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

Product Data Format Specification - SRAL/MWR Level 1 & 2 Instrument Products

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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	01 Oct 2012	DR1 data-package release
1.1	18 Dec 2012	DR1 update data-package and adding Level 2 part for DR2 data package
1.3	19 June 2013	Change of template DR2 update data-package
1.4	10 July 2013	Update following V1 FAT
1.5	24 Mar 2014	RIDs and SPRs correction update
1.6	17 April 2014	Typo correction
1.7	17 June 2014	Typo correction
1.8	25 November 2014	Product size correction Update for MWR V3 GPP
1.9	10 February 2015	Reference update
1.10	30 june 2015	Updates linked to Minor change CCN-3
1.11	10 July 2015	Take into account RIDs on version 1.10
2.0	26/10/2015	Update for the generation of the new L1A and L1B-S products
2.1	25/02/2016	Corrections on L1A and L1B-S products
2.2	15/04/2016	Corrections following L1A/L1BS TRR
2.3	20/06/2016	L1A SRAL Product size reduction

ISSUE	DATE	REASON
2.4	30/09/2016	Update SR-1 product map
2.5	24/01/2017	Update SR-1 product map, following quantization of L1BS stack power
2.6	09/06/2017	MWR : Update along-track averaging flag, description of MWR LTM MON , update related to new calibration timeline Update SR1 CAL product format Update SR-1 SRAL product format Update SR-2 product format
2.7	13/07/2017	Minor update of SR1 CAL, SR-1 SRAL and SR-2 product format
2.8	01/09/2017	Correction of units attributes for UTC_sec fields of MWR L1B products (MWR and CAL)
2.9	15/11/2017	Change MSS solution for SSHA from solution 1 to solution 2 (DTU15)

Document Change Record

No.	Change in Issue	Description	Affected Section
1	1.1	Correction of the unit for “sral_fine_time_l1b” variable	0, 4.2.1.4.2, 4.2.1.4.3, 6.1.1.4.1, 6.1.1.4.2, 6.1.1.4.3, 6.1.1.4.4, 6.1.1.4.5
2	1.1	Typo: “Commens” changed to “Comments”	4.2.1.4.2, 6.1.1.4.2, 6.1.1.4.5
3	1.1	Name of the parameters missing in front of the “add_offset” line	6.1.1.4.3
4	1.1	DR2 Data Package: SRAL/MWR L2 product format	4 and 5
5	1.1	S3IPF-340, S3IPF-521: Adding of the definition of the MWR L1b CAL product	6.1.3
6	1.1	S3IPF-367: Adding of the size of the CAL products	6
7	1.1	S3IPF-455: Correction of the attributes of the Loss of Track criterion	0, 4.2.1.4.2, 4.2.1.4.3
8	1.1	S3IPF-480: Correction of the title of the section	8

No.	Change in Issue	Description	Affected Section
9	1.1	S3IPF-484: Correction of the reference to the MWR L1b secondary metadata	1.1
10	1.1	S3IPF-493: Correction of the size of the SRAL L1b product	9
11	1.1	S3IPF-504: Removal of the acronyms list and reference to the Product Structure Volume	1.4
12	1.1	S3IPF-505: Further information about the calibration and monitoring modes of the MWR instrument	2.2
13	1.1	S3IPF-507: Removal of the information of the availability of the product to the end-users	3.1
14	1.1	S3IPF-510: Product Specification of SRAL/MWR L1 and L2 provided in different documents	-
15	1.1	S3IPF-515: Correction of typo in a label of table 4-1	Table 4-1
16	1.2	Change of document template.	Entire document
17	1.2	S3IPF-833: Adding of the MWR CAL L1b product in the MWR product tree	3.2
18	1.2	S3IPF-993: Adding of the missing references	3.3 4.1.1
19	1.2	S3IPF-718: Correction of the changes for RID 510 and 515	Present table
20	1.2	S3IPF-732: Completion of missing sections regarding the MWR L1b product	7.1.4 7.3.4
21	1.2	S3IPF-734: Removal of the reference to the Drivers TN and introduction of the reference to the Product Structure Volume	7.2
22	1.2	S3IPF-722: Correction of reference to S3 File Naming Convention	3.3
23	1.3	Update of the specification of the MWR Calibration Product: • Removal of the time delay for NIR and DNB calibration • Correction of the dimensions of the product Adding of the monitoring parameter “Corrected noise injection temperature”	6.1.3
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25	1.3	S3IPF-994: Removal of the TBC regarding the CF convention version	4.2.1.3 6.1.1.3
26	1.3	S3IPF-893: The Secondary Metadata are removed from the MWR products	6.1.2.3 6.1.3.3

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28	1.3	S3IPF-742: Adding a state for the flag of Meteo Map Availability	6.2.4.6.127
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69	2.1	S3IPF-2139: correct typo on L1BS product name	Figure 3-1
70	2.1	Corrections of typos detected while implementing L1A/L1BS product generation	4.2.2.4.1 ~~4.2.2.4.2~~ 4.2.3.4.1 4.2.3.4.2
71	2.1	Reduce accuracy of max_stack to avoid overflow Align max_stack scale factor between L1B and L1BS. Align power_var_stack scale factor with max_stack scale factor	4.2.1.4.2 4.2.3.4.1
72	2.1	Reduce accuracy of PTR power to avoid overflow	6.1.1.4.1 (Table 4-18) 6.1.1.4.2 (Table 4-19)
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No.	Change in Issue	Description	Affected Section
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88	2.6	SIIIMPC-1846: Addition of orbit type in SRAL L2	6.2.4.5 6.2.4.6.127
89	2.6	SIIIMPC-1843: Addition of 1Hz/20Hz indexes in SRAL L2	6.2.4.5 6.2.4.6.3 6.2.4.6.4 6.2.4.6.5
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97	2.8	SIIIMPC-1843: Update of the unit of UTC_sec fields for MWR L1B products	6.1.2.4 6.1.3.4
98	2.9	SIIIMPC-1991: Apply MSS DTU 15 (solution 2) to ssha and ssha_sea_ice	6.2.4.6.41

1. INTRODUCTION

1.1 Purpose and Scope

This document aims to identify and specify the format of the Sentinel 3 SRAL and MWR products for Level 1 and Level 2. SRAL and MWR L0 products are described in [RD- 3].

1.2 Structure of the Document

Chapter Number	Title	Contents
1	INTRODUCTION	This section.
2	OVERVIEW OF THE INSTRUMENT	A description of the main features and characteristics of the SRAL and MWR instruments is provided here.
3	PRODUCT OVERVIEW	The Product Tree for SRAL and MWR instruments and the product names convention are specified here.
4	SRAL/MWR PRODUCT FORMAT SPECIFICATION	In this section the format of each SRAL and MWR Products for Level 1 and Level 2 is specified.
5	MANIFEST FILE DESCRIPTION	In this section details for the implementation of the manifest file are provided.
6	XML SCHEMA	In this section details on the manifest schemas are provided.
7	PRODUCT SIZE	In this section details of the size of each product are provided.

Table 1-1: 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, Issue 1.3, 07/11/2012
AD- 2	Product Data Format Specification - Product Structures	S3IPF.PDS.002, i1r6, 10/02/2015

ID	Document	Reference
AD- 3	Drivers for the S3 PDGS Processing Function Implementation	EUM/LEO-SEN3/TEN/09/0183, V1F, ESA:GMES-GSEG-EOPG-TN-11-0062, i1r7, 27/06/2014
AD- 4	Metadata Specification, Excel document	S3IPF.PDS.008, i3r0.6 *This reference is the baseline document describing the primary and secondary metadata of the product manifests. As soon as this document is consolidated, the tables will be fully included in the present document.*
AD- 5	XML Schemas.zip (Zip file containing all the schemas used to represent the metadata)	S3IPF PDS 009, i2r3 – 10/02/2015
AD- 6	Sentinel SAFE control book volume 1 – core specifications,	GAEL-P264-DOC-0001-01-01, i1r1, 05/06/2012
AD- 7	S-3 Core PDGS Implementation, System Technical Budget	S3PDGS.REP.002
AD- 8	SRAL Input/Output Definition Document for Product Level 1a/1b-S	S3-TN-ESA-SR-0433

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, i1r14, 12/11/2010
RD- 3	S3PDGS Product Data Format Specification - Level 0	S3IPF.PDS.001, i1r7, 10/02/2015
RD- 4	Surface Topography Mission (STM) L0 and L1 Products Specifications (SY-4)	S3-IF-CLS-SY-00061, i9r0, 13/07/2012

1.4 Terms, Definitions and Abbreviated Terms

Terms, Definitions and Abbreviated Terms are identified in the common volume of the product format specifications in [AD- 2].

1.5 Intellectual property rights for specific parts this document

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Section	IPR/Document Reference
Section 4.3.3 and sub-sections	Document Title: Surface Topography Mission (STM) SRAL/MWR L2 Products Specifications Document Reference: S3PAD-RS-CLS-SD02-00013 Issue: i11r0 Date: 07/12/2012

2. OVERVIEW OF THE INSTRUMENT

2.1 Altimeter (SRAL)

SRAL (Synthetic Aperture Radar Altimeter) is a redundant dual-frequency (C-band and Ku-band) instrument for determining the two-way delay of the radar echo from the Earth's surface with a precision better then a nanosecond. SRAL altimeter measurements are performed either in Low Resolution Mode (LRM) or in Synthetic Aperture Radar (SAR) mode. LRM mode is the conventional altimeter pulse limited mode with interleaved Ku-band and C-band pulses, while SAR mode is the high along track resolution mode based on Synthetic Aperture Radar processing, made of Ku-band bursts, each of then being surrounded by two C-band pulses (for ionosphere delay correction) to be also able to operate over open ocean.

- In LRM mode, pulses are transmitted at the Pulse Repetition Frequency (PRF about 1924 Hz) rhythm, following a typical pattern of 3 Ku-band pulses / 1 C-band pulse / 3 Ku-band pulses. These pulses are processed and averaged on-board to provide a power waveform (128 I2+Q2 samples) about every 50.9 ms, corresponding to the averaging of 84 Ku-band pulses and of 14 C-band pulses. This measurement is called an elementary measurement or a 20-Hz measurement. It contains Ku-band and C-band waveforms and associated parameters.

- In SAR mode, the Pulse Repetition Frequency (PRF) is about 17 800 Hz. Pulses are transmitted by a series of 66 (1 C-band pulse / 64 Ku-band pulses / 1 C-band pulses), called a burst, corresponding to a duration of about 12.74 ms. A burst corresponds thus to a 80-Hz measurement, and contains 64 Ku-band and 2 C-band waveforms (128 I and Q samples for each of them).

  For both LRM and SAR modes, the tracking function may be a closed loop or an open loop function. “Closed loop” means that the range tracking parameters are computed by the tracking algorithm, while in “Open loop” means that these parameters are computed directly from altitude values read from a one-dimensional OLTC file stored in the instrument coupled with the position/velocity coordinates of the navigation bulletin sent every second to the platform by the GPS receiver.

2.2 Radiometer (MWR)

MWR radiometer is a dual frequency, single polarization and fully redounded radiometer. The centre frequencies of each channel are 23.8 GHz and 36.5 GHz, with a channel bandwidth of 200 MHz.

MWR is a Noise Injection Radiometer (NIR). The noise injection operation consists of adding noise to the antenna branch in order to equal the temperature of the internal load noise temperature. This balanced condition takes places at a common plane for all involved temperatures, which has been defined at the output of the Dicke switch. The amount of injected noise allows the retrieval of the brightness temperature.

There are three main operational states: observation, monitoring, and calibration.

During observation, the radiometer is looking through the main antenna towards the Earth and, in case of a brightness temperature lower than the reference temperature, the noise injection pulse is used to retrieve this brightness temperature.

During monitoring, the MWR L1b monitoring parameters are computed from Level 0 monitoring parameters. The monitoring operation consists of looking through the deep sky through the sky horn, whose brightness temperature is well known. This processing is needed to monitor the level of injected noise and its stability.

During calibration, the level of noise injection temperature in balanced mode and the receiver gain in non-balanced mode are retrieved. In both cases, the deep sky is used as target with fixed known brightness temperatures.

3. PRODUCT OVERVIEW

A graphical representation of the product tree for SRAL and MWR instrument is provided in Figure 3-1.

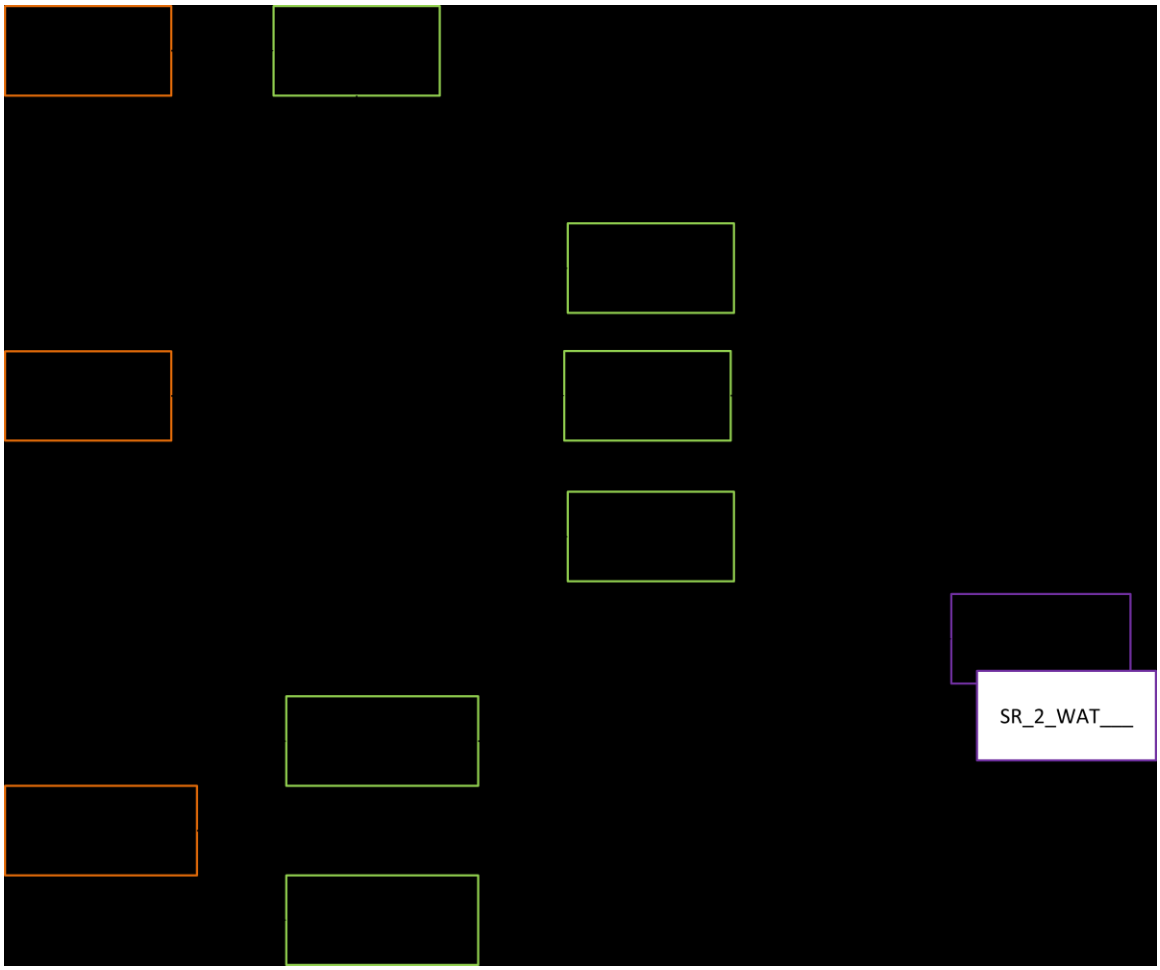

Figure 3-1: SRAL/MWR Product Tree – from Level 0 up to Level 2

3.1 SRAL Product Tree

The S-3 SRAL products are summarized in the next table:

Product type	Description	Level
SR_0_SRA___	SRAL ISPs Raw Data for LRM and SAR Mode	Level 0
SR_0_CAL___	SRAL ISPs Raw Data for Calibration Mode	Level 0
SR_1_SRA___	Echos parameters for LRM, PLRM and SAR mode (resolution 20Hz)	Level 1
SR_1_SRA_A_	Echos parameters for PLRM and SAR mode (resolution 80Hz)	Level 1
SR_1_SRA_BS	Echos parameters for LRM, PLRM	Level 1

	and SAR mode (resolution 20Hz), completed with SAR expert information	
SR_1_CAL___	Calibration parameters for LRM and SAR mode	Level 1
SR_2_LAN___	1-Hz and 20-Hz Ku and C bands parameters (LRM/SAR/PLRM), waveforms. Over Land	Level 2
SR_2_WAT___	1-Hz and 20-Hz Ku and C bands parameters (LRM/SAR/PLRM), waveforms. Over Water	Level 2

Table 3-1: SRAL Product Tree

Note that the Level 0 products are listed here only for the sake of completeness however these products are not in the scope of this document and they won't be addressed any longer in this document. Please refer to RD-3 for the specification of these products.

Regarding the Level 1 products, they are offered in the form of the following products:

- SRAL Level 1A products contain the unpacked L0 complex echoes that have been sorted and calibrated.
- SRAL Level 1B products include the LRM/SAR averaged measurements (20Hz)
- SRAL Level 1B-S products include the regular Level 1B product, enriched with SAR expert information (complex I&Q echoes after slant range correction, without the multi-looking being performed, ...).

As far as the Level 2 products are concerned, they are split into Land (SR_2_LAN___) and Marine (SR_2_WAT__) products according to their contents. In particular:

- SRAL Level 2 Marine Products contain information sensed over the open ocean, the coastal areas, the sea-ice and over part of the land within a certain distance from the coastline.
- SRAL Level 2 Land Products contain information sensed over land, the coastal areas, land ice and inland water.

The measurements over the coastal areas and over part of the land within a certain distance from the coastline are contained both in the land and marine products in order to ensure the analysis of transition and meaningful continuity of segments.

3.2 MWR Product Tree

The S-3 MWR products are summarized in Table 3-2.

Product type	Description	Availability to the User	Level
MW_0_MWR___	Observation, calibration and Monitoring Parameters from MWR ISPs.	Not Available	Level 0
MW_1_MWR___	Level 1 observation data	Not Available	Level 1
MW_1_CAL___	Level 1 monitoring and calibration	Not Available	Level 1

	data		

Table 3-2: MWR Product Tree

Note that the Level 0 products are listed here only for the sake of completeness however these products are not in the scope of this document and they won't be addressed any longer in this document. Please refer to [RD- 3] for the specification of these products.

3.3 Product Naming Convention

The names of the SRAL and MWR products comply with the Sentinel 3 file naming convention, according to [AD- 1].

4. SRAL/MWR PRODUCT FORMAT SPECIFICATION

4.1 General Product Structure

4.1.1 Package Layout

The format of every Sentinel 3 product is described in [AD- 2]. The Product Package is sketched in Figure 4-1.

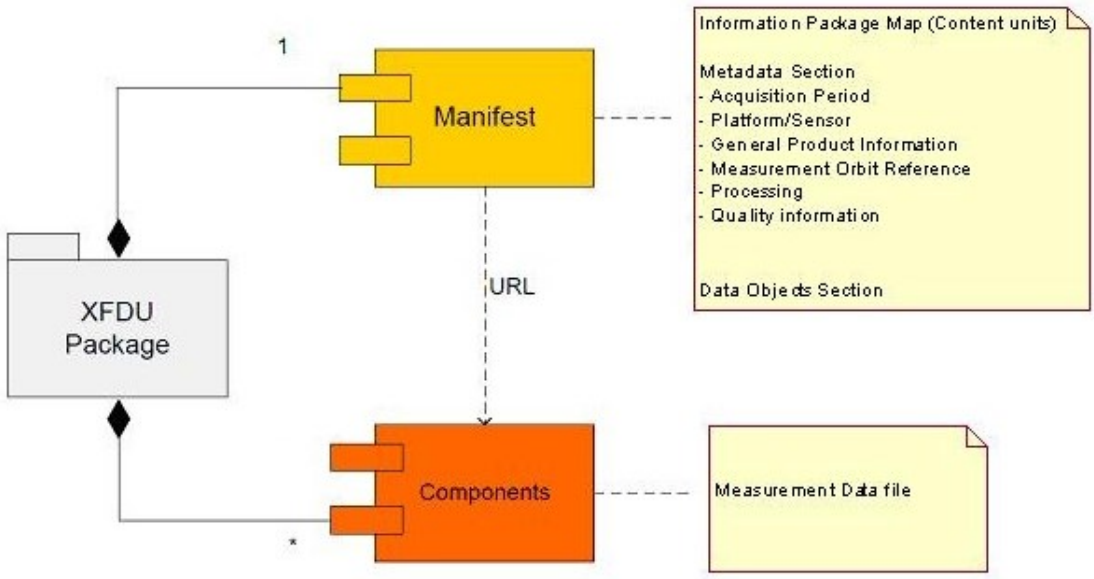

Figure 4-1: XFDU package

In the following sections the physical composition of each package is specified for the SRAL and MWR instruments.

The components of the package that are not part of the current operational production baseline are identified with a flag in the column N.O. (Not Operational). These components might be required to be generated at a later time during the mission lifecycle.

4.1.2 Primary Metadata

The primary metadata is contained in various wrapped metadata units within the Sentinel-SAFE manifest: “acquisitionPeriod”, “platform”, " generalProductInformation ", “measurementOrbitRerence”, “processing”, “measurementQualityInformation”, “measurementFrameSet”, “generalProductInformation” and “sralProductInformation”. The fields are described in [AD- 5].

4.1.3 Measurement Data Files

The format of the measurement data files is NetCDF 4.

A NetCDF file contains dimensions, variables, and attributes, which all have both a name by which they are identified. These components can be used together to capture the meaning of data and relations among data fields in an array-oriented data set.

The Common global attributes defined for each netCDF file composing the products are fully defined in the common volume of the product data format specification documents named "Product structures" and referenced as [AD- 2].

In addition to these Common Global Attributes, Specific Global Attributes are defined in the present document for each netCDF file.

4.2 SRAL and MWR Level 1 Products

The format of this data is NetCDF 4. A NetCDF file contains dimensions, variables, and attributes, which all have both a name by which they are identified. These components can be used together to capture the meaning of data and relations among data fields in an array-oriented data set.

4.2.1 SRAL "SR_1_SRA___"

A Level 1 SRAL product contains one "measurement data file" containing the L1b measurements parameters:

- ECHO_LRM: L1b Tracking measurements in LRM mode (20 Hz – Ku and C bands)
- ECHO_SAR_Ku: L1b Tracking measurements in SAR mode - Ku band (20-Hz)
- ECHO_PLRM: L1b Tracking measurements in pseudo-LRM mode - (20 Hz – Ku and C bands)

4.2.1.1 Product summary

SR_1_SRA___		*Description* L1b Echos parameters for LRM and SAR mode			
Product Level	**Diss. Timeliness**	**Product Category**	**ApplicationDomain**		**Spatial Resolution**
1	(NRT/STC/NTC)	Not Available to the user	LAN WAT		
Product Dissemination Unit N/A		Number of Package components	Number of Measurement Data Files	Number of Annotation Data Files	Number of Representation Information Files
		3[1]	1	0	0
Product Package Structure					
Manifest file (see section 4.2.1.2 for more details)					
File name		**Composition**			
xfdumanifest.xml					
Measurement Data files (see section 4.2.1 for more details)					**N.O.**
File name		**Composition**			
measurement.nc		L1b Tracking measurements: ECHO_LRM ECHO_SAR_Ku, ECHO_PLRM			
Annotation Data files					**N.O.**
File name		**Composition**			
none					
Representation Information Files					**N.O.**
File name		**Composition**			
none					

Table 4-1: SRAL Measurement Level 1B product physical composition

4.2.1.2 Manifest File

The structure of the Manifest element is described in [AD- 2].

[1] *Number of Package components includes the manifest and the OLQC Report.*

4.2.1.3 Product Metadata

According to [AD- 2], Wrapped Metadata are grouped in Primary Metadata, common to all Sentinel 3 products and Secondary Metadata, specific for instrument and processing level.

Primary Metadata are described in [AD- 2].

Secondary Metadata for the SRAL instrument are reported in Table 4-2. Last columns of the table indicate the applicability of Metadata fields to the processing Level.

< Complete secondary metadata is described in details in [AD- 4].
The content of this table will be embedded in the document when it will be finalized>

Table 4-2: Secondary Metadata for SR_1_SRA___ products

4.2.1.4 L1B Measurement Data Files

The content of the Level 1B SRAL product is described below:

Element name	Description	Range or value	T	D
time_l1b_echo_lrm	**Number of L1B ECHO_LRM measurements**			
time_l1b_echo_sar_ku	**Number of L1B ECHO_SAR_Ku measurements**			
time_l1b_echo_plrm	**Number of L1B ECHO_PLRM measurements**			
echo_sample_ind	**Number of samples in a waveform**			
max_multi_stack_ind	**Maximum number of multilook beams per stack**			
<Specific global attributes>	:Conventions = netCDF convention :mission_name = Name of the mission :altimeter_sensor_name = Name of the altimeter sensor :gnss_sensor_name = Name of the GNSS sensor :doris_sensor_name = Name of the DORIS sensor :acq_station_name = Identification of the acquisition station :first_meas_time = UTC Date of the first measurement of the data set (YYYY-MM-DD HH:MM:SS.mmmmmm) :last_meas_time = UTC Date of the last measurement of the data set (YYYY-MM-DD HH:MM:SS.mmmmmm) :xref_altimeter_level0 = Name of the altimeter level 0 data file :xref_time_correlation = Name of the file containing the time correlation Data :xref_altimeter_orbit = Name of the file containing the Orbit Data :xref_doris_uso = Name of the file containing the DORIS-derived USO frequency :xref_altimeter_ltm_lrm_cal1 = Name of the LTM file containing the LRM mode CAL1 parameters :xref_altimeter_ltm_sar_cal1 = Name of the LTM file containing the SAR mode CAL1 parameters :xref_altimeter_ltm_ku_cal2 = Name of the LTM file containing the Ku-band CAL2 parameters :xref_altimeter_ltm_c_cal2 = Name of the LTM file containing the C-band CAL2 parameters :xref_altimeter_characterisation = Name of the altimeter characterisation data file :semi_major_ellipsoid_axis = Semi-major axis of the reference ellipsoid (meters)		S ul D	

	:ellipsoid_flattening = Flattening coeffcient of the reference ellipsoid			
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
max_multi_stack_ind	**maximum number of multilook beams per stack**		**ss**	**max_multi_stack_ind**
units	Unit name	count		1
comment	Set to be compliant with the CF-1.6 convention			1

Table 4-3: Content of the Level 1B measurement data file (SR_1_SRA___ product)

In addition to the 2 variables shown in the previous table, the Level 1B SRAL product contains the variables described in sections 4.2.1.4.1, 4.2.1.4.2 and 4.2.1.4.3.

4.2.1.4.1 ECHO_LRM

The Echo LRM content is reported in the table below:

Element name	Description	Range or value	T	D
time_l1b_echo_lrm	**UTC : l1b_echo_lrm mode**		**D**	**time_l1b_echo_lrm**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	time		1
calendar		gregorian		1
units	Unit name	seconds since 2000-01-01 00:00:00.0		1
UTC_day_l1b_echo_lrm	**day UTC : l1b_echo_lrm mode**		**ss**	**time_l1b_echo_lrm**
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_l1b_echo_lrm	**seconds in the day UTC : l1b_echo_lrm mode**		**D**	**time_l1b_echo_lrm**
units	Unit name	s		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
GPS_time_l1b_echo_lrm	**GPS time : l1b_echo_lrm mode**		**D**	**time_l1b_echo_lrm**
calendar		gregorian		1
units	Unit name	seconds since 1980-01-06 00:00:00.0		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
isp_coarse_time_l1b_echo_lrm	**ISP coarse time : l1b_echo_lrm mode**		**ul**	**time_l1b_echo_lrm**
units	Unit name	second		1
_FillValue	Default value for unused or not computed elements	4294967295		1
isp_fine_time_l1b_echo_lrm	**ISP fine time : l1b_echo_lrm mode**		**sl**	**time_l1b_echo_lrm**
units	Unit name	2^-24 second		1
_FillValue	Default value for unused or not computed elements	2147483647		1
sral_fine_time_l1b_echo_lrm	**ISP SRAL fine datation : l1b_echo_lrm mode**		**ul**	**time_l1b_echo_lrm**
units	Unit name	137.5*10^-9 second		1
_FillValue	Default value for unused or not computed elements	4294967295		1
lat_l1b_echo_lrm	**latitude : l1b_echo_lrm mode**		**sl**	**time_l1b_echo_lrm**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF)	latitude		1

	Metadata Conventions			
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees_north		1
_FillValue	Default value for unused or not computed elements	2147483647		1
lon_l1b_echo_lrm	**longitude : l1b_echo_lrm mode**		**sl**	**time_l1b_echo_lrm**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	longitude		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees_east		1
_FillValue	Default value for unused or not computed elements	2147483647		1
alt_l1b_echo_lrm	**altitude of satellite : l1b_echo_lrm mode**		**sl**	**time_l1b_echo_lrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	700000.		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
orb_alt_rate_l1b_echo_lrm	**orbital altitude rate : l1b_echo_lrm mode**		**ss**	**time_l1b_echo_lrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m/s		1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
flag_time_status_l1b_echo_lrm	**time status flag : l1b_echo_lrm mode**		**sc**	**time_l1b_echo_lrm**
flag_values	Flag values	0b, 1b		1
comment	flag indicating if the time is synchronized or not with GPS time			1
flag_meanings	Flag meanings	synchronization no_synchronization		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
flag_time_corr_val_l1b_echo_lrm	**time correlation validity flag : l1b_echo_lrm mode**		**sc**	**time_l1b_echo_lrm**
flag_values	Flag values	0b, 1b, 2b		1
comment	flag indicating if the time correlation information is valid provided by OBSW, valid provided by Ground Segment or invalid			1

flag_meanings	Flag meanings	valid_obsw valid_ground_segment invalid		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
flag_man_pres_l1b_echo_lrm	**manoeuvre presence flag: l1b_echo_lrm mode**		**sc**	**time_l1b_echo_lrm**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	no_manoeuvre ongoing_manoeuvre		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
flag_man_thrust_l1b_echo_lrm	**manoeuvre thrust flag: l1b_echo_lrm mode**		**sc**	**time_l1b_echo_lrm**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	no_thrust ongoing_thrust		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
flag_man_plane_l1b_echo_lrm	**manoeuvre plane flag: l1b_echo_lrm mode**		**sc**	**time_l1b_echo_lrm**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	in_plane out_of_plane		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
flag_gnss_status_l1b_echo_lrm	**validity flag for the navigation message from the gnss receiver: l1b_echo_lrm mode**		**sc**	**time_l1b_echo_lrm**
comment	indicating if the navigation message from the GNSS receiver is valid or not valid/available			1
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	valid invalid_unavailable		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
x_pos_l1b_echo_lrm	**satellite altitude - x component : l1b_echo_lrm mode**		**D**	**time_l1b_echo_lrm**
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
y_pos_l1b_echo_lrm	**satellite altitude - y component : l1b_echo_lrm mode**		**D**	**time_l1b_echo_lrm**
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
z_pos_l1b_echo_lrm	**satellite altitude - z component : l1b_echo_lrm mode**		**D**	**time_l1b_echo_lrm**
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1

x_vel_l1b_echo_lrm	**satellite velocity - x component : l1b_echo_lrm mode**		**D**	**time_l1b_echo_lrm**
units	Unit name	m/s		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
y_vel_l1b_echo_lrm	**satellite velocity - y component : l1b_echo_lrm mode**		**D**	**time_l1b_echo_lrm**
units	Unit name	m/s		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
z_vel_l1b_echo_lrm	**satellite velocity - z component : l1b_echo_lrm mode**		**D**	**time_l1b_echo_lrm**
units	Unit name	m/s		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
nav_bul_status_l1b_echo_lrm	**navigation bulletin status : l1b_echo_lrm mode**		**sc**	**time_l1b_echo_lrm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	ok ko		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
nav_bul_source_l1b_echo_lrm	**navigation bulletin source identifier : l1b_echo_lrm mode**		**sc**	**time_l1b_echo_lrm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	gps doris		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
nav_bul_coarse_time_l1b_echo_lrm	**navigation bulletin coarse time : l1b_echo_lrm mode**		**ul**	**time_l1b_echo_lrm**
units	Unit name	second		1
_FillValue	Default value for unused or not computed elements	4294967295		1
nav_bul_fine_time_l1b_echo_lrm	**navigation bulletin fine time : l1b_echo_lrm mode**		**ul**	**time_l1b_echo_lrm**
units	Unit name	2^-24 second		1
_FillValue	Default value for unused or not computed elements	4294967295		1
seq_count_l1b_echo_lrm	**sequence count : l1b_echo_lrm mode**		**us**	**time_l1b_echo_lrm**
_FillValue	Default value for unused or not computed elements	65535		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
isp_time_status_l1b_echo_lrm	**ISP time status : l1b_echo_lrm mode**		**sc**	**time_l1b_echo_lrm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1

flag_meanings	Flag meanings	SRAL_OBT_extrapolated SRAL_OBT_updated_with_SMU_OBT		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
oper_instr_l1b_echo_lrm	**operating instrument : l1b_echo_lrm mode**		**sc**	**time_l1b_echo_lrm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	A B		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
comment	Instrument A stands for SRAL Nominal and instrument B stands for SRAL Redundant			1
mode_id_l1b_echo_lrm	**LRM mode identifier : l1b_echo_lrm mode**		**sc**	**time_l1b_echo_lrm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	closed_loop open_loop		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
cl_gain_l1b_echo_lrm	**tracking configuration - closed loop gain : l1b_echo_lrm mode**		**sc**	**time_l1b_echo_lrm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	Nominal_value Nominal_value_with_back-off		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
acq_stat_l1b_echo_lrm	**tracking configuration - acquisition status : l1b_echo_lrm mode**		**sc**	**time_l1b_echo_lrm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	no_acquisition acquisition		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
dem_eeprom_l1b_echo_lrm	**tracking configuration - DEM EEPROM read access : l1b_echo_lrm mode**		**sc**	**time_l1b_echo_lrm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	enabled disabled		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
weighting_l1b_echo_lrm	**altimeter configuration - weighting function : l1b_echo_lrm mode**		**sc**	**time_l1b_echo_lrm**
flag_values	Flag values	0b, 1b		1

_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	enabled disabled		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
loss_track_l1b_echo_lrm	**loss of track criterion : l1b_echo_lrm mode**		**sc**	**time_l1b_echo_lrm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	normal loss_of_track		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
h0_nav_dem_l1b_echo_lrm	**altitude command H0 computed with nav DEM : l1b_echo_lrm mode**		**ul**	**time_l1b_echo_lrm**
units	Unit name	3.125/64*10^-9 s		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
h0_applied_l1b_echo_lrm	**applied altitude command H0 : l1b_echo_lrm mode**		**ul**	**time_l1b_echo_lrm**
units	Unit name	3.125/64*10^-9 s		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
cor2_nav_dem_l1b_echo_lrm	**altitude command COR2 computed with nav DEM : l1b_echo_lrm mode**		**ss**	**time_l1b_echo_lrm**
units	Unit name	3.125/1024 10-9 s		1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
cor2_applied_l1b_echo_lrm	**applied altitude command COR2 : l1b_echo_lrm mode**		**ss**	**time_l1b_echo_lrm**
units	Unit name	3.125/1024*10^-9 s		1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
dh0_l1b_echo_lrm	**distance error computed on the echo of the cycle (N-2) in open loop mode (current cycle**		**sl**	**time_l1b_echo_lrm**
units	Unit name	3.125/64*10^-9 s		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
agccode_ku_l1b_echo_lrm	**AGCCODE for ku band : l1b_echo_lrm mode**		**sc**	**time_l1b_echo_lrm**
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	127		1

coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
agccode_c_l1b_echo_lrm	**AGCCODE for c band : l1b_echo_lrm mode**		**sc**	**time_l1b_echo_lrm**
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	127		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
surf_type_l1b_echo_lrm	**altimeter surface type : l1b_echo_lrm mode**		**sc**	**time_l1b_echo_lrm**
flag_values	Flag values	0b, 1b, 2b, 3b		1
flag_meanings	Flag meanings	open_ocean_or_semi-enclosed_seas enclosed_seas_or_lakes continental_ice land		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
range_ku_l1b_echo_lrm	**corrected range for ku band : l1b_echo_lrm mode**		**sl**	**time_l1b_echo_lrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	700000.		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
range_c_l1b_echo_lrm	**corrected range for c band : l1b_echo_lrm mode**		**sl**	**time_l1b_echo_lrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	700000.		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
uso_cor_l1b_echo_lrm	**USO frequency drift correction : l1b_echo_lrm mode**		**sl**	**time_l1b_echo_lrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
int_path_cor_ku_l1b_echo_lrm	**internal path correction for ku band : l1b_echo_lrm mode**		**sl**	**time_l1b_echo_lrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1

units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
int_path_cor_c_l1b_echo_lrm	**internal path correction for c band : l1b_echo_lrm mode**		**sl**	**time_l1b_echo_lrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
dop_cor_ku_l1b_echo_lrm	**doppler correction for ku band : l1b_echo_lrm mode**		**sl**	**time_l1b_echo_lrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
dop_cor_c_l1b_echo_lrm	**doppler correction for c band : l1b_echo_lrm mode**		**sl**	**time_l1b_echo_lrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
range_rate_l1b_echo_lrm	**range rate : l1b_echo_lrm mode**		**sl**	**time_l1b_echo_lrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-03		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m/s		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
agc_ku_l1b_echo_lrm	**corrected AGC for ku band: l1b_echo_lrm mode**		**sl**	**time_l1b_echo_lrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	2147483647		1

coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
comment	AGC corrected for instrumental errors			1
agc_c_l1b_echo_lrm	**corrected AGC for c band: l1b_echo_lrm mode**		**sl**	**time_l1b_echo_lrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
comment	AGC corrected for instrumental errors			1
scale_factor_ku_l1b_echo_lrm	**scaling factor for sigma0 evaluation for ku band: l1b_echo_lrm mode**		**sl**	**time_l1b_echo_lrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
comment	scaling factor corrected for AGC instrumental errors and internal calibration			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
scale_factor_c_l1b_echo_lrm	**scaling factor for sigma0 evaluation for c band: l1b_echo_lrm mode**		**sl**	**time_l1b_echo_lrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
comment	scaling factor corrected for AGC instrumental errors and internal calibration			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
agc_cor_ku_l1b_echo_lrm	**correction for instrumental errors on AGC for ku band: l1b_echo_lrm mode**		**sl**	**time_l1b_echo_lrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
agc_cor_c_l1b_echo_lrm	**correction for instrumental errors on AGC for c band: l1b_echo_lrm mode**		**sl**	**time_l1b_echo_lrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1

units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
sig0_cal_ku_l1b_echo_lrm	**internal calibration correction on Sigma0 for ku band: l1b_echo_lrm mode**		**sl**	**time_l1b_echo_lrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
sig0_cal_c_l1b_echo_lrm	**internal calibration correction on Sigma0 for c band: l1b_echo_lrm mode**		**sl**	**time_l1b_echo_lrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_lrm lat_l1b_echo_lrm			1
i2q2_meas_ku_l1b_echo_lrm	**I2+Q2 measurement for ku band : l1b_echo_lrm mode**		**ul**	**time_l1b_echo_lrm echo_sample_ind**
scale_factor	The data must be multiplied by this factor after reading	1.00e-03		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
_FillValue	Default value for unused or not computed elements	4294967295		1
comment	the echo is corrected for the GPRW effect			1
i2q2_meas_c_l1b_echo_lrm	**I2+Q2 measurement for c band : l1b_echo_lrm mode**		**ul**	**time_l1b_echo_lrm echo_sample_ind**
scale_factor	The data must be multiplied by this factor after reading	1.00e-03		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
_FillValue	Default value for unused or not computed elements	4294967295		1
comment	the echo is corrected for the GPRW effect			1

Table 4-4: Content of the Level 1B measurement data file (SR_1_SRA___ product) : ECHO_LRM parameters

4.2.1.4.2 ECHO_SAR_Ku

The Echo SAR_Ku content is reported in the table below:

Element name	Description	Range or value	T	D
time_l1b_echo_sar_ku	**UTC : l1b_echo_sar_ku mode**		**D**	**time_l1b_echo_sar_ku**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	time		1
calendar		gregorian		1
units	Unit name	seconds since 2000-01-01 00:00:00.0		1
UTC_day_l1b_echo_sar_ku	**day UTC : l1b_echo_sar_ku mode**		**ss**	**time_l1b_echo_sar_ku**
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_l1b_echo_sar_ku	**seconds in the day UTC : l1b_echo_sar_ku mode**		**D**	**time_l1b_echo_sar_ku**
units	Unit name	s		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
GPS_time_l1b_echo_sar_ku	**GPS time : l1b_echo_sar_ku mode**		**D**	**time_l1b_echo_sar_ku**
calendar		gregorian		1
units	Unit name	seconds since 1980-01-06 00:00:00.0		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
isp_coarse_time_l1b_echo_sar_ku	**ISP coarse time : l1b_echo_sar_ku mode**		**ul**	**time_l1b_echo_sar_ku**
units	Unit name	second		1
_FillValue	Default value for unused or not computed elements	4294967295		1
isp_fine_time_l1b_echo_sar_ku	**ISP fine time : l1b_echo_sar_ku mode**		**sl**	**time_l1b_echo_sar_ku**
units	Unit name	2^-24 second		1
_FillValue	Default value for unused or not computed elements	2147483647		1
sral_fine_time_l1b_echo_sar_ku	**ISP SRAL fine datation : l1b_echo_sar_ku mode**		**ul**	**time_l1b_echo_sar_ku**

units	Unit name	137.5*10^-9 second		1
_FillValue	Default value for unused or not computed elements	4294967295		1
lat_l1b_echo_sar_ku	**latitude : l1b_echo_sar_ku mode**		**sl**	**time_l1b_echo_sar_ku**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	latitude		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees_north		1
_FillValue	Default value for unused or not computed elements	2147483647		1
lon_l1b_echo_sar_ku	**longitude : l1b_echo_sar_ku mode**		**sl**	**time_l1b_echo_sar_ku**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	longitude		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees_east		1
_FillValue	Default value for unused or not computed elements	2147483647		1
alt_l1b_echo_sar_ku	**altitude of satellite : l1b_echo_sar_ku mode**		**sl**	**time_l1b_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	700000.		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
orb_alt_rate_l1b_echo_sar_ku	**orbital altitude rate : l1b_echo_sar_ku mode**		**ss**	**time_l1b_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m/s		1

_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
flag_time_status_l1b_echo_sar_ku	**time status flag : l1b_echo_sar_ku mode**		**sc**	**time_l1b_echo_sar_ku**
flag_values	Flag values	0b, 1b		1
comment	flag indicating if the time is synchronized or not with GPS time			1
flag_meanings	Flag meanings	synchronization no_synchronization		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
flag_time_corr_val_l1b_echo_sar_ku	**time correlation validity flag : l1b_echo_sar_ku mode**		**sc**	**time_l1b_echo_sar_ku**
flag_values	Flag values	0b, 1b, 2b		1
comment	flag indicating if the time correlation information is valid provided by OBSW, valid provided by Ground Segment or invalid			1
flag_meanings	Flag meanings	valid_obsw valid_ground_segment invalid		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
flag_man_pres_l1b_echo_sar_ku	**manoeuvre presence flag: l1b_echo_sar_ku mode**		**sc**	**time_l1b_echo_sar_ku**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	no_manoeuvre ongoing_manoeuvre		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
flag_man_thrust_l1b_echo_sar_ku	**manoeuvre thrust flag: l1b_echo_sar_ku mode**		**sc**	**time_l1b_echo_sar_ku**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	no_thrust ongoing_thrust		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
flag_man_plane_l1b_echo_sar_ku	**manoeuvre plane flag: l1b_echo_sar_ku mode**		**sc**	**time_l1b_echo_sar_ku**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	in_plane		1

		out_of_plane		
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
flag_gnss_status_l1b_echo_sar_ku	**validity flag for the navigation message from the gnss receiver: l1b_echo_sar_ku mode**		**sc**	**time_l1b_echo_sar_ku**
comment	indicating if the navigation message from the GNSS receiver is valid or not valid/available			1
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	valid invalid_unavailable		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
x_pos_l1b_echo_sar_ku	**satellite altitude - x component : l1b_echo_sar_ku mode**		**D**	**time_l1b_echo_sar_ku**
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
y_pos_l1b_echo_sar_ku	**satellite altitude - y component : l1b_echo_sar_ku mode**		**D**	**time_l1b_echo_sar_ku**
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
z_pos_l1b_echo_sar_ku	**satellite altitude - z component : l1b_echo_sar_ku mode**		**D**	**time_l1b_echo_sar_ku**
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
x_vel_l1b_echo_sar_ku	**satellite velocity - x component : l1b_echo_sar_ku mode**		**D**	**time_l1b_echo_sar_ku**
units	Unit name	m/s		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
y_vel_l1b_echo_sar_ku	**satellite velocity - y component : l1b_echo_sar_ku mode**		**D**	**time_l1b_echo_sar_ku**
units	Unit name	m/s		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
z_vel_l1b_echo_sar_ku	**satellite velocity - z component : l1b_echo_sar_ku mode**		**D**	**time_l1b_echo_sar_ku**
units	Unit name	m/s		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1

nav_bul_status_l1b_echo_sar_ku	**navigation bulletin status : l1b_echo_sar_ku mode**		**sc**	**time_l1b_echo_sar_ku**
flag_values	Flag values	0b, 1b		1
comment	value the closest in time to the reference measurement			1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	ok ko		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
nav_bul_source_l1b_echo_sar_ku	**navigation bulletin source identifier : l1b_echo_sar_ku mode**		**sc**	**time_l1b_echo_sar_ku**
flag_values	Flag values	0b, 1b		1
comment	value the closest in time to the reference measurement			1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	gps doris		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
nav_bul_coarse_time_l1b_echo_sar_ku	**navigation bulletin coarse time : l1b_echo_sar_ku mode**		**ul**	**time_l1b_echo_sar_ku**
units	Unit name	second		1
comment	value the closest in time to the reference measurement			1
_FillValue	Default value for unused or not computed elements	4294967295		1
nav_bul_fine_time_l1b_echo_sar_ku	**navigation bulletin fine time : l1b_echo_sar_ku mode**		**ul**	**time_l1b_echo_sar_ku**
units	Unit name	2^-24 second		1
comment	value the closest in time to the reference measurement			1
_FillValue	Default value for unused or not computed elements	4294967295		1
seq_count_l1b_echo_sar_ku	**sequence count : l1b_echo_sar_ku mode**		**us**	**time_l1b_echo_sar_ku**
comment	value the closest in time to the reference measurement			1
_FillValue	Default value for unused or not computed elements	65535		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
isp_time_status_l1b_echo_sar_ku	**ISP time status : l1b_echo_sar_ku mode**		**sc**	**time_l1b_echo_sar_ku**

flag_values	Flag values	0b, 1b		1
comment	value the closest in time to the reference measurement			1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	SRAL_OBT_extrapolated SRAL_OBT_updated_with_SMU_OBT		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
oper_instr_l1b_echo_sar_ku	**operating instrument : l1b_echo_sar_ku mode**		**sc**	**time_l1b_echo_sar_ku**
flag_values	Flag values	0b, 1b		1
comment	value the closest in time to the reference measurement			1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	A B		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
comment	Instrument A stands for SRAL Nominal and instrument B stands for SRAL Redundant			1
SAR_mode_l1b_echo_sar_ku	**SAR mode identifier : l1b_echo_sar_ku mode**		**sc**	**time_l1b_echo_sar_ku**
flag_values	Flag values	0b, 1b, 2b		1
comment	value the closest in time to the reference measurement			1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	closed_loop open_loop open_loop_fixed_gain		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
cl_gain_l1b_echo_sar_ku	**tracking configuration - closed loop gain : l1b_echo_sar_ku mode**		**sc**	**time_l1b_echo_sar_ku**
flag_values	Flag values	0b, 1b		1
comment	value the closest in time to the reference measurement			1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	Nominal_value Nominal_value_with_back-off		1

coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
acq_stat_l1b_echo_sar_ku	**tracking configuration - acquisition status : l1b_echo_sar_ku mode**		**sc**	**time_l1b_echo_sar_ku**
flag_values	Flag values	0b, 1b		1
comment	value the closest in time to the reference measurement			1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	no_acquisition acquisition		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
dem_eeprom_l1b_echo_sar_ku	**tracking configuration - DEM EEPROM read access : l1b_echo_sar_ku mode**		**sc**	**time_l1b_echo_sar_ku**
flag_values	Flag values	0b, 1b		1
comment	value the closest in time to the reference measurement			1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	enabled disabled		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
weighting_l1b_echo_sar_ku	**altimeter configuration - weighting function : l1b_echo_sar_ku mode**		**sc**	**time_l1b_echo_sar_ku**
flag_values	Flag values	0b, 1b		1
comment	value the closest in time to the reference measurement			1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	enabled disabled		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
loss_track_l1b_echo_sar_ku	**loss of track criterion : l1b_echo_sar_ku mode**		**sc**	**time_l1b_echo_sar_ku**
comment	value the closest in time to the reference measurement			1
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	normal loss_of_track		1

coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
h0_nav_dem_l1b_echo_sar_ku	**altitude command H0 computed with nav DEM : l1b_echo_sar_ku mode**		**ul**	**time_l1b_echo_sar_ku**
units	Unit name	3.125/64*10^-9 s		1
comment	value the closest in time to the reference measurement			1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
h0_applied_l1b_echo_sar_ku	**applied altitude command H0 : l1b_echo_sar_ku mode**		**ul**	**time_l1b_echo_sar_ku**
units	Unit name	3.125/64*10^-9 s		1
comment	value the closest in time to the reference measurement			1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
cor2_nav_dem_l1b_echo_sar_ku	**altitude command COR2 computed with nav DEM : l1b_echo_sar_ku mode**		**ss**	**time_l1b_echo_sar_ku**
units	Unit name	3.125/1024 10-9 s		1
comment	value the closest in time to the reference measurement			1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
cor2_applied_l1b_echo_sar_ku	**applied altitude command COR2 : l1b_echo_sar_ku mode**		**ss**	**time_l1b_echo_sar_ku**
units	Unit name	3.125/1024*10^-9 s		1
comment	value the closest in time to the reference measurement			1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
dh0_l1b_echo_sar_ku	**distance error computed on the echo of the cycle (N-2) in open loop mode (current cycle**		**sl**	**time_l1b_echo_sar_ku**
units	Unit name	3.125/64*10^-9 s		1
comment	value the closest in time to the reference measurement			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1

agccode_ku_l1b_echo_sar_ku	**AGCCODE for ku band : l1b_echo_sar_ku mode**		**sc**	**time_l1b_echo_sar_ku**
units	Unit name	dB		1
comment	value the closest in time to the reference measurement			1
_FillValue	Default value for unused or not computed elements	127		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
surf_type_l1b_echo_sar_ku	**altimeter surface type : l1b_echo_sar_ku mode**		**sc**	**time_l1b_echo_sar_ku**
flag_values	Flag values	0b, 1b, 2b, 3b		1
comment	value the closest in time to the reference measurement			1
flag_meanings	Flag meanings	open_ocean_or_semi-enclosed_seas enclosed_seas_or_lakes continental_ice land		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
range_ku_l1b_echo_sar_ku	**corrected range for ku band : l1b_echo_sar_ku mode**		**sl**	**time_l1b_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	700000.		1
units	Unit name	m		1
comment	reference range corrected for USO frequency drift and internal path correction			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
uso_cor_l1b_echo_sar_ku	**USO frequency drift correction : l1b_echo_sar_ku mode**		**sl**	**time_l1b_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
comment	value the closest in time to the reference measurement			1

_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
int_path_cor_ku_l1b_echo_sar_ku	**internal path correction for ku band : l1b_echo_sar_ku mode**		**sl**	**time_l1b_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
comment	value the closest in time to the reference measurement			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
range_rate_l1b_echo_sar_ku	**range rate : l1b_echo_sar_ku mode**		**sl**	**time_l1b_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-03		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m/s		1
comment	value the closest in time to the reference measurement			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
agc_ku_l1b_echo_sar_ku	**corrected AGC for ku band: l1b_echo_sar_ku mode**		**sl**	**time_l1b_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
comment	AGC corrected for instrumental errors - value the closest in time to the reference measurement			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
scale_factor_ku_l1b_echo_sar_ku	**scaling factor for sigma0 evaluation for ku band: l1b_echo_sar_ku mode**		**sl**	**time_l1b_echo_sar_ku**

scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
comment	scaling factor corrected for AGC instrumental errors and internal calibration			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
agc_cor_ku_l1b_echo_sar_ku	**correction for instrumental errors on AGC for ku band: l1b_echo_sar_ku mode**		**sl**	**time_l1b_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
comment	value the closest in time to the reference measurement			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
sig0_cal_ku_l1b_echo_sar_ku	**internal calibration correction on Sigma0 for ku band: l1b_echo_sar_ku mode**		**sl**	**time_l1b_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
nb_stack_l1b_echo_sar_ku	**number of waveforms summed in stack : l1b_echo_sar_ku mode**		**us**	**time_l1b_echo_sar_ku**
units	Unit name	count		1
_FillValue	Default value for unused or not computed elements	65535		1
max_stack_l1b_echo_sar_ku	**maximum power of stack : l1b_echo_sar_ku mode**		**ul**	**time_l1b_echo_sar_ku**
units	Unit name	FFT power unit		1

_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
stdev_stack_l1b_echo_sar_ku	**standard deviation of stack : l1b_echo_sar_ku mode**		**ul**	**time_l1b_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	rad		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
skew_stack_l1b_echo_sar_ku	**skewness of stack : l1b_echo_sar_ku mode**		**sl**	**time_l1b_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	count		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
kurt_stack_l1b_echo_sar_ku	**kurtosis of stack : l1b_echo_sar_ku mode**		**sl**	**time_l1b_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	count		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
beam_ang_stack_l1b_echo_sar_ku	**look angles in stack: l1b_echo_sar_ku mode**		**ss**	**time_l1b_echo_sar_ku max_multi_stack_ind**
comment	Look angles in stack: l1b_echo_sar_ku mode. These are looking angles and not beam angles. The useful values of the table are the first n_useful values where n_useful is the number of waveforms summed in stack (nb_stack_l1b_echo_sar_ku)			1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1

add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	rad		1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
beam_form_l1b_echo_sar_ku	**flag on beam formation quality in stack : l1b_echo_sar_ku mode**		**us**	**time_l1b_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	percent		1
_FillValue	Default value for unused or not computed elements	65535		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
i2q2_meas_ku_l1b_echo_sar_ku	**multilooked I2+Q2 measurement for ku band : l1b_echo_sar_ku mode**		**ul**	**time_l1b_echo_sar_ku echo_sample_ind**
comment	the echo is corrected for Doppler range effect, phase/power burst calibration and GPRW effect . the echo is scaled using the corrected AGC (agc_ku_l1b_echo_sar_ku)			1
scale_factor	The data must be multiplied by this factor after reading	1.00e-03		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	count		1
_FillValue	Default value for unused or not computed elements	4294967295		1

Table 4-5: Content of the Level 1B measurement data file (SR_1_SRA___ product) : ECHO_SAR_Ku parameters

4.2.1.4.3 ECHO_PLRM

The Echo SAR_PLRM content is reported in the table below:

Element name	Description	Range or value	T	D

time_l1b_echo_plrm	**UTC : l1b_echo_plrm mode**		**D**	**time_l1b_echo_plrm**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	time		1
calendar		gregorian		1
units	Unit name	seconds since 2000-01-01 00:00:00.0		1
UTC_day_l1b_echo_plrm	**day UTC : l1b_echo_plrm mode**		**ss**	**time_l1b_echo_plrm**
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_l1b_echo_plrm	**seconds in the day UTC : l1b_echo_plrm mode**		**D**	**time_l1b_echo_plrm**
units	Unit name	s		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
GPS_time_l1b_echo_plrm	**GPS time : l1b_echo_plrm mode**		**D**	**time_l1b_echo_plrm**
calendar		gregorian		1
units	Unit name	seconds since 1980-01-06 00:00:00.0		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
isp_coarse_time_l1b_echo_plrm	**ISP coarse time : l1b_echo_plrm mode**		**ul**	**time_l1b_echo_plrm**
units	Unit name	second		1
_FillValue	Default value for unused or not computed elements	4294967295		1
isp_fine_time_l1b_echo_plrm	**ISP fine time : l1b_echo_plrm mode**		**sl**	**time_l1b_echo_plrm**
units	Unit name	2^-24 second		1
_FillValue	Default value for unused or not computed elements	2147483647		1
sral_fine_time_l1b_echo_plrm	**ISP SRAL fine datation : l1b_echo_plrm mode**		**ul**	**time_l1b_echo_plrm**
units	Unit name	137.5*10^-9 second		1
_FillValue	Default value for unused or not computed elements	4294967295		1
lat_l1b_echo_plrm	**latitude : l1b_echo_plrm mode**		**sl**	**time_l1b_echo_plrm**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	latitude		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees_north		1
_FillValue	Default value for unused or not computed elements	2147483647		1
lon_l1b_echo_plrm	**longitude : l1b_echo_plrm mode**		**sl**	**time_l1b_echo_plrm**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	longitude		1

scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees_east		1
_FillValue	Default value for unused or not computed elements	2147483647		1
alt_l1b_echo_plrm	**altitude of satellite : l1b_echo_plrm mode**		**sl**	**time_l1b_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	700000.		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
orb_alt_rate_l1b_echo_plrm	**orbital altitude rate : l1b_echo_plrm mode**		**ss**	**time_l1b_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m/s		1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
flag_time_status_l1b_echo_plrm	**time status flag : l1b_echo_plrm mode**		**sc**	**time_l1b_echo_plrm**
flag_values	Flag values	0b, 1b		1
comment	flag indicating if the time is synchronized or not with GPS time			1
flag_meanings	Flag meanings	synchronization no_synchronization		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
flag_time_corr_val_l1b_echo_plrm	**time correlation validity flag : l1b_echo_plrm mode**		**sc**	**time_l1b_echo_plrm**
flag_values	Flag values	0b, 1b, 2b		1
comment	flag indicating if the time correlation information is valid provided by OBSW, valid provided by Ground Segment or invalid			1
flag_meanings	Flag meanings	valid_obsw valid_ground_segment invalid		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
flag_man_pres_l1b_echo_plrm	**manoeuvre presence flag: l1b_echo_plrm mode**		**sc**	**time_l1b_echo_plrm**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	no_manoeuvre ongoing_manoeuvre		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1

flag_man_thrust_l1b_echo_plrm	**manoeuvre thrust flag: l1b_echo_plrm mode**		**sc**	**time_l1b_echo_plrm**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	no_thrust ongoing_thrust		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
flag_man_plane_l1b_echo_plrm	**manoeuvre plane flag: l1b_echo_plrm mode**		**sc**	**time_l1b_echo_plrm**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	in_plane out_of_plane		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
flag_gnss_status_l1b_echo_plrm	**validity flag for the navigation message from the gnss receiver: l1b_echo_plrm mode**		**sc**	**time_l1b_echo_plrm**
comment	indicating if the navigation message from the GNSS receiver is valid or not valid/available			1
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	valid invalid_unavailable		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
x_pos_l1b_echo_plrm	**satellite altitude - x component : l1b_echo_plrm mode**		**D**	**time_l1b_echo_plrm**
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
y_pos_l1b_echo_plrm	**satellite altitude - y component : l1b_echo_plrm mode**		**D**	**time_l1b_echo_plrm**
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
z_pos_l1b_echo_plrm	**satellite altitude - z component : l1b_echo_plrm mode**		**D**	**time_l1b_echo_plrm**
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
x_vel_l1b_echo_plrm	**satellite velocity - x component : l1b_echo_plrm mode**		**D**	**time_l1b_echo_plrm**
units	Unit name	m/s		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
y_vel_l1b_echo_plrm	**satellite velocity - y component : l1b_echo_plrm mode**		**D**	**time_l1b_echo_plrm**
units	Unit name	m/s		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
z_vel_l1b_echo_plrm	**satellite velocity - z component : l1b_echo_plrm mode**		**D**	**time_l1b_echo_plrm**
units	Unit name	m/s		1

_FillValue	Default value for unused or not computed elements	18446744073709551616		1
nav_bul_status_l1b_echo_plrm	**navigation bulletin status : l1b_echo_plrm mode**		**sc**	**time_l1b_echo_plrm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	ok ko		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
nav_bul_source_l1b_echo_plrm	**navigation bulletin source identifier : l1b_echo_plrm mode**		**sc**	**time_l1b_echo_plrm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	gps doris		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
nav_bul_coarse_time_l1b_echo_plrm	**navigation bulletin coarse time : l1b_echo_plrm mode**		**ul**	**time_l1b_echo_plrm**
units	Unit name	second		1
_FillValue	Default value for unused or not computed elements	4294967295		1
nav_bul_fine_time_l1b_echo_plrm	**navigation bulletin fine time : l1b_echo_plrm mode**		**ul**	**time_l1b_echo_plrm**
units	Unit name	2^-24 second		1
_FillValue	Default value for unused or not computed elements	4294967295		1
seq_count_l1b_echo_plrm	**sequence count : l1b_echo_plrm mode**		**us**	**time_l1b_echo_plrm**
_FillValue	Default value for unused or not computed elements	65535		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
isp_time_status_l1b_echo_plrm	**ISP time status : l1b_echo_plrm mode**		**sc**	**time_l1b_echo_plrm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	SRAL_OBT_extrapolated SRAL_OBT_updated_with_SMU_OBT		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
oper_instr_l1b_echo_plrm	**operating instrument : l1b_echo_plrm mode**		**sc**	**time_l1b_echo_plrm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	A B		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1

comment	Instrument A stands for SRAL Nominal and instrument B stands for SRAL Redundant			1
SAR_mode_l1b_echo_plrm	**SAR mode identifier : l1b_echo_plrm mode**		**sc**	**time_l1b_echo_plrm**
flag_values	Flag values	0b, 1b, 2b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	closed_loop open_loop open_loop_fixed_gain		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
cl_gain_l1b_echo_plrm	**tracking configuration - closed loop gain : l1b_echo_plrm mode**		**sc**	**time_l1b_echo_plrm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	Nominal_value Nominal_value_with_back-off		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
acq_stat_l1b_echo_plrm	**tracking configuration - acquisition status : l1b_echo_plrm mode**		**sc**	**time_l1b_echo_plrm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	no_acquisition acquisition		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
dem_eeprom_l1b_echo_plrm	**tracking configuration - DEM EEPROM read access : l1b_echo_plrm mode**		**sc**	**time_l1b_echo_plrm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	enabled disabled		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
weighting_l1b_echo_plrm	**altimeter configuration - weighting function : l1b_echo_plrm mode**		**sc**	**time_l1b_echo_plrm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	enabled disabled		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
loss_track_l1b_echo_plrm	**loss of track criterion : l1b_echo_plrm mode**		**sc**	**time_l1b_echo_plrm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1

flag_meanings	Flag meanings	normal loss_of_track		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
h0_nav_dem_l1b_echo_plrm	**altitude command H0 computed with nav DEM : l1b_echo_plrm mode**		**ul**	**time_l1b_echo_plrm**
units	Unit name	3.125/64*10^-9 s		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
h0_applied_l1b_echo_plrm	**applied altitude command H0 : l1b_echo_plrm mode**		**ul**	**time_l1b_echo_plrm**
units	Unit name	3.125/64*10^-9 s		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
cor2_nav_dem_l1b_echo_plrm	**altitude command COR2 computed with nav DEM : l1b_echo_plrm mode**		**ss**	**time_l1b_echo_plrm**
units	Unit name	3.125/1024 10-9 s		1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
cor2_applied_l1b_echo_plrm	**applied altitude command COR2 : l1b_echo_plrm mode**		**ss**	**time_l1b_echo_plrm**
units	Unit name	3.125/1024*10^-9 s		1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
dh0_l1b_echo_plrm	**distance error computed on the echo of the cycle (N-2) in open loop mode (current cycle**		**sl**	**time_l1b_echo_plrm**
units	Unit name	3.125/64*10^-9 s		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
agccode_ku_l1b_echo_plrm	**AGCCODE for ku band : l1b_echo_plrm mode**		**sc**	**time_l1b_echo_plrm**
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	127		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
agccode_c_l1b_echo_plrm	**AGCCODE for c band : l1b_echo_plrm mode**		**sc**	**time_l1b_echo_plrm**
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	127		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
surf_type_l1b_echo_plrm	**altimeter surface type : l1b_echo_plrm mode**		**sc**	**time_l1b_echo_plrm**

flag_values	Flag values	0b, 1b, 2b, 3b		1
flag_meanings	Flag meanings	open_ocean_or_semi-enclosed_seas enclosed_seas_or_lakes continental_ice land		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
range_ku_l1b_echo_plrm	**corrected range for ku band : l1b_echo_plrm mode**		**sl**	**time_l1b_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	700000.		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	tracker range corrected for USO frequency drift, internal path and Doppler corrections			1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
range_c_l1b_echo_plrm	**corrected range for c band : l1b_echo_plrm mode**		**sl**	**time_l1b_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	700000.		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	tracker range corrected for USO frequency drift, internal path and Doppler corrections			1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
uso_cor_l1b_echo_plrm	**USO frequency drift correction : l1b_echo_plrm mode**		**sl**	**time_l1b_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
int_path_cor_ku_l1b_echo_plrm	**internal path correction for ku band : l1b_echo_plrm mode**		**sl**	**time_l1b_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1

int_path_cor_c_l1b_echo_plrm	**internal path correction for c band : l1b_echo_plrm mode**		**sl**	**time_l1b_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
dop_cor_ku_l1b_echo_plrm	**doppler correction for ku band : l1b_echo_plrm mode**		**sl**	**time_l1b_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
dop_cor_c_l1b_echo_plrm	**doppler correction for c band : l1b_echo_plrm mode**		**sl**	**time_l1b_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
range_rate_l1b_echo_plrm	**range rate : l1b_echo_plrm mode**		**sl**	**time_l1b_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-03		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m/s		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
agc_ku_l1b_echo_plrm	**corrected AGC for ku band: l1b_echo_plrm mode**		**sl**	**time_l1b_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
comment	AGC corrected for instrumental errors			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
agc_c_l1b_echo_plrm	**corrected AGC for c band: l1b_echo_plrm mode**		**sl**	**time_l1b_echo_plrm**

scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
comment	AGC corrected for instrumental errors			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
scale_factor_ku_l1b_echo_plrm	**scaling factor for sigma0 evaluation for ku band: l1b_echo_plrm mode**		**sl**	**time_l1b_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
comment	scaling factor corrected for AGC instrumental errors and internal calibration			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
scale_factor_c_l1b_echo_plrm	**scaling factor for sigma0 evaluation for c band: l1b_echo_plrm mode**		**sl**	**time_l1b_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
comment	scaling factor corrected for AGC instrumental errors and internal calibration			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
agc_cor_ku_l1b_echo_plrm	**correction for instrumental errors on AGC for ku band: l1b_echo_plrm mode**		**sl**	**time_l1b_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
agc_cor_c_l1b_echo_plrm	**correction for instrumental errors on AGC for c band: l1b_echo_plrm mode**		**sl**	**time_l1b_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	2147483647		1

coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
sig0_cal_ku_l1b_echo_plrm	**internal calibration correction on Sigma0 for ku band: l1b_echo_plrm mode**		**sl**	**time_l1b_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
sig0_cal_c_l1b_echo_plrm	**internal calibration correction on Sigma0 for c band: l1b_echo_plrm mode**		**sl**	**time_l1b_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_plrm lat_l1b_echo_plrm			1
i2q2_meas_ku_l1b_echo_plrm	**I2+Q2 measurement for ku band : l1b_echo_plrm mode**		**ul**	**time_l1b_echo_plrm echo_sample_ind**
scale_factor	The data must be multiplied by this factor after reading	1.00e-03		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
comment	the echo is the so-called ku-band averaged echo, corrected for the GPRW effect			1
_FillValue	Default value for unused or not computed elements	4294967295		1
i2q2_meas_c_l1b_echo_plrm	**I2+Q2 measurement for c band : l1b_echo_plrm mode**		**ul**	**time_l1b_echo_plrm echo_sample_ind**
scale_factor	The data must be multiplied by this factor after reading	1.00e-03		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
comment	the echo is the so-called c-band averaged echo, corrected for the GPRW effect			1
_FillValue	Default value for unused or not computed elements	4294967295		1

Table 4-6: Content of the Level 1B measurement data file (SR_1_SRA___ product) : ECHO_PLRM parameters

4.2.2 SRAL "SR_1_SRA_A_"

A Level 1A SRAL product contains one "measurement data file" containing the L1A measurements parameters:

- ECHO_SAR_Ku: L1A Tracking measurements (sorted and calibrated) in SAR mode – Ku-band (80-Hz)
- ECHO_PLRM: L1A Tracking measurements (sorted and calibrated) in pseudo-LRM mode – Ku and C bands (80-Hz)

4.2.2.1 Product summary

SR_1_SRA___		*Description* L1A Echos parameters for SAR mode			
Product Level	**Diss. Timeliness**	**Product Category**	**ApplicationDomain**		**Spatial Resolution**
1	(STC/NTC)	Not Available to the user			
Product Dissemination Unit N/A		Number of Package components	Number of Measurement Data Files	Number of Annotation Data Files	Number of Representation Information Files
		3[2]	1	0	0
Product Package Structure					
Manifest file (see section 4.2.1.2 for more details)					
File name		**Composition**			
xfdumanifest.xml					
Measurement Data files (see section 4.2.1 for more details)					**N.O.**
File name		**Composition**			
Measurement_l1a.nc		L1A Tracking measurements (sorted and calibrated): ECHO_SAR_Ku, ECHO_PLRM			
Annotation Data files					**N.O.**
File name		**Composition**			
none					
Representation Information Files					**N.O.**
File name		**Composition**			
none					

Table 4-7: SRAL Measurement Level 1A product physical composition

4.2.2.2 Manifest File

The structure of the Manifest element is described in [AD- 2].

4.2.2.3 Product Metadata

According to [AD- 2], Wrapped Metadata are grouped in Primary Metadata, common to all Sentinel 3 products and Secondary Metadata, specific for instrument and processing level.

Primary Metadata are described in [AD- 2].

Secondary Metadata for the SRAL instrument are reported in Table 4-2. Last columns of the table indicate the applicability of Metadata fields to the processing Level.

[2] *Number of Package components includes the manifest and the OLQC Report.*

< Complete secondary metadata is described in details in [AD- 4].
The content of this table will be embedded in the document when it will be finalized>

Table 4-8: Secondary Metadata for SR_1_SRA_A_ products

4.2.2.4 L1A Measurement Data Files

The content of the Level 1A SRAL product is described below:

Element name	Description	Range or value	T	D
time_l1a_echo_sar_ku	**Number of L1a ECHO_SAR_Ku measurements**			
time_l1a_echo_plrm	**Number of L1a ECHO_PLRM measurements**			
echo_sample_ind	**Number of samples in a waveform**	**128**		
sar_ku_pulse_burst_ind	**Number of Ku-pulses per burst**	**64**		
sar_c_pulse_cycle_ind	**Number of C-pulses per burst**	**2**		
ltm_max_ind	**Maximum number of LTM Cal1 or Cal2 tables**	**3**		
<Specific global attributes>	:Conventions = netCDF convention :mission_name = Name of the mission :altimeter_sensor_name = Name of the altimeter sensor :gnss_sensor_name = Name of the GNSS sensor :doris_sensor_name = Name of the DORIS sensor :acq_station_name = Identification of the acquisition station :first_meas_time = UTC Date of the first measurement of the data set (YYYY-MM-DD HH:MM:SS.mmmmmm) :last_meas_time = UTC Date of the last measurement of the data set (YYYY-MM-DD HH:MM:SS.mmmmmm) :xref_altimeter_level0 = Name of the altimeter level 0 data file :xref_time_correlation = Name of the file containing the time correlation :xref_altimeter_orbit = Name of the file containing the Orbit Data :xref_doris_uso = Name of the file containing the DORIS-derived USO frequency :xref_altimeter_ltm_lrm_cal1 = Name of the LTM file containing the LRM mode CAL1 parameters :xref_altimeter_ltm_sar_cal1 = Name of the LTM file containing the SAR mode CAL1 parameters :xref_altimeter_ltm_ku_cal2 = Name of the LTM file containing the Ku-band CAL2 parameters :xref_altimeter_ltm_c_cal2 = Name of the LTM file containing the C-band CAL2 parameters :xref_altimeter_characterisation = Name of the altimeter characterisation data file :semi_major_ellipsoid_axis = Semi-major axis of the reference ellipsoid (meters)		S	

	:ellipsoid_flattening = Flattening coeffcient of the reference ellipsoid		ul D	
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
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
sar_c_pulse_burst_ind	**number of C-band pulses per burst in SAR mode**		**sc**	**sar_c_pulse_burst_ind**
units	Unit name	count		1
comment	Set to be compliant with the CF-1.6 convention			1
ltm_max_ind	**maximum number of LTM Cal1 or Cal2 tables**		**sc**	**ltm_max_ind**
units	Unit name	count		1
comment	Set to be compliant with the CF-1.6 convention			1

Table 4-9: Content of the Level 1A measurement data file (SR_1_SRA_A_ product)

In addition to the 4 variables shown in the previous table, the Level 1A SRAL product contains the variables described in sections 4.2.2.4.1 and 4.2.2.4.2

4.2.2.4.1 ECHO_SAR_Ku

The Echo SAR_Ku content is reported in the table below:

time_l1a_echo_sar_ku	**UTC : l1a_echo_sar_ku mode**		**D**	**time_l1a_echo_sar_ku**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	time		1
calendar		gregorian		1
units	Unit name	seconds since 2000-01-01 00:00:00.0		1
UTC_day_l1a_echo_sar_ku	**day UTC : l1a_echo_sar_ku mode**		**ss**	**time_l1a_echo_sar_ku**
units	Unit name	days since 2000-01-01 00:00:00.0		1
_FillValue	Default value for unused or not computed elements	32767s		1
UTC_sec_l1a_echo_sar_ku	**seconds in the day UTC : l1a_echo_sar_ku mode**		**D**	**time_l1a_echo_sar_ku**
units	Unit name	s		1

_FillValue	Default value for unused or not computed elements	1.84467440737096e+19		1
UTC_time_20hz_l1a_echo_sar_ku	**UTC of the 20 Hz measurement**		**D**	**time_l1a_echo_sar_ku**
units	Unit name	seconds since 2000-01-01 00:00:00.0		1
calendar	Reference Time Calendar	gregorian		1
Comment	Value of L1b 20 Hz UTC time the closest in time to the reference measurement			1
isp_coarse_time_l1a_echo_sar_ku	**ISP coarse time : l1a_echo_sar_ku mode**		**ul**	**time_l1a_echo_sar_ku**
units	Unit name	second		1
_FillValue	Default value for unused or not computed elements	4294967295U		1
isp_fine_time_l1a_echo_sar_ku	**ISP fine time : l1a_echo_sar_ku mode**		**sl**	**time_l1a_echo_sar_ku**
units	Unit name	2^-24 second		1
_FillValue	Default value for unused or not computed elements	2147483647		1
flag_time_status_l1a_echo_sar_ku	**time status flag : l1a_echo_sar_ku mode**		**sc**	**time_l1a_echo_sar_ku**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	synchronization no_synchronization		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
_FillValue	Default value for unused or not computed elements	127b		1
comment	flag indicating if the time is synchronized or not with GPS time			1
sral_fine_time_l1a_echo_sar_ku	**ISP SRAL fine datation : l1a_echo_sar_ku mode**		**ul**	**time_l1a_echo_sar_ku**
units	Unit name	137.5*10^-9 second		1
_FillValue	Default value for unused or not computed elements	4294967295U		1
lat_l1a_echo_sar_ku	**latitude : l1a_echo_sar_ku mode**		**sl**	**time_l1a_echo_sar_ku**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	latitude		1
scale_factor	The data must be multiplied by this factor after reading	1.e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.		1
units	Unit name	degrees_north		1
_FillValue	Default value for unused or not computed elements	2147483647		1
lon_l1a_echo_sar_ku	**longitude : l1a_echo_sar_ku mode**		**sl**	**time_l1a_echo_sar_ku**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	longitude		1
scale_factor	The data must be multiplied by this factor after reading	1.e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.		1

units	Unit name	degrees_east		1
_FillValue	Default value for unused or not computed elements	2147483647		1
surf_type_l1a_echo_sar_ku	**altimeter surface type : l1a_echo_sar_ku mode**		**sc**	**time_l1a_echo_sar_ku**
flag_values	Flag values	0b, 1b, 2b, 3b		1
flag_meanings	Flag meanings	open_ocean_or_semi-enclosed_seas enclosed_seas_or_lakes continental_ice land		1
_FillValue	Default value for unused or not computed elements	127b		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
burst_count_prod_l1a_echo_sar_ku	**bursts counter within the product : l1a_echo_sar_ku mode**		**sl**	**time_l1a_echo_sar_ku**
units	Unit name	count		1
comment	range 1 to number of records in the product			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
seq_count_l1a_echo_sar_ku	**Source sequence count : l1a_echo_sar_ku mode**		**us**	**time_l1a_echo_sar_ku**
units	Unit name	count		1
_FillValue	Default value for unused or not computed elements	65535		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
burst_count_cycle_l1a_echo_sar_ku	**bursts counter within the tracking cycle : l1a_echo_sar_ku mode**		**sc**	**time_l1a_echo_sar_ku**
units	Unit name	count		1
_FillValue	Default value for unused or not computed elements	127b		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
nav_bul_status_l1a_echo_sar_ku	**navigation bulletin status : l1a_echo_sar_ku mode**		**sc**	**time_l1a_echo_sar_ku**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127b		1
flag_meanings	Flag meanings	ok ko		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
nav_bul_source_l1a_echo_sar_ku	**navigation bulletin source identifier : l1a_echo_sar_ku mode**		**sc**	**time_l1a_echo_sar_ku**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127b		1
flag_meanings	Flag meanings	gps doris		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1

oper_instr_l1a_echo_sar_ku	**operating instrument : l1a_echo_sar_ku mode**		**sc**	**time_l1a_echo_sar_ku**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127b		1
flag_meanings	Flag meanings	A B		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
SAR_mode_l1a_echo_sar_ku	**SAR mode identifier : l1a_echo_sar_ku mode**		**sc**	**time_l1a_echo_sar_ku**
flag_values	Flag values	0b, 1b, 2b		1
_FillValue	Default value for unused or not computed elements	127b		1
flag_meanings	Flag meanings	closed_loop open_loop open_loop_fixed_gain		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
cl_gain_l1a_echo_sar_ku	**tracking configuration - closed loop gain : l1a_echo_sar_ku mode**		**sc**	**time_l1a_echo_sar_ku**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127b		1
flag_meanings	Flag meanings	Nominal_value Nominal_value_with _back-off		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
acq_stat_l1a_echo_sar_ku	**tracking configuration - acquisition status : l1a_echo_sar_ku mode**		**sc**	**time_l1a_echo_sar_ku**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127b		1
flag_meanings	Flag meanings	no_acquisition acquisition		1
coordinates	lon_l0_echo_sar_ku lat_l0_echo_sar_ku			1
dem_eeprom_l0_echo_sar_ku	**tracking configuration - DEM EEPROM read access : l0_echo_sar_ku mode**		**sc**	**time_l1a_echo_sar_ku**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127b		1
flag_meanings	Flag meanings	enabled disabled		1
coordinates	lon_l0_echo_sar_ku lat_l0_echo_sar_ku			1
weighting_l1a_echo_sar_ku	**altimeter configuration - weighting function : l1a_echo_sar_ku mode**		**sc**	**time_l1a_echo_sar_ku**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127b		1
flag_meanings	Flag meanings	enabled disabled		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
loss_track_l1a_echo_sar_ku	**loss of track criterion : l1a_echo_sar_ku mode**		**sc**	**time_l1a_echo_sar_ku**

flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	normal loss_of_track		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
_FillValue	Default value for unused or not computed elements	127b		1
h0_nav_dem_l1a_echo_sar_ku	**altitude command H0 computed with nav DEM : l1a_echo_sar_ku mode**		**ul**	**time_l1a_echo_sar_ku**
units	Unit name	3.125/64*10^-9 s		1
_FillValue	Default value for unused or not computed elements	4294967295U		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
h0_applied_l1a_echo_sar_ku	**applied altitude command H0 : l1a_echo_sar_ku mode**		**ul**	**time_l1a_echo_sar_ku**
units	Unit name	3.125/64*10^-9 s		1
_FillValue	Default value for unused or not computed elements	4294967295U		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
cor2_nav_dem_l1a_echo_sar_ku	**altitude command COR2 computed with nav DEM : l1a_echo_sar_ku mode**		**ss**	**time_l1a_echo_sar_ku**
units	Unit name	3.125/1024 10-9 s		1
_FillValue	Default value for unused or not computed elements	32767s		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
cor2_applied_l1a_echo_sar_ku	**applied altitude command COR2 : l1a_echo_sar_ku mode**		**ss**	**time_l1a_echo_sar_ku**
units	Unit name	3.125/1024*10^-9 s		1
_FillValue	Default value for unused or not computed elements	32767s		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
dh0_l1a_echo_sar_ku	**distance error computed on the echo of the cycle (N-2) in open loop mode**		**sl**	**time_l1a_echo_sar_ku**
units	Unit name	3.125/64*10^-9 s		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
agccode_ku_l1a_echo_sar_ku	**AGCCODE for ku band : l1a_echo_sar_ku mode**		**sc**	**time_l1a_echo_sar_ku**
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	127b		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
agccode_c_l1a_echo_sar_ku	**AGCCODE for c band : l1a_echo_sar_ku mode**		**sc**	**time_l1a_echo_sar_ku**
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	127b		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1

alt_l1a_echo_sar_ku	**altitude of satellite : l1a_echo_sar_ku mode**		**sl**	**time_l1a_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	700000.		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
comment	Altitude of the center of mass of the satellite			1
orb_alt_rate_l1a_echo_sar_ku	**orbital altitude rate : l1a_echo_sar_ku mode**		**ss**	**time_l1a_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m/s		1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
x_pos_l1a_echo_sar_ku	**satellite altitude - x component : l1a_echo_sar_ku mode**		**D**	**time_l1a_echo_sar_ku**
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
y_pos_l1a_echo_sar_ku	**satellite altitude - y component : l1a_echo_sar_ku mode**		**D**	**time_l1a_echo_sar_ku**
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
z_pos_l1a_echo_sar_ku	**satellite altitude - z component : l1a_echo_sar_ku mode**		**D**	**time_l1a_echo_sar_ku**
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
x_vel_l1a_echo_sar_ku	**satellite velocity - x component : l1a_echo_sar_ku mode**		**D**	**time_l1a_echo_sar_ku**
units	Unit name	m/s		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
y_vel_l1a_echo_sar_ku	**satellite velocity - y component : l1a_echo_sar_ku mode**		**D**	**time_l1a_echo_sar_ku**
units	Unit name	m/s		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
z_vel_l1a_echo_sar_ku	**satellite velocity - z component : l1a_echo_sar_ku mode**		**D**	**time_l1a_echo_sar_ku**
units	Unit name	m/s		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
roll_sat_pointing_l1a_echo_sar_ku	**satellite pointing angle - roll : l1a_echo_sar_ku mode**		**sl**	**time_l1a_echo_sar_ku**

scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	value for the closest in time from the burst time tag, given in the nadir pointing reference frame			1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
pitch_sat_pointing_l1a_echo_sar_ku	**satellite pointing angle - pitch : l1a_echo_sar_ku mode**		**sl**	**time_l1a_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	value for the closest in time from the burst time tag, given in the nadir pointing reference frame			1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
yaw_sat_pointing_l1a_echo_sar_ku	**satellite pointing angle - yaw : l1a_echo_sar_ku mode**		**sl**	**time_l1a_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	value for the closest in time from the burst time tag, given in the nadir pointing reference frame			1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
roll_sral_mispointing_l1a_echo_sar_ku	**SRAL mispointing angle - roll : l1a_echo_sar_ku mode**		**sl**	**time_l1a_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	value for the closest in time from the burst time tag, given in the nadir pointing reference frame			1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
pitch_sral_mispointing_l1a_echo_sar_ku	**SRAL mispointing angle - pitch : l1a_echo_sar_ku mode**		**sl**	**time_l1a_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees		1
_FillValue	Default value for unused or not computed elements	2147483647		1

comment	value for the closest in time from the burst time tag, given in the nadir pointing reference frame			1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
yaw_sral_mispointing_l1a_echo_sar_ku	**SRAL mispointing angle - yaw : l1a_echo_sar_ku mode**		**sl**	**time_l1a_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	value for the closest in time from the burst time tag, given in the nadir pointing reference frame			1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
range_ku_l1a_echo_sar_ku	**corrected range for ku band : l1a_echo_sar_ku mode**		**sl**	**time_l1a_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	700000.		1
units	Unit name	m		1
comment	Distance between the altimeter reference point and the surface height associated to a range gate used as reference inside the tracking window (reference tracking point), corrected for USO frequency drift and internal path correction			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
int_path_cor_ku_l1a_echo_sar_ku	**internal path correction for ku band : l1a_echo_sar_ku mode**		**sl**	**time_l1a_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
comment	Value the closest in time from the burst time tag			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
uso_cor_l1a_echo_sar_ku	**USO frequency drift correction : l1a_echo_sar_ku mode**		**sl**	**time_l1a_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	Value the closest in time from the burst time tag			1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
cog_cor_l1a_echo_sar_ku	**Distance antenna-CoG correction : l1a_echo_sar_ku mode**		**ss**	**time_l1a_echo_sar_ku**

scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
comment	Distance in the z-component between the centre of mass of the satellite and the altimeter antenna reference point			1
_FillValue	Default value for unused or not computed elements	32767s		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
agc_ku_l1a_echo_sar_ku	**corrected AGC for ku band: l1a_echo_sar_ku mode**		**sl**	**time_l1a_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
comment	AGC corrected for instrumental errors (calibration)			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_echo_sar_ku lat_l1b_echo_sar_ku			1
agc_c_l1a_echo_sar_ku	**corrected AGC for c band: l1a_echo_sar_ku mode**		**sl**	**time_l1a_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
comment	AGC corrected for instrumental errors (calibration)			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
scale_factor_ku_l1a_echo_sar_ku	**scaling factor for sigma0 evaluation for ku band: l1a_echo_sar_ku mode**		**sl**	**time_l1a_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
comment	scaling factor corrected for AGC instrumental errors and internal calibration			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
scale_factor_c_l1a_echo_sar_ku	**scaling factor for sigma0 evaluation for c band: l1a_echo_sar_ku mode**		**sl**	**time_l1a_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
comment	scaling factor corrected for AGC instrumental errors and internal calibration			1

_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
sig0_cal_ku_l1a_echo_sar_ku	**internal calibration correction on Sigma0 for ku band: l1a_echo_sar_ku mode**		**sl**	**time_l1a_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
sig0_cal_c_l1a_echo_sar_ku	**internal calibration correction on Sigma0 for c band: l1a_echo_sar_ku mode**		**sl**	**time_l1a_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
i_meas_ku_l1a_echo_sar_ku	**ku band echoes, i measurements : l1a_echo_sar_ku mode**		**sb**	**time_l1a_echo_sar_ku sar_ku_pulse_burst_ind echo_sample_ind**
units	Unit name	count		1
_FillValue	Default value for unused or not computed elements	127s		1
comment	ku band echoes of a burst, I values (64*128 samples) in the time domain. The pulses are not corrected for AGC			1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
q_meas_ku_l1a_echo_sar_ku	**ku band echoes, q measurements: l1a_echo_sar_ku mode**		**sb**	**time_l1a_echo_sar_ku sar_ku_pulse_burst_ind echo_sample_ind**
units	Unit name	count		1
_FillValue	Default value for unused or not computed elements	127s		1
comment	ku band echoes of a burst, q values (64*128 samples) in the time domain. The pulses are not corrected for AGC			1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
i_meas_c_l1a_echo_sar_ku	**c band echoes, i measurements : l1a_echo_sar_ku mode**		**sb**	**time_l1a_echo_sar_ku sar_c_pulse_burst_ind echo_sample_ind**
units	Unit name	count		1
_FillValue	Default value for unused or not computed elements	127s		1
comment	c band echoes of a burst, I values (2*128 samples) in the time domain. The pulses are not			1

	corrected for AGC			
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
q_meas_c_l1a_echo_sar_ku	**c band echoes, q measurements : l1a_echo_sar_ku mode**		**sb**	**time_l1a_echo_sar_ku sar_c_pulse_burst_ind echo_sample_ind**
units	Unit name	count		1
_FillValue	Default value for unused or not computed elements	127s		1
comment	c band echoes of a burst, q values (2*128 samples) in the time domain. The pulses are not corrected for AGC			1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
gprw_meas_ku_l1a_echo_sar_ku	**ku band samples of the normalized GPRW (cal2) : l1a_echo_sar_ku mode**		**ul**	**time_l1a_echo_sar_ku ltm_max_ind echo_sample_ind**
units	Unit name	FFT power unit		1
comment	Normalized GPRW waveform correction to be applied. The zero-frequency gate of the GPRW is at gate 63 (0-based indexing). The [ltm_max_ind] normalized GPRW provided for each measurement can be averaged for noise reduction purpose.			
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
gprw_meas_c_l1a_echo_sar_ku	**c band samples of the normalized GPRW (cal2) : l1a_echo_sar_ku mode**		**ul**	**time_l1a_echo_sar_ku ltm_max_ind echo_sample_ind**
units	Unit name	FFT power unit		1
comment	Normalized GPRW waveform correction to be applied. The zero-frequency gate of the GPRW is at gate 63 (0-based indexing). The [ltm_max_ind] normalized GPRW provided for each measurement can be averaged for noise reduction purpose.			
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
cal2_ku_ind_l1a_echo_sar_ku	**Index of the cal2 ltm table (normalized GPRW) : l1a_echo_sar_ku mode**		**sc**	**time_l1a_echo_sar_ku**
units	Unit name	count		1
comment	Set to default in the current issue			
_FillValue	Default value for unused or not computed elements	127b		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1

burst_power_cor_ku_l1a_echo_sar_ku	**ku band burst power corrections (cal1) : l1a_echo_sar_ku mode**		**ul**	**time_l1a_echo_sar_ku 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
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
burst_phase_cor_ku_l1a_echo_sar_ku	**ku band burst phase corrections (cal1) : l1a_echo_sar_ku mode**		**sl**	**time_l1a_echo_sar_ku sar_ku_pulse_burst_ind**
units	Unit name	radian		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1
cal1_ku_ind_l1a_echo_sar_ku	**Index of the cal1 ltm tables (power and phase corrections) : l1a_echo_sar_ku mode**		**sc**	**time_l1a_echo_sar_ku**
units	Unit name	count		1
comment	Set to default in the current issue			
_FillValue	Default value for unused or not computed elements	127b		1
coordinates	lon_l1a_echo_sar_ku lat_l1a_echo_sar_ku			1

Table 4-10: Content of the Level 1A measurement data file (SR_1_SRA_A_ product) : ECHO_SAR_Ku parameter

4.2.2.4.2 ECHO_PLRM

The Echo PLRM content is reported in the table below:

time_l1a_echo_plrm	UTC : l1a_echo_plrm mode		D	time_l1a_echo_plrm
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	time		1
calendar		gregorian		1
units	Unit name	seconds since 2000-01-01 00:00:00.0		1
i2q2_meas_ku_l1a_echo_plrm	**l2+Q2 measurement for ku band : l1a_echo_plrm mode**		**ul**	**time_l1a_echo_plrm echo_sample_ind**
scale_factor	The data must be multiplied by this factor after reading	0.001		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.		1
units	Unit name	count		1
_FillValue	Default value for unused or not computed elements	4294967295		1
comment	Tracking echoes from on board tracker. For engineering analysis only			1
coordinates	lon_l1a_echo_plrm lat_l1a_echo_plrm			1
i2q2_meas_c_l1a_echo_plrm	**l2+Q2 measurement for c band : l1a_echo_ plrm mode**		**ul**	**time_l1a_echo_plrm echo_sample_ind**
scale_factor	The data must be multiplied by this factor after reading	0.001		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.		1
units	Unit name	count		1
_FillValue	Default value for unused or not computed elements	4294967295		1
comment	Tracking echoes from on board tracker. For engineering analysis only			1
coordinates	lon_l1a_echo_plrm lat_l1a_echo_plrm			1

Table 4-11: Content of the Level 1A measurement data file (SR_1_SRA_A_ product) : ECHO_PLRM parameter

4.2.3 SRAL "SR_1_SRA_BS"

A Level 1B-S SRAL product contains one "measurement data file" containing the L1b measurements parameters:

- ECHO_SAR_Ku : L1b Tracking measurements in SAR mode - Ku band (20-Hz) as defined in the L1b MEAS product completed with SAR expert information
- ECHO_PLRM : L1b Tracking measurements in pseudo-LRM mode – Ku and C bands (20-Hz) as defined in the L1b MEAS product.

4.2.3.1 Product summary

SR_1_SRA___		*Description* L1b-S Echos parameters for SAR mode			
Product Level	**Diss. Timeliness**	**Product Category**	**ApplicationDomain**		**Spatial Resolution**
1	(STC/NTC)	Not Available to the user			
Product Dissemination Unit N/A		Number of Package components	Number of Measurement Data Files	Number of Annotation Data Files	Number of Representation Information Files
		3[3]	1	0	0
Product Package Structure					
Manifest file (see section 4.2.1.2 for more details)					
File name		**Composition**			
xfdumanifest.xml					
Measurement Data files (see section 4.2.1 for more details)					**N.O.**
File name		**Composition**			
Measurement_l1bs.nc		L1b Tracking measurements: ECHO_SAR_Ku, ECHO_PLRM			
Annotation Data files					**N.O.**
File name		**Composition**			
none					
Representation Information Files					**N.O.**
File name		**Composition**			
none					

Table 4-12: SRAL Measurement Level 1B-S product physical composition

4.2.3.2 Manifest File

The structure of the Manifest element is described in [AD- 2].

4.2.3.3 Product Metadata

According to [AD- 2], Wrapped Metadata are grouped in Primary Metadata, common to all Sentinel 3 products and Secondary Metadata, specific for instrument and processing level.

Primary Metadata are described in [AD- 2].

Secondary Metadata for the SRAL instrument are reported in Table 4-2. Last columns of the table indicate the applicability of Metadata fields to the processing Level.

[3] *Number of Package components includes the manifest and the OLQC Report.*

< Complete secondary metadata is described in details in [AD- 4].
The content of this table will be embedded in the document when it will be finalized>

Table 4-13: Secondary Metadata for SR_1_SRA_BS products

4.2.3.4 L1B-S Measurement Data Files

The content of the Level 1B-S SRAL product is described below:

Element name	Description	Range or value	T	D
time_l1bs_echo_sar_ku	**Number of L1Bs ECHO_SAR_Ku measurements**			
time_l1bs_echo_plrm	**Number of L1Bs ECHO_PLRM measurements**			
echo_sample_ind	**Number of samples in a waveform**	**128**		
max_multi_stack_ind	**Maximum number of multilook beams per stack**	**256**		
<Specific global attributes>	:Conventions = netCDF convention :mission_name = Name of the mission :altimeter_sensor_name = Name of the altimeter sensor :gnss_sensor_name = Name of the GNSS sensor :doris_sensor_name = Name of the DORIS sensor :acq_station_name = Identification of the acquisition station :first_meas_time = UTC Date of the first measurement of the data set (YYYY-MM-DD HH:MM:SS.mmmmmm) :last_meas_time = UTC Date of the last measurement of the data set (YYYY-MM-DD HH:MM:SS.mmmmmm) :xref_altimeter_level0 = Name of the altimeter level 0 data file :xref_time_correlation = Name of the file containing the time correlation :xref_altimeter_orbit = Name of the file containing the Orbit Data :xref_doris_uso = Name of the file containing the DORIS-derived USO frequency :xref_altimeter_ltm_lrm_cal1 = Name of the LTM file containing the LRM mode CAL1 parameters :xref_altimeter_ltm_sar_cal1 = Name of the LTM file containing the SAR mode CAL1 parameters :xref_altimeter_ltm_ku_cal2 = Name of the LTM file containing the Ku-band CAL2 parameters :xref_altimeter_ltm_c_cal2 = Name of the LTM file containing the C-band CAL2 parameters :xref_altimeter_characterisation = Name of the altimeter characterisation data file :semi_major_ellipsoid_axis = Semi-major axis of the reference ellipsoid (meters) :ellipsoid_flattening = Flattening coeffcient of the reference ellipsoid			

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
max_multi_stack_ind	**maximum number of multilook beams per stack**		**ss**	**max_multi_stack_ind**
units	Unit name	count		1
comment	Set to be compliant with the CF-1.6 convention			1

In addition to the 2 variables shown in the previous table, the Level 1B-S SRAL product contains the variables described in sections 4.2.3.4.1 and 4.2.3.4.2.

4.2.3.4.1 ECHO_SAR_Ku

The Echo Sar Ku content is reported in the table below:

time_l1bs_echo_sar_ku	**UTC : l1bs_echo_sar_ku mode**		**D**	**time_l1bs_echo_sar_ku**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	time		1
calendar		gregorian		1
units	Unit name	seconds since 2000-01-01 00:00:00.0		1
UTC_day_l1bs_echo_sar_ku	**day UTC : l1bs_echo_sar_ku mode**		**ss**	**time_l1bs_echo_sar_ku**
units	Unit name	days since 2000-01-01 00:00:00.0		1
_FillValue	Default value for unused or not computed elements	32767s		1
UTC_sec_l1bs_echo_sar_ku	**seconds in the day UTC : l1bs_echo_sar_ku mode**		**D**	**time_l1bs_echo_sar_ku**
units	Unit name	s		1
_FillValue	Default value for unused or not computed elements	1.84467440737096e+19		1
lat_l1bs_echo_sar_ku	**latitude : l1bs_echo_sar_ku mode**		**sl**	**time_l1bs_echo_sar_ku**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	latitude		1
scale_factor	The data must be multiplied by this factor after reading	1.e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.		1
units	Unit name	degrees_north		1
_FillValue	Default value for unused or not computed elements	2147483647		1
lon_l1bs_echo_sar_ku	**longitude : l1bs_echo_sar_ku mode**		**sl**	**time_l1bs_echo_sar_ku**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	longitude		1
scale_factor	The data must be multiplied by this factor after reading	1.e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.		1
units	Unit name	degrees_east		1
_FillValue	Default value for unused or not computed elements	2147483647		1
surf_type_l1bs_echo_sar_ku	**altimeter surface type : l1bs_echo_sar_ku mode**		**sc**	**time_l1bs_echo_sar_ku**
flag_values	Flag values	0b, 1b, 2b, 3b		1

comment	value the closest in time to the reference measurement			1
flag_meanings	Flag meanings	open_ocean_or_semi-enclosed_seas enclosed_seas_or_lakes continental_ice land		1
_FillValue	Default value for unused or not computed elements	127b		1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
records_count_l1bs_echo_sar_ku	**L1b record counters within the product : l1bs_echo_sar_ku mode**		**sl**	**time_l1bs_echo_sar_ku**
units	Unit name	count		1
comment	range 1 to number of L1b records			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
alt_l1bs_echo_sar_ku	**altitude of satellite : l1bs_echo_sar_ku mode**		**sl**	**time_l1bs_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	700000.		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
orb_alt_rate_l1bs_echo_sar_ku	**orbital altitude rate : l1bs_echo_sar_ku mode**		**ss**	**time_l1bs_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m/s		1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
x_pos_l1bs_echo_sar_ku	**satellite altitude - x component : l1bs_echo_sar_ku mode**		**D**	**time_l1bs_echo_sar_ku**
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
y_pos_l1bs_echo_sar_ku	**satellite altitude - y component : l1bs_echo_sar_ku mode**		**D**	**time_l1bs_echo_sar_ku**
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
z_pos_l1bs_echo_sar_ku	**satellite altitude - z component : l1bs_echo_sar_ku mode**		**D**	**time_l1bs_echo_sar_ku**
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1

x_vel_l1bs_echo_sar_ku	**satellite velocity - x component : l1bs_echo_sar_ku mode**		**D**	**time_l1bs_echo_sar_ku**
units	Unit name	m/s		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
y_vel_l1bs_echo_sar_ku	**satellite velocity - y component : l1bs_echo_sar_ku mode**		**D**	**time_l1bs_echo_sar_ku**
units	Unit name	m/s		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
z_vel_l1bs_echo_sar_ku	**satellite velocity - z component : l1bs_echo_sar_ku mode**		**D**	**time_l1bs_echo_sar_ku**
units	Unit name	m/s		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
meas_x_pos_l1bs_echo_sar_ku	**measurement location - x component : l1bs_echo_sar_ku mode**		**D**	**time_l1bs_echo_sar_ku**
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
meas_y_pos_l1bs_echo_sar_ku	**measurement location - y component : l1bs_echo_sar_ku mode**		**D**	**time_l1bs_echo_sar_ku**
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
meas_z_pos_l1bs_echo_sar_ku	**measurement location - z component : l1bs_echo_sar_ku mode**		**D**	**time_l1bs_echo_sar_ku**
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
roll_sat_pointing_l1bs_echo_sar_ku	**satellite pointing angle - roll : l1bs_echo_sar_ku mode**		**sl**	**time_l1bs_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	value for the closest in time from the burst time tag, given in the nadir pointing reference frame			1
coodinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
pitch_sat_pointing_l1bs_echo_sar_ku	**satellite pointing angle - pitch : l1bs_echo_sar_ku mode**		**sl**	**time_l1bs_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	value for the closest in time from the burst time tag, given in the nadir pointing reference frame			1

coodinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
yaw_sat_pointing_l1bs_echo_sar_ku	**satellite pointing angle - yaw : l1bs_echo_sar_ku mode**		**sl**	**time_l1bs_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	value for the closest in time from the burst time tag, given in the nadir pointing reference frame			1
coodinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
roll_sral_mispointing_l1bs_echo_sar_ku	**SRAL mispointing angle - roll : l1bs_echo_sar_ku mode**		**sl**	**time_l1bs_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	value for the closest in time from the burst time tag, given in the nadir pointing reference frame			1
coodinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
pitch_sral_mispointing_l1bs_echo_sar_ku	**SRAL mispointing angle - pitch : l1bs_echo_sar_ku mode**		**sl**	**time_l1bs_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	value for the closest in time from the burst time tag, given in the nadir pointing reference frame			1
coodinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
yaw_sral_mispointing_l1bs_echo_sar_ku	**SRAL mispointing angle - yaw : l1bs_echo_sar_ku mode**		**sl**	**time_l1bs_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	value for the closest in time from the burst time tag, given in the nadir pointing reference frame			1
coodinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
range_ku_l1bs_echo_sar_ku	**corrected range for ku band : l1bs_echo_sar_ku mode**		**sl**	**time_l1bs_echo_sar_ku**

scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	700000.		1
units	Unit name	m		1
comment	Distance between the altimeter reference point and the surface height associated to a range gate used as reference inside the tracking window (reference tracking point), corrected for USO frequency drift and internal path correction			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
int_path_cor_ku_l1bs_echo_sar_ku	**internal path correction for ku band : l1bs_echo_sar_ku mode**		**sl**	**time_l1bs_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
comment	Value the closest in time from the burst time tag			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
uso_cor_l1bs_echo_sar_ku	**USO frequency drift correction : l1bs_echo_sar_ku mode**		**sl**	**time_l1bs_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	Value the closest in time from the burst time tag			1
coodinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
cog_cor_l1bs_echo_sar_ku	**Distance antenna-CoG correction : l1bs_echo_sar_ku mode**		**ss**	**time_l1bs_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
comment	Distance in the z-component between the centre of mass of the satellite and the altimeter antenna reference point			1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
agccode_ku_l1bs_echo_sar_ku	**AGCCODE for ku band : l1bs_echo_sar_ku mode**		**sc**	**time_l1bs_echo_sar_ku**
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	127b		1
coodinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1

agc_ku_l1bs_echo_sar_ku	**corrected AGC for ku band : l1bs_echo_sar_ku mode**		**sl**	**time_l1bs_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
comment	AGC corrected for instrumental errors - value the closest in time to the reference measurement			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
scale_factor_ku_l1bs_echo_sar_ku	**scaling factor for sigma0 evaluation for ku band: l1bs_echo_sar_ku mode**		**sl**	**time_l1bs_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
comment	scaling factor corrected for AGC instrumental errors and internal calibration			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
sig0_cal_ku_l1bs_echo_sar_ku	**internal calibration correction on Sigma0 for ku band: l1bs_echo_sar_ku mode**		**sl**	**time_l1bs_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
snr_ku_l1bs_echo_sar_ku	**snr estimation for ku band: l1bs_echo_sar_ku mode**		**sl**	**time_l1bs_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
comment	Snr computed on the closest PLRM waveform			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
i2q2_meas_ku_l1bs_echo_sar_ku	**multilooked I2+Q2 measurement for ku band : l1bs_echo_sar_ku mode**		**ul**	**time_l1bs_echo_sar_ku echo_sample_ind**
comment	the echo is corrected for Doppler range effect, phase/power burst calibration and GPRW effect . the echo is scaled using the corrected AGC (agc_ku_l1b_echo_sar_ku)			1
scale_factor	The data must be multiplied by this factor after reading	1.00e-03		1

add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	count		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
nb_stack_l1bs_echo_sar_ku	**number of waveforms summed in stack : l1bs_echo_sar_ku mode**		**us**	**time_l1bs_echo_sar_ku**
units	Unit name	count		1
_FillValue	Default value for unused or not computed elements	65535		1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
max_stack_l1bs_echo_sar_ku	**maximum power of stack : l1bs_echo_sar_ku mode**		**ul**	**time_l1bs_echo_sar_ku**
units	Unit name	FFT power unit		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
max_loc_stack_l1bs_echo_sar_ku	**Location of the maximum power of stack : l1bs_echo_sar_ku mode**		**ss**	**time_l1bs_echo_sar_ku**
comment	Doppler beam angle corresponding to the maximum power in the stack			
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	1.570000e+00		1
units	Unit name	rad		1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
stdev_stack_l1bs_echo_sar_ku	**standard deviation of stack : l1bs_echo_sar_ku mode**		**ul**	**time_l1bs_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	rad		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
skew_stack_l1bs_echo_sar_ku	**skewness of stack : l1bs_echo_sar_ku mode**		**sl**	**time_l1bs_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	count		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
kurt_stack_l1bs_echo_sar_ku	**kurtosis of stack : l1bs_echo_sar_ku mode**		**sl**	**time_l1bs_echo_sar_ku**

scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	count		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
beam_ang_stack_l1bs_echo_sar_ku	**look angles in stack: l1bs_echo_sar_ku mode**		**ss**	**time_l1bs_echo_sar_ku max_multi_stack_ind**
comment	Look angles in stack: l1bs_echo_sar_ku mode. These are looking angles and not beam angles. The useful values of the table are the first nb_stack_l1bs_echo_sar_ku values			1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	rad		1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
beam_form_l1bs_echo_sar_ku	**flag on beam formation quality in stack : l1bs_echo_sar_ku mode**		**us**	**time_l1bs_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	percent		1
_FillValue	Default value for unused or not computed elements	65535		1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
burst_start_ind_l1bs_echo_sar_ku	**Burst start index for stack building : l1bs_echo_sar_ku mode**		**sl**	**time_l1bs_echo_sar_ku**
units	Unit name	count		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
burst_stop_ind_l1bs_echo_sar_ku	**Burst stop index for stack building: l1bs_echo_sar_ku mode**		**sl**	**time_l1bs_echo_sar_ku**
units	Unit name	count		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
iq_scale_factor_l1bs_echo_sar_ku	**dynamic scale factor for I/Q waveforms i_echoes_ku_l1bs_echo_sar_ku and q_echoes_ku_l1bs_echo_sar_ku**		**F**	**time_l1bs_echo_sar_ku**
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
comment	Dynamic scale factor for I/Q waveforms i_echoes_ku_l1bs_echo_sar_ku and q_echoes_ku_l1bs_echo_sar_ku			1

i_echoes_ku_l1bs_echo_sar_ku	**fully calibrated ku band echoes, i measurements aligned within the stack : l1bs_echo_sar_ku mode**		**sc**	**time_l1bs_echo_sar_ku max_multi_stack_ind echo_sample_ind**
units	Unit name	count		1
_FillValue	Default value for unused or not computed elements	-128		1
comment	Fully calibrated ku band echoes, I values (256*128 samples) in the frequency domain, and aligned within the stack. the useful echoes of the table are the first nb_stack_l1bs_echo_sar_ku echoes. The echoes must be scaled with iq_scale_factor_l1bs_echo_sar_ku. The echoes are not scaled using the corrected AGC.			1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
q_echoes_ku_l1bs_echo_sar_ku	**fully calibrated ku band echoes, q measurements aligned within the stack: l1bs_echo_sar_ku mode**		**sc**	**time_l1bs_echo_sar_ku max_multi_stack_ind echo_sample_ind**
units	Unit name	count		1
_FillValue	Default value for unused or not computed elements	-128		1
comment	Fully calibrated ku band echoes, Q values (256*128 samples) in the frequency domain, and aligned within the stack. the useful echoes of the table are the first nb_stack_l1bs_echo_sar_ku echoes. The echoes must be scaled with iq_scale_factor_l1bs_echo_sar_ku. The echoes are not scaled using the corrected AGC.			1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
start_look_angle_stack_l1bs_echo_sar_ku	**start look angle in stack : l1bs_echo_sar_ku mode**		**ss**	**time_l1bs_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	rad		1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
stop_look_angle_stack_l1bs_echo_sar_ku	**stop look angle in stack : l1bs_echo_sar_ku mode**		**ss**	**time_l1bs_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	rad		1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
start_beam_ang_stack_l1bs_echo_sar_ku	**start doppler beam angle in stack: l1bs_echo_sar_ku mode**		**ss**	**time_l1bs_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1

units	Unit name	rad		1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
stop_beam_ang_stack_l1bs_echo_sar_ku	**stop doppler beam angle in stack: l1bs_echo_sar_ku mode**		**ss**	**time_l1bs_echo_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	rad		1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1
power_var_stack_l1bs_echo_sar_ku	**power variations within the stack: l1bs_echo_sar_ku mode**		**ul**	**time_l1bs_echo_sar_ku max_multi_stack_ind**
comment	the useful values of the table are the first nb_stack_l1bs_echo_sar_ku values, one value of power for each individual echoe			1
units	Unit name	FFT power unit		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1bs_echo_sar_ku lat_l1bs_echo_sar_ku			1

Table 4-14: Content of the Level 1B-S measurement data file (SR_1_SRA_BS product) : ECHO_SAR_Ku parameter

4.2.3.4.2 ECHO_PLRM

The Echo PLRM content is reported in the table below:

time_l1bs_echo_plrm	**UTC : l1bs_echo_plrm mode**		**D**	**time_l1bs_echo_plrm**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	6. time		1
calendar		gregorian		1
units	Unit name	seconds since 2000-01-01 00:00:00.0		1
UTC_day_l1bs_echo_plrm	**day UTC : l1bs_echo_plrm mode**		**ss**	**time_l1bs_echo_plrm**
units	Unit name	days since 2000-01-01 00:00:00.0		1
_FillValue	Default value for unused or not computed elements	32767s		1
UTC_sec_l1bs_echo_plrm	**seconds in the day UTC : l1bs_echo_plrm mode**		**D**	**time_l1bs_echo_plrm**
units	Unit name	s		1
_FillValue	Default value for unused or not computed elements	1.84467440737096e+19		1
lat_l1bs_echo_plrm	**latitude : l1bs_echo_plrm mode**		**sl**	**time_l1bs_echo_plrm**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	latitude		1
scale_factor	The data must be multiplied by this factor after reading	1.e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.		1
units	Unit name	degrees_north		1
_FillValue	Default value for unused or not computed elements	2147483647		1
lon_l1bs_echo_plrm	**longitude : l1bs_echo_plrm mode**		**sl**	**time_l1bs_echo_plrm**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	longitude		1
scale_factor	The data must be multiplied by this factor after reading	1.e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.		1
units	Unit name	degrees_east		1
_FillValue	Default value for unused or not computed elements	2147483647		1
surf_type_l1bs_echo_plrm	**altimeter surface type : l1bs_echo_plrm mode**		**sc**	**time_l1bs_echo_plrm**
flag_values	Flag values	0b, 1b, 2b, 3b		1
comment	value the closest in time to the reference measurement			1

flag_meanings	Flag meanings	open_ocean_or_semi-enclosed_seas enclosed_seas_or_lakes continental_ice land		1
_FillValue	Default value for unused or not computed elements	127b		1
coordinates	lon_l1bs_echo_plrm lat_l1bs_echo_plrm			1
records_count_l1bs_echo_plrm	**L1b record counters within the product : l1bs_echo_plrm mode**		**sl**	**time_l1bs_echo_plrm**
units	Unit name	count		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1bs_echo_plrm lat_l1bs_echo_plrm			1
alt_l1bs_echo_plrm	**altitude of satellite : l1bs_echo_plrm mode**		**sl**	**time_l1bs_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	700000.		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1bs_echo_plrm lat_l1bs_echo_plrm			1
orb_alt_rate_l1bs_echo_plrm	**orbital altitude rate : l1bs_echo_plrm mode**		**ss**	**time_l1bs_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m/s		1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1bs_echo_plrm lat_l1bs_echo_plrm			1
roll_sat_pointing_l1bs_echo_plrm	**satellite pointing angle - roll : l1bs_echo_plrm mode**		**sl**	**time_l1bs_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	value for the closest in time from the burst time tag, given in the nadir pointing reference frame			1
coordinates	lon_l1bs_echo_plrm lat_l1bs_echo_plrm			1
pitch_sat_pointing_l1bs_echo_plrm	**satellite pointing angle - pitch : l1bs_echo_plrm mode**		**sl**	**time_l1bs_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1

units	Unit name	degrees		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	value for the closest in time from the burst time tag, given in the nadir pointing reference frame			1
coordinates	lon_l1bs_echo_plrm lat_l1bs_echo_plrm			1
yaw_sat_pointing_l1bs_echo_plrm	**satellite pointing angle - yaw : l1bs_echo_plrm mode**		**sl**	**time_l1bs_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	value for the closest in time from the burst time tag, given in the nadir pointing reference frame			1
coordinates	lon_l1bs_echo_plrm lat_l1bs_echo_plrm			1
roll_sral_mispointing_l1bs_echo_plrm	**SRAL mispointing angle - roll : l1bs_echo_plrm mode**		**sl**	**time_l1bs_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	value for the closest in time from the burst time tag, given in the nadir pointing reference frame			1
coordinates	lon_l1bs_echo_plrm lat_l1bs_echo_plrm			1
pitch_sral_mispointing_l1bs_echo_plrm	**SRAL mispointing angle - pitch : l1bs_echo_plrm mode**		**sl**	**time_l1bs_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	value for the closest in time from the burst time tag, given in the nadir pointing reference frame			1
coordinates	lon_l1bs_echo_plrm lat_l1bs_echo_plrm			1
yaw_sral_mispointing_l1bs_echo_plrm	**SRAL mispointing angle - yaw : l1bs_echo_plrm mode**		**sl**	**time_l1bs_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees		1
_FillValue	Default value for unused or not computed elements	2147483647		1

comment	value for the closest in time from the burst time tag, given in the nadir pointing reference frame			1
coordinates	lon_l1bs_echo_plrm lat_l1bs_echo_plrm			1
range_ku_l1bs_echo_plrm	**corrected range for ku band : l1bs_echo_plrm mode**		**sl**	**time_l1bs_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	700000.		1
units	Unit name	m		1
comment	Distance between the altimeter reference point and the surface height associated to a range gate used as reference inside the tracking window (reference tracking point), corrected for USO frequency drift and internal path correction			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1bs_echo_plrm lat_l1bs_echo_plrm			1
int_path_cor_ku_l1bs_echo_plrm	**internal path correction for ku band : l1bs_echo_plrm mode**		**sl**	**time_l1bs_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
comment	Value the closest in time from the burst time tag			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1bs_echo_plrm lat_l1bs_echo_plrm			1
uso_cor_l1bs_echo_plrm	**USO frequency drift correction : l1bs_echo_plrm mode**		**sl**	**time_l1bs_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	Value the closest in time from the burst time tag			1
coordinates	lon_l1bs_echo_plrm lat_l1bs_echo_plrm			1
cog_cor_l1bs_echo_plrm	**Distance antenna-CoG correction : l1bs_echo_plrm mode**		**ss**	**time_l1bs_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
comment	Distance in the z-component between the centre of mass of the satellite and the altimeter antenna reference point			1
_FillValue	Default value for unused or not computed elements	32767s		1
coordinates	lon_l1bs_echo_plrm lat_l1bs_echo_plrm			1

agc_ku_l1bs_echo_plrm	**corrected AGC for ku band: l1bs_echo_plrm mode**		**sl**	**time_l1bs_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
comment	AGC corrected for instrumental errors			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1bs_echo_plrm lat_l1bs_echo_plrm			1
scale_factor_ku_l1bs_echo_plrm	**scaling factor for sigma0 evaluation for ku band: l1bs_echo_plrm mode**		**sl**	**time_l1bs_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
comment	scaling factor corrected for AGC instrumental errors and internal calibration			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1bs_echo_plrm lat_l1bs_echo_plrm			1
sig0_cal_ku_l1bs_echo_plrm	**internal calibration correction on Sigma0 for ku band: l1bs_echo_plrm mode**		**sl**	**time_l1bs_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1bs_echo_plrm lat_l1bs_echo_plrm			1
snr_ku_l1bs_echo_plrm	**snr estimation for ku band: l1bs_echo_plrm mode**		**sl**	**time_l1bs_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1bs_echo_plrm lat_l1bs_echo_plrm			1
agc_c_l1bs_echo_plrm	**corrected AGC for c band: l1bs_echo_plrm mode**		**sl**	**time_l1bs_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
comment	AGC corrected for instrumental errors			1
_FillValue	Default value for unused or not computed elements	2147483647		1

coordinates	lon_l1bs_echo_plrm lat_l1bs_echo_plrm			1
scale_factor_c_l1bs_echo_plrm	**scaling factor for sigma0 evaluation for c band: l1bs_echo_plrm mode**		**sl**	**time_l1bs_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
comment	scaling factor corrected for AGC instrumental errors and internal calibration			1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1bs_echo_plrm lat_l1bs_echo_plrm			1
sig0_cal_c_l1bs_echo_plrm	**internal calibration correction on Sigma0 for ku band: l1bs_echo_plrm mode**		**sl**	**time_l1bs_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1bs_echo_plrm lat_l1bs_echo_plrm			1
snr_c_l1bs_echo_plrm	**snr estimation for c band: l1bs_echo_plrm mode**		**sl**	**time_l1bs_echo_plrm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1bs_echo_plrm lat_l1bs_echo_plrm			1
i2q2_meas_ku_l1bs_echo_plrm	**I2+Q2 measurement for ku band : l1bs_echo_plrm mode**		**ul**	**time_l1bs_echo_plrm echo_sample_ind**
comment	the echo is the so-called ku-band averaged echo, corrected for the GPRW effect			1
scale_factor	The data must be multiplied by this factor after reading	1.00e-03		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	count		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1bs_echo_plrm lat_l1bs_echo_plrm			1
i2q2_meas_c_l1bs_echo_plrm	**I2+Q2 measurement for c band : l1bs_echo_plrm mode**		**ul**	**time_l1bs_echo_plrm echo_sample_ind**
comment	the echo is the so-called c-band averaged echo, corrected for the GPRW effect			1
scale_factor	The data must be multiplied by this factor after reading	1.00e-03		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1

units	Unit name	count		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1bs_echo_plrm lat_l1bs_echo_plrm			1

Table 4-15: Content of the Level 1B-S measurement data file (SR_1_SRA_BS product) : ECHO_PLRM parameter

6.1.1 SRAL "SR_1_CAL__"

A Level 1 Calibration SRAL product contains one "calibration data file" containing the L1b calibration parameters for the calibration nominal scenario:

- CAL1_LRM_IQ: L1b PTR calibration measurements in LRM mode for I,Q configuration
- CAL1_SAR_Norm: L1b PTR calibration measurements in SAR mode
- CAL1_SAR_Auto: L1b PTR calibration measurements in SAR mode / AGC calibration
- CAL2_SAR_Ku: L1b GPRW calibration measurements - Ku band (SAR mode)
- CAL2_SAR_C: L1b GPRW calibration measurements - C band (SAR mode)

6.1.1.1 Product Summary

Product Package Type SR_1_CAL___		*Description* L1b calibration parameters for LRM and SAR mode			
Product Level	**Diss. Timeliness**	**Product Category**	**ApplicationDomain**	**Spatial Resolution**	
1	(NRT)	Not Available to the user			
Product Dissemination Unit N/A		Number of Package Components	Number of Measurement Data Files	Number of Annotation Data Files	Number of Representation Information Files
		3[4]	1	0	0
Product Package Structure					
Manifest file (see section 6.1.1.2 for more details)					
File name		**Composition**			
xfdumanifest.xml					
Measurement Data files (see section 6.1.1.3 for more details)					**N.O.**
File name		**Composition**			
calibration.nc		calibration data file containing the L1b calibration parameters: CAL1_LRM_IQ, CAL1_SAR_Norm, CAL1_SAR_Auto, CAL2_SAR_Ku, CAL2_SAR_C			
Annotation Data files					**N.O.**
File name		**Composition**			
none					
Representation Information Files					**N.O.**
File name		**Composition**			
none					

Table 4-16: SRAL Calibration Level 1 product physical composition

[4] *Number of Package components includes the manifest and the OLQC Report.*

6.1.1.2 Manifest File

The structure of the Manifest element is described in [AD- 2].

6.1.1.3 Product Metadata

According to [AD- 2], Wrapped Metadata are grouped in Primary Metadata, common to all Sentinel 3 products and Secondary Metadata, specific for instrument and processing level.

Primary Metadata are described in [AD- 2].

Secondary Metadata for the SRAL instrument are reported in Table 4-2.

6.1.1.4 L1 Calibration Data Files

The content of the Level 1 Calibration SRAL product is described in the table below:

Element name	Description	Range or value	T	D
time_l1b_cal1_lrm_iq	**Number of L1B CAL1_LRM_IQ measurements**			
time_l1b_cal1_sar_norm	**Number of L1B CAL1_SAR_Norm measurements**			
time_l1b_cal1_sar_auto	**Number of L1B CAL1_SAR_Auto measurements**			
time_l1b_cal2_sar_ku	**Number of L1B CAL2_SAR_Ku measurements**			
time_l1b_cal2_sar_c	**Number of L1B CAL2_SAR_C measurements**			
ptr_sec_lobe_ind	**Maximum number of secondary lobes of the PTR**	**60**		
sar_ku_pulse_burst_ind	**Number of Ku-band pulses per burst in SAR mode**	**64**		
echo_sample_ind	**Number of samples in a waveform**	**128**		
agc_ind	**Number of on-board AGC possible values**	**63**		
<Specific global attributes>	:Conventions = netCDF convention :mission_name = Name of the mission :altimeter_sensor_name = Name of the altimeter sensor :gnss_sensor_name = Name of the GNSS sensor :doris_sensor_name = Name of the DORIS sensor :acq_station_name = Identification of the acquisition station :first_meas_time = UTC Date of the first measurement of the data set (YYYY-MM-DD HH:MM:SS.mmmmmm) :last_meas_time = UTC Date of the last measurement of the data set (YYYY-MM-DD HH:MM:SS.mmmmmm) :xref_altimeter_level0 = Name of the altimeter level 0 data file:xref_altimeter_orbit = Name of the file containing the Orbit Data :xref_altimeter_ltm_lrm_cal1 = Name of the LTM file containing the LRM mode CAL1 parameters :xref_altimeter_ltm_sar_cal1 = Name of the LTM file containing the SAR mode CAL1 parameters :xref_altimeter_ltm_ku_cal2 = Name of the LTM file containing the Ku-band CAL2 parameters :xref_altimeter_ltm_c_cal2 = Name of the LTM file containing the C-band CAL2 parameters		S	

	:xref_altimeter_characterisation = Name of the altimeter characterisation data file :semi_major_ellipsoid_axis = Semi-major axis of the reference ellipsoid (meters) :ellipsoid_flattening = Flattening coeffcient of the reference ellipsoid		ul D	
ptr_sec_lobe_ind	**maximum number of secondary lobes of the PTR**		**sc**	**ptr_sec_lobe_ind**
units	Unit name	count		1
comment	Set to be compliant with the CF-1.6 convention			1
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
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
agc_ind	**number of on-board AGC possible values**		**sc**	**agc_ind**
units	Unit name	count		1
comment	Set to be compliant with the CF-1.6 convention			1

Table 4-17: Content of the Level 1 measurement data file (SR_1_CAL product)

In addition to these 4 variables, the Level 1 Calibration SRAL product contains the variables described in sections 6.1.1.4.1, 6.1.1.4.2, 6.1.1.4.3, 6.1.1.4.4 and 6.1.1.4.5.

6.1.1.4.1 CAL1_LRM_IQ

The content of the CAL1_LRM_IQ is described in the table below:

Element name	Description	Range or value	T	D
time_l1b_cal1_lrm_iq	**UTC : l1b_cal1_lrm_iq mode**		**D**	**time_l1b_cal1_lrm_iq**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	time		1
calendar		gregorian		1
units	Unit name	seconds since 2000-01-01 00:00:00.0		1
comment	value for the first calibration cycle			1
UTC_day_l1b_cal1_lrm_iq	**day UTC : l1b_cal1_lrm_iq mode**		**ss**	**time_l1b_cal1_lrm_iq**

units	Unit name	days since 2000-01-01 00:00:00.0		1
_FillValue	Default value for unused or not computed elements	32767		1
comment	value for the first calibration cycle			1
UTC_sec_l1b_cal1_lrm_iq	**seconds in the day UTC : l1b_cal1_lrm_iq mode**		**D**	**time_l1b_cal1_lrm_iq**
units	Unit name	s		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
comment	value for the first calibration cycle			1
GPS_time_l1b_cal1_lrm_iq	**GPS time : l1b_cal1_lrm_iq mode**		**D**	**time_l1b_cal1_lrm_iq**
calendar		gregorian		1
units	Unit name	seconds since 1980-01-06 00:00:00.0		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
comment	value for the first calibration cycle			1
isp_coarse_time_l1b_cal1_lrm_iq	**ISP coarse time : l1b_cal1_lrm_iq mode**		**ul**	**time_l1b_cal1_lrm_iq**
units	Unit name	second		1
_FillValue	Default value for unused or not computed elements	4294967295		1
comment	value for the first calibration cycle			1
isp_fine_time_l1b_cal1_lrm_iq	**ISP fine time : l1b_cal1_lrm_iq mode**		**sl**	**time_l1b_cal1_lrm_iq**
units	Unit name	2^-24 second		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	value for the first calibration cycle			1
sral_fine_time_l1b_cal1_lrm_iq	**ISP SRAL fine datation : l1b_cal1_lrm_iq mode**		**ul**	**time_l1b_cal1_lrm_iq**
units	Unit name	137.5*10^-9 second		1
_FillValue	Default value for unused or not computed elements	4294967295		1
comment	value for the first calibration cycle			1
lat_l1b_cal1_lrm_iq	**latitude : l1b_cal1_lrm_iq mode**		**sl**	**time_l1b_cal1_lrm_iq**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	latitude		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees_north		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	value for the first calibration cycle			1
lon_l1b_cal1_lrm_iq	**longitude : l1b_cal1_lrm_iq mode**		**sl**	**time_l1b_cal1_lrm_iq**

standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	longitude		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees_east		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	value for the first calibration cycle			1
alt_l1b_cal1_lrm_iq	**altitude of satellite : l1b_cal1_lrm_iq mode**		**sl**	**time_l1b_cal1_lrm_iq**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	700000.		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
comment	value for the first calibration cycle			1
orb_alt_rate_l1b_cal1_lrm_iq	**orbital altitude rate : l1b_cal1_lrm_iq mode**		**ss**	**time_l1b_cal1_lrm_iq**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m/s		1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
comment	value for the first calibration cycle			1
flag_time_status_l1b_cal1_lrm_iq	**time status flag : l1b_cal1_lrm_iq mode**		**sc**	**time_l1b_cal1_lrm_iq**
flag_values	Flag values	0b, 1b		1
comment	flag indicating if the time is synchronized or not with GPS time			1
flag_meanings	Flag meanings	synchronization no_synchronization		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
flag_time_corr_val_l1b_cal1_lrm_iq	**time correlation validity flag : l1b_cal1_lrm_iq mode**		**sc**	**time_l1b_cal1_lrm_iq**
flag_values	Flag values	0b, 1b, 2b		1
comment	flag indicating if the time correlation information is valid provided by OBSW, valid provided by Ground Segment or invalid			1
flag_meanings	Flag meanings	valid_obsw valid_ground_segment invalid		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1

flag_man_pres_l1b_cal1_lrm_iq	**manoeuvre presence flag: l1b_cal1_lrm_iq mode**		**sc**	**time_l1b_cal1_lrm_iq**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	no_manoeuvre ongoing_manoeuvre		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
flag_man_thrust_l1b_cal1_lrm_iq	**manoeuvre thrust flag: l1b_cal1_lrm_iq mode**		**sc**	**time_l1b_cal1_lrm_iq**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	no_thrust ongoing_thrust		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
flag_man_plane_l1b_cal1_lrm_iq	**manoeuvre plane flag: l1b_cal1_lrm_iq mode**		**sc**	**time_l1b_cal1_lrm_iq**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	in_plane out_of_plane		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
flag_gnss_status_l1b_cal1_lrm_iq	**validity flag for the navigation message from the gnss receiver: l1b_cal1_lrm_iq mode**		**sc**	**time_l1b_cal1_lrm_iq**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	valid invalid_unavailable		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
comment	indicating if the navigation message from the GNSS receiver is valid or not valid/available			1
seq_count_l1b_cal1_lrm_iq	**sequence count : l1b_cal1_lrm_iq mode**		**us**	**time_l1b_cal1_lrm_iq**
_FillValue	Default value for unused or not computed elements	65535		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
comment	value for the first calibration cycle			1
isp_time_status_l1b_cal1_lrm_iq	**ISP time status : l1b_cal1_lrm_iq mode**		**sc**	**time_l1b_cal1_lrm_iq**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	SRAL_OBT_extrapolated SRAL_OBT_updated_with_SMU_OBT		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
comment	value for the first calibration cycle			1
oper_instr_l1b_cal1_lrm_iq	**operating instrument : l1b_cal1_lrm_iq mode**		**sc**	**time_l1b_cal1_lrm_iq**
flag_values	Flag values	0b, 1b		1

_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	A B		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
comment	value for the first calibration cycle - Instrument A stands for SRAL Nominal and instrument B stands for SRAL Redundant			1
ptr_pow_ku_l1b_cal1_lrm_iq	**total power of the PTR for ku band : l1b_cal1_lrm_iq mode**		**ul**	**time_l1b_cal1_lrm_iq**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	FFT power unit		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
ptr_pow_c_l1b_cal1_lrm_iq	**total power of the PTR for c band : l1b_cal1_lrm_iq mode**		**ul**	**time_l1b_cal1_lrm_iq**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	FFT power unit		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
ptr_max_ku_l1b_cal1_lrm_iq	**maximum value of the PTR for ku band : l1b_cal1_lrm_iq mode**		**ul**	**time_l1b_cal1_lrm_iq**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	FFT power unit		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
ptr_max_c_l1b_cal1_lrm_iq	**maximum value of the PTR for c band : l1b_cal1_lrm_iq mode**		**ul**	**time_l1b_cal1_lrm_iq**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	FFT power unit		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
freq_ptr_max_ku_l1b_cal1_lrm_iq	**frequency associated to the maximum of the PTR for ku band: l1b_cal1_lrm_iq mode**		**sl**	**time_l1b_cal1_lrm_iq**
units	Unit name	Hz		1
_FillValue	Default value for unused or not computed elements	2147483647		1

coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
freq_ptr_max_c_l1b_cal1_lrm_iq	**frequency associated to the maximum of the PTR for c band: l1b_cal1_lrm_iq mode**		**sl**	**time_l1b_cal1_lrm_iq**
units	Unit name	Hz		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
dist_ptr_max_ku_l1b_cal1_lrm_iq	**distance associated with the maximum value of the PTR for ku band : l1b_cal1_lrm_iq mode**		**ul**	**time_l1b_cal1_lrm_iq**
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
dist_ptr_max_c_l1b_cal1_lrm_iq	**distance associated with the maximum value of the PTR for c band : l1b_cal1_lrm_iq mode**		**ul**	**time_l1b_cal1_lrm_iq**
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
freq_ptr_median_ku_l1b_cal1_lrm_iq	**frequency of the median point of the PTR for ku band:l1b_cal1_lrm_iq mode**		**sl**	**time_l1b_cal1_lrm_iq**
units	Unit name	Hz		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
freq_ptr_median_c_l1b_cal1_lrm_iq	**frequency of the median point of the PTR for c band:l1b_cal1_lrm_iq mode**		**sl**	**time_l1b_cal1_lrm_iq**
units	Unit name	Hz		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
diff_tx_rx_ku_l1b_cal1_lrm_iq	**difference of travel between the Tx and Rx lines for ku band:l1b_cal1_lrm_iq mode**		**ul**	**time_l1b_cal1_lrm_iq**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	4294967295		1

coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
diff_tx_rx_c_l1b_cal1_lrm_iq	**difference of travel between the Tx and Rx lines for c band:l1b_cal1_lrm_iq mode**		**ul**	**time_l1b_cal1_lrm_iq**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
flag_ptr_pow_ku_l1b_cal1_lrm_iq	**flag associated to the total power of the PTR for ku band : l1b_cal1_lrm_iq mode**		**sc**	**time_l1b_cal1_lrm_iq**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
flag_ptr_pow_c_l1b_cal1_lrm_iq	**flag associated to the total power of the PTR for c band : l1b_cal1_lrm_iq mode**		**sc**	**time_l1b_cal1_lrm_iq**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
flag_diff_tx_rx_ku_l1b_cal1_lrm_iq	**flag associated to the difference of travel between the Tx and Rx lines for ku band : l1b_cal1_lrm_iq mode**		**sc**	**time_l1b_cal1_lrm_iq**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
flag_diff_tx_rx_c_l1b_cal1_lrm_iq	**flag associated to the difference of travel between the Tx and Rx lines for c band : l1b_cal1_lrm_iq mode**		**sc**	**time_l1b_cal1_lrm_iq**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
flag_freq_ptr_median_ku_l1b_cal1_lrm_iq	**flag associated to the frequency of the median point of the PTR in energy for ku band : l1b_cal1_lrm_iq mode**		**sc**	**time_l1b_cal1_lrm_iq**

flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
flag_freq_ptr_median_c_l1b_cal1_lrm_iq	**flag associated to the frequency of the median point of the PTR in energy for c band : l1b_cal1_lrm_iq mode**		**sc**	**time_l1b_cal1_lrm_iq**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
ptr_main_width_ku_l1b_cal1_lrm_iq	**width of the main lobe of the PTR at ufffd3 dB for ku band:l1b_cal1_lrm_iq mode**		**sl**	**time_l1b_cal1_lrm_iq**
units	Unit name	Hz		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
ptr_main_width_c_l1b_cal1_lrm_iq	**width of the main lobe of the PTR at ufffd3 dB for c band:l1b_cal1_lrm_iq mode**		**sl**	**time_l1b_cal1_lrm_iq**
units	Unit name	Hz		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
flag_ptr_main_width_ku_l1b_cal1_lrm_iq	**flag associated to the main lobe of the PTR at ufffd3 dB for ku band : l1b_cal1_lrm_iq mode**		**sc**	**time_l1b_cal1_lrm_iq**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
flag_ptr_main_width_c_l1b_cal1_lrm_iq	**flag associated to the main lobe of the PTR at ufffd3 dB for c band : l1b_cal1_lrm_iq mode**		**sc**	**time_l1b_cal1_lrm_iq**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
ptr_sec_lobe_max_ku_l1b_cal1_lrm_iq	**powers associated with the maxima of the secondary lobes of the PTR for ku band : l1b_cal1_lrm_iq mode**		**ul**	**time_l1b_cal1_lrm_iq ptr_sec_lobe_ind**

scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	FFT power unit		1
_FillValue	Default value for unused or not computed elements	4294967295		1
ptr_sec_lobe_max_c_l1b_cal1_lrm_iq	**powers associated with the maxima of the secondary lobes of the PTR for c band : l1b_cal1_lrm_iq mode**		**ul**	**time_l1b_cal1_lrm_iq ptr_sec_lobe_ind**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	FFT power unit		1
_FillValue	Default value for unused or not computed elements	4294967295		1
ptr_sec_lobe_pos_ku_l1b_cal1_lrm_iq	**positions in freq. of the maxima of the secondary lobes of the PTR for ku band : l1b_cal1_lrm_iq mode**		**sl**	**time_l1b_cal1_lrm_iq ptr_sec_lobe_ind**
units	Unit name	Hz		1
_FillValue	Default value for unused or not computed elements	2147483647		1
ptr_sec_lobe_pos_c_l1b_cal1_lrm_iq	**positions in freq. of the maxima of the secondary lobes of the PTR for c band : l1b_cal1_lrm_iq mode**		**sl**	**time_l1b_cal1_lrm_iq ptr_sec_lobe_ind**
units	Unit name	Hz		1
_FillValue	Default value for unused or not computed elements	2147483647		1
flag_ptr_sec_lobe_ku_l1b_cal1_lrm_iq	**flags for the secondary lobes of the PTR for ku band : l1b_cal1_lrm_iq mode**		**sc**	**time_l1b_cal1_lrm_iq ptr_sec_lobe_ind**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
flag_ptr_sec_lobe_c_l1b_cal1_lrm_iq	**flags for the secondary lobes of the PTR for c band : l1b_cal1_lrm_iq mode**		**sc**	**time_l1b_cal1_lrm_iq ptr_sec_lobe_ind**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
flag_ptr_likelihood_ku_l1b_cal1_lrm_iq	**likelihood flag for all the secondary lobes of the PTR for ku band : l1b_cal1_lrm_iq mode**		**sc**	**time_l1b_cal1_lrm_iq**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1

coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1
flag_ptr_likelihood_c_l1b_cal1_lrm_iq	**likelihood flag for all the secondary lobes of the PTR for c band : l1b_cal1_lrm_iq mode**		**sc**	**time_l1b_cal1_lrm_iq**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
coordinates	lon_l1b_cal1_lrm_iq lat_l1b_cal1_lrm_iq			1

Table 4-18: Content of the Level 1 measurement data file (SR_1_CAL product) : CAL1_LRM parameters

6.1.1.4.2 CAL1_SAR_Norm

The content of the CAL1_SAR_Norm is described in the table below:

Element name	Description	Range or value	T	D
time_l1b_cal1_sar_norm	**UTC : l1b_cal1_sar_norm mode**		**D**	**time_l1b_cal1_sar_norm**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	time		1
calendar		gregorian		1
units	Unit name	seconds since 2000-01-01 00:00:00.0		1
comment	value for the first burst of the first calibration cycle			1
UTC_day_l1b_cal1_sar_norm	**day UTC : l1b_cal1_sar_norm mode**		**ss**	**time_l1b_cal1_sar_norm**
units	Unit name	days since 2000-01-01 00:00:00.0		1
_FillValue	Default value for unused or not computed elements	32767		1
comment	value for the first burst of the first calibration cycle			1
UTC_sec_l1b_cal1_sar_norm	**seconds in the day UTC : l1b_cal1_sar_norm mode**		**D**	**time_l1b_cal1_sar_norm**
units	Unit name	s		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
comment	value for the first burst of the first calibration cycle			1
GPS_time_l1b_cal1_sar_norm	**GPS time : l1b_cal1_sar_norm mode**		**D**	**time_l1b_cal1_sar_norm**
calendar		gregorian		1
units	Unit name	seconds since 1980-01-06 00:00:00.0		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
comment	value for the first burst of the first calibration cycle			1
isp_coarse_time_l1b_cal1_sar_norm	**ISP coarse time : l1b_cal1_sar_norm mode**		**ul**	**time_l1b_cal1_sar_norm**
units	Unit name	second		1
_FillValue	Default value for unused or not computed elements	4294967295		1
comment	value for the first burst of the first calibration cycle			1
isp_fine_time_l1b_cal1_sar_norm	**ISP fine time : l1b_cal1_sar_norm mode**		**sl**	**time_l1b_cal1_sar_norm**
units	Unit name	2^-24 second		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	value for the first burst of the first calibration cycle			1
sral_fine_time_l1b_cal1_sar_norm	**ISP SRAL fine datation : l1b_cal1_sar_norm mode**		**ul**	**time_l1b_cal1_sar_norm**

units	Unit name	137.5*10^-9 second		1
_FillValue	Default value for unused or not computed elements	4294967295		1
comment	value for the first burst of the first calibration cycle			1
lat_l1b_cal1_sar_norm	**latitude : l1b_cal1_sar_norm mode**		**sl**	**time_l1b_cal1_sar_norm**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	latitude		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees_north		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	value for the first burst of the first calibration cycle			1
lon_l1b_cal1_sar_norm	**longitude : l1b_cal1_sar_norm mode**		**sl**	**time_l1b_cal1_sar_norm**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	longitude		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees_east		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	value for the first burst of the first calibration cycle			1
alt_l1b_cal1_sar_norm	**altitude of satellite : l1b_cal1_sar_norm mode**		**sl**	**time_l1b_cal1_sar_norm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	700000.		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
comment	value for the first burst of the first calibration cycle			1
orb_alt_rate_l1b_cal1_sar_norm	**orbital altitude rate : l1b_cal1_sar_norm mode**		**ss**	**time_l1b_cal1_sar_norm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m/s		1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1

comment	value for the first burst of the first calibration cycle			1
flag_time_status_l1b_cal1_sar_norm	**time status flag : l1b_cal1_sar_norm mode**		**sc**	**time_l1b_cal1_sar_norm**
flag_values	Flag values	0b, 1b		1
comment	flag indicating if the time is synchronized or not with GPS time			1
flag_meanings	Flag meanings	synchronization no_synchronization		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
flag_time_corr_val_l1b_cal1_sar_norm	**time correlation validity flag : l1b_cal1_sar_norm mode**		**sc**	**time_l1b_cal1_sar_norm**
flag_values	Flag values	0b, 1b, 2b		1
comment	flag indicating if the time correlation information is valid provided by OBSW, valid provided by Ground Segment or invalid			1
flag_meanings	Flag meanings	valid_obsw valid_ground_segment invalid		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
flag_man_pres_l1b_cal1_sar_norm	**manoeuvre presence flag: l1b_cal1_sar_norm mode**		**sc**	**time_l1b_cal1_sar_norm**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	no_manoeuvre ongoing_manoeuvre		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
flag_man_thrust_l1b_cal1_sar_norm	**manoeuvre thrust flag: l1b_cal1_sar_norm mode**		**sc**	**time_l1b_cal1_sar_norm**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	no_thrust ongoing_thrust		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
flag_man_plane_l1b_cal1_sar_norm	**manoeuvre plane flag: l1b_cal1_sar_norm mode**		**sc**	**time_l1b_cal1_sar_norm**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	in_plane out_of_plane		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
flag_gnss_status_l1b_cal1_sar_norm	**validity flag for the navigation message from the gnss receiver: l1b_cal1_sar_norm mode**		**sc**	**time_l1b_cal1_sar_norm**
comment	indicating if the navigation message from the GNSS receiver is valid or not valid/available			1
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	valid invalid_unavailable		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1

seq_count_l1b_cal1_sar_norm	**sequence count : l1b_cal1_sar_norm mode**		**us**	**time_l1b_cal1_sar_norm**
_FillValue	Default value for unused or not computed elements	65535		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
isp_time_status_l1b_cal1_sar_norm	**ISP time status : l1b_cal1_sar_norm mode**		**sc**	**time_l1b_cal1_sar_norm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	SRAL_OBT_extrapolated SRAL_OBT_updated_with_SMU_OBT		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
oper_instr_l1b_cal1_sar_norm	**operating instrument : l1b_cal1_sar_norm mode**		**sc**	**time_l1b_cal1_sar_norm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	A B		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
comment	Instrument A stands for SRAL Nominal and instrument B stands for SRAL Redundant			1
ptr_pow_ku_l1b_cal1_sar_norm	**total power of the PTR for ku band : l1b_cal1_sar_norm mode**		**ul**	**time_l1b_cal1_sar_norm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	FFT power unit		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
ptr_pow_c_l1b_cal1_sar_norm	**total power of the PTR for c band : l1b_cal1_sar_norm mode**		**ul**	**time_l1b_cal1_sar_norm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	FFT power unit		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
ptr_max_ku_l1b_cal1_sar_norm	**maximum value of the PTR for ku band : l1b_cal1_sar_norm mode**		**ul**	**time_l1b_cal1_sar_norm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	FFT power unit		1

_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
ptr_max_c_l1b_cal1_sar_norm	**maximum value of the PTR for c band : l1b_cal1_sar_norm mode**		**ul**	**time_l1b_cal1_sar_norm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	FFT power unit		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
freq_ptr_max_ku_l1b_cal1_sar_norm	**frequency associated to the maximum of the PTR for ku band: l1b_cal1_sar_norm mode**		**sl**	**time_l1b_cal1_sar_norm**
units	Unit name	Hz		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
freq_ptr_max_c_l1b_cal1_sar_norm	**frequency associated to the maximum of the PTR for c band: l1b_cal1_sar_norm mode**		**sl**	**time_l1b_cal1_sar_norm**
units	Unit name	Hz		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
dist_ptr_max_ku_l1b_cal1_sar_norm	**distance associated with the maximum value of the PTR for ku band : l1b_cal1_sar_norm mode**		**ul**	**time_l1b_cal1_sar_norm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
dist_ptr_max_c_l1b_cal1_sar_norm	**distance associated with the maximum value of the PTR for c band : l1b_cal1_sar_norm mode**		**ul**	**time_l1b_cal1_sar_norm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
freq_ptr_median_ku_l1b_cal1_sar_norm	**frequency of the median point of the PTR for ku band:l1b_cal1_sar_norm mode**		**sl**	**time_l1b_cal1_sar_norm**

units	Unit name	Hz		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
freq_ptr_median_c_l1b_cal1_sar_norm	**frequency of the median point of the PTR for c band:l1b_cal1_sar_norm mode**		**sl**	**time_l1b_cal1_sar_norm**
units	Unit name	Hz		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
diff_tx_rx_ku_l1b_cal1_sar_norm	**difference of travel between the Tx and Rx lines for ku band:l1b_cal1_sar_norm mode**		**ul**	**time_l1b_cal1_sar_norm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
diff_tx_rx_c_l1b_cal1_sar_norm	**difference of travel between the Tx and Rx lines for c band:l1b_cal1_sar_norm mode**		**ul**	**time_l1b_cal1_sar_norm**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	4294967295		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
flag_ptr_pow_ku_l1b_cal1_sar_norm	**flag associated to the total power of the PTR for ku band : l1b_cal1_sar_norm mode**		**sc**	**time_l1b_cal1_sar_norm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
flag_ptr_pow_c_l1b_cal1_sar_norm	**flag associated to the total power of the PTR for c band : l1b_cal1_sar_norm mode**		**sc**	**time_l1b_cal1_sar_norm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1

coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
flag_diff_tx_rx_ku_l1b_cal1_sar_norm	**flag associated to the difference of travel between the Tx and Rx lines for ku band : l1b_cal1_sar_norm mode**		**sc**	**time_l1b_cal1_sar_norm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
flag_diff_tx_rx_c_l1b_cal1_sar_norm	**flag associated to the difference of travel between the Tx and Rx lines for c band : l1b_cal1_sar_norm mode**		**sc**	**time_l1b_cal1_sar_norm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
flag_freq_ptr_median_ku_l1b_cal1_sar_norm	**flag associated to the frequency of the median point of the PTR in energy for ku band : l1b_cal1_sar_norm mode**		**sc**	**time_l1b_cal1_sar_norm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
flag_freq_ptr_median_c_l1b_cal1_sar_norm	**flag associated to the frequency of the median point of the PTR in energy for c band : l1b_cal1_sar_norm mode**		**sc**	**time_l1b_cal1_sar_norm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
ptr_main_width_ku_l1b_cal1_sar_norm	**width of the main lobe of the PTR at ufffd3 dB for ku band:l1b_cal1_sar_norm mode**		**sl**	**time_l1b_cal1_sar_norm**
units	Unit name	Hz		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
ptr_main_width_c_l1b_cal1_sar_norm	**width of the main lobe of the PTR at ufffd3 dB for c band:l1b_cal1_sar_norm mode**		**sl**	**time_l1b_cal1_sar_norm**
units	Unit name	Hz		1
_FillValue	Default value for unused or not computed elements	2147483647		1

coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
flag_ptr_main_width_ku_l1b_cal1_sar_norm	**flag associated to the main lobe of the PTR at ufffd3 dB for ku band : l1b_cal1_sar_norm mode**		**sc**	**time_l1b_cal1_sar_norm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
flag_ptr_main_width_c_l1b_cal1_sar_norm	**flag associated to the main lobe of the PTR at ufffd3 dB for c band : l1b_cal1_sar_norm mode**		**sc**	**time_l1b_cal1_sar_norm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
ptr_sec_lobe_max_ku_l1b_cal1_sar_norm	**powers associated with the maxima of the secondary lobes of the PTR for ku band : l1b_cal1_sar_norm mode**		**ul**	**time_l1b_cal1_sar_norm ptr_sec_lobe_ind**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	FFT power unit		1
_FillValue	Default value for unused or not computed elements	4294967295		1
ptr_sec_lobe_max_c_l1b_cal1_sar_norm	**powers associated with the maxima of the secondary lobes of the PTR for c band : l1b_cal1_sar_norm mode**		**ul**	**time_l1b_cal1_sar_norm ptr_sec_lobe_ind**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	FFT power unit		1
_FillValue	Default value for unused or not computed elements	4294967295		1
ptr_sec_lobe_pos_ku_l1b_cal1_sar_norm	**positions in freq. of the maxima of the secondary lobes of the PTR for ku band : l1b_cal1_sar_norm mode**		**sl**	**time_l1b_cal1_sar_norm ptr_sec_lobe_ind**
units	Unit name	Hz		1
_FillValue	Default value for unused or not computed elements	2147483647		1
ptr_sec_lobe_pos_c_l1b_cal1_sar_norm	**positions in freq. of the maxima of the secondary lobes of the PTR for c band : l1b_cal1_sar_norm mode**		**sl**	**time_l1b_cal1_sar_norm ptr_sec_lobe_ind**
units	Unit name	Hz		1
_FillValue	Default value for unused or not computed elements	2147483647		1

flag_ptr_sec_lobe_ku_l1b_cal1_sar_norm	**flags for the secondary lobes of the PTR for ku band : l1b_cal1_sar_norm mode**		**sc**	**time_l1b_cal1_sar_norm ptr_sec_lobe_ind**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
flag_ptr_sec_lobe_c_l1b_cal1_sar_norm	**flags for the secondary lobes of the PTR for c band : l1b_cal1_sar_norm mode**		**sc**	**time_l1b_cal1_sar_norm ptr_sec_lobe_ind**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
flag_ptr_likelihood_ku_l1b_cal1_sar_norm	**likelihood flag for all the secondary lobes of the PTR for ku band : l1b_cal1_sar_norm mode**		**sc**	**time_l1b_cal1_sar_norm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
flag_ptr_likelihood_c_l1b_cal1_sar_norm	**likelihood flag for all the secondary lobes of the PTR for c band : l1b_cal1_sar_norm mode**		**sc**	**time_l1b_cal1_sar_norm**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
coordinates	lon_l1b_cal1_sar_norm lat_l1b_cal1_sar_norm			1
burst_power_cor_l1b_cal1_sar_norm	**burst power corrections : l1b_cal1_sar_norm mode**		**ul**	**time_l1b_cal1_sar_norm sar_ku_pulse_burst_ind**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	FFT power unit		1
_FillValue	Default value for unused or not computed elements	4294967295		1
burst_phase_cor_l1b_cal1_sar_norm	**burst phase corrections : l1b_cal1_sar_norm mode**		**sl**	**time_l1b_cal1_sar_norm sar_ku_pulse_burst_ind**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1

units	Unit name	radian		1
_FillValue	Default value for unused or not computed elements	2147483647		1

Table 4-19: Content of the Level 1 measurement data file (SR_1_CAL product) : CAL1_SAR_Norm parameters

6.1.1.4.3 CAL1_SAR_Auto

The content of the CAL1_SAR_Auto is described in the table below:

Element name	Description	Range or value	T	D
time_l1b_cal1_sar_auto	**UTC : l1b_cal1_sar_auto mode**		**D**	**time_l1b_cal1_sar_auto**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	time		1
calendar		gregorian		1
units	Unit name	seconds since 2000-01-01 00:00:00.0		1
comment	value for the first burst of the first calibration cycle			1
UTC_day_l1b_cal1_sar_auto	**day UTC : l1b_cal1_sar_auto mode**		**ss**	**time_l1b_cal1_sar_auto**
units	Unit name	days since 2000-01-01 00:00:00.0		1
_FillValue	Default value for unused or not computed elements	32767		1
comment	value for the first burst of the first calibration cycle			1
UTC_sec_l1b_cal1_sar_auto	**seconds in the day UTC : l1b_cal1_sar_auto mode**		**D**	**time_l1b_cal1_sar_auto**
units	Unit name	s		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
comment	value for the first burst of the first calibration cycle			1
GPS_time_l1b_cal1_sar_auto	**GPS time : l1b_cal1_sar_auto mode**		**D**	**time_l1b_cal1_sar_auto**
calendar		gregorian		1
units	Unit name	seconds since 1980-01-06 00:00:00.0		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
comment	value for the first burst of the first calibration cycle			1
isp_coarse_time_l1b_cal1_sar_auto	**ISP coarse time : l1b_cal1_sar_auto mode**		**ul**	**time_l1b_cal1_sar_auto**
units	Unit name	second		1
_FillValue	Default value for unused or not computed elements	4294967295		1

comment	value for the first burst of the first calibration cycle			1
isp_fine_time_l1b_cal1_sar_auto	**ISP fine time : l1b_cal1_sar_auto mode**		**sl**	**time_l1b_cal1_sar_auto**
units	Unit name	2^-24 second		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	value for the first burst of the first calibration cycle			1
sral_fine_time_l1b_cal1_sar_auto	**ISP SRAL fine datation : l1b_cal1_sar_auto mode**		**ul**	**time_l1b_cal1_sar_auto**
units	Unit name	137.5*10^-9 second		1
_FillValue	Default value for unused or not computed elements	4294967295		1
comment	value for the first burst of the first calibration cycle			1
lat_l1b_cal1_sar_auto	**latitude : l1b_cal1_sar_auto mode**		**sl**	**time_l1b_cal1_sar_auto**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	latitude		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees_north		1
_FillValue	Default value for unused or not computed elements	2147483647		1
lon_l1b_cal1_sar_auto	**longitude : l1b_cal1_sar_auto mode**		**sl**	**time_l1b_cal1_sar_auto**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	longitude		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees_east		1
_FillValue	Default value for unused or not computed elements	2147483647		1
alt_l1b_cal1_sar_auto	**altitude of satellite : l1b_cal1_sar_auto mode**		**sl**	**time_l1b_cal1_sar_auto**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	700000.		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_cal1_sar_auto lat_l1b_cal1_sar_auto			1
orb_alt_rate_l1b_cal1_sar_auto	**orbital altitude rate : l1b_cal1_sar_auto mode**		**ss**	**time_l1b_cal1_sar_auto**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1

units	Unit name	m/s		1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1b_cal1_sar_auto lat_l1b_cal1_sar_auto			1
flag_time_status_l1b_cal1_sar_auto	**time status flag : l1b_cal1_sar_auto mode**		**sc**	**time_l1b_cal1_sar_auto**
flag_values	Flag values	0b, 1b		1
comment	flag indicating if the time is synchronized or not with GPS time			1
flag_meanings	Flag meanings	synchronization no_synchronization		1
coordinates	lon_l1b_cal1_sar_auto lat_l1b_cal1_sar_auto			1
flag_time_corr_val_l1b_cal1_sar_auto	**time correlation validity flag : l1b_cal1_sar_auto mode**		**sc**	**time_l1b_cal1_sar_auto**
flag_values	Flag values	0b, 1b, 2b		1
comment	flag indicating if the time correlation information is valid provided by OBSW, valid provided by Ground Segment or invalid			1
flag_meanings	Flag meanings	valid_obsw valid_ground_segment invalid		1
coordinates	lon_l1b_cal1_sar_auto lat_l1b_cal1_sar_auto			1
flag_man_pres_l1b_cal1_sar_auto	**manoeuvre presence flag: l1b_cal1_sar_auto mode**		**sc**	**time_l1b_cal1_sar_auto**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	no_manoeuvre ongoing_manoeuvre		1
coordinates	lon_l1b_cal1_sar_auto lat_l1b_cal1_sar_auto			1
flag_man_thrust_l1b_cal1_sar_auto	**manoeuvre thrust flag: l1b_cal1_sar_auto mode**		**sc**	**time_l1b_cal1_sar_auto**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	no_thrust ongoing_thrust		1
coordinates	lon_l1b_cal1_sar_auto lat_l1b_cal1_sar_auto			1
flag_man_plane_l1b_cal1_sar_auto	**manoeuvre plane flag: l1b_cal1_sar_auto mode**		**sc**	**time_l1b_cal1_sar_auto**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	in_plane out_of_plane		1
coordinates	lon_l1b_cal1_sar_auto lat_l1b_cal1_sar_auto			1
flag_gnss_status_l1b_cal1_sar_auto	**validity flag for the navigation message from the gnss receiver: l1b_cal1_sar_auto mode**		**sc**	**time_l1b_cal1_sar_auto**
comment	indicating if the navigation message from the GNSS receiver is valid or not valid/available			1
flag_values	Flag values	0b, 1b		1

flag_meanings	Flag meanings	valid invalid_unavailable		1
coordinates	lon_l1b_cal1_sar_auto lat_l1b_cal1_sar_auto			1
seq_count_l1b_cal1_sar_auto	**sequence count : l1b_cal1_sar_auto mode**		**us**	**time_l1b_cal1_sar_auto**
_FillValue	Default value for unused or not computed elements	65535		1
coordinates	lon_l1b_cal1_sar_auto lat_l1b_cal1_sar_auto			1
comment	value for the first burst of the first calibration cycle			1
isp_time_status_l1b_cal1_sar_auto	**ISP time status : l1b_cal1_sar_auto mode**		**sc**	**time_l1b_cal1_sar_auto**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	SRAL_OBT_extrapolated SRAL_OBT_updated_with_SMU_OBT		1
coordinates	lon_l1b_cal1_sar_auto lat_l1b_cal1_sar_auto			1
comment	value for the first burst of the first calibration cycle			1
oper_instr_l1b_cal1_sar_auto	**operating instrument : l1b_cal1_sar_auto mode**		**sc**	**time_l1b_cal1_sar_auto**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	A B		1
coordinates	lon_l1b_cal1_sar_auto lat_l1b_cal1_sar_auto			1
comment	value for the first burst of the first calibration cycle - Instrument A stands for SRAL Nominal and instrument B stands for SRAL Redundant			1
agc_ref_ku_l1b_cal1_sar_auto	**AGC reference values ufffd Ku band : l1b_cal1_sar_auto mode**		**ss**	**time_l1b_cal1_sar_auto agc_ind**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1b_cal1_sar_auto lat_l1b_cal1_sar_auto			1
agc_cor_ku_l1b_cal1_sar_auto	**AGC corrected values ufffd Ku band : l1b_cal1_sar_auto mode**		**ss**	**time_l1b_cal1_sar_auto agc_ind**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1

_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1b_cal1_sar_auto lat_l1b_cal1_sar_auto			1
agc_ref_c_l1b_cal1_sar_auto	**AGC reference values ufffd C band : l1b_cal1_sar_auto mode**		**ss**	**time_l1b_cal1_sar_auto agc_ind**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1b_cal1_sar_auto lat_l1b_cal1_sar_auto			1
agc_cor_c_l1b_cal1_sar_auto	**AGC corrected values ufffd C band : l1b_cal1_sar_auto mode**		**ss**	**time_l1b_cal1_sar_auto agc_ind**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1b_cal1_sar_auto lat_l1b_cal1_sar_auto			1
switch_att_ku_l1b_cal1_sar_auto	**ku band ku/c switch attenuation : l1b_cal1_sar_auto mode**		**ss**	**time_l1b_cal1_sar_auto**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1b_cal1_sar_auto lat_l1b_cal1_sar_auto			1
switch_att_c_l1b_cal1_sar_auto	**c band ku/c switch attenuation : l1b_cal1_sar_auto mode**		**ss**	**time_l1b_cal1_sar_auto**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1b_cal1_sar_auto lat_l1b_cal1_sar_auto			1

Table 4-20: Content of the Level 1 measurement data file (SR_1_CAL product) : CAL1_SAR_Auto parameters

6.1.1.4.4 CAL2_SAR_Ku

The content of the CAL2_SAR_Ku is described in the table below:

Element name	Description	Range or value	T	D
time_l1b_cal2_sar_ku	**UTC : l1b_cal2_sar_ku mode**		**D**	**time_l1b_cal2_sar_ku**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	time		1
calendar		gregorian		1
units	Unit name	seconds since 2000-01-01 00:00:00.0		1
comment	value for the first burst of the first calibration cycle			1
UTC_day_l1b_cal2_sar_ku	**day UTC : l1b_cal2_sar_ku mode**		**ss**	**time_l1b_cal2_sar_ku**
units	Unit name	days since 2000-01-01 00:00:00.0		1
_FillValue	Default value for unused or not computed elements	32767		1
comment	value for the first burst of the first calibration cycle			1
UTC_sec_l1b_cal2_sar_ku	**seconds in the day UTC : l1b_cal2_sar_ku mode**		**D**	**time_l1b_cal2_sar_ku**
units	Unit name	s		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
comment	value for the first burst of the first calibration cycle			1
GPS_time_l1b_cal2_sar_ku	**GPS time : l1b_cal2_sar_ku mode**		**D**	**time_l1b_cal2_sar_ku**
calendar		gregorian		1
units	Unit name	seconds since 1980-01-06 00:00:00.0		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
comment	value for the first burst of the first calibration cycle			1
isp_coarse_time_l1b_cal2_sar_ku	**ISP coarse time : l1b_cal2_sar_ku mode**		**ul**	**time_l1b_cal2_sar_ku**
units	Unit name	second		1
_FillValue	Default value for unused or not computed elements	4294967295		1
comment	value for the first burst of the first calibration cycle			1
isp_fine_time_l1b_cal2_sar_ku	**ISP fine time : l1b_cal2_sar_ku mode**		**sl**	**time_l1b_cal2_sar_ku**
units	Unit name	2^-24 second		1
_FillValue	Default value for unused or not computed elements	2147483647		1

comment	value for the first burst of the first calibration cycle			1
sral_fine_time_l1b_cal2_sar_ku	**ISP SRAL fine datation : l1b_cal2_sar_ku mode**		**ul**	**time_l1b_cal2_sar_ku**
units	Unit name	137.5*10^-9 second		1
_FillValue	Default value for unused or not computed elements	4294967295		1
comment	value for the first burst of the first calibration cycle			1
lat_l1b_cal2_sar_ku	**latitude : l1b_cal2_sar_ku mode**		**sl**	**time_l1b_cal2_sar_ku**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	latitude		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees_north		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	value for the first burst of the first calibration cycle			1
lon_l1b_cal2_sar_ku	**longitude : l1b_cal2_sar_ku mode**		**sl**	**time_l1b_cal2_sar_ku**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	longitude		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees_east		1
_FillValue	Default value for unused or not computed elements	2147483647		1
comment	value for the first burst of the first calibration cycle			1
alt_l1b_cal2_sar_ku	**altitude of satellite : l1b_cal2_sar_ku mode**		**sl**	**time_l1b_cal2_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	700000.		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_cal2_sar_ku lat_l1b_cal2_sar_ku			1
comment	value for the first burst of the first calibration cycle			1
orb_alt_rate_l1b_cal2_sar_ku	**orbital altitude rate : l1b_cal2_sar_ku mode**		**ss**	**time_l1b_cal2_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m/s		1

_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1b_cal2_sar_ku lat_l1b_cal2_sar_ku			1
comment	value for the first burst of the first calibration cycle			1
flag_time_status_l1b_cal2_sar_ku	**time status flag : l1b_cal2_sar_ku mode**		**sc**	**time_l1b_cal2_sar_ku**
flag_values	Flag values	0b, 1b		1
comment	flag indicating if the time is synchronized or not with GPS time			1
flag_meanings	Flag meanings	synchronization no_synchronization		1
coordinates	lon_l1b_cal2_sar_ku lat_l1b_cal2_sar_ku			1
flag_time_corr_val_l1b_cal2_sar_ku	**time correlation validity flag : l1b_cal2_sar_ku mode**		**sc**	**time_l1b_cal2_sar_ku**
flag_values	Flag values	0b, 1b, 2b		1
comment	flag indicating if the time correlation information is valid provided by OBSW, valid provided by Ground Segment or invalid			1
flag_meanings	Flag meanings	valid_obsw valid_ground_segment invalid		1
coordinates	lon_l1b_cal2_sar_ku lat_l1b_cal2_sar_ku			1
flag_man_pres_l1b_cal2_sar_ku	**manoeuvre presence flag: l1b_cal2_sar_ku mode**		**sc**	**time_l1b_cal2_sar_ku**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	no_manoeuvre ongoing_manoeuvre		1
coordinates	lon_l1b_cal2_sar_ku lat_l1b_cal2_sar_ku			1
flag_man_thrust_l1b_cal2_sar_ku	**manoeuvre thrust flag: l1b_cal2_sar_ku mode**		**sc**	**time_l1b_cal2_sar_ku**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	no_thrust ongoing_thrust		1
coordinates	lon_l1b_cal2_sar_ku lat_l1b_cal2_sar_ku			1
flag_man_plane_l1b_cal2_sar_ku	**manoeuvre plane flag: l1b_cal2_sar_ku mode**		**sc**	**time_l1b_cal2_sar_ku**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	in_plane out_of_plane		1
coordinates	lon_l1b_cal2_sar_ku lat_l1b_cal2_sar_ku			1
flag_gnss_status_l1b_cal2_sar_ku	**validity flag for the navigation message from the gnss receiver: l1b_cal2_sar_ku mode**		**sc**	**time_l1b_cal2_sar_ku**
comment	indicating if the navigation message from the GNSS receiver is valid or not valid/available			1
flag_values	Flag values	0b, 1b		1

flag_meanings	Flag meanings	valid invalid_unavailable		1
coordinates	lon_l1b_cal2_sar_ku lat_l1b_cal2_sar_ku			1
seq_count_l1b_cal2_sar_ku	**sequence count : l1b_cal2_sar_ku mode**		**us**	**time_l1b_cal2_sar_ku**
_FillValue	Default value for unused or not computed elements	65535		1
coordinates	lon_l1b_cal2_sar_ku lat_l1b_cal2_sar_ku			1
comment	value for the first burst of the first calibration cycle			1
isp_time_status_l1b_cal2_sar_ku	**ISP time status : l1b_cal2_sar_ku mode**		**sc**	**time_l1b_cal2_sar_ku**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	SRAL_OBT_extrapolated SRAL_OBT_updated_with_SMU_OBT		1
coordinates	lon_l1b_cal2_sar_ku lat_l1b_cal2_sar_ku			1
comment	value for the first burst of the first calibration cycle			1
oper_instr_l1b_cal2_sar_ku	**operating instrument : l1b_cal2_sar_ku mode**		**sc**	**time_l1b_cal2_sar_ku**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	A B		1
coordinates	lon_l1b_cal2_sar_ku lat_l1b_cal2_sar_ku			1
comment	value for the first burst of the first calibration cycle - Instrument A stands for SRAL Nominal and instrument B stands for SRAL Redundant			1
gprw_mean_left_l1b_cal2_sar_ku	**mean value of the left side of the GPRW: l1b_cal2_sar_ku mode**		**ss**	**time_l1b_cal2_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	32767		1
flag_gprw_mean_left_l1b_cal2_sar_ku	**flag associated to the mean value of the left side of the GPRW: l1b_cal2_sar_ku mode**		**sc**	**time_l1b_cal2_sar_ku**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
gprw_mean_right_l1b_cal2_sar_ku	**mean value of the right side of the GPRW: l1b_cal2_sar_ku mode**		**ss**	**time_l1b_cal2_sar_ku**

scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	32767		1
flag_gprw_mean_right_l1b_cal2_sar_ku	**flag associated to the mean value of the right side of the GPRW: l1b_cal2_sar_ku mode**		**sc**	**time_l1b_cal2_sar_ku**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
gprw_stdev_left_l1b_cal2_sar_ku	**standard deviation of the left side of the GPRW: l1b_cal2_sar_ku mode**		**us**	**time_l1b_cal2_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	65535		1
flag_gprw_stdev_left_l1b_cal2_sar_ku	**flag associated to the standard deviation of the left side of the GPRW: l1b_cal2_sar_ku mode**		**sc**	**time_l1b_cal2_sar_ku**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
gprw_stdev_right_l1b_cal2_sar_ku	**standard deviation of the right side of the GPRW: l1b_cal2_sar_ku mode**		**us**	**time_l1b_cal2_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	65535		1
flag_gprw_stdev_right_l1b_cal2_sar_ku	**flag associated to the standard deviation of the right side of the GPRW: l1b_cal2_sar_ku mode**		**sc**	**time_l1b_cal2_sar_ku**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
gprw_diff_left_l1b_cal2_sar_ku	**difference between the min and max values of the left side of the GPRW: l1b_cal2_sar_ku mode**		**ss**	**time_l1b_cal2_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1

add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	32767		1
flag_gprw_diff_left_l1b_cal2_sar_ku	**flag associated to the difference between the min and max values of the left side of the GPRW: l1b_cal2_sar_ku mode**		**sc**	**time_l1b_cal2_sar_ku**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
gprw_diff_right_l1b_cal2_sar_ku	**difference between the min and max values of the right side of the GPRW: l1b_cal2_sar_ku mode**		**ss**	**time_l1b_cal2_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	32767		1
flag_gprw_diff_right_l1b_cal2_sar_ku	**flag associated to the difference between the min and max values of the right side of the GPRW: l1b_cal2_sar_ku mode**		**sc**	**time_l1b_cal2_sar_ku**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
gprw_slope_left_l1b_cal2_sar_ku	**slope of the linear regression of the left side of the GPRW: l1b_cal2_sar_ku mode**		**sl**	**time_l1b_cal2_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-08		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	FFT power unit /Hz		1
_FillValue	Default value for unused or not computed elements	2147483647		1
flag_gprw_slope_left_l1b_cal2_sar_ku	**flag associated to the slope of the linear regression of the left side of the GPRW: l1b_cal2_sar_ku mode**		**sc**	**time_l1b_cal2_sar_ku**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
gprw_slope_right_l1b_cal2_sar_ku	**slope of the linear regression of the right side of the GPRW: l1b_cal2_sar_ku mode**		**sl**	**time_l1b_cal2_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-08		1

add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	FFT power unit /Hz		1
_FillValue	Default value for unused or not computed elements	2147483647		1
flag_gprw_slope_right_l1b_cal2_sar_ku	**flag associated to the slope of the linear regression of the right side of the GPRW: l1b_cal2_sar_ku mode**		**sc**	**time_l1b_cal2_sar_ku**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
gprw_stdev_slope_left_l1b_cal2_sar_ku	**standard deviation value about the slope of the linear regression of the left side of the GPRW: l1b_cal2_sar_ku mode**		**us**	**time_l1b_cal2_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	65535		1
flag_gprw_stdev_slope_left_l1b_cal2_sar_ku	**flag associated to the standard deviation value about the slope of the linear regression of the left side of the GPRW: l1b_cal2_sar_ku mode**		**sc**	**time_l1b_cal2_sar_ku**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
gprw_stdev_slope_right_l1b_cal2_sar_ku	**standard deviation value about the slope of the linear regression of the right side of the GPRW: l1b_cal2_sar_ku mode**		**us**	**time_l1b_cal2_sar_ku**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	65535		1
flag_gprw_stdev_slope_right_l1b_cal2_sar_ku	**flag associated to the standard deviation value about the slope of the linear regression of the right side of the GPRW: l1b_cal2_sar_ku mode**		**sc**	**time_l1b_cal2_sar_ku**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
gprw_max_loc_l1b_cal2_sar_ku	**localization of the max. of the GPRW: l1b_cal2_sar_ku mode**		**sl**	**time_l1b_cal2_sar_ku**
units	Unit name	Hz		1

_FillValue	Default value for unused or not computed elements	2147483647		1
gprw_meas_l1b_cal2_sar_ku	**samples of the normalized GPRW: l1b_cal2_sar_ku mode**		**ul**	**time_l1b_cal2_sar_ku echo_sample_ind**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	FFT power unit		1
comment	Normalized GPRW for waveforms correction. For the correction of the I/Q waveforms by the GPRW in frequency domain, the zero-frequency gate of the waveform to be applied is 63 (0-based indexing).			1
_FillValue	Default value for unused or not computed elements	4294967295		1

Table 4-21: Content of the Level 1 measurement data file (SR_1_CAL product) : CAL2_SAR_Ku parameters

6.1.1.4.5 CAL2_SAR_C

The content of the CAL2_SAR_C is described in the table below:

Element name	Description	Range or value	T	D
time_l1b_cal2_sar_c	**UTC : l1b_cal2_sar_c mode**		**D**	**time_l1b_cal2_sar_c**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	time		1
calendar		gregorian		1
units	Unit name	seconds since 2000-01-01 00:00:00.0		1
UTC_day_l1b_cal2_sar_c	**day UTC : l1b_cal2_sar_c mode**		**ss**	**time_l1b_cal2_sar_c**
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_l1b_cal2_sar_c	**seconds in the day UTC : l1b_cal2_sar_c mode**		**D**	**time_l1b_cal2_sar_c**
units	Unit name	s		1
_FillValue	Default value for unused or not computed elements	18446744073709551616		1
GPS_time_l1b_cal2_sar_c	**GPS time : l1b_cal2_sar_c mode**		**D**	**time_l1b_cal2_sar_c**
calendar		gregorian		1
units	Unit name	seconds since 1980-01-06 00:00:00.0		1

_FillValue	Default value for unused or not computed elements	18446744073709551616		1
isp_coarse_time_l1b_cal2_sar_c	**ISP coarse time : l1b_cal2_sar_c mode**		**ul**	**time_l1b_cal2_sar_c**
units	Unit name	second		1
_FillValue	Default value for unused or not computed elements	4294967295		1
isp_fine_time_l1b_cal2_sar_c	**ISP fine time : l1b_cal2_sar_c mode**		**sl**	**time_l1b_cal2_sar_c**
units	Unit name	2^-24 second		1
_FillValue	Default value for unused or not computed elements	2147483647		1
sral_fine_time_l1b_cal2_sar_c	**ISP SRAL fine datation : l1b_cal2_sar_c mode**		**ul**	**time_l1b_cal2_sar_c**
units	Unit name	137.5*10^-9 second		1
_FillValue	Default value for unused or not computed elements	4294967295		1
lat_l1b_cal2_sar_c	**latitude : l1b_cal2_sar_c mode**		**sl**	**time_l1b_cal2_sar_c**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	latitude		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees_north		1
_FillValue	Default value for unused or not computed elements	2147483647		1
lon_l1b_cal2_sar_c	**longitude : l1b_cal2_sar_c mode**		**sl**	**time_l1b_cal2_sar_c**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	longitude		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	degrees_east		1
_FillValue	Default value for unused or not computed elements	2147483647		1
alt_l1b_cal2_sar_c	**altitude of satellite : l1b_cal2_sar_c mode**		**sl**	**time_l1b_cal2_sar_c**
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	700000.		1
units	Unit name	m		1
_FillValue	Default value for unused or not computed elements	2147483647		1
coordinates	lon_l1b_cal2_sar_c lat_l1b_cal2_sar_c			1
orb_alt_rate_l1b_cal2_sar_c	**orbital altitude rate : l1b_cal2_sar_c mode**		**ss**	**time_l1b_cal2_sar_c**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1

add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	m/s		1
_FillValue	Default value for unused or not computed elements	32767		1
coordinates	lon_l1b_cal2_sar_c lat_l1b_cal2_sar_c			1
flag_time_status_l1b_cal2_sar_c	**time status flag : l1b_cal2_sar_c mode**		**sc**	**time_l1b_cal2_sar_c**
flag_values	Flag values	0b, 1b		1
comment	flag indicating if the time is synchronized or not with GPS time			1
flag_meanings	Flag meanings	synchronization no_synchronization		1
coordinates	lon_l1b_cal2_sar_c lat_l1b_cal2_sar_c			1
flag_time_corr_val_l1b_cal2_sar_c	**time correlation validity flag : l1b_cal2_sar_c mode**		**sc**	**time_l1b_cal2_sar_c**
flag_values	Flag values	0b, 1b, 2b		1
comment	flag indicating if the time correlation information is valid provided by OBSW, valid provided by Ground Segment or invalid			1
flag_meanings	Flag meanings	valid_obsw valid_ground_segment invalid		1
coordinates	lon_l1b_cal2_sar_c lat_l1b_cal2_sar_c			1
flag_man_pres_l1b_cal2_sar_c	**manoeuvre presence flag: l1b_cal2_sar_c mode**		**sc**	**time_l1b_cal2_sar_c**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	no_manoeuvre ongoing_manoeuvre		1
coordinates	lon_l1b_cal2_sar_c lat_l1b_cal2_sar_c			1
flag_man_thrust_l1b_cal2_sar_c	**manoeuvre thrust flag: l1b_cal2_sar_c mode**		**sc**	**time_l1b_cal2_sar_c**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	no_thrust ongoing_thrust		1
coordinates	lon_l1b_cal2_sar_c lat_l1b_cal2_sar_c			1
flag_man_plane_l1b_cal2_sar_c	**manoeuvre plane flag: l1b_cal2_sar_c mode**		**sc**	**time_l1b_cal2_sar_c**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	in_plane out_of_plane		1
coordinates	lon_l1b_cal2_sar_c lat_l1b_cal2_sar_c			1
flag_gnss_status_l1b_cal2_sar_c	**validity flag for the navigation message from the gnss receiver: l1b_cal2_sar_c mode**		**sc**	**time_l1b_cal2_sar_c**
comment	indicating if the navigation message from the GNSS receiver is valid or not valid/available			1

flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	valid invalid_unavailable		1
coordinates	lon_l1b_cal2_sar_c lat_l1b_cal2_sar_c			1
seq_count_l1b_cal2_sar_c	**sequence count : l1b_cal2_sar_c mode**		**us**	**time_l1b_cal2_sar_c**
_FillValue	Default value for unused or not computed elements	65535		1
coordinates	lon_l1b_cal2_sar_c lat_l1b_cal2_sar_c			1
isp_time_status_l1b_cal2_sar_c	**ISP time status : l1b_cal2_sar_c mode**		**sc**	**time_l1b_cal2_sar_c**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	SRAL_OBT_extrapolated SRAL_OBT_updated_with_SMU_OBT		1
coordinates	lon_l1b_cal2_sar_c lat_l1b_cal2_sar_c			1
oper_instr_l1b_cal2_sar_c	**operating instrument : l1b_cal2_sar_c mode**		**sc**	**time_l1b_cal2_sar_c**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	A B		1
coordinates	lon_l1b_cal2_sar_c lat_l1b_cal2_sar_c			1
comment	Instrument A stands for SRAL Nominal and instrument B stands for SRAL Redundant			1
gprw_mean_left_l1b_cal2_sar_c	**mean value of the left side of the GPRW: l1b_cal2_sar_c mode**		**ss**	**time_l1b_cal2_sar_c**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	32767		1
flag_gprw_mean_left_l1b_cal2_sar_c	**flag associated to the mean value of the left side of the GPRW: l1b_cal2_sar_c mode**		**sc**	**time_l1b_cal2_sar_c**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
gprw_mean_right_l1b_cal2_sar_c	**mean value of the right side of the GPRW: l1b_cal2_sar_c mode**		**ss**	**time_l1b_cal2_sar_c**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1

units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	32767		1
flag_gprw_mean_right_l1b_cal2_sar_c	**flag associated to the mean value of the right side of the GPRW: l1b_cal2_sar_c mode**		**sc**	**time_l1b_cal2_sar_c**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
gprw_stdev_left_l1b_cal2_sar_c	**standard deviation of the left side of the GPRW: l1b_cal2_sar_c mode**		**us**	**time_l1b_cal2_sar_c**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	65535		1
flag_gprw_stdev_left_l1b_cal2_sar_c	**flag associated to the standard deviation of the left side of the GPRW: l1b_cal2_sar_c mode**		**sc**	**time_l1b_cal2_sar_c**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
gprw_stdev_right_l1b_cal2_sar_c	**standard deviation of the right side of the GPRW: l1b_cal2_sar_c mode**		**us**	**time_l1b_cal2_sar_c**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	65535		1
flag_gprw_stdev_right_l1b_cal2_sar_c	**flag associated to the standard deviation of the right side of the GPRW: l1b_cal2_sar_c mode**		**sc**	**time_l1b_cal2_sar_c**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
gprw_diff_left_l1b_cal2_sar_c	**difference between the min and max values of the left side of the GPRW: l1b_cal2_sar_c mode**		**ss**	**time_l1b_cal2_sar_c**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1

_FillValue	Default value for unused or not computed elements	32767		1
flag_gprw_diff_left_l1b_cal2_sar_c	**flag associated to the difference between the min and max values of the left side of the GPRW: l1b_cal2_sar_c mode**		**sc**	**time_l1b_cal2_sar_c**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
gprw_diff_right_l1b_cal2_sar_c	**difference between the min and max values of the right side of the GPRW: l1b_cal2_sar_c mode**		**ss**	**time_l1b_cal2_sar_c**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	32767		1
flag_gprw_diff_right_l1b_cal2_sar_c	**flag associated to the difference between the min and max values of the right side of the GPRW: l1b_cal2_sar_c mode**		**sc**	**time_l1b_cal2_sar_c**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
gprw_slope_left_l1b_cal2_sar_c	**slope of the linear regression of the left side of the GPRW: l1b_cal2_sar_c mode**		**sl**	**time_l1b_cal2_sar_c**
scale_factor	The data must be multiplied by this factor after reading	1.00e-08		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	FFT power unit /Hz		1
_FillValue	Default value for unused or not computed elements	2147483647		1
flag_gprw_slope_left_l1b_cal2_sar_c	**flag associated to the slope of the linear regression of the left side of the GPRW: l1b_cal2_sar_c mode**		**sc**	**time_l1b_cal2_sar_c**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
gprw_slope_right_l1b_cal2_sar_c	**slope of the linear regression of the right side of the GPRW: l1b_cal2_sar_c mode**		**sl**	**time_l1b_cal2_sar_c**
scale_factor	The data must be multiplied by this factor after reading	1.00e-08		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	FFT power unit /Hz		1

_FillValue	Default value for unused or not computed elements	2147483647		1
flag_gprw_slope_right_l1b_cal2_sar_c	**flag associated to the slope of the linear regression of the right side of the GPRW: l1b_cal2_sar_c mode**		**sc**	**time_l1b_cal2_sar_c**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
gprw_stdev_slope_left_l1b_cal2_sar_c	**standard deviation value about the slope of the linear regression of the left side of the GPRW: l1b_cal2_sar_c mode**		**us**	**time_l1b_cal2_sar_c**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	65535		1
flag_gprw_stdev_slope_left_l1b_cal2_sar_c	**flag associated to the standard deviation value about the slope of the linear regression of the left side of the GPRW: l1b_cal2_sar_c mode**		**sc**	**time_l1b_cal2_sar_c**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
gprw_stdev_slope_right_l1b_cal2_sar_c	**standard deviation value about the slope of the linear regression of the right side of the GPRW: l1b_cal2_sar_c mode**		**us**	**time_l1b_cal2_sar_c**
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	dB		1
_FillValue	Default value for unused or not computed elements	65535		1
flag_gprw_stdev_slope_right_l1b_cal2_sar_c	**flag associated to the standard deviation value about the slope of the linear regression of the right side of the GPRW: l1b_cal2_sar_c mode**		**sc**	**time_l1b_cal2_sar_c**
flag_values	Flag values	0b, 1b		1
_FillValue	Default value for unused or not computed elements	127		1
flag_meanings	Flag meanings	valid invalid		1
gprw_max_loc_l1b_cal2_sar_c	**localization of the max. of the GPRW: l1b_cal2_sar_c mode**		**sl**	**time_l1b_cal2_sar_c**
units	Unit name	Hz		1
_FillValue	Default value for unused or not computed elements	2147483647		1
gprw_meas_l1b_cal2_sar_c	**samples of the normalized GPRW: l1b_cal2_sar_c mode**		**ul**	**time_l1b_cal2_sar_c echo_sample_ind**

scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
units	Unit name	FFT power unit		1
comment	Normalized GPRW for waveforms correction. For the correction of the I/Q waveforms by the GPRW in frequency domain, the zero-frequency gate of the waveform to be applied is 63 (0-based indexing).			1
_FillValue	Default value for unused or not computed elements	4294967295		1

Table 4-22: Content of the Level 1 measurement data file (SR_1_CAL product) : CAL2_SAR_C parameters

6.1.2 MWR "MW_1_MWR___"

A Level 1 MWR product contains one "measurement data file" containing the measurements data.

6.1.2.1 Product summary

Product Package Type MW_1_MWR___		*Description* MWR Level 1 observation data			
Product Level	**Diss. Timeliness**	**Product Category**	**ApplicationDomain**		**Spatial Resolution**
1	NRT/STC/NTC	Not Available to the user	LAN WAT		
Product Dissemination Unit N/A		Number of Package Components	Number of Measurement Data Files	Number of Annotation Data files	Number of Representation Information Files
		3[5]	1	0	0
Product Package Structure					
Manifest file (see section 6.1.2.1 for more details)					
File name		**Composition**			
xfdumanifest.xml					
Measurement Data files (see section 6.1.2 for more details)					**N.O.**
File name		**Composition**			
MeasurementData.nc		Brightness_temp and Antenna_temp for each channel			
Annotation Data files					**N.O.**
File name		**Composition**			
none					
Representation Information Files					**N.O.**
File name		**Composition**			
none					

Table 4-24: MWR Level 1 product physical composition

6.1.2.2 Manifest File

The structure of the Manifest element is described in [AD- 2].

6.1.2.3 Product Metadata

According to [AD- 2], Wrapped Metadata are grouped in Primary Metadata, common to all Sentinel 3 products and Secondary Metadata, specific for instrument and processing level.

Primary Metadata are described in [AD- 2].

< Complete secondary metadata is described in details in [AD- 4].
The content of this table will be embedded in the document when it will be finalized>

Table 4-25: Secondary Metadata for MW_1_MWR___ products

[5] *Number of Package components includes the manifest and the OLQC Report.*

6.1.2.4 L1 Measurement Data Files

The content of the Level 1 MWR product is described in the table below:

Element name	Description	Range or value	T	D
time_mwr_l1b	**Number of MWR L1B observation measurements**			
mwr_chan	**Number of channels**	**2**		
<Specific global attributes>	:Conventions = netCDF convention :mission_name = Name of the mission :radiometer_sensor_name = Name of the radiometer sensor :acq_station_name = Identification of the acquisition station :first_meas_time = UTC Date of the first measurement of the data set (YYYY-MM-DD HH:MM:SS.mmmmmm) :last_meas_time = UTC Date of the last measurement of the data set (YYYY-MM-DD HH:MM:SS.mmmmmm) :xref_radiometer_level0 = Name of the radiometer level 0 data file :xref_radiometer_orbit = Name of the file containing the Orbit Data :xref_radiometer_ltm_nir_cal = Name of the LTM file containing the NIR mode calibration parameters :xref_radiometer_ltm_dnb_cal = Name of the LTM file containing the DNB mode calibration parameters:xref_radiometer_sat_temp = Name of the file containing the satellite temperature along the orbit :xref_radiometer_characterisation = Name of the radiometer characterisation data file	S		
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_mwr_l1b	**UTC : mwr_l1b mode**		**D**	**time_mwr_l1b**
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_mwr_l1b	**day UTC : mwr_l1b mode**		**ss**	**time_mwr_l1b**
units	Unit name	days since 2000-01-01 00:00:00.0		1
_FillValue	Default value for unused or not computed elements	32762s		1

UTC_sec_mwr_l1b	**seconds in the day UTC : mwr_l1b mode**		**D**	**time_mwr_l1b**
units	Unit name	s		1
_FillValue	Default value for unused or not computed elements	1.84467440737096e+19		1
GPS_time_mwr_l1b	**GPS time : mwr_l1b mode**		**D**	**time_mwr_l1b**
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	1.84467440737096e+19		1
isp_coarse_time_mwr_l1b	**ISP coarse time: mwr_l1b mode**		**sl**	**time_mwr_l1b**
units	Unit name	second		1
isp_fine_time_mwr_l1b	**ISP fine time: mwr_l1b mode**		**sl**	**time_mwr_l1b**
units	Unit name	2^-24 second		1
_FillValue	Default value for unused or not computed elements	2147483647		1
lat_mwr_l1b	**latitude : mwr_l1b mode**		**sl**	**time_mwr_l1b 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.e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
_FillValue	Default value for unused or not computed elements	2147483647		1
lon_mwr_l1b	**longitude : mwr_l1b mode**		**sl**	**time_mwr_l1b 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.e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
_FillValue	Default value for unused or not computed elements	2147483647		1
yaw_mwr_l1b	**yaw angle**		**D**	**time_mwr_l1b**
units	Unit name	degrees		1
_FillValue	Default value for unused or not computed elements	2147483647.		1
pitch_mwr_l1b	**pitch angle**		**D**	**time_mwr_l1b**
units	Unit name	degrees		1
_FillValue	Default value for unused or not computed elements	2147483647.		1

roll_mwr_l1b	**roll angle**		**D**	**time_mwr_l1b**
units	Unit name	degrees		1
_FillValue	Default value for unused or not computed elements	2147483647.		1
noise_pulse_mwr_l1b	**Noise pulse length for both channels**		**sl**	**time_mwr_l1b mwr_chan**
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	/		1
scale_factor	The data must be multiplied by this factor after reading	0.0001		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
error_voltage_mwr_l1b_mode_obs	**Error voltage in mode in mode obs for mwr_l1b**		**sl**	**time_mwr_l1b 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	0.0001		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
comment	Value from calibration used to retrieve the antenna temperature			1
phys_temp_refl_mwr_l1b	**Physical temperature of the reflector**		**sl**	**time_mwr_l1b**
_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	0.0001		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
phys_temp_skyhorn_mwr_l1b	**Physical temperature of the sky horn**		**sl**	**time_mwr_l1b**
_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	0.0001		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
phys_temp_feeder_mwr_l1b	**Physical temperature of the feeders**		**sl**	**time_mwr_l1b 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	0.0001		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1

phys_temp_calwg_mwr_l1b	**Physical temperature of the calibration wave guides**		**sl**	**time_mwr_l1b 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	0.0001		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
phys_temp_ns_mwr_l1b	**Physical temperature of the noise sources**		**sl**	**time_mwr_l1b 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	0.0001		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
phys_temp_dl_mwr_l1b	**Physical temperature of the Dicke Loads**		**sl**	**time_mwr_l1b 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	0.0001		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
phys_temp_switch_mwr_l1b	**Physical temperature of the switch assemblies**		**sl**	**time_mwr_l1b 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	0.0001		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
adc_gain_mwr_l1b	**ADC gain**		**sl**	**time_mwr_l1b**
_FillValue	Default value for unused or not computed elements	2147483647		1
adc_offset_mwr_l1b	**ADC offset**		**sl**	**time_mwr_l1b**
_FillValue	Default value for unused or not computed elements	2147483647		1
nir_noise_inj_temp_mwr_l1b	**Averaged noise injection temperature**		**sl**	**time_mwr_l1b 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	0.0001		1

add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
nir_ns_phys_temp_mwr_l1b	**Averaged noise source physical temperature**		**sl**	**time_mwr_l1b 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	0.0001		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
receiver_gain_mwr_l1b	**Receiver gain**		**sl**	**time_mwr_l1b 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	0.0001		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
antenna_temp_mwr_l1b	**Antenna Temperature**		**sl**	**time_mwr_l1b 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	0.0001		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
brightness_temp_mwr_l1b	**Brightness Temperature**		**sl**	**time_mwr_l1b 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	0.0001		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
time_delay_NIR_mwr_l1b	**time delay between observation and NIR cal**		**D**	**time_mwr_l1b**
units	Unit name	second		1
calendar		gregorian		1
time_delay_DNB_mwr_l1b	**time delay between observation and DNB cal**		**D**	**time_mwr_l1b**
units	Unit name	second		1
calendar		gregorian		1
tb_thr_quality_flag	**Quality flag of brightness temperature based on thresholds**		**sc**	**time_mwr_l1b mwr_chan**
_FillValue	Default value for unused or not computed elements	127b		1

flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	good bad		1
tb_cal_quality_flag	**Quality flag of brightness temperature based on calibration**		**sc**	**time_mwr_l1b mwr_chan**
_FillValue	Default value for unused or not computed elements	127b		1
flag_values	Flag values	0b, 1b,2b		1
flag_meanings	Flag meanings	nominal limits out of limits		1

Table 4-26: Content of the Level 1 measurement data file (MW_1_MWR product)

6.1.3 MWR "MW_1_CAL___"

A Level 1 Calibration MWR product contains one "calibration data file" containing the L1b calibration parameters for the calibration.

6.1.3.1 Product summary

Product Package Type MW_1_CAL___		*Description* MWR Level 1 calibration and monitoring data			
Product Level	**Diss. Timeliness**	**Product Category**	**ApplicationDomain**		**Spatial Resolution**
1	NRT/STC/NTC	Not Available to the user	LAN WAT		
Product Dissemination Unit N/A		Number of Package Components	Number of Measurement Data Files	Number of Annotation Data files	Number of Representation Information Files
		3[6]	1	0	0
Product Package Structure					
Manifest file (see section 0 for more details)					
File name		**Composition**			
xfdumanifest.xml					
Measurement Data files (see section 6.1.2 for more details)					**N.O.**
File name		**Composition**			
MonCalData.nc		Calibration information			
Annotation Data files					**N.O.**
File name		**Composition**			
none					
Representation Information Files					**N.O.**
File name		**Composition**			
none					

Table 4-28: MWR Calibration Level 1 product physical composition

6.1.3.2 Manifest File

The structure of the Manifest element is described in [AD- 2].

6.1.3.3 Product Metadata

According to [AD- 2], Wrapped Metadata are grouped in Primary Metadata, common to all Sentinel 3 products and Secondary Metadata, specific for instrument and processing level.

Primary Metadata are described in [AD- 2].

< Complete secondary metadata is described in details in [AD- 4].
The content of this table will be embedded in the document when it will be finalized>

Table 4-29: Secondary Metadata for MW_1_CAL___ products

[6] *Number of Package components includes the manifest and the OLQC Report.*

6.1.3.4 L1 Measurement Data Files

The content of the Level 1 Calibration MWR product is described in the table below:

Element name	Description	Range or value	T	D
time_ cal_nir_mwr_l1b	**Number of MWR L1B NIR calibration measurements**			
time_cal_dnb_mwr_l1b	**Number of MWR L1B DNB calibration measurements**			
time_mon_mwr_l1b	**Number of MWR L1B monitoring measurements**			
mwr_chan	**Number of channels**	**2**		
<Specific global attributes>	:Conventions = netCDF convention :mission_name = Name of the mission :radiometer_sensor_name = Name of the radiometer sensor :acq_station_name = Identification of the acquisition station :first_meas_time = UTC Date of the first measurement of the data set (YYYY-MM-DD HH:MM:SS.mmmmmm) :last_meas_time = UTC Date of the last measurement of the data set (YYYY-MM-DD HH:MM:SS.mmmmmm) :xref_radiometer_level0 = Name of the radiometer level 0 data file :xref_radiometer_orbit = Name of the file containing the Orbit Data :xref_radiometer_ltm_nir_cal = Name of the LTM file containing the NIR mode calibration parameters :xref_radiometer_ltm_dnb_cal = Name of the LTM file containing the DNB mode calibration parameters :xref_radiometer_sat_temp = Name of the file containing the satellite temperature along the orbit :xref_radiometer_characterisation = Name of the radiometer characterisation data file			
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_cal_nir_mwr_l1b	**UTC : cal_nir_mwr_l1b mode**		**D**	**time_cal_nir_mwr_l1b**
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
time_cal_dnb_mwr_l1b	**UTC : cal_dnb_mwr_l1b mode**		**D**	**time_cal_dnb_mwr_l1b**
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
time_mon_mwr_l1b	**UTC : mon_mwr_l1b mode**		**D**	**time_mon_mwr_l1b**
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_cal_nir_mwr_l1b	**day UTC : cal_nir_mwr_l1b mode**		**ss**	**time_cal_nir_mwr_l1b**
units	Unit name	days since 2000-01-01 00:00:00.0		1
_FillValue	Default value for unused or not computed elements	32762s		1
UTC_day_cal_dnb_mwr_l1b	**day UTC : cal_dnb_mwr_l1b mode**		**ss**	**time_cal_dnb_mwr_l1b**
units	Unit name	days since 2000-01-01 00:00:00.0		1
_FillValue	Default value for unused or not computed elements	32762s		1
UTC_day_mon_mwr_l1b	**day UTC : cal_mon_l1b mode**		**ss**	**time_cal_nir_mwr_l1b**
units	Unit name	days since 2000-01-01 00:00:00.0		1
_FillValue	Default value for unused or not computed elements	32762s		1
UTC_sec_cal_nir_mwr_l1b	**seconds in the day UTC : cal_nir_mwr_l1b mode**		**D**	**time_cal_nir_mwr_l1b**
units	Unit name	s		1
_FillValue	Default value for unused or not computed elements	1.84467440737096e+19		1
UTC_sec_cal_dnb_mwr_l1b	**seconds in the day UTC : cal_dnb_mwr_l1b mode**		**D**	**time_cal_dnb_mwr_l1b**
units	Unit name	s		1
_FillValue	Default value for unused or not computed elements	1.84467440737096e+19		1
UTC_sec_mon_mwr_l1b	**seconds in the day UTC : cal_mon_l1b mode**		**D**	**time_mon_mwr_l1b**
units	Unit name	s		1
_FillValue	Default value for unused or not computed elements	1.84467440737096e+19		1
GPS_time_cal_nir_mwr_l1b	**GPS time : cal_nir_mwr_l1b mode**		**D**	**time_cal_nir_mwr_l1b**
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	1.84467440737096e+19		1

GPS_time_cal_dnb_mwr_l1b	**GPS time : cal_dnb_mwr_l1b mode**		**D**	**time_cal_dnb_mwr_l1b**
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	1.84467440737096e+19		1
GPS_time_mon_mwr_l1b	**GPS time : mon_mwr_l1b mode**		**D**	**time_mon_mwr_l1b**
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	1.84467440737096e+19		1
lat_cal_nir_mwr_l1b	**latitude : cal_nir_mwr_l1b mode**		**sl**	**time_cal_nir_mwr_l1b 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.e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
_FillValue	Default value for unused or not computed elements	2147483647		1
lat_cal_dnb_mwr_l1b	**latitude : cal_dnb_mwr_l1b mode**		**sl**	**time_cal_dnb_mwr_l1b 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.e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
_FillValue	Default value for unused or not computed elements	2147483647		1
lat_mon_mwr_l1b	**latitude : mon_mwr_l1b mode**		**sl**	**time_mon_mwr_l1b 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.e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
_FillValue	Default value for unused or not computed elements	2147483647		1
lon_cal_nir_mwr_l1b	**longitude : cal_nir_mwr_l1b mode**		**sl**	**time_cal_nir_mwr_l1b mwr_chan**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF)	longitude		1

	Metadata Conventions			
units	Unit name	degrees_east		1
scale_factor	The data must be multiplied by this factor after reading	1.e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
_FillValue	Default value for unused or not computed elements	2147483647		1
lon_cal_dnb_mwr_l1b	**longitude : cal_dnb_mwr_l1b mode**		**sl**	**time_cal_dnb_mwr_l1b 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.e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
_FillValue	Default value for unused or not computed elements	2147483647		1
lon_mon_mwr_l1b	**longitude : mon_mwr_l1b mode**		**sl**	**time_mon_mwr_l1b 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.e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
_FillValue	Default value for unused or not computed elements	2147483647		1
nir_noise_inj_temp_mwr_l1b	**Averaged noise injection temperature**		**sl**	**time_cal_nir_mwr_l1b 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	0.0001		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
nir_ns_phys_temp_mwr_l1b	**Averaged noise source physical temperature (NIR Calibration)**		**sl**	**time_cal_nir_mwr_l1b 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	0.0001		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
error_voltage_DNB_hot_mwr_l1b	**Averaged error voltage in DNB calibration mode (hot point)**		**sl**	**time_cal_dnb_mwr_l1b 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	0.0001		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
error_voltage_DNB_cold_mwr_l1b	**Averaged error voltage in DNB calibration mode (cold point)**		**sl**	**time_cal_dnb_mwr_l1b 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	0.0001		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
receiver_gain_mwr_l1b	**Receiver gain**		**sl**	**time_cal_dnb_mwr_l1b 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	0.0001		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
mon_noise_inj_temp_mwr_l1b	**noise injection temperature (Monitoring)**		**sl**	**time_mon_mwr_l1b 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	0.0001		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1

Table 4-30: Content of the L1 Measurement Data file (MW_1_CAL product)

6.2 SRAL Level 2 Products

6.2.1 SR_2_LAN___/SR_2_WAT___ Product summary

Product Package Type SR_2_WAT___		*Description* 1-Hz and 20-Hz Ku and C bands parameters (LRM/SAR), waveforms Over Water			
Product Level	**Diss. Timeliness**	**Product Category**	**ApplicationDomain**		**Spatial Resolution**
2	NRT STC NTC	Available to the user	WAT		
Product Dissemination Unit Stripe		Number of Package components	Number of Measurement Data Files	Number of Annotation Data Files	Number of Representation Information Files
		5[7]	3	0	0
Product Package Structure					
Manifest file (see section 6.2.1for more details)					
File name		**Composition**			
xfdumanifest.xml					
Measurement Data files (see section 6.2.4 for more details)					**N.O.**
File name		**Composition**			
enhanced_measurement.nc		One "enhanced" (Enh) data file containing additional information to the standard 1 1-Hz and 20-Hz Ku and C bands parameters, the waveforms and the associated parameters necessary to reprocess the data			
standard_measurement.nc		One "standard" (Std) data file containing the standard 1-Hz and 20-Hz Ku and C bands parameters			
reduced_measurement.nc		One "reduced" (Red) data file, containing a subset of the main 1-Hz			
Annotation Data files					**N.O.**
File name		**Composition**			
none					
Representation Information Files					**N.O.**
File name		**Composition**			
none					

Table 4-32 : SRAL WAT Level 2 product physical composition

[7] *Number of Package components includes the manifest and the OLQC Report.*

Product Package Type SR_2_LAN___		*Description* 1-Hz and 20-Hz Ku and C bands parameters (LRM/SAR), waveforms Over Land				
Product Level	**Diss. Timeliness**	**Product Category**	**ApplicationDomain**		**Spatial Resolution**	
2	NRT STC NTC	Available to the user	LAN			
Product Dissemination Unit Stripe		Number of Package components	Number of Measurement Data Files	Number of Annotation Data Files	Number of Representation Information Files	
		5[8]	3	0	0	
Product Package Structure						
Manifest file (see section 6.2.2 for more details)						
File name			**Composition**			
xfdumanifest.xml						
Measurement Data files (see section 6.2.4 for more details)						**N.O.**
File name			**Composition**			
enhanced_measurement.nc			One "enhanced" (Enh) data file containing additional information to the standard 1 1-Hz and 20-Hz Ku and C bands parameters, the waveforms and the associated parameters necessary to reprocess the data			
standard_measurement.nc			One "standard" (Std) data file containing the standard 1-Hz and 20-Hz Ku and C bands parameters			
reduced_measurement.nc			One "reduced" (Red) data file, containing a subset of the main 1-Hz			
Annotation Data files						**N.O.**
File name			**Composition**			
none						
Representation Information Files						**N.O.**
File name			**Composition**			
None						

Table 4-33: SRAL LAN Level 2 product physical composition

6.2.2 Manifest File

The structure of the Manifest element is described in [AD- 2].

6.2.3 Product Metadata

According to [AD- 2], Wrapped Metadata are grouped in Primary Metadata, common to all Sentinel 3 products and Secondary Metadata, specific for instrument and processing level.

Primary Metadata are described in [AD- 2].

Secondary Metadata for the SRAL instrument are reported in Table 4-2.

6.2.4 Content of the L2 products: “SR_2_LAN”/”SR_2_WAT”

The Level 2 SRAL/MWR complete product contains three netCDF files:

- reduced_measurement.nc : one "reduced" (Red) Measurement Data File, containing a subset of the main 1-Hz Ku band parameters
- standard_measurement.nc : one "standard" (Std) Measurement Data File containing the standard 1-Hz and 20-Hz Ku and C bands parameters

[8] *Number of Package components includes the manifest and the OLQC Report.*

- enhanced_measurement.nc : one "enhanced" (Enh) Measurement Data File containing the standard 1-Hz and 20-Hz Ku and C bands parameters, the waveforms and the associated parameters necessary to reprocess the data.

Each one of these three files contains one or more data sets among the following:

- **"20-Hz LRM/SAR_Ku" data set :** Set of 20-Hz Ku band parameters issued from SRAL tracking measurements performed in LRM and SAR modes (vectors depending on the time of 20-Hz Ku band measurements), i.e. :
  - 20-Hz Ku band LRM mode parameters
  - 20-Hz Ku band SAR mode parameters
- **"20-Hz LRM_C/PLRM" data set :** Set of 20-Hz C band parameters issued from SRAL tracking measurements performed in LRM and SAR (pseudo-LRM) modes, and Ku band parameters issued from SRAL tracking measurements performed in SAR mode (pseudo-LRM) (vectors depending on the time of 20-Hz C band measurements), i.e.:
  - 20-Hz C band LRM mode parameters
  - 20-Hz C band PLRM mode parameters
  - 20-Hz Ku band PLRM mode parameters
- **"1-Hz LRM/SAR_Ku/PLRM" data set :** Set of 1-Hz Ku/C bands parameters issued from SRAL tracking measurements performed in LRM and SAR modes, i.e.:
  - 1-Hz Ku band LRM mode parameters
  - 1-Hz C band LRM mode parameters
  - 1-Hz Ku band SAR mode parameters
  - 1-Hz Ku band PLRM mode parameters
  - 1-Hz C band PLRM mode parameters.

It has to be noted that 1-Hz measurements are built within the L2 processing from a reference time-tag and a fixed duration between consecutive measurements (Δt), so as 1-Hz time tags are the same for Ku and C bands measurements, and are strictly equidistant, even in SAR mode. The design of the Level 2 products can be illustrated by the following figure:

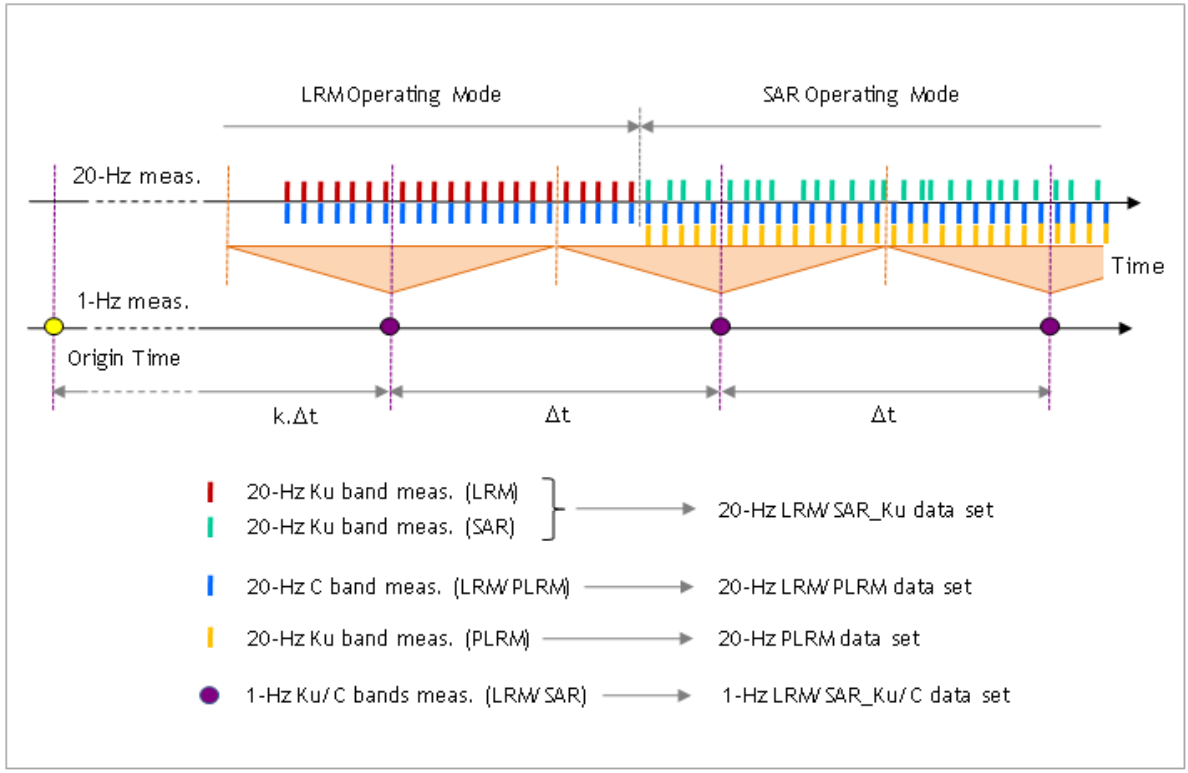

Figure 4-2: L2 Products Design

In the following sections, we describe the content of each L2 product - reduced/standard/enhanced - in section 6.2.4.1, 6.2.4.2 and 6.2.4.3 respectively.

Moreover, all the variables that can be found in a L2 SRAL/MWR product are described in section 6.2.4.5.

6.2.4.1 Reduced L2 Measurement Data File

The content of the reduced data file is as follows:

Element name	Description	Range or value	T	D
time_01	**Number of 1-Hz measurements**			**1**
<Specific global attributes>	Defined in 6.2.4.4			
Variables	*Variables of the Level 2 "Reduced" data file are defined in Table 4-35 (column "Reduced")*			

6.2.4.2 Standard L2 Measurement Data File

The content of the standard data file is as follows:

Element name	Description	Range or value	T	D
time_01	**Number of 1-Hz measurements**			
time_20_ku	**Number 20-Hz Ku-band measurements**			**1**
time_20_c	**Number 20-Hz C-band measurements**			**1**
<Specific global attributes>	Defined in 6.2.4.4			
Variables	*Variables of the Level 2 "Standard" data file are defined in Table 4-35 (column "Standard")*			

6.2.4.3 Enhanced L2 Measurement Data File

The content of the enhanced data file is as follows:

Element name	Description	Range or value	T	D
time_01	**Number of 1-Hz measurements**			
time_20_ku	**Number 20-Hz Ku-band measurements**			**1**
time_20_c	**Number 20-Hz C-band measurements**			**1**
echo_sample_ind	**Number of samples in a waveform**	**128**		**1**

<Specific global attributes>	Defined in 6.2.4.4			
echo_sample_ind	**number of samples in the waveforms**		**sc**	**echo_sample_ind**
units	Unit name	count		1
comment	Set to be compliant with the CF-1.6 convention			1
Variables	*Variables of the Level 2 "Enhanced" data file are defined in Table 4-35 (column "Enhanced")*			

6.2.4.4 Global Attributes

Global attributes for the SRAL L2 data files are defined in the following table.

			Data file (yyy): Red = reduced Std = standard Enh = Enhanced		
Attribute name	**Format**	**Description**	**Red**	**Std**	**Enh**
conventions	String	netCDF convention	•	•	•
mission_name	String	Name of the mission	•	•	•
altimeter_sensor_name	String	Name of the altimeter sensor	•	•	•
radiometer_sensor_name	String	Name of the radiometer sensor	•	•	•
gnss_sensor_name	String	Name of the GNSS sensor	•	•	•
doris_sensor_name	String	Name of the DORIS sensor	•	•	•
acq_station_name	String	Identification of the acquisition station	•	•	•
cycle_number	long	Cycle number	•	•	•
absolute_rev_number	long	Absolute number of revolution	•	•	•
pass_number	long	Pass number in the cycle (relative pass number)	•	•	•
absolute_pass_number	long	Absolute pass number (since the beginning of the mission)	•	•	•
equator_time	String	UTC time of equator crossing (YYYY-MM-DD HH:MM:SS.mmmmmm)	•	•	•
equator_longitude	double	Longitude of equator crossing	•	•	•
first_meas_time	String	UTC Date of the first measurement of the data set (YYYY-MM-DD HH:MM:SS.mmmmmm)	•	•	•
last_meas_time	String	UTC Date of the last measurement of the data set (YYYY-MM-DD HH:MM:SS.mmmmmm)	•	•	•
first_meas_lat	double	Value of the first valid latitude	•	•	•
last_meas_lat	double	Value of the last valid latitude	•	•	•
first_meas_lon	double	Value of the first valid longitude	•	•	•
last_meas_lon	double	Value of the last valid longitude	•	•	•
xref_altimeter_level1	String	Name of the altimeter level 1b product	•	•	•
xref_radiometer_level1	String	Name of the radiometer level 1b product	•	•	•
xref_time_correlation	String	Name of the file containing the time correlation	•	•	•
xref_orbit_data	String	Name of the file containing the orbit ephemeris	•	•	•
xref_pf_data	String	Name of the file containing the platform data	•	•	•

			Data file (yyy): Red = reduced Std = standard Enh = Enhanced		
Attribute name	**Format**	**Description**	**Red**	**Std**	**Enh**
xref_altimeter_chacterisation	String	Name of the altimeter characterisation data file	•	•	•
xref_radiometer_chacterisation	String	Name of the radiometer characterisation data file	•	•	•
xref_meteorological_files	String	Name of the meteorological files	•	•	•
xref_pole_location	String	Name of the file containing the pole location data	•	•	•
xref_iono_data	String	Name of the file containing the along-track ionospheric data	•	•	•
xref_mog2d_data	String	Name of the MOG2D files	•	•	•
xref_seaice_concentration	String	Name of the file containing the sea-ice concentration	•	•	•
xref_altimeter_ltm	String	Name of the altimeter Long Term Monitoring data file	•	•	•
xref_doris_uso	String	Name of the file containing the DORIS-derived USO frequency	•	•	•
semi_major_ellipsoid_axis	double	Semi-major axis of the reference ellipsoid (meters)	•	•	•
ellipsoid_flattening	double	Flattening coeffcient of the reference ellipsoid	•	•	•
calval_web_site	String	Reference to CalVal external web sites (Reports on the quality of the POD Products).	•	•	•

Table 4-34: Global attributes of the L2 data files

6.2.4.5 Repartition of the variables for the “reduced”, “standard” and “enhanced” measurement data files

The multiplicity of the Level 2 parameters brings us to gather the composition of the different products in a single table (Table 4-35).

The Figure 4-3 presents the way to read the table of Level 2 parameters. On the left part of the table are listed all the Level 2 parameters. On the right part, we can find 3 columns, one for each type of product (reduced, standard and enhanced), with their respective content. Note that the [x1] column represents the rate of the parameter (1Hz or 20Hz) and the [x2] column stands for the band (Ku, C or pseudo-LRM Ku).

Note that the C-band variables (1-Hz and 20-Hz) mentioned in the following table all contain both LRM and PLRM parameters.

Figure 4-3 Reading of the table containing the Level 2 parameters

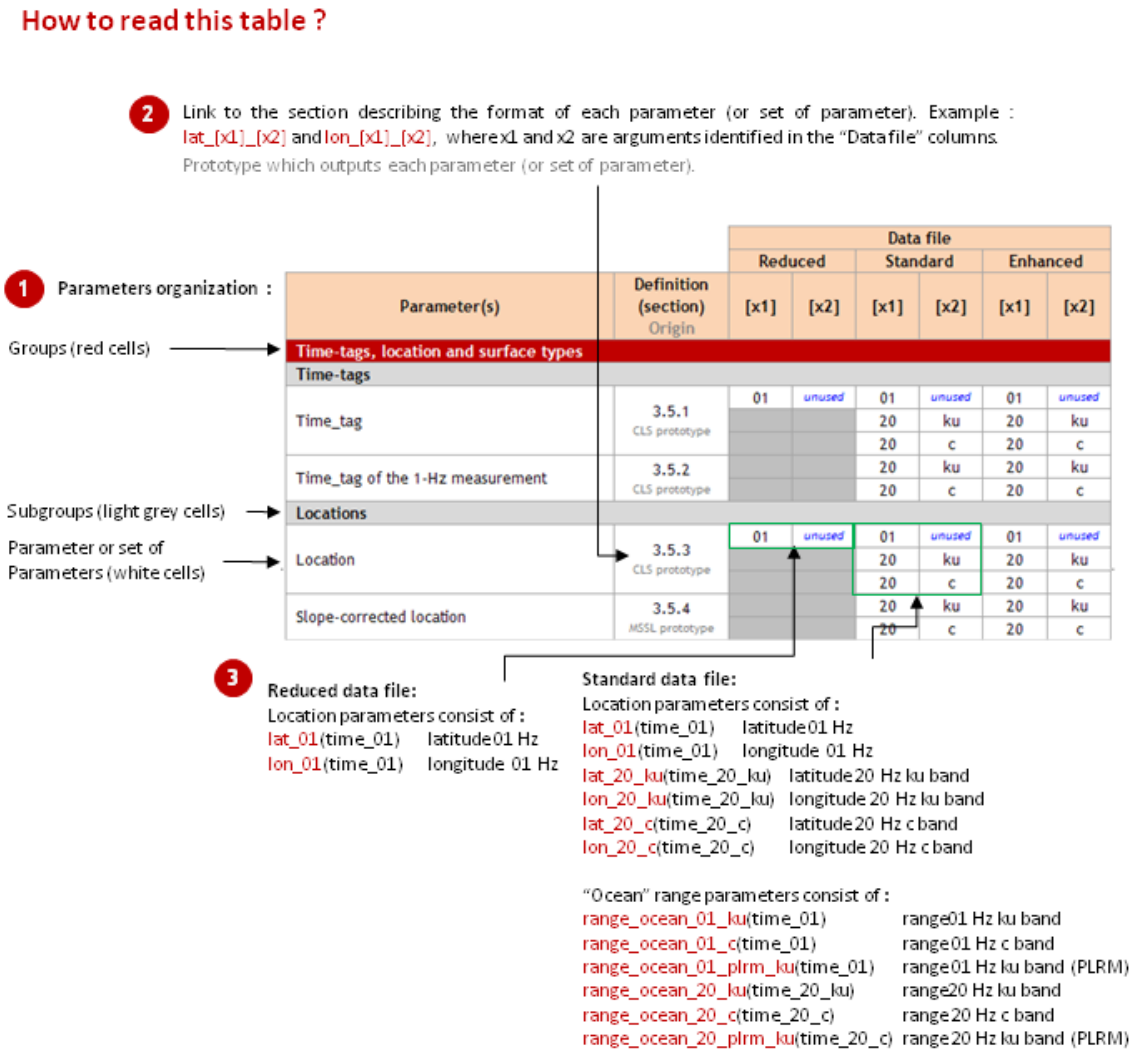

Table 4-35: Variables of the L2 data files

Parameter(s)	Definition (section) Origin	Data file					
		Reduced		Standard		Enhanced	
		[x1]	[x2]	[x1]	[x2]	[x1]	[x2]
Time-tags, location and surface types							
Time-tags							
Time_tag	6.2.4.6.1	01	unused	01	unused	01	unused
				20	ku	20	ku
				20	c	20	c
Time_tag of the 1-Hz measurement	6.2.4.6.2			20	ku	20	ku
				20	c	20	c
Index of the 1-Hz measurement	6.2.4.6.3			20	ku	20	ku
				20	c	20	c
Index of the first 20-Hz measurement	6.2.4.6.4			01	ku	01	ku
				01	c	01	c
Number of 20-Hz measurements	6.2.4.6.5			01	ku	01	ku
				01	c	01	c

Locations							
Location	6.2.4.6.3	01	unused	01	unused	01	unused
				20	ku	20	ku
				20	c	20	c
Slope-corrected location	6.2.4.6.7			20	ku	20	ku
				20	c	20	c
Surface types							
Surface type	6.2.4.6.8	01	unused	01	unused	01	unused
				20	ku	20	ku
				20	c	20	c
Surface classification	6.2.4.6.9	01	unused	01	unused	01	unused
				20	ku	20	ku
				20	c	20	c
Radiometer-derived surface type	6.2.4.6.10	01	unused	01	unused	01	unused
Distance to the coast	6.2.4.6.11			01	unused	01	unused
				20	ku	20	ku
				20	c	20	c
Orbit parameters							
Orbit altitude	6.2.4.6.12	01	unused	01	unused	01	unused
				20	ku	20	ku
				20	c	20	c
Orbital altitude rate	6.2.4.6.13			01	unused	01	unused
				20	ku	20	ku
				20	c	20	c
Tracker estimates (Ku and C bands)							
Tracker ranges							
Corrected tracker (LRM) / reference (SAR) range	6.2.4.6.14					20	ku
						20	c
						20	plrm_ku
Navigation+DEM tracker range	6.2.4.6.15					20	ku
Tracker AGCs							
Corrected AGC	6.2.4.6.16			01	ku	01	ku
				01	c	01	c
				01	plrm_ku	01	plrm_ku
						20	ku
						20	c
						20	plrm_ku
Number of valid points for the AGC	6.2.4.6.17			01	ku	01	ku
				01	c	01	c
				01	plrm_ku	01	plrm_ku
RMS of the AGC	6.2.4.6.18			01	ku	01	ku
				01	c	01	c
				01	plrm_ku	01	plrm_ku
AGC validity flag	6.2.4.6.19					20	ku
						20	c
						20	plrm_ku
Scaling factors for backscatter coefficient evaluation							
Scaling factor for Sigma0 evaluation	6.2.4.6.20					20	ku
						20	c
						20	plrm_ku

"Ocean" retracking estimates : LRM mode : "ocean" retracking (LRM mode Ku/C, PLRM Ku/C) SAR mode : "ocean / coastal zone" retracking (SAR mode Ku)							
Altimeter ranges							
Corrected "ocean" altimeter range	6.2.4.6.21	01	ku	01	ku	01	ku
				01	c	01	c
		01	plrm_ku	01	plrm_ku	01	plrm_ku
				20	ku	20	ku
				20	c	20	c
				20	plrm_ku	20	plrm_ku
Altimeter "ocean" range validity flag	6.2.4.6.22			01	ku	01	ku
				01	c	01	c
				01	plrm_ku	01	plrm_ku
				20	ku	20	ku
				20	c	20	c
				20	plrm_ku	20	plrm_ku
RMS of the "ocean" altimeter range	6.2.4.6.23			01	ku	01	ku
				01	c	01	c
				01	plrm_ku	01	plrm_ku
Number of valid points for the "ocean" altimeter range	6.2.4.6.24			01	ku	01	ku
				01	c	01	c
				01	plrm_ku	01	plrm_ku
Interpolated C-band corrected "ocean" altimeter range	6.2.4.6.25			20	ku	20	ku
Backscatter coefficients							
Corrected "ocean" backscatter coefficient	6.2.4.6.26	01	ku	01	ku	01	ku
				01	c	01	c
		01	plrm_ku	01	plrm_ku	01	plrm_ku
				20	ku	20	ku
				20	c	20	c
				20	plrm_ku	20	plrm_ku
Backscatter "ocean" coefficient validity flag	6.2.4.6.27			01	ku	01	ku
				01	c	01	c
				01	plrm_ku	01	plrm_ku
				20	ku	20	ku
				20	c	20	c
				20	plrm_ku	20	plrm_ku
RMS of the "ocean" backscatter coefficient	6.2.4.6.28			01	ku	01	ku
				01	c	01	c
				01	plrm_ku	01	plrm_ku
Number of valid points for the "ocean" backscatter coefficient	6.2.4.6.29			01	ku	01	ku
				01	c	01	c
				01	plrm_ku	01	plrm_ku
Significant waveheights							
Corrected "ocean" significant waveheight	6.2.4.6.30	01	ku	01	ku	01	ku
				01	c	01	c
		01	plrm_ku	01	plrm_ku	01	plrm_ku
				20	ku	20	ku
				20	c	20	c
				20	plrm_ku	20	plrm_ku
Significant "ocean" waveheight validity flag	6.2.4.6.31			01	ku	01	ku
				01	c	01	c
				01	plrm_ku	01	plrm_ku
				20	ku	20	ku
				20	c	20	c

		Data file					
		Reduced		Standard		Enhanced	
Parameter(s)	Definition (section) Origin	[x1]	[x2]	[x1]	[x2]	[x1]	[x2]
				20	plrm_ku	20	plrm_ku
RMS of the "ocean" significant waveheight	6.2.4.6.32			01	ku	01	ku
				01	c	01	c
				01	plrm_ku	01	plrm_ku
Number of valid points for the "ocean" significant waveheight	6.2.4.6.33			01	ku	01	ku
				01	c	01	c
				01	plrm_ku	01	plrm_ku
Ocean retracking outputs							
Epoch	6.2.4.6.34					20	ku
						20	c
						20	plrm_ku
Composite Sigma	6.2.4.6.35					20	ku
						20	c
						20	plrm_ku
Amplitude	6.2.4.6.36					20	ku
						20	c
						20	plrm_ku
Thermal noise	6.2.4.6.37					20	ku
						20	c
						20	plrm_ku
Square of the mispointing angle	6.2.4.6.38					20	ku
						20	plrm_ku
Number of iterations	6.2.4.6.39			20	ku	20	ku
				20	c	20	c
				20	plrm_ku	20	plrm_ku
MQE between waveform and ocean model	6.2.4.6.40			20	ku	20	ku
				20	c	20	c
				20	plrm_ku	20	plrm_ku
Sea surface height anomaly							
"Ocean" sea surface height anomaly	6.2.4.6.41	01	ku	01	ku	01	ku
		01	plrm_ku	01	plrm_ku	01	plrm_ku
				20	ku	20	ku
				20	plrm_ku	20	plrm_ku
OCOG retracking estimates **LRM/SAR mode : Ku/C**							
Altimeter ranges							
Corrected OCOG altimeter range	6.2.4.6.42			20	ku	20	20
				20	c	20	c
Backscatter coefficients							
Corrected OCOG backscatter coefficient	6.2.4.6.43			20	ku	20	20
				20	c	20	c
"Ice sheet" retracking estimates **LRM mode : "ice sheet" retracking (LRM mode Ku/C, SAR mode C)** **SAR mode : "ice sheet margin" retracking (SAR mode Ku)**							
Altimeter ranges							
Corrected "ice sheet"	6.2.4.6.44			20	ku	20	20

Parameter(s)	Definition (section) Origin	Data file					
		Reduced		Standard		Enhanced	
		[x1]	[x2]	[x1]	[x2]	[x1]	[x2]
altimeter range				20	c	20	c
Backscatter coefficients							
Corrected “ice sheet” backscatter coefficient	6.2.4.6.45			20	ku	20	20
				20	c	20	c
Elevation							
Elevation of echoing points	6.2.4.6.46			20	ku	20	ku
“Ice” retracking estimates : **LRM mode : “ice (erf)” retracking (LRM mode Ku/C, PLRM Ku/C)** **SAR mode : /**							
Altimeter ranges							
Corrected “ice” altimeter range	6.2.4.6.47			20	ku	20	ku
				20	c	20	c
				20	plrm_ku	20	plrm_ku
Backscatter coefficients							
Corrected “ice” backscatter coefficient	6.2.4.6.48			20	ku	20	ku
				20	c	20	c
				20	plrm_ku	20	plrm_ku
Corrected “ice” leading edge backscatter coefficient	6.2.4.6.49			20	ku	20	ku
				20	c	20	c
				20	plrm_ku	20	plrm_ku
Width of the leading edge							
Width of the leading edge	6.2.4.6.50			20	ku	20	ku
				20	c	20	c
				20	plrm_ku	20	plrm_ku
Slope of the trailing edge							
Slope of the first part of the trailing edge	6.2.4.6.51			20	ku	20	ku
				20	c	20	c
				20	plrm_ku	20	plrm_ku
Slope of the second part of the trailing edge	6.2.4.6.52			20	ku	20	ku
				20	c	20	c
				20	plrm_ku	20	plrm_ku
“Sea-Ice” retracking estimates : **LRM mode : /** **SAR mode : “sea-ice” retracking (SAR mode Ku)**							
Altimeter ranges							
Corrected “sea-ice” altimeter range	6.2.4.6.53			20	ku	20	ku
Backscatter coefficients							
Corrected “sea-ice” backscatter coefficient	6.2.4.6.54			20	ku	20	ku
Ocean surface parameters							
“Sea-ice” sea surface	6.2.4.6.55			20	ku	20	ku

		Data file					
		Reduced		Standard		Enhanced	
Parameter(s)	Definition (section) Origin	[x1]	[x2]	[x1]	[x2]	[x1]	[x2]
height							
"Sea-ice" sea surface height anomaly	6.2.4.6.56			20	ku	20	ku
Interpolated "sea-ice" sea surface height anomaly	6.2.4.6.57			20	ku	20	ku
Freeboard	6.2.4.6.58			20	ku	20	ku
Discrimination parameters							
Surface type from discrimination	6.2.4.6.59			20	ku	20	ku
Instrumental corrections							
Altimeter ranges							
USO frequency correction	6.2.4.6.60					20	ku
						20	c
Internal path delay (calibration) correction	6.2.4.6.61					20	ku
						20	c
						20	plrm_ku
Level 1b Doppler correction (nadir)	6.2.4.6.62					20	ku
						20	c
						20	plrm_ku
Doppler correction (nadir)	6.2.4.6.63					20	ku
						20	c
						20	plrm_ku
Doppler correction (slope corrected)	6.2.4.6.64					20	ku
						20	c
Distance antenna / COG	6.2.4.6.65					01	unused
Modeled instrumental correction	6.2.4.6.66					01	ku
						01	c
						01	plrm_ku
Net instrumental correction	6.2.4.6.67			20	ku	20	ku
				20	c	20	c
				20	plrm_ku	20	plrm_ku
Backscatter coefficients							
AGC correction	6.2.4.6.68					20	ku
						20	c
						20	plrm_ku
Internal calibration correction	6.2.4.6.69					20	ku
						20	c
						20	plrm_ku
Modeled instrumental correction	6.2.4.6.70					01	ku
						01	c
						01	plrm_ku
Net instrumental correction	6.2.4.6.71			20	ku	20	ku
				20	c	20	c
				20	plrm_ku	20	plrm_ku
Significant waveheights							
Modeled instrumental	6.2.4.6.72					01	ku
						01	c

Parameter(s)	Definition (section) Origin	Data file					
		Reduced		Standard		Enhanced	
		[x1]	[x2]	[x1]	[x2]	[x1]	[x2]
correction						01	plrm_ku
Net instrumental correction	6.2.4.6.73			20	ku	20	ku
				20	c	20	c
				20	plrm_ku	20	plrm_ku
Geophysical corrections							
Altimeter ranges							
Model dry tropospheric corrections (zero and measurement altitudes)	6.2.4.6.74	01	unused	01	unused	01	unused
Model wet tropospheric corrections (zero and measurement altitudes)	6.2.4.6.75			01	unused	01	unused
Composite wet tropospheric correction	6.2.4.6.76			01	ku	01	ku
				01	plrm_ku	01	plrm_ku
Radiometer wet tropospheric correction	6.2.4.6.77	01	ku	01	ku	01	ku
		01	plrm_ku	01	plrm_ku	01	plrm_ku
Radiometer wet tropospheric correction using SST and Gamma	6.2.4.6.78			01	ku	01	ku
				01	plrm_ku	01	plrm_ku
Altimeter ionospheric correction (Ku band)	6.2.4.6.79	01	ku	01	ku	01	ku
		01	plrm_ku	01	plrm_ku	01	plrm_ku
				20	ku	20	ku
				20	plrm_ku	20	plrm_ku
GIM-derived ionospheric correction (Ku band)	6.2.4.6.80			01	ku	01	ku
Sea state bias correction	6.2.4.6.81	01	ku	01	ku	01	ku
				01	c	01	c
		01	plrm_ku	01	plrm_ku	01	plrm_ku
Backscatter coefficients							
Atmospheric attenuation correction	6.2.4.6.82			01	ku	01	ku
				01	c	01	c
				01	plrm_ku	01	plrm_ku
Geophysical parameters							
Mean sea surface height above reference ellipsoid (Solution 1)	6.2.4.6.83	01	unused	01	unused	01	unused
				20	ku	20	ku
				20	c	20	c
Mean sea surface height accuracy (Solution 1)	6.2.4.6.84			01	unused	01	unused
				20	ku	20	ku
				20	c	20	c
Mean sea surface height above reference ellipsoid (Solution 2)	6.2.4.6.85	01	unused	01	unused	01	unused
				20	ku	20	ku
				20	c	20	c
Mean dynamic topography above geoid	6.2.4.6.86	01	unused	01	unused	01	unused
Mean dynamic topography accuracy	6.2.4.6.87			01	unused	01	unused
Geoid height	6.2.4.6.88			01	unused	01	unused

		Data file					
		Reduced		Standard		Enhanced	
Parameter(s)	Definition (section) Origin	[x1]	[x2]	[x1]	[x2]	[x1]	[x2]
Ocean depth / Land elevation	6.2.4.6.89	01	unused	01	unused	01	unused
Inverted barometer height correction	6.2.4.6.90	01	unused	01	unused	01	unused
High frequency fluctuations of the sea surface topography	6.2.4.6.91	01	unused	01	unused	01	unused
Geocentric ocean tide height (GOT model)	6.2.4.6.92	01	unused	01	unused	01	unused
Geocentric ocean tide height (FES model)	6.2.4.6.93			01	unused	01	unused
Equilibrium long period ocean tide height	6.2.4.6.94			01	unused	01	unused
Non-equilibrium long period ocean tide height	6.2.4.6.95			01	unused	01	unused
Load tide height (GOT model)	6.2.4.6.96			01	unused	01	unused
Load tide height (FES model)	6.2.4.6.97			01	unused	01	unused
Solid earth tide height	6.2.4.6.98	01	unused	01	unused	01	unused
Geocentric pole tide height	6.2.4.6.99	01	unused	01	unused	01	unused
Rain rate	6.2.4.6.100			01	unused	01	unused
Rain attenuation	6.2.4.6.101			01	ku	01	ku
				01	plrm_ku	01	plrm_ku
Sea-ice concentration	6.2.4.6.102			20	ku	20	ku
Snow density	6.2.4.6.103			20	ku	20	ku
Snow depth	6.2.4.6.104			20	ku	20	ku
Environmental parameters							
U-component of the model wind vector	6.2.4.6.105			01	unused	01	unused
V-component of the model wind vector	6.2.4.6.106			01	unused	01	unused
Altimeter wind speed	6.2.4.6.107	01	ku	01	ku	01	ku
		01	plrm_ku	01	plrm_ku	01	plrm_ku
Radiometer water vapor content	6.2.4.6.108	01	ku	01	ku	01	ku
		01	plrm_ku	01	plrm_ku	01	plrm_ku
Radiometer liquid water content	6.2.4.6.109	01	ku	01	ku	01	ku
		01	plrm_ku	01	plrm_ku	01	plrm_ku
Total electron content	6.2.4.6.110			01	unused	01	unused
Off-nadir angles							
Square of the WF	6.2.4.6.111			01	ku	01	ku

		Data file					
		Reduced		Standard		Enhanced	
Parameter(s)	Definition (section) Origin	[x1]	[x2]	[x1]	[x2]	[x1]	[x2]
derived off-nadir angle (Ku band)				01	plrm_ku	01	plrm_ku
Square of the WF-derived off-nadir angle validity flag (Ku band)	6.2.4.6.112			01	ku	01	ku
				01	plrm_ku	01	plrm_ku
Square of the WF-derived off-nadir angle (Ku band) validity flags	6.2.4.6.113			20	ku	20	ku
				20	plrm_ku	20	plrm_ku
RMS of the square of the WF-derived off-nadir angle (Ku band)	6.2.4.6.114			01	ku	01	ku
				01	plrm_ku	01	plrm_ku
Number of valid points for the square of the WF-derived off-nadir angle (Ku band)	6.2.4.6.115			01	ku	01	ku
				01	plrm_ku	01	plrm_ku
Modeled instrumental correction on the square of the WF-derived off-nadir angle (Ku band)	6.2.4.6.116					01	ku
						01	plrm_ku
PF-derived off-nadir pitch angle	6.2.4.6.117			01	unused	01	unused
PF-derived off-nadir roll angle	6.2.4.6.118			01	unused	01	unused
PF-derived off-nadir yaw angle	6.2.4.6.119			01	unused	01	unused
Brightness temperatures							
Channel 1 main beam BT	6.2.4.6.118			01	unused	01	unused
Channel 2 main beam BT	6.2.4.6.122			01	unused	01	unused
Standard deviation for channel 1 main beam BT	6.2.4.6.121			01	unused	01	unused
Standard deviation for channel 2 main beam BT	6.2.4.6.123			01	unused	01	unused
Waveforms samples							
Waveform samples (128)	6.2.4.6.124					20	ku
						20	c
						20	plrm_ku
Level 2 quality information (additional)							
Operating mode and mode identifier							
Instrument operating mode	6.2.4.6.125	01	unused	01	unused	01	unused
				20	ku	20	ku
				20	c	20	c
LRM/SAR mode	6.2.4.6.126			20	ku	20	ku

		Data file					
		Reduced		Standard		Enhanced	
Parameter(s)	Definition (section) Origin	[x1]	[x2]	[x1]	[x2]	[x1]	[x2]
identifier				20	c	20	c
Orbit flag							
Orbit type	6.2.4.6.127	01	unused	01	unused	01	unused
Geophysical flags							
Meteorological maps availability	6.2.4.6.127	01	unused	01	unused	01	unused
Rain flag	6.2.4.6.129	01	ku	01	ku	01	ku
		01	plrm_ku	01	plrm_ku	01	plrm_ku
Ocean/Sea-ice flag	6.2.4.6.130	01	ku	01	ku	01	ku
		01	plrm_ku	01	plrm_ku	01	plrm_ku
"Open water" class member ship	6.2.4.6.131			01	ku	01	ku
				01	plrm_ku	01	plrm_ku
"First-year ice" class member ship	6.2.4.6.132			01	ku	01	ku
				01	plrm_ku	01	plrm_ku
"Multi-year ice" class member ship	6.2.4.6.133			01	ku	01	ku
				01	plrm_ku	01	plrm_ku
"Wet ice" class member ship	6.2.4.6.134			01	ku	01	ku
				01	plrm_ku	01	plrm_ku
Ice-sheet snow facies type flag	6.2.4.6.135			01	ku	01	ku
				01	plrm_ku	01	plrm_ku
Interpolation flags							
Mean sea surface Solution 1 interpolation flag	6.2.4.6.136			01	unused	01	unused
				20	ku	20	ku
				20	c	20	c
Mean sea surface Solution 2 interpolation flag	6.2.4.6.137			01	unused	01	unused
				20	ku	20	ku
				20	c	20	c
Mean dynamic topography interpolation flag	6.2.4.6.138			01	unused	01	unused
Geocentric ocean tide height (GOT) interpolation flag	6.2.4.6.139			01	unused	01	unused
Geocentric ocean tide height (FES) interpolation flag	6.2.4.6.140			01	unused	01	unused
Radiometer along-track averaging flag	6.2.4.6.141			01	unused	01	unused
Quality flags							
Quality flag for channel 1 main beam BT	6.2.4.6.142			01	unused	01	unused
Quality flag for channel 2 main beam BT	6.2.4.6.143			01	unused	01	unused
Use of climatological values for the	6.2.4.6.144			01	ku	01	ku
				01	plrm_ku	01	plrm_ku

Parameter(s)	Definition (section) Origin	Data file					
		Reduced		Standard		Enhanced	
		[x1]	[x2]	[x1]	[x2]	[x1]	[x2]
computation of Sigma0 atmospheric attenuation							
Waveforms							
Waveform peakiness 1	6.2.4.6.145			20	ku	20	ku
				20	c	20	c
				20	plrm_ku	20	plrm_ku
Waveform peakiness 2	6.2.4.6.146			20	ku	20	ku
				20	c	20	c
"Ice" waveform quality check status	6.2.4.6.147			20	ku	20	ku
Level 1b quality information							
Number of beams averaged							
Number of waveforms summed in stack	6.2.4.6.147			20	ku	20	ku
Navigation bulletin							
Status	6.2.4.6.149					20	ku
						20	c
Source identifier	6.2.4.6.150					20	ku
						20	c
Coarse time	6.2.4.6.151					20	ku
						20	c
Fine time	6.2.4.6.152					20	ku
						20	c
Quality information at ISP Level							
Sequence count	6.2.4.6.153					20	ku
						20	c
ISP time status	6.2.4.6.154					20	ku
						20	c
Operating instrument	6.2.4.6.155					20	ku
						20	c
Tracking configuration							
Closed loop gain	6.2.4.6.156					20	ku
						20	c
Acquisition status	6.2.4.6.157					20	ku
						20	c
DEM EEPROM read access	6.2.4.6.158					20	ku
						20	c
Altimeter configuration							
Weighting function	6.2.4.6.159					20	ku
						20	c
Loss of track criterion							
Loss of track criterion	6.2.4.6.160					20	ku
						20	c
NAVATT flags							
Manoeuvre presence flag	6.2.4.6.161					20	ku
						20	c

		Data file					
		Reduced		Standard		Enhanced	
Parameter(s)	Definition (section) Origin	[x1]	[x2]	[x1]	[x2]	[x1]	[x2]
Manoeuvre thrust flag	6.2.4.6.162					20	ku
						20	c
Manoeuvre plane flag	6.2.4.6.163					20	ku
						20	c

6.2.4.6 General description of the Level 2 parameters

6.2.4.6.1 Time_tag

time_[x1]_[x2]	UTC : [x1] Hz [x2] band		D	time_[x1]_[x2]
units	Unit name	seconds since 2000-01-01 00:00:00.0		1
calendar	Reference Time Calendar	gregorian		1
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	time		1
UTC_day_[x1]_[x2]	**day UTC : [x1] Hz [x2] band**		**ss**	**time_[x1]_[x2]**
units	Unit name	days since 2000-01-01 00:00:00.0		1
UTC_sec_[x1]_[x2]	**seconds in the day UTC : [x1] Hz [x2] band**		**D**	**time_[x1]_[x2]**
units	Unit name	s		1

6.2.4.6.2 Time_tag of the 1-Hz measurement

UTC_time_1hz_[x1]_[x2]	UTC of the 1Hz measurement		D	time_[x1]_[x2]
units	Unit name	seconds since 2000-01-01 00:00:00.0		1
calendar	Reference Time Calendar	gregorian		1

6.2.4.6.3 Index of the 1-Hz measurement

index_1hz_meas_[x1]_[x2]	Index of the 1Hz measurement : [x1] Hz [x2] band		ss	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	count		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Index of the 1-Hz measurement associated to the 20-Hz measurement, zero index corresponding to the first 1-Hz measurement of the dataset.			1

6.2.4.6.4 Index of the first 20-Hz measurement

index_first_20hz_meas_[x1]_[x2]	Index of the first 20Hz measurement : [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	count		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Index of the first 20-Hz measurement associated to the 1-Hz measurement, zero index corresponding to the first 20-Hz measurement of the dataset.			1

6.2.4.6.5 Number of 20-Hz measurements

num_20hz_meas_[x1]_[x2]	Number of 20Hz measurements : [x1] Hz [x2] band		ss	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	count		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Number of 20-Hz measurements associated to the 1-Hz measurement			1

6.2.4.6.6 Location

lat_[x1]_[x2]	latitude : [x1] Hz [x2] band		sl	time_[x1]_[x2]
units	Unit name	degrees_north		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
comment	Positive latitude is North latitude, negative latitude is South latitude			1
standard_name	For [x1] = 01: Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	latitude		1
lon_[x1]_[x2]	**longitude : [x1] Hz [x2] band**		**sl**	**time_[x1]_[x2]**
units	Unit name	degrees_east		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
comment	East longitude relative to Greenwich meridian			1

standard_name	For [x1] = 01 : Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	longitude		1

6.2.4.6.7 Slope-corrected location

lat_cor_[x1]_[x2]	**slope-corrected latitude : [x1] Hz [x2] band**		**sl**	**time_[x1]_[x2]**
units	Unit name	degrees_north		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
comment	Latitude of the actual echoing point, accounting for surface slope models. Positive latitude is North latitude, negative latitude is South latitude. For the Ku-band this parameter is computed over Greenland and Antactica surfaces and filled with the uncorrected latitude over other surfaces. For the C-band this parameter is valid over Greenland and Antactica surfaces only.			1
_FillValue	Default value for unused or not computed elements	2147483647		1
lon_cor_[x1]_[x2]	**slope-corrected longitude : [x1] Hz [x2] band**		**sl**	**time_[x1]_[x2]**
units	Unit name	degrees_east		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-06		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
comment	Longitude of the actual echoing point, accounting for surface slope models. East longitude relative to Greenwich meridian. For the Ku-band this parameter is computed over Greenland and Antactica surfaces and filled with the uncorrected latitude over other surfaces. For the C-band this parameter is valid over Greenland and Antactica surfaces only.			1
_FillValue	Default value for unused or not computed elements	2147483647		1

6.2.4.6.8 Surface type

surf_type_[x1]_[x2]	**surface type : [x1] Hz [x2] band**		**sc**	**time_[x1]_[x2]**
flag_values	Flag values	0b, 1b, 2b, 3b		1
flag_meanings	Flag meanings	open_ocean_or_semi-enclosed_seas enclosed_seas_or_lakes continental_ice land		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
_FillValue	Default value for unused or not computed elements	127		1

6.2.4.6.9 Surface classification

surf_class_[x1]_[x2]	surface classification : [x1] Hz [x2] band		sc	time_[x1]_[x2]
flag_values	Flag values	0b, 1b, 2b, 3b, 4b, 5b, 6b		1
flag_meanings	Flag meanings	open_ocean land continental_water aquatic_vegetation continental_ice_snow floating_ice salted_basin		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
_FillValue	Default value for unused or not computed elements	127		1
comment	Computed from a mask built with MODIS and GlobCover data			1

6.2.4.6.10 Radiometer-derived surface type

rad_surf_type_[x1]_[x2]	radiometer-derived surface type : [x1] Hz [x2] band		sc	time_[x1]_[x2]
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	ocean land		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
_FillValue	Default value for unused or not computed elements	127		1

6.2.4.6.11 Distance to the coast

dist_coast_[x1]_[x2]	distance to the coast: [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	m		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.12 Orbit altitude

alt_[x1]_[x2]	altitude of satellite : [x1] Hz [x2] band		sl	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	height_above_reference_ellipsoid		1
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	m		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	700000		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Altitude of satellite above the reference ellipsoid			1

6.2.4.6.13 Orbital altitude rate

orb_alt_rate_[x1]_[x2]	orbital altitude rate : [x1] Hz [x2] band		ss	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m/s		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	The reference surface for the orbital altitude rate is the combined mean_sea_surface/geoid surface. It is used to compute the Doppler correction on the altimeter range			1

6.2.4.6.14 Corrected tracker/reference range

tracker_range_[x1]_[x2]	corrected tracker range: [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	m		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	700000		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

comment	LRM/PLRM modes : tracker range corrected for USO frequency drift (uso_cor_[x1]_[x2]), internal path correction (int_path_cor_[x1]_[x2]) and Doppler correction (dop_cor_l1b_[x1]_[x2]) SAR mode : reference range corrected for USO frequency drift (uso_cor_[x1]_[x2]) and internal path correction (int_path_cor_[x1]_[x2])			1

6.2.4.6.15 Navigation+DEM tracker range

h0_nav_dem_[x1]_[x2]	altitude command H0 computed with nav DEM : [x1] Hz [x2] band		ul	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	4294967295		1
units	Unit name	3.125/64*10^-9s		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	SAR mode : value the closest in time to the reference measurement			1

6.2.4.6.16 Corrected AGC

agc_[x1]_[x2]	corrected AGC : [x1] Hz [x2] band		ss	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	dB		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	For [x1] = 01 : AGC corrected for instrumental errors. For SAR mode, value the closest in time to the reference measurement			1
comment	For [x1] = 20 : AGC corrected for instrumental errors (agc_cor_[x1]_[x2]). For SAR mode, value the closest in time to the reference measurement			1

6.2.4.6.17 Number of valid points for the AGC

agc_numval_[x1]_[x2]	number of valid points used to compute AGC: [x1] Hz [x2] band		sc	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	127b		1
units	Unit name	count		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.18 RMS of the AGC

agc_rms_[x1]_[x2]	RMS of the AGC : [x1] Hz [x2] band		ss	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	dB		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	compression of high rate elements is preceded by a detection of outliers. Only valid high-rate values are used to compute this element			1

6.2.4.6.19 AGC validity flag

agc_qual_[x1]_[x2]	quality flag for AGC: [x1] Hz [x2] band		sc	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	127b		1
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	Yes No		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Flag indicating the use or not of the 20-Hz estimate of AGC in the computation of 1Hz estimate			1

6.2.4.6.20 Scaling factor for Sigma0 evaluation

scale_factor_[x1]_[x2]	scaling factor for backscatter coefficient evaluation : [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	dB		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	This scaling factor represents the backscatter coefficient for a waveform amplitude equal to 1. It is corrected for AGC instrumental errors (agc_cor_[x1]_[x2]), and internal calibration (sig0_cal_[x1]_[x2])			1

6.2.4.6.21 Corrected « ocean » altimeter range

range_ocean_[x1]_[x2]	corrected 'ocean' altimeter range : [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	m		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	700000		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
quality_flag	range_ocean_qual_[x1]_[x2]			1
comment	For [x1] = 01 : LRM/PLRM modes : ocean retracking, SAR mode : ocean/coastal retracking. Instrumental corrections included : USO drift correction, internal path correction, distance antenna-COG, Doppler correction, modeled instrumental errors correction and system bias			1
comment	For [x1] = 20 : LRM/PLRM modes : ocean retracking, SAR mode : ocean/coastal retracking. Instrumental corrections included : USO drift correction (uso_cor_[x1]_[x2]), internal path correction (int_path_cor_[x1]_[x2]), distance antenna-COG (cog_cor_[x1]_[x2]), Doppler correction (dop_cor_[x1]_[x2]), modeled instrumental errors correction (mod_instr_cor_range_[x1]_[x2]) and system bias			1

6.2.4.6.22 « Ocean » altimeter range validity flag

range_ocean_qual_[x1]_[x2]	quality flag for the 'ocean' altimeter range: [x1] Hz [x2] band		sc	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	127b		1
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings For [x1] = 01	Good Bad		1
flag_meanings	Flag meanings For [x1] = 20	Yes No		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	For [x1] = 20 : LRM/PLRM modes : ocean retracking, SAR mode : ocean/coastal retracking . Flag indicating the use or not of the 20-Hz estimate of the 'ocean' altimeter range in the computation of 1Hz estimate			1

6.2.4.6.23 RMS of the « ocean » altimeter range

range_ocean_rms_[x1]_[x2]	RMS of the 'ocean' altimeter range: [x1] Hz [x2] band		ss	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	LRM/PLRM modes : ocean retracking, SAR mode : ocean/coastal retracking. Compression of high rate elements is preceded by a detection of outliers. Only valid high-rate values are used to compute this element			1

6.2.4.6.24 Number of valid points for the « ocean » altimeter range

range_ocean_numval_[x1]_[x2]	number of valid points used to compute the 'ocean' altimeter range : [x1] Hz [x2] band		sc	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	127b		1
units	Unit name	count		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	LRM/PLRM modes : ocean retracking, SAR mode : ocean/coastal retracking			1

6.2.4.6.25 Interpolated C-band corrected « ocean » altimeter range

interpolated_c_band_range_ocean_[x1]_[x2]	C-band interpolated corrected 'ocean' altimeter range : [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	m		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	700000		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	C-band altimeter range value used to compute the Ku-band altimeter ionospheric correction (iono_cor_alt_[x1]_ku)			1

6.2.4.6.26 Corrected « ocean » backscatter coefficient

sig0_ocean_[x1]_[x2]	corrected 'ocean' backscatter coefficient : [x1] Hz [x2] band		ss	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	surface_backwards_scattering_coefficient_of_radar_wave		1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	dB		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
quality_flag	sig0_ocean_qual_[x1]_[x2]			1
comment	For [x1] = 01: LRM/PLRM modes : ocean retracking, SAR mode : ocean/coastal retracking. Instrumental corrections included : AGC instrumental errors correction, internal calibration correction, modeled instrumental errors correction, atmospheric attenuation correction and system bias.			1
comment	For [x1] = 20 : LRM/PLRM modes : ocean retracking, SAR mode : ocean/coastal retracking. Instrumental corrections included : AGC instrumental errors correction (agc_cor_[x1]_[x2]), internal calibration correction (sig0_cal_[x1]_[x2]), modeled instrumental errors correction (mod_instr_cor_sig0_[x1]_[x2]), atmospheric attenuation correction (atm_cor_sig0_01_[x2]) and system bias.			1

6.2.4.6.27 « Ocean » backscatter coefficient validity flag

sig0_ocean_qual_[x1]_[x2]	quality flag for the 'ocean' backscatter coefficient: [x1] Hz [x2] band		sc	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	127b		1
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings For [x1] = 01	Good Bad		1
flag_meanings	Flag meanings For [x1] = 20	Yes No		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

comment	For [x1] = 20 : LRM/PLRM modes : ocean retracking, SAR mode : ocean/coastal retracking. Flag indicating the use or not of the 20-Hz estimate of the 'ocean' backscatter coefficient in the computation of 1Hz estimate			1

6.2.4.6.28 RMS of the « ocean » backscatter coefficient

sig0_ocean_rms_[x1]_[x2]	RMS of the 'ocean' backscatter coefficient: [x1] Hz [x2] band		ss	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	dB		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	LRM/PLRM modes : ocean retracking, SAR mode : ocean/coastal retracking. Compression of high rate elements is preceded by a detection of outliers. Only valid high-rate values are used to compute this element			1

6.2.4.6.29 Number of valid points for the « ocean » backscatter coefficient

sig0_ocean_numval_[x1]_[x2]	number of valid points used to compute the 'ocean' backscatter coefficient: [x1] Hz [x2] band		sc	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	127b		1
units	Unit name	count		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	LRM/PLRM modes : ocean retracking, SAR mode : ocean/coastal retracking.			1

6.2.4.6.30 Corrected « ocean » significant waveheight

swh_ocean_[x1]_[x2]	corrected 'ocean' significant waveheight : [x1] Hz [x2] band		ss	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	sea_surface_wave_significant_height		1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-03		1

add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
quality_flag	swh_ocean_qual_[x1]_[x2]			1
comment	For [x1] = 01 : LRM/PLRM modes : ocean retracking, SAR mode : ocean/coastal retracking. Instrumental corrections included : modeled instrumental errors correction and system bias.			1
comment	For [x1] = 20 : LRM/PLRM modes : ocean retracking, SAR mode : ocean/coastal retracking. Instrumental corrections included : modeled instrumental errors correction (mod_instr_cor_swh_[x1]_[x2]) and system bias.			1

6.2.4.6.31 « Ocean » significant waveheight validity flag

swh_ocean_qual_[x1]_[x2]	**quality flag for the 'ocean' significant waveheight: [x1] Hz [x2] band**		**sc**	**time_[x1]_[x2]**
_FillValue	Default value for unused or not computed elements	127b		1
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings For [x1] = 01	Good Bad		1
flag_meanings	Flag meanings For [x1] = 20	Yes No		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	For [x1] = 20 : LRM/PLRM modes : ocean retracking, SAR mode : ocean/coastal retracking. Flag indicating the use or not of the 20-Hz estimate of the 'ocean' significant waveheight in the computation of 1Hz estimate			1

6.2.4.6.32 RMS of the « ocean » significant waveheight

swh_ocean_rms_[x1]_[x2]	**RMS of the 'ocean' significant waveheight : [x1] Hz [x2] band**		**ss**	**time_[x1]_[x2]**
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-03		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

comment	LRM/PLRM modes : ocean retracking, SAR mode : ocean/coastal retracking. Compression of high rate elements is preceded by a detection of outliers. Only valid high-rate values are used to compute this element			1

6.2.4.6.33 Number of valid points for the « ocean » significant waveheight

swh_ocean_numval_[x1]_[x2]	number of valid points used to compute the 'ocean' significant waveheight: [x1] Hz [x2] band		sc	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	127b		1
units	Unit name	count		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	LRM/PLRM modes : ocean retracking, SAR mode : ocean/coastal retracking.			1

6.2.4.6.34 Epoch

epoch_ocean_[x1]_[x2]	Epoch / 'ocean' retracking : [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	s		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-15		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	LRM/PLRM modes : ocean retracking, SAR mode : ocean/coastal retracking			1

6.2.4.6.35 Composite Sigma

sigmac_ocean_[x1]_[x2]	Composite Sigma / 'ocean' retracking : [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	s		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-15		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	LRM/PLRM modes : ocean retracking, SAR mode : ocean retracking			1

6.2.4.6.36 Amplitude

amplitude_ocean_[x1]_[x2]	Amplitude / 'ocean' retracking (FFT power unit): [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	count		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-6		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	LRM/PLRM modes : ocean retracking, SAR mode : ocean/coastal retracking			1

6.2.4.6.37 Thermal noise

thermal_noise_ocean_[x1]_[x2]	Thermal noise / 'ocean' retracking (FFT power unit): [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	count		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-6		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	LRM/PLRM modes : ocean retracking, SAR mode : ocean/coastal retracking			1

6.2.4.6.38 Square of the mispointing angle

off_nadir_angle_wf_ocean_[x1]_[x2]	Square of the off nadir angle computed from waveforms 'ocean' retracking : [x1] Hz [x2] band		ss	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	degrees^2		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-4		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	LRM/PLRM modes : ocean retracking, SAR mode : N.A.			1

6.2.4.6.39 Number of iterations

number_of_iterations_ocean_[x1]_[x2]	Number of iterations / 'ocean' retracking : [x1] Hz [x2] band		sc	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	127b		1
units	Unit name	count		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	LRM/PLRM modes : ocean retracking, SAR mode : ocean/coastal retracking			1

6.2.4.6.40 MQE between waveform and ocean model

mqe_ocean_[x1]_[x2]	Mean quadratic error between waveform and model / 'ocean' retracking : [x1] Hz [x2] band		ss	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	count		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-4		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	LRM/PLRM modes : ocean retracking, SAR mode : ocean/coastal retracking			1

6.2.4.6.41 Sea surface height anomaly

ssha_[x1]_[x2]	sea surface height anomaly : [x1] Hz [x2] band		ss	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	sea_surface_height_above_sea_level		1
source	[GA_ALT_SENSOR]			1
institution	[GA_ALT_SENSOR_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-03		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

comment	For [x1] = 01 : altitude of satellite (alt_[x1]_[x2]) - Ku band corrected ocean altimeter range (range_ocean_[x1]_ku) - altimeter ionospheric correction on Ku band (iono_cor_alt_[x1]_ku) - model dry tropospheric correction (mod_dry_tropo_cor_zero_altitude_[x1]) - radiometer wet tropospheric correction (rad_wet_tropo_cor_[x1](_ku)) - sea state bias correction in Ku band (sea_state_bias_[x1]_ku) - solid earth tide height (solid_earth_tide_[x1]) - geocentric ocean tide height solution 2 = FES (ocean_tide_sol2_[x1]) - geocentric pole tide height (pole_tide_[x1]) - inverted barometer height correction (inv_bar_cor_[x1]) - high frequency fluctuations of the sea surface topography (hf_fluct_cor_[x1] for NTC/STC off line products only) - mean sea surface (mean_sea_surf_sol2[x1]_ku))			1
comment	For [x1] = 20 : altitude of satellite (alt_[x1]_[x2]) - Ku band corrected ocean altimeter range (range_ocean_[x1]_ku) - altimeter ionospheric correction on Ku band (iono_cor_alt_[x1]_ku) - model dry tropospheric correction (mod_dry_tropo_cor_zero_altitude_01) - radiometer wet tropospheric correction (rad_wet_tropo_cor_01_ku) - sea state bias correction in Ku band (sea_state_bias_01_ku) - solid earth tide height (solid_earth_tide_01) - geocentric ocean tide height solution 2 = FES (ocean_tide_sol1_02) - geocentric pole tide height (pole_tide_01) - inverted barometer height correction (inv_bar_cor_01) - high frequency fluctuations of the sea surface topography (hf_fluct_cor_01 for NTC/STC off line products only) - mean sea surface (mean_sea_surf_sol2[x1]_ku)			1

6.2.4.6.42 Corrected OCOG altimeter range

range_ocog_[x1]_[x2]	corrected ocog altimeter range : [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	m		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	700000		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	LRM/PLRM modes; SAR mode :ocog retracking. Instrumental corrections included : USO drift correction (uso_cor_[x1]_[x2]), internal path correction (int_path_cor_[x1]_[x2]), distance antenna-COG			1

6.2.4.6.43 Corrected OCOG backscatter coefficient

sig0_ocog_[x1]_[x2]	corrected ocog backscatter coefficient : [x1] Hz [x2] band		ss	time_[x1]_[x2]

standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	surface_backwards_scattering_coefficient_of_radar_wave		1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	dB		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	LRM/PLRM modes ; SAR mode : ocog retracking. Instrumental corrections included : AGC instrumental errors correction (agc_cor_[x1]_[x2]) and internal calibration correction (sig0_cal_[x1]_[x2])			1

6.2.4.6.44 Corrected “ice sheet” altimeter range

range_ice_sheet_[x1]_[x2]	corrected 'ice-sheet' altimeter range : [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	m		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	700000		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	LRM/PLRM modes : ice sheet (CFI) retracking, SAR mode : ice sheet margin retracking. Instrumental corrections included : USO drift correction (uso_cor_[x1]_[x2]), internal path correction (int_path_cor_[x1]_[x2]), distance antenna-COG and Doppler slope correction (dop_slope_cor_[x1]_[x2])			1

6.2.4.6.45 Corrected “ice sheet” backscatter coefficient

sig0_ice_sheet_[x1]_[x2]	corrected 'ice-sheet' backscatter coefficient : [x1] Hz [x2] band		ss	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	surface_backwards_scattering_coefficient_of_radar_wave		1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	dB		1

scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	LRM/PLRM modes : ice sheet (CFI) retracking, SAR mode : ice sheet margin retracking. Instrumental corrections included : AGC instrumental errors correction (agc_cor_[x1]_[x2]) and internal calibration correction (sig0_cal_[x1]_[x2])			1

6.2.4.6.46 Elevation of echoing points

elevation_ice_sheet_[x1]_[x2]	corrected 'ice-sheet' altimeter elevation : [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	LRM/PLRM modes : ice sheet (CFI) retracking, SAR mode : ice sheet margin retracking. Instrumental corrections included : USO drift correction (uso_cor_[x1]_[x2]), internal path correction (int_path_cor_[x1]_[x2]), distance antenna-COG (cog_cor_[x1]_[x2]) and Doppler slope correction (dop_slope_cor_[x1]_[x2])			1

6.2.4.6.47 Corrected « ice » altimeter range

range_ice_[x1]_[x2]	corrected 'ice' altimeter range : [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	m		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	700000		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	LRM/PLRM modes only : ice (erf) retracking. Instrumental corrections included : USO drift correction (uso_cor_[x1]_[x2]), internal path correction (int_path_cor_[x1]_[x2]), distance antenna-COG and Doppler correction (dop_cor_[x1]_[x2])			1

6.2.4.6.48 Corrected « ice »backscatter coefficient

sig0_ice_[x1]_[x2]	corrected 'ice' backscatter coefficient : [x1] Hz [x2] band		ss	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	surface_backwards_scattering_coefficient_of_radar_wave		1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	dB		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	LRM/PLRM modes only : ice (erf) retracking. Instrumental corrections included : AGC instrumental errors correction (agc_cor_[x1]_[x2]) and internal calibration correction (sig0_cal_[x1]_[x2])			1

6.2.4.6.49 Corrected “ice” leading edge backscatter coefficient

sig0_leading_edge_ice_[x1]_[x2]	corrected 'ice' leading edge backscatter coefficient : [x1] Hz [x2] band		ss	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	surface_backwards_scattering_coefficient_of_radar_wave		1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	dB		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	LRM/PLRM modes only : ice (erf) retracking. Instrumental corrections included : AGC instrumental errors correction (agc_cor_[x1]_[x2]) and internal calibration correction (sig0_cal_[x1]_[x2])			1

6.2.4.6.50 Width of the leading edge

width_leading_edge_ice_[x1]_[x2]	width of the 'ice' leading edge : [x1] Hz [x2] band		ss	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-03		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.51 Slope of the first part of the trailing edge

slope_first_trailing_edge_ice_[x1]_[x2]	slope of the first part of the trailing edge ('ice'): [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	s^-1		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.52 Slope of the second part of the trailing edge

slope_second_trailing_edge_ice_[x1]_[x2]	slope of the second part of the trailing edge ('ice'): [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	s^-1		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.53 Corrected altimeter range

range_sea_ice_[x1]_[x2]	corrected 'sea-ice' altimeter range : [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	m		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	700000		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

comment	SAR mode only : sea-ice margin retracking. Instrumental corrections included : USO drift correction (uso_cor_[x1]_[x2]), internal path correction (int_path_cor_[x1]_[x2]), distance antenna-COG and Doppler slope correction (dop_slope_cor_[x1]_[x2])			1

6.2.4.6.54 Corrected backscatter coefficient

sig0_sea_ice_sheet_[x1]_[x2]	corrected 'sea-ice' backscatter coefficient : [x1] Hz [x2] band		ss	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	surface_backwards_scattering_coefficient_of_radar_wave		1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	dB		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	SAR mode only : sea-ice margin retracking. Instrumental corrections included : AGC instrumental errors correction (agc_cor_[x1]_[x2]) and internal calibration correction (sig0_cal_[x1]_[x2])			1

6.2.4.6.55 « Sea-ice » sea surface height

sea_ice_sea_surf_[x1]_[x2]	'sea-ice' sea surface height : [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	SAR mode only : sea-ice margin retracking. Instrumental corrections included : USO drift correction (uso_cor_[x1]_[x2]), internal path correction (int_path_cor_[x1]_[x2]), distance antenna-COG (cog_cor_[x1]_[x2]) and Doppler slope correction (dop_slope_cor_[x1]_[x2])			1

6.2.4.6.56 « Sea-ice » sea surface height anomaly

sea_ice_ssha_[x1]_[x2]	'sea-ice' sea surface height anomaly : [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	SAR mode only : sea-ice margin retracking. Instrumental corrections included : USO drift correction (uso_cor_[x1]_[x2]), internal path correction (int_path_cor_[x1]_[x2]), distance antenna-COG (cog_cor_[x1]_[x2]) and Doppler slope correction (dop_slope_cor_[x1]_[x2])			1

6.2.4.6.57 Interpolated « Sea-ice » sea surface height anomaly

int_sea_ice_ssha_[x1]_[x2]	interpolated 'sea-ice'sea surface height anomaly : [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	SAR mode only : sea-ice margin retracking. Instrumental corrections included : USO drift correction (uso_cor_[x1]_[x2]), internal path correction (int_path_cor_[x1]_[x2]), distance antenna-COG (cog_cor_[x1]_[x2]) and Doppler slope correction (dop_slope_cor_[x1]_[x2])			1

6.2.4.6.58 Freeboard

freeboard_[x1]_[x2]	freeboard : [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

comment	SAR mode only : sea-ice margin retracking. Instrumental corrections included : USO drift correction (uso_cor_[x1]_[x2]), internal path correction (int_path_cor_[x1]_[x2]), distance antenna-COG (cog_cor_[x1]_[x2]) and Doppler slope correction (dop_slope_cor_[x1]_[x2])			1

6.2.4.6.59 Altimeter-derived surface type classification

surf_type_class_[x1]_[x2]	altimeter-derived surface type classification: [x1] Hz [x2] band		sc	time_[x1]_[x2]
flag_values	Flag values	0b, 1b, 2b, 3b		1
flag_meanings	Flag meanings	open_ocean sea_ice lead unclassified		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.60 USO frequency correction on the altimeter range

uso_cor[x1]_[x2]	USO frequency drift correction : [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Correction of the USO frequency drift on the altimeter range			1

6.2.4.6.61 Internal path delay (calibration) correction on the altimeter range

int_path_cor_[x1]_[x2]	internal path correction on the altimeter range : [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

comment	Internal calibration correction on the altimeter range			1

6.2.4.6.62 Level 1b Doppler correction (nadir) on the altimeter range

dop_cor_l1b_[x1]_[x2]	doppler correction on the altimeter range : [x1] Hz [x2] band		ss	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Nadir Doppler correction on the altimeter range, computed at Level 1b			1

6.2.4.6.63 Doppler correction (nadir) on the altimeter range

dop_cor_[x1]_[x2]	doppler correction on the altimeter range : [x1] Hz [x2] band		ss	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Nadir Doppler correction on the altimeter range			1

6.2.4.6.64 Doppler correction (slope corrected) on the altimeter range

dop_slope_cor_[x1]_[x2]	slope-corrected doppler correction on the altimeter range : [x1] Hz [x2] band		ss	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Slope-corrected Doppler correction on the altimeter range. This correction is valid over Greenland and Antactica surfaces only.			1

6.2.4.6.65 Distance antenna / COG

cog_cor_[x1]_[x2]	Distance antenna-COG correction on altimeter range: [x1] Hz [x2] band		ss	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1] lat_[x1]			1

6.2.4.6.66 Modeled instrumental correction on the altimeter range

mod_instr_cor_range_[x1]_[x2]	Modeled instrumental correction on the altimeter range: [x1] Hz [x2] band		ss	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.67 Net instrumental correction on the altimeter range

net_instr_cor_range_[x1]_[x2]	Net instrumental correction on the altimeter range : [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Sum of distance antenna-COG, USO drift correction (uso_cor_[x1]_[x2]), internal path correction (int_path_cor_[x1]_[x2]), Doppler correction (dop_cor_[x1]_[x2]), modeled instrumental errors correction (mod_instr_cor_range_[x1]_[x2]) and system bias			1

6.2.4.6.68 AGC correction

agc_cor_[x1]_[x2]	correction for instrumental errors on AGC : [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	dB		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.69 Internal calibration correction on the backscatter coefficient

sig0_cal_[x1]_[x2]	internal calibration correction on the backscatter coefficient : [x1] Hz [x2] band		ss	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	dB		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.70 Modeled instrumental correction on the backscatter coefficient

mod_instr_cor_sig0_[x1]_[x2]	Modeled instrumental correction on the backscatter coefficient: [x1] Hz [x2] band		ss	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	dB		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.71 Net instrumental correction on the backscatter coefficient

net_instr_cor_sig0_[x1]_[x2]	Net instrumental correction on the backscatter coefficient: [x1] Hz [x2] band		ss	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	32767s		1

units	Unit name	dB		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Sum of AGC instrumental errors correction (agc_cor_[x1]_[x2]), internal calibration correction (sig0_cal_[x1]_[x2]), modeled instrumental errors correction (mod_instr_cor_sig0_[x1]_[x2]), atmospheric attenuation correction (atm_cor_sig0_01_[x2]) and system bias.			1

6.2.4.6.72 Modeled instrumental correction on the significant waveheight

mod_instr_cor_swh_[x1]_[x2]	**Modeled instrumental correction on the significant waveheight: [x1] Hz [x2] band**		**ss**	**time_[x1]_[x2]**
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-03		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.73 Net instrumental correction on the significant waveheight

net_instr_cor_swh_[x1]_[x2]	**Net instrumental correction on the significant waveheight: [x1] Hz [x2] band**		**ss**	**time_[x1]_[x2]**
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-03		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Sum of modeled instrumental errors correction (mod_instr_cor_swh_[x1]_[x2]) and system bias			1

6.2.4.6.74 Model dry tropospheric correction

mod_dry_tropo_cor_zero_altitude_[x1]_[x2]	**model dry tropospheric correction at zero altitude: [x1] Hz [x2] band**		**ss**	**time_[x1]_[x2]**

standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	altimeter_range_correction_due_to_dry_troposphere		1
source	[GA_MTO_FIELDS_SOURCE]			1
institution	[GA_MTO_FIELDS_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Computed from 3d meteorological fields at zero altitude, at the altimeter time-tag from the interpolation of 2 meteorological fields that surround the altimeter time-tag. A dry tropospheric correction must be added (negative value) to the instrument range to correct this range measurement for dry tropospheric range delays of the radar pulse			1
mod_dry_tropo_cor_meas_altitude_[x1]_[x2]	**model dry tropospheric correction at measurement altitude: [x1] Hz [x2] band**		**ss**	**time_[x1]_[x2]**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	altimeter_range_correction_due_to_dry_troposphere		1
source	[GA_MTO_FIELDS_SOURCE]			1
institution	[GA_MTO_FIELDS_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Computed from 3d meteorological fields at measurement altitude, at the altimeter time-tag from the interpolation of 2 meteorological fields that surround the altimeter time-tag. A dry tropospheric correction must be added (negative value) to the instrument range to correct this range measurement for dry tropospheric range delays of the radar pulse			1

6.2.4.6.75 Model wet tropospheric correction

mod_wet_tropo_cor_zero_altitude_[x1]_[x2]	model wet tropospheric correction at zero altitude: [x1] Hz [x2] band		ss	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	altimeter_range_correction_due_to_wet_troposphere		1
source	[GA_MTO_FIELDS_SOURCE]			1
institution	[GA_MTO_FIELDS_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Computed from 3d meteorological fields at zero altitude, at the altimeter time-tag from the interpolation of 2 meteorological fields that surround the altimeter time-tag. A wet tropospheric correction must be added (negative value) to the instrument range to correct this range measurement for wet tropospheric range delays of the radar pulse			1
mod_wet_tropo_cor_meas_altitude_[x1]_[x2]	**model wet tropospheric correction at measurement altitude: [x1] Hz [x2] band**		**ss**	**time_[x1]_[x2]**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	altimeter_range_correction_due_to_wet_troposphere		1
source	[GA_MTO_FIELDS_SOURCE]			1
institution	[GA_MTO_FIELDS_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Computed from 3d meteorological fields at measurement altitude, at the altimeter time-tag from the interpolation of 2 meteorological fields that surround the altimeter time-tag. A wet tropospheric correction must be added (negative value) to the instrument range to correct this range measurement for wet tropospheric range delays of the radar pulse			1

6.2.4.6.76 Composite wet tropospheric correction

comp_wet_tropo_cor_[x1]_[x2]	composite wet tropospheric correction: [x1] Hz [x2] band		ss	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	altimeter_range_correction_due_to_wet_troposphere		1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Computed at the altimeter time-tag from both radiometer and model corrections over areas where the radiometer wet troposphere correction is missing or supposed as invalid due to the proximity of emerged lands, coastal areas and/or radiometer gaps in open oceans. A wet tropospheric correction must be added (negative value) to the instrument range to correct this range measurement for wet tropospheric range delays of the radar pulse			1

6.2.4.6.77 Radiometer wet tropospheric correction

rad_wet_tropo_cor_[x1]_[x2]	radiometer wet tropospheric correction: [x1] Hz [x2] band		ss	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	altimeter_range_correction_due_to_wet_troposphere		1
source	[GA_RAD_SENSOR]			1
institution	[GA_RAD_SENSOR_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	A wet tropospheric correction must be added (negative value) to the instrument range to correct this range measurement for wet tropospheric range delays of the radar pulse. This correction is valid over ocean surfaces			1

	only			

6.2.4.6.78 Radiometer wet tropospheric correction using SST and Gamma

rad_wet_tropo_cor_sst_gam_[x1]_[x2]	radiometer wet tropospheric correction: [x1] Hz [x2] band		ss	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	altimeter_range_correction_due_to_wet_troposphere		1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Computed at the altimeter time-tag from the radiometer brightness temperatures, the Ku-band backscatter coefficient, the sea surface temperature and the lapse rate (decreasing rate of the atmosphere temperature with altitude). A wet tropospheric correction must be added (negative value) to the instrument range to correct this range measurement for wet tropospheric range delays of the radar pulse.			1

6.2.4.6.79 Altimeter ionospheric correction (Ku band)

iono_cor_alt_[x1]_[x2]	altimeter ionospheric correction: [x1] Hz [x2] band		ss	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	altimeter_range_correction_due_to_ionosphere		1
source	[GA_ALT_SENSOR]			1
institution	[GA_ALT_SENSOR_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

comment	An ionospheric correction must be added (negative value) to the instrument range to correct this range measurement for ionospheric range delays of the radar pulse. This correction is valid over ocean surfaces only			1

6.2.4.6.80 GIM-derived ionospheric correction (Ku band)

iono_cor_gim_[x1]_[x2]	GIM ionospheric correction: [x1] Hz [x2] band		ss	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	altimeter_range_correction_due_to_ionosphere		1
source	[GA_GIM_VER]			1
institution	[GA_GIM_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	An ionospheric correction must be added (negative value) to the instrument range to correct this range measurement for ionospheric range delays of the radar pulse.			1

6.2.4.6.81 Sea state bias correction

sea_state_bias_[x1]_[x2]	Sea state bias correction : [x1] Hz [x2] band		ss	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	sea_surface_height_bias_due_to_sea_surface_roughness		1
source	[GA_ALTIMETER_SSB_SOURCE]			1
institution	[GA_ALTIMETER_SSB_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

comment	A sea state bias correction must be added (negative value) to the instrument range to correct this range measurement for sea state delays of the radar pulse.			1

6.2.4.6.82 Atmospheric attenuation correction

atm_cor_sig0_[x1]_[x2]	Atmospheric attenuation correction on the backscatter coefficient : [x1] Hz [x2] band		ss	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	dB		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.83 Mean sea surface height above reference ellipsoid (Solution 1)

mean_sea_surf_sol1_[x1]_[x2]	Mean sea surface height above reference ellipsoid : [x1] Hz [x2] band		sl	time_[x1]_[x2]
source	[GA_MSS_SOURCE]			1
institution	[GA_MSS_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
quality_flag	interp_flag_mss_sol1_[x1]_[x2]			1

6.2.4.6.84 Mean sea surface height accuracy (Solution 1)

mean_sea_surf_sol1_acc_[x1]_[x2]	Mean sea surface height accuracy : [x1] Hz [x2] band		sl	time_[x1]_[x2]
source	[GA_MSS_SOURCE]			1
institution	[GA_MSS_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	2147483647		1

units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.85 Mean sea surface height above reference ellipsoid (Solution 2)

mean_sea_surf_sol2_[x1]_[x2]	**Mean sea surface height above reference ellipsoid Solution 2 : [x1] Hz [x2] band**		**sl**	**time_[x1]_[x2]**
source	[GA_MSS_SOL2_SOURCE]			1
institution	[GA_MSS_SOL2_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
quality_flag	interp_flag_mss_sol2_[x1]_[x2]			1

6.2.4.6.86 Mean dynamic topography above geoid

mean_dyn_topo_[x1]_[x2]	**Mean dynamic topography above geoid: [x1] Hz [x2] band**		**sl**	**time_[x1]_[x2]**
source	[GA_MDT_SOURCE]			1
institution	[GA_MDT_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
quality_flag	interp_flag_mdt_[x1]_[x2]			1

6.2.4.6.87 Mean dynamic topography accuracy

mean_dyn_topo_acc_[x1]_[x2]	**Mean dynamic topography accuracy: [x1] Hz [x2] band**		**sl**	**time_[x1]_[x2]**

source	[GA_MDT_SOURCE]			1
institution	[GA_MDT_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.88 Geoid height

geoid_[x1]_[x2]	**Geoid height : [x1] Hz [x2] band**		**sl**	**time_[x1]_[x2]**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	geoid_height_above_reference_ellipsoid		1
source	[GA_GEOID_SOURCE]			1
institution	[GA_GEOID_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Computed from the geoid model with a correction to refer the value to the mean tide system i.e. includes the permanent tide (zero frequency).			1

6.2.4.6.89 Ocean depth / Land elevation

odle_[x1]_[x2]	**Ocean depth/land elevation: [x1] Hz [x2] band**		**sl**	**time_[x1]_[x2]**
source	[GA_BATHY_TOPO_SOURCE]			1
institution	[GA_BATHY_TOPO_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1

coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.90 Inverted barometer height correction

inv_bar_cor_[x1]_[x2]	Inverted barometer height correction : [x1] Hz [x2] band		ss	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	sea_surface_height_correction_due_to_air_pressure_at_low_frequency		1
source	[GA_MTO_FIELDS_SOURCE]			1
institution	[GA_MTO_FIELDS_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Computed at the altimeter time-tag from the interpolation of 2 meteorological fields that surround the altimeter time-tag.			1

6.2.4.6.91 High frequency fluctuations of the sea surface topography

hf_fluct_cor_[x1]_[x2]	High frequency fluctuations of the sea surface topography : [x1] Hz [x2] band		ss	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	sea_surface_height_correction_due_to_air_pressure_and_wind_at_high_frequency		1
source	[GA_MOG2D_VER]			1
institution	[GA_MOG2D_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Provided as a correction to the inverted barometer correction (inv_bar_cor_[x1]_[x2]).			1

6.2.4.6.92 Geocentric ocean tide height (GOT model)

ocean_tide_sol1_[x1]_[x2]	Geocentric ocean tide height (solution 1 = GOT) : [x1] Hz [x2] band		sl	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	sea_surface_height_amplitude_due_to_geocentric_ocean_tide		1
source	[GA_OCEAN_TIDE_SOL1_SOURCE]			1
institution	[GA_OCEAN_TIDE_SOL1_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
quality_flag	interp_flag_ocean_tide_sol1_[x1]_[x2]			1
comment	Solution 1 corresponds to GOT model. Includes the corresponding loading tide (load_tide_sol1_[x1]_[x2]) and equilibrium long-period ocean tide height (ocean_tide_eq_[x1]_[x2]). The permanent tide (zero frequency) is not included in this parameter because it is included in the geoid and mean sea surface (geoid_[x1]_[x2], mean_sea_surf_sol1_[x1]_[x2]).			1

6.2.4.6.93 Geocentric ocean tide height (FES model)

ocean_tide_sol2_[x1]_[x2]	Geocentric ocean tide height (solution 2 = FES) : [x1] Hz [x2] band		sl	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	sea_surface_height_amplitude_due_to_geocentric_ocean_tide		1
source	[GA_OCEAN_TIDE_SOL2_SOURCE]			1
institution	[GA_OCEAN_TIDE_SOL2_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

quality_flag	interp_flag_ocean_tide_sol2_[x1]_[x2]			1
comment	Solution 2 corresponds to FES model. Includes the corresponding the short-period part of the loading tide (load_tide_sol2_[x1]_[x2]) and equilibrium long-period ocean tide height (ocean_tide_eq_[x1]_[x2]). The permanent tide (zero frequency) is not included in this parameter because it is included in the geoid and mean sea surface (geoid_[x1]_[x2], mean_sea_surf_sol1_[x1]_[x2]).			1

6.2.4.6.94 Equilibrium long period ocean tide height

ocean_tide_eq_[x1]_[x2]	Equilibrium long-period ocean tide height : [x1] Hz [x2] band		ss	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	sea_surface_height_amplitude_due_to_equilibrium_ocean_tide		1
source	[GA_OCEAN_TIDE_EQ_SOURCE]			1
institution	[GA_OCEAN_TIDE_EQ_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	This value has already been added to the two geocentric ocean tide height values recorded in the product (ocean_tide_sol1_[x1]_[x2] and ocean_tide_sol2_[x1]_[x2]). The permanent tide (zero frequency) is not included in this parameter because it is included in the geoid and mean sea surface (geoid_[x1]_[x2], mean_sea_surf_sol1_[x1]_[x2]).			1

6.2.4.6.95 Non-equilibrium long period ocean tide height

ocean_tide_non_eq_[x1]_[x2]	Non-equilibrium long-period ocean tide height : [x1] Hz [x2] band		ss	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	sea_surface_height_amplitude_due_to_non_equilibrium_ocean_tide		1
source	[GA_OCEAN_TIDE_NEQ_SOURCE]			1

institution	[GA_OCEAN_TIDE_NEQ_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	This parameter is computed as a correction to the parameter ocean_tide_eq_[x1]_[x2]; it contains the long-period ocean tide and the long-period load tide components. This value can be added to ocean_tide_eq_[x1]_[x2] (or ocean_tide_sol1_[x1]_[x2], ocean_tide_sol2_[x1]_[x2]) so that the resulting value models the total non equilibrium ocean tide height.			1

6.2.4.6.96 Load tide height (GOT model)

load_tide_sol1_[x1]_[x2]	Load tide height for geocentric ocean tide (solution 1 = GOT): [x1] Hz [x2] band		ss	time_[x1]_[x2]
source	[GA_TIDAL_LOADING_SOL1_SOURCE]			1
institution	[GA_TIDAL_LOADING_SOL1_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	This value has already been added to the corresponding ocean tide height value recorded in the product (ocean_tide_sol1_[x1]_[x2]).			1

6.2.4.6.97 Load tide height (FES model)

load_tide_sol2_[x1]_[x2]	Load tide height for geocentric ocean tide (solution 2 = FES): [x1] Hz [x2] band		ss	time_[x1]_[x2]
source	[GA_TIDAL_LOADING_SOL2_SOURCE]			1
institution	[GA_TIDAL_LOADING_SOL2_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1

add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	This value contains the total load tide height (short-period and long-period) for the geocentric ocean tide (solution 2). To get only the pure ocean tide height (solution 2), do: ocean_tide_sol2_01 + ocean_tide_non_eq_01 - load_tide_sol2_01. This value has already been added to the corresponding ocean tide height value recorded in the product (ocean_tide_sol2_[x1]_[x2]).			1

6.2.4.6.98 Solid earth tide height

solid_earth_tide_[x1]_[x2]	Solid earth tide height : [x1] Hz [x2] band		ss	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	sea_surface_height_amplitude_due_to_earth_tide		1
source	[GA_SOLID_EARTH_TIDE_SOURCE]			1
institution	[GA_SOLID_EARTH_TIDE_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Calculated using Cartwright and Tayler tables and consisting of the second and third degree constituents. The permanent tide (zero frequency) is not included.			1

6.2.4.6.99 Geocentric pole tide height

pole_tide_[x1]_[x2]	Geocentric tide height : [x1] Hz [x2] band		ss	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	sea_surface_height_amplitude_due_to_pole_tide		1
source	[GA_POLE_TIDE_SOURCE]			1
institution	[GA_POLE_TIDE_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1

add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.100 Rain rate

rain_rate_[x1]_[x2]	Rain rate : [x1] Hz [x2] band		ss	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	mm/h		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.101 Rain attenuation

rain_att_[x1]_[x2]	Rain attenuation : [x1] Hz [x2] band		ss	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	dB		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.102 Sea-ice concentration

sea_ice_concentration_[x1]_[x2]	sea-ice concentration: [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	percent		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-2		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.103 Snow density

snow_density_[x1]_[x2]	snow density: [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	kg/m^-3		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.104 Snow depth

snow_depth_[x1]_[x2]	snow depth: [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	m		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-4		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Snow depth			1

6.2.4.6.105 U-component of the model wind vector

wind_speed_mod_u_[x1]_[x2]	U component of the model wind vector : [x1] Hz [x2] band		ss	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	wind_speed		1
source	[GA_MTO_FIELDS_SOURCE]			1
institution	[GA_MTO_FIELDS_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m/s		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
quality_flag	meteo_map_avail_[x1]_[x2]			1
comment	Computed at the altimeter time-tag from the interpolation of 2 meteorological fields that surround the altimeter time-tag			1

6.2.4.6.106 V-component of the model wind vector

wind_speed_mod_v_[x1]_[x2]	V component of the model wind vector : [x1] Hz [x2] band		ss	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	wind_speed		1
source	[GA_MTO_FIELDS_SOURCE]			1
institution	[GA_MTO_FIELDS_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m/s		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
quality_flag	meteo_map_avail_[x1]_[x2]			1
comment	Computed at the altimeter time-tag from the interpolation of 2 meteorological fields that surround the altimeter time-tag			1

6.2.4.6.107 Altimeter wind speed

wind_speed_alt_[x1]_[x2]	Altimeter wind speed : [x1] Hz [x2] band		ss	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	wind_speed		1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	m/s		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Should not be used over land.			1

6.2.4.6.108 Radiometer water vapor content

rad_water_vapor_[x1]_[x2]	Radiometer water vapor content : [x1] Hz [x2] band		ss	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	atmosphere_water_vapor_content		1

source	[GA_RAD_SENSOR]			1
institution	[GA_RAD_SENSOR_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	kg/m^2		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-01		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Should not be used over land.			1

6.2.4.6.109 Radiometer liquid water content

rad_liquid_water_[x1]_[x2]	**Radiometer liquid water content : [x1] Hz [x2] band**		**ss**	**time_[x1]_[x2]**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	atmosphere_cloud_liquid_water_content		1
source	[GA_RAD_SENSOR]			1
institution	[GA_RAD_SENSOR_INSTITUTION]			1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	kg/m^2		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Should not be used over land.			1

6.2.4.6.110 Total electron content

total_electron_content_[x1]_[x2]	**Altimeter-derived total electron content (TECU) : [x1] Hz [x2] band**		**ul**	**time_[x1]_[x2]**
_FillValue	Default value for unused or not computed elements	4294967295		1
units	Unit name	count		1
scale_factor	The data must be multiplied by this factor after reading	1.00e10		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.111 Square of the WF-derived off-nadir angle (Ku band)

corrected_off_nadir_angle_wf_ocean_[x1]_[x2]	Corrected square of the off nadir angle derived from waveforms: [x1] Hz [x2] band		ss	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	degrees^2		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-4		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	This parameter is issued from the ocean retracking in LRM/PLRM modes and from the ocean/coastal retracking in SAR mode. It accounts for modeled instrumental errors correction and system bias			1

6.2.4.6.112 Square of the WF-derived off-nadir angle validity flag (Ku band)

val_alt_off_nadir_angle_wf_ocean_[x1]_[x2]	Validity flag for the square of the off nadir angle derived from waveforms: [x1] Hz [x2] band		sc	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	127b		1
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	Valid Invalid		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.113 Square of the WF-derived off-nadir angle (Ku band) validity flags for compression

off_nadir_angle_used_[x1]_[x2]	Quality flag for the square of the off-nadir angle: [x1] Hz [x2] band		sc	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	127b		1
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	Yes No		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Flag indicating the use or not of the 20-Hz estimate of the square of the off-nadir angle in the computation of 1Hz estimate			1

6.2.4.6.114 RMS of the square of the WF-derived off-nadir angle (Ku band)

off_nadir_angle_rms_[x1]_[x2]	RMS of the square of the off-nadir angle derived from waveforms: [x1] Hz [x2] band		ss	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	degrees^2		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Compression of high rate elements is preceded by a detection of outliers. Only valid high-rate values are used to compute this element			1

6.2.4.6.115 Number of valid points for the square of the WF-derived off-nadir angle (Ku band)

off_nadir_angle_numval_[x1]_[x2]	Number of valid points used to compute the off-nadir angle derived from waveforms: [x1] Hz [x2] band		sc	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	127b		1
units	Unit name	count		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.116 Modeled instrumental correction on the square of the WF-derived off-nadir angle (Ku band)

mod_instr_cor_off_nadir_angle_[x1]_[x2]	Modeled instrumental correction on the square of the off-nadir angle: [x1] Hz [x2] band		ss	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	degrees^2		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-04		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.117 PF-derived off-nadir pitch angle

off_nadir_pitch_angle_pf_[x1]_[x2]	Off nadir pitch SRAL angle derived from platform data: [x1] Hz [x2] band		sl	time_[x1]_[x2]

_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	degrees		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-4		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.118 PF-derived off-nadir roll angle

off_nadir_roll_angle_pf_[x1]_[x2]	Off nadir roll SRAL angle derived from platform data: [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	degrees		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-4		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.119 PF-derived off-nadir yaw angle

off_nadir_yaw_angle_pf_[x1]_[x2]	Off nadir yaw SRAL angle derived from platform data: [x1] Hz [x2] band		sl	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	2147483647		1
units	Unit name	degrees		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-4		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.120 Channel 1 main beam BT

tb_238_[x1]_[x2]	23.8 GHz main beam brightness temperature: [x1] Hz [x2] band		ss	time_[x1]_[x2]
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	surface_brightness_temperature		1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	K		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1

add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
source	[GA_RAD_SENSOR]			1
institution	[GA_RAD_SENSOR_INSTITUTION]			1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.121 Standard deviation of Channel 1 main beam BT

tb_238_std_[x1]_[x2]	**Standard deviation of 23.8 GHz main beam brightness temperature: [x1] Hz [x2] band**		**ss**	**time_[x1]_[x2]**
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	K		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.122 Channel 2 main beam BT

tb_365_[x1]_[x2]	**36.5 GHz main beam brightness temperature: [x1] Hz [x2] band**		**ss**	**time_[x1]_[x2]**
standard_name	Name of the physical quantity following the NetCDF Climate and Forecast (CF) Metadata Conventions	surface_brightness_temperature		1
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	K		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
source	[GA_RAD_SENSOR]			1
institution	[GA_RAD_SENSOR_INSTITUTION]			1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.123 Standard deviation of Channel 2 main beam BT

tb_365_std_[x1]_[x2]	**Standard deviation of 36.5 GHz main beam brightness temperature: [x1] Hz [x2] band**		**ss**	**time_[x1]_[x2]**
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	K		1

scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.124 Waveform samples (128)

waveform_[x1]_[x2]	**Waveform samples (I2+Q2) : [x1] Hz [x2] band**		**ul**	**time_[x1]_[x2], echo_sample_ind**
units	Unit name	count		1
_FillValue	Default value for unused or not computed elements	4294967295		1
comment	LRM mode Ku and C bands: the echo is corrected for the GPRW effect , PLRM Ku and C band : the echo is the so-called averaged echo corrected for the GPRW effect, SAR mode Ku band : the echo is corrected for Doppler range effect, phase/power burst calibration and GPWR effect			1

6.2.4.6.125 Instrument operating mode

instr_op_mode_[x1]_[x2]	**Instrument operating mode : [x1] Hz [x2] band**		**sc**	**time_[x1]_[x2]**
_FillValue	Default value for unused or not computed elements	127b		1
flag_values	Flag values	0b, 1b, 2b		1
flag_meanings	Flag meanings	LRM SAR LRM_and_SAR		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.126 LRM/SAR mode identifier

mode_id_[x1]_[x2]	**Mode identifier : [x1] Hz [x2] band**		**sc**	**time_[x1]_[x2]**
flag_values	Flag values	0b, 1b, 2b		1
_FillValue	Default value for unused or not computed elements	127b		1
flag_meanings	Flag meanings	closed_loop open_loop open_loop_fixed_gain		1

coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	'open loop fixed gain' state applicable to SAR mode only			1

6.2.4.6.127 Orbit type

orbit_type_[x1]_[x2]	Orbit type: [x1] Hz [x2] band		sc	time_[x1]_[x2]
flag_values	Flag values	0b, 1b, 2b, 3b, 4b, 5b, 6b, 7b, 8b		1
_FillValue	Default value for unused or not computed elements	127b		1
flag_meanings	Flag meanings	osf fos navatt doris_nav gnss_roe pod_moe salp_moe pod_poe salp_poe		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.128 Meteorological maps availability

meteo_map_avail_[x1]_[x2]	Meteorological map availability: [x1] Hz [x2] band		sc	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	127b		1
flag_values	Flag values	0b, 1b, 2b		1
flag_meanings	Flag meanings	2_maps_nominal 1_map_extropolated no_map		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Possible values are: 0 meaning '2 maps, nominal', 1 meaning '1 map, extrapolation used', 2 meaning 'no map'			1

6.2.4.6.129 Rain flag

rain_flag_[x1]_[x2]	Altimeter rain flag : [x1] Hz [x2] band		sc	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	127b		1
flag_values	Flag values	0b, 1b, 2b, 3b, 4b, 5b		1

flag_meanings	Flag meanings	no_rain rain high_rain_probability_from_altimeter high_probability_of_no_rain_from_altimeter ambiguous_situation_possibility_of_ice evaluation_not_possible		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.130 Ocean/Sea-ice flag

open_sea_ice_flag_[x1]_[x2]	Open sea-ice flag : [x1] Hz [x2] band		sc	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	127b		1
flag_values	Flag values	0b, 1b, 2b, 3b, 4b, 5b		1
flag_meanings	Flag meanings	ocean first_year_sea_ice wet_ice multi_year_sea_ice ambiguous_mixture_of_type not_evaluated		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.131 “Open water” class member ship

open_water_class_[x1]_[x2]	Open water class membership : [x1] Hz [x2] band		sc	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	127b		1
units	Unit name	count		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Value between 0 and 1			1

6.2.4.6.132 "First-year ice" class member ship

first_year_ice_class_[x1]_[x2]	First-year ice class membership : [x1] Hz [x2] band		sc	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	127b		1
units	Unit name	count		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Value between 0 and 1			1

6.2.4.6.133 "Multi-year ice" class member ship

multi_year_ice_class_[x1]_[x2]	Multi-year ice class membership : [x1] Hz [x2] band		sc	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	127b		1
units	Unit name	count		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Value between 0 and 1			1

6.2.4.6.134 "Wet ice" class member ship

wet_ice_class_[x1]_[x2]	Wet ice class membership : [x1] Hz [x2] band		sc	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	127b		1
units	Unit name	count		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-02		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Value between 0 and 1			1

6.2.4.6.135 Ice-sheet snow facies type flag

ice_sheet_snow_facies_flag_[x1]_[x2]	Ice-sheet snow facies type flag : [x1] Hz [x2] band		sc	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	127b		1
flag_values	Flag values	0b, 1b, 2b, 3b, 4b, 5b, 6b, 11b, 12b, 13b, 14b, 15b, 16b, 17b		1
flag_meanings	Flag meanings	not_evaluated greenlandytype_1 greenland_type_2 greenland_type_3 greenland_type_4 greenland_type_5 greenland_type_6 antarctica_type_1 antarctica_type_2 antarctica_type_3 antarctica_type_4 antarctica_type_5 antarctica_type_6 antarctica_type_7		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.136 Mean sea surface interpolation flag (Solution 1)

interp_flag_mss_sol1_[x1]_[x2]	Mean sea surface interpolation flag : [x1] Hz [x2] band		sc	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	127b		1
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	good bad		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.137 Mean sea surface interpolation flag (Solution 2)

interp_flag_mss_sol2_[x1]_[x2]	Mean sea surface Solution 2 interpolation flag : [x1] Hz [x2] band		sc	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	127b		1

flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	good bad		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.138 Mean dynamic topography interpolation flag

interp_flag_mdt_[x1]_[x2]	**Mean dynamic topography interpolation flag : [x1] Hz [x2] band**		**sc**	**time_[x1]_[x2]**
_FillValue	Default value for unused or not computed elements	127b		1
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	good bad		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.139 Geocentric ocean tide height (GOT) interpolation flag

interp_flag_ocean_tide_sol1_[x1]_[x2]	**Ocean tide solution 1 (GOT) interpolation flag : [x1] Hz [x2] band**		**sc**	**time_[x1]_[x2]**
_FillValue	Default value for unused or not computed elements	127b		1
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	good bad		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	0 = 4 points over ocean; 1 = less than 4 points			1

6.2.4.6.140 Geocentric ocean tide height (FES) interpolation flag

interp_flag_ocean_tide_sol2_[x1]_[x2]	**Ocean tide solution 2 (FES) interpolation flag : [x1] Hz [x2] band**		**sc**	**time_[x1]_[x2]**
_FillValue	Default value for unused or not computed elements	127b		1
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	good bad		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	0 = 4 points over ocean; 1 = less than 4 points			1

6.2.4.6.141 Radiometer along-track averaging flag

rad_along_track_avg_flag_[x1]_[x2]	Radiometer along-track averaging flag : [x1] Hz [x2] band		sc	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	127b		1
flag_values	Flag values	0b, 1b,2b,3b		1
flag_meanings	Flag meanings	good extrapolated degraded fail		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.142 Quality flag for Channel 1 main beam BT

tb_238_quality_flag_[x1]_[x2]	Quality flag of 23.8 GHz main beam brightness temperature based on mean and standard deviation thresholds: [x1] Hz [x2] band		sc	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	127b		1
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	good bad		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.143 Quality flag for Channel 2 main beam BT

tb_365_quality_flag_[x1]_[x2]	Quality flag of 36.5 GHz main beam brightness temperature based on mean and standard deviation thresholds: [x1] Hz [x2] band		sc	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	127b		1
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	good bad		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.144 Use of climatological values for the computation of Sigma0 atmospheric attenuation

climato_use_flag_[x1]_[x2]	Flag indicating the use of climatological values for the computation of Sigma atmospheric attenuation: [x1] Hz [x2] band		sc	time_[x1]_[x2]

_FillValue	Default value for unused or not computed elements	127b		1
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	climato_not_used climato_used		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.145 Waveform peakiness 1

peakiness_1_[x1]_[x2]	Peakiness 1 : [x1] Hz [x2] band		ss	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	count		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-03		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Peakiness as computed for the ENVISAT mission			1

6.2.4.6.146 Waveform peakiness 2

peakiness_2_[x1]_[x2]	Peakiness 2 : [x1] Hz [x2] band		ss	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	32767s		1
units	Unit name	count		1
scale_factor	The data must be multiplied by this factor after reading	1.00e-03		1
add_offset	This offset must be added to the data after reading (and after scaling if needed)	0.000000e+00		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Laxons derivation			1

6.2.4.6.147 “Ice” waveform quality check status

waveform_qual_ice_[x1]_[x2]	“Ice” waveform quality check status : [x1] Hz [x2] band		sc	time_[x1]_[x2]
flag_mask	Flag mask	0b, 1b, 2b, 4b, 8b, 16b, 32b		1
flag_meanings	Flag meanings	waveform_ok total_power_test_failed noise_power_test_failed		1

		variance_test_failed leading_edge_test_failed low_peakiness_test_failed high_peakiness_test_failed		
_FillValue	Default value for unused or not computed elements	127b		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.148 Number of waveforms summed in stack

nb_stack_[x1]_[x2]	Number of waveforms summed in stack in SAR processing : [x1] Hz [x2] band		us	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	65535		1
units	Unit name	count		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	Number of multilooked beams used to form the SAR mode waveform.			1

6.2.4.6.149 Navigation bulletin - Status

nav_bul_status_[x1]_[x2]	navigation bulletin status : [x1] Hz [x2] band		sc	time_[x1]_[x2]
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	ok ko		1
_FillValue	Default value for unused or not computed elements	127b		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	SAR mode: value the closest in time to the reference measurement			1

6.2.4.6.150 Navigation bulletin - Source

nav_bul_source_[x1]_[x2]	navigation bulletin source identifier : [x1] Hz [x2] band		sc	time_[x1]_[x2]
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	gps doris		1
_FillValue	Default value for unused or not computed elements	127b		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	SAR mode: value the closest in time to the reference measurement			1

6.2.4.6.151 Navigation bulletin – Coarse time

nav_bul_coarse_time_[x1]_[x2]	navigation bulletin coarse time : [x1] Hz [x2] band		ul	time_[x1]_[x2]
units	Unit name	second		1
_FillValue	Default value for unused or not computed elements	4294967295		1
comment	SAR mode: value the closest in time to the reference measurement			1

6.2.4.6.152 Navigation bulletin – Fine time

nav_bul_fine_time_[x1]_[x2]	navigation bulletin fine time : [x1] Hz [x2] band		ul	time_[x1]_[x2]
units	Unit name	2-24 second		1
_FillValue	Default value for unused or not computed elements	4294967295		1
comment	SAR mode: value the closest in time to the reference measurement			1

6.2.4.6.153 Quality information at ISP level - Sequence count

seq_count_[x1]_[x2]	sequence count : [x1] Hz [x2] band		us	time_[x1]_[x2]
units	Unit name	count		1
_FillValue	Default value for unused or not computed elements	65535		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	SAR mode: value the closest in time to the reference measurement			1

6.2.4.6.154 Quality information at ISP level - ISP Time Status

isp_time_status_[x1]_[x2]	ISP time status : [x1] Hz [x2] band		sc	time_[x1]_[x2]
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	SRAL_OBT_extrapolated SRAL_OBT_updated_with_SMU_OBT		1
_FillValue	Default value for unused or not computed elements	127b		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	SAR mode: value the closest in time to the reference measurement			1

6.2.4.6.155 Quality information at ISP level - Operating Instrument

oper_instr_[x1]_[x2]	operating instrument : [x1] Hz [x2] band		sc	time_[x1]_[x2]
_FillValue	Default value for unused or not computed elements	127b		1
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	A B		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	SAR mode: value the closest in time to the reference measurement - Instrument A stands for SRAL Nominal and instrument B stands for SRAL Redundant			1

6.2.4.6.156 Tracking configuration - Closed loop gain

cl_gain_[x1]_[x2]	tracking configuration - closed loop gain : [x1] Hz [x2] band		sc	time_[x1]_[x2]
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	Nominal_value Nominal_value_with_back-off		1
_FillValue	Default value for unused or not computed elements	127b		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	SAR mode: value the closest in time to the reference measurement			1

6.2.4.6.157 Tracking configuration - Acquisition

acq_stat_[x1]_[x2]	tracking configuration - acquisition status : [x1] Hz [x2] band		sc	time_[x1]_[x2]
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	no_acquisition acquisition		1
_FillValue	Default value for unused or not computed elements	127b		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	SAR mode: value the closest in time to the reference measurement			1

6.2.4.6.158 Tracking configuration - DEM EEPROM read access

dem_eeprom_[x1]_[x2]	tracking configuration - DEM EEPROM read access : [x1] Hz [x2] band		sc	time_[x1]_[x2]

flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	enabled disabled		1
_FillValue	Default value for unused or not computed elements	127b		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	SAR mode: value the closest in time to the reference measurement			1

6.2.4.6.159 Altimeter configuration : Weighting function

weighting_[x1]_[x2]	**altimeter configuration - weighting function : [x1] Hz [x2] band**		**sc**	**time_[x1]_[x2]**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	enabled disabled		1
_FillValue	Default value for unused or not computed elements	127b		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	SAR mode: value the closest in time to the reference measurement			1

6.2.4.6.160 Loss of track criterion

loss_track_[x1]_[x2]	**loss of track criterion : [x1] Hz [x2] band**		**sc**	**time_[x1]_[x2]**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	normal loss_of_track		1
_FillValue	Default value for unused or not computed elements	127b		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1
comment	SAR mode: value the closest in time to the reference measurement			1

6.2.4.6.161 Manoeuvre presence flag

flag_man_pres_[x1]_[x2]	**manoeuvre presence flag : [x1] Hz [x2] band**		**sc**	**time_[x1]_[x2]**
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	no_manoeuvre ongoing_manoeuvre		1

_FillValue	Default value for unused or not computed elements	127b		1
coordinates	lon_[x1]_[x2] lat_[x1]_[x2]			1

6.2.4.6.162 Manoeuvre thrust flag

flag_man_thrust_[x1]_[x2]	manoeuvre thrust flag : [x1] Hz [x2] band		sc	time_[x1]_[x2]
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	no_thrust ongoing_thrust		1
_FillValue	Default value for unused or not computed elements	127b		1

6.2.4.6.163 Manoeuvre plane flag

flag_man_plane_[x1]_[x2]	manoeuvre plane flag : [x1] Hz [x2] band		sc	time_[x1]_[x2]
flag_values	Flag values	0b, 1b		1
flag_meanings	Flag meanings	in_plane out_of_plane		1
_FillValue	Default value for unused or not computed elements	127b		1

6.3 Annotation Data Files

Not applicable to the L1b and L2 SRAL-MWR products (see [AD-2]).

7. MANIFEST FILE DESCRIPTION

This section describes the content and the structure of the Manifest file for the Sentinel-3 SRAL/MWR product.

Most of the description are common to all products and are therefore described in [AD-2]. Only the IPF specific parts are detailed in this section.

7.1 InformationPackageMap

7.1.1 SRAL "SR_1_SRA___" , "SR_1_SRA_A_" and "SR_1_SRA_BS"

The Information Package Map associated to the package of the Level 1 products (SR_1_SRA___, SR_1_SRA_A_ and SR_1_SRA_A_) is reported in Table 7-1.

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			Identifier of the package	S	"packageUnit"	0..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 SRAL Level 1"	0..1
	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 : "acquisitionPeriod" "platform" "generalProductInformation" "orbitReference" "processing" "qualityInformation" "frameSet" "sralProductInformation"	1
	contentUnit						1
		ID		Content unit ID	S	MesurementUnit	
		unitType			S	"Measurement Data Unit"	1
		textInfo			S	"Measurement Data Set"	0..1
		dmdID		Attribute: Description MetaData Identifier	S		0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	"MeasurementData"	1

Table 7-1: InformationPackageMap for SRAL Level 1 products

7.1.2 SRAL "SR_1_CAL"

The Information Package Map associated to the package of the SR_1_CAL product is reported in Table 7-2.

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			Identifier of the package	S	"packageUnit"	0..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 SRAL Calibration Level 1"	0..1
	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 : "acquisitionPeriod" "platform" "generalProductInformation" "orbitReference" "processing" "qualityInformation" "frameSet" "sralProductInformation"	1
	contentUnit						1
		ID		Content unit ID	S	CalibrationUnit	
		unitType			S	"Calibration Data Unit"	1
		textInfo			S	"Calibration Data Set"	0..1
		dmdID		Attribute: Description MetaData Identifier	S		0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	"CalibrationData"	1

Table 7-2: InformationPackageMap for SRAL Calibration Level 1 products

7.1.3 MWR "MW_1_MWR"

The Information Package Map associated to the package of the MW_1_MWR product is reported in Table 7-3.

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			Identifier of the package	S	"packageUnit"	0..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 MWR Level 1 Measurement Product"	0..1
	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 : "acquisitionPeriod" "platform" "generalProductInformation" "orbitReference" "processing" "qualityInformation" "frameSet" "mwrProductInformation"	1
	contentUnit						1
		ID		Content unit ID	S	MeasurementUnit	1
		unitType			S	"Measurement Data Unit"	1
		textInfo			S	"Measurement Data Set"	0..1
		dmdID		Attribute: Description MetaData Identifier	S		0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	"MeasurementData"	1

Table 7-3: InformationPackageMap for MWR Level 1 products

7.1.4 MWR ”MW_1_CAL”

The Information Package Map associated to the package of the MW_1_CAL product is reported in Table 7-4.

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	0..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 MWR Level 1 Calibration Product”	0..1
	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 : “acquisitionPeriod” “platform” “generalProductInformation” “orbitReference” “processing” “qualityInformation” “frameSet” “mwrProductInformation”	1
	contentUnit						1
		ID		Content unit ID	S	CalibrationUnit	0..1
		unitType			S	“Calibration Data Unit”	1
		textInfo			S	“Calibration Data Set”	0..1
		dmdID		Attribute: Description MetaData Identifier	S		0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	“CalibrationData”	1

Table 7-4: InformationPackageMap for MWR Calibration Level 1 products

7.1.5 SRAL "SR_2_WAT"

The Information Package Map associated to the package of the SR_2_WAT product is reported in the following 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.			1
	ID			Content unit Identifier	S	packageUnit	0..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 SRAL Level 2"	0..1
	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 : "acquisitionPeriod" "processing" "platform" "generalProductInformation" "orbitReference" "qualityInformation" "frameSet" "sralProductInformation"	
	contentUnit						1
		ID		Content unit ID	S	enhancedMeasurementUnit	1
		unitType			S	"Measurement Data Unit"	1
		textInfo			S	"Enhanced Measurement Data Set"	0..1
		dmdID		Attribute: Description MetaData Identifier	S		0..1
		dataObjectPointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	"enhancedMeasurementData"	1
	contentUnit						
		ID		Content unit ID	S	standardMeasurementUnit	1
		unitType			S	"Measurement Data Unit"	1
		textInfo			S	"Standard Measurement Data Set"	0..1
		dmdID		Attribute: Description MetaData Identifier	S		1
		dataObjectPointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	"standardMeasurementData"	1
	contentUnit						
		ID		Content unit ID	S	reducedMeasurementUnit	1
		unitType			S	"Measurement Data Unit"	1
		textInfo			S	"Reduced Measurement Data Set"	0..1
		dmdID		Attribute: Description MetaData Identifier	S		1
		dataObjectPointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	"reducedMeasurementData"	1

Table 7-5: InformationPackageMap for SRAL WAT Level 2 products

7.1.6 SRAL "SR_2_LAN"

The Information Package Map associated to the package of the SR_2_LAN product is the same described for SR_2_WAT.

7.2 Metadata Section

See [AD- 2] for the metadata general description.

7.3 Data Object Section

7.3.1 SRAL "SR_1_SRA___", "SR_1_SRA_A_" and "SR_1_SRA_BS"

The dataObjectSection for SRAL Level 1 products is filled as follows:

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the L1 product.	U	1..*	
	ID			Data Component ID	S	1	"MeasurementData"
	byte Stream			Pointer to the Data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		SR_1_SRA___: "measurement.nc" SR_1_SRA_A__: "measurement_l1a.nc" SR_1_SRA_BS_: "measurement_l1bs.nc"
			textInfo	Textual description of the Data Component	S	0..1	"Measurement Data Object File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 7-6: SRAL Level 1 Specialization dataObject Entity

7.3.2 SRAL ”SR_1_CAL”

The dataObjectSection for SRAL Calibration Level 1 products is filled as follows:

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the L1 product.	U	1..*	
	ID			Data Component ID	S	1	“CalibrationData”
	byte Stream			Pointer to the Data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf”
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		“calibration.nc”
			textInfo	Textual description of the Data Component	S	0..1	“Calibration Data Object File”
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 7-7: SRAL Calibration Level 1 Specialization dataObject Entity

7.3.3 MWR "MW_1_MWR"

The dataObjectSection for MWR Level 1 Measurement products is filled as follows:

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the L1 product.	U	1..*	
	ID			Data Component ID	S	1	"MeasurementData"
	byte Stream			Pointer to the Data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"MeasurementData.nc"
			textInfo	Textual description of the Data Component	S	0..1	"Measurement Data Object File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 7-8: MWR Level 1 Measurement Specialization dataObject Entity

7.3.4 MWR "MW_1_CAL"

The dataObjectSection for MWR Level 1 Calibration products is filled as follows:

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the L1 product.	U	1..*	
	ID			Data Component ID	S	1	"CalibrationData"
	byte Stream			Pointer to the Data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		"MonCalData.nc"
			textInfo	Textual description of the Data Component	S	0..1	"Calibration Data Object File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 7-9: MWR Level 1 Calibration Specialization dataObject Entity

7.3.5 SRAL "SR_2_WAT"/"SR_2_LAN"

SRAL Level 2 dataObjectSection is composed by three Data Objects, having the same composition, except for the ID, href and textInfo fields that can be filled with one of the three values listed in the .

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the L2 product.	U	1..*	
	ID			Data Component ID	S	1	The three possible values are: • "enhancedMeasurementData" • "standardMeasurementData" • "reducedMeasurementData"
	byte Stream			Pointer to the Data Component	U	1..*	
		ID		Byte stream ID	S	0..1	
		mimeType		MIME type for the referenced Data Component	E	1	"application/x-netcdf"
		size		Size of the Data Object File	L	1	
		fileLocation		Description of the location of the data component file	U	1	
			locator Type	Type of the file location	URL	0..1	URL
			href	Relative path of the file (in the file system) containing the referenced Data Component	S		The three possible values are: • "enhanced_measurement.nc" • "standard_measurement.nc" • "reduced_measurement.nc"
			textInfo	Textual description of the Data Component	S	0..1	Measurement Data Object File"
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 7-10: SRAL Level 2 Specialization dataObject Entity

8. XML SCHEMA

The xml schemas used to generate the product manifest are provided as separate files (see AD- 5).

9. PRODUCT SIZE

In the following table the approximate size of each L1b/L2 SRAL and MWR product is given under the following hypothesis:

- Each Level 1b Measurement Data File contains one-orbit data. An orbit represents a time span of two consecutive crossings of the Ascending Node (ANX). For S3 it means ≈ 6060 seconds.
- Duty cycles are for scenario MOS 1 described on [AD- 7]. This scenario assumes that the complete sensing data of the satellite is received and processed.
    - For the SRAL instrument, it was previously assumed in this scenario that the altimeter measurements will be performed in LRM mode for 25% of time and SAR mode for 75% of time. However, based on the recent hypothesis of a 100% SAR activation, in the following table the mode repartition with a 100% SAR mode is provided. The activation of the PLRM processing is considered enabled when the instrument is in SAR mode. We also provide the figures for a 100% LRM scenario.
    - For the MWR instrument, it is assumed that we dispose of 100% measurements.
- No NetCDF compression is applied.
- The figures provided in the next table are based on a theoretical size computation, considering for each product type the list of parameters and their type (hence storage size). It does not take into account any size variation related to the NetCDF storage method

Product type	Size of an individual measurement	Size (MB/Orbit)	Duty cycle
SR_1_SRA___	One second of data (i.e. 1 second of 20-Hz elementary measurements): 24 KB (LRM) 49 KB (SAR)	70 MB 290 MB	Mode repartition: LRM 100% **=> 70 MB** SAR 100 % **=> 290 MB**
SR_1_SRA_A_	-	17.5 GB	SAR 100 % **=> 9.5 GB**
SR_1_SRA_BS	-	18.1 GB	SAR 100 % **=> 18.1 GB**
SR_1_CAL	For one calibration (all CAL elements): 700 KB	N/A	N/A
MW_1_MWR	One 6.66-Hz measurement: 204 bytes	7.6 MB	100% **=> 7.6 MB**

Product type	Size of an individual measurement	Size (MB/Orbit)	Duty cycle
MW_1_CAL	For one calibration sequence: NIR 58 bytes DNB 66 bytes For one monitoring sequence 50 bytes	<1 MB	100% **=> <1 MB**
SR_2_WAT (no mask applied)	One second of data (i.e. including both 20-Hz elementary measurements and 1-Hz corresponding compressed measurements): 49 KB (LRM) 51 KB (SAR/PLRM)	293 MB 310 MB	LRM 100 % **246 MB** (Enhanced file) **46 MB** (Standard file) **790 KB** (Reduced file) **=> 293 MB** SAR/PLRM 100 % **256 MB** (Enhanced file) **52 MB** (Standard file) **1.7 MB** (Reduced file) **=> 310 M**
SR_2_LAN (no mask applied)	One second of data (i.e. including both 20-Hz elementary measurements and 1-Hz corresponding compressed measurements): 49 KB (LRM) 51 KB (SAR/PLRM)	293 MB 310 MB	LRM 100 % **246 MB** (Enhanced file) **46 MB** (Standard file) **790 KB** (Reduced file) **=> 293 MB** SAR/PLRM 100 % **256 MB** (Enhanced file) **52 MB** (Standard file) **1.7 MB** (Reduced file) **=> 310 MB**

Table 9-1: Size of the SRAL/MWR products

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