

1. Overview

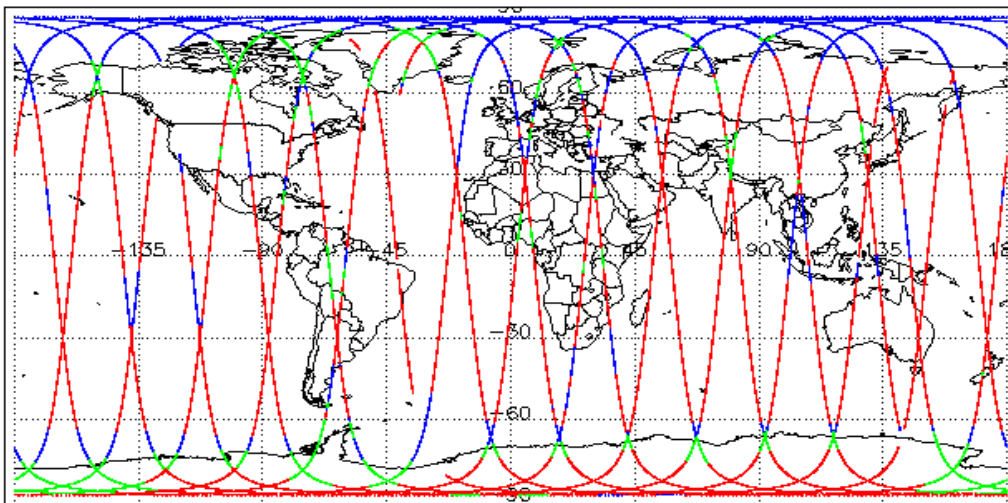
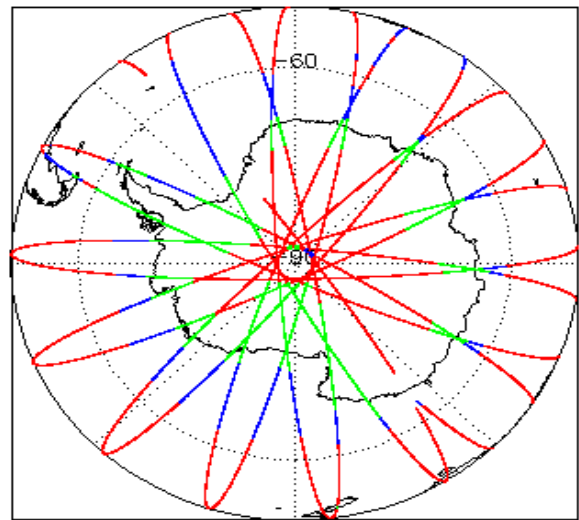
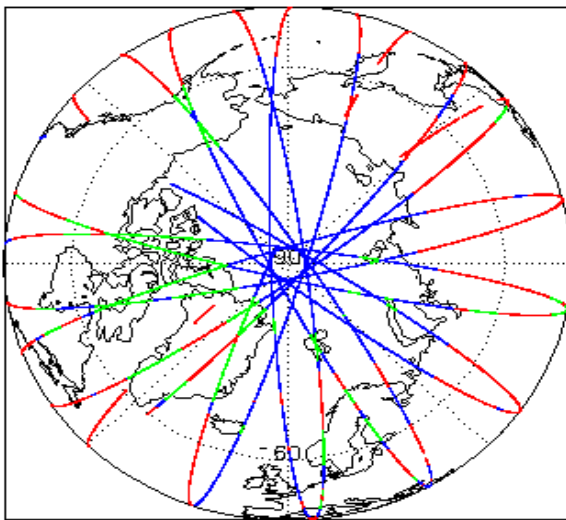
Report Production:	18-Jun-2019
Processor Used:	CryoSat Ocean Processor
Data Used:	Geophysical Ocean Products (GOP) L1B, L2 & P2P Science Data

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	See Sections 4.2 and 5.2	See Section 6.2
Auxiliary Data File Usage Check	See Section 4.3 and 5.3	See Section 6.3
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	Nominal
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

16-May-2019	None
17-May-2019	SIRAL unavailability on 17-May 2019 from 10:38:13 to 2019-03-01 12:42:26 due to an unplanned ground segment anomaly.
18-May-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. GOP 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 l1b_proc_flag_hr flag is currently set all L1B IOPR and IOPN products because the l1b_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 GOPR 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 some products over land, but this is to be expected.

Number of products with errors: 14

Product	Test Failed	Description
CS_OFFL_SIR_GOPM1B_20190517T124354_20190517T125849_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPM1B_20190517T133242_20190517T134414_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPM1B_20190517T232508_20190517T232653_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPN1B_20190517T002808_20190517T003103_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPN1B_20190517T012205_20190517T012228_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPN1B_20190517T022327_20190517T022544_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPN1B_20190517T131304_20190517T131433_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPN1B_20190517T134953_20190517T135422_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPN1B_20190517T144724_20190517T145055_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPN1B_20190517T203546_20190517T203652_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPR1B_20190517T003730_20190517T004235_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPR1B_20190517T134812_20190517T134857_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPR1B_20190517T185959_20190517T190206_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPR1B_20190517T220631_20190517T221743_C001	Loss of Echo	The tracking echo is missing for one or more records

5. GOP 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: 58

Product	Test Failed	Description
CS_OFFL_SIR_GOPM_2_20190517T000017_20190517T001545_C001	GPD Wet Tropospheric Correction	There is an error with the GPD Wet Tropospheric correction for one or more records
CS_OFFL_SIR_GOPM_2_20190517T035405_20190517T035446_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography height for one or more records
CS_OFFL_SIR_GOPM_2_20190517T035446_20190517T035448_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography height for one or more records
CS_OFFL_SIR_GOPM_2_20190517T112156_20190517T112720_C001	GPD Wet Tropospheric Correction	There is an error with the GPD Wet Tropospheric correction for one or more records
CS_OFFL_SIR_GOPM_2_20190517T112726_20190517T112732_C001	GPD Wet Tropospheric Correction	There is an error with the GPD Wet Tropospheric correction for one or more records
CS_OFFL_SIR_GOPM_2_20190517T235918_20190518T001534_C001	GPD Wet Tropospheric Correction	There is an error with the GPD Wet Tropospheric correction for one or more records
CS_OFFL_SIR_GOPN_2_20190517T004401_20190517T004517_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_GOPN_2_20190517T004720_20190517T005001_C001	Total Geocentric Ocean Tide (GOT)	There is an error with the Total Geocentric Ocean Tide height (solution 1: GOT) for one or more records
CS_OFFL_SIR_GOPN_2_20190517T012347_20190517T012953_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_GOPN_2_20190517T022327_20190517T022544_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_GOPN_2_20190517T030606_20190517T030749_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_GOPN_2_20190517T040253_20190517T040737_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_GOPN_2_20190517T045424_20190517T045707_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_GOPN_2_20190517T062527_20190517T062916_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_GOPN_2_20190517T080506_20190517T080821_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_GOPN_2_20190517T081334_20190517T081453_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography height for one or more records
CS_OFFL_SIR_GOPN_2_20190517T085607_20190517T085638_C001	Mean Sea Surface (1)	There is an error with the MSS height (solution 1) for one or more records
CS_OFFL_SIR_GOPN_2_20190517T095240_20190517T095353_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_GOPN_2_20190517T103153_20190517T103424_C001	Mean Sea Surface (1), Mean Dynamic Topography (1), Total Geocentric Ocean Tide (GOT), Total Geocentric Ocean Tide (FES), Non-Equilibrium Long Period Tide for one or more records	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1), Total Geocentric Ocean Tide (GOT), Total Geocentric Ocean Tide (FES) and the Non-Equilibrium Long Period Ocean Tide for one or more records
CS_OFFL_SIR_GOPN_2_20190517T103455_20190517T103617_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_GOPN_2_20190517T130814_20190517T131048_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_GOPN_2_20190517T134953_20190517T135422_C001	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
CS_OFFL_SIR_GOPN_2_20190517T144724_20190517T145055_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_GOPN_2_20190517T152852_20190517T153243_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_GOPN_2_20190517T162833_20190517T163015_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography height for one or more records
CS_OFFL_SIR_GOPN_2_20190517T184538_20190517T184655_C001	Total Geocentric Ocean Tide (GOT)	There is an error with the Total Geocentric Ocean Tide height (solution 1: GOT) for one or more records
CS_OFFL_SIR_GOPN_2_20190517T193739_20190517T193902_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography height for one or more records
CS_OFFL_SIR_GOPN_2_20190517T194428_20190517T194741_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography height for one or more records
CS_OFFL_SIR_GOPN_2_20190517T203546_20190517T203652_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography height for one or more records

CS_OFFL_SIR_GOPN_2_20190517T211711_20190517T211826_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography height for one or more records
CS_OFFL_SIR_GOPN_2_20190517T212326_20190517T212646_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_GOPN_2_20190517T225801_20190517T230037_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_GOPN_2_20190517T235317_20190517T235437_C001	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
CS_OFFL_SIR_GOPR_2_20190516T235948_20190517T000017_C001	GPD Wet Tropospheric Correction	There is an error with the GPD Wet Tropospheric correction for one or more records
CS_OFFL_SIR_GOPR_2_20190517T001545_20190517T001748_C001	GPD Wet Tropospheric Correction	There is an error with the GPD Wet Tropospheric correction for one or more records
CS_OFFL_SIR_GOPR_2_20190517T003730_20190517T004235_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_GOPR_2_20190517T004235_20190517T004401_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_GOPR_2_20190517T021903_20190517T022327_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_GOPR_2_20190517T035448_20190517T035450_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography height for one or more records
CS_OFFL_SIR_GOPR_2_20190517T035450_20190517T035714_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography height for one or more records
CS_OFFL_SIR_GOPR_2_20190517T035845_20190517T040253_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_GOPR_2_20190517T053311_20190517T054333_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_GOPR_2_20190517T070537_20190517T070638_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography height for one or more records
CS_OFFL_SIR_GOPR_2_20190517T071646_20190517T072433_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_GOPR_2_20190517T085638_20190517T090732_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_GOPR_2_20190517T103617_20190517T103813_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_GOPR_2_20190517T131048_20190517T131304_C001	Mean Sea Surface (1)	There is an error with the MSS height (solution 1) for one or more records
CS_OFFL_SIR_GOPR_2_20190517T135422_20190517T140122_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_GOPR_2_20190517T141459_20190517T142314_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography height for one or more records
CS_OFFL_SIR_GOPR_2_20190517T153244_20190517T153749_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_GOPR_2_20190517T170945_20190517T171821_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_GOPR_2_20190517T184856_20190517T185840_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_GOPR_2_20190517T185959_20190517T190206_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography height for one or more records
CS_OFFL_SIR_GOPR_2_20190517T190546_20190517T190732_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography height for one or more records
CS_OFFL_SIR_GOPR_2_20190517T202403_20190517T203546_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_GOPR_2_20190517T220631_20190517T221743_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_GOPR_2_20190517T234609_20190517T234859_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography height for one or more records
CS_OFFL_SIR_GOPR_2_20190517T234859_20190517T235317_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: 0

CS_OFFL_SIR_GOPM_2_20190517T230942_20190517T232505_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_GOPM_2_20190517T233135_20190517T234116_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_GOPM_2_20190517T235918_20190518T001534_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_GOPN_2_20190517T044848_20190517T045004_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_GOPN_2_20190517T162501_20190517T162507_C001	OCOG Altimeter Range Quality, OCOG Backscatter Quality	The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.

L2 Quality Flags (20Hz PLRM)

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 PLRM Quality Flags:** These flags are currently set for occasional records over sea ice.

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

Number of products with errors: 62

Product	Test Failed	Description
CS_OFFL_SIR_GOPN_2_20190517T004401_20190517T004517_C001	OCOG Altimeter Range Quality PLRM, OCOG Backscatter Quality	The OCOG Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPN_2_20190517T004720_20190517T005001_C001	OCOG Altimeter Range Quality PLRM, OCOG Backscatter Quality	The OCOG Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPN_2_20190517T012347_20190517T012953_C001	OCOG Altimeter Range Quality PLRM, OCOG Backscatter Quality	The OCOG Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPN_2_20190517T013723_20190517T013905_C001	Ocean Altimeter Range Quality PLRM, OCOG Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags, and the OCOG Altimeter Range and Backscatter Flags have been set for one or more records.
CS_OFFL_SIR_GOPN_2_20190517T022327_20190517T022544_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_GOPN_2_20190517T022632_20190517T022809_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_GOPN_2_20190517T040253_20190517T040737_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_GOPN_2_20190517T044543_20190517T044717_C001	OCOG Altimeter Range Quality PLRM, OCOG Backscatter Quality	The OCOG Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPN_2_20190517T044848_20190517T045004_C001	OCOG Altimeter Range Quality PLRM, OCOG Backscatter Quality	The OCOG Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPN_2_20190517T045424_20190517T045707_C001	Ocean Altimeter Range Quality PLRM, OCOG Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags, and the OCOG Altimeter Range and Backscatter Flags have been set for one or more records.
CS_OFFL_SIR_GOPN_2_20190517T062527_20190517T062916_C001	OCOG Altimeter Range Quality PLRM, OCOG Backscatter Quality	The OCOG Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPN_2_20190517T072629_20190517T072758_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_GOPN_2_20190517T081334_20190517T081453_C001	OCOG Altimeter Range Quality PLRM, OCOG Backscatter Quality	The OCOG Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPN_2_20190517T085607_20190517T085638_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_GOPN_2_20190517T094223_20190517T094637_C001	Ocean Altimeter Range Quality PLRM, OCOG Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags, and the OCOG Altimeter Range and Backscatter Flags have been set for one or more records.
CS_OFFL_SIR_GOPN_2_20190517T103455_20190517T103617_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_GOPN_2_20190517T134953_20190517T135422_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_GOPN_2_20190517T143841_20190517T144054_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_GOPN_2_20190517T144724_20190517T145055_C001	Ocean Altimeter Range Quality PLRM, OCOG Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags, and the OCOG Altimeter Range and Backscatter Flags have been set for one or more records.
CS_OFFL_SIR_GOPN_2_20190517T153749_20190517T153828_C001	OCOG Altimeter Range Quality PLRM, OCOG Backscatter Quality	The OCOG Range and Backscatter Quality Flags have been set for one or more records.

CS_OFFL_SIR_GOPR_2_20190517T153244_20190517T153749_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_GOPR_2_20190517T153828_20190517T154037_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_GOPR_2_20190517T163015_20190517T163142_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_GOPR_2_20190517T170945_20190517T171821_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_GOPR_2_20190517T171843_20190517T172114_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_GOPR_2_20190517T184856_20190517T185840_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_GOPR_2_20190517T185959_20190517T190206_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_GOPR_2_20190517T190837_20190517T191041_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_GOPR_2_20190517T194742_20190517T195053_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_GOPR_2_20190517T202403_20190517T203546_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_GOPR_2_20190517T211454_20190517T211711_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_GOPR_2_20190517T212646_20190517T212944_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_GOPR_2_20190517T220631_20190517T221743_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_GOPR_2_20190517T225102_20190517T225801_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_GOPR_2_20190517T234859_20190517T235317_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: 192

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: 63

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: 136

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_GOP_2__20190516T235250_20190517T004228_C002	GPD Wet Tropospheric Correction, Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the GPD Wet Tropospheric Correction, the MSS height (solution 1) and the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOP_2__20190517T004228_20190517T013203_C001	ECMWF Meteo Corrections, Mean Sea Surface (1), Mean Dynamic Topography (1), Total Geocentric Ocean Tide (GOT)	There is an error with the ECMWF Meteo Corrections, the Mean Sea Surface Height (solution 1), the Mean Dynamic Topography (solution 1) and the Total Geocentric Ocean Tide (solution 1: GOT) for one or more records
CS_OFFL_SIR_GOP_2__20190517T013203_20190517T022142_C001	ECMWF Meteo Corrections, Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the ECMWF Meteo Corrections, the Mean Sea Surface Height (solution 1) and the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOP_2__20190517T022142_20190517T031117_C001	ECMWF Meteo Corrections, Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the ECMWF Meteo Corrections, the Mean Sea Surface Height (solution 1) and the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOP_2__20190517T031117_20190517T040055_C001	ECMWF Meteo Corrections, Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the ECMWF Meteo Corrections, the Mean Sea Surface Height (solution 1) and the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOP_2__20190517T040055_20190517T045031_C001	ECMWF Meteo Corrections, Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the ECMWF Meteo Corrections, the Mean Sea Surface Height (solution 1) and the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOP_2__20190517T045031_20190517T054009_C001	ECMWF Meteo Corrections, Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the ECMWF Meteo Corrections, the Mean Sea Surface Height (solution 1) and the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOP_2__20190517T054009_20190517T062944_C001	ECMWF Meteo Corrections, Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the ECMWF Meteo Corrections, the Mean Sea Surface Height (solution 1) and the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOP_2__20190517T062944_20190517T071923_C001	ECMWF Meteo Corrections, Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the ECMWF Meteo Corrections, the Mean Sea Surface Height (solution 1) and the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOP_2__20190517T071923_20190517T080858_C001	ECMWF Meteo Corrections, Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the ECMWF Meteo Corrections, the Mean Sea Surface Height (solution 1) and the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOP_2__20190517T080858_20190517T085836_C001	ECMWF Meteo Corrections, Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the ECMWF Meteo Corrections, the Mean Sea Surface Height (solution 1) and the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOP_2__20190517T085836_20190517T094811_C001	ECMWF Meteo Corrections, Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the ECMWF Meteo Corrections, the Mean Sea Surface Height (solution 1) and the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOP_2__20190517T094811_20190517T103750_C001	ECMWF Meteo Corrections, Mean Sea Surface (1), Mean Dynamic Topography (1), Total Geocentric Ocean Tide (GOT), Total Geocentric Ocean Tide (FES), Non	There is an error with the ECMWF Meteo Corrections, the GPD Wet Tropospheric Correction, the MSS height (solution 1) and the Mean Dynamic Topography (solution 1) and the Total Geocentric Ocean Tide height (solution 1: GOT and solution 2: FES) for one or more records
CS_OFFL_SIR_GOP_2__20190517T103750_20190517T112725_C001	ECMWF Meteo Corrections, Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the ECMWF Meteo Corrections, the Mean Sea Surface Height (solution 1) and the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOP_2__20190517T112725_20190517T121703_C001	ECMWF Meteo Corrections	There is an error with the ECMWF Meteo Corrections for one or more records
CS_OFFL_SIR_GOP_2__20190517T121703_20190517T130638_C001	ECMWF Meteo Corrections	There is an error with the ECMWF Meteo Corrections for one or more records
CS_OFFL_SIR_GOP_2__20190517T130638_20190517T135617_C001	ECMWF Meteo Corrections, Mean Sea Surface (1), Mean Dynamic Topography (1), Total Geocentric Ocean Tide (GOT)	There is an error with the ECMWF Meteo Corrections, the Mean Sea Surface Height (solution 1), the Mean Dynamic Topography (solution 1) and the Total Geocentric Ocean Tide (solution 1: GOT) for one or more records
CS_OFFL_SIR_GOP_2__20190517T135617_20190517T144552_C001	ECMWF Meteo Corrections, Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the ECMWF Meteo Corrections, the Mean Sea Surface Height (solution 1) and the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOP_2__20190517T144552_20190517T153530_C001	ECMWF Meteo Corrections, Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the ECMWF Meteo Corrections, the Mean Sea Surface Height (solution 1) and the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOP_2__20190517T153530_20190517T162506_C001	ECMWF Meteo Corrections, Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the ECMWF Meteo Corrections, the Mean Sea Surface Height (solution 1) and the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOP_2__20190517T162506_20190517T171444_C001	ECMWF Meteo Corrections, Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the ECMWF Meteo Corrections, the Mean Sea Surface Height (solution 1) and the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOP_2__20190517T171444_20190517T180419_C001	ECMWF Meteo Corrections, Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the ECMWF Meteo Corrections, the Mean Sea Surface Height (solution 1) and the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOP_2__20190517T180419_20190517T185357_C001	ECMWF Meteo Corrections, Mean Sea Surface (1), Mean Dynamic Topography (1), Total Geocentric Ocean Tide (GOT)	There is an error with the ECMWF Meteo Corrections, the Mean Sea Surface Height (solution 1), the Mean Dynamic Topography (solution 1) and the Total Geocentric Ocean Tide (solution 1: GOT) for one or more records
CS_OFFL_SIR_GOP_2__20190517T185357_20190517T194333_C001	ECMWF Meteo Corrections, Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the ECMWF Meteo Corrections, the Mean Sea Surface Height (solution 1) and the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOP_2__20190517T194333_20190517T203311_C001	ECMWF Meteo Corrections, Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the ECMWF Meteo Corrections, the Mean Sea Surface Height (solution 1) and the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOP_2__20190517T203311_20190517T212246_C001	ECMWF Meteo Corrections, Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the ECMWF Meteo Corrections, the Mean Sea Surface Height (solution 1) and the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOP_2__20190517T212246_20190517T221225_C001	ECMWF Meteo Corrections, Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the ECMWF Meteo Corrections, the Mean Sea Surface Height (solution 1) and the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOP_2__20190517T221225_20190517T230200_C001	ECMWF Meteo Corrections, Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the ECMWF Meteo Corrections, the Mean Sea Surface Height (solution 1) and the Mean Dynamic Topography (solution 1) for one or more records

CS_OFFL_SIR_GOP_2__20190517T230200_20190517T235138_C001	ECMWF Meteo Corrections, Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the ECMWF Meteo Corrections, the Mean Sea Surface Height (solution 1) and the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOP_2__20190517T235138_20190518T004113_C001	ECMWF Meteo Corrections, GFD wet Tropospheric Correction, Mean Sea Surface (1), Mean Dynamic Topography (1), Total Geocentric Ocean Tide (GOT)	There is an error with the ECMWF Meteo Corrections, the GFD wet Tropospheric Correction, the MSS height (solution 1) and the Mean Dynamic Topography (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: 0

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: 27

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: 28

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: 29