

1. Overview

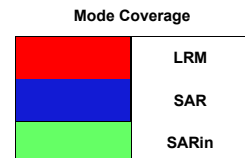
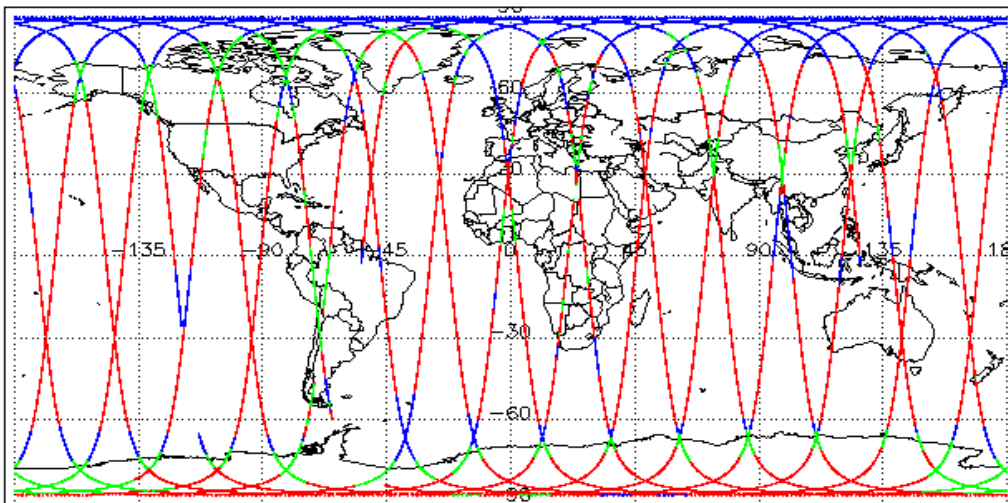
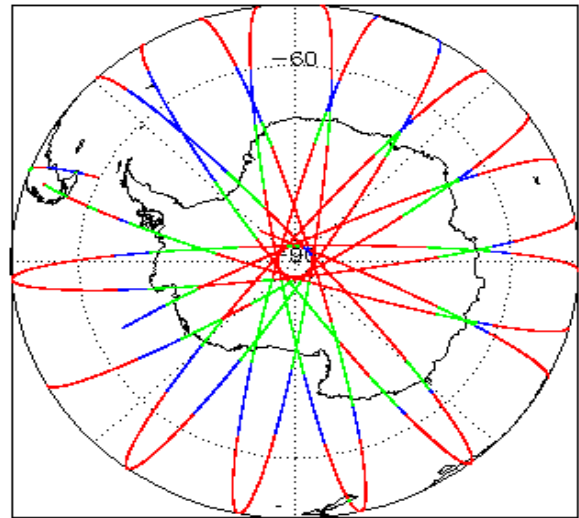
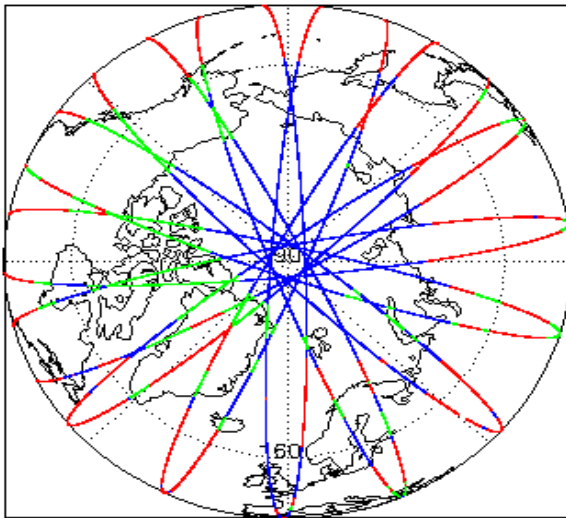
Report Production:	14-Jun-2019
Processor Used:	CryoSat Ocean Processor
Data Used:	Intermediate Ocean Products (IOP) L1B, L2 & P2P Science Data

Check	L1 & L2	P2P
Server check: science-pds.cryosat.esa.int	Nominal	Nominal
Server check: calval-pds.cryosat.esa.int	Nominal	Nominal
Product Software Check	Nominal	Nominal
Product Format Check	Nominal	Nominal
Product Header Analysis	Nominal	Nominal
Auxiliary Data File Usage Check	Nominal	Nominal
Auxiliary Correction Error Check	See Section 5.4	See Section 6.4
Measurement Confidence Data Check	See Section 4.5, 4.6 and 5.5	See Section 6.5
Range, SWH & Backscatter Measurement Check	See Section 5.6	See Section 6.6
Ocean Retracking Quality Check	See Section 5.7	See Section 6.7

Mission / Instrument News

30-May-2019	None
31-May-2019	None
01-Jun-2019	Nothing planned

2. Global Coverage



3. Instrument Configuration

The SIRAL instrument configuration for the day of acquisition is provided below.

SIRAL instrument(s) in use:	SIRAL - A
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4. IOP Level 1B Data Quality Check

4.1 L1B Product Format Check

Each product, retrieved and unpacked from the science server, is checked to ensure it consists of both an XML header file (.HDR) and a binary product file (.DBL).

Number of products with errors: 0

4.2 L1B Product Header Analysis

For all products, a series of pre-defined checks are performed on the MPH and SPH in order to identify any inconsistencies and/or errors raised by the ground-segment processing chain.

L1B Processing Quality HR: The 11b_proc_flag_hr flag is currently set all L1B IOPR and IOPN products because the 11b_processing_quality_hr field is not correctly configured in the OSAR and OSARin chains. A modification is required in the next release.

Number of products with errors: 0

4.3 L1B Auxiliary Data File Usage Check

Each product is checked for missing Data Set Descriptors with respect to a pre-determined baseline and also to check the validity of Auxiliary Data Files is correct.

Number of products with errors: 0

4.4 L1B Auxiliary Correction Error Check

CryoSat L1B data includes a correction error flag for each measurement record. The bit value of this flag indicates any problems when set.

Number of products with errors: 0

4.5 L1B Measurement Confidence Data Check

CryoSat L1B data includes a measurement confidence flag for each measurement record. The bit value of this flag indicates any problems when set.

Attitude Correction Missing: This flag is currently set in error for IOPR products due to a configuration issue. This is being investigated and will be updated in the next SW update.

Number of products with errors: 0

4.6 L1B Waveform Group Data Check

CryoSat L1B data includes a waveform data flag for each measurement record. The bit value of this flag indicates any problems when set.

Loss of Echo Flag: This flag is currently set for products over land, but this is to be expected.

Number of products with errors: 19

Product	Test Failed	Description
CS_OFFL_SIR_IOPM1B_20190531T000035_20190531T000958_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPM1B_20190531T035833_20190531T040957_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPM1B_20190531T113602_20190531T114951_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPN1B_20190531T020614_20190531T021108_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPN1B_20190531T034104_20190531T034138_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPN1B_20190531T052818_20190531T053252_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPN1B_20190531T064651_20190531T064847_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPN1B_20190531T065546_20190531T065642_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPN1B_20190531T115539_20190531T115819_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPN1B_20190531T130457_20190531T130921_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPN1B_20190531T133240_20190531T133702_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPN1B_20190531T201848_20190531T201917_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPR1B_20190531T021200_20190531T021413_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPR1B_20190531T082622_20190531T082700_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPR1B_20190531T083952_20190531T084956_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPR1B_20190531T132936_20190531T133151_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPR1B_20190531T161241_20190531T161451_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPR1B_20190531T165216_20190531T165955_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPR1B_20190531T183149_20190531T183812_C001	Loss of Echo	The tracking echo is missing for one or more records

5. IOP Level 2 Data Quality Check

5.1 L2 Product Format Check

Each product, retrieved and unpacked from the science server, is checked to ensure it consists of both an XML header file (.HDR) and a binary product file (.DBL).

Number of products with errors: 0

5.2 L2 Product Header Analysis

For all products, a series of pre-defined checks are performed on the MPH and SPH in order to identify any inconsistencies and/or errors raised by the ground-segment processing chain.

Number of products with errors: 0

5.3 L2 Auxiliary Data File Usage Check

Each product is checked for missing Data Set Descriptors with respect to a pre-determined baseline and also to check the validity of Auxiliary Data Files is correct.

Number of products with errors: 0

5.4 L2 Auxiliary Correction Error Check

For all products, the auxiliary corrections within the Geophysical Group are checked for the default error value (32767).

Currently, there are some common auxiliary correction errors raised in the Level 2 products which are expected due to surface type. All common flags are summarised in the list below, followed by a table highlighting any additional issues which may arise from this test.

> **ECMWF Meteo Corrections:** Currently the following corrections are not computed over CONTINENTAL ICE: Dry Tropospheric Correction, Wet Tropospheric Correction, Inverse Barometric Correction and the U-Wind and V-Wind components of the ECMWF model wind vector. This is a known anomaly (CRYO-COP-3) and will be resolved in a future IPF update. The affected products are not reported in the table below.

> **Sea State Bias & Sea State Bias PLRM:** The error value is currently set for products over sea ice, but this is to be expected.

> **Mean Sea Surface:** The error value is currently set for products over land and sea ice, but this is to be expected.

> **Mean Dynamic Topography:** The error value is currently set for products over land and sea ice, but this is to be expected.

> **Altimetric Wind Speed Error:** The error value is currently set for products over land and sea ice, but this is to be expected.

Number of products with errors: 51

Product	Test Failed	Description
CS_OFFL_SIR_IOPM_2_20190531T153504_20190531T160016_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography height for one or more records

CS_OFFL_SIR_IOPR_2_20190531T065930_20190531T070717_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190531T083952_20190531T084956_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190531T101906_20190531T102620_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190531T115820_20190531T120534_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190531T133702_20190531T134417_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190531T151524_20190531T152403_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190531T165217_20190531T165955_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190531T183149_20190531T183812_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190531T183812_20190531T184111_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190531T201017_20190531T201711_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190531T201711_20190531T201848_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190531T215120_20190531T215608_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190531T215608_20190531T215730_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190531T232913_20190531T233452_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190531T233452_20190531T233602_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)

5.5 L2 Measurement Confidence Data Check

CryoSat L2 data includes a measurement confidence flag for each 20-Hz measurement record. The bit value of this flag indicates any problems when set.

Number of products with errors: 4

Product	Test Failed	Description
CS_OFFL_SIR_IOPM_2_20190531T014555_20190531T014704_C001	Power scaling error	There is an error in the scaling of the L2 waveform for one or more records
CS_OFFL_SIR_IOPM_2_20190531T033056_20190531T033542_C001	Power scaling error	There is an error in the scaling of the L2 waveform for one or more records
CS_OFFL_SIR_IOPM_2_20190531T035241_20190531T035546_C001	Power scaling error	There is an error in the scaling of the L2 waveform for one or more records
CS_OFFL_SIR_IOPM_2_20190531T035833_20190531T040957_C001	Power scaling error	There is an error in the scaling of the L2 waveform for one or more records

5.6 L2 Measurement Quality Flag Check

L2 Quality Flags (20Hz)

CryoSat L2 data includes Quality Flags for each 20 Hz, 20 Hz PLRM and 1 Hz measurement record. The bit value of this flag indicates any problems when set.

Currently, there are several common flags raised in the Level 2 products, which are summarised below. The table provides the full list of products flagged.

> **Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags:** These flags are currently set for some records over ocean.

> **OCOG Altimeter Range and Backscatter Quality Flags:** These flags are currently set for some records over continental ice.

Number of products with errors: 74

Product	Test Failed	Description
CS_OFFL_SIR_IOPM_2_20190531T000035_20190531T000958_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190531T003235_20190531T003359_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190531T003629_20190531T004917_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190531T010513_20190531T010639_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190531T011223_20190531T012016_C001	OCOG Altimeter Range Quality, OCOG Backscatter Quality	The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190531T012253_20190531T013739_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190531T021537_20190531T024747_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190531T025049_20190531T025301_C001	OCOG Altimeter Range Quality, OCOG Backscatter Quality	The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190531T025320_20190531T025905_C001	OCOG Altimeter Range Quality, OCOG Backscatter Quality	The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190531T030239_20190531T032710_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.

CS_OFFL_SIR_IOPR_2_20190531T111421_20190531T112059_C001	Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20190531T115820_20190531T120534_C001	Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20190531T132936_20190531T133151_C001	Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20190531T133702_20190531T134417_C001	Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20190531T151524_20190531T152403_C001	Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20190531T160016_20190531T160114_C001	Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20190531T165217_20190531T165955_C001	Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20190531T170215_20190531T170241_C001	Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20190531T183149_20190531T183812_C001	Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20190531T183812_20190531T184111_C001	Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20190531T193026_20190531T193354_C001	Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20190531T201017_20190531T201711_C001	Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20190531T201711_20190531T201848_C001	Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20190531T215120_20190531T215608_C001	Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20190531T215608_20190531T215730_C001	Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20190531T215758_20190531T215859_C001	Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20190531T215933_20190531T220150_C001	Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20190531T223355_20190531T224054_C001	Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20190531T232913_20190531T233452_C001	Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.

L2 Quality Flags (1 Hz & 1Hz PLRM)

Currently, there are several common flags raised in the Level 2 products, which are summarised below.

> 1Hz and 1Hz Ocean SSHA Quality Flags: These flags are currently set for products over sea ice, which is to be expected.

Number of products with errors: 196

5.8 L2 Ocean Retracking Quality Check

L2 Retracking Flags (20Hz)

CryoSat L2 data includes an ocean retracking quality flag for each 20-Hz measurement record. The bit value of this flag indicates any problems when set.

Ocean Retracking Quality Flag: This flag is currently set for products over land and sea ice, but this is to be expected. The number of products with this error flag set is given below.

Number of products with errors: 71

L2 Retracking Flags (20Hz, PLRM)

CryoSat L2 data includes an ocean retracking quality flag for each 20-Hz PLRM measurement record. The bit value of this flag indicates any problems when set.

Ocean Retracking Quality Flag (PLRM): This flag is currently set for products NOPR and NOPN products over sea ice, but this is to be expected.

Number of products with errors: 156

6. IOP L2 Pole-to-Pole Data Quality Check

6.1 P2P Product Format Check

Each product, retrieved and unpacked from the science server, is checked to ensure it consists of both an XML header file (.HDR) and a NetCDF product file (.nc).

Number of products with errors: 0

6.2 P2P Product Header Analysis

For all products, a series of pre-defined checks are performed on the MPH and SPH in order to identify any inconsistencies and/or errors raised by the ground-segment processing chain.

Number of products with errors: 0

6.3 P2P Auxiliary Data File Usage Check

Each product is checked for missing Data Set Descriptors with respect to a pre-determined baseline and also to check the validity of Auxiliary Data Files is correct.

Number of products with errors: 0

6.4 P2P Auxiliary Correction Error Check

For all products, the auxiliary corrections within the Geophysical Group are checked for the default error value (32767).

Currently, there are some common auxiliary correction errors raised in the Level 2 products which are expected due to surface type. All common flags are summarised in the list below, followed by a table highlighting any additional issues which may arise from this test.

> **ECMWF Meteo Corrections:** Currently the following corrections are not computed over CONTINENTAL ICE: Dry Tropospheric Correction, Wet Tropospheric Correction, Inverse Barometric Correction and the U-Wind and V-Wind components of the ECMWF model wind vector. This is a known anomaly (CRYO-COP-3) and will be resolved in a future IPF update. The affected products are not reported in the table below.

> **Sea State Bias & Sea State Bias PLRM:** The error value is currently set for products over sea ice, but this is to be expected.

> **Mean Sea Surface:** The error value is currently set for products over land and sea ice, but this is to be expected.

> **Mean Dynamic Topography:** The error value is currently set for products over land and sea ice, but this is to be expected.

> **Altimetric Wind Speed Error:** The error value is currently set for products over land and sea ice, but this is to be expected.

Number of products with errors: 30

Product	Test Failed	Description
CS_OFFL_SIR_IOP_2__20190530T233544_20190531T002520_C002	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_2__20190531T002520_20190531T011458_C001	Mean Sea Surface (1), Mean Dynamic Topography (1), Total Geocentric Ocean Tide (GOT), Total Geocentric Ocean Tide (FES), Non-Equilibrium Long Period Ocean Tide	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) and the tidal corrections for one or more records
CS_OFFL_SIR_IOP_2__20190531T011458_20190531T020434_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_2__20190531T020434_20190531T025411_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_2__20190531T025411_20190531T034348_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_2__20190531T034348_20190531T043325_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_2__20190531T043325_20190531T052301_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_2__20190531T052301_20190531T061239_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_2__20190531T061239_20190531T070215_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_2__20190531T070215_20190531T075152_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_2__20190531T075152_20190531T084128_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_2__20190531T084128_20190531T093106_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_2__20190531T093106_20190531T102042_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_2__20190531T102042_20190531T111019_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_2__20190531T111019_20190531T115955_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_2__20190531T115955_20190531T124933_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_2__20190531T124933_20190531T133909_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_2__20190531T133909_20190531T142846_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_2__20190531T142846_20190531T151822_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_2__20190531T151822_20190531T160800_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_2__20190531T160800_20190531T165736_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_2__20190531T165736_20190531T174714_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_2__20190531T174714_20190531T183650_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_2__20190531T183650_20190531T192627_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_2__20190531T192627_20190531T201603_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_2__20190531T201603_20190531T210541_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_2__20190531T210541_20190531T215517_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_2__20190531T215517_20190531T224454_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)

CS_OFFL_SIR_IOP_2__20190531T224454_20190531T233430_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_2__20190531T233430_20190601T002408_C002	Mean Sea Surface (1), Mean Dynamic Topography (1), Total Geocentric Ocean Tide (GOT)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) and the Total Geocentric Ocean Tide height (solution 1: GOT) for one or more records

6.5 P2P Measurement Confidence Data Check

CryoSat P2P data includes a measurement confidence flag for each 20-Hz measurement record. The bit value of this flag indicates any problems when set.

Number of products with errors: 3

Product	Test Failed	Description
CS_OFFL_SIR_IOP_2__20190531T011458_20190531T020434_C001	Power scaling error	There is an error in the scaling of the L2 waveform for one or more records
CS_OFFL_SIR_IOP_2__20190531T025411_20190531T034348_C001	Power scaling error	There is an error in the scaling of the L2 waveform for one or more records
CS_OFFL_SIR_IOP_2__20190531T034348_20190531T043325_C001	Power scaling error	There is an error in the scaling of the L2 waveform for one or more records

6.6 P2P Measurement Quality Flag Check

P2P Quality Flags (20Hz)

CryoSat P2P data includes Quality Flags for each 20 Hz, 20 Hz PLRM and 1 Hz measurement record, copied from the corresponding L2 products.

Since the P2P Quality Flags are copied directly from the L2 Quality Flags, please see Section 5.6 for the full list of products affected.

Number of products with errors: 30

P2P Quality Flags (20Hz PLRM)

Since the P2P Quality Flags are copied directly from the L2 Quality Flags, please see Section 5.6 for the full list of products affected.

Number of products with errors: 29

P2P Quality Flags (1 Hz & 1Hz PLRM)

Since the P2P Quality Flags are copied directly from the L2 Quality Flags, please see Section 5.6 for the full list of products affected.

Number of products with errors: 30

6.8 P2P Ocean Retracking Quality Check

P2P Retracking Flags (20Hz)

CryoSat P2P data includes an ocean retracking quality flag (field 19) for each 20-Hz measurement record. The bit value of this flag indicates any problems when set.

Ocean Retracking Quality Flag (PLRM): This flag is currently set for products IOPR and IOPN products over sea ice, but this is to be expected.

Number of products with errors: 29

P2P Retracking Flags PLRM

CryoSat L2 data includes an ocean retracking quality flag for each 20-Hz PLRM measurement record. The bit value of this flag indicates any problems when set.

Ocean Retracking Quality Flag (PLRM): This flag is currently set for products NOPR and NOPN products over sea ice, but this is to be expected.

Number of products with errors: 30