UTC**		**D**	**time**
units	Unit name	seconds since January 1st, 2000 0h		1
calendar		gregorian		1
UTC_day	**day UTC**		**ss**	**time**
units	Unit name	days since January 1st, 2000 0h		1
UTC_sec	**seconds in the day UTC**		**D**	**time**
units	Unit name	seconds in the day		1
GPS_time	**GPS time**		**D**	**time**
units	Unit name	seconds since January 06th, 1980 0h		1
calendar		gregorian		1
lat	**latitude**		**sl**	**time**
units	Unit name	degrees_north		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
lon	**longitude**		**sl**	**time**
units	Unit name	degrees_east		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
ptr_pow_ku	**total power of the PTR for Ku band**		**ul**	**time**
units	Unit name	FFT power unit		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
coordinates	lon lat			1
ptr_pow_c	**total power of the PTR for C band**		**ul**	**time**
units	Unit name	FFT power unit		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
coordinates	lon lat			1

diff_tx_rx_ku	**difference of travel between the Tx and Rx lines for Ku band**		**ul**	**time**
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
coordinates	lon lat			1
diff_tx_rx_c	**difference of travel between the Tx and Rx lines for C band**		**ul**	**time**
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
coordinates	lon lat			1
flag_ptr_pow_ku	**flag associated to the total power of the PTR for Ku band**		**sc**	**time**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	valid invalid		1
coordinates	lon lat			1
flag_ptr_pow_c	**flag associated to the total power of the PTR for C band**		**sc**	**time**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	valid invalid		1
coordinates	lon lat			1
flag_diff_tx_rx_ku	**flag associated to the difference of travel between the Tx and Rx lines for Ku band**		**sc**	**time**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	valid invalid		1
coordinates	lon lat			1
flag_diff_tx_rx_c	**flag associated to the difference of travel between the Tx and Rx lines for C band**		**sc**	**time**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	valid invalid		1

Table 78: Content of the Netcdf CAL1 LRM LTM file

8.2.2.2 CAL1_SAR_LTM file

Element name	Description	Range or value	T	D
time	**Number of CAL1_SAR_LTM measurements**			

sar_ku_pulse_burst_ind	**Number of Ku-pulses per burst**	**64**		
<common global attributes>	Not Applicable			
sar_ku_pulse_burst_ind	**number of Ku-band pulses per burst in SAR mode**		**sc**	**sar_ku_pulse_burst_ind**
units	Unit name	count		1
comment	Set to be compliant with the CF-1.6 convention			1
UTC_time	**UTC**		**D**	**time**
units	Unit name	seconds since January 1st, 2000 0h		1
calendar		gregorian		1
UTC_day	**day UTC**		**ss**	**time**
units	Unit name	days since January 1st, 2000 0h		1
UTC_sec	**seconds in the day UTC**		**D**	**time**
units	Unit name	seconds in the day		1
GPS_time	**GPS time**		**D**	**time**
units	Unit name	seconds since January 06th, 1980 0h		1
calendar		gregorian		1
lat	**latitude**		**sl**	**time**
units	Unit name	degrees_north		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
lon	**longitude**		**sl**	**time**
units	Unit name	degrees_east		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
ptr_pow_ku	**total power of the PTR for Ku band**		**ul**	**time**
units	Unit name	FFT power unit		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
coordinates	lon lat			1
ptr_pow_c	**total power of the PTR for C band**		**ul**	**time**
units	Unit name	FFT power unit		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
coordinates	lon lat			1
diff_tx_rx_ku	**difference of travel between the Tx and Rx lines for Ku band**		**ul**	**time**

units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
coordinates	lon lat			1
diff_tx_rx_c	**difference of travel between the Tx and Rx lines for C band**		**ul**	**time**
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
coordinates	lon lat			1
flag_ptr_pow_ku	**flag associated to the total power of the PTR for Ku band**		**sc**	**time**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	valid invalid		1
coordinates	lon lat			1
flag_ptr_pow_c	**flag associated to the total power of the PTR for C band**		**sc**	**time**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	valid invalid		1
coordinates	lon lat			1
flag_diff_tx_rx_ku	**flag associated to the difference of travel between the Tx and Rx lines for Ku band**		**sc**	**time**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	valid invalid		1
coordinates	lon lat			1
flag_diff_tx_rx_c	**flag associated to the difference of travel between the Tx and Rx lines for C band**		**sc**	**time**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	valid invalid		1
coordinates	lon lat			1
burst_power_cor	**burst power corrections**		**ul**	**time sar_ku_pulse_burst_ind**
units	Unit name	FFT power unit		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
burst_phase_cor	**burst phase corrections**		**sl**	**time sar_ku_pulse_burst_ind**
units	Unit name	radian		1

Table 79: Content of the Netcdf CAL1 SAR LTM file

8.2.2.3 CAL2_Ku_LTM file

Element name	Description	Range or value	T	D
time	**Number of CAL2_Ku_LTM measurements**			
echo_sample_ind	**Number of samples in a waveform**	**128**		
<common global attributes>	Not applicable			
echo_sample_ind	**number of samples in I2+Q2, I and Q echoes**		**sc**	**echo_sample_ind**
units	Unit name	count		1
comment	Set to be compliant with the CF-1.6 convention			1
UTC_time	**UTC**		**D**	**time**
units	Unit name	seconds since January 1st, 2000 0h		1
calendar		gregorian		1
UTC_day	**day UTC**		**ss**	**time**
units	Unit name	days since January 1st, 2000 0h		1
UTC_sec	**seconds in the day UTC**		**D**	**time**
units	Unit name	seconds in the day		1
GPS_time	**GPS time**		**D**	**time**
units	Unit name	seconds since January 06th, 1980 0h		1
calendar		gregorian		1
lat	**latitude**		**sl**	**time**
units	Unit name	degrees_north		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
lon	**longitude**		**sl**	**time**
units	Unit name	degrees_east		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
gprw_meas	**samples of the normalized GPRW**		**ul**	**time echo_sample_ind**
units	Unit name	FFT power unit		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1

Table 80: Content of the Netcdf CAL2 Ku LTM file

8.2.2.4 CAL2_C_LTM file

Element name	Description	Range or value	T	D
time	**Number of CAL2_C_LTM measurements**			
echo_sample_ind	**Number of samples in a waveform**	**128**		
<common global attributes>	Not applicable			
echo_sample_ind	**number of samples in I2+Q2, I and Q echoes**		**sc**	**echo_sample_ind**
units	Unit name	count		1
comment	Set to be compliant with the CF-1.6 convention			1
UTC_time	**UTC**		**D**	**time**
units	Unit name	seconds since January 1st, 2000 0h		1
calendar		gregorian		1
UTC_day	**day UTC**		**ss**	**time**
units	Unit name	days since January 1st, 2000 0h		1
UTC_sec	**seconds in the day UTC**		**D**	**time**
units	Unit name	seconds in the day		1
GPS_time	**GPS time**		**D**	**time**
units	Unit name	seconds since January 06th, 1980 0h		1
calendar		gregorian		1
lat	**latitude**		**sl**	**time**
units	Unit name	degrees_north		1
lon	**longitude**		**sl**	**time**
units	Unit name	degrees_east		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
gprw_meas	**samples of the normalized GPRW**		**ul**	**time echo_sample_ind**
units	Unit name	FFT power unit		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1

Table 81: Content of the Netcdf CAL2 C LTM file

8.2.3 Configuration Data Files

As there is one configuration file per processor, calibration and measurement parameters are separated into two configuration files, in XML format. In each file, each task is under own XML tag:

- L1B pre-processing task
- L1B Calibration/Measurement task
- L1B Calibration LTM files update
- L1B Post-Processing task (no parameter for this task)

FILE Type	Update rate	Size
SR_1_CONCAX	Infrequently	8 KB
SR_1_CONMAX	Infrequently	8 KB

The parameters contained in each file are described in the following sections.

8.2.3.1 Processing control parameters for the Calibration processor

Table 82: Processing parameters for the SRAL L1 Calibration processing

Parameter	Units	Type	Description
Pre-processing task			
Time_Bias_LRM	s	FLOAT64	Time bias in LRM mode (ALT_CON_TIM_02)
Time_Bias_SAR	s	FLOAT64	Time bias in SAR mode (ALT_CON_TIM_02)
Calibration task			
Thres_Mean	/	FLOAT64	Threshold percentage for the mean (ALT_CAL_GPR_02)
Thres_Std	/	FLOAT64	Threshold percentage for the std deviation (ALT_CAL_GPR_02)
Thres_Diff	/	FLOAT64	Threshold percentage for the min/max difference (ALT_CAL_GPR_02)
Thres_Slope	/	FLOAT64	Threshold percentage for the slope (ALT_CAL_GPR_02)
Thres_Std_Slope	/	INT32	Threshold percentage for the std deviation of the slope (ALT_CAL_GPR_02)
Thres_Power_PTR	/	INT32	Threshold percentage on the PTR power estimation (ALT_CAL_PTR_03)
Thres_Width_Main_Lobe	/	INT32	Threshold percentage on the width of the main lobe (ALT_CAL_PTR_04)
Thres_Diff_Trav	/	INT32	Threshold percentage on the difference of travel (ALT_CAL_PTR_04)
N_Over	/	INT32	Spectrum oversampling factor (ALT_CAL_GPR_01,

Parameter	Units	Type	Description
			ALT_CAL_GPR_03, ALT_CAL_PTR_01, ALT_MAN_CAL_03, ALT_CAL_PTR_02, ALT_CAL_PTR_03, ALT_CAL_PTR_04, ALT_CAL_PTR_05)
N_Rej_LRM_Ku	/	INT32	Number of Ku-band pulses to reject at the beginning of the LRM mode sequence (ALT_CAL_PTR_01)
N_Rej_LRM_C	/	INT32	Number of C-band pulses to reject at the beginning of the LRM mode sequence (ALT_CAL_PTR_01)
N_Rej_SAR_Ku	/	INT32	Number of Ku-band pulses to reject at the beginning of the SAR mode sequence (ALT_CAL_PTR_01)
N_Rej_SAR_C	/	INT32	Number of C-band pulses to reject at the beginning of the SAR mode sequence (ALT_CAL_PTR_01)
Time_Max	s	INT32	Maximum allowed time interval between CAL1 and CAL2 sequences (ALT_MAN_CAL_03)
Half_Band_PTR_Ku	Hz	INT32	Half width of the analysis window for total power computation : Ku band (ALT_CAL_PTR_03)
Half_Band_PTR_C	Hz	INT32	Half width of the analysis window for total power computation : C band (ALT_CAL_PTR_03)
Ord_Pol	/	INT32	Order of the polynomial to fit to the main lobe (ALT_CAL_PTR_04)
Num_Pts	/	INT32	Number of points used for the polynomial regression (ALT_CAL_PTR_05)
LB_Freq_Med_Ku_LRM	Hz	INT32	Lower bound value of the frequency of the median for Ku band

Parameter	Units	Type	Description
			(LRM) (ALT_CAL_PTR_04)
LB_Freq_Med_Ku_SAR	Hz	INT32	Lower bound value of the frequency of the median for Ku band (SAR) (ALT_CAL_PTR_04)
LB_Freq_Med_C_LRM	Hz	INT32	Lower bound value of the frequency of the median for C band (LRM) (ALT_CAL_PTR_04)
LB_Freq_Med_C_SAR	Hz	INT32	Lower bound value of the frequency of the median for C band (SAR) (ALT_CAL_PTR_04)
UB_Freq_Med_Ku_LRM	Hz	INT32	Upper bound value of the frequency of the median for Ku band (LRM) (ALT_CAL_PTR_04)
UB_Freq_Med_Ku_SAR	Hz	INT32	Upper bound value of the frequency of the median for Ku band (SAR) (ALT_CAL_PTR_04)
UB_Freq_Med_C_LRM	Hz	INT32	Upper bound value of the frequency of the median for C band (LRM) (ALT_CAL_PTR_04)
UB_Freq_Med_C _SAR	Hz	INT32	Upper bound value of the frequency of the median for C band (SAR) (ALT_CAL_PTR_04)
Num_LSC	/	INT32	Number of secondary lobes of the PTR (<60) (ALT_CAL_PTR_05)
Nb_Sample_SL	/	INT32	Number of samples on the right and on the left of the expected position of the secondary lobes used to determine the maximum of these lobes (ALT_CAL_PTR_05) –linked to the spectrum oversampling factor
Percent_Val	/	INT32	Constant of proportionality between the maximum value of the PTR

Parameter	Units	Type	Description
			and the limit value allowed for the secondary lobes (ALT_CAL_PTR_05)
Half_Band_PTR	Hz	INT32	Half width of the analysis window for total power computation (ALT_CAL_PTR_07)
N_Rej_AutoCal_Ku	/	INT32	Number of Ku-band pulses to reject at the beginning of the autocalibration sequence (ALT_CAL_PTR_08)
N_Rej_AutoCal_C	/	INT32	Number of C-band pulses to reject at the beginning of the autocalibration sequence (ALT_CAL_PTR_08)
N_Over_AutoCal	/	INT32	Spectrum oversampling factor (ALT_CAL_PTR_08)
LTM files update task			
Thres_LTM_update	s	FLOAT64	Threshold for LTM update: if LTM file contains a record with a date delta inferior to this parameter, record is superseded

8.2.3.2 Processing control parameters for the Measurement processor

Table 83: Processing control parameters for the SRAL L1 Measurement processing

Parameter	Units	Type	Description
Pre-processing task			
Time_Bias_LRM	s	FLOAT64	Time bias in LRM mode (ALT_CON_TIM_02)
Time_Bias_SAR	s	FLOAT64	Time bias in SAR mode (ALT_CON_TIM_02)
Measurement task			
Sigma_Surf_Alt	m	FLOAT64	Surface elevations RMS threshold (ALT_COR_WAV_06)

Sar_Data_Gap	s	FLOAT64	Data Gap threshold to separate two consistent sequences of SAR data
Left_Width_LRM_CAL1	s	FLOAT64	Width of the left part of the selected window for LRM mode CAL1 LTM (ALT_MAN_LTM_01)
Right_Width_LRM_CAL1	s	FLOAT64	Width of the right part of the selected window for LRM mode CAL1 LTM (ALT_MAN_LTM_01)
Left_Width_SAR_CAL1	s	FLOAT64	Width of the left part of the selected window for SAR mode CAL1 LTM (ALT_MAN_LTM_02)
Right_Width_SAR_CAL1	s	FLOAT64	Width of the right part of the selected window for SAR mode CAL1 LTM (ALT_MAN_LTM_02)
Left_Width_CAL2_Ku	s	FLOAT64	Width of the left part of the selected window for CAL2 LTM to be used for Ku-band (ALT_MAN_LTM_03)
Right_Width_CAL2_Ku	s	FLOAT64	Width of the right part of the selected window for CAL2 LTM to be used for Ku-band (ALT_MAN_LTM_03)
Left_Width_CAL2_C	s	FLOAT64	Width of the left part of the selected window for CAL2 LTM to be used for C-band (ALT_MAN_LTM_04)
Right_Width_CAL2_C	s	FLOAT64	Width of the right part of the selected window for CAL2 LTM to be used for C-band (ALT_MAN_LTM_04)
CAL2_Type_C	/	INT32	Type of CAL2 LTM to be used for C-band (0=C, 1=Ku) (ALT_MAN_LTM_04)
CAL1_Type_IP	/	INT32	Type of CAL1 calibration to be used to compute the Internal Path correction in SAR C mode (0=LRM, 1=SAR) (ALT_COR_RAN_01)
CAL1_Type_SF	/	INT32	Type of CAL1 calibration to be used to compute the Scaling Factors

			in SAR C mode (0=LRM, 1=SAR) (ALT_PHY_BAC_02)
Cons_Fact_LRM	/	FLOAT64	On-board /On-ground processing consistency factor (LRM) (ALT_PHY_BAC_02)
Cons_Fact_SAR	/	FLOAT64	On-board /On-ground processing consistency factor (SAR) (ALT_PHY_BAC_03)
Acc_Orb_Alt	m	FLOAT64	Desired accuracy for the orbit altitude (ALT_PHY_LOC_01)
Acc_Lat	degree	FLOAT64	Desired accuracy for the latitude (ALT_PHY_LOC_01)
Nb_Interp_Surf	/	INT32	Number of surface samples to be interpolated (ALT_PHY_LOC_01)
Nb_Spline_Surf	/	INT32	Nb of points for the spline calculation on surface (even) (ALT_PHY_LOC_01)
Nb_Spline_Orb	/	INT32	Nb of points for the spline calculation on orbit (even) (ALT_PHY_LOC_01)
Smooth_Fact_Surf	m^2	FLOAT64	Smoothing factor for surface interpolation (ALT_PHY_LOC_01)
Smooth_Fact_Orb_Pos	m^2	FLOAT64	Smoothing factor for orbit position interpolation (ALT_PHY_LOC_01)
Smooth_Fact_Orb_Vel	m^2/s^2	FLOAT64	Smoothing factor for orbit velocity interpolation (ALT_PHY_LOC_01)
Range_Index1	/	INT32	Minimum range index for WF noise estimation (ALT_COR_WAV_11)
Range_Index2	/	INT32	Maximum range index for WF noise estimation (ALT_COR_WAV_11)
Nb_Bursts_Processing	/	INT32	Size of burst packet to increase performance of SAR processing

8.3 SRAL Level 2 Auxiliary Data Files

8.3.1 Near-Real Time Platform File (POD)

The NRT Platform file is generated by the NRT POD service and will be used for supporting the generation of the NRT (Near Real Time) products.

The file contains the following information:

- the nadir projection of the distance between the altimeter antenna center of phase and the satellite center of gravity (m)
- the platform derived off nadir angles pitch, roll and yaw (degrees)
- the altimeter (SRAL) derived off nadir angles pitch, roll and yaw (degrees)
- a quality flag indicating the quality status of the product

FILE Type	Update rate	Size
SR_2_NRPPAX	For each GNSS/NAVATT L0 data dump	<65KB

One file is generated for each GNSS and NAVATT Level0 data dump. Every file is generated within 30 minutes from the reception of GNSS input data. The coverage of each file is equal to the input file coverage (NAVATT data) plus the necessary overlaps with the previous and next files to cover the same period as the NRT Restituted Orbit File. One file is generated for each input received.

The format of the original file is described in [AD- 6] and consists in one single *.EOF file including both header and data block parts.

8.3.2 Preliminary and Precise Platform File (POD)

The Platform data files are generated by the POD service during orbit processing and they will be used for supporting the generation of the STC (Preliminary Platform File) and NTC products (Precise Platform File). The processing delay will be related to the MOE and POE Orbit files productions (POD service). The coverage and generation of each platform file is also identical to the respective MOE and POE files.

Both files contain information on:

- the nadir projection of the distance between the altimeter antenna center of phase and the satellite center of gravity (m)
- the platform derived off nadir angles pitch, roll and yaw (degrees)
- the altimeter (SRAL) derived off nadir angles pitch, roll and yaw (degrees)
- a quality flag indicating the quality status of the product

FILE Type	Update rate	Size
SR_2_PMPPAX	Daily	65KB
SR_2_PCPPAX	within 20 days after data acquisition	65KB

Each file covers approximately 26 hours and will be generated as follows:

- The Preliminary Platform file will be generated and transferred to the PDGS once per day in nominal routine case. Time coverage for the day (d) ranges from d-3 at 22h to d-2 at 24h.
- The Precise Platform file will be generated and transferred to the PDGS within 28 days after data acquisition. Time coverage for the day (d) ranges from d-1 at 22h to d at 24h.

The format of the original file is described in [AD- 6] and consists in one single *.EOF file including both header and data block parts.

8.3.3 Preliminary and Precise Platform File (SALP)

The Platform data files are generated by SALP during orbit processing and they will be used for supporting the generation of the STC (Preliminary Platform File) and NTC products (Precise Platform File). For NRT production, the latest STC available file shall be used. The processing delay will be related to the Preliminary and Precise Orbit files productions (SALP).

Both files contain information on:

- the nadir projection of the distance between the altimeter antenna center of phase and the satellite center of gravity (m)
- the platform derived off nadir angles pitch, roll and yaw (degrees)
- the altimeter (SRAL) derived off nadir angles pitch, roll and yaw (degrees)
- a quality flag indicating the quality status of the product.

FILE Type	Update rate	Size
SR_2_PMPSAX	Daily	65KB
SR_2_PCPSAX	Weekly (seven files once per week), 30 days after data acquisition	65KB

The Preliminary Platform files are generated daily. The preliminary platform file covering the day d is available day d+1 at 12:00UTC.

The Precise Platform files are generated weekly (seven precise platform files are transferred to the PDGS). The precise platform files will be delivered 30 days after data acquisition.

The Platform Data File covers approximately 26 hours: Data for d-1 21:56h to d+1 00:24h.

The format of the original file is described in [AD- 5]. The data file is composed of a single *.EOF file containing both header and data block parts. Each product shall be compacted in one unique file with the extension .TGZ

8.3.4 Preliminary and Precise Ocean Barotropic Correction - MOG2D Data (SALP)

The MOG2D Files are generated by SALP and are used for supporting the generation of the STC (Preliminary Ocean barotropic correction) and NTC products (Precise Ocean barotropic correction).

The MOG2D File allows IGDR and GDR products to integrate both corrections of both the high frequency part of the ocean variability and the low frequency part of the inverse barometer effect. The barotropic corrections are on a regular Cartesian grid 0.25°x0.25°.

The following section describes the product structure of the MOG2D files.

FILE Type	Update rate	Size
SR_2_RMO_AX	Twice a day (3 files at 08:00 UTC and 1 file at 20:00 UTC)	2MB
SR_2_PMO_AX	Twice a day (3 files at 08:00 UTC and 1 file at 20:00 UTC)	2MB

The Preliminary files have “low” quality level correction and are generated within a delay of 1 day.

The Precise files have “high” quality level correction and are generated within a delay of 21 days.

The MOG2D files are delivered twice a day:

- Day D at around 08h00 UTC:
    - the preliminary MOG2D files related to 18:00 UTC of Day D-2 and to 00:00 UTC, 06:00 UTC of Day-1 (3 files)
    - the precise MOG2D files related to 18:00 UTC of day D-22 and to 00:00 UTC, 06:00 UTC of Day-21 (3 files)
- Day D at around 20h00 UTC:
    - the preliminary MOG2D files related to 12h00 UTC of Day D-1
    - the precise MOG2D files related to 12h00 UTC of day D-21

The format of the original file is described in [AD- 5]. The data file is composed of an EEF header file (.HDR) and a Data Block binary netcdf File (.DBL). Each product shall be compacted in one unique file with the extension .TGZ

8.3.5 Pole Location (SALP)

The Pole Location data files are generated by SALP. Each file contains the instantaneous pole location and it is used for polar tide computation in the Level2 processing.

The following section describes the product structure of the Platform files.

FILE Type	Update rate	Size
SR_2_POL_AX	Daily (generated twice a week)	Each instantaneous pole location file is 200 bytes longer than the previous received file

The Pole location files is generated twice a week and delivered daily, for operational reason, at 09:00 UTC (the same file is delivered several times on consecutive days.). Each file covers the time elapsed since beginning of mission.

The file produced on day D covers observed data from up to D-1. The file is upgraded incrementally: the previous version of the file is upgraded with new information covering until day D+29.

The format of the original file is described in [AD- 5]. The data file is composed of an EEF header file (.HDR) and a Data Block Ascii File (.DBL). Each product shall be compacted in one unique file with the extension .TGZ

8.3.6 Along-track Ionospheric Data (GIM) (SALP)

The GIM ionospheric correction files are generated by SALP and are used for supporting the generation of the NRT (NRT GIM Ionospheric file) and STC/NTC products (STC GIM ionospheric file).

Each file contains the nadir ionospheric correction to be applied to the altimeter measurement on Ku band. They are used for polar tide computation in the Level2 processing.

The GIM ionospheric correction is provided every second in micros meters. Consequently a table of 86400 values is available in each file.

The following section describes the product structure of the GIM ionospheric correction files.

FILE Type	Update rate	Size
SR_2_PGI_AX	Daily	350KB
SR_2_RGI_AX	Daily	350KB

The GIM ionospheric correction files are generated and delivered daily.

The NRT file covering the day d is available day d-1 at 12:00UTC.

The STC file, suitable to STC and NTC processing, covering the day d is available day d+1 at 12:00UTC.

Each GIM ionospheric correction file covers one day from 00:00UTC to 23:59:59UTC.

The format of the original file is described in [AD- 5]. Data file is composed of an EEF header file (.HDR) and a Data Block binary File (.DBL). Each product shall be compacted in one unique file with the extension .TGZ .

8.3.7 Configuration Data File (Processing Control Parameters)

The L2 processing parameters are gathered in one configuration file, in XML format. In this file, the parameters are gathered according the algorithm in which they are used and each group of parameters is under its own XML tag (name of the algorithm).

FILE Type	Update rate	Size
SR_2_CON_AX	Infrequently	80 KB

The parameters contained in this file are described in the following table:

Table 84 Processing control parameters for the Level 2 processing

Element name	Description	Range or value	Unit	T	C
Retracking_Activation	**Open container**				**1**
Flag_ALT_RET_ICE_01	Switch to activate the ALT_RET_ICE_01 retracking in the processor • TRUE : algorithm activated • FALSE otherwise	[TRUE , FALSE]	/	B	1
Flag_ALT_RET_ICE_02	Switch to activate the ALT_RET_ICE_02 retracking in the processor • TRUE : algorithm activated • FALSE otherwise	[TRUE , FALSE]	/	B	1
Flag_ALT_RET_ICE_03	Switch to activate the ALT_RET_ICE_03 retracking in the processor • TRUE : algorithm activated • FALSE otherwise	[TRUE , FALSE]	/	B	1
Flag_ALT_RET_ICE_04	Switch to activate the ALT_RET_ICE_04 retracking in the processor • TRUE : algorithm activated • FALSE otherwise	[TRUE , FALSE]	/	B	1
Flag_ALT_RET_ICE_05	Switch to activate the ALT_RET_ICE_05 retracking in the processor • TRUE : algorithm activated • FALSE otherwise	[TRUE , FALSE]	/	B	1
Flag_ALT_RET_OCE_01	Switch to activate the ALT_RET_OCE_01retracking in the processor • TRUE : algorithm activated • FALSE otherwise	[TRUE , FALSE]	/	B	1
Flag_ALT_RET_OCE_02	Switch to activate the ALT_RET_OCE_02 retracking in the processor • TRUE : algorithm activated • FALSE otherwise	[TRUE , FALSE]	/	B	1
Retracking_Activation	**Close container**				**1**

Element name	Description	Range or value	Unit	T	C
PLRM_Processing_Activation	**Open Container**				**1**
Flag_Pseudo_LRM	Switch to activate the processing of the pseudo-LRM data: • TRUE : processing activated • FALSE otherwise	[TRUE , FALSE]	/	B	1
PLRM_Processing_Activation	**Close container**				**1**
ALT_MAN_INT_01	**Open Container**				**1**
Time_interp	Maximum interpolation time delta from current time		Days	D	1
ALT_MAN_INT_01	**Close container**				**1**
ALT_MAN_WAV_01	**Open Container**				**1**
power_ths	Total power threshold		Counts	D	1
pp_lo, pp_hi	Low and high peakiness thresholds		/	D	2
noise_gate_lo, noise_gate_hi	Start and end noise gate		Bins	ul	2
noise_ths	Noise threshold		Counts	D	1
le_gate	Gate for leading edge check		Bin	ul	1
le_ths	Leading edge threshold		/	D	1
var_ths	Variance_threshold		/	D	1
ALT_MAN_ WAV_01	**Close container**				**1**
ALT_MAN_WAV_02	**Open Container**				**1**

Element name	Description	Range or value	Unit	T	C
ice_conc_low_ths_ocean	Ice concentration low bound ocean class		/	D	1
ice_conc_high_ths_ocean	Ice concentration high bound ocean class		/	D	1
ice_conc_low_ths_ice	Ice concentration low bound sea ice class		/	D	1
ice_conc_high_ths_ice	Ice concentration high bound sea ice class		/	D	1
ice_conc_low_ths_lead	Ice concentration low bound lead class		/	D	1
ice_conc_high_ths_lead	Ice concentration high bound lead class		/	D	1
peakiness_low_ths_ocean	Peakiness low bound ocean class		/	D	1
peakiness_high_ths_ocean	Peakiness high bound ocean class		/	D	1
peakiness_low_ths_ice	Peakiness low bound sea ice class		/	D	1
peakiness_high_ths_ice	Peakiness high bound sea ice class		/	D	1
peakiness_low_ths_lead	Peakiness low bound lead class		/	D	1
peakiness_high_ths_lead	Peakiness high bound lead class		/	D	1
backscatter_low_ths_ocean	Backscatter low bound ocean class		dB	D	1
backscatter_high_ths_ocean	Backscatter high bound ocean class		dB	D	1
backscatter_low_ths_ice	Backscatter low bound sea ice class		dB	D	1
backscatter_high_ths_ice	Backscatter high bound sea ice class		dB	D	1

Element name	Description	Range or value	Unit	T	C
backscatter_low_ths_lead	Backscatter low bound lead class		dB	D	1
backscatter_high_ths_lead	Backscatter high bound lead class		dB	D	1
beamwidth_low_ths_ocean	Beamwidth low bound ocean class		bins	D	1
beamwidth_high_ths_ocean	Beamwidth high bound ocean class		bins	D	1
beamwidth_low_ths_ice	Beamwidth low bound sea ice class		bins	D	1
beamwidth_high_ths_ice	Beamwidth high bound sea ice class		bins	D	1
beamwidth_low_ths_lead	Beamwidth low bound lead class		bins	D	1
beamwidth_high_ths_lead	Beamwidth high bound lead class		bins	D	1
beamcentre_low_ths_ocean	Beamcentre low bound ocean class		bins	D	1
beamcentre_high_ths_ocean	Beamcentre high bound ocean class		bins	D	1
beamcentre_low_ths_ice	Beamcentre low bound sea ice class		bins	D	1
beamcentre_high_ths_ice	Beamcentre high bound sea ice class		bins	D	1
beamcentre_low_ths_lead	Beamcentre low bound lead class		bins	D	1
beamcentre_high_ths_lead	Beamcentre high bound lead class		bins	D	1
beamskew_low_ths_ocean	Beamskew low bound ocean class		/	D	1
beamskew_high_ths_ocean	Beamskew high bound ocean class		/	D	1

Element name	Description	Range or value	Unit	T	C
beamskew_low_ths_ice	Beamskew low bound sea ice class		/	D	1
beamskew_high_ths_ice	Beamskew high bound sea ice class		/	D	1
beamskew_low_ths_lead	Beamskew low bound lead class		/	D	1
beamskew_high_ths_lead	Beamskew high bound lead class		/	D	1
beamkurt_low_ths_ocean	Beamkurt low bound ocean class		/	D	1
beamkurt_high_ths_ocean	Beamkurt high bound ocean class		/	D	1
beamkurt_low_ths_ice	Beamkurt low bound sea ice class		/	D	1
beamkurt_high_ths_ice	Beamkurt high bound sea ice class		/	D	1
beamkurt_low_ths_lead	Beamkurt low bound lead class		/	D	1
beamkurt_high_ths_lead	Beamkurt high bound lead class		/	D	1
ALT_MAN_WAV_02	**Close container**				**1**
ALT_COR_RAN_06	**Open Container**				**1**
apply_iono_C	GIM Ionospheric Correction flag	[TRUE , FALSE]	/	B	1
apply_ib_C	Inverse Barometric flag	[TRUE , FALSE]	/	B	1
apply_ot_C	Ocean Tide flag	[TRUE , FALSE]	/	B	1
apply_olt_C	Loading Tide flag	[TRUE , FALSE]	/	B	1

Element name	Description	Range or value	Unit	T	C
apply_set_C	Solid Earth Tide flag	[TRUE , FALSE]	/	B	1
apply_pt_C	Polar Tide flag	[TRUE , FALSE]	/	B	1
apply_wet_C	Model Wet Tropospheric flag	[TRUE , FALSE]	/	B	1
apply_dry_C	Model Dry Tropospheric flag	[TRUE , FALSE]	/	B	1
snow_density	Default snow density	[TRUE , FALSE]	/	B	1
ot_choice	Ocean tide model selection	[1 , 2]	/	ul	1
ALT_COR_RAN_06	**Close container**				**1**
ALT_PHY_BAC_02	**Open Container**				**1**
Sig0_aref_lr	Multiplicative bias		/	D	1
Sig0_bref_lr	Linear bias		/	D	1
Sig0_aref_ww	Multiplicative bias		/	D	1
Sig0_bref_ww	Linear bias		/	D	1
ALT_PHY_BAC_02	**Close container**				**1**
ALT_PHY_BAC_03	**Open Container**				**1**
Sig0_aref_ocog_ku	Multiplicative bias		/	D	1
Sig0_bref_ocog_ku	Linear bias		/	D	1
Sig0_aref_ocog_c	Multiplicative bias		/	D	1

Element name	Description	Range or value	Unit	T	C
Sig0_bref_ocog_c	Linear bias		/	D	1
Sig0_aref_mle4_ku	Multiplicative bias		/	D	1
Sig0_bref_mle4_ku	Linear bias		/	D	1
Sig0_aref_mle4_c	Multiplicative bias		/	D	1
Sig0_bref_mle4_c	Linear bias		/	D	1
ALT_PHY_BAC_03	**Close container**				**1**
ALT_RET_ICE_01	**Open Container**				**1**
threshold_lrm_ku	Tracking threshold		%	D	1
threshold_lrm_c	Tracking threshold		%	D	1
threshold_sar_ku	Tracking threshold		%	D	1
threshold_sar_c	Tracking threshold		%	D	1
ALT_RET_ICE_01	**Close container**				**1**
ALT_RET_ICE_03	**Open Container**				**1**
amp_guess_factor	Initial amplitude as a proportion of maximum		%	D	1
ALT_RET_ICE_03	**Close container**				**1**
ALT_RET_ICE_05	**Open Container**				**1**
total_power_threshold	Maximum power threshold		Counts	D	1

Element name	Description	Range or value	Unit	T	C
power_window_before	Number of bins before echo to include in fitting subwindow		bins	ul	1
power_window_after	Number of bins after echo to include in fitting subwindow		bins	ul	1
retracker_start_bin	First bin considered by retracker		bins	ul	1
retracker_end_bin	Last bin considered by retracker		bins	ul	1
a_min	Fit parameter boundary check		/	D	1
a_max	Fit parameter boundary check		/	D	1
sigma_min	Fit parameter boundary check		/	D	1
sigma_max	Fit parameter boundary check		/	D	1
c_min	Fit parameter boundary check		/	D	1
c_max	Fit parameter boundary check		/	D	1
alpha_min	Fit parameter boundary check		/	D	1
alpha_max	Fit parameter boundary check		/	D	1
n_min	Fit parameter boundary check		/	D	1
n_max	Fit parameter boundary check		/	D	1
nb_min_fititerations	Bound on number of fitting iterations		Count	ul	1
tail_slope	Estimate of the tail slope		/	D	1

Element name	Description	Range or value	Unit	T	C
tail_decay	Estimate of the tail decay		/	D	1
lead_edge	Estimate of the leading edge slope		/	D	1
final_chisq_threshold	Chi-sq measure that terminates fitting		/	D	1
chisq_diff_threshold	Chi-sq change that terminates fitting		/	D	1
gates_bin	Delta from max power to split window into left/right windows		bins	ul	1
LE_factor	Comparison factor for left/right gates when detecting leading edge		%	D	1
variance_threshold	Variance bound check		/	D	1
ALT_RET_ICE_05	**Close container**				**1**
GEN_ENV_TID_01	**Open Container**				**1**
H2, K2, H3, K3	Love numbers		/	D	4
GEN_ENV_TID_01	**Close container**				**1**
GEN_ENV_TID_05	**Open Container**				**1**
X_avg, Y_avg	Average pole coordinates		Arc second	D	2
A_Ocean A_Land	Scaled amplitude factors over ocean and over land		m	D	2
GEN_ENV_TID_05	**Close container**				**1**
GEN_COR_RAN_01	**Open Container**				**1**
S1S2_Option	Pressure variability option (3)		/	ul	1

Element name	Description	Range or value	Unit	T	C
Nb_Layers_ECMWF	Number of layers in ECMWF model		/	ul	1
ECMWF_A	ECMWF model coefficient A to convert hybrid levels to pressure values		Pa	D	L+1 (9)
ECMWF_B	ECMWF model coefficient A to convert hybrid levels to pressure values		/	D	L+1 (9)
GEN_COR_RAN_01	**Close container**				**1**
GEN_ENV_MSS_01	**Open Container**				**1**
N_Window_MSS	Number of grid points to be used for MSS spline interpolation (even)		/	ul	1
MSS_Offset	Offset to be added to the MSS		m	D	1
GEN_ENV_MSS_01	**Close container**				**1**
GEN_ENV_MSS_02	**Open Container**				**1**
N_Window_MSS	Number of grid points to be used for MSS spline interpolation (even)		/	ul	1
MSS_Offset	Offset to be added to the MSS		m	D	1
GEN_ENV_MSS_02	**Close container**				**1**
GEN_ENV_GEO_01	**Open Container**				**1**
N_Window_Geoid	Number of grid points to be used for geoid spline interpolation (even)		/	ul	1
GEN_ENV_GEO_01	**Close container**				**1**
GEN_ENV_MDT_01	**Open Container**				**1**
N_Window_MDT	Number of grid points to be used for MDT spline interpolation (even)		/	ul	1

Element name	Description	Range or value	Unit	T	C
MDT_Offset	Offset to be added to the MDT		m	D	1
GEN_ENV_MDT_01	**Close container**				**1**
GEN_MAN_MET_01	**Open Container**				**1**
Max_Time_Int_Met	Max. time interval between two meteorological series for interpolation		s	D	1
GEN_MAN_MET_01	**Close container**				**1**
ALT_MAN_TIM_01	**Open Container**				**1**
Duration	Duration of the averaged measurement		s	D	1
ALT_MAN_TIM_01	**Close container**				**1**
ALT_MAN_RET_03_ALT_RET_OCE_02	**Open Container**				**1**
Wf_Norm_Flag	Flag to control activation of waveform normalisation.		/	us	1
Wf_Norm_Aw	Width of the sliding window for waveform normalisation, in number of samples.		/	ul	1
Wf_Norm_First, Wf_Norm_Last	The first and last samples in the waveform to search for the maximum amplitude		/	ul	2
Wf_TN_First, Wf_TN_Last	The first and last sample in the waveform to estimate the amplitude of the thermal noise floor		/	ul	2
Wf_Fit_Activate_Flag	Flag to control the activation of the waveform fitting procedure		/	us	1
Default_Out	Numerical value for default output if no processing is performed		/	D	1
ALT_MAN_RET_03_ALT_RET_OCE_02	**Close container**				**1**

Element name	Description	Range or value	Unit	T	C
ALT_MAN_RET_03	**Open Container**				**1**
Thr	Threshold parameter greater than 1 used to test Wf_max against TN.		/	D	1
ALT_MAN_RET_03	**Close container**				**1**
ALT_RET_OCE_01	**Open Container**				**1**
Skew_Coef	Skewness coefficient (1)		/	D	2
Epoch_Def	Default value of the epoch (1)		s	D	2
SWH_Def	Default value of the significant waveheight (1)		m	D	2
Square_Mis_Def	Default value of the square of the mispointing angle (1)		degree²	D	2
Ampl_Thresh	Threshold for the detection of low amplitudes (1)		FFT p.u.	D	2
Tn_First	Abscissa of the first sample for noise estimation (1)		/	D	2
Tn_Last	Abscissa of the last sample for noise estimation (1)		/	D	2
Max_Iter	Maximum number of iterations in the estimation process (1)		/	ul	2
SWH_Min	Minimum SWH value in the estimation process (1)		m	D	2
SWH_Max	Maximum SWH value in the estimation process (1)		m	D	2
Square_Mis_Min	Minimum mispointing angle square value in the estimation process (1)		degree²	D	2
Square Mis_Max	Maximum mispointing angle square value in the estimation process(1)		degree²	D	2

Element name	Description	Range or value	Unit	T	C
Ew_First	Abscissa of the first sample for estimation (1)		/	D	2
Ew_Last	Abscissa of the last sample for estimation (1)		/	D	2
Thresh_F04AMF	Threshold for the F04AMF NAG routine (1)		/	D	2
Loop_Gain_Epoch	Estimation loop gain for the epoch (1)		/	D	2
Loop_Gain_SigmaC	Estimation loop gain for the composite sigma (1)		/	D	2
Loop_Gain_Ampl	Estimation loop gain for the amplitude (1)		/	D	2
Loop_Gain_Square_Mis	Estimation loop gain for the square of the mispointing angle (1)		/	D	2
Max_Inc_Epoch	Maximum value of the epoch increments (1)		s	D	2
Max_Inc_SigmaC	Maximum value of the composite sigma increments (1)		s	D	2
Max_Inc_Ampl	Maximum value of the amplitude increments (1)		FFT p.u.	D	2
Max_Inc_Square_Mis	Maximum value of the mispointing (square) increments (1)		degree^2	D	2
Min_Ampl	Minimum value of the amplitude (1)		FFT p.u.	D	2
Min_Iter	Minimum number of iterations in the estimation process (1)		/	ul	2
Th_Ratio	Threshold for the MQE ratio testing (1)		/	D	2
Mis_Option	Mispointing option (1)(8)		/	ul	2

Element name	Description	Range or value	Unit	T	C
Low_Exp_Limit	Lowest limit argument for the exponential function		/	D	1
ALT_RET_OCE_01	**Close container**				**1**
ALT_COM_GEN_01	**Open Container**				**1**
MQE_Ocean_Thresh_LRM	Threshold on the mean quadratic error for compression - LRM mode (1)		/	D	2
MQE_Ocean_Thresh_SAR	Threshold on the mean quadratic error for compression - SAR mode		/	D	1
ALT_COM_GEN_01	**Close container**				**1**
ALT_COM_RAN_05	**Open Container**				**1**
Type_Comp_Retrk_Range	Type of compression (1) (5)		/	ul	2
Min_Pts_Retrk_Range	Minimum number of estimates requested for the compression (1)		/	ul	2
Min_Std_Retrk_Range	Minimum value of the standard deviation for outliers identification (1)		m	D	2
Scale_Retrk_Range	Standard deviation scale factor for outliers identification (1)		/	D	2
ALT_COM_RAN_05	**Close container**				**1**
ALT_COM_AGC_01	**Open Container**				**1**
Min_Std_AGC	Minimum value of the standard deviation for outliers identification (1)		dB	D	2
Scale_AGC	Standard deviation scale factor for outliers identification (1)		/	D	2
Min_Pts_AGC	Minimum number of estimates requested for the compression (1)		/	ul	2
ALT_COM_AGC_01	**Close container**				**1**

Element name	Description	Range or value	Unit	T	C
ALT_COM_BAC_03	**Open Container**				**1**
Min_Std_Retrk_Sigma0	Minimum value of the standard deviation for outliers identification (1)		dB	D	2
Scale_Retrk_Sigma0	Standard deviation scale factor for outliers identification (1)		/	D	2
Min_Pts_Retrk_Sigma0	Minimum number of estimates requested for the compression (1)		/	ul	2
ALT_COM_BAC_03	**Close container**				**1**
ALT_COM_SWH_01	**Open Container**				**1**
Min_Std_Retrk_SWH	Minimum value of the standard deviation for outliers identification (1)		m	D	2
Scale_Retrk_SWH	Standard deviation scale factor for outliers identification (1)		/	D	2
Min_Pts_Retrk_SWH	Minimum number of estimates requested for the compression (1)		/	ul	2
ALT_COM_SWH_01	**Close container**				**1**
ALT_COM_SWH_02	**Open Container**				**1**
Min_Pts_Retrk_SigmaC	Minimum number of estimates requested for the compression (1)		/	ul	2
Min_Std_Retrk_SigmaC	Minimum value of the standard deviation for outliers identification (1)		s	D	2
Scale_Retrk_SigmaC	Standard deviation scale factor for outliers identification (1)		/	D	2
ALT_COM_SWH_02	**Close container**				**1**
ALT_COM_SNR_01	**Open Container**				**1**
Min_Pts_Retrk_Amp	Minimum number of estimates requested for the compression (1)		/	ul	2

Element name	Description	Range or value	Unit	T	C
Min_Std_Retrk_Amp	Minimum value of the standard deviation for outliers identification (1)		FFT p.u.	D	2
Scale_Retrk_Amp	Standard deviation scale factor for outliers identification (1)		/	D	2
ALT_COM_SNR_01	**Close container**				**1**
ALT_COM_SNR_02	**Open Container**				**1**
Min_Pts_Retrk_Noise	Minimum number of estimates requested for the compression (1)		/	ul	2
Min_Std_Retrk_Noise	Minimum value of the standard deviation for outliers identification (1)		FFT p.u.	D	2
Scale_Retrk_Noise	Standard deviation scale factor for outliers identification (1)		/	D	2
ALT_COM_SNR_02	**Close container**				**1**
ALT_COM_MIS_02	**Open Container**				**1**
Min_Std_Sq_Off_Nad	Minimum value of the standard deviation for outliers identification (1)		$degree^2$	D	2
Scale_Sq_Off_Nad	Standard deviation scale factor for outliers identification (1)		/	D	2
Min_Pts_ Sq_Off_Nad	Minimum number of estimates requested for the compression (1)		/	ul	2
ALT_COM_MIS_02	**Close container**				**1**
ALT_PHY_SNR_01	**Open Container**				**1**
SNR_AGC_Bias_LRM	Bias between SNR and AGC - LRM mode (1)		dB	D	2
AGC_Thresh_LRM	Min value of AGC to set SNR to AGC - LRM mode (1)		dB	D	2

Element name	Description	Range or value	Unit	T	C
SNR_AGC_Bias_SAR	Bias between SNR and AGC - SAR mode		dB	D	1
AGC_Thresh_SAR	Min value of AGC to set SNR to AGC - SAR mode		dB	D	1
ALT_PHY_SNR_01	**Close container**				**1**
ALT_COR_MIS_01	**Open Container**				**1**
Sys_Bias_Mis_LRM	System bias for the square of the mispointing angle - LRM mode		degree²	D	1
Sys_Bias_Mis_SAR	System bias for the square of the mispointing angle - SAR mode		degree²	D	1
ALT_COR_MIS_01	**Close container**				**1**
ALT_COR_RAN_03	**Open Container**				**1**
Sys_Bias_Range_LRM	System bias for the altimeter range - LRM mode (1)		m	D	2
Sys_Bias_Range_SAR	System bias for the altimeter range - SAR mode		m	D	1
ALT_COR_RAN_03	**Close container**				**1**
ALT_COR_GEN_01_02	**Open Container**				**1**
SWH_Default	SWH default value for the input of the correction tables		m	D	2
SNR_Default	SNR default value for the input of the correction tables		dB	D	1
ALT_COR_GEN_01_02	**Close container**				**1**
ALT_COR_SWH_01	**Open Container**				**1**
Sys_Bias_SWH_LRM	System bias for the significant wave height - LRM mode (1)		m	D	2

Element name	Description	Range or value	Unit	T	C
Sys_Bias_SWH_SAR	System bias for the significant wave height - SAR mode		m	D	1
ALT_COR_SWH_01	**Close container**				**1**
ALT_COR_BAC_01	**Open Container**				**1**
Sys_Bias_Sigma0_LRM	System bias for the baskscatter coefficient - LRM mode (1)		dB	D	2
Sys_Bias_Sigma0_SAR	System bias for the baskscatter coefficient - SAR mode		dB	D	1
ALT_COR_BAC_01	**Close container**				**1**
ALT_RET_ICE_02	**Open Container**				**1**
Cs_Min	Minimum expected abscissa of the central sample (1)		/	D	2
Cs_Max	Maximum expected abscissa of the central sample (1)		/	D	2
Tn_Opt	Option for thermal noise computation (1) (2)		/	ul	2
Tn_First	Abscissa of the first sample for noise estimation (1)		/	D	2
Tn_Last	Abscissa of the last sample for noise estimation (1)		/	D	2
Le_Min	Minimum abscissa of the leading edge (1)		/	D	2
Tn_Id	Thermal noise weighting factor for leading edge id. (1)		/	D	2
Le_Max	Maximum abscissa for leading edge evaluation (1)		/	D	2
Le_Width	Leading edge width threshold (1)		s	D	2
Le_Gap	Maximum left gap of the leading edge (1)		/	D	2

Element name	Description	Range or value	Unit	T	C
Tn_Estim	Thermal noise weighting factor for estimation conditions (1)		/	D	2
Le_Left	Left shift of the beginning of the leading edge (1)		/	D	2
Le_Right	Right shift of the end of the leading edge (1)		/	D	2
Ew_Min	Minimum abscissa of the estimation window (1)		/	D	2
Ew_Max	Maximum abscissa of the estimation window (1)		/	D	2
Ew_Right	Right offset of the estimation window (1)		/	D	2
Sw_Max	Maximum abscissa of the slope window (1)		/	D	2
Abs_Sm_First	Minimum abscissa of the mispointing estimation window (1)		/	D	2
Sw1_Width	Width of the first slope window (1)		s	D	2
Sw2_Width	Width of the second slope window (1)		s	D	2
Abs_Sm_Last	Maximum abscissa of the mispointing estimation window (1)		/	D	2
Res_Init	Initial value of the residual (1)		/	D	2
Lew_Min	Minimum expected width of the leading edge (1)		/	D	2
Lew_Max	Maximum expected width of the leading edge (1)		/	D	2
Epoch_Step2	Step for the fine estimation of Epoch (1)		/	D	2
SigL_Step2	Step for the fine estimation of SigmaL (1)		/	D	2

Element name	Description	Range or value	Unit	T	C
Default_Noise	Default thermal noise level (1)		FFT p.u.	D	2
Arg_Limit	Limit argument for the erf function (absolute value)		/	D	1
WfMaxThreshFactor	Leading edge threshold retrieval factor (1)		/	D	2
ALT_RET_ICE_02	**Close container**				**1**
ALT_RET_OCE_02	**Open Container**				**1**
Fit_Var_Min	Vectors of the minimum allowable values of the fitted variables. The positions in this vector should relate to the fitted variables in the following order: t0, SWH, Pu, ThNoise		ns, m, FFT p.u. FFT p.u.	D	4
Fit_Var_Max	Vectors of the maximum allowable values of the fitted variables. The positions in this vector should relate to the fitted variables in the following order: t0, SWH, Pu, ThNoise		ns, m, FFT p.u. FFT p.u.	D	4
Fit_Var_Init	Vector of default values for initial guess for the fitted variables. The positions in this vector should relate to the fitted variables in the following order: t0, SWH, Pu, ThNoise		ns, m, FFT p.u. FFT p.u.	D	4
Fit_MaxIter	Maximum number of iterations for the fitting routine		/	ul	1

Element name	Description	Range or value	Unit	T	C
Pitch_Misp_Estim_Flag	Flag to determine how to deal with pitch mispointing. • Pitch_Misp_Estim_Flag == 0: the pitch mispointing is constant and equal to Pitch_Misp_Constant_Value defined by the user in the Control data. • Pitch_Misp_Estim_Flag == 1: the pitch mispointing is estimated from platform measurements and equal to Pitch_Misp_platf read from input file. • Pitch_Misp_Estim_Flag == 2: same as Pitch_Misp_Estim_Flag == 1 but with the addition of the pitch angle bias correction specified in Pitch_Misp_bias.		/	us	1
Roll_Misp_Estim_Flag	Flag to determine how to deal with roll mispointing. • Roll_Misp_Estim_Flag == 0: the roll mispointing is constant and equal to Roll _Misp_Constant_Value defined by the user in the Control data. • Roll_Misp_Estim_Flag == 1: the roll mispointing is estimated from platform measurements and equal to Roll _Misp_platf read from input file. • Roll_Misp_Estim_Flag == 2: same as Roll _Misp_Estim_Flag == 1 but with the addition of the pitch angle bias correction specified in Roll _Misp_bias.		/	us	1
Pitch_Misp_Constant_Value	User-defined value of pitch mispointing if Pitch_Misp_Estim_Flag ==0.		rad	D	1
Roll_Misp_Constant_Value	User-defined value of roll mispointing if Pitch_Misp_Estim_Flag ==0.		rad	D	1
Pitch_Misp_bias	User-defined value of the pitch bias correction if Pitch_Misp_Estim_Flag == 2.		rad	D	1
Roll_Misp_bias	User-defined value of the roll bias correction if Roll_Misp_Estim_Flag == 2.		rad	D	1

Element name	Description	Range or value	Unit	T	C
TN_Flag	Flag to determine how to deal with Thermal Noise		/	us	1
Disable_ML_Flag	Flag to disable the use of multi-looking procedure.		/	us	1
Enable_Slope_Effect_Flag	Flag to enable the compensation of the slope effect in the echo model		/	us	1
Ideal_Beam_Ang_Stack_Flag	Flag to indicate if idealised beam angles should be computed and ised in the multi-looking procedure		/	us	1
, Shy	Antenna shape factors along- and accross-track		/	D	2
alph_P_a	Azimuth PTR Gaussian approximation coefficient		/	D	1
alph_P_r	Range PTR Gaussian approximation coefficient		/	D	1
nu	Inverse of mean square slope		rad-2	D	1
mar_Control	Vector of control variables for the levmar function		/	D	5
First_Look_Index_ML	First Look Index to accumulate in the multi-looking stage			ul	1
Last_Look_Index_ML	Last Look Index to accumulate in the multi-looking stage			ul	1
ALT_RET_OCE_02	**Close container**				**1**
RAD_PHY_ATT_01_RAD_PHY_GEN_01	**Open Container**				**1**
Mean_Sigma0_Ku	Mean value of Sigma0 in Ku band		dB	D	1
Std_Sigma0_Ku	Standard deviation of Sigma0 in Ku band		dB	D	1
Mean_TB23	Mean value of TB23		K	D	1

Element name	Description	Range or value	Unit	T	C
Std_TB23	Standard deviation of TB23		K	D	1
Mean_TB36	Mean value of TB36		K	D	1
Std_TB36	Standard deviation of TB36		K	D	1
Slope_Sigma0	Slope applied to Sigma0_Ku inside the MWR neural network		/	D	1
Bias_Sigma0	Bias applied to Sigma0_Ku inside the MWR neural network		/	D	1
Slope_TB23	Slope applied to TB23 inside the MWR neural network		/	D	1
Bias_TB23	Bias applied to TB23 inside the MWR neural network		/	D	1
Slope_TB36	Slope applied to TB36 inside the MWR neural network		/	D	1
Bias_TB36	Bias applied to TB36 inside the MWR neural network		/	D	1
RAD_PHY_ATT_01_RAD_PHY_GEN_01	**Close container**				**1**
RAD_PHY_ATT_01	**Open Container**				**1**
Nb_Neuron	Number of needed neuron		/	ul	1
Mean_Att_Atm_Ku	Mean value of the atmospheric attenuation in Ku-band		dB	D	1
Std _Att_Atm_Ku	Standard deviation of the atmospheric attenuation in Ku-band		dB	D	1
W1_Sigma0_Att_Atm_Ku	Weights applied to Sigma0_Ku at the first layer of the MWR neural network for Ku-band atmospheric attenuation		/	D	N(7)

Element name	Description	Range or value	Unit	T	C
W1_TB23_Att_Atm_Ku	Weights applied to TB23 at the first layer of the MWR neural network for Ku-band atmospheric attenuation		/	D	N(7)
W1_TB36_Att_Atm_Ku	Weights applied to TB36 at the first layer of the MWR neural network for Ku-band atmospheric attenuation		/	D	N(7)
W2_Att_Atm_Ku	Weights applied at the second layer of the MWR neural network for Ku-band atmospheric attenuation		/	D	N(7)
Bias1_Att_Atm_Ku	Biases applied at the first layer of the MWR neural network for Ku-band atmospheric attenuation		/	D	N(7)
Bias2_Att_Atm_Ku	Bias applied at the second layer of the MWR neural network for Ku-band atmospheric attenuation		/	D	1
Mean_Att_Atm_C	Mean value of the atmospheric attenuation in C-band		dB	D	1
Std _Att_Atm_C	Standard deviation of the atmospheric attenuation in C-band		dB	D	1
W1_Sigma0_Att_Atm_C	Weights applied to Sigma0_Ku at the first layer of the MWR neural network for C-band atmospheric attenuation		/	D	N(7)
W1_TB23_Att_Atm_C	Weights applied to TB23 at the first layer of the MWR neural network for C-band atmospheric attenuation		/	D	N(7)
W1_TB36_Att_Atm_C	Weights applied to TB36 at the first layer of the MWR neural network for C-band atmospheric attenuation		/	D	N(7)
W2_Att_Atm_C	Weights applied at the second layer of the MWR neural network for C-band atmospheric attenuation		/	D	N(7)
Bias1_Att_Atm_C	Biases applied at the first layer of the MWR neural network for C-band atmospheric attenuation		/	D	N(7)

Element name	Description	Range or value	Unit	T	C
Bias2_Att_Atm_C	Bias applied at the second layer of the MWR neural network for C-band atmospheric attenuation		/	D	1
k0, c0	1st coefficients for the computation of the atmospheric attenuation		dB	D	2
kv, cv	2nd coefficients for the computation of the atmospheric attenuation		dB/m	D	2
RAD_PHY_ATT_01	**Close container**				**1**
RAD_PHY_GEN_01_02	**Open Container**				**1**
Sigma0_Ku_Clim	Value of Ku-band Sigma0 corresponding to the windspeed climatological value		dB	D	1
RAD_PHY_GEN_01_02	**Close container**				**1**
RAD_PHY_GEN_01	**Open Container**				**1**
Nb_Neuron_01	Number of needed neurons		/	ul	1
Mean_Wet_H_Rad	Mean value of the wet tropospheric correction		m	D	1
Std_Wet_H_Rad	Standard deviation of the wet tropospheric correction		m	D	1
W1_Sigma0_Wet_H_Rad_01	Weights applied to Sigma0_Ku at the first layer of the MWR neural network for wet tropospheric correction		/	D	N(7)
W1_TB23_Wet_H_Rad_01	Weights applied to TB23 at the first layer of the MWR neural network for wet tropospheric correction		/	D	N(7)
W1_TB36_Wet_H_Rad_01	Weights applied to TB36 at the first layer of the MWR neural network for wet tropospheric correction		/	D	N(7)

Element name	Description	Range or value	Unit	T	C
W2_Wet_H_Rad_01	Weights applied at the second layer of the MWR neural network for wet tropospheric correction		/	D	N(7)
Bias1_Wet_H_Rad_01	Biases applied at the first layer of the MWR neural network for wet tropospheric correction		/	D	N(7)
Bias2_Wet_H_Rad_01	Bias applied at the second layer of the MWR neural network for wet tropospheric correction		/	D	1
Mean_Vap_Cont	Mean value of the water vapor content		kg/m2	D	1
Std_Vap_Cont	Standard deviation of the water vapor content		kg/m2	D	1
W1_Sigma0_Vap_Cont	Weights applied to Sigma0_Ku at the first layer of the MWR neural network for water vapor content		/	D	N(7)
W1_TB23_Vap_Cont	Weights applied to TB23 at the first layer of the MWR neural network for water vapor content		/	D	N(7)
W1_TB36_Vap_Cont	Weights applied to TB36 at the first layer of the MWR neural network for water vapor content		/	D	N(7)
W2_Vap_Cont	Weights applied at the second layer of the MWR neural network for water vapor content		/	D	N(7)
Bias1_Vap_Cont	Biases applied at the first layer of the MWR neural network for water vapor content		/	D	N(7)
Bias2_Vap_Cont	Bias applied at the second layer of the MWR neural network for water vapor content		/	D	1
Mean_Cloud_Liq	Mean value of the cloud liquid water content		kg/m2	D	1

Element name	Description	Range or value	Unit	T	C
Std_Cloud_Liq	Standard deviation of the cloud liquid water content		kg/m2	D	1
W1_Sigma0_Cloud_Liq	Weights applied to Sigma0_Ku at the first layer of the MWR neural network for cloud liquid water content		/	D	N(7)
W1_TB23_Cloud_Liq	Weights applied to TB23 at the first layer of the MWR neural network for cloud liquid water content		/	D	N(7)
W1_TB36_Cloud_Liq	Weights applied to TB36 at the first layer of the MWR neural network for cloud liquid water content		/	D	N(7)
W2_Cloud_Liq	Weights applied at the second layer of the MWR neural network for cloud liquid water content		/	D	N(7)
Bias1_Cloud_Liq	Biases applied at the first layer of the MWR neural network for cloud liquid water content		/	D	N(7)
Bias2_Cloud_Liq	Bias applied at the second layer of the MWR neural network for cloud liquid water content		/	D	1
RAD_PHY_GEN_01	**Close container**				**1**
RAD_PHY_GEN_02	**Open Container**				**1**
Nb_Neuron_02	Number of needed neurons		/	ul	1
W1_Sigma0_Wet_H_Rad_02	Weights applied to Sigma0_Ku at the first layer of the MWR neural network for wet tropospheric correction		/	D	N(7)
W1_TB23_Wet_H_Rad_02	Weights applied to TB23 at the first layer of the MWR neural network for wet tropospheric correction		/	D	N(7)
W1_TB36_Wet_H_Rad_02	Weights applied to TB36 at the first layer of the MWR neural network for wet tropospheric correction		/	D	N(7)

Element name	Description	Range or value	Unit	T	C
W1_SST_Wet_H_Rad_02	Weights applied to SST at the first layer of the neural network		/	D	N(7)
W1_Gamma_Wet_H_Rad_02	Weights applied to Gamma at the first layer of the neural network		/	D	N(7)
W2_Wet_H_Rad_02	Weights applied at the second layer of the MWR neural network for wet tropospheric correction		/	D	N(7)
Bias1_Wet_H_Rad_02	Biases applied at the first layer of the MWR neural network for wet tropospheric correction		/	D	N(7)
Bias2_Wet_H_Rad_02	Bias applied at the second layer of the MWR neural network for wet tropospheric correction		/	D	1
Gamma_In_Clim	Climatological Gamma value		K/km	D	1
SST_Int_Clim	Climatological SST value		K	D	1
RAD_PHY_GEN_02	**Close container**				**1**
RAD_PHY_GEN_03	**Open Container**				**1**
Elementary_Distance	Distance between 2 elementary data points loc.		m	D	1
Distance_Threshold	Maximum distance over which the interpolation of the radiometer correction is admitted		m	D	1
RadCorrMax	Maximum admitted value of the radiometer WTC		m	D	1
RadCorrMin	Minimum admitted value of the radiometer WTC		m	D	1
RAD_PHY_GEN_03	**Close container**				**1**
RAD_PHY_TEM_01	**Open Container**				**1**

Element name	Description	Range or value	Unit	T	C
N_DShift	Number of measurements to be checked		ul	/	1
RAD_PHY_TEM_01	**Close container**				**1**
ALT_PHY_GEN_02	**Open Container**				**1**
Rain_Coef	Rain flag coefficient		/	D	1
Rain_Cloud_Liq	Liquid content threshold		kg/m2	D	1
Rain_Delta_Sigma0	Delta Sigma0 difference threshold		dB	D	1
Lat_Thresh	Latitude threshold		degree	D	1
ALT_PHY_GEN_02	**Close container**				**1**
ALT_PHY_GEN_03	**Open Container**				**1**
Coef_a_RainRate	Coefficient a		dB/Km	D	1
b	Coefficient b		/	D	1
FL_Clim	Climatological freezing level value		km	D	1
FL_Val_Thresh	Threshold on freezing level		km	D	1
Rain_Rate_Thresh	Threshold on rain rate		mm/h	D	1
TB23_Min	TB23 minimum value		K	D	1
TB36_Min	TB36minimum value		K	D	1
ALT_PHY_GEN_03	**Close container**				**1**

Element name	Description	Range or value	Unit	T	C
GEN_ENV_MET_01	**Open Container**				**1**
Coef_b	Coefficient for the inverted barometer height calculation		m/Pa	D	1
GEN_ENV_MET_01	**Close container**				**1**
GEN_ENV_SUR_01	**Open Container**				**1**
Dmin_PD	Radial ground distance from the sub-satellite point along nadir at which land contamination would be sufficient to corrupt the subsequent path delay estimate by approximately 0.5 cm (used to flag the path delay)		m	D	1
Dmin_TB	Radial ground distance from the sub-satellite point along nadir from which land contamination of path delay is lower with along-track averaging than without (used to flag the radiometer main beam brightness temperatures for their proper selection in the along-track averaging procedure)		m	D	1
GEN_ENV_SUR_01	**Close container**				**1**
GEN_ENV_SUR_02	**Open Container**				**1**
Nb_Val_Pts	Number of valid points of the mask		/	ul	4
Season	Seasons delimitation		day	ul	4
North_Winter	Geographic mask – North/Winter		degree	D	14
North_Summer	Geographic mask – North/Summer		degree	D	14
South_Winter	Geographic mask – South/Winter		degree	D	14
South_Summer	Geographic mask – South/Summer		degree	D	14
Mean	Mean		K, dB, K	D	3

Element name	Description	Range or value	Unit	T	C
Stdev	Standard deviation		K, dB, K	D	3
Class_Tie_Coord	Classifier tie-points coordinates		/	D	12
Fuzz_Exp	Fuzziness exponent		/	D	1
Memb_Thresh	Membership threshold		day	ul	1
Day_Min	Minimum day of the year		day	ul	1
Day_Min2	Minimum day of the year 2		day	ul	1
Day_Max	Maximum day of the year		day	ul	1
Lat_Min	Minimum Latitude		degree	D	1
Lat_Min2	Minimum Latitude 2		degree	D	1
Lat_Max	Maximum Latitude		degree	D	1
GEN_ENV_SUR_02	**Close container**				**1**
GEN_ENV_SUR_03	**Open Container**				**1**
Mean_Gre[0:3], Stdev_Gre[0:3]	Mean and standard deviation - Greenland		dB, K, /, dB dB, K, /, dB	D	[1 , 4] [1 , 4]
Mean_Ant[0:3], Stdev_Ant[0:3]	Mean and standard deviation - Antarctica		dB, K, /, dB dB, K, /, dB	D	[1 , 4] [1 , 4]
Class_Tie_Coord_Gre[0:6][0:3]	Classifier tie-points coordinates - Greenland		/	D	[7 , 4]

Element name	Description	Range or value	Unit	T	C
Class_Tie_Coord_Ant[0:6][0:3]	Classifier tie-points coordinates - Antarctica		/	D	[7 , 4]
Fuzz_Exp	Fuzziness exponent		/	D	1
GEN_ENV_SUR_03	**Close container**				**1**
ALT_MAN_RET_04	**Open Container**				**1**
First_Bin	First bin used in the retracking calculation (1)		/	D	2
Last_Bin	Last bin used in the retracking calculation (1)		/	D	2
Thres_Pos_LE	Threshold for the determination of the leading edge position (1)		/	D	2
Low_Bound	Lower bound for the retracking point (1)		/	D	2
Upper_Bound	Upper bound for teh retracking point (1)		/	D	2
ALT_MAN_RET_04	**Close container**				**1**
RAD_MAN_INT_03	**Open Container**				**1**
Half_Width_Av	Half width of the averaging window (= multiple of the step of weighting table)		s	D	1
Weight_Step	Step of the weighting table		s	D	1
Weight[0:(Half_Width_Av / Weight_Step)][0:1]	Weighting table		/	D	1
Min_Mean_Thresh_BT	Minimum mean value for brightness temperatures		K	D	1
Max_Mean_Thresh_BT	Maximum mean value for brightness temperatures		K	D	1

Element name	Description	Range or value	Unit	T	C
Max_Std_Thresh_BT	Maximum standard deviation value for brightness temperatures		K	D	1
Land_Frac_Thresh	Antenna gain weighted land fraction threshold		/	D	1
RAD_MAN_INT_03	**Close container**				**1**
RAD_MAN_LOC_01	**Open Container**				**1**
Delta_Int	Radiometer integration time		s	D	1
Ground_Velocity	Ground velocity of the satellite		m/s	D	1
RAD_MAN_LOC_01	**Close container**				**1**

Note (1) 1st value for Ku band
2nd value for C band

Note (2) 0 for “default” (to set the thermal noise to its default value)
1 for “computation” (to compute the thermal noise by averaging of samples)

Note (3) 0 for "Reduced"
1 for "Nominal"

Note (4) 0 for "No" (no estimation of the slope of the trailing edge)
1 for "Yes" (estimation of the slope of the trailing edge)

Note (5) 0 for arithmetic averaging
1 for linear regression / least square method
2 for linear regression / absolute deviation method

Note (6) 1st value for Ku band
2nd value unused

Note (7) N represents the value of the "Nb_Neuron" parameter

Note (8) 0 for "No" (no estimation of the mispointing)
1 for "Yes" (estimation of the mispointing)

Note (9) L represents the number of levels in the ECMWF 3D files (“Nb_Layers_ECMWF” parameter)

8.3.8 Meteo Altimeter Gaussian Grid

The Meteo Altimeter Gaussian Grid is a file that provides the geographical coordinates of the Gaussian grid points of the Meteo Data files. It is linked to the ground resolution used for the Meteo files.

FILE Type	Update rate	Size
SR_2_MAG_AX	Infrequently – At any change in the Meteo Data Resolution	62MB (for a N640 gaussian grid)

The Meteo Altimeter Gaussian Grid file contains one Header and two Data sets, all in ASCII format.

8.3.8.1 File Header

The file Header is shown below:

PRODUCT="SMM_ALT_AXVCNEYYYYMMDD_HHMMSS_YYYYMMDD_HHMMSS_YYYYMMDD_HHMMSS "

PROC_STAGE=V

REF_DOC=" SMM-IF-M4-EA-21129-CN "

[40 blank characters]

ACQUISITION_STATION="POLE EXPERTISE "

PROC_CENTER="SSALTO"

PROC_TIME="DD-MMM-YYYY HH:MM:SS.MMMMMM"

SOFTWARE_VER=" "

[40 blank characters]

SENSING_START=" "

SENSING_STOP=" "

[40 blank characters]

PHASE=X

CYCLE=+000

REL_ORBIT=+00000

ABS_ORBIT=+00000

STATE_VECTOR_TIME=" *27 blank characters* "

DELTA_UT1=+.000000<s>

X_POSITION=+0000000.000<m>

Y_POSITION=+0000000.000<m>

Z_POSITION=+0000000.000<m>

X_VELOCITY=+0000.000000<m/s>

Y_VELOCITY=+0000.000000<m/s>

Z_VELOCITY=+0000.000000<m/s>

VECTOR_SOURCE=" "

[40 blank characters]

UTC_SBT_TIME="   "

SAT_BINARY_TIME=+0000000000

CLOCK_STEP=+0000000000<ps>

[32 blank characters]

LEAP_UTC=" *27 blank characters* "

LEAP_SIGN=+000

LEAP_ERR=0

[40 blank characters]

PRODUCT_ERR=0

TOT_SIZE=*total size of the product*

SPH_SIZE=+0000000658<bytes>

NUM_DSD=+0000000002

DSD_SIZE=+0000000280<bytes>

NUM_DATA_SETS=+0000000002

[40 blank characters]

SPH_DESCRIPTOR="ALTITUDE GRILLE DE GAUSS   "

[51 blank characters]

DS_NAME="   ENTETES   "

DS_TYPE=G

FILENAME="NOT USED   "

DS_OFFSET=+00000000000000001905<bytes>

DS_SIZE=+00000000000000000200<bytes>

NUM_DSR=+0000000004

DSR_SIZE=+0000000050<bytes>

[32 blank characters]

DS_NAME=" ALTITUDES GRILLES METEO "

DS_TYPE=G

FILENAME="NOT USED   "

DS_OFFSET=+00000000000000002105<bytes>

DS_SIZE=*size of the data set*

NUM_DSR=*number of records*

DSR_SIZE=+0000000030<bytes>

[32 blank characters]

8.3.8.2 Data sets

8.3.8.2.1 1st data set

The first data set contains the total number of points in the considered Gaussian grid, along with the number of latitudes.

It is presented in the following table:

Size (bytes)	Type	Parameter	Unit
49	Char	String (contient : **« ***** Entete ***** »**)	-
1	Char	Line Feed	-
29	Char	**Nombre de points de grille =**	-
20	Entier	Value (coded I19 with sign +)	-
1	Char	Line Feed	-
32	Char	**Nombre de latitudes du modèle =**	-
17	Entier	Valeur (coded I16 with sign +)	-
1	Char	Line Feed	-
49	Char	49 blank characters	-
1	Char	Line Feed	-

An example is given below (for a N640 grid):

***** Entete *****

Nombre de points de grille = +2140702

Nombre de latitudes du modele = +1280

8.3.8.2.2 2nd data set

The second data set contains the longitude, latitude and altitude values for each grid point.

There is one line per grid point, and thus as many lines as the total number of grid points defined in the first data set. The following table presents the content of one line of the second data set:

Size (bytes)	Type	Parameter	Unité
10	Float	Longitude (coded F10.4)	degree
1	Char	Blank	-
10	Float	Latitude (coded F10.4)	degree
1	Char	Blank	-
7	Float	Altitude (coded F7.1)	m
1	Char	Line Feed	-

An example is given below:

```
    0.0000    89.8924 -4287.3
   20.0000    89.8924 -4288.3
   40.0000    89.8924 -4288.3
   60.0000    89.8924 -4290.0
   80.0000    89.8924 -4287.3
  100.0000    89.8924 -4279.4
  120.0000    89.8924 -4278.5
```

140.0000 89.8924 -4286.3
160.0000 89.8924 -4292.5
180.0000 89.8924 -4278.5
200.0000 89.8924 -4245.0
220.0000 89.8924 -4230.9
240.0000 89.8924 -4249.4
260.0000 89.8924 -4202.1
280.0000 89.8924 -4126.6
300.0000 89.8924 -4177.5
320.0000 89.8924 -4263.0
340.0000 89.8924 -4283.8
0.0000 89.7530 -4287.0
14.4000 89.7530 -4292.8
28.8000 89.7530 -4292.8
43.2000 89.7530 -4292.8
57.6000 89.7530 -4293.8
72.0000 89.7530 -4291.9
86.4000 89.7530 -4282.1
100.8000 89.7530 -4268.4
115.2000 89.7530 -4263.4
129.6000 89.7530 -4272.4
144.0000 89.7530 -4275.9

8.3.9 Sea-Ice Concentration

The Sea-Ice Concentration file is generated by MSSL/UCL and it is derived from SSM/I daily brightness temperatures. It is used for supporting the generation of the Level 2 production.

FILE Type	Update rate	Size
SR_2_SIC_AX	Daily	64MB

The Sea-Ice Concentration file consists of a single file, containing one Header (one record) and one Datablock section. The data block format is binary and it consists of a list of records. Table 85 describes the header and Table 86 describes one data set record.

Table 85 Sea-Ice Concentration File – Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Identity of the data contained within the model	"SIC"	/
2	132	Character	Name of the model or file origin	"UCL_04"	
3	132	Character	Format (1)	" "	/
4-10	132	Character	Spare	/	/
11	4	Integer	Number of parameters at each grid point (Nb_Par)	1	/
12	4	Integer	Record length (RL)	11524	bytes
13	4	Integer	Default value of the parameters (Def_Val)	0	/
14	4	Integer	Number of grid points in the longitude axis (Nb_lon)	5760	/
15	4	Integer	Number of grid points in the latitude axis (Nb_Lat)	2881	/

16	4	Integer	Spare	/	/
17	8	Real	Grid step in the longitude axis (Lon_Step)	0.0625	degrees
18	8	Real	First tabulated longitude value (Lon_First)	0.0	degrees
19	8	Real	Last tabulated longitude value (Lon_Last)	359.9375	degrees
20	8	Real	Grid step in the latitude axis (Lat_Step)	0.0625	degrees
21	8	Real	First tabulated latitude value (Lat_First)	-90.0	degrees
22	8	Real	Last tabulated latitude value (Lat_Last)	90.0	degrees

(1) 'BIGE' + 128 blank characters for Big Endian, 'LITE' + 128 blank characters for Little Endian

Table 86 Sea-Ice Concentration File – Data Block

Field Number	Type	Unit	Content
1	Real (4 bytes)	%	Ice concentration value for Lat_First
2	Real (4 bytes)	%	Ice concentration value for Lat_First + Lat_Step
…	…	…	…
Nb_Lat	Real (4 bytes)	%	Ice concentration value for Lat_First + Lat_Step*(Nb_Lat-1)

8.3.10 Modelled Instrumental Corrections Tables

The modelled instrumental correction tables are used for supporting the Level 2 processing, particularly to correct physical parameters (altimeter range, significant waveheight, backscatter coefficient ...) for no-calibrated instrumental errors and for possible re-tracking errors. The corrections depend on the significant waveheight (SWH) and on the signal to noise ratio (SNR).

The modelled instrumental corrections tables are:

- Ku-band altimeter range correction table (2 separate tables, one for LRM mode (SR_2_IC01AX) and one for SAR mode (SR_2_IC02AX))
- Ku-band significant waveheight correction table (2 separate tables, one for LRM mode (SR_2_IC03AX) and one for SAR mode (SR_2_IC04AX))
- Ku-band backscatter coefficient correction table (2 separate tables, one for LRM mode (SR_2_IC05AX) and one for SAR mode (SR_2_IC06AX))
- Ku-band square of the mispointing correction table (one for LRM mode (SR_2_IC07AX))
- C-band altimeter range correction table (LRM mode) (SR_2_IC08AX)
- C-band significant waveheight correction table (LRM mode) (SR_2_IC009AX)
- C-band backscatter coefficient correction table (LRM mode) (SR_2_IC010AX)

There is one file per modeled instrumental corrections table.

FILE Type	Update rate	Size
SR_2_IC01AX	Infrequently	12 kB
SR_2_IC02AX	Infrequently	12 kB
SR_2_IC03AX	Infrequently	12 kB
SR_2_IC04AX	Infrequently	12 kB
SR_2_IC05AX	Infrequently	12 kB
SR_2_IC06AX	Infrequently	12 kB
SR_2_IC07AX	Infrequently	12 kB
SR_2_IC08AX	Infrequently	12 kB
SR_2_IC09AX	Infrequently	12 kB
SR_2_IC10AX	Infrequently	12 kB

Each modelled instrumental correction table consists of a single file, containing one Header (one record) and one Datablock section. The data block format is binary and it consists of a list of records, where each record corresponds to one tabulated SWH value. The following tables describes the header content and one data set record.

Table 87 Modeled instrumental correction tables: header content

Field number	Number of bytes	Type	Content	Unit
1	132	Character	Name of the model or file origin	/
2	132	Character	Format (1)	/
3-10	132	Character	Spare	/
11	4	Integer	Number of parameters at each grid point (Nb_Par=1)	/
12	4	Integer	Record length (RL)	bytes
13	4	Integer	Default value of the parameters (Def_Val)	/
14	4	Integer	Number of points in the SWH axis (Nb_SWH)	/
15	4	Integer	Number of points in the SNR axis (Nb_SNR)	/
16	4	Integer	Spare	/
17	8	Real	Step in the SWH axis (Step_SWH)	m
18	8	Real	SWH lower bound (Min_SWH)	m
19	8	Real	SWH upper bound (Max_SWH)	m
20	8	Real	Step in the SNR axis (Step_SNR)	dB
21	8	Real	SNR lower bound (Min_SNR)	dB
22	8	Real	SNR upper bound (Max_SNR)	dB

(1) ‘BIGE’ + 128 blank characters for Big Endian, ‘LITE’ + 128 blank characters for Little Endian

Table 88 Modeled instrumental correction tables - Data Block

Field Number	Type	Unit	Content

1	Real (4 bytes)	[2]	Correction Min_SNR + Step_SNR*(Nb_SNR-2)
2	Real (4 bytes)	2	Correction for Min_SNR + Step_SNR
…	…		…
Nb_SNR - 1	Real (4 bytes)	2	
Nb_SNR	Real (4 bytes)	2	Correction Min_SNR + Step_SNR*(Nb_SNR-1)

8.3.11 Coefficients map for the diurnal and semi-diurnal elastic ocean tide calculation

The files contain the values of the harmonic coefficients for the principal tide waves. The model used for the processing is GOT4.8 for solution 1 and FES2004 for solution 2. They are used for supporting the L2 processing.

FILE Type	Update rate	Size
SR_2_EOT1AX	Infrequently	20 MB
SR_2_EOT2AX	Infrequently	349 MB

The files are binary files. They both consist of one header (one record) and of one data set (N records). Each record corresponds to one tabulated longitude value.

8.3.11.1 Format for Solution 1

The following tables describe the header content and one data set record for the Solution 1 map file.

Table 89 Coefficients map for the diurnal and semi-diurnal elastic ocean tide Calculation (Solution 1) - Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Name of the model or file origin	/	/
2	132	Character	Format (1)	/	/
3-10	132	Character	Spare	/	/
11	4	Integer	Number of parameters at each grid point (Nb_Par)	20	/
12	4	Integer	Record length (RL)	28880	bytes
13	4	Integer	Default value of the parameters (Def_Val)	231-1	/
14	4	Integer	Number of grid points in the longitude axis (Nb_Lon)	720	/
15	4	Integer	Number of grid points in the latitude axis (Nb_Lat)	361	/

[2] m for altimeter ranges
m for significant waveheights
dB for backscatter coefficient
degree for square of the mispointing angle

16	4	Integer	Spare	/	/
17	8	Real	Grid step in the longitude axis (Lon_Step)	0.5	degree
18	8	Real	First tabulated longitude value (Lon_First)	180	degree
19	8	Real	Last tabulated longitude value (Lon_Last)	179.5	degree
20	8	Real	Grid step in the latitude axis (Lat_Step)	0.5	degree
21	8	Real	First tabulated latitude value (Lat_First)	- 90	degree
22	8	Real	Last tabulated latitude value (Lat_Last)	90	degree

(1) 'BIGE' + 128 blank characters for Big Endian, 'LITE' + 128 blank characters for Little Endian

Table 90 Coefficients map for the diurnal and semi-diurnal elastic ocean tide Calculation (Solution 1) - Data Block

Field number	Number of bytes	Type	Content	Unit
1	4	Integer	Coefficient A(0), tidal wave 0 for Lat_First	10-4 m
2	4	Integer	Coefficient A(1), tidal wave 0 for Lat_First	10-4 m
3	4	Integer	Coefficient A(0), tidal wave 1 for Lat_First	10-4 m
4	4	Integer	Coefficient A(1), tidal wave 1 for Lat_First	10-4 m
…	…	…	…	…
19	4	Integer	Coefficient A(0), tidal wave 9 for Lat_First	10-4 m
20	4	Integer	Coefficient A(1), tidal wave 9 for Lat_First	10-4 m
21	4	Integer	Coefficient A(0), tidal wave 0 for Lat_First + Lat_Step	10-4 m
…	…	…	…	…
Nb_Par*Nb_Lat	4	Integer	Coefficient A(1), tidal wave 9 for Lat_First + (Nb_Lat – 1)*Lat_Step	10-4 m

8.3.11.2 Format for Solution 2

The following tables describe the header content and one data set record for the Solution 2 map file.

Table 91 Coefficients map for the diurnal and semi-diurnal elastic ocean tide Calculation (Solution 2) - Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Name of the model or file origin	/	/
2	132	Character	Format (1)	/	/
3-10	132	Character	Spare	/	/
11	4	Integer	Number of parameters at each grid point (Nb_Par)	22	/
12	4	Integer	Record length (RL)	126808	bytes
13	4	Integer	Default value of the parameters (Def_Val)	231-1	/
14	4	Integer	Number of grid points in the longitude axis (Nb_Lon)	2880	/
15	4	Integer	Number of grid points in the latitude axis (Nb_Lat)	1441	/
16	4	Integer	Spare	/	/

17	8	Real	Grid step in the longitude axis (Lon_Step)	0.125	degree
18	8	Real	First tabulated longitude value (Lon_First)	180	degree
19	8	Real	Last tabulated longitude value (Lon_Last)	179.875	degree
20	8	Real	Grid step in the latitude axis (Lat_Step)	0.125	degree
21	8	Real	First tabulated latitude value (Lat_First)	- 90	degree
22	8	Real	Last tabulated latitude value (Lat_Last)	90	degree

(1) 'BIGE' + 128 blank characters for Big Endian, 'LITE' + 128 blank characters for Little Endian

Table 92 Coefficients map for the diurnal and semi-diurnal elastic ocean tide Calculation (Solution 2) - Data Block

Field number	Number of bytes	Type	Content	Unit
1	4	Integer	Coefficient A(0), tidal wave 0 for Lat_First	10-4 m
2	4	Integer	Coefficient A(1), tidal wave 0 for Lat_First	10-4 m
3	4	Integer	Coefficient A(0), tidal wave 1 for Lat_First	10-4 m
4	4	Integer	Coefficient A(1), tidal wave 1 for Lat_First	10-4 m
…	…	…	…	…
21	4	Integer	Coefficient A(0), tidal wave 10 for Lat_First	10-4 m
22	4	Integer	Coefficient A(1), tidal wave 10 for Lat_First	10-4 m
23	4	Integer	Coefficient A(0), tidal wave 0 for Lat_First + Lat_Step	10-4 m
…	…	…	…	…
Nb_Par*Nb_Lat	4	Integer	Coefficient A(1), tidal wave 10 for Lat_First + (Nb_Lat – 1) * Lat_Step	m

8.3.12 Coefficients map for the tidal loading effect calculation

The files contain the values of the harmonic coefficients for the principal tide waves. The model used for the processing is GOT4.8 for solution 1 and FES2004 for solution 2. They are used for supporting the L2 processing.

FILE Type	Update rate	Size
SR_2_LT1_AX	Infrequently	10 MB
SR_2_LT2_AX	Infrequently	175 MB

The files are binary files. They both consist of one header (one record) and of one data set (N records). Each record corresponds to one tabulated longitude value.

8.3.12.1 Format for Solution 1

The following tables describe the header content and one data set record for the Solution 1 map file.

Table 93 Coefficients map for loading tide Calculation (Solution 1) - Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Name of the model or file origin	/	/
2	132	Character	Format (1)	/	/
3-10	132	Character	Spare	/	/
11	4	Integer	Number of parameters at each grid point (Nb_Par)	20	/
12	4	Integer	Record length (RL)	14440	bytes
13	4	Integer	Default value of the parameters (Def_Val)	215-1	/
14	4	Integer	Number of grid points in the longitude axis (Nb_Lon)	720	/
15	4	Integer	Number of grid points in the latitude axis (Nb_Lat)	361	/
16	4	Integer	Spare	/	/
17	8	Real	Grid step in the longitude axis (Lon_Step)	0.5	degree
18	8	Real	First tabulated longitude value (Lon_First)	180	degree
19	8	Real	Last tabulated longitude value (Lon_Last)	179.5	degree
20	8	Real	Grid step in the latitude axis (Lat_Step)	0.5	degree
21	8	Real	First tabulated latitude value (Lat_First)	- 90	degree
22	8	Real	Last tabulated latitude value (Lat_Last)	90	degree

(1) 'BIGE' + 128 blank characters for Big Endian, 'LITE' + 128 blank characters for Little Endian

Table 94 Coefficients map for loading tide Calculation (Solution 1) - Data block

Field number	Number of bytes	Type	Content	Unit
1	2	Integer	Coefficient B(0), tidal wave 0 for Lat_First	10-4 m
2	2	Integer	Coefficient B(1), tidal wave 0 for Lat_First	10-4 m
3	2	Integer	Coefficient B(0), tidal wave 1 for Lat_First	10-4 m
4	2	Integer	Coefficient B(1), tidal wave 1 for Lat_First	10-4 m
…	…	…	…	…
19	2	Integer	Coefficient B(0), tidal wave 9 for Lat_First	10-4 m
20	2	Integer	Coefficient B(1), tidal wave 9 for Lat_First	10-4 m
21	2	Integer	Coefficient B(0), tidal wave 0 for Lat_First + Lat_Step	10-4 m
…	…	…	…	…
Nb_Par*Nb_Lat	2	Integer	Coefficient B(1), tidal wave 9 for Lat_First + (Nb_Lat – 1)*Lat_Step	10-4 m
Nb_Par*Nb_Lat+1 (1)	2	Char	Spare	/

(1) This field exists only if Nb_Par*Nb_Lat*2 is not a multiple of 4.

8.3.12.2 Format for Solution 2

The following tables describe the header content and one data set record for the Solution 2 map file.

Table 95 Coefficients map for loading tide Calculation (Solution 2) - Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Name of the model or file origin	/	/
2	132	Character	Format (1)	/	/
3-10	132	Character	Spare	/	/
11	4	Integer	Number of parameters at each grid point (Nb_Par)	22	/
12	4	Integer	Record length (RL)	63404	bytes
13	4	Integer	Default value of the parameters (Def_Val)	215-1	/
14	4	Integer	Number of grid points in the longitude axis (Nb_Lon)	2880	/
15	4	Integer	Number of grid points in the latitude axis (Nb_Lat)	1441	/
16	4	Integer	Spare	/	/
17	8	Real	Grid step in the longitude axis (Lon_Step)	0.125	degree
18	8	Real	First tabulated longitude value (Lon_First)	180	degree
19	8	Real	Last tabulated longitude value (Lon_Last)	179.875	degree
20	8	Real	Grid step in the latitude axis (Lat_Step)	0.125	degree
21	8	Real	First tabulated latitude value (Lat_First)	- 90	degree
22	8	Real	Last tabulated latitude value (Lat_Last)	90	degree

(1) ‘BIGE’ + 128 blank characters for Big Endian, ‘LITE’ + 128 blank characters for Little Endian

Table 96 Coefficients map for loading tide Calculation (Solution 2) - Data Block

Field number	Number of bytes	Type	Content	Unit
1	2	Integer	Coefficient B(0), tidal wave 0 for Lat_First	10-4 m
2	2	Integer	Coefficient B(1), tidal wave 0 for Lat_First	10-4 m
3	2	Integer	Coefficient B(0), tidal wave 1 for Lat_First	10-4 m
4	2	Integer	Coefficient B(1), tidal wave 1 for Lat_First	10-4 m
…	…	…	…	…
21	2	Integer	Coefficient B(0), tidal wave 10 for Lat_First	10-4 m
22	2	Integer	Coefficient B(1), tidal wave 10 for Lat_First	10-4 m
23	2	Integer	Coefficient B(0), tidal wave 0 for Lat_First + Lat_Step	10-4 m
…	…	…	…	…
Nb_Par*Nb_Lat	2	Integer	Coefficient B(1), tidal wave 10 for Lat_First + (Nb_Lat - 1) * Lat_Step	10-4 m
Nb_Par*Nb_Lat+1 (1)	2	Char	Spare	/

(1) This field exists only if Nb_Par*Nb_Lat*2 is not a multiple of 4.

8.3.13 Coefficients map for long period ocean tide calculation

The file contains the values of the harmonic coefficients for the four dynamical waves of the FES2004 model. They are used for supporting the L2 processing.

FILE Type	Update rate	Size
SR_2_LNEQAX	Infrequently	127 MB

The file is a binary file. It consists of one header (one record) and of one data set (N records). The format of the header content and of each record is described in the following tables.

Table 97 Coefficients map for long period ocean tide calculation – Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Name of the model or file origin	/	/
2	132	Character	Format (1)	/	/
3-10	132	Character	Spare	/	/
11	4	Integer	Number of parameters at each grid point (Nb_Par)	8	/
12	4	Integer	Record length (RL)	46112	bytes
13	4	Integer	Default value of the parameters (Def_Val)	231-1	/
14	4	Integer	Number of grid points in the longitude axis (Nb_Lon)	2880	/
15	4	Integer	Number of grid points in the latitude axis (Nb_Lat)	1441	/
16	4	Integer	Spare	/	/
17	8	Real	Grid step in the longitude axis (Lon_Step)	0.125	degree
18	8	Real	First tabulated longitude value (Lon_First)	180	degree
19	8	Real	Last tabulated longitude value (Lon_Last)	179.875	degree

20	8	Real	Grid step in the latitude axis (Lat_Step)	0.125	degree
21	8	Real	First tabulated latitude value (Lat_First)	- 90	degree
22	8	Real	Last tabulated latitude value (Lat_Last)	90	degree

(1) 'BIGE' + 128 blank characters for Big Endian, 'LITE' + 128 blank characters for Little Endian

Table 98 Coefficients map for long period ocean tide calculation - Data Block

Field Number	Type	Unit	Content
1	I (4 bytes)	10-4 m	Coefficient A(0), tidal wave 0 for Lat_First
2	I (4 BYTES)	10-4 m	Coefficient A(1), tidal wave 0 for Lat_First
3	I (4 BYTES)	10-4 m	Coefficient A(0), tidal wave 1 for Lat_First
4	I (4 BYTES)	10-4 m	Coefficient A(1), tidal wave 1 for Lat_First
…			
7	I (4 BYTES)	10-4 m	Coefficient A(0), tidal wave 3 for Lat_First
8	I (4 BYTES)	10-4 m	Coefficient A(1), tidal wave 3 for Lat_First
9	I (4 BYTES)	10-4 m	Coefficient A(0), tidal wave 0 for Lat_First + Lat_Ste
…			
Nb_Par*Nb_Lat	I (4 BYTES)	10-4 m	Coefficient A(1), tidal wave 3 for Lat_First + (Nb_Lat -1) * Lat_Step

8.3.14 Mean sea surface height map (Solution 1)

The file contains the values of the mean sea surface heights of the CNES-CLS-11 model and the associated error values.

FILE Type	Update rate	Size
SR_2_MSS1AX	Infrequently	445 MB

The file is a binary file. It consists of one header (one record) and of one data set (N records). The format of the header and of each record is described in the following tables.

Table 99 Mean sea surface height map (Solution 1) – Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Name of the model or file origin	/	/
2	132	Character	Format (1)	/	/
3-10	132	Character	Spare	/	/
11	4	Integer	Number of parameters at each grid point (Nb_Par)	2	/
12	4	Integer	Record length (RL)	43200	bytes
13	4	Integer	Default value of the parameters (Def_Val)	9999	/
14	4	Integer	Number of grid points in the longitude axis (Nb_lon)	10800	/
15	4	Integer	Number of grid points in the latitude axis (Nb_Lat)	5400	/
16	4	Integer	Spare	/	/
17	8	Real	Grid step in the longitude axis (Lon_Step)	2	arcminute

18	8	Real	First tabulated longitude value (Lon_First)	0	arcminute
19	8	Real	Last tabulated longitude value (Lon_Last)	21598	arcminute
20	8	Real	Grid step in the latitude axis (Lat_Step)	2	arcminute
21	8	Real	First tabulated latitude value (Lat_First)	-5400	arcminute
22	8	Real	Last tabulated latitude value (Lat_Last)	5398	arcminute

(1) 'BIGE' + 128 blank characters for Big Endian, 'LITE' + 128 blank characters for Little Endian

Table 100 Mean sea surface height map (Solution 1) - Data Block

Field Number	Type	Unit	Content
1	REAL (4 BYTES)	m	MSS value for Lat_First
2	REAL (4 BYTES)	m	MSS accuracy for Lat_First
3	REAL (4 BYTES)	m	Real MSS value for Lat_First + Lat_Step
4	REAL (4 BYTES)	m	MSS accuracy for Lat_First + Lat_Step
….			
Nb_Par*Nb_Lat	REAL (4 BYTES)	m	MSS accuracy for Lat_First + Lat_Step*(Nb_Lat-1)

8.3.15 Mean sea surface height map (Solution 2)

The file contains the values of the mean sea surface heights of the DTU-10 model.

FILE Type	Update rate	Size
SR_2_MSS2AX	Infrequently	890 MB

The file is a binary file. It consists of one header (one record) and of one data set (N records). The format of the header and of each record is described in the following tables.

Table 101 Mean sea surface height map (Solution 2) – Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Name of the model or file origin	/	/
2	132	Character	Format (1)	/	/
3-10	132	Character	Spare	/	/
11	4	Integer	Number of parameters at each grid point (Nb_Par)	1	/
12	4	Integer	Record length (RL)	43200	bytes
13	4	Integer	Default value of the parameters (Def_Val)	9999	/
14	4	Integer	Number of grid points in the longitude axis (Nb_lon)	21600	/
15	4	Integer	Number of grid points in the latitude axis (Nb_Lat)	10800	/
16	4	Integer	Spare	/	/
17	8	Real	Grid step in the longitude axis (Lon_Step)	1	arcminute
18	8	Real	First tabulated longitude value (Lon_First)	0.5	arcminute
19	8	Real	Last tabulated longitude value (Lon_Last)	21599.5	arcminute

20	8	Real	Grid step in the latitude axis (Lat_Step)	1	arcminute
21	8	Real	First tabulated latitude value (Lat_First)	-5399.5	arcminute
22	8	Real	Last tabulated latitude value (Lat_Last)	5399.5	arcminute

(1) ‘BIGE’ + 128 blank characters for Big Endian, ‘LITE’ + 128 blank characters for Little Endian

Table 102 Mean sea surface height map (Solution 2) - Data Block

Field number	Number of bytes	Type	Content	Unit
1	4	Real	MSS value for Lat_First	m
2	4	Real	MSS value for Lat_First + Lat_Step	m
…	…	…	…	…
Nb_Lat	4	Real	MSS value for Lat_First + Lat_Step*(Nb_Lat-1)	m

8.3.16 Geoid height map

The file contains the values of the geoid heights of the EGM2008 model.

FILE Type	Update rate	Size
SR_2_GEO_AX	Infrequently	36 MB

The file is a binary file. It consists of one header (one record) and of one data set (N records). The format of the header and of each record is described in the following tables.

Table 103 Geoid height map – Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Name of the model or file origin	/	/
2	132	Character	Format (1)	/	/
3-10	132	Character	Spare	/	/
11	4	Integer	Number of parameters at each grid point (Nb_Par)	1	/
12	4	Integer	Record length (RL)	8640	bytes
13	4	Integer	Default value of the parameters (Def_Val)	9999	/
14	4	Integer	Number of grid points in the longitude axis (Nb_lon)	4320	/
15	4	Integer	Number of grid points in the latitude axis (Nb_Lat)	2160	/
16	4	Integer	Spare	/	/
17	8	Real	Grid step in the longitude axis (Lon_Step)	1/12	degree
18	8	Real	First tabulated longitude value (Lon_First)	180.0416(1)	degree
19	8	Real	Last tabulated longitude value (Lon_Last)	179.9583(2)	degree
20	8	Real	Grid step in the latitude axis (Lat_Step)	1/12	degree
21	8	Real	First tabulated latitude value (Lat_First)	-90 + 1/24	degree
22	8	Real	Last tabulated latitude value (Lat_Last)	90 – 1/24	degree

(1) 'BIGE' + 128 blank characters for Big Endian, 'LITE' + 128 blank characters for Little Endian

Table 104 Geoid height map – Data block

Field number	Number of bytes	Type	Content	Unit
1	4	Real	Geoid value for Lat_First	m
2	4	Real	Geoid value for Lat_First + Lat_Step	m
…	…	…	…	…
Nb_Lat	4	Real	Geoid value for Lat_First + Lat_Step*(Nb_Lat-1)	m

8.3.17 Bathymetry/Topography map

The model used is the Global Digital Elevation Model **ACE2,** with a 30 arcsecondes resolution.

FILE Type	Update rate	Size
SR_2_ODLEAX	Infrequently	1.8 GB

The file is a binary file. It consists of one header (one record) and of one data set (N records). The format of the header and of each record is described in the following tables.

---

(1) – 180° West + 1/24°

(2) + 180° East – 1/24°

Table 105 Ocean Depth / Land Elevation File – Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Name of the model or file origin	/	/
2	132	Character	Format (1)	/	/
3-10	132	Character	Spare	/	/
11	4	Integer	Number of parameters at each grid point (Nb_Par)	1	/
12	4	Integer	Record length (RL)	43200	bytes
13	4	Integer	Default value of the parameters (Def_Val)	9999	/
14	4	Integer	Number of grid points in the longitude axis (Nb_lon)	43200	/
15	4	Integer	Number of grid points in the latitude axis (Nb_Lat)	21600	/
16	4	Integer	Spare	/	/
17	8	Real	Grid step in the longitude axis (Lon_Step)	0.5	arcminutes
18	8	Real	First tabulated longitude value (Lon_First)	10800.5(1)	arcminutes
19	8	Real	Last tabulated longitude value (Lon_Last)	10799.5(2)	arcminutes
20	8	Real	Grid step in the latitude axis (Lat_Step)	0.5	arcminutes
21	8	Real	First tabulated latitude value (Lat_First)	- 5400	arcminutes
22	8	Real	Last tabulated latitude value (Lat_Last)	5399.5	arcminutes

(1) 'BIGE' + 128 blank characters for Big Endian, 'LITE' + 128 blank characters for Little Endian

Table 106 Ocean Depth / Land Elevation File – Data block

Field number	Number of bytes	Type	Content	Unit
1	2	Integer	Bathymetry/Topography value for Lat_First	m
2	2	Integer	Bathymetry/Topography value for Lat_First + Lat_Step	m
...	...	...	...	...
Nb_Lat	2	Integer	Bathymetry/Topography value for Lat_First + Lat_Step*(Nb_Lat-1)	m

8.3.18 Wind Tables

The tables contain wind speed values that correspond to Abdala, 2007. There is one table per mode (LRM, SAR). The format is identical for both LRM and SAR mode tables.

FILE Type	Update rate	Size
SR_2_WNDLAX	Infrequently	4 kB
SR_2_WNDSAX	Infrequently	4 kB

---

(1) *– 180° West + 0.5'*

(2) *+ 180° East – 0.5'*

The original file is a binary file. It consists of one header (one record) and of one data set (N records). The format of the header and of each record is described in the following tables.

Table 107 Wind Table – Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Name of the model or file origin	/	/
2	132	Character	Format (1)	/	/
3-10	132	Character	Spare	/	/
11	4	Integer	Number of parameters at each table point (Nb_Par)	1	/
12	4	Integer	Record length (RL)	296	bytes
13	4	Integer	Default value of the parameters (Def_Val)	0	/
14	4	Integer	Number of table points (Nb_Sigma0)	74	/
15	8	Real	Grid step in Sigma0 (Sigma0_Step)	0.2	dB
16	8	Real	First tabulated Sigma0 value (Sigma0_First)	5	dB
17	8	Real	Last tabulated Sigma0 value (Sigma0_Last)	19.4	dB

(1) 'BIGE' + 128 blank characters for Big Endian, 'LITE' + 128 blank characters for Little Endian

Table 108 Wind Table - Data Block

Field Number	Type	Unit	Content
1	REAL (4 BYTES)	m/s	Windspeed value for Sigma0_First
2	REAL (4 BYTES)	m/s	Windspeed value for Sigma0_First + Sigma0_Step
…			
Nb_Sigma0	REAL (4 BYTES)	m/s	Windspeed value for Sigma0_First + Sigma0_Step *(Nb_Sigma0-1)

8.3.19 Expected Ku-band sigma0 Tables

There is one table per mode (LRM, SAR). The format is identical for both LRM and SAR mode tables.

FILE Type	Update rate	Size
SR_2_SIGLAX	Infrequently	16 kB
SR_2_SIGSAX	Infrequently	16 kB

The file is a binary file. It consists of one header (one record) and of one data set (N records). The format of the header and of each record is described in the following tables.

Table 109 Expected Ku-band sigma0 Table – Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Name of the model or file origin	/	/
2	132	Character	Format (1)	/	/
3-10	132	Character	Spare	/	/
11	4	Integer	Number of parameters at each table point (Nb_Par)	2	/
12	4	Integer	Record length (RL)	8000	bytes
13	4	Integer	Default value of the parameters (Def_Val)	0	/
14	4	Integer	Number of table points (Nb_Sigma0_Aux)	500	/
15	8	Real	Grid step in Sigma0Aux (Sigma0_Aux_Step)	0.1	dB
16	8	Real	First tabulated Sigma0Aux value (Sigma0_Aux_First)	0.1	dB
17	8	Real	Last tabulated Sigma0Aux value (Sigma0_Aux_Last)	50	dB

(1) ‘BIGE’ + 128 blank characters for Big Endian, ‘LITE’ + 128 blank characters for Little Endian

Table 110 Expected Ku-band sigma0 Table - Data Block

Field Number	Type	Unit	Content
1	REAL (8 BYTES)	dB	Expected Ku-band Sigma0 value for Sigma0_Aux_First
2	REAL (8 BYTES)	dB	RMS of expected Ku-band Sigma0 value for Sigma0_Aux_First
3	REAL (8 BYTES)	dB	Expected Ku-band Sigma0 value for Sigma0_Aux_First +Sigma0_Aux_Step
4	REAL (8 BYTES)	dB	Real RMS of expected Ku-band Sigma0 value for Sigma0_Aux_First +Sigma0_Aux_Step
…			
Nb_Sigma0	REAL (8 BYTES)	dB	RMS of expected Ku-band Sigma0 value for Sigma0_Aux_First +(Nb_Sigma0_Aux - 1)*Sigma0_Aux_Step

8.3.20 Cartwright and Edden tide potential amplitudes for the solid earth tide and the equilibrium long period ocean tide height calculation

The solid earth tide and the equilibrium long period ocean tide height calculation are built from Cartwright and Edden tide potential amplitudes.

FILE Type	Update rate	Size
SR_2_SET_AX	Infrequently	16 KB

The file is a binary file. It consists of one header (one record) and of one data set (N records). Each data set record corresponds to a couple of six harmonic coefficients and amplitude. The N_{20} records are found first, followed by the N_{21} ones, etc.., up to the N_{33} ones. The format of the header and of each record is described in the following tables.

Table 111 Cartwright and Edden tide potential amplitudes for the solid earth tide and the equilibrium long period ocean tide height calculation – Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Name of the model or file origin	/	/
2	132	Character	Format (1)	/	/
3-10	132	Character	Spare	/	/
11	2	Integer	N20	103	/
12	2	Integer	N21	162	/
13	2	Integer	N22	119	/
14	2	Integer	N30	17	/
15	2	Integer	N31	35	/
16	2	Integer	N32	31	/
17	2	Integer	N33	16	/

(1) 'BIGE' + 128 blank characters for Big Endian, 'LITE' + 128 blank characters for Little Endian

Table 112 Cartwright and Edden tide potential amplitudes for the solid earth tide and the equilibrium long period ocean tide height calculation - Data Block

Field Number	Type	Unit	Content
1	I	/	Integer Linear coefficient K(0)
2	I	/	Integer Linear coefficient K(1)
3	I	/	Integer Linear coefficient K(2)
4	I	/	Integer Linear coefficient K(3)
5	I	/	Integer Linear coefficient K(4)
6	I	/	Integer Linear coefficient K(5)
7	S	/	Spare
8	Real (8 bytes)	m	Constituent amplitude AMP

8.3.21 Surface slopes models

The surface slopes models file contains the slope of the surface computed in the X and Y directions respectively.

FILE Type	Update rate	Size
SR_2_SSM_AX	Infrequently	18 MB

The slope model file is a binary file. It consists of one header (one record) and of one data set (variable number of records). A set of these files (0 to N files), covering different geographical regions, are passed to the processor. Each data set record is composed of two real numbers giving the slope of the surface calculated in the X and Y directions respectively. The format of the header and of each record is described in the following tables.

Table 113 Surface slopes models – Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	2	Integer	Model number	/	/
2	2	Integer	Hemisphere flag	/	/
3	8	Real	Corner X	/	m
4	8	Real	Corner Y	/	m
5	2	Integer	Number of elements in X (Xmax)	/	/
6	2	Integer	Number of elements in Y (Ymax)	/	/
7	8	Real	Resolution	/	m
18	2	Char	Spare	/	/

Table 114 Surface slopes models – Data block

Field number	Number of bytes	Type	Content	Unit
1	4	Real	X slope component for (X0,Y0)	/
2	4	Real	Y slope component for (X0,Y0)	/
3	4	Real	X slope component for (X0,Y1)	/
4	4	Real	Y slope component for (X0,Y1)	/
2 * Ymax-1	4	Real	X slope component for (X0,Ymax-1)	/
2 * Ymax	4	Real	Y slope component for (X0,Ymax-1)	/
2 * Ymax + 1	4	Real	X slope component for (X1,Y0)	/
2 * Ymax + 2	4	Real	X slope component for (X1,Y0)	/
2 * Xmax * Ymax-1	4	Real	X slope component for (Xmax-1,Ymax-1)	/
2 * Xmax * Ymax	4	Real	Y slope component for (Xmax-1,Ymax-1)	/

8.3.22 Map of the slopes of the MSS/geoid with respect to the ellipsoid

The Doppler/MSS file contains the map of the slopes of the MSS/geoid with respect to the ellipsoid.

FILE Type	Update rate	Size
SR_2_MSMGAX	Infrequently	445 MB

The original file is a binary file. It consists of one Header (one record) and of one data set (N records). Each data set record corresponds to one tabulated longitude value. The format of the header and of each record is described in the following table.

Table 115 Map of the slopes of the MSS/geoid with respect to the ellipsoid – Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Name of the model or file origin	/	/
2	132	Character	Format (1)	/	/
3-10	132	Character	Spare	/	/
11	4	Integer	Number of parameters at each grid point (Nb_Par)	2	/
12	4	Integer	Record length (RL)	43200	bytes
13	4	Integer	Default value of the parameters (Def_Val)	0	/
14	4	Integer	Number of grid points in the longitude axis (Nb_lon)	10800	/
15	4	Integer	Number of grid points in the latitude axis (Nb_Lat)	5400	/
16	4	Integer	Spare	/	/
17	8	Real	Grid step in the longitude axis (Lon_Step)	2	minute
18	8	Real	First tabulated longitude value (Lon_First)	1	minute
19	8	Real	Last tabulated longitude value (Lon_Last)	21599	minute
20	8	Real	Grid step in the latitude axis (Lat_Step)	2	minute
21	8	Real	First tabulated latitude value (Lat_First)	- 5399	minute
22	8	Real	Last tabulated latitude value (Lat_Last)	5399	minute

(1) 'BIGE' + 128 blank characters for Big Endian, 'LITE' + 128 blank characters for Little Endian

Table 116 Surface Slopes models - Data Block

Field Number	Type	Unit	Content
1	REAL (4 BYTES)	m/s	REAL (4 BYTES)oppler/MSS value for Lat_First, ascending passes
2	REAL (4 BYTES)	m/s	Doppler/MSS value for Lat_First, descending passes
3	REAL (4 BYTES)	m/s	Doppler/MSS value for Lat_First+Lat_Step, ascending passes
4	REAL (4 BYTES)	m/s	Doppler/MSS value for Lat_First+Lat_Step, descending passes
…			
2*Nb_Lat-1	REAL (4 BYTES)	m/s	Doppler/MSS value for Lat_First + Lat_Step*(Nb_Lat-1) , ascending passes
2*Nb_Lat	REAL (4 BYTES)	m/s	Doppler/MSS value for Lat_First + Lat_Step*(Nb_Lat-1) , descending passes

8.3.23 Climatological pressure grids

The climatological pressure grids (4 files) contain the climatological pressure referenced to the sea on a Cartesian grid, for each of the twelve months of the year.

FILE Type	Update rate	Size
SR_2_CP00AX	Infrequently	24 MB
SR_2_CP06AX	Infrequently	24 MB
SR_2_CP12AX	Infrequently	24 MB
SR_2_CP18AX	Infrequently	24 MB

The climatological pressure grids consist of four binary files, each file corresponding to an hour of the day (0h, 6h, 12h and 18h) and each grid point of a file containing 12 values of climatological pressure (one for each month of the year). Each file consists of one header (one record) and of one data set (N records). The format of the header and of each record is described in the following tables.

Table 117 Climatological pressure grids – Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Name of the model or file origin	/	/
2	132	Character	Format (1)	/	/
3-10	132	Character	Spare	/	/
11	4	Integer	Number of parameters at each grid point (Nb_Par)	12	/
12	4	Integer	Record length (RL)	34656	bytes
13	4	Integer	Default value of the parameters (Def_Val)	0	/
14	4	Integer	Number of grid points in the longitude axis (Nb_lon)	720	/
15	4	Integer	Number of grid points in the latitude axis (Nb_Lat)	361	/
16	4	Integer	Spare	/	/
17	8	Real	Grid step in the longitude axis (Lon_Step)	0.5	degree
18	8	Real	First tabulated longitude value (Lon_First)	0	degree
19	8	Real	Last tabulated longitude value (Lon_Last)	359. 5	degree
20	8	Real	Grid step in the latitude axis (Lat_Step)	0.5	degree
21	8	Real	First tabulated latitude value (Lat_First)	- 90	degree
22	8	Real	Last tabulated latitude value (Lat_Last)	90	degree

(1) 'BIGE' + 128 blank characters for Big Endian, 'LITE' + 128 blank characters for Little Endian

Table 118 Climatological pressure grids - Data Block

Field Number	Type	Unit	Content
1	REAL (8 BYTES)	Pa	Climato. Surf. Press. on month 01 (Jan.) for Lat_First
2	REAL (8 BYTES)	Pa	Climato. Surf. Press. on month 02 (Febr.) for Lat_First
3	REAL (8 BYTES)	Pa	Climato. Surf. Press. on month 03 (Mar.) for Lat_First
4	REAL (8 BYTES)	Pa	Climato. Surf. Press. on month 04 (Apr.) for Lat_First
5	REAL (8 BYTES)	Pa	Climato. Surf. Press. on month 05 (May) for Lat_First
6	REAL (8 BYTES)	Pa	Climato. Surf. Press. on month 06 (Jun.) for Lat_First
7	REAL (8 BYTES)	Pa	Climato. Surf. Press. on month 07 (Jul.) for Lat_First
8	REAL (8 BYTES)	Pa	Climato. Surf. Press. on month 08 (Aug.) for Lat_First
9	REAL (8 BYTES)	Pa	Climato. Surf. Press. on month 09 (Sep.) for Lat_First
10	REAL (8 BYTES)	Pa	Climato. Surf. Press. on month 10 (Oct.) for Lat_First
11	REAL (8 BYTES)	Pa	Climato. Surf. Press. on month 11 (Nov.) for Lat_First
12	REAL (8 BYTES)	Pa	Climato. Surf. Press. on month 12 (REAL (4 BYTES)ec.) for Lat_First
13	REAL (8 BYTES)	Pa	Climato. Surf. Press. on month 01 (Jan.) for Lat_First + Lat_Step
…			
Nb_Par*Nb_Lat	REAL (8 BYTES)	Pa	Climato. Surf. Press. on month 12 (Dec.) fo Lat_First + (Nb_Lat – 1) * Lat_Step

8.3.24 S1 and S2 tide grids of monthly means of global amplitude

The S1 and S2 tide grids of monthly means of global amplitude consist of two binary files, one file for the S1 wave and the other for the S2 wave.

FILE Type	Update rate	Size
SR_2_S1AMAX	Infrequently	2.4 MB
SR_2_S2AMAX	Infrequently	2.4 MB

Each grid point of a file contains 12 values of amplitude (one for each month of the year). Each file consists of one header (one record) and of one data set (N records). The format of the header and of each record is described in the following tables.

Table 119 S1 and S2 tide grids of monthly means of global amplitude - Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Name of the model or file origin	/	/
2	132	Character	Format (1)	/	/
3-10	132	Character	Spare	/	/
11	4	Integer	Number of parameters at each grid point (Nb_Par)	12	/
12	4	Integer	Record length (RL)	7728	bytes
13	4	Integer	Default value of the parameters (Def_Val)	0	/
14	4	Integer	Number of grid points in the longitude axis (Nb_lon)	320	/
15	4	Integer	Number of grid points in the latitude axis (Nb_Lat)	161	/
16	4	Integer	Spare	/	/
17	8	Real	Grid step in the longitude axis (Lon_Step)	1.125	degree
18	8	Real	First tabulated longitude value (Lon_First)	0	degree
19	8	Real	Last tabulated longitude value (Lon_Last)	358.875	degree
20	8	Real	Grid step in the latitude axis (Lat_Step)	1.125	degree
21	8	Real	First tabulated latitude value (Lat_First)	-90	degree
22	8	Real	Last tabulated latitude value (Lat_Last)	90	degree

(1) ‘BIGE’ + 128 blank characters for Big Endian, ‘LITE’ + 128 blank characters for Little Endian

Table 120 S1 and S2 tide grids of monthly means of global amplitude - Data Block

Field Number	Type	Unit	Content
1	REAL (4 BYTES)	Pa	Amplitude on month 01 (Jan.) for Lat_First
2	REAL (4 BYTES)	Pa	Amplitude on month 02 (Febr.) for Lat_First
3	REAL (4 BYTES)	Pa	Amplitude on month 03 (Mar.) for Lat_First
4	REAL (4 BYTES)	Pa	Amplitude on month 04 (Apr.) for Lat_First
5	REAL (4 BYTES)	Pa	Amplitude on month 05 (May) for Lat_First
6	REAL (4 BYTES)	Pa	Amplitude on month 06 (Jun.) for Lat_First
7	REAL (4 BYTES)	Pa	Amplitude on month 07 (Jul.) for Lat_First
4	REAL (4 BYTES)	Pa	Amplitude on month 04 (Aug.) for Lat_First
9	REAL (4 BYTES)	Pa	Amplitude on month 09 (Sep.) for Lat_First
10	REAL (4 BYTES)	Pa	Amplitude on month 10 (Oct.) for Lat_First
11	REAL (4 BYTES)	Pa	Amplitude on month 11 (Nov.) for Lat_First
12	REAL (4 BYTES)	Pa	Amplitude on month 12 (Dec.) for Lat_First
13	REAL (4 BYTES)	Pa	Amplitude on month 01 (Jan.) for Lat_First + Lat_Step
…			
Nb_Par*Nb_Lat	REAL (4 BYTES)	Pa	Amplitude on month 12 (Dec.) fo Lat_First + (Nb_Lat – 1) * Lat_Step

8.3.25 S1 and S2 tide grids of monthly means of global phase

The S1 and S2 tide grids of monthly means of global phase consist of two binary files, one file for the S1 wave and the other for the S2 wave.

FILE Type	Update rate	Size
SR_2_S1PHAX	Infrequently	2.4 MB
SR_2_S2PHAX	Infrequently	2.4 MB

Each grid point of a file contains 12 values of phase (one for each month of the year). Each file consists of one header (one record) and of one data set (N records). The format of the header and of each record is described in the following tables.

Table 121 S1 and S2 tide grids of monthly means of global phase – Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Name of the model or file origin	/	/
2	132	Character	Format (1)	/	/
3-10	132	Character	Spare	/	/
11	4	Integer	Number of parameters at each grid point (Nb_Par)	12	/
12	4	Integer	Record length (RL)	7728	bytes
13	4	Integer	Default value of the parameters (Def_Val)	0	/
14	4	Integer	Number of grid points in the longitude axis (Nb_lon)	320	/
15	4	Integer	Number of grid points in the latitude axis (Nb_Lat)	161	/
16	4	Integer	Spare	/	/
17	8	Real	Grid step in the longitude axis (Lon_Step)	1.125	degree
18	8	Real	First tabulated longitude value (Lon_First)	0	degree
19	8	Real	Last tabulated longitude value (Lon_Last)	358.875	degree
20	8	Real	Grid step in the latitude axis (Lat_Step)	1.125	degree
21	8	Real	First tabulated latitude value (Lat_First)	-90	degree
22	8	Real	Last tabulated latitude value (Lat_Last)	90	degree

(1) 'BIGE' + 128 blank characters for Big Endian, 'LITE' + 128 blank characters for Little Endian

Table 122 S1 and S2 tide grids of monthly means of global phase - Data Block

Field Number	Type	Unit	Content
1	Real (4 bytes)	Degree	Phase on month 01 (Jan.) for Lat_First
2	Real (4 bytes)	Degree	Phase on month 02 (Febr.) for Lat_First
3	Real (4 bytes)	Degree	Phase on month 03 (Mar.) for Lat_First
4	Real (4 bytes)	Degree	Phase on month 04 (Apr.) for Lat_First
5	Real (4 bytes)	Degree	Phase on month 05 (May) for Lat_First
6	Real (4 bytes)	Degree	Phase on month 06 (Jun.) for Lat_First
7	Real (4 bytes)	Degree	Phase on month 07 (Jul.) for Lat_First
4	Real (4 bytes)	Degree	Phase on month 04 (Aug.) for Lat_First
9	Real (4 bytes)	Degree	Phase on month 09 (Sep.) for Lat_First
10	Real (4 bytes)	Degree	Phase on month 10 (Oct.) for Lat_First
11	Real (4 bytes)	Degree	Phase on month 11 (Nov.) for Lat_First
12	Real (4 bytes)	Degree	Phase on month 12 (Dec.) for Lat_First
13	Real (4 bytes)	Degree	Phase on month 01 (Jan.) for Lat_First + Lat_Step
…	Real (4 bytes)		
Nb_Degreer*Nb_Lat	Real (4 bytes)	Degree	Phase on month 12 (Dec.) fo Lat_First + (Nb_Lat – 1) * Lat_Step

8.3.26 Mean Dynamic Topography height map

The mean dynamic topography (MDT) file contains MDT and variance values. The model used for the processing is CNES/CLS 09.

FILE Type	Update rate	Size

SR_2_MDT_AX	Infrequently	8 MB

The mean dynamic topography (MDT) file is a binary file. It consists of one header (one record) and of one data set (N records). The format of the header and of each record is described in the following tables.

Table 123 Mean dynamic topography (MDT) file – Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Name of the model or file origin	/	/
2	132	Character	Format (1)	/	/
3-10	132	Character	Spare	/	/
11	4	Integer	Number of parameters at each grid point (Nb_Par)	1	/
12	4	Integer	Record length (RL)	5760	bytes
13	4	Integer	Default value of the parameters (Def_Val)	9999	/
14	4	Integer	Number of grid points in the longitude axis (Nb_lon)	1440	/
15	4	Integer	Number of grid points in the latitude axis (Nb_Lat)	720	/
16	4	Integer	Spare	/	/
17	8	Real	Grid step in the longitude axis (Lon_Step)	15	arcminute
18	8	Real	First tabulated longitude value (Lon_First)	7.5	arcminute
19	8	Real	Last tabulated longitude value (Lon_Last)	21592.5	arcminute
20	8	Real	Grid step in the latitude axis (Lat_Step)	15	arcminute
21	8	Real	First tabulated latitude value (Lat_First)	-5392.5	arcminute
22	8	Real	Last tabulated latitude value (Lat_Last)	5392.5	arcminute

(1) 'BIGE' + 128 blank characters for Big Endian, 'LITE' + 128 blank characters for Little Endian

Table 124 Mean dynamic topography (MDT) file - Data Block

Field Number	Type	Unit	Content
1	Real (4 bytes)	m	MDT and variance values for Lat_First
2	Real (4 bytes)	m	MDT and variance values for Lat_First + Lat_Step
...	Real (4 bytes)		
Nb_Lat	Real (4 bytes)	m	MDT and variance values for Lat_First + Lat_Step*(Nb_Lat-1)

8.3.27 Theoretical distance to shore

The theoretical distance to shore is provided on a grid.

FILE Type	Update rate	Size
SR_2_SHD_AX	Infrequently	64 MB

The distance to shore file is a netcdf file with a 1/16° resolution and whose content is given below:

Element name	Description	Range or value	T	D
NbLatitudes	**Number of Latitudes**	**2881**		
NbLongitudes	**Number of Longitudes**	**5760**		
GridDepth	**Grid Depth**	**1**		
LatLon		**2**		
< global attributes>	:FileType = "GRID_DOTS" ; :OriginalName = "DistanceTerre_1_16.nc" ; :CreatedBy = "sicard@px-104.ferme" ; :CreatedOn = "05-JAN-2004 15:04:49:000000" ; :title = "Distance Terre la plus proche (grille au 1/16 de degre)" ; :RayonEquatorial = 6378.137 ; :ParametreEllipsoide = 298.257223563 ;			
LatLon	**No sense but necessary for some automatic tools**		**sl**	**LatLon**
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	count		1
NbLatitudes	**Latitudes**		**D**	**NbLatitudes**
_FillValue	Default value for unused or not computed elements	1.84467440737096e+19		1
units	Unit name	degrees_north		1
NbLongitudes	**Longitudes**		**D**	**NbLongitudes**
_FillValue	Default value for unused or not computed elements	1.84467440737096e+19		1
units	Unit name	degrees_east		1
LatLonMin	**Latitude/Longitude of south/ouest corner**		**D**	**LatLon**
_FillValue	Default value for unused or not computed elements	1.84467440737096e+19		1
units	Unit name	degree		1
LatLonStep	**latitude/longitude steps**		**D**	**LatLon**
_FillValue	Default value for unused or not computed elements	1.84467440737096e+19		1
units	Unit name	degree		1
Grid_0001	**Distance**		**fl**	**NbLongitudes** **NbLatitudes**
_FillValue	Default value for unused or not computed elements	1.844674e+19f		1
units	Unit name	km		1

Table 125: Content of the Distance to the Shore auxiliary fil

8.3.28 SSB Correction Tables

The SSB Correction Tables, one for SAR mode and one for LRM mode, contain values of the Sea State Bias for the Ku band and C band. The format is identical for both modes.

FILE Type	Update rate	Size
SR_2_SSBLAX	Infrequently	36 kB
SR_2_SSBSAX	Infrequently	36 kB

The SSB Correction Table is a binary file. The format of the header and of each binary record is described in the following tables.

Table 126 SSB Correction Table File – Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Name of the file origin	/	/
2	132	Character	Format (1)	/	/
3-10	132	Character	Spare	/	/
11	4	Integer	Number of parameters at each grid point (Nb_Par)	2	/
12	4	Integer	Record length (RL)	808	bytes
13	4	Integer	Default value of the parameters (Def_Val)	0	/
14	4	Integer	Number of grid points in the SWH axis (Nb_SWH)	49	/
15	4	Integer	Number of grid points in the wind axis (Nb_Wind)	101	/
16	4	Integer	Spare	/	/
17	8	Real	Grid step in the SWH axis (SWH_Step)	0.25	m
18	8	Real	First tabulated SWH value (SWH_First)	0	m
19	8	Real	Last tabulated SWH value (SWH_Last)	12	m
20	8	Real	Grid step in the wind axis (Wind_Step)	0.25	m/s
21	8	Real	First tabulated wind value (Wind_First)	0	m/s
22	8	Real	Last tabulated wind value (Wind_Last)	25	m/s

(1) 'BIGE' + 128 blank characters for Big Endian, 'LITE' + 128 blank characters for Little Endian

Table 127 SSB Correction Table File - Data Block

Field Number	Type	Unit	Content
1	Real (4 bytes)	m	Ku-band sea state bias value for Wind_First
2	Real (4 bytes)	m	Auxiliary-band sea state bias value for Wind_First
3	Real (4 bytes)	m	Ku-band sea state bias value for Wind_First + Wind_Step
4	Real (4 bytes)	m	Auxiliary-band sea state bias value for Wind_First + Wind_Step
…			
Nb_Par * b_Wind-1	Real (4 bytes)	m	Ku-band sea state bias value for Wind_First +Wind_Step*(Nb_Wind-1)
Nb_Par * Nb_Wind	Real (4 bytes)	m	Auxiliary-band sea state bias value for Wind_First + Wind_Step*(Nb_Wind-1)

8.3.29 Snow depth climatology

The snow depth data is available from the National Snow and Ice Data Centre (http://nsidc.org/. This data has been further processed by UCL, from the period Jan 1994 to Dec 2002, to create 12 files containing gridded snow depth: one for each calendar month of the year.

FILE Type	Update rate	Size
SR_2_SD01AX	Infrequently	64 MB
SR_2_SD02AX	Infrequently	64 MB
SR_2_SD03AX	Infrequently	64 MB
SR_2_SD04AX	Infrequently	64 MB
SR_2_SD05AX	Infrequently	64 MB
SR_2_SD06AX	Infrequently	64 MB
SR_2_SD07AX	Infrequently	64 MB
SR_2_SD08AX	Infrequently	64 MB
SR_2_SD09AX	Infrequently	64 MB
SR_2_SD10AX	Infrequently	64 MB
SR_2_SD11AX	Infrequently	64 MB
SR_2_SD12AX	Infrequently	64 MB

The snow depth climatology (SDC) files are a binary file. Each data set record corresponds to one tabulated longitude value. The format of the header and of each record is described in the following tables.

Table 128 Snow depth climatology (SDC) file – Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Identity of the data contained within the model	"SDC"	/
2	132	Character	Name of the model or file origin	"UCL_04"	
3	132	Character	Format (1)	" "	/
4-10	132	Character	Spare	/	/
11	4	Integer	Number of parameters at each grid point (Nb_Par)	1	/
12	4	Integer	Record length (RL)	11524	bytes
13	4	Integer	Default value of the parameters (Def_Val)	0	/
14	4	Integer	Number of grid points in the longitude axis (Nb_lon)	5760	/
15	4	Integer	Number of grid points in the latitude axis (Nb_Lat)	2881	/
16	4	Integer	Spare	/	/
17	8	Real	Grid step in the longitude axis (Lon_Step)	0.0625	degrees
18	8	Real	First tabulated longitude value (Lon_First)	0.0	degrees
19	8	Real	Last tabulated longitude value (Lon_Last)	359.9375	degrees
20	8	Real	Grid step in the latitude axis (Lat_Step)	0.0625	degrees
21	8	Real	First tabulated latitude value (Lat_First)	-90.0	degrees
22	8	Real	Last tabulated latitude value (Lat_Last)	90.0	degrees

(1) 'BIGE' + 128 blank characters for Big Endian, 'LITE' + 128 blank characters for Little Endian

Table 129 Snow depth climatology (SDC) file - Data Block

Field Number	Type	Unit	Content
1	Real (4 bytes)	m	Ice concentration value for Lat_First
2	Real (4 bytes)	m	Ice concentration value for Lat_First + Lat_Step
…			
Nb_Lat	Real (4 bytes)	m	Ice concentration value for Lat_First + Lat_Step*(Nb_Lat-1)

8.3.30 Sea ice concentration climatology

The Sea Ice concentration file is derived from SSM/I daily brightness temperatures and there is one file per month. For every month from Jan 1994 to Dec 2002, a file of the median ice concentration for that month was calculated.

FILE Type	Update rate	Size
SR_2_SI01AX	Infrequently	64 MB
SR_2_SI02AX	Infrequently	64 MB
SR_2_SI03AX	Infrequently	64 MB
SR_2_SI04AX	Infrequently	64 MB
SR_2_SI05AX	Infrequently	64 MB
SR_2_SI06AX	Infrequently	64 MB
SR_2_SI07AX	Infrequently	64 MB
SR_2_SI08AX	Infrequently	64 MB
SR_2_SI09AX	Infrequently	64 MB
SR_2_SI10AX	Infrequently	64 MB
SR_2_SI11AX	Infrequently	64 MB
SR_2_SI12AX	Infrequently	64 MB

The sea-ice concentration (SIC) files are a binary file. It consists of one header (one record) and of one data set (N records). The format of the header and of each record is described in the following tables.

Table 130 Sea-ice concentration (SIC) file – Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Identity of the data contained within the model	“SIC”	/
2	132	Character	Name of the model or file origin	“UCL_04”	
3	132	Character	Format (1)	“ “	/
4-10	132	Character	Spare	/	/
11	4	Integer	Number of parameters at each grid point (Nb_Par)	1	/
12	4	Integer	Record length (RL)	11524	bytes
13	4	Integer	Default value of the parameters (Def_Val)	0	/
14	4	Integer	Number of grid points in the longitude axis (Nb_lon)	5760	/
15	4	Integer	Number of grid points in the latitude axis (Nb_Lat)	2881	/
16	4	Integer	Spare	/	/
17	8	Real	Grid step in the longitude axis (Lon_Step)	0.0625	degrees
18	8	Real	First tabulated longitude value (Lon_First)	0.0	degrees
19	8	Real	Last tabulated longitude value (Lon_Last)	359.9375	degrees
20	8	Real	Grid step in the latitude axis (Lat_Step)	0.0625	degrees
21	8	Real	First tabulated latitude value (Lat_First)	-90.0	degrees
22	8	Real	Last tabulated latitude value (Lat_Last)	90.0	degrees

(1) ‘BIGE’ + 128 blank characters for Big Endian, ‘LITE’ + 128 blank characters for Little Endian

Table 131 Sea-ice concentration (SIC) file - Data Block

Field Number	Type	Unit	Content
1	Real (4 bytes)	%	Ice concentration value for Lat_First
2	Real (4 bytes)	%	Ice concentration value for Lat_First + Lat_Step
…			
Nb_Lat	Real (4 bytes)	%	Ice concentration value for Lat_First + Lat_Step*(Nb_Lat-1)

8.3.31 Sea surface temperature seasonal tables

The SST tables correspond to seasonal grids covering -60° to 60° range in latitude and 0° to 358° range in longitude, with 2° of resolution.

FILE Type	Update rate	Size
SR_2_SST_AX	Infrequently	175 kB

The file containing the SST for the 4 seasons is a binary file. It consists of one header (one record) and of one data set (N records). The format of the header and of each record is described in the following tables.

Table 132 Sea surface temperature seasonal table – Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Name of the model or file origin	/	/
2	132	Character	Format (1)	/	/
3-10	132	Character	Spare	/	/
11	4	Integer	Number of parameters at each grid point (Nb_Par)	4	/
12	4	Integer	Record length (RL)		bytes
13	4	Integer	Default value of the parameters (Def_Val)	231-1	/
14	4	Integer	Number of grid points in the longitude axis (Nb_Lon)		/
15	4	Integer	Number of grid points in the latitude axis (Nb_Lat)		/
16	4	Integer	Spare	/	/
17	8	Real	Grid step in the longitude axis (Lon_Step)	2	degree
18	8	Real	First tabulated longitude value (Lon_First)	0	degree
19	8	Real	Last tabulated longitude value (Lon_Last)	358	degree
20	8	Real	Grid step in the latitude axis (Lat_Step)	2	degree
21	8	Real	First tabulated latitude value (Lat_First)	- 60	degree
22	8	Real	Last tabulated latitude value (Lat_Last)	60	degree
23	2	Integer	Day in the Year of the beginning of winter season		
24	2	Integer	Day in the Year of the beginning of spring season		
25	2	Integer	Day in the Year of the beginning of summer season		
26	2	Integer	Day in the Year of the beginning of fall season		

(1) ‘BIGE’ + 128 blank characters for Big Endian, ‘LITE’ + 128 blank characters for Little Endian

Table 133 Sea surface temperature seasonal table - Data Block

Field Number	Type	Unit	Content
1	Real (4 bytes)	K	SST winter for Lat_First
2	Real (4 bytes)	K	SST spring for Lat_First
3	Real (4 bytes)	K	SST summer for Lat_First
4	Real (4 bytes)	K	SST fall for Lat_First
5	Real (4 bytes)	K	SST winter for Lat_First+Lat_Step
…			
Nb_Par*Nb_Lat	Real (4 bytes)	K	SST fall for Lat_First + (Nb_Lat – 1) * Lat_Step

8.3.32 Lapse rate climatology table

The lapse rate climatology table covers the -60° to 60° range in latitude and 0° to 360° range in longitude, with 1° of resolution. The Gama parameter (unit is K/km) is computed through a linear fit of the temperature decrease rate with altitude (between surface and 800 mb level) from 3D ECMWF fields.

FILE Type	Update rate	Size
SR_2_LRC_AX	Infrequently	172 kB

The file containing the Gamma parameter is a binary file. It consists of one header (one record) and of one data set (N records). The format of the header and of each record is described in the following tables.

Table 134 Lapse rate climatology table – Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Name of the model or file origin	/	/
2	132	Character	Format (1)	/	/
3-10	132	Character	Spare	/	/
11	4	Integer	Number of parameters at each grid point (Nb_Par)	1	/
12	4	Integer	Record length (RL)		bytes
13	4	Integer	Default value of the parameters (Def_Val)	231-1	/
14	4	Integer	Number of grid points in the longitude axis (Nb_Lon)		/
15	4	Integer	Number of grid points in the latitude axis (Nb_Lat)		/
16	4	Integer	Spare	/	/
17	8	Real	Grid step in the longitude axis (Lon_Step)	1	degree
18	8	Real	First tabulated longitude value (Lon_First)	0	degree
19	8	Real	Last tabulated longitude value (Lon_Last)	359	degree
20	8	Real	Grid step in the latitude axis (Lat_Step)	1	degree
21	8	Real	First tabulated latitude value (Lat_First)	- 60	degree
22	8	Real	Last tabulated latitude value (Lat_Last)	60	degree

(1) 'BIGE' + 128 blank characters for Big Endian, 'LITE' + 128 blank characters for Little Endian

Table 135 Lapse rate climatology table - Data Block

Field Number	Type	Unit	Content
1	Real (4 bytes)	K/km	Gamma for Lat_First
2	Real (4 bytes)	K/km	Gamma for Lat_First+Lat_Step
…			
Nb_Par*Nb_Lat	Real (4 bytes)	K/km	Gamma for Lat_First + (Nb_Lat – 1) * Lat_Step

8.3.33 Seasonal freezing level table

The seasonal freezing level table covers the -70° to 70° range in latitude, with 2.5° of resolution and 0° to 360° range in longitude, with 5° of resolution. The freezing level parameter (unit is Km) is computed from monthly tables provided by IFREMER (Tournadre).

FILE Type	Update rate	Size
SR_2_SFL_AX	Infrequently	68 kB

The file containing the seasonal freezing level for the 4 seasons is a binary file. It consists of one header (one record) and of one data set (N records). Each grid point has 4 values corresponding respectively to the following periods: October-December, January-March, April-

June, July-September. Each data set record corresponds to one tabulated longitude value. The format of the header and of each record is described in the following tables.

Table 136 Seasonal freezing level table – Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Name of the model or file origin	/	/
2	132	Character	Format (1)	/	/
3-10	132	Character	Spare	/	/
11	4	Integer	Number of parameters at each grid point (Nb_Par)	4	/
12	4	Integer	Record length (RL)	912	bytes
13	4	Integer	Default value of the parameters (Def_Val)	231-1	/
14	4	Integer	Number of grid points in the longitude axis (Nb_Lon)	73	/
15	4	Integer	Number of grid points in the latitude axis (Nb_Lat)	57	/
16	4	Integer	Spare	/	/
17	8	Real	Grid step in the longitude axis (Lon_Step)	5	degree
18	8	Real	First tabulated longitude value (Lon_First)	0	degree
19	8	Real	Last tabulated longitude value (Lon_Last)	360	degree
20	8	Real	Grid step in the latitude axis (Lat_Step)	2.5	degree
21	8	Real	First tabulated latitude value (Lat_First)	-70	degree
22	8	Real	Last tabulated latitude value (Lat_Last)	70	degree

(1) 'BIGE' + 128 blank characters for Big Endian, 'LITE' + 128 blank characters for Little Endian

Table 137 Seasonal freezing level table - Data Block

Field Number	Type	Unit	Content
1	Real (4 bytes)	km	Freezing level winter for Lat_First
2	Real (4 bytes)	km	Freezing level spring for Lat_First
3	Real (4 bytes)	Km	Freezing level summer for Lat_First
4	Real (4 bytes)	Km	Freezing level fall for Lat_First
5	Real (4 bytes)	Km	Freezing level winter for Lat_First+Lat_Step
…			
Nb_Par*Nb_Lat	Real (4 bytes)	km	Freezing level fall for Lat_First + (Nb_Lat – 1) * Lat_Step

8.3.34 Freezing level table

The freezing level table has a dependency on both brightness temperatures: it covers the 140K to 280K range in 23.8GHz brightness temperature and the 130K to 280K range in 36.5GHz brightness temperature (hereafter called TB36), with a step of 1K in both cases. The freezing level parameter is provided by IFREMER (Tournadre).

FILE Type	Update rate	Size
SR_2_FLT_AX	Infrequently	88 kB

The file containing the freezing level table is a binary file. It consists of one header (one record) and of one data set (N records). Each data set record corresponds to one tabulated brightness temperature (TB36). The format of the header and of each record is described in the following tables.

Table 138 Freezing level table – Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Name of the model or file origin	/	/
2	132	Character	Format (1)	/	/
3-10	132	Character	Spare	/	/
11	4	Integer	Number of parameters at each grid point (Nb_Par)	1	/
12	4	Integer	Record length (RL)	604	bytes
13	4	Integer	Default value of the parameters (Def_Val)	231-1	/
14	4	Integer	Number of grid points in the TB23 axis (Nb_TB23)	141	/
15	4	Integer	Number of grid points in the TB36 axis (Nb_TB36)	151	/
16	4	Integer	Spare	/	/
17	8	Real	Grid step in the TB23 axis (TB23_Step)	1	Km
18	8	Real	First tabulated TB23 value (TB23_First)	140	Km
19	8	Real	Last tabulated TB23 value (TB23_Last)	280	Km
20	8	Real	Grid step in the TB36 axis (TB36_Step)	1	Km
21	8	Real	First tabulated TB36 value (TB36_First)	130	Km
22	8	Real	Last tabulated TB36 value (TB36_Last)	280	Km

(1) 'BIGE' + 128 blank characters for Big Endian, 'LITE' + 128 blank characters for Little Endian

Table 139 Freezing level table - Data Block

Field Number	Type	Unit	Content
1	Real (4 bytes)	km	Freezing level value for TB36_First
2	Real (4 bytes)	km	Freezing level value for TB36_First + TB36_Step
…			
Nb_Par*Nb_Lat	Real (4 bytes)	km	Freezing level value for TB36_First + TB36_Step*(Nb_TB36-1)

8.3.35 Rain rate correction level table

The rain rate correction table is a function of the rain rate. The rain rate correction parameter is provided by IFREMER (Tournadre).

FILE Type	Update rate	Size
SR_2_RRC_AX	Infrequently	16 kB

The file is a binary file. It consists of one header (one record) and of one data set (N records). The format of the header and of each record is described in the following tables.

Table 140 Rain rate correction table – Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Name of the model or file origin	/	/
2	132	Character	Format (1)	/	/
3-10	132	Character	Spare	/	/
11	4	Integer	Number of parameters at each table point (Nb_Par)	1	/
12	4	Integer	Record length (RL)	12000	bytes
13	4	Integer	Default value of the parameters (Def_Val)	231-1	/
14	4	Integer	Number of table points (Nb_RainRate)	3000	/
15	8	Real	Grid step in RainRate (RainRate_Step)	0.01	mm/h
16	8	Real	First tabulated RainRate value (RainRate_First)	0.01	mm/h
17	8	Real	Last tabulated RainRate value (RainRate_Last)	30	mm/h

(1) 'BIGE' + 128 blank characters for Big Endian, 'LITE' + 128 blank characters for Little Endian

Table 141 Rain rate correction table - Data Block

Field number	Type	Unit	Content
1	Real (4 bytes)	mm/h	Rain rate correction value for RainRate_First
2	Real (4 bytes)	mm/h	Rain rate correction value for RainRate_First + RainRate_Step
…			
NbRainRate	Real (4 bytes)	mm/h	Rain rate correction value for RainRate_First + RainRate_Step *(Nb_RainRate -1)

8.3.36 Coastal configuration type

The coastal configuration type file provides information about the geographical situation of a given point, taking into account the surrounding area.

FILE Type	Update rate	Size
SR_2_CCT_AX	Infrequently	1.6 GB

The coastal configuration type file is a netcdf file whose content is given below:

Element name	Description	Range or value	T	D
Tracks	**Number of Tracks**			
Cycles		**1**		
Data	**Total number of measurements**			
< global attributes>	:FileType = "ALONG_TRACK_PRODUCT" ; :OriginalName = "CoastalConfigurationAlongTheoricalTrack_S3.nc" ; :title = "Coastal configuration type" ; :Mission = "S3" ;			
Tracks	**Pass number**		**sl**	**Tracks**
_FillValue	Default value for unused or not computed elements	-1		1
units	Unit name	count		1
NbPoints	**Number of measurements for each pass**		**sl**	**Tracks**
_FillValue	Default value for unused or not computed elements	0		1
units	Unit name	count		1
Longitudes	**Longitude of each measurement**		**sl**	**Data**
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	degrees_east		1
scale_factor	The data must be multiplied by this factor after reading	1.e-06		1
Latitudes	**Latitude of each measurement**		**sl**	**Data**
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	degrees_north		1
scale_factor	The data must be multiplied by this factor after reading	1.e-06		1
CoastalMask	**coastal mask : 0=ocean / 1=little hole / 2=big hole / 3=transition / 4=coastal path / 5=continental mass**		**sc**	**Data Cycles**
_FillValue	Default value for unused or not computed elements	127b		1
units	Unit name	count		1
valid_range	Valid ranges for the values	0b, 5b		

Table 142: Content of the Coastal Configuration auxiliary file

8.3.37 Surface classification mask

The surface classification mask is a combination of GlobCover and MODIS data and classifies points on the Earth Surface using a 7-states flag.

FILE Type	Update rate	Size
SR_2_SURFAX	Infrequently	890 MB

The surface classification mask file consists of a single file, containing one Header (one record) and one Datablock section. The data block format is binary and it consists of a list of records, where each record corresponds to one tabulated longitude value.

The surface classification mask values are the following:

- 0 = "open ocean"
- 1 = "land"
- 2 = "continental waters"
- 3 = "aquatic vegetation"
- 4 = "continental ice and snow"
- 5 = "floating ice"
- 6 = "salted basin"

The format of the header and of each record is described in the following tables.

Table 143 Surface classification mask – Header content

Field number	Number of bytes	Type	Content	Nominal value	Unit
1	132	Character	Name of the model or file origin	/	/
2	132	Character	Format (1)	/	/
3-10	132	Character	Spare	/	/
11	4	Integer	Number of parameters at each grid point (Nb_Par)	1	/
12	4	Integer	Record length (RL)	86400	bytes
13	4	Integer	Default value of the parameters (Def_Val)	0	/
14	4	Integer	Number of grid points in the longitude axis (Nb_lon)	43200	/
15	4	Integer	Number of grid points in the latitude axis (Nb_Lat)	21600	/
16	4	Integer	Spare	/	/
17	8	Real	Grid step in the longitude axis (Lon_Step)	0.5	minutes
18	8	Real	First tabulated longitude value (Lon_First)	-10799.75	minutes
19	8	Real	Last tabulated longitude value (Lon_Last)	10799.75	minutes
20	8	Real	Grid step in the latitude axis (Lat_Step)	0.5	minutes
21	8	Real	First tabulated latitude value (Lat_First)	-5399.75	minutes
22	8	Real	Last tabulated latitude value (Lat_Last)	5399.75	minutes

(1) 'BIGE' + 128 blank characters for Big Endian, 'LITE' + 128 blank characters for Little Endian

Table 144 Surface classification mask - Data Block

Field number	Number of bytes	Type	Content	Unit
1	1	Integer	Surface classification value for Lat_First	/
2	1	Integer	Surface classification value for Lat_First + Lat_Step	/
…	…	…	…	…
Nb_Lat	1	Integer	Surface classification value for Lat_First + Lat_Step*(Nb_Lat-1)	/

8.3.38 Default stack weights

The default stack weights' file contains the Doppler weights to be applied in the multi-looking stage for the Ocean SAR waveforms' retracking (SAMOSA).

FILE Type	Update rate	Size
SR_2_RET_AX	Infrequently	360 kB

The Default Stack weights are provided as ASCII File. The file has 300 records corresponding to each possible Neff (number of effective looks) value. Each record will be composed of Neff values. Each value (Doppler weight) is represented by a float always > 0.0 and < 1.0 with 4 significant digits (e.g. F6.4 for "0.1234").

8.3.39 Look-up Tables for the SAMOSA retracking

8.3.39.1 Look-up Table for the f0 function

The look-up table for the f0 function provides input values to compute the theoretical model of the single-look waveform.

FILE Type	Update rate	Size
SR_2_LUTFAX	Infrequently	4.6 MB

The look-up table for the f0 function is provided as an ASCII File.

The first line of the file contains a hash sign ("#") followed by the number of elements (NElems_f0) provided as an integer value. The file has (NElems_f0 + 1) lines.

Starting from the second line of the file, there are two columns in the file separated by a tab character:

- The first column is the abscissa of the table (LUT_F0_X), provided as real values
- The second column is the ordinate of the table (LUT_F0_Y), provided as real values

The grid step of LUT_F0_X is fixed within the same file.

8.3.39.2 Look-up Table for the Epoch parameter

The look-up table for the Epoch parameter enables to compensate the PTR approximation with a squared Gaussian function.

FILE Type	Update rate	Size
SR_2_LUTEAX	Infrequently	170 kB

The look-up table for the epoch parameter is provided as an ASCII File.

The first line of the file contains a hash sign (“#”) followed by the number of elements (NElems_Epoch) provided as an integer value. The file has (NElems_Epoch + 1) lines.

Starting from the second line of the file, there are two columns in the file separated by a tab character:

- The first column is the abscissa of the table (LUT_Epoch_X), provided as real values
- The second column is the ordinate of the table (LUT_Epoch_Y), provided as real values

The grid step of LUT_Epoch_X is fixed within the same file.

8.3.39.3 Look-up Table for the SWH parameter

The look-up table for the SWH parameter enables to compensate the PTR approximation with a squared Gaussian function.

FILE Type	Update rate	Size
SR_2_LUTSAX	Infrequently	170 kB

The look-up table for the SWH parameter is provided as an ASCII File.

The first line of the file contains a hash sign (“#”) followed by the number of elements (NElems_SWH) provided as an integer value. The file has (NElems_SWH + 1) lines.

Starting from the second line of the file, there are two columns in the file separated by a tab character:

- The first column is the abscissa of the table (LUT_SWH_X), provided as real values
- The second column is the ordinate of the table (LUT_SWH_Y), provided as real values

The grid step of LUT_SWH_X is fixed within the same file.

8.3.40 Marine/Land mask

The Marine/Land mask contains the geographical information that enables to build a Marine or a Land product.

FILE Type	Update rate	Size
SR_2_MLM_AX	Infrequently	10 MB

The Marine/Land mask consists of one netcdf file whose format is described in the table below.

.

Table 145 Marine/Land mask

Element name	Description	Range or value	T	D
<global attributes>	:Conventions = "CF-1.x" ; :title = "SENTINEL-3 Marine Land Mask for STM products" ; :institution = "[TBD institution]" ; :source = "[TBD source]" ; :history = "YYYY-MM-DD HH:MM:SS : Created by TBD" ; :contact = "[TBD Contact]" ; :reference = "[TBD Reference]" ;			
longitude	**Number of longitude points**	**4320**		
latitutde	**Number of latitude points**	**2160**		
longitude	**Longitude**	**[0 , 360 [**	**sl**	**longitude**
units	degrees_east	degrees_east	S	1
scale_factor	The data must be multiplied by this factor after reading	0.000001	fl	1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.0	fl	1
comment	East longitude relative to Greenwhich meridian		S	1
latitude	**Latitude**	**[-90, 90]**	**sl**	**latitude**
units	degrees_north	degrees_north	S	1
scale_factor	The data must be multiplied by this factor after reading	0.000001	fl	1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.0	fl	1
comment	Positive latitude is North latitude, negative latitude is South latitude		S	1
marine_land_mask	**Sentinel-3 Marine Land Mask for the split of Level 2 STM products**	**[0 , 2]**	**sc**	**Latitude longitude**

Element name	Description	Range or value	T	D
flag_values	Possible flag values	0, 1, 2	sc	1
flag_meanings	Flag meanings	marine, land, overlap	S	1
_FillValue	Default value for unused elements	127b	sc	1
comment	The overlap covers XX km on sea and YY km on land.		S	1

9. MWR AUXILIARY DATA FILES

The following sections describe the Auxiliary data files used by the MWR Processing chains.

9.1 Orbit File

The orbit files used for the MWR processing are the same as the ones used for the SRAL processing.

The description of these files can be found in sections 8.1.1 (NRT GNSS),,8.1.2 STC Preliminary Orbit File from POD),8.1.3 (STC Preliminary Orbit File from SALP), 8.1.4 (NTC Precise Orbit File from POD) and 8.1.5 (NTC Precise Orbit File from SALP).

9.2 Side Lobe Correction File

The Side lobe correction file contains different temperatures (sky, sun, earth) contributing to the antenna temperature that should be removed to retrieve the brightness temperature in the main lobe.

The on-Earth brightness temperatures of the side lobe tables are the same used in the Envisat processing and have been computed using 1 year of ERS-2 brightness temperatures.

The on-Earth side lobe brightness temperature is given for the two channels and four pre-defined

period of the year among the following: March-June, June-September, September-December and December-March. The Earth temperature at antenna plane is a median value of the Earth brightness temperature for each channel.

The following sections describe the product structure of the file.

FILE Type	Update rate	Size
MW_1_SLC_AX	Infrequently	3.6 MB

The side lobe correction file consists in one NetCDF file containing the following parameters:

- Temperature of the sky for both channels
- Temperature of the sun for both channels
- Temperature of the Earth at antenna plane for both channels
- Brightness Temperature of the on-Earth side lobe for both channels and four periods

The content of the side lobe correction file is presented in the following table:

Element name	Description	Range or value	T	D
NbLat	**Number of tabulated latitudes**			
NbLon	**Number of tabulated longitudes**			
NbChannels	**Number of channels**	**2**		
< Specific global attributes>	None			
Start_D_MarJun	**First Day of March-June period**		**sl**	**1**
units	Unit name	/		1
Start_M_MarJun	**First Month of March-June period**		**sl**	**1**
units	Unit name	/		1
Start_D_JunSep	**First Day of June-September period**		**sl**	**1**
units	Unit name	/		1
Start_M_JunSep	**First Month of June-September period**		**sl**	**1**
units	Unit name	/		1
Start_D_SepDec	**First Day of September-December period**		**sl**	**1**
units	Unit name	/		1
Start_M_SepDec	**First Month of September-December period**		**sl**	**1**
units	Unit name	/		1
Start_D_DecMar	**First Day of December–March period**		**sl**	**1**
units	Unit name	/		1
Start_M_DecMar	**First Month of December-March period**		**sl**	**1**
units	Unit name	/		1
Tsun	**Sun temperature for the two channels**		**D**	**NbChannels**
units	Unit name	K		1
Tsky	**Sky temperature for the two channels**		**D**	**NbChannels**
units	Unit name	K		1
Te	**Earth temperature at antenna plane for the two channels**		**D**	**NbChannels**
units	Unit name	K		1
LatStep	**Step in latitude axis**		**D**	**1**

units	Unit name	degrees		1
LonStep	**Step in longitude axis**		**D**	**1**
units	Unit name	degrees		1
Latitude	**Latitudes**		**D**	**NbLat**
units	Unit name	degrees		1
Longitude	**Longitudes**		**D**	**NbLon**
units	Unit name	degrees		1
SLTB_23_SPRING	**on-Earth brightness temperature at 23.8 GHz during spring**		**D**	**NbLat NbLon**
units	Unit name	K		1
SLTB_36_SPRING	**on-Earth brightness temperature at 36.5 GHz during spring**		**D**	**NbLat NbLon**
units	Unit name	K		1
SLTB_23_SUMMER	**on-Earth brightness temperature at 23.8 GHz during summer**		**D**	**NbLat NbLon**
units	Unit name	K		1
SLTB_36_SUMMER	**on-Earth brightness temperature at 36.5 GHz during summer**		**D**	**NbLat NbLon**
units	Unit name	K		1
SLTB_23_FALL	**on-Earth brightness temperature at 23.8 GHz during fall**		**D**	**NbLat NbLon**
units	Unit name	K		1
SLTB_36_FALL	**on-Earth brightness temperature at 36.5 GHz during fall**		**D**	**NbLat NbLon**
units	Unit name	K		1
SLTB_23_WINTER	**on-Earth brightness temperature at 23.8 GHz during winter**		**D**	**NbLat NbLon**
units	Unit name	K		1
SLTB_36_WINTER	**on-Earth brightness temperature at 36.5 GHz during winter**		**D**	**NbLat NbLon**
units	Unit name	K		1

Table 146: Content of the Side Libe Correction auxiliary file

9.3 Characterization and Calibration Data (MWR CCDB)

The MWR characterization and calibration parameters (MWR CCDB) will be provided into 2 files: one file for the nominal path and one file for the redundant path. The format of both files is identical.

FILE Type	Update rate	Size
MW___CHDNAX	Infrequently	1.1 MB
MW___CHDRAX	Infrequently	1.1 MB

The MWR characterization and calibration data base is a NetCDF file whose content is presented in the table below:

Element name	Description	Range or value	T	D
antenna_loss				
type_mwr_characterised_antenna_loss	**channel_number ; loss ; temperature ;**		**ss fl fl**	
dim_mwr_characterised_antenna_rows		**6**		
mwr_characterised_antenna_loss_measurement_date	**mwr_characterised_antenna_loss_measurement_date**		**S**	**1**
La	**mwr_antenna_reflector_loss Antenna reflector loss for 2 channels and 3 temperatures. The 23.8 GHz channel number is 1 and the 36.5 GHz channel number is 2.**		**type_mwr_characterised_antenna_lossl**	**dim_mwr_characterised_antenna_rows**
units	UDUNITS unit name	(none;dB;ºC)	S	1
valid_min	Minimum valid value for the variable	{1, 0, -80}	{ss,fl,fl}	1
valid_max	Maximum valid value for the variable	{2, 0.1, 100}	{ss,fl,fl}	1
accuracy	Accuracy of the variable	{0, 0.01, 0}	{ss,fl,fl}	1
Lf	**mwr_antenna_feed_loss Antenna feed loss for 2 channels and 3 temperatures. The 23.8 GHz channel number is 1 and the 36.5 GHz channel number is 2.**		**type_mwr_characterised_antenna_lossl**	**dim_mwr_characterised_antenna_rows**
units	UDUNITS unit name	(none;dB;ºC)	S	1
valid_min	Minimum valid value for the variable	{1, 0, -80}	{ss,fl,fl}	1
valid_max	Maximum valid value for the variable	{2, 0.15, 100}	{ss,fl,fl}	1
accuracy	Accuracy of the variable	{0, 0.02, 0}	{ss,fl,fl}	1
Lw	**mwr_antenna_waveguide_loss Antenna waveguide loss for 2 channels and 3 temperatures. The 23.8 GHz channel number is 1 and the 36.5 GHz channel number is 2.**		**type_mwr_characterised_antenna_lossl**	**dim_mwr_characterised_antenna_rows**

Element name	Description	Range or value	T	D
units	UDUNITS unit name	(none;dB;ºC)	S	1
valid_min	Minimum valid value for the variable	{1, 0, -10}	{ss,fl,fl}	1
valid_max	Maximum valid value for the variable	{2, 0.3, 40}	{ss,fl,fl}	1
accuracy	Accuracy of the variable	{0, 0.05, 0}	{ss,fl,fl}	1
Lsh	**mwr_sky_horn_loss** **Sky horn loss for 2 channels and 3 temperatures.** **The 23.8 GHz channel number is 1 and the 36.5 GHz channel number is 2.**		**type_mwr_characterised_antenna_lossl**	**dim_mwr_characterised_antenna_rows**
units	UDUNITS unit name	(none;dB;ºC)	S	1
valid_min	Minimum valid value for the variable	{1, 0, -80}	{ss,fl,fl}	1
valid_max	Maximum valid value for the variable	{2, 0.1, 100}	{ss,fl,fl}	1
accuracy	Accuracy of the variable	{0, 0.01, 0}	{ss,fl,fl}	1
Ld	**mwr_diplexer_loss** **Diplexer loss for 2 channels and 3 temperatures.** **The 23.8 GHz channel number is 1 and the 36.5 GHz channel number is 2.**		**type_mwr_characterised_antenna_lossl**	**dim_mwr_characterised_antenna_rows**
units	UDUNITS unit name	(none;dB;ºC)	S	1
valid_min	Minimum valid value for the variable	{1, 0, -10}	{ss,fl,fl}	1
valid_max	Maximum valid value for the variable	{2, 0.5, 40}	{ss,fl,fl}	1
accuracy	Accuracy of the variable	{0, 0.04, 0}	{ss,fl,fl}	1
Lws	**mwr_sky_horn_waveguide_loss** **Sky horn waveguide loss for 2 channels and 3 temperatures.** **The 23.8 GHz channel number is 1 and the 36.5 GHz channel number is 2.**		**type_mwr_characterised_antenna_lossl**	**dim_mwr_characterised_antenna_rows**
units	UDUNITS unit name	(none;dB;ºC)	S	1
valid_min	Minimum valid value for the variable	{1, 0, -10}	{ss,fl,fl}	1

Element name	Description	Range or value	T	D
valid_max	Maximum valid value for the variable	{2, 1, 40}	{ss,fl,fl}	1
accuracy	Accuracy of the variable	{0, 0.05, 0}	{ss,fl,fl}	1
wg_temp_weights				
type_mwr_wg_temp_weights	**channel_number ; weight;**		**ss fl**	
dim_mwr_wg_temp_weights		**2**		
w_a	**Main antenna waveguide temperature weight for channels 1 and 2.**		**type_mwr_wg_temp_weights**	**dim_mwr_wg_temp_weights**
units	UDUNITS unit name	(none;none)	S	1
valid_min	Minimum valid value for the variable	{1, 0}	{ss,fl}	1
valid_max	Maximum valid value for the variable	{2, 2}	{ss,fl}	1
accuracy	Accuracy of the variable	{0, 0.01}	{ss,fl}	1
w_s	**Calibration antenna waveguide temperature weight for channels 1 and 2.**		**type_mwr_wg_temp_weights**	**dim_mwr_wg_temp_weights**
units	UDUNITS unit name	(none;none)	S	1
valid_min	Minimum valid value for the variable	{1, 0}	{ss,fl}	1
valid_max	Maximum valid value for the variable	{2, 2}	{ss,fl}	1
accuracy	Accuracy of the variable	{0, 0.01}	{ss,fl}	1
antenna_efficiency				
type_mwr_antenna_efficiency	**channel_number ; efficiency;**		**ss fl**	
dim_mwr_antenna_efficiency		**2**		

Element name	Description	Range or value	T	D
hml	**mwr_beam_efficiency** **Main antenna beam efficiency corresponding to 2.5HPBW for channels 1 and 2.**		**type_mwr_antenna_efficiency**	**dim_mwr_antenna_efficiency**
units	UDUNITS unit name	(none;none)	S	1
valid_min	Minimum valid value for the variable	{1, 0.9}	{ss,fl}	1
valid_max	Maximum valid value for the variable	{2, 1}	{ss,fl}	1
accuracy	Accuracy of the variable	{0, 0.001}	{ss,fl}	1
hearth	**mwr_earth_efficiency** **Efficiency of side lobes aiming to the Earth surface (out of 2.5HPBW) for channels 1 and 2.**		**type_mwr_antenna_efficiency**	**dim_mwr_antenna_efficiency**
units	UDUNITS unit name	(none;none)	S	1
valid_min	Minimum valid value for the variable	{1, 0}	{ss,fl}	1
valid_max	Maximum valid value for the variable	{2, 0.1}	{ss,fl}	1
accuracy	Accuracy of the variable	{0, 0.001}	{ss,fl}	1
hsky	**mwr_sky_efficiency** **Efficiency of side lobes aiming to the sky for channels 1 and 2.**		**type_mwr_antenna_efficiency**	**dim_mwr_antenna_efficiency**
units	UDUNITS unit name	(none;none)	S	1
valid_min	Minimum valid value for the variable	{1, 0}	{ss,fl}	1
valid_max	Maximum valid value for the variable	{2, 0.1}	{ss,fl}	1
accuracy	Accuracy of the variable	{0, 0.001}	{ss,fl}	1
hsun	**mwr_sun_efficiency** **Efficiency of side lobes aiming to the Sun for channels 1 and 2.**		**type_mwr_antenna_efficiency**	**dim_mwr_antenna_efficiency**
units	UDUNITS unit name	(none;none)	S	1

Element name	Description	Range or value	T	D
valid_min	Minimum valid value for the variable	{1, 0}	{ss,fl}	1
valid_max	Maximum valid value for the variable	{2, 0.1}	{ss,fl}	1
accuracy	Accuracy of the variable	{0, 0.001}	{ss,fl}	1
hsat	**mwr_satellite_efficiency** **Efficiency of side lobes aiming to the satellite for channels 1 and 2.**		**type_mwr_antenna_efficiency**	**dim_mwr_antenna_efficiency**
units	UDUNITS unit name	(none;none)	S	1
valid_min	Minimum valid value for the variable	{1, 0}	{ss,fl}	1
valid_max	Maximum valid value for the variable	{2, 0.1}	{ss,fl}	1
accuracy	Accuracy of the variable	{0, 0.001}	{ss,fl}	1
hsml	**mwr_sky_horn_main_efficiency** **Efficiency of the main beam for the sky horn (+/- 40º), for channels 1 and 2.** **Note: Not used in current processing code**		**type_mwr_antenna_efficiency**	**dim_mwr_antenna_efficiency**
units	UDUNITS unit name	(none;none)	S	1
valid_min	Minimum valid value for the variable	{1, 0.9}	{ss,fl}	1
valid_max	Maximum valid value for the variable	{2, 1}	{ss,fl}	1
accuracy	Accuracy of the variable	{0, 0.001}	{ss,fl}	1
antenna_pointing				
type_mwr_antenna_pointing	**channel_number ;** **pointing;**		**ss** **fl**	
dim_mwr_antenna_pointing		**2**		
theta_a	**Main antenna beam pointing in along-track direction for channels 1 and 2**		**type_mwr_antenna_pointing**	**dim_mwr_antenna_pointing**

Element name	Description	Range or value	T	D
units	UDUNITS unit name	(none;º)	S	1
valid_min	Minimum valid value for the variable	{1, -2.5}	{ss,fl}	1
valid_max	Maximum valid value for the variable	{2, 2.5}	{ss,fl}	1
accuracy	Accuracy of the variable	{0, 0.06}	{ss,fl}	1
theta_x	**Main antenna beam pointing in across-track direction for channels 1 and 2**		**type_mwr_antenna_pointing**	**dim_mwr_antenna_pointing**
units	UDUNITS unit name	(none;º)	S	1
valid_min	Minimum valid value for the variable	{1, -2.5}	{ss,fl}	1
valid_max	Maximum valid value for the variable	{2, 2.5}	{ss,fl}	1
accuracy	Accuracy of the variable	{0, 0.06}	{ss,fl}	1
RFFE_parameters				
type_mwr_characterised_RFFE	**channel_number ; rffe_parameter; temperature;**		**ss fl fl**	
dim_mwr_rffe_characterised_rows		**6**		
mwr_characterised_rffe_measurement_date			**S**	
aa	**Main antenna transmission coefficient for 2 channels and 3 temperatures. 1: 23.8 GHz channel nominal section 2: 36.5 GHz channel nominal section**		**type_mwr_characterised_RFFE**	**dim_mwr_rffe_characterised_rows**
units	UDUNITS unit name	(none;dB;ºC)	S	1
valid_min	Minimum valid value for the variable	{1, -1.5, 10}	{ss,fl,fl}	1
valid_max	Maximum valid value for the variable	{2, -0.5, 40}	{ss,fl,fl}	1

Element name	Description	Range or value	T	D
accuracy	Accuracy of the variable	{0, 0.05, 0}	{ss,fl,fl}	1
ba	**Main antenna isolation coefficient for 2 channels and 3 temperatures. 1: 23.8 GHz channel nominal section 2: 36.5 GHz channel nominal section**		**type_mwr_characterised_RFFE**	**dim_mwr_rffe_characterised_rows**
units	UDUNITS unit name	(none;dB;ºC)	S	1
valid_min	Minimum valid value for the variable	{1, -65, 10}	{ss,fl,fl}	1
valid_max	Maximum valid value for the variable	{2, -30, 40}	{ss,fl,fl}	1
accuracy	Accuracy of the variable	{0, 0.3, 0}	{ss,fl,fl}	1
as	**Sky horn transmission coefficient for 2 channels and 3 temperatures. 1: 23.8 GHz channel nominal section 2: 36.5 GHz channel nominal section**		**type_mwr_characterised_RFFE**	**dim_mwr_rffe_characterised_rows**
units	UDUNITS unit name	(none;dB;ºC)	S	1
valid_min	Minimum valid value for the variable	{1, -1.5, 10}	{ss,fl,fl}	1
valid_max	Maximum valid value for the variable	{2, -0.5, 40}	{ss,fl,fl}	1
accuracy	Accuracy of the variable	{0, 0.05, 0}	{ss,fl,fl}	1
bs	**Sky horn isolation coefficient for 2 channels and 3 temperatures. 1: 23.8 GHz channel nominal section 2: 36.5 GHz channel nominal section**		**type_mwr_characterised_RFFE**	**dim_mwr_rffe_characterised_rows**
units	UDUNITS unit name	(none;dB;ºC)	S	1
valid_min	Minimum valid value for the variable	{1, -60, 10}	{ss,fl,fl}	1
valid_max	Maximum valid value for the variable	{2, -30, 40}	{ss,fl,fl}	1
accuracy	Accuracy of the variable	{0, 0.3, 0}	{ss,fl,fl}	1

Element name	Description	Range or value	T	D
br	**Dicke switch isolation coefficient for 2 channels and 3 temperatures. 1: 23.8 GHz channel nominal section 2: 36.5 GHz channel nominal section**		**type_mwr_characterised_RFFE**	**dim_mwr_rffe_characterised_rows**
units	UDUNITS unit name	(none;dB;ºC)	S	1
valid_min	Minimum valid value for the variable	{1, -55, 10}	{ss,fl,fl}	1
valid_max	Maximum valid value for the variable	{2, -20, 40}	{ss,fl,fl}	1
accuracy	Accuracy of the variable	{0, 0.3, 0}	{ss,fl,fl}	1
linearity				
type_mwr_linearity	**channel_number ; linearity;**		**ss fl**	
dim_mwr_linearity		**2**		
C	**Linear correction coefficients for NIR operation. 1: 23.8 GHz channel 2: 36.5 GHz channel**		**type_mwr_linearity**	**dim_mwr_linearity**
units	UDUNITS unit name	(none;K/K)	S	1
valid_min	Minimum valid value for the variable	{1, -0.05}	{ss,fl}	1
valid_max	Maximum valid value for the variable	{2, 0.05}	{ss,fl}	1
accuracy	Accuracy of the variable	{0, 0.005}	{ss,fl}	1
D	**Quadratic correction coefficients for NIR operation. 1: 23.8 GHz channel 2: 36.5 GHz channel**		**type_mwr_linearity**	**dim_mwr_linearity**
units	UDUNITS unit name	(none;K/K²)	S	1
valid_min	Minimum valid value for the variable	{1, -0.05}	{ss,fl}	1

Element name	Description	Range or value	T	D
valid_max	Maximum valid value for the variable	{2, 0.05}	{ss,fl}	1
accuracy	Accuracy of the variable	{0, 5e-06}	{ss,fl}	1
temperature_compensation				
type_mwr_temperature_compensation	**channel_number ; temperature_compensation;**		**ss fl**	
dim_mwr_temperature_compensation		**2**		
u	**mwr_temperature_compensation_linear_coefficient_NIR Noise injection temperature compensation linear correction coefficients 1: 23.8 GHz channel 2: 36.5 GHz channel**		**type_mwr_temperature_compensation**	**dim_mwr_temperature_compensation**
units	UDUNITS unit name	(none;K/ºC)	S	1
valid_min	Minimum valid value for the variable	{1, -2}	{ss,fl}	1
valid_max	Maximum valid value for the variable	{2, 2}	{ss,fl}	1
accuracy	Accuracy of the variable	{0, 0.05}	{ss,fl}	1
v	**mwr_temperature_compensation_quadratic_coefficient_NIR Noise injection temperature compensation quadratic correction coefficients 1: 23.8 GHz channel 2: 36.5 GHz channel**		**type_mwr_temperature_compensation**	**dim_mwr_temperature_compensation**
units	UDUNITS unit name	(none;K/ºC^2)	S	1
valid_min	Minimum valid value for the variable	{1, -0.1}	{ss,fl}	1
valid_max	Maximum valid value for the variable	{2, 0.1}	{ss,fl}	1
accuracy	Accuracy of the variable	{0, 0.001}	{ss,fl}	1

Element name	Description	Range or value	T	D
u_g	**mwr_temperature_compensation_linear_coefficient_Dicke** **Gain compensation linear correction coefficients** **1: 23.8 GHz channel** **2: 36.5 GHz channel**		**type_mwr_temperature_compensation**	**dim_mwr_temperature_compensation**
units	UDUNITS unit name	(none;K/ºC^2)	S	1
valid_min	Minimum valid value for the variable	{1, -5e-05}	{ss,fl}	1
valid_max	Maximum valid value for the variable	{2, 5e-05}	{ss,fl}	1
accuracy	Accuracy of the variable	{0, 1e-06}	{ss,fl}	1
factor_M1_cal				
type_mwr_factor_M1_cal	**channel_number;** **factor_M1;**		**ss** **fl**	
dim_mwr_factor_M1_cal		**2**		
F_h	**Factor over 1 of noise injection during M1 periods (hot cal) for channels 1 and 2.**		**type_mwr_factor_M1_cal**	**dim_mwr_factor_M1_cal**
units	UDUNITS unit name	(none;none)	S	1
valid_min	Minimum valid value for the variable	{1, 0}	{ss,fl}	1
valid_max	Maximum valid value for the variable	{2, 1}	{ss,fl}	1
accuracy	Accuracy of the variable	{0, 0.001}	{ss,fl}	1
thermistors_interp1				
type_mwr_thermistor_table	**thermistor_resistance;** **thermistor_temperature;**		**fl** **fl**	
dim_mwr_thermistor_rows		**63565**		

Element name	Description	Range or value	T	D
mwr_thermistors_1	**Thermistor resistance vs temperature (resolution better than 0.1ºC) corresponding to interpolated spec reference S-311-P-18 (10K@25ºC), with a temperature range between -80ºC and 100ºC. Interpolation 1 (For Rpull1 thermistors)**		**type_mwr_thermistor_table**	**dim_mwr_thermistor_rows**
units	UDUNITS unit name	(Ohm;ºC)	S	1
valid_min	Minimum valid value for the variable	{816.8, -80}	{fl,fl}	1
valid_max	Maximum valid value for the variable	{3556000, 100}	{fl,fl}	1
thermistors_interp2				
type_mwr_thermistor_table	**thermistor_resistance; thermistor_temperature;**		**fl fl**	
dim_mwr_thermistor_rows		**63565**		
mwr_thermistors_2	**Thermistor resistance vs temperature (resolution better than 0.1ºC) corresponding to interpolated spec reference S-311-P-18 (10K@25ºC), with a temperature range between -80ºC and 100ºC. Interpolation 21 (For Rpull2 thermistors)**		**type_mwr_thermistor_table**	**dim_mwr_thermistor_rows**
units	UDUNITS unit name	(Ohm;ºC)	S	1
valid_min	Minimum valid value for the variable	{858.1, -80.7}	{fl,fl}	1
valid_max	Maximum valid value for the variable	{3735108, 100}	{fl,fl}	1
TM_correction_constants				
ADC_OFFSET_ideal	**Constant for temperature TM retrieval**		**ss**	**1**
units	UDUNITS unit name	none	S	1
valid_min	Minimum valid value for the variable	1239	ss	1
valid_max	Maximum valid value for the variable	1660	ss	1
ADC_GAIN_ideal	**Constant for temperature TM retrieval**		**sl**	**1**

Element name	Description	Range or value	T	D
units	UDUNITS unit name	none	S	1
valid_min	Minimum valid value for the variable	31784	sl	1
valid_max	Maximum valid value for the variable	33751	sl	1
Rpull1	**Constant for temperature TM retrieval (words 5 to 10)**		**sl**	**1**
units	UDUNITS unit name	Ohm	S	1
valid_min	Minimum valid value for the variable	40000	sl	1
valid_max	Maximum valid value for the variable	50000	sl	1
Rpull2	**Constant for temperature TM retrieval (words 11 to 16)**		**sl**	**1**
units	UDUNITS unit name	Ohm	S	1
valid_min	Minimum valid value for the variable	40000	sl	1
valid_max	Maximum valid value for the variable	50000	sl	1
instrument_control_parameters				
I_CONF	**Number of Intercalibration periods divided by 4**		**sl**	**1**
valid_min	Minimum valid value for the variable	1	sl	1
valid_max	Maximum valid value for the variable	32767	sl	1
N_CONF	**Number of NIR calibration periods**		**ss**	**1**
valid_min	Minimum valid value for the variable	0	ss	1
valid_max	Maximum valid value for the variable	31	ss	1
M1_CONF	**Number of DNB calibration periods with 100% noise injection**		**ss**	**1**

Element name	Description	Range or value	T	D
valid_min	Minimum valid value for the variable	0	ss	1
valid_max	Maximum valid value for the variable	31	ss	1
M2_CONF	**Number of DNB calibration periods with 50% noise injection**		**ss**	**1**
valid_min	Minimum valid value for the variable	0	ss	1
valid_max	Maximum valid value for the variable	31	ss	1
X_CONF	**Number of intermonitoring periods**		**ss**	**1**
valid_min	Minimum valid value for the variable	1	ss	1
valid_max	Maximum valid value for the variable	1023	ss	1
P_CONF	**Number of monitoring periods**		**ss**	**1**
valid_min	Minimum valid value for the variable	0	ss	1
valid_max	Maximum valid value for the variable	3	ss	1
DC	**Dicke configuration parameter: number of ADC acquisitions every half Dicke period. Note: All parameters in this TAB are configurable. Default values are provided but they may not be coincident with in-orbit configuration values.**		**ss**	**1**
valid_min	Minimum valid value for the variable	1	ss	1
valid_max	Maximum valid value for the variable	1023	ss	1
initial_cal_param				
type_mwr_initial_parameter	**channel_number; cal_par;**		**ss fl**	
dim_initial_parameters		**2**		
Tna0	**Noise injection temperature cal constant.**		**type_mwr_initial_parameter**	**dim_initial_parameters**

Element name	Description	Range or value	T	D
units	UDUNITS unit name	(K)	S	1
valid_min	Minimum valid value for the variable	{1, 278}	{ss,fl}	1
valid_max	Maximum valid value for the variable	{2, 328}	{ss,fl}	1
accuracy	Accuracy of the variable	{0, 0.1}	{ss,fl}	1
G0	**Gain cal constant.**		**type_mwr_initial_parameter**	**dim_initial_parameters**
units	UDUNITS unit name	(V/K)	S	1
valid_min	Minimum valid value for the variable	{1, 0.004}	{ss,fl}	1
valid_max	Maximum valid value for the variable	{2, 0.006}	{ss,fl}	1
accuracy	Accuracy of the variable	{0, 1e-05}	{ss,fl}	1
Tpn0	**Noise source physical temperature cal constant** **Note: All parameters in this TAB are regularly updated in flight. Initial values are provided but they may not be coincident with in-orbit calibration values.**		**type_mwr_initial_parameter**	**dim_initial_parameters**
units	UDUNITS unit name	(K)	S	1
valid_min	Minimum valid value for the variable	{1, 283 }	{ss,fl}	1
valid_max	Maximum valid value for the variable	{2, 313}	{ss,fl}	1
accuracy	Accuracy of the variable	{0, 0.1}	{ss,fl}	1

Table 147 Content of the MWR Characterization and Calibration Data Base

9.4 Satellite Temperature Data File

The Satellite temperature data file contains the satellite temperatures for the two channels along one orbit for different periods of the year. They are provided by look-up table in one NetCDF file.

FILE Type	Update rate	Size
MW___STD_AX	Infrequently	144 KB

Note that the satellite temperature file will contain as many variables Period_XX as periods defined.

The content of the Satellite Temperature Data file is presented in the table below:

Element name	Description	Range or value	T	D
TimeAftAscNode	**Number of tabulated points**			
N_Period	**Number of periods**			
NbChannels	**Number of channels**	**2**		
<Specific global attributes>	None			
N_Period	**number of periods**		**sc**	**N_Period**
units	Unit name	count		1
comment	Set to be compliant with the CF-1.6 convention			1
NbChannels	**number of MWR channels**		**sc**	**NbChannels**
units	Unit name	count		1
comment	Set to be compliant with the CF-1.6 convention			1
TimeStep	**Step time value of table**		**D**	**1**
units	Unit name	seconds		1
TimeAftAscNode	**Time after ascending node**		**D**	**TimeAftAscNode**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	time		1
units	Unit name	seconds		1
Start_D	**First day of each period**		**sl**	**N_Period**
units	Unit name	/		1
Start_M	**First month of each period**		**sl**	**N_Period**
units	Unit name	/		1
Period_01	**Satellite temperature for period 01**		**D**	**TimeAftAscNode NbChannels**
units	Unit name	K		1
Period_02	**Satellite temperature for period 02**		**D**	**TimeAftAscNode NbChannels**
units	Unit name	K		1

Table 148: Content of the Satellite Temperature Data file

9.5 Internal Calibration and Monitoring Long Term Monitoring Parameters

The Internal Calibration and Monitoring Long Term Monitoring parameters are generated by the MWR Level 1 Processor and they are stored in three files:

- One file for internal NIR calibration: MW_1_NIR_AX file
- One file for internal DNB calibration: MW_1_DNB_AX file
- One file for monitoring: MW_1_MON_AX file

Each of these three files is initialised with a record built from pre-launch measurements. During the mission life, new records are added as soon as new measurements are performed and processed.

FILE Type	Update rate	Size
MW_1_NIR_AX	Daily	
MW_1_DNB_AX	Daily	
MW_1_MON_AX	Daily	

The content of the MWR LTM files is presented in the following sections in the dedicated tables.

For all the LTM files, no specific global attributes' information is defined.

9.5.1 MW_1_NIR LTM file

Element name	Description	Range or value	T	D
time	**Number of MWR_CAL_NIR_LTM measurements**			
mwr_chan	**Number of channels**	**2**		
<Specific global attributes>	Not applicable			
mwr_chan	**number of MWR channels**		**sc**	**mwr_chan**
units	Unit name	count		1
comment	Set to be compliant with the CF-1.6 convention			1
time	**UTC**		**D**	**time**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	time		1
units	Unit name	seconds since 2000-01-01 00:00:00.0		1
calendar		gregorian		1
UTC_day	**day UTC**		**ss**	**time**
units	Unit name	days since 2000-01-01 00:00:00.0		1
_FillValue	Default value for unused or not computed elements	32767		1
UTC_sec	**seconds in the day UTC**		**D**	**time**
units	Unit name	seconds in the day		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
GPS_time	**GPS time**		**D**	**time**
units	Unit name	seconds since 1980-01-06 00:00:00.0		1
calendar		gregorian		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
lat	**latitude**		**sl**	**time mwr_chan**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	latitude		1
units	Unit name	degrees_north		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1

_FillValue	Default value for unused or not computed elements	2147483647		1
lon	**longitude**		**sl**	**time mwr_chan**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	longitude		1
units	Unit name	degrees_east		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
_FillValue	Default value for unused or not computed elements	2147483647		1
noise_inj_temp	**Averaged noise injection temperature**		**sl**	**time mwr_chan**
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	K		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
ns_phys_temp	**Averaged noise source physical temperature**		**sl**	**time mwr_chan**
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	K		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1

Table 149: Content of the NIR Calibration LTM file

9.5.2 MW_1_DNB LTM file

Element name	Description	Range or value	T	D
time	**Number of MWR_CAL_DNB_LTM measurements**			
mwr_chan	**Number of channels**	**2**		
<Specific global attributes>	Not applicable			
mwr_chan	**number of MWR channels**		**sc**	**mwr_chan**
units	Unit name	count		1
comment	Set to be compliant with the CF-1.6 convention			1
time	**UTC**		**D**	**time**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	time		1

units	Unit name	seconds since 2000-01-01 00:00:00.0		1
calendar		gregorian		1
UTC_day	**day UTC**		**ss**	**time**
units	Unit name	days since 2000-01-01 00:00:00.0		1
_FillValue	Default value for unused or not computed elements	32767		1
UTC_sec	**seconds in the day UTC**		**D**	**time**
units	Unit name	seconds in the day		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
GPS_time	**GPS time**		**D**	**time**
units	Unit name	seconds since 1980-01-06 00:00:00.0		1
calendar		gregorian		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
lat	**latitude**		**sl**	**time mwr_chan**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	latitude		1
units	Unit name	degrees_north		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
_FillValue	Default value for unused or not computed elements	2147483647		1
lon	**longitude**		**sl**	**time mwr_chan**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	longitude		1
units	Unit name	degrees_east		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
_FillValue	Default value for unused or not computed elements	2147483647		1
error_voltage_DNB_hot	**Averaged error voltage in DNB calibration mode (hot point)**		**sl**	**time mwr_chan**
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	V		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1

error_voltage_DNB_cold	**Averaged error voltage in DNB calibration mode (cold point)**		**sl**	**time mwr_chan**
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	V		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
receiver_gain	**Receiver gain**		**sl**	**time mwr_chan**
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	mV/K		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1

Table 150: Content of the DNB Calibration LTM file

9.5.3 MW_1_MON LTM file

Element name	Description	Range or value	T	D
time	**Number of MWR_MON_LTM measurements**			
mwr_chan	**Number of channels**	**2**		
< Specific global attributes>	Not applicable			
mwr_chan	**number of MWR channels**		**sc**	**mwr_chan**
units	Unit name	count		1
comment	Set to be compliant with the CF-1.6 convention			1
time	**UTC**		**D**	**time**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	time		1
units	Unit name	seconds since 2000-01-01 00:00:00.0		1
calendar		gregorian		1
UTC_day	**day UTC**		**ss**	**time**
units	Unit name	days since 2000-01-01 00:00:00.0		1
_FillValue	Default value for unused or not computed elements	32767		1
UTC_sec	**seconds in the day UTC**		**D**	**time**

units	Unit name	seconds in the day		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
GPS_time	**GPS time**		**D**	**time**
units	Unit name	seconds since 1980-01-06 00:00:00.0		1
calendar		gregorian		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
lat	**latitude**		**sl**	**time mwr_chan**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	latitude		1
units	Unit name	degrees_north		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
_FillValue	Default value for unused or not computed elements	2147483647		1
lon	**longitude**		**sl**	**time mwr_chan**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	longitude		1
units	Unit name	degrees_east		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
_FillValue	Default value for unused or not computed elements	2147483647		1
noise_inj_temp	**Corrected noise injection temperature**		**sl**	**time mwr_chan**
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	K		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1

Table 151: Content of the Monitoring LTM file

10. BROWSE PROCESSING AUXILIARY DATA FILES

10.1 Browse Processing Colour Palette Format

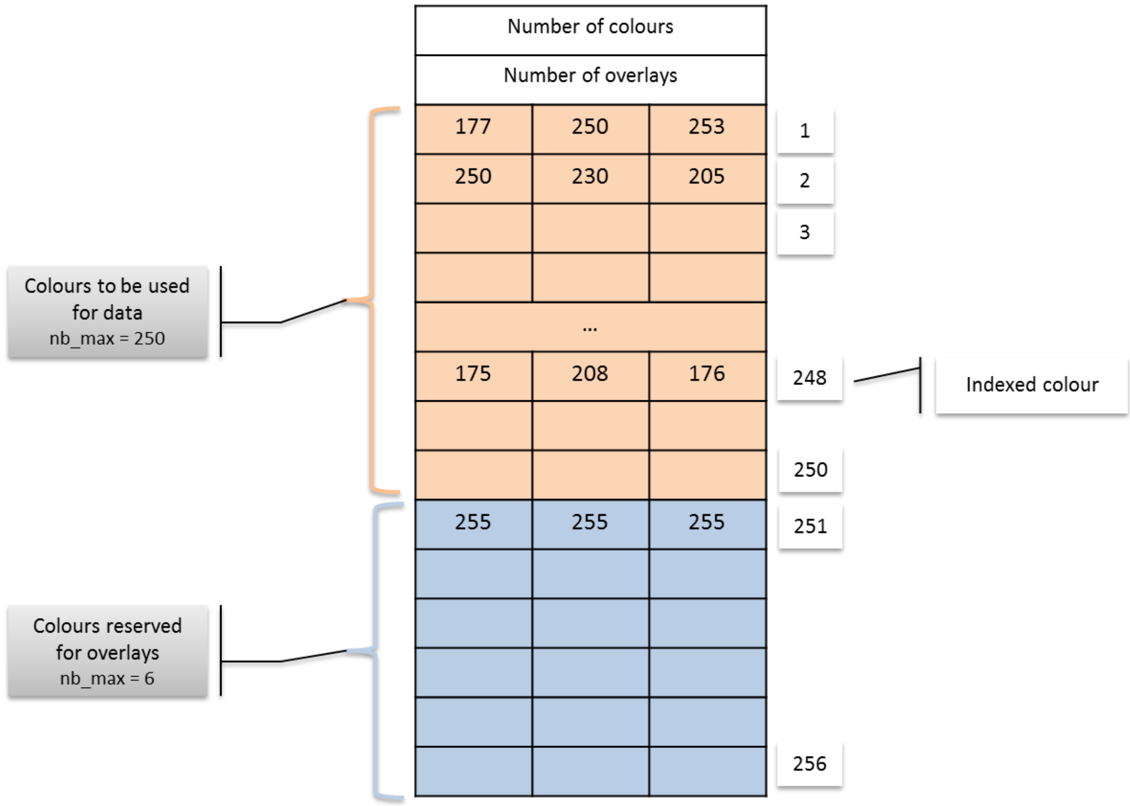
Browse processors generating pseudo-colour images need to have colour palettes in their inputs.

This section of document gives details of how colour palette file is structured.

The colour palette file is a generic ASCII file describing the palette to be used by all browse processors generating pseudo-colour images, this file is decomposed in the following three parts:

1. The first part of the colour palette contains the two dimensions of the palette.
    a. Line 1: Number of colours to be used while representing scientific data of the browse product. The maximum of colours that one can use is fixed at 250 colours.
    b. Line 2: Number of colours reserved to overlays which can be: Masks, Fill values. The maximum of overlays that can be set is limited to the 6 overlays.
2. The second part of the colour palette contains colours definitions, 250 colours are possible.
3. This last part of the colour palette contains 6 colours reserved for overlays. Those colors are replaced with R, G, B indices set for each mask in the processing control parameter file (up to 6).

Figure 1 : Browse colour palette structure



10.2 Browse overlaying

The overlay on pseudo-color images is based on a configurable number of masks in the PCP file for which a specific color is set with RGB codes. The selection of the masks is performed using one string value of the flag_meanings attribute list.

One additional flag is set to address the pixels where no data is found. The name used for this flag is "NODATA".

The mask may be reversed by using the character "!" at the beginning of the string defining the mask to be applied. For instance:

"!land" would mask all the pixels non marked as land in the product.

10.3 OLCI Browse Processing Auxiliary Data Files

10.3.1 OLCI Level 1 Browse Processing Auxiliary Data Files

10.3.1.1 Processing Control Parameter File

FILE Type	Update rate	Size
OL_1_PCPBAX	Infrequently	8 KB

The OLCI L1 Browse Processing Control Parameter File is in XML format. The detailed structure and content of this file is presented in table below.

Table 152 Detailed structure of the OLCI L1 Browse Processing Control Parameter File

Element name	Description	Range or value	Unit	T	C
Ol1bw_Processsing_Control_Parameters	**Open container**				

Element name	Description	Range or value	Unit	T	C
Formats	**Open container**				**1**
JPEG	**Switch to enable the JPEG image format**			**B**	**1**
quality	JPEG compression quality (default: 75). Low values result in higher compression ratios, but poorer image quality. Values above 95 are not meaningfully better quality but can be substantially larger.	[0, 100]		sl	1
PNG	**Switch to enable the PNG image format**			**B**	**1**
zlevel	PNG compression level (default: 6). Set the amount of time to spend on compression. A value of 1 is fast but does no compression, and a value of 9 is slow but does the best compression.	[1, 9]		sl	1
JPEG2000	**Switch to enable the JPEG2000 image format**			**B**	**1**
quality	JPEG2000 compression quality (default: 25). A value of 50 means the file will be half-size in comparison to uncompressed data, 33 means 1/3, etc…	[0, 100]		sl	1
reversible	Switch to enable the JPEG2000 lossless compression mode (default: FALSE)			B	1
GEOTIFF	**Switch to enable the GeoTIFF image format**			**B**	**1**
compress	GeoTIFF internal compression (default: "None")	{"None", "PACKBITS"}		S	1
Formats	**Close container**				**1**
RGB_Weights	**Open container**				**1**
R_Weights	**Open container**				**1**
C1 **C2** **…** **C21**	**Weights to be applied respectively to the TOA_radiances_Oa01 to TOA_radiances_Oa21 while constructing the R colour channel (default: C2=0.35, C5=0.6, C6=1, C7=0.13 with other coefficients set to zero)**			**fl**	**1**
R_Weights	**Close container**				**1**
G_Weights	**Open container**				**1**

Element name	Description	Range or value	Unit	T	C
C1 C2 … C21	**Weights to be applied respectively to the TOA_radiances_Oa01 to TOA_radiances_Oa21 while constructing the G colour channel (default: C3=0.21, C4=0.5, C5=1, C6=0.38 with other coefficients set to zero)**			**fl**	**1**
G_Weights	**Close container**				**1**
B_Weights	**Open container**				**1**
C1 C2 … C21	**Weights to be applied respectively to the TOA_radiances_Oa01 to TOA_radiances_Oa21 while constructing the B colour channel (default: C1=0.21, C2=1.75, C3=0.47, C4=0.16)**			**fl**	**1**
B_Weights	**Close container**				**1**
RGB_Weights	**Close container**				**1**
flagList	**Open container**				**1**
flag	**Flag value on which the mask will apply (one string value selected from the attribute flag_meanings of the variable quality_flags)**	**See AD-11**		**S**	**1**
apply_mask	Boolean for the mask activation	[0, 1]		sl	1
R	Value for the Red channel set for the color of the mask	[0, 255]		sl	1
G	Value for the Green channel set for the color of the mask	[0, 255]		sl	1
B	Value for the Blue channel set for the color of the mask	[0, 255]		sl	1
flagList	**Close container**				**1**
ApplyLog	**Apply logarithm while constructing RGB colour channels (default: 1)**	**[0, 1]**		**sl**	**1**
ApplyGamma	**Apply gamma while constructing RGB colour channels (default: 0)**	**[0, 1]**		**sl**	**1**
SubSampling	**Image sub-sampling factor**	**1, 2, 4, 8,…**		**sl**	**1**
ReOrientation	**Re-orient image to a standard east-west north-south referential (default: 0)**	**[0, 1]**		**sl**	**1**
Ol1bw_Processsing_Control_Parameters	**Close container**				

10.3.2 OLCI Level 2 Browse Processing Auxiliary Data Files

10.3.2.1 Processing Control Parameter File

FILE Type	Update rate	Size
OL_2_PCPBAX	Infrequently	8 KB

The OLCI L2 Browse Processing Control Parameter File is in XML format. The detailed structure and content of this file is presented in table below.

Table 153 Detailed structure of the OLCI L2 Browse Processing Control Parameter File

Element name	Description	Range or value	Unit	T	C
Ol2bw_Processsing_Control_Parameters	**Open container**				
Formats	**Open container**				**1**
JPEG	**Switch to enable the JPEG image format**			**B**	**1**
quality	JPEG compression quality (default: 75). Low values result in higher compression ratios, but poorer image quality. Values above 95 are not meaningfully better quality but can be substantially larger.	[0, 100]		sl	1
PNG	**Switch to enable the PNG image format**			**B**	**1**
zlevel	PNG compression level (default: 6). Set the amount of time to spend on compression. A value of 1 is fast but does no compression, and a value of 9 is slow but does the best compression.	[1, 9]		sl	1

Element name	Description	Range or value	Unit	T	C
JPEG2000	**Switch to enable the JPEG2000 image format**			**B**	**1**
quality	JPEG2000 compression quality (default: 25). A value of 50 means the file will be half-size in comparison to uncompressed data, 33 means 1/3, etc…	[0, 100]		sl	1
reversible	Switch to enable the JPEG2000 lossless compression mode (default: FALSE)			B	1
GEOTIFF	**Switch to enable the GeoTIFF image format**			**B**	**1**
compress	GeoTIFF internal compression (default: "None")	{"None", "PACKBITS"}		S	1
Formats	**Close container**				**1**
LandProcessing	**Open container**				
ScientificFields	**Open container**			**S**	**1**
ScientificField	**Scientific field to be browsed (default: "OTCI")**	**{ "OTCI", "OGVI", "RC681", "RC865", "IWV"} and corresponding errors**		**S**	**1**
scale_min	**Smallest value of scientific field to be used for scaling**				**1**
scale_max	**Largest value of scientific field to be used for scaling**				**1**
ScientificFields	**Close container**			**S**	**1**
flagList	**Open container**			**ub**	**1**
flag	**Flag value on which the mask will apply (one string value selected from the attribute flag_meanings of the variable LQSF)**	**See AD-11**		**S**	**1**
apply_mask	Boolean for the mask activation	[0, 1]		sl	1
R	Value for the Red channel set for the color of the mask	[0, 255]		sl	1
G	Value for the Green channel set for the color of the mask	[0, 255]		sl	1
B	Value for the Blue channel set for the color of the mask	[0, 255]		sl	1
flagList	**Close container**			**ub**	**1**

Element name	Description	Range or value	Unit	T	C
LandProcessing	**Close container**				
WaterProcessing	**Open container**				
ScientificFields	**Open container**			**S**	**1**
ScientificField	**Scientific field to be browsed (default: “CHL_OC4ME”)**	**{“Oa01_ reflectance”, “Oa02_ reflectance”, … “Oa21_ reflectance”, “CHL_OC4ME”, “CHL_NN”, “TSM_NN”, “KD490_M07”, “PAR”, "T865", "A865", "IWV", "ADG443_NN"} and corresponding errors**		**S**	**1**
scale_min	**Smallest value of scientific field to be used for scaling**				**1**
scale_max	**Largest value of scientific field to be used for scaling**				**1**
ScientificFields	**Close container**			**S**	**1**
flagList	**Open container**			**ub**	**1**
flag	**Flag value on which the mask will apply (one string value selected from the attribute flag_meanings of the variable WQSF)**	**See AD-11**		**S**	**1**
apply_mask	Boolean for the mask activation	[0, 1]		sl	1
R	Value for the Red channel set for the color of the mask	[0, 255]		sl	1
G	Value for the Green channel set for the color of the mask	[0, 255]		sl	1
B	Value for the Blue channel set for the color of the mask	[0, 255]		sl	1
flagList	**Close container**			**ub**	**1**
WaterProcessing	**Close container**				

Element name	Description	Range or value	Unit	T	C
SubSampling	**Sub-sampling factor (default: 1)**	**1, 2, 4, 8,…**		**sl**	**1**
ReOrientation	**Re-orient image to a standard east-west north-south referential (default: FALSE)**			**B**	**1**
Ol2bw_Processsing_Control_Parameters	**Close container**				

10.3.2.2 Palette Auxiliary File

The file is in ASCII format. The detailed structure and content of this file is presented in the section 10.1.

FILE Type	Update rate	Size
OL_2_PLTBAX	Infrequently	8 KB

10.4 SLSTR Browse Processing Auxiliary Data Files

10.4.1 SLSTR Level 1 Browse Processing Auxiliary Data Files

10.4.1.1 Processing Control Parameter File

FILE Type	Update rate	Size
SL_1_PCPBAX	Infrequently	8 KB

The SLSTR L1 Browse Processing Control Parameter File is in XML format. The detailed structure and content of this file is presented in table below.

Table 154 Detailed structure of the SLSTR L1 Browse Processing Control Parameter File

Element name	Description	Range or value	Unit	T	C
Sl1bw_Processsing_Control_Parameters	**Open container**				
Formats	**Open container**				**1**
JPEG	**Switch to enable the JPEG image format**			**B**	**1**
quality	JPEG compression quality (default: 75). Low values result in higher compression ratios, but poorer image quality. Values above 95 are not meaningfully better quality but can be substantially larger.	[0, 100]		sl	1
PNG	**Switch to enable the PNG image format**			**B**	**1**
zlevel	PNG compression level (default: 6). Set the amount of time to spend on compression. A value of 1 is fast but does no compression, and a value of 9 is slow but does the best compression.	[1, 9]		sl	1
JPEG2000	**Switch to enable the JPEG2000 image format**			**B**	**1**
quality	JPEG2000 compression quality (default: 25). A value of 50 means the file will be half-size in comparison to uncompressed data, 33 means 1/3, etc…	[0, 100]		sl	1
reversible	Switch to enable the JPEG2000 lossless compression mode (default: FALSE)			B	1
GEOTIFF	**Switch to enable the GeoTIFF image format**			**B**	**1**
compress	GeoTIFF internal compression (default: ”None”)	{“None”, “PACKBITS”}		S	1
Formats	**Close container**				**1**
RGB_Weights	**Open container**				**1**
R_Weights	**Open container**				**1**

Element name	Description	Range or value	Unit	T	C
S1 S2 … S9 F1 F2	Weights to be applied respectively to the existing bands while constructing the R colour channel			fl	1
R_Weights	Close container				1
G_Weights	Open container				1
S1 S2 … S9 F1 F2	Weights to be applied respectively to the existing bands while constructing the G colour channel			fl	1
G_Weights	Close container				1
B_Weights	Open container				1
S1 S2 … S9 F1 F2	Weights to be applied respectively to the existing bands while constructing the B colour channel			fl	1
B_Weights	Close container				1
RGB_Weights	Close container				1
View	The view to be used while generating the image (default: “nadir”)	{“nadir”, “oblique”}		S	1
ScientificFields	Open container			S	1
ScientificField	Scientific field for the night part of orbit (default: “S7”)	{“S7”, “S8”, “S9”, “F1”, “F2”}		S	1
scale_min	Smallest value of scientific field to be used for scaling				

Element name	Description	Range or value	Unit	T	C
scale_max	**Largest value of scientific field to be used for scaling**				
ScientificFields	**Close container**			**S**	**1**
flagList	**Open container**			**S**	**1**
flag	**Flag value on which the mask will apply (one string value selected from the attribute flag_meanings of the variable confidence)**	**See AD-12**		**S**	**1**
apply_mask	Boolean for the mask activation	[0, 1]		sl	1
R	Value for the Red channel set for the color of the mask	[0, 255]		sl	1
G	Value for the Green channel set for the color of the mask	[0, 255]		sl	1
B	Value for the Blue channel set for the color of the mask	[0, 255]		sl	1
flagList	**Close container**			**S**	**1**
ApplyLog	**Apply logarithm while constructing RGB colour channels (default: 1)**	**[0, 1]**		**sl**	**1**
ApplyGamma	**Apply gamma while constructing RGB colour channels (default: 0)**	**[0, 1]**		**sl**	**1**
SubSampling	**Apply gamma while constructing RGB colour channels (default: 1)**	**1, 2, 4, 8,…**		**sl**	**1**
ReOrientation	**Re-orient image to a standard east-west north-south referential (default: 0)**	**[0, 1]**		**sl**	**1**
Sl1bw_Processsing_Control_Parameters	**Close container**				

10.4.1.2 Palette Auxiliary File

The file is in ASCII format. The detailed structure and content of this file is presented in the section 10.1.

FILE Type	Update rate	Size
SL_1_PLTBAX	Infrequently	8 KB

10.4.2 SLSTR Level 2 Browse Processing Auxiliary Data Files

10.4.2.1 Processing Control Parameter File

FILE Type	Update rate	Size
SL_2_PCPBAX	Infrequently	8 KB

The SLSTR L2 Browse Processing Control Parameter File is in XML format. The detailed structure and content of this file is presented in table below.

Table 155 Detailed structure of the OLCI L2 Browse Processing Control Parameter File

Element name	Description	Range or value	Unit	T	C
Sl2bw_Processsing_Control_Parameters	Open container				
Formats	Open container				1
JPEG	Switch to enable the JPEG image format			B	1

Element name	Description	Range or value	Unit	T	C
quality	JPEG compression quality (default: 75). Low values result in higher compression ratios, but poorer image quality. Values above 95 are not meaningfully better quality but can be substantially larger.	[0, 100]		sl	1
PNG	**Switch to enable the PNG image format**			**B**	**1**
zlevel	PNG compression level (default: 6). Set the amount of time to spend on compression. A value of 1 is fast but does no compression, and a value of 9 is slow but does the best compression.	[1, 9]		sl	1
JPEG2000	**Switch to enable the JPEG2000 image format**			**B**	**1**
quality	JPEG2000 compression quality (default: 25). A value of 50 means the file will be half-size in comparison to uncompressed data, 33 means 1/3, etc…	[0, 100]		sl	1
reversible	Switch to enable the JPEG2000 lossless compression mode (default: FALSE)			B	1
GEOTIFF	**Switch to enable the GeoTIFF image format**			**B**	**1**
compress	GeoTIFF internal compression (default: ”None”)	{“None”, “PACKBITS”}		S	1
Formats	**Close container**				**1**
LandProcessing	**Open container**				
ScientificFields	**Open container**			**S**	**1**
ScientificField	**Scientific field to be browsed (default: “LST”)**	**{“LST”, "LST_uncertainty" "NDVI", "BIOME" "TCWV" "FRACTION"}**		**S**	**1**
scale_min	**Smallest value of scientific field to be used for scaling**				**1**
scale_max	**Largest value of scientific field to be used for scaling**				**1**

Element name	Description	Range or value	Unit	T	C
ScientificFields	**Close container**			**S**	**1**
flagList	**Open container**			**ub**	**1**
flag	**Flag value on which the mask will apply (one string value selected from the attribute flag_meanings of the variable confidence)**	**See AD-12**		**S**	**1**
apply_mask	Boolean for the mask activation	[0, 1]		sl	1
R	Value for the Red channel set for the color of the mask	[0, 255]		sl	1
G	Value for the Green channel set for the color of the mask	[0, 255]		sl	1
B	Value for the Blue channel set for the color of the mask	[0, 255]		sl	1
flagList	**Close container**			**ub**	**1**
LandProcessing	**Close container**				
WaterProcessing	**Open container**				
ScientificFields	**Open container**			**S**	**1**

Element name	Description	Range or value	Unit	T	C
ScientificField	**Scientific field to be browsed (default: “SST”)**	**{“SST”, "SST_dtime " "SSES_bias", "SSES_standard_deviation" "DT_analysis" “WIND_SPEED”, “WIND_SPEED_dtime_from_sst”, "SEA_ICE_FRACTION" "SEA_ICE_FRACTION_dtime_from_sst" "AEROSOL_DYNAMIC_INDICATOR" "AEROSOL_DYNAMIC_INDICATOR_dtime_from_sst", "QUALITY_LEVEL", SATELLITE_ZENITH_ANGLE", SST_theoretical_error }**		**S**	**1**
scale_min	**Smallest value of scientific field to be used for scaling**				**1**
scale_max	**Largest value of scientific field to be used for scaling**				**1**
ScientificFields	**Close container**			**S**	**1**
flagList	**Open container**			**ub**	**1**
flag	**Flag value on which the mask will apply (one string value selected from the attribute flag_meanings of the variable confidence)**	**See AD-12**		**S**	**1**
apply_mask	Boolean for the mask activation	[0, 1]		sl	1
R	Value for the Red channel set for the color of the mask	[0, 255]		sl	1
G	Value for the Green channel set for the color of the mask	[0, 255]		sl	1

Element name	Description	Range or value	Unit	T	C
B	Value for the Blue channel set for the color of the mask	[0, 255]		sl	1
flagList	**Close container**			**ub**	**1**
WaterProcessing	**Close container**				
SubSampling	**Sub-sampling factor (default: 1)**	**1, 2, 4, 8,…**		**sl**	**1**
ReOrientation	**Re-orient image to a standard east-west north-south referential (default: 0)**	**[0, 1]**		**sl**	**1**
Sl2bw_Processsing_Control_Parameters	**Close container**				

10.4.2.2 Palette Auxiliary File

The file is in ASCII format. The detailed structure and content of this file is presented in the section 10.1.

FILE Type	Update rate	Size
SL_2_PLTBAX	Infrequently	8 KB

10.5 SYN Browse Processing Auxiliary Data Files

10.5.1 SYN Level 2 Browse Processing Auxiliary Data Files

10.5.1.1 Processing Control Parameter File

FILE Type	Update rate	Size
SY_2_PCPBAX	Infrequently	8 KB

The SYN L2 Browse Processing Control Parameter File is in XML format. The detailed structure and content of this file is presented in table below.

Table 156 Detailed structure of the SYN L2 Browse Processing Control Parameter File

Element name	Description	Range or value	Unit	T	C
Sy2bw_Processsing_Control_Parameters	**Open container**				
Formats	**Open container**				**1**
JPEG	**Switch to enable the JPEG image format**			**B**	**1**
quality	JPEG compression quality (default: 75). Low values result in higher compression ratios, but poorer image quality. Values above 95 are not meaningfully better quality but can be substantially larger.	[0, 100]		sI	1
PNG	**Switch to enable the PNG image format**			**B**	**1**
zlevel	PNG compression level (default: 6). Set the amount of time to spend on compression. A value of 1 is fast but does no compression, and a value of 9 is slow but does the best compression.	[1, 9]		sI	1
JPEG2000	**Switch to enable the JPEG2000 image format**			**B**	**1**
quality	JPEG2000 compression quality (default: 25). A value of 50 means the file will be half-size in comparison to uncompressed data, 33 means 1/3, etc…	[0, 100]		sI	1
reversible	Switch to enable the JPEG2000 lossless compression mode (default: FALSE)			B	1
GEOTIFF	**Switch to enable the GeoTIFF image format**			**B**	**1**
compress	GeoTIFF internal compression (default: ”None”)	{“None”, “PACKBITS”}		S	1
Formats	**Close container**				**1**

Element name	Description	Range or value	Unit	T	C
RGB_Weights	**Open container**				**1**
R_Weights	**Open container**				**1**
C1 C2 … C30	**Weights to be applied respectively to the existing reflectance bands while constructing the R colour channel**			**fl**	**1**
R_Weights	**Close container**				**1**
G_Weights	**Open container**				**1**
C1 C2 … C30	**Weights to be applied respectively to the existing reflectance bands while constructing the G colour channel**			**fl**	**1**
G_Weights	**Close container**				**1**
B_Weights	**Open container**				**1**
C1 C2 … C30	**Weights to be applied respectively to the existing reflectance bands while constructing the B colour channel**			**fl**	**1**
B_Weights	**Close container**				**1**
RGB_Weights	**Close container**				**1**
ScientificFields	**Open container**			**S**	**1**
ScientificField	**Scientific field to be browsed (default: “AOT550”)**	**{“AOT550”, “A550”}**		**S**	**1**
scale_min	**Smallest value of scientific field to be used for scaling**				**1**
scale_max	**Largest value of scientific field to be used for scaling**				**1**
ScientificFields	**Close container**			**S**	**1**
flagList	**Open container**			**S**	**1**

Element name	Description	Range or value	Unit	T	C
flag	Flag value on which the mask will apply (one string value selected from the attribute flag_meanings of the variable SYN_flags)	See AD-13		S	1
apply_mask	Boolean for the mask activation	[0, 1]		sl	1
R	Value for the Red channel set for the color of the mask	[0, 255]		sl	1
G	Value for the Green channel set for the color of the mask	[0, 255]		sl	1
B	Value for the Blue channel set for the color of the mask	[0, 255]		sl	1
flagList	Close container			S	1
ApplyLog	Apply logarithm while constructing RGB colour channels (default: TRUE)			B	1
ApplyGamma	Apply gamma while constructing RGB colour channels (default: FALSE)			B	1
SubSampling	Apply gamma while constructing RGB colour channels (default: 1)	1, 2, 4, 8,…		sl	1
ReOrientation	Re-orient image to a standard east-west north-south referential (default: FALSE)			B	1
Sy2bw_Processsing_Control_Parameters	Close container				

10.5.1.1.1 Palette Auxiliary File

The file is in ASCII format. The detailed structure and content of this file is presented in the section 10.1.

FILE Type	Update rate	Size
SY_2_PLTBAX	Infrequently	8 KB

10.5.2 SYN VGT-P Level 2 Browse Processing Auxiliary Data Files

10.5.2.1 Processing Control Parameter File

FILE Type	Update rate	Size
SY_2_CVPBAX	Infrequently	8 KB

The SYN VGT-P L2 Browse Processing Control Parameter File is in XML format. The detailed structure and content of this file is presented in table below.

Table 157 Detailed structure of the SYN L2 VGT-P Browse Processing Control Parameter File

Element name	Description	Range or value	Unit	T	C
Sy2bw-vgp_Processsing_Control_Parameters	Open container				
Formats	Open container				1
JPEG	Switch to enable the JPEG image format			B	1

Element name	Description	Range or value	Unit	T	C
quality	JPEG compression quality (default: 75). Low values result in higher compression ratios, but poorer image quality. Values above 95 are not meaningfully better quality but can be substantially larger.	[0, 100]		sl	1
PNG	**Switch to enable the PNG image format**			**B**	**1**
zlevel	PNG compression level (default: 6). Set the amount of time to spend on compression. A value of 1 is fast but does no compression, and a value of 9 is slow but does the best compression.	[1, 9]		sl	1
JPEG2000	**Switch to enable the JPEG2000 image format**			**B**	**1**
quality	JPEG2000 compression quality (default: 25). A value of 50 means the file will be half-size in comparison to uncompressed data, 33 means 1/3, etc…	[0, 100]		sl	1
reversible	Switch to enable the JPEG2000 lossless compression mode (default: FALSE)			B	1
GEOTIFF	**Switch to enable the GeoTIFF image format**			**B**	**1**
compress	GeoTIFF internal compression (default: "None")	{"None", "PACKBITS"}		S	1
Formats	**Close container**				**1**
RGB_Weights	**Open container**				**1**
R_Weights	**Open container**				**1**
C1 **C2** **…** **C4**	**Weights to be applied respectively to the existing reflectance bands while constructing the R colour channel (B0, B2, B3, MIR)**			**fl**	**1**
R_Weights	**Close container**				**1**
G_Weights	**Open container**				**1**
C1 **C2** **…** **C4**	**Weights to be applied respectively to the existing reflectance bands while constructing the G colour channel (B0, B2, B3, MIR)**			**fl**	**1**
G_Weights	**Close container**				**1**

Element name	Description	Range or value	Unit	T	C
B_Weights	Open container				1
C1 C2 … C4	Weights to be applied respectively to the existing reflectance bands while constructing the B colour channel (B0, B2, B3, MIR)			fl	1
B_Weights	Close container				1
RGB_Weights	Close container				1
flagList	Open container			ub	1
flag	Flag value on which the mask will apply (one string value selected from the attribute flag_meanings of the variable SM)	See AD-13		S	1
apply_mask	Boolean for the mask activation	[0, 1]		sl	1
R	Value for the Red channel set for the color of the mask	[0, 255]		sl	1
G	Value for the Green channel set for the color of the mask	[0, 255]		sl	1
B	Value for the Blue channel set for the color of the mask	[0, 255]		sl	1
flagList	Close container			ub	1
ApplyLog	Apply logarithm while constructing RGB colour channels (default: TRUE)			B	1
ApplyGamma	Apply gamma while constructing RGB colour channels (default: FALSE)			B	1
SubSampling	Apply gamma while constructing RGB colour channels (default: 1)	1, 2, 4, 8,…		sl	1
ReOrientation	Re-orient image to a standard east-west north-south referential (default: FALSE)			B	1
Sy2bw_vgp_Processsing_Control_Parameters	Close container				

10.5.2.2 Palette Auxiliary File

The file is in ASCII format. The detailed structure and content of this file is presented in the section 10.1.

FILE Type	Update rate	Size
SY_2_PVPBAX	Infrequently	8 KB

10.5.3 SYN VGT-S Level 2 Browse Processing Auxiliary Data Files

10.5.3.1 Processing Control Parameter File

FILE Type	Update rate	Size
SY_2_CVSBAX	Infrequently	8 KB

The SYN VGT-S L2 Browse Processing Control Parameter File is in XML format. The detailed structure and content of this file is presented in table below.

Table 158 Detailed structure of the SYN L2 VGT-S Browse Processing Control Parameter File

Element name	Description	Range or value	Unit	T	C
Sy2bw__vgs_Processsing_Control_Parameters	**Open container**				

Element name	Description	Range or value	Unit	T	C
Formats	**Open container**				**1**
JPEG	**Switch to enable the JPEG image format**			**B**	**1**
quality	JPEG compression quality (default: 75). Low values result in higher compression ratios, but poorer image quality. Values above 95 are not meaningfully better quality but can be substantially larger.	[0, 100]		sl	1
PNG	**Switch to enable the PNG image format**			**B**	**1**
zlevel	PNG compression level (default: 6). Set the amount of time to spend on compression. A value of 1 is fast but does no compression, and a value of 9 is slow but does the best compression.	[1, 9]		sl	1
JPEG2000	**Switch to enable the JPEG2000 image format**			**B**	**1**
quality	JPEG2000 compression quality (default: 25). A value of 50 means the file will be half-size in comparison to uncompressed data, 33 means 1/3, etc…	[0, 100]		sl	1
reversible	Switch to enable the JPEG2000 lossless compression mode (default: FALSE)			B	1
GEOTIFF	**Switch to enable the GeoTIFF image format**			**B**	**1**
compress	GeoTIFF internal compression (default: "None")	{"None", "PACKBITS"}		S	1
Formats	**Close container**				**1**
ScientificFields	**Open container**			**S**	**1**
ScientificField	**Scientific field to be browsed (default: "NDVI")**	**{"NDVI", "B0", "B2", "B3", "MIR", ..}**		**S**	**1**
scale_min	**Smallest value of scientific field to be used for scaling**				**1**
scale_max	**Largest value of scientific field to be used for scaling**				**1**
flagList	**Open container**			**ub**	**1**

Element name	Description	Range or value	Unit	T	C
flag	Flag value on which the mask will apply (one string value selected from the attribute flag_meanings of the variable SM)	See AD-13		S	1
apply_mask	Boolean for the mask activation	[0, 1]		sl	1
R	Value for the Red channel set for the color of the mask	[0, 255]		sl	1
G	Value for the Green channel set for the color of the mask	[0, 255]		sl	1
B	Value for the Blue channel set for the color of the mask	[0, 255]		sl	1
flagList	Close container			ub	1
SubSampling	Apply gamma while constructing RGB colour channels (default: 1)	1, 2, 4, 8,…		sl	1
ReOrientation	Re-orient image to a standard east-west north-south referential (default: FALSE)			B	1
Sy2bw_vgs_Processsing_Control_Parameters	Close container				

10.5.3.2 Palette Auxiliary File

The file is in ASCII format. The detailed structure and content of this file is presented in the section 10.1.

FILE Type	Update rate	Size
SY_2_PVSBAX	Infrequently	8 KB

End of Document