



PREPARATION AND OPERATIONS OF THE MISSION PERFORMANCE CENTRE
(MPC) FOR THE COPERNICUS SENTINEL-3 MISSION

Product Data Format Specification - OLCI Level 2
Marine Products



*Mission
Performance
Centre*



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TABLE OF CONTENTS

1. INTRODUCTION.....	11
1.1 Purpose and Scope.....	11
1.2 Structure of the Document	11
1.3 Applicable and Reference Documents.....	11
1.3.1 Applicable documents	11
1.3.2 Reference documents	12
1.4 Terms, Definitions and Abbreviated Terms.....	12
1.5 Intellectual property rights for specific parts this document	13
2. OVERVIEW OF THE INSTRUMENT: OLCI.....	ERROR! BOOKMARK NOT DEFINED.
3. PRODUCT OVERVIEW	ERROR! BOOKMARK NOT DEFINED.
3.1 Product Tree	Error! Bookmark not defined.
3.1.1 Science Products Tree	Error! Bookmark not defined.
3.1.2 Browse Products Tree	Error! Bookmark not defined.
3.2 Product Naming Convention	Error! Bookmark not defined.
4. OLCI PRODUCT FORMAT SPECIFICATION: COMMON PART.....	ERROR! BOOKMARK NOT DEFINED.
4.1 General Product Structure	Error! Bookmark not defined.
4.1.1 Package Layout.....	Error! Bookmark not defined.
4.1.2 Manifest file.....	Error! Bookmark not defined.
4.1.2.1 Primary Metadata	Error! Bookmark not defined.
4.1.2.2 Secondary Metadata.....	Error! Bookmark not defined.
4.1.3 Measurement Data Files and Annotation Data Files.....	Error! Bookmark not defined.
4.1.3.1 Common additional global attributes	Error! Bookmark not defined.
4.2 Earth Observation Products.....	Error! Bookmark not defined.
4.2.1 Common Measurement Files	Error! Bookmark not defined.
4.2.1.1 Integrated Water Vapour	Error! Bookmark not defined.
4.2.2 Common Annotation Files	Error! Bookmark not defined.
4.2.2.1 Time Coordinates	Error! Bookmark not defined.
4.2.2.2 Geo Coordinates.....	Error! Bookmark not defined.
4.2.2.3 Geo Coordinates Tie-Points	Error! Bookmark not defined.
4.2.2.4 Geometries Tie-Points	Error! Bookmark not defined.
4.2.2.5 Meteorology Tie-Points.....	Error! Bookmark not defined.
4.2.2.6 Instrument Data	Error! Bookmark not defined.
5. MANIFEST FILE DESCRIPTION: COMMON PART ...	ERROR! BOOKMARK NOT DEFINED.
5.1 Metadata Section	Error! Bookmark not defined.
5.2 Data Object Section	Error! Bookmark not defined.
5.2.1 Common annotation Data Files	Error! Bookmark not defined.
6. XML SCHEMA.....	ERROR! BOOKMARK NOT DEFINED.
7. OLCI PRODUCT FORMAT SPECIFICATION	14
7.1 Earth Observation Products.....	14
7.1.1 Level 2 Water Products: OL_2_WFR___/OL_2_WRR___	14
7.1.1.1 Package Description.....	14
7.1.1.2 Manifest File.....	16
7.1.1.3 Measurement Data Files.....	17
7.1.1.4 Annotation Data Files	25
7.2 Browse Products	29
7.2.1 Manifest File	29
7.2.1.1 Wrapped Metadata	29
7.2.2 Level 2 products: OL_2_WFR_BW/OL_2_WRR_BW	30
7.2.2.1 Package Description.....	30
7.2.2.2 Measurement Data Files.....	31
8. MANIFEST FILE DESCRIPTION	32
8.1 InformationPackageMap	32
8.1.1 "OL_2_WFR___/OL_2_WRR___" Level 2 Products.....	32

8.1.2	“OL_2_WFR_BW/OL_2_WRR_BW” L2 Browse Products.....	36
8.2	Metadata Section	36
8.3	Data Object Section	37
8.3.1	Measurement Data File	37
8.3.1.1	“OL_2_WFR/OL_2_WRR” Level 2 Products	37
8.3.1.2	“OL_2_WFR_BW/OL_2_WRR_BW” L2 Browse Products.....	43
8.3.2	Specific Annotation Data File	45
9.	PRODUCT SIZE	46
9.1	OLCI Level 2 Water product (OL_2_WFR___/OL_2_WRR___)	46
9.2	Browse products	46

LIST OF FIGURES

Figure 3-1: OLCI Product Tree	Error! Bookmark not defined.
Figure 4-1: XFDU package.....	Error! Bookmark not defined.

LIST OF TABLES

Table 1-1: Document Structure	11
Table 3-1: OLCI products tree	Error! Bookmark not defined.
Table 3-2: OLCI Browse Products Tree	Error! Bookmark not defined.
Table 3: Additional global attributes common to OLCI L1 and L2 products	Error! Bookmark not defined.
Table 4-4: OL_2_WFR___/OL_2_WRR___/ OL_2_LFR___/OL_2_LRR IWV description	Error! Bookmark not defined.
Table 4-5: Time annotation data file description	Error! Bookmark not defined.
Table 4-6: Geo coordinates annotation data file description	Error! Bookmark not defined.
Table 4-7: Geo coordinates tie points annotation data file description ...	Error! Bookmark not defined.
Table 4-8: Geometries tie points annotation data file description	Error! Bookmark not defined.
Table 4-9: Meteorological tie points annotation data file description	Error! Bookmark not defined.
Table 4-10: Instrument data annotation data file description	Error! Bookmark not defined.
Table 5-1: Time coordinates Metadata Object	Error! Bookmark not defined.
Table 5-2: Geo-coordinates Metadata Object	Error! Bookmark not defined.
Table 5-3: Tie geo-coordinates Metadata Object	Error! Bookmark not defined.
Table 5-4: Tie geometries Metadata Object	Error! Bookmark not defined.
Table 5-5: Tie meteo Metadata Object	Error! Bookmark not defined.
Table 5-6: Instrument data Metadata Object.....	Error! Bookmark not defined.
Table 5-73: OLQC annotation Metadata Object.....	Error! Bookmark not defined.
Table 7-1: OLCI Level 2 Water product physical composition	16
Table 7-2: Secondary Metadata for OLCI products.....	17
Table 7-3: OL_2_WFR___/OL_2_WRR___ Oa##_reflectance description.....	17
Table 7-4: OL_2_WFR___/OL_2_WRR___ chl_oc4me description.....	18
Table 7-5: OL_2_WFR___/OL_2_WRR___ chl_nn description.....	19

Table 7-6: OL_2_WFR___/OL_2_WRR___ tsm_nn description	20
Table 7-7: OL_2_WFR___/OL_2_WRR___ trsp description	21
Table 7-8: OL_2_WFR___/OL_2_WRR___ iop_nn description	22
Table 7-9: OL_2_WFR___/OL_2_WRR___ par description	23
Table 7-10: OL_2_WFR___/OL_2_WRR___ w_aer description	24
Table 7-11: OL_2_WFR___/OL_2_WRR___ flags description.....	25
Table 7-12: OL_2_WFR___/OL_2_WRR___ Water products Quality and Science flags meaning	27
Table 7-13: OL_2_WFR___/OL_2_WRR___ : Water Products Quality Masking	28
Table 7-14: OLCI Full/Reduced Resolution Browse L2 Product physical composition.....	30
Table 8-1: Information Package Map for L2 OLCI Water products	35
Table 8-2: Information Package Map for L2 OLCI Browse Products	36
Table 8-3: OL_2_WFR/OL_2_WRR Level 2 Data Objects	43
Table 8-4: OLCI Browse Level 2 Data Object	44
Table 8-5: Wqsf Metadata Object.....	45
Table 9-1: OL_2_WFR___/OL_2_WRR___ product size	46

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 and DR2 release
1.2	12 Feb 2013	Change of Template
1.3	04 Dec. 2013	DR2 update
1.4	24 Mar 2014	RIDs and SPRs correction update
1.5	31 Mar 2014	PDGS PRE-V2 alignment
1.6	15 May 2014	DV2 update
1.7	23 July 2014	Correction of typos
1.8	18 Nov 2014	Correct error on reduced resolution product size
1.9	10 Feb 2015	Update references
1.10	28 May 2015	Implementation of the launch critical changes
2.0	30 May 2016	Implementation of the minor changes
2.2	09 Oct 2017	Documentation split into: L1, L2 land and L2 marine volumes
2.3	24 Oct 2019	Implementation of CR-15: New turbid atmosphere flag

Document Change Record

No.	Change in Issue	Description	Affected Section
1	1.1	S3IPF-319: length of product type set to 11 characters.	
2	1.1	S3IPF-372: Secondary metadata for OLCI L1 SPC is maintained in Excel file only.	
3	1.1	S3IPF-390: browse product manifest description pushed to metadata specification document	
4	1.1	S3IPF-450: global attributes are referred to from the "product structures" volume of the PDS.	
5	1.1	S3IPF-451: CF standard name use is defined in the product structure volume.	
6	1.1	S3IPF-456 and S3IPF-487: Quality flags details provided.	

No.	Change in Issue	Description	Affected Section
7	1.1	S3IPF-457: manifest content refers to Excel file. Clarification on the number of browse images.	
8	1.1	S3IPF-458: References and links repaired throughout the document.	
9	1.1	S3IPF-472: Secondary metadata for OLCI L1 SPC is maintained in Excel file only.	
10	1.1	S3IPF-475: Manifest section reviewed	
11	1.1	S3IPF-485: global attributes are referred to from the "product structures" volume of the PDS. All justification for not including all attributes are in this document.	
12	1.1	S3IPF-486: DEM_corrected_longitude changed to longitude (same for latitude).	
13	1.1	S3IPF-507: column availability to the user removed.	
14	1.1	S3IPF-520: add caption to tables, correct TOC errors, correct wrong references.	
15	1.2	Change of template.	Entire document
16	1.3	S3IPF-390: secondary metadata reference for Browse products removed	4.4
17	1.3	S3IPF-457: Improve browse product description	4.4.3
18	1.3	S3IPF-487: Straylight risk flag included in the flag definitions	4.2.1.3.1
19	1.3	S3IPF-913 and 912: special changed to spatial, radiometric to spectral	7.1.3
20	1.3	S3IPF-922: change manifest name in table 4-1 and link to section	4.2.1.1
21	1.3	S3IPF-928: clarify the scope of table 4-22	4.2.2.4.1.2
22	1.3	S3IPF-929: harmonize the definition of the global attributes	4.3.2.4.2
23	1.3	S3IPF-792 and 930: remove the reference to specific metadata and to DPM	4.4.1
24	1.3	S3IPF-794: update of AD references	5.2

No.	Change in Issue	Description	Affected Section
25	1.3	S3IPF-932: package map of the products updated	5.1
26	1.3	S3IPF-687: Section 4.2.1.2 renamed to Manifest file	4.2.1.2
27	1.3	S3IPF-689 and 793: Reference to SLSTR removed	5
27	1.3	S3IPF-686: Package summary completed, introductory sentence reworded	4.2.1.1
28	1.3	S3IPF-692: Size of the products updated	7
29	1.3	S3IPF-693: Driver TN reference replaced	7.1.1
30	1.3	S3IPF-691: Driver TN reference replaced with product structure document	5.2
31	1.3	S3IPF-694: List of AD and RD updated	1.3
32	1.3	S3IPF-699: OLQC section removed	4.2.2.4.2
33	1.3	S3IPF-787: IWV description moved to a common section for water and land products	4.2.2.3, 4.2.3.3
34	1.3	S3IPF-789: water replaced with land in description field	4.2.3.1.1
35	1.3	S3IPF-790: clarification for reference pressuer levels variable	4.2.4.5
36	1.3	Harmonization for S3IPF-696	4.1.2
37	1.3	S3IPF-907: RISKGLINT changed to HIGHGLINT	4.2.2.4.1.1
38	1.4	Information package map and data object section update	5.1, 5.3
39	1.5	Wrong ADFS reference (S3IPF-457)	4.4
40	1.5	AD reference update	1.3.1
41	1.6	AD reference update	1.3.1
42	1.7	Correct typos in the content of instrument_data.nc file	Table 4-1, 4.2, 4-9, 4-22
43	1.8	Correct error on product size for the RR (1 TP every row)	7
44	1.8	Remove unit for Level 2 reflectance	4.2.2.3.1
45	1.9	Reference update	1.3
46	1.10	Additional global attributes	4.1.3.1
47	1.10	Complete product variable attributes	4.2
48	1.10	Addition of OTCI_quality_flags variable	4.2.3.3.2

No.	Change in Issue	Description	Affected Section
49	1.10	Deletion of flag OTCI_CLASS_ANG	4.2.3.4.1
50	2.2	Common and Level 2 Marine information are gathered in a separate document	
51	2.3	New turbid atmosphere flag	Table 7-12 section 7.1.1.4.1.1

1. INTRODUCTION

1.1 Purpose and Scope

This document aims to identify and specify the format of Sentinel 3 OLCI Level 2 Marine products, browse products included.

1.2 Structure of the Document

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

Chapter Number	Title	Contents
1	INTRODUCTION	This section.
2	OVERVIEW OF THE INSTRUMENT: OLCI	A description of the main features and characteristics of the OLCI instrument is provided here.
3	PRODUCT OVERVIEW	The Product Tree for OLCI instruments and the product names convention are specified here.
4	OLCI PRODUCT FORMAT: COMMON PART	In this section the format of each OLCI common elements is specified. NetCDF Data Files of each product are reported in this section.
5	MANIFEST FILE: COMMON PART	In this section details for the implementation of the common part of the manifest file is provided.
6	XML SCHEMAS	In this section details of the schemas used to generate the manifest is provided.
7	OLCI PRODUCT FORMAT	In this section the format of each OLCI Level 2 Marine is specified. NetCDF Data Files of each product are reported in this section.
8	MANIFEST FILE	In this section details for the implementation of the manifest file is provided.
9	PRODUCT SIZE	In this section the size of each file composing the OLCI products is 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, 1.4, 24/06/2016
AD- 2	Product Data Format Specification - Product Structures	S3IPF.PDS.002, Issue 1.7, 09/10/2017
AD- 3	Drivers for the S3 PDGS Processing Function Implementation	GMES-GSEG-EOPG-TN-11-0062, i1r7, 27/06/2014
AD- 4	Metadata Specification, Excel document	S3IPF.PDS.008, i3r4 – 09/10/2017
AD- 5	XML Schemas.zip – Zip file containing all the schemas used to represent the metadata	S3IPF PDS 009, i3r1 – 09/10/2017
AD- 6	Sentinel SAFE Control Book Volume 1 – Core Specifications	GAEL-P264-DOC-0001-01-01, i1r1, 05/06/2012
AD- 7	Auxiliary Data Format Specification – OLCI Level 2	S3IPF.PDS.007.2, i2r9 09/10/2017
AD-8	Product Data Format Specification – OLCI Level 2 Land	S3IPF.PDS.004.2, Issue 2.2 09/10/2017

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	Product Data Format Specification - Level 0	S3IPF.PDS.001, i1r8, 09/10/2017
RD- 3	Sentinel 3 Level 0, Level 1a/b/c Products Definition Part 2: Optical Products. Volume 1: Introduction, Conventions, and Common Structures (SY-4)	S3-RS-ACR-SY-00001, i8r0, 30/01/2015
RD- 4	Sentinel-3 Level 0, Level 1a/b/c Products Definition Part 2: Optical Products Volume 2: OLCI L0, L1b Products (SY-4)	S3-RS-ACR-SY-00004, i8r1, 17/04/2015
RD- 5	Sentinel-3 Optical products and Algorithm Definition: OLCI Product Definition	S3-L2-SD-05-C-ACR-PD, i2r5A, 25/09/2012
RD- 6	Sentinel-3 Optical products and Algorithm Definition: OLCI Level 2 Input Output Data Description	S3-L2-SD-08-C-ACR-IODD, i2r11.A, 07/02/2014

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 4.2.1 and sub-sections	Document Title: Sentinel-3 Optical products and Algorithm Definition: OLCI Product Definition Document Reference: S3-L2-SD-05-C-ACR-PD Issue: i2r5.A Date: 25/09/2012
Section 4.2.2 and sub-sections	
Section 7.1.1.3 and sub-sections	Document Title: Sentinel-3 Optical products and Algorithm Definition: OLCI Level 2 Input Output Data Description Document Reference: S3-L2-SD-08-C-ACR-IODD Issue: i2r10.A Date: 25/09/2012
Section 7.1.1.4 and sub-sections	

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2. OLCI PRODUCT FORMAT SPECIFICATION

2.1 Earth Observation Products

2.1.1 Level 2 Water Products: OL_2_WFR___/OL_2_WRR___

2.1.1.1 Package Description

An “OL_2_WFR___/OL_2_WRR___” product is composed by a 24 measurement files containing:

- 16 reflectance files containing the Water-leaving reflectance for all bands except those dedicated to measurement of atmospheric gas (O13, O14, O15, O19, and O20) absorption.
- OC4Me Chlorophyll concentration file
- Neutral Net Chlorophyll concentration file
- Neutral Net Total suspended Matter concentration file
- Transparency Products file
- A Neural Net Water inherent Optical Properties file
- A Photosynthetically Active Radiation file
- Aerosol Over Water file
- Integrated Water Vapour (see **Error! Reference source not found.**)

2.1.1.1.1 OL_2_WFR___/ OL_2_WRR___ product summary

Product Package Type OL_2_WFR___, OL_2_WRR___		<i>Description</i> Water and atmospheric geophysical products at full spatial resolution / at reduced spatial resolution			
Product Level	Diss. Timeliness	Product Category	Application Domain	Spatial Resolution	
2	NRT NTC	Available to the user	MRT ATM	300m / 1km	
Product Dissemination Unit Frame (OL_2_WFR___)/ Stripe (OL_2_WRR___)		Number of Package components	Number of Measurement Data Files	Number of Annotation Data Files	Number of Representation Information Files
		33 ¹	24	7	0
Product Package Structure					
Manifest file (see sections 2.1.1.2 and 3 for more details)					
File name			Composition		
xfdumainifest.xml			XML fields		
Measurement Data files (see section 2.1.1.3 for more details)					N.O
File name			Composition		
Oa01_reflectance.nc			Oa01_reflectance, Oa01_reflectance_err		X
Oa02_reflectance.nc			Oa02_reflectance, Oa02_reflectance_err		X
...continue			...continue		
Oa12_reflectance.nc			Oa12_reflectance, Oa12_reflectance_err		X
Oa16_reflectance.nc			Oa16_reflectance, Oa16_reflectance_err		X
Oa17_reflectance.nc			Oa17_reflectance, Oa17_reflectance_err		X
Oa18_reflectance.nc			O18_reflectance, Oa18_reflectance_err		X
Oa21_reflectance.nc			Oa21_reflectance, Oa21_reflectance_err		X
chl_oc4me.nc			CHL_OC4ME, CHL_OC4ME_err		
chl_nn.nc			CHL_NN, CHL_NN_err		
tsm_nn.nc			TSM_NN, TSM_NN_err		
trsp.nc			KD490_M07, KD490_M07_err		
iop_nn.nc			ADG_443_NN, ADG_443_NN_err		
par.nc			PAR, PAR_err		

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

w_aer.nc	T865, T865_err, A865, A865_err	
iwv.nc	IWV, IWV_err	
Annotation Data files (see sections Error! Reference source not found. and 2.1.1.4 for more details)		N.O
File name	Composition	
time_coordinates.nc	time_stamp	
geo_coordinates.nc	longitude, latitude and altitude	
wqsf.nc	WQSF	
tie_geo_coordinates.nc	longitude, latitude	
tie_geometries.nc	SZA, SAA, OZA, OAA	
tie_meteo.nc	horizontal_wind, sea_level_pressure, total_ozone, humidity, reference_pressure_level, atmospheric_temperature_profile, total_columnar_water_vapour	
instrument_data.nc	lambda0, FWHM, Solar Flux, detector_index, frame_offset, relative_spectral_covariance	
Representation Information Files		N.O
File name	Composition	
none		

Table 2-1: OLCI Level 2 Water product physical composition

2.1.1.2 Manifest File

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

2.1.1.2.1 Wrapped 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 OLCI instrument are reported in Table 2-2. 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 2-2: Secondary Metadata for OLCI products

2.1.1.3 Measurement Data Files

2.1.1.3.1 Reflectance

Each reflectance file is composed of reflectances at the band Oa## on the product grid, and their corresponding error estimates. Reflectance variable corresponds to both BAC or AAC: baseline or alternative atmospheric correction models.

Element name	Description	Range or value	T	D
rows	Number of rows in the product image			
columns	Number of columns in the product image	FR: 4865 RR: 1217		
<common global attributes>	Common global attributes (including additional as defined in Error! Reference source not found.)			
Atmospheric_Correction	Model of atmospheric correction applied during the processing	AAC or BAC	st	1
Oa##_reflectance	Reflectance for OLCI acquisition band ##		us	rows columns
_FillValue	Value indicating missing data	65535		1
scale_factor	Scaling factor used in decoding packed data			1
add_offset	Offset used to in decoding packed data			1
Oa##_reflectance_err	Error estimates for OLCI acquisition band ##		us	rows columns
_FillValue	Value indicating missing data	$2^{16} - 1$		1
scale_factor	Scaling factor used in decoding packed data			1
add_offset	Offset used to in decoding packed data			1

Table 2-3: OL_2_WFR___/OL_2_WRR___ Oa##_reflectance description

2.1.1.3.2 OC4Me Chlorophyll concentration file

Element name	Description	Range or value	T	D
rows	Number of rows in the product image			
columns	Number of columns in the product image	FR: 4865 RR: 1217		
<common global attributes>	Common global attributes (including additional as defined in Error! Reference source not found.)			
CHL_OC4ME	log10 scaled (OC4ME) Algal pigment concentration		uc	rows columns
_FillValue	Value indicating missing data	255		1
units	UDUNITSunit name	mg.m-3		
scale_factor	Scaling factor used in decoding packed data			1
add_offset	Offset used to in decoding packed data			1
CHL_OC4ME_err	log10 scaled Error estimate for the (OC4ME) algal pigment concentration		uc	rows columns
units	UDUNITS unit name	mg.m-3		1
_FillValue	Value indicating missing data	255		1
scale_factor	Scaling factor used in decoding packed data			1
add_offset	Offset used to in decoding packed data			1

Table 2-4: OL_2_WFR___/OL_2_WRR___ chl_oc4me description

2.1.1.3.3 Neutral Net Chlorophyll concentration file

Element name	Description	Range or value	T	D
rows	Number of rows in the product image			
columns	Number of columns in the product image	FR: 4865 RR: 1217		
<common global attributes>	Common global attributes (including additional as defined in Error! Reference source not found.)			
CHL_NN	log10 scaled (Neural Net) Algal pigment concentration		uc	rows columns
units	UDUNITS unit name	mg.m-3		1
_FillValue	Value indicating missing data	255		1
scale_factor	Scaling factor used in decoding packed data			1
add_offset	Offset used to in decoding packed data			1
CHL_NN_err	log10 scaled Error estimate for the (Neural Net) algal pigment concentration		uc	rows columns
units	UDUNITS unit name	mg.m-3		1
_FillValue	Value indicating missing data	255		1
scale_factor	Scaling factor used in decoding packed data			1
add_offset	Offset used to in decoding packed data			1

Table 2-5: OL_2_WFR___/OL_2_WRR___ chl_nn description

2.1.1.3.4 Neutral Net Total Suspended Matter concentration file

Element name	Description	Range or value	T	D
rows	Number of rows in the product image			
columns	Number of columns in the product image	FR: 4865 RR: 1217		
<common global attributes>	Common global attributes (including additional as defined in Error! Reference source not found.)			
TSM_NN	log10 scaled (Neural Net) Total suspended matter concentration		uc	rows columns
units	UDUNITS unit name	g.m-3		1
_FillValue	Value indicating missing data	255		1
scale_factor	Scaling factor used in decoding packed data			1
add_offset	Offset used to in decoding packed data			1
TSM_NN_err	log10 scaled Error estimate for the (Neural Net) Total suspended matter concentration		uc	rows columns
units	UDUNITS unit name	g.m-3		1
_FillValue	Value indicating missing data	255		1
scale_factor	Scaling factor used in decoding packed data			1
add_offset	Offset used to in decoding packed data			1

Table 2-6: OL_2_WFR___/OL_2_WRR___ tsm_nn description

2.1.1.3.5 Transparency Products file

Element name	Description	Range or value	T	D
rows	Number of rows in the product image			
columns	Number of columns in the product image	FR: 4865 RR: 1217		
<common global attributes>	Common global attributes (including additional as defined in Error! Reference source not found.)			
KD490_M07	log10 scaled (M07) Diffuse attenuation coefficient		uc	rows columns
units	UDUNITS unit name	m-1		1
_FillValue	Value indicating missing data	255		1
scale_factor	Scaling factor used in decoding packed data			1
add_offset	Offset used to in decoding packed data			1
KD490_M07_err	log10 scaled Error estimate for the (M07) Diffuse attenuation coefficient		uc	rows columns
units	UDUNITS unit name	m-1		1
_FillValue	Value indicating missing data	255		1
scale_factor	Scaling factor used in decoding packed data			1
add_offset	Offset used to in decoding packed data			1

Table 2-7: OL_2_WFR___/OL_2_WRR___ trsp description

2.1.1.3.6 Neural Net Water inherent Optical Properties file

Element name	Description	Range or value	T	D
rows	Number of rows in the product image			
columns	Number of columns in the product image	FR: 4865 RR: 1217		
<common global attributes>	Common global attributes (including additional as defined in Error! Reference source not found.)			
ADG443_NN	log10 scaled (Neural Net) CDM absorption coefficient		uc	rows columns
units	UDUNITS unit name	m-1		1
_FillValue	Value indicating missing data	255		1
scale_factor	Scaling factor used in decoding packed data			1
add_offset	Offset used to in decoding packed data			1
ADG443_NN_err	log10 scaled Error estimate for the (Neural Net) CDM absorption coefficient		uc	rows columns
units	UDUNITS unit name	m-1		1
_FillValue	Value indicating missing data	255		1
scale_factor	Scaling factor used in decoding packed data			1
add_offset	Offset used to in decoding packed data			1

Table 2-8: OL_2_WFR___/OL_2_WRR___ iop_nn description

2.1.1.3.7 Photosynthetically Active Radiation file

Element name	Description	Range or value	T	D
rows	Number of rows in the product image			
columns	Number of columns in the product image	FR: 4865 RR: 1217		
<common global attributes>	Common global attributes (including additional as defined in Error! Reference source not found.)			
PAR	Photosynthetically active radiation of the current water pixel		uc	rows columns
units	UDUNITS unit name	W.m-2		1
_FillValue	Value indicating missing data	255		1
scale_factor	Scaling factor used in decoding packed data			1
add_offset	Offset used to in decoding packed data			1
PAR_err	Error estimate for the Photosynthetically active radiation of the current water pixel		uc	rows columns
units	UDUNITS unit name	W.m-2		1
_FillValue	Value indicating missing data	255		1
scale_factor	Scaling factor used in decoding packed data			1
add_offset	Offset used to in decoding packed data			1

Table 2-9: OL_2_WFR___/OL_2_WRR___ par description

2.1.1.3.8 Aerosol Over Water file

Element name	Description	Range or value	T	D
rows	Number of rows in the product image			
columns	Number of columns in the product image	FR: 4865 RR: 1217		
<common global attributes>	Common global attributes (including additional as defined in Error! Reference source not found.)			
T865	Aerosol optical thickness of the current water pixel		uc	rows columns
_FillValue	Value indicating missing data	255		1
scale_factor	Scaling factor used in decoding packed data			1
add_offset	Offset used to in decoding packed data			1
T865_err	Error estimate for the Aerosol optical thickness of the current water pixel		uc	rows columns
_FillValue	Value indicating missing data	255		1
scale_factor	Scaling factor used in decoding packed data			1
add_offset	Offset used to in decoding packed data			1
A865	Aerosol Angström exponent of the current water pixel		uc	rows columns
_FillValue	Value indicating missing data	255		1
scale_factor	Scaling factor used in decoding packed data			1
add_offset	Offset used to in decoding packed data			1
A865_err	Error estimate for the Aerosol Angström exponent of the current water pixel		uc	rows columns
_FillValue	Value indicating missing data	255		1
scale_factor	Scaling factor used in decoding packed data			1
add_offset	Offset used to in decoding packed data			1

Table 2-10: OL_2_WFR___/OL_2_WRR___ w_aer description

2.1.1.4 Annotation Data Files

2.1.1.4.1 Ocean Products Quality & Science Flags file

Element name	Description	Range or value	T	D
rows	Number of rows in the product image			
columns	Number of columns in the product image	FR: 4865 RR: 1217		
<common global attributes>	Common global attributes (including additional as defined in Error! Reference source not found.)			
WQSF	Classification flags, quality and science flags for Marine and Inland Waters products.		ull	rows columns
_FillValue	Value indicating missing data	TBD		1

Table 2-11: OL_2_WFR___/OL_2_WRR___ flags description

2.1.1.4.1.1 Water products Quality and Science flags description and coding

Bit	Flag Name	Flag Description	
Classification and Quality Flags			
00	INVALID	Invalid flag: instrument data missing or invalid	ALL
01	WATER	Clear sky water	ALL
02	LAND	Clear sky land	ALL
03	CLOUD	Cloudy pixel.	ALL
04	SNOW_ICE	Possible sea ice or snow contamination	ALL
05	INLAND_WATER	Fresh inland waters flag: based on Level 1 land_water flag.	ALL

Bit	Flag Name	Flag Description	
06	TIDAL	Pixel is in shallow water; based on Level 1 land_water flag.	ALL
07	COSMETIC	Cosmetic flag (from level-1b): Missing data filled in by interpolation.	ALL
08	SUSPECT	Suspect flag (from level-1b): Transmission errors means measurements may be unreliable.	ALL
09	HISOLZEN	High solar zenith; $\theta_s > 70$ degrees	ALL
10	SATURATED	Saturation flag; saturated within any band from 400 to 754 nm or in bands 779, 865, 885 & 1020 nm.	Oa##_reflectance: whenever saturated, the reflectance of the corresponding channel is set to _FillValue
11	MEGLINT	Flag for pixels corrected for glint (see ATBD SD-03-C09 for details).	BAC mode: all but IWV AAC mode: none Parallel AC mode: all but IWV, TSM_NN, CHL_NN, ADG443_NN
12	HIGHGLINT	Flag for pixels for which the glint correction is not reliable (see ATBD SD-03-C09 for details).	Same as above
13	WHITECAPS	Whitecaps flag. See ATBD SD-03-C06 for details.	Same as above
14	ADJAC	Meaningless – reserved for future use.	N/A
15	WV_FAIL	The Water Vapour Retrieval algorithm failed	IWV
16	PAR_FAIL	PAR calculation failed. Internal flag is OC_PAR_FAIL.	PAR
17	AC_FAIL	Atmospheric correction is suspect	BAC mode: all but IWV AAC mode: all but IWV Parallel AC mode: All but IWV, TSM_NN, CHL_NN, ADG443_NN
18	OC4ME_FAIL	OC4Me algorithm failed	CHL_OC4ME
19	OCNN_FAIL	IMT NN algorithm failed	TSM_NN, CHL_NN, ADG443_NN

Bit	Flag Name	Flag Description
21	KDM_FAIL	KDM07 algorithm failed KD490_M07
22	TURBID_ATM	Turbid atmosphere pixel ALL
23	CLOUD_AMBIGUOUS	Ambiguous cloudy pixel ALL
24	CLOUD_MARGIN	Dilatation around (CLOUD+CLOUD_AMBIGUOUS) ALL
Science flags		
25	BPAC_ON	BWAC was switched on and attempted. See ATBD SD-03-C08 for details.
26	WHITE_SCATT	“White” scatterer flag within the water. See ATBD SD-03-C08 for details.
27	LOWRW	$(\rho'_w(b, j, f) < R560MIN)$ or HIINLD_F raised
28	HIGHRW	High RW at 560nm or CASE2_F raised
25-31	SPARE	Unaffected (not used, not set)
32-39	ANNOT	Annotation flag for the quality of the atmospheric correction (see OLCI DPM Table 5.3-32 in Section 5.3.4.3.14, [RD- 3])
40-47	RWNEG	Provides a “negative water-leaving reflectance” flag for each water-leaving reflectance band (in this byte: O1A to O8A, 400 to 665 nm). Bit number increases with band number.
48-55	RWNEG	Provides a “negative water-leaving reflectance” flag for each water-leaving reflectance band (in this byte, O9A to O12A, O16A to O18A, O21A or 674 to 754 nm, 779, 865, 885 & 1020 nm). Bit number increases with band number.
56-63	SPARE	Unaffected (not used, not set)

Table 2-12: OL_2_WFR___/OL_2_WRR___ Water products Quality and Science flags meaning

Note: the bit number *nn* means that value 2^{nn} is set to 1 in the flag register pertaining to a given pixel.

2.1.1.4.1.2 *Water Products Quality Masking*

The scope of the following table is to associate a quality flag to each of the geophysical parameter; it is therefore the reverse mapping wrt the above table.

Product Name	Quality Mask (set means missing data or degraded quality)
Oa##_reflectance	AC_FAIL
CHL_OC4ME	OC4ME_FAIL
ADG443_NN	OC_NN_FAIL
CHL_NN	OC_NN_FAIL
TSM_NN	OC_NN_FAIL
KD490_M07	KDM_FAIL
PAR	PAR_FAIL
T865 A865	AC_FAIL
IWV	WV_FAIL

Table 2-13: OL_2_WFR___/OL_2_WRR___ : Water Products Quality Masking

NOTE: ## in Oa##_reflectance above stands for the rounded central wavelength of the spectral channels and belongs to {400, 413, 443, 490, 510, 560, 620, 665, 674, 681, 709, 754, 779, 865, 885, 1020}

2.2 Browse Products

A browse product consists of a collection of metadata information gathered in the xfdumanifest.xml files and of one or more browse images. The images can represent one or several parameters or combination of parameters stored in one or several image formats.

2.2.1 Manifest File

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

2.2.1.1 Wrapped Metadata

According to [AD- 2], Wrapped Metadata are grouped in Primary Metadata, common to all Sentinel 3 products.

Regarding the primary metadata: the fields are the same of the parent product, with different values for some fields (which are filled by the browse processor). There is no secondary metadata section for the browse products.

2.2.2 Level 2 products: OL_2_WFR_BW/OL_2_WRR_BW

2.2.2.1 Package Description

2.2.2.1.1 OL_2_WFR_BW/OL_2_WRR_BW product summary

Product Package Type OL_2_WFR_BW, OL_2_WRR_BW,		<i>Description</i> OLCI Full/Reduced Resolution Browse L2 Product general structure			
Product Level	Diss. Timeliness	Product Category	Application Domain		Spatial Resolution
2	(NRT) (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 2.2.1 and 3 for more details)					
File name			Composition		
xfdumanifest.xml			XML fields		
Measurement Data files (see section 2.2.2.2 for more details)					N.O
File name			Composition		
<scientificData>_BrwImage.<ext>			Pseudo color image referred to the scientific data indicated into the component filename		
Annotation Data files					N.O
File name			Composition		
none					
Representation Information Files					N.O
File name			Composition		
none					

Table 2-14: OLCI Full/Reduced Resolution Browse L2 Product physical composition

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

2.2.2.2 Measurement Data Files

The Browse products contain one or more images corresponding respectively to one or more scientific data. The list of allowed parameters is provided in the processing control parameter file description, section 10.3.2 in AD- 7 ("scientific Fields" container, "Field" parameter). The number of fields to process is set through the 'count' attribute.

The product may contain one or several browse images representing one or several parameters in the allowed image formats (see list of accepted formats in AD- 2 for the list)

3. MANIFEST FILE DESCRIPTION

The purpose of this section is to describe in detail all the data sets that are included with any of the Sentinel-3 OLCI 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.

3.1 InformationPackageMap

3.1.1 “OL_2_WFR___/OL_2_WRR___” Level 2 Products

The Information Package Map associated to the package of the OL_2_WFR___/OL_2_WRR___ products is reported in the next table.

Name				Description	Data Type	Value	Occ.
contentUnit				The information package map contains one content unit that includes the product data component included in the product.	Content Unit Type		1
	ID			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 OLCI Level 2 Water 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" "orbitReference" "qualityInformation" "processing" "frameSet" "generalProductInformation" "olciProductInformation"	1
	contentUnit						0..16
		ID		Content unit ID	S	Oaxx_reflectanceUnit xx = 01, ..., 12, 16, 17, 18, 21	1
		unitType			S	“Measurement Data Unit”	1
		textInfo			S	Reflectance for OLCI acquisition band Oaxx xx = 01, ..., 12, 16, 17, 18, 21	0..1
		dmdID		Attribute: Description Metadata Identifier	S	In any order: ‘geoCoordinatesData’ ‘timeCoordinatesData’ “wqsfData”	0..1
		dataObjectPointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectID	Data Object element ID	S	“Oaxx_reflectanceData”, xx = 01, ..., 12, 16, 17, 18, 21	1
	contentUnit						0..1
		ID		Content unit ID	S	chlOc4meUnit	1
		unitType			S	“Measurement Data Unit”	1
		textInfo			S	“OC4Me algorithm Chlorophyll concentration”	0..1

Name				Description	Data Type	Value	Occ.
		dmdID		Attribute: Description Metadata Identifier	S	In any order: 'geoCoordinatesData' 'timeCoordinatesData' "wqsfData"	0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectI D	Data Object element ID	S	"chlOc4meData"	1
	contentUnit						0..1
		ID		Content unit ID	S	chlNnUnit	1
		unitType			S	"Measurement Data Unit"	1
		textInfo			S	"Neural Net Chlorophyll concentration"	0..1
		dmdID		Attribute: Description Metadata Identifier	S	In any order: 'geoCoordinatesData' 'timeCoordinatesData' "wqsfData"	0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectI D	Data Object element ID	S	"chlNnData"	1
	contentUnit						0..1
		ID		Content unit ID	S	tsmNnUnit	1
		unitType			S	"Measurement Data Unit"	1
		textInfo			S	"Total suspended matter concentration"	0..1
		dmdID		Attribute: Description Metadata Identifier	S	In any order: 'geoCoordinatesData' 'timeCoordinatesData' "wqsfData"	0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectI D	Data Object element ID	S	"tsmNnData"	1
	contentUnit						0..1
		ID		Content unit ID	S	trspUnit	1
		unitType			S	"Measurement Data Unit"	1
		textInfo			S	"Transparency properties of water"	0..1
		dmdID		Attribute: Description Metadata Identifier	S	In any order: 'geoCoordinatesData' 'timeCoordinatesData' "wqsfData"	0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectI D	Data Object element ID	S	"trspData"	1
	contentUnit						0..1
		ID		Content unit ID	S	iopNnUnit	1
		unitType			S	"Measurement Data Unit"	1
		textInfo			S	"Inherent Optical Properties of water"	0..1
		dmdID		Attribute: Description Metadata Identifier	S	In any order: 'geoCoordinatesData' 'timeCoordinatesData' "wqsfData"	0..1
		dataObject Pointer					1
			ID	Data Object pointer ID	S		0..1
			dataObjectI D	Data Object element ID	S	"iopNnData"	1
	contentUnit						0..1
		ID		Content unit ID	S	parUnit	1
		unitType			S	"Measurement Data Unit"	1
		textInfo			S	"Photosynthetically"	0..1

Name			Description	Data Type	Value	Occ.
					Active Radiation”	
		dmdID	Attribute: Description Metadata Identifier	S	In any order: ‘geoCoordinatesData’ ‘timeCoordinatesData’ ‘wqsfData’	0..1
		dataObject Pointer				1
		ID	Data Object pointer ID	S		0..1
		dataObjectID	Data Object element ID	S	“parData”	1
	contentUnit					0..1
		ID	Content unit ID	S	wAerUnit	1
		unitType		S	“Measurement Data Unit”	1
		textInfo		S	“Aerosol Over Water”	0..1
		dmdID	Attribute: Description Metadata Identifier	S	In any order: ‘geoCoordinatesData’ ‘timeCoordinatesData’ ‘wqsfData’	0..1
		dataObject Pointer				1
		ID	Data Object pointer ID	S		0..1
		dataObjectID	Data Object element ID	S	“wAerData”	1
	contentUnit					0..1
		ID	Content unit ID	S	iwvUnit	1
		unitType		S	“Measurement Data Unit”	1
		textInfo		S	“Integrated water vapour column”	0..1
		dmdID	Attribute: Description Metadata Identifier	S	In any order: ‘geoCoordinatesData’ ‘timeCoordinatesData’ ‘wqsfData’	0..1
		dataObject Pointer				1
		ID	Data Object pointer ID	S		0..1
		dataObjectID	Data Object element ID	S	“iwvData”	1
	contentUnit					0..1
		ID	Content unit ID	S	wqsfUnit	1
		unitType		S	“Annotation Data Unit”	1
		textInfo		S	“Water Quality and Science Flags”	0..1
		dmdID	Attribute: Description Metadata Identifier	S	In any order: ‘geoCoordinatesData’ ‘timeCoordinatesData’	0..1
		dataObject Pointer				1
		ID	Data Object pointer ID	S		0..1
		dataObjectID	Data Object element ID	S	“wqsfData”	1
	contentUnit					1
		ID	Content unit ID	S	geoCoordinatesUnit	1
		unitType		S	“Annotation Data Unit”	1
		textInfo		S	“Geo Coordinates Annotations”	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	“geoCoordinatesData”	1
	contentUnit					1
		ID	Content unit ID	S	tieGeoCoordinatesUnit	1
		unitType		S	“Annotation Data Unit”	1
		textInfo		S	“Tie-Point Geo Coordinate Annotations”	0..1
		dmdID	Attribute: Description Metadata Identifier	S		0..1

Name			Description	Data Type	Value	Occ.
	dataObject Pointer					1
		ID	Data Object pointer ID	S		0..1
		dataObjectID	Data Object element ID	S	“tieGeoCoordinatesData”	1
contentUnit						1
		ID	Content unit ID	S	tieGeometriesUnit	1
		unitType		S	“Annotation Data Unit”	1
		textInfo		S	“Tie-Point Geometries Annotations”	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	“tieGeometriesData”	1
contentUnit						1
		ID	Content unit ID	S	tieMeteoUnit	1
		unitType		S	“Annotation Data Unit”	1
		textInfo		S	“Tie-Point Meteo Annotations”	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	“tieMeteoData”	1
contentUnit						1
		ID	Content unit ID	S	timeCoordinatesUnit	1
		unitType		S	“Annotation Data Unit”	1
		textInfo		S	“Time Coordinates Annotations”	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	“timeCoordinatesData”	1
contentUnit						1
		ID	Content unit ID	S	instrumentDataUnit	1
		unitType		S	“Annotation Data Unit”	1
		textInfo		S	“Instrument Annotations”	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	“instrumentDataData”	1

Table 3-1: Information Package Map for L2 OLCI Water products

3.1.2 “OL_2_WFR_BW/OL_2_WRR_BW” L2 Browse Products

The Information Package Map associated to the package of the OL_2_WFR_BW, OL_2_WRR_BW products is reported in the next table.

Note: The number of image files (N) depends on the configuration set for the execution on the IPF. According to this configuration, one or more scientific fields may be processed and generate images.

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 OLCI Level 2 Browse 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” “orbitReference” “generalInformation” “qualityInformation” “processing” “frameSet”	1
	contentUnit					1
		ID	Content unit ID	S	brwImageXXUnit, XX=01, ..., N	0..1
		unitType		S	“Measurement Data Unit”	1
		textInfo		S	“Pseudo Colour Image”	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	brwImageXXData, XX=01, ..., N	1

Table 3-2: Information Package Map for L2 OLCI Browse Products

3.2 Metadata Section

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

3.3 Data Object Section

The data object section of the manifest includes one data object per data object pointer. Each data object pointer is identified with its dataObjectID as defined in the information package map in section 3.1.

3.3.1 Measurement Data File

3.3.1.1 “OL_2_WFR/OL_2_WRR” Level 2 Products

Data Objects for OLCI OL_2_WFR and OL_2_WRR Level 2 products are listed in the next table.

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	“Oaxx_reflectanceData”, xx = 01, ..., 12, 16, 17, 18, 21
	byte Stream		Pointer to the Data Component	U	1..*	
		ID	Byte stream ID	S	0..1	
		contentType	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		“Oaxx_reflectance.nc”, xx = 01, ..., 12, 16, 17, 18, 21
		textInfo	Textual description of the Data Component	S	0..1	
		checksum	Checksum for the Data Component	U	1	

Name			Description	Data type	Occ.	Value
		checksumName		E	1	MD5
Data Object			This element references the Data Component included in the L1 product.	U	1..*	
	ID		Data Component ID	S	1	chlOc4meData
	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		"chl_oc4me.nc"
		textInfo	Textual description of the Data Component	S	0..1	
		checksum	Checksum for the Data Component	U	1	
		checksumName		E	1	MD5
Data Object			This element references the Data Component included in the L1 product.	U	1..*	
	ID		Data Component ID	S	1	chlNnData
	byte Stream		Pointer to the Data Component	U	1..*	
		ID	Byte stream ID	S	0..1	

Name			Description	Data type	Occ.	Value
		contentType	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		"chl_nn.nc"
		textInfo	Textual description of the Data Component	S	0..1	
		checksum	Checksum for the Data Component	U	1	
		checksumName		E	1	MD5
Data Object			This element references the Data Component included in the L1 product.	U	1..*	
	ID		Data Component ID	S	1	tsmNnData
	byte Stream		Pointer to the Data Component	U	1..*	
		ID	Byte stream ID	S	0..1	
		contentType	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		"tsm_nn.nc"

Name			Description	Data type	Occ.	Value
		textInfo	Textual description of the Data Component	S	0..1	
		checksum	Checksum for the Data Component	U	1	
		checksumName		E	1	MD5
Data Object			This element references the Data Component included in the L1 product.	U	1..*	
	ID		Data Component ID	S	1	trspData
	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		"trsp.nc"
		textInfo	Textual description of the Data Component	S	0..1	
		checksum	Checksum for the Data Component	U	1	
		checksumName		E	1	MD5
Data Object			This element references the Data Component included in the L1 product.	U	1..*	
	ID		Data Component ID	S	1	iopNnData

Name				Description	Data type	Occ.	Value
	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		"iop_nn.nc"
			textInfo	Textual description of the Data Component	S	0..1	
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5
Data Object				This element references the Data Component included in the L1 product.	U	1..*	
	ID			Data Component ID	S	1	parData
	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	

Name				Description	Data type	Occ.	Value
			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		“par.nc”
			textInfo	Textual description of the Data Component	S	0..1	
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5
Data Object				This element references the Data Component included in the L1 product.	U	1..*	
	ID			Data Component ID	S	1	iwvData
	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		“iwv.nc”
			textInfo	Textual description of the Data Component	S	0..1	
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 3-3: OL_2_WFR/OL_2_WRR Level 2 Data Objects

3.3.1.2 “OL_2_WFR_BW/OL_2_WRR_BW” L2 Browse Products

Object for OLCI Level 2 browse products is reported in the next table.

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	brwImageXXData, XX=01, ..., N
	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	One value among: "image/jpeg" "image/tiff" "image/png" "image/jp2"
		size	Size of the Data Object File	L	1	
		fileLocation	Description of the location of the data component file	U	1	
			locator Type	URL	0..1	URL
			href	S		One value among: "<.scientificData>_BrwImage.jpeg" "<.scientificData>_BrwImage.tiff" "<.scientificData>_BrwImage.png" "<.scientificData>_BrwImage.jp2"
			textInfo	S	0..1	
		checksum	Checksum for the Data Component	U	1	

Name				Description	Data type	Occ.	Value
			checksumName		E	1	MD5

Table 3-4: OLCI Browse Level 2 Data Object

3.3.2 Specific Annotation Data File

Each Annotations Data File constitutes a Data Object composed as follows:

Name				Description	Data type	Occ.	Value
Data Object				This element references the Data Component included in the product.	U	1..*	
	ID			Data Component ID	S	1	“wqsfData”
	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		“wqsf.nc”
			textInfo	Textual description of the Data Component	S	0..1	
		checksum		Checksum for the Data Component	U	1	
			checksumName		E	1	MD5

Table 3-5: Wqsf Metadata Object

4. PRODUCT SIZE

In the following table the approximate size of each OLCI file composing the Level 2 Marine products is given.

The sizes computation have been based on a full OLCI acquisition (FR) orbit which corresponds approximately to 60 000 frames (44 minutes). The RR product is based on 15 000 frames.

No file compression is applied.

4.1 OLCI Level 2 Water product (OL_2_WFR___/OL_2_WRR___)

Element name	Description	Size in FR mode in GBytes	Size in RR mode in GBytes
xfdumanifest.xml	Sentinel-SAFE product manifest		
Oa##_reflectances.nc	Reflectance for OLCI acquisition bands, excluding absorption bands (O13, O14, O15, O19, and O20)	17,39860	1,08808
chl_oc4me.nc	Chlorophyll concentration calculated according to the OC4Me algorithm	0,54371	0,03400
chl_nn.nc	Chlorophyll concentration calculated according to the Case2R algorithm	0,54371	0,03400
tsm_nn.nc	Total suspend matter	0,54371	0,03400
trsp.nc	Transparency properties of water	0,54371	0,03400
iop_nn.nc	Inherent Optical Properties of water	0,54371	0,03400
par.nc	Photosynthetic Activer Radiation	0,54371	0,03400
w_aer.nc	Aerosol Over Water	1,08741	0,06801
iwv.nc	Integrated water vapour column	0,54371	0,03400
time_coordinates.nc	Time stamp annotations	0,00045	0,00011
geo_coordinates.nc	High resolution georeferencing data	2,71853	0,17001
wqsf.nc	Water Quality and Science Flags	2,17482	0,13601
tie_geo_coordinates.nc	Low resolution georeferencing data	0,03442	0,00861
tie_geometries.nc	Sun and View angles	0,06884	0,01721
tie_meteo.nc	ECMWF meteorology data	0,53354	0,13338
instrument_data.nc	Instrument data	0,54458	0,03488
Total		28,36714	1,89432

Table 4-1: OL_2_WFR___/OL_2_WRR___ product size

4.2 Browse products

Due to the type and level of compression and the format of the image used in the processing, the size of the browse products cannot be accurately defined. Compared to the volume of data of the measurement/annotation, this size may be considered negligible.

End of the document