

1. Overview

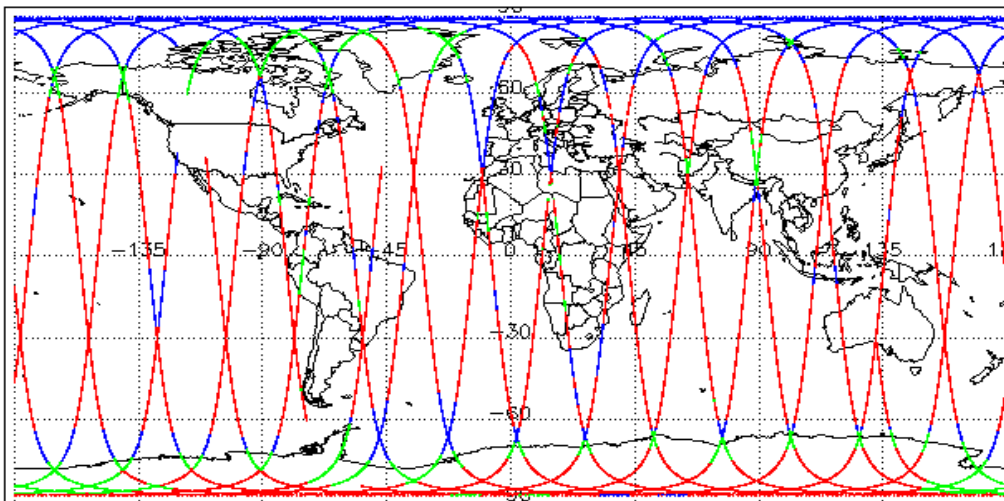
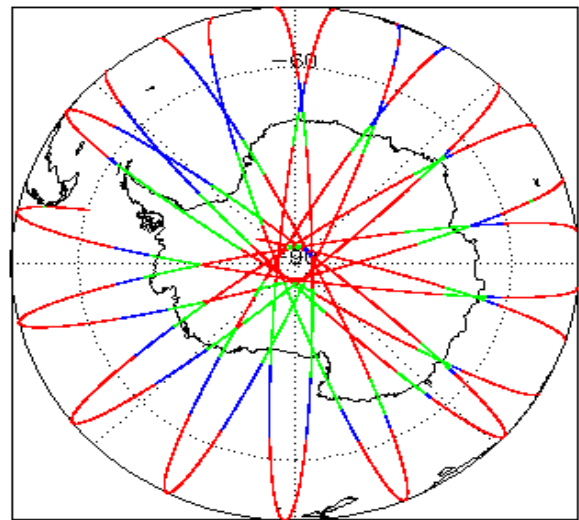
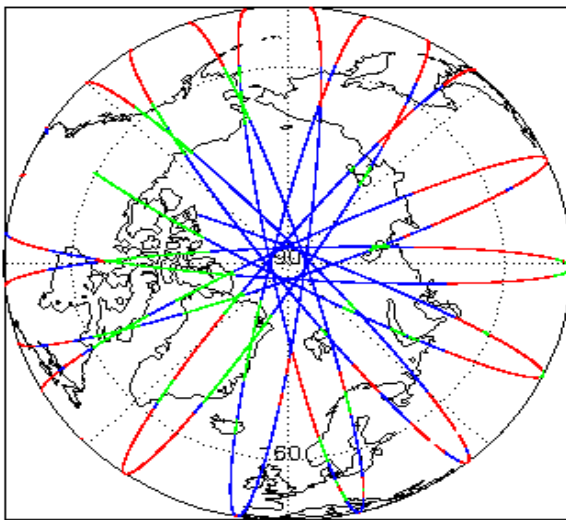
Report Production:	21-Jun-2019
Processor Used:	CryoSat Ocean Processor
Data Used:	Geophysical Ocean Products (GOP) L1B, L2 & P2P Science Data

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	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

23-May-2019	None
24-May-2019	None
25-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 GOPR and GOPN 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: 2

Product	Test Failed	Description
CS_OFFL_SIR_GOPM1B_20190524T141946_20190524T142734_C001	Power scaling error	There is an error in the scaling of the L1B waveform for one or more records
CS_OFFL_SIR_GOPM1B_20190524T231937_20190524T233252_C001	Power scaling error	There is an error in the scaling of the L1B waveform for one or more records

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: 23

Product	Test Failed	Description
CS_OFFL_SIR_GOPM1B_20190524T061513_20190524T061656_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPM1B_20190524T091915_20190524T092400_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPM1B_20190524T123412_20190524T124653_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPN1B_20190524T030428_20190524T030918_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPN1B_20190524T043710_20190524T043748_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPN1B_20190524T075151_20190524T075319_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPN1B_20190524T093504_20190524T093810_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPN1B_20190524T111127_20190524T111247_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPN1B_20190524T124956_20190524T125257_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPN1B_20190524T125408_20190524T125623_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPN1B_20190524T220424_20190524T220945_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPN1B_20190524T225521_20190524T225941_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPR1B_20190524T000814_20190524T001028_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPR1B_20190524T012729_20190524T012917_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPR1B_20190524T034542_20190524T034742_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPR1B_20190524T043939_20190524T044450_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPR1B_20190524T075716_20190524T080600_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPR1B_20190524T111709_20190524T112251_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPR1B_20190524T180837_20190524T180924_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPR1B_20190524T192919_20190524T193617_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPR1B_20190524T194748_20190524T195106_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPR1B_20190524T210801_20190524T211516_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_GOPR1B_20190524T233252_20190524T233859_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.

> **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: 55

Product	Test Failed	Description
CS_OFFL_SIR_GOPM_2_20190523T235248_20190524T000814_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_20190524T162250_20190524T162426_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOPM_2_20190524T235031_20190525T000557_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_20190524T002602_20190524T003207_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) for one or more records
CS_OFFL_SIR_GOPN_2_20190524T012515_20190524T012728_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) for one or more records
CS_OFFL_SIR_GOPN_2_20190524T020808_20190524T020958_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOPN_2_20190524T021827_20190524T022017_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOPN_2_20190524T030428_20190524T030918_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) for one or more records
CS_OFFL_SIR_GOPN_2_20190524T044450_20190524T045022_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOPN_2_20190524T052854_20190524T053108_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), 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_20190524T070701_20190524T071016_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) for one or more records
CS_OFFL_SIR_GOPN_2_20190524T084546_20190524T084906_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) for one or more records
CS_OFFL_SIR_GOPN_2_20190524T085432_20190524T085556_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOPN_2_20190524T093504_20190524T093810_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_20190524T103240_20190524T103419_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) for one or more records
CS_OFFL_SIR_GOPN_2_20190524T111610_20190524T111708_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) for one or more records
CS_OFFL_SIR_GOPN_2_20190524T121020_20190524T121231_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) for one or more records
CS_OFFL_SIR_GOPN_2_20190524T125408_20190524T125623_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) for one or more records
CS_OFFL_SIR_GOPN_2_20190524T134038_20190524T134224_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOPN_2_20190524T143050_20190524T143446_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOPN_2_20190524T153012_20190524T153210_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOPN_2_20190524T192616_20190524T192838_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOPN_2_20190524T201845_20190524T202010_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) for one or more records
CS_OFFL_SIR_GOPN_2_20190524T202521_20190524T202827_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), 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_20190524T215913_20190524T220210_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) for one or more records
CS_OFFL_SIR_GOPN_2_20190524T220424_20190524T220945_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) for one or more records
CS_OFFL_SIR_GOPN_2_20190524T224852_20190524T224947_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOPN_2_20190524T225521_20190524T225941_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), 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_20190524T233859_20190524T234134_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) for one or more records
CS_OFFL_SIR_GOPR_2_20190524T000814_20190524T001028_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_20190524T011826_20190524T011914_C001	Mean Dynamic Topography (1), Total Geocentric Ocean Tide (GOT)	There is an error with the Mean Dynamic Topography (solution 1) and the Total Geocentric Ocean Tide (solution 1: GOT) for one or more records
CS_OFFL_SIR_GOPR_2_20190524T012055_20190524T012233_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) for one or more records
CS_OFFL_SIR_GOPR_2_20190524T012233_20190524T012515_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) for one or more records
CS_OFFL_SIR_GOPR_2_20190524T013434_20190524T013543_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) for one or more records
CS_OFFL_SIR_GOPR_2_20190524T025809_20190524T030427_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) for one or more records
CS_OFFL_SIR_GOPR_2_20190524T030947_20190524T031222_C001	Total Geocentric Ocean Tide (GOT), Total Geocentric Ocean Tide (FES), Non-Equilibrium Long Period Ocean Tide	There is an error with the Total Geocentric Ocean Tide height (solution 1: GOT and solution 2: FES) and the Non-equilibrium Long Period Ocean Tide height for one or more records
CS_OFFL_SIR_GOPR_2_20190524T043939_20190524T044450_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) for one or more records
CS_OFFL_SIR_GOPR_2_20190524T060737_20190524T060939_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOPR_2_20190524T061308_20190524T061513_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOPR_2_20190524T061840_20190524T062641_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) for one or more records
CS_OFFL_SIR_GOPR_2_20190524T075716_20190524T080600_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) for one or more records
CS_OFFL_SIR_GOPR_2_20190524T093810_20190524T094555_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) for one or more records
CS_OFFL_SIR_GOPR_2_20190524T111709_20190524T112251_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) for one or more records
CS_OFFL_SIR_GOPR_2_20190524T125623_20190524T125800_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) for one or more records
CS_OFFL_SIR_GOPR_2_20190524T125800_20190524T130308_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) for one or more records
CS_OFFL_SIR_GOPR_2_20190524T143447_20190524T144008_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) for one or more records
CS_OFFL_SIR_GOPR_2_20190524T161308_20190524T162250_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) for one or more records
CS_OFFL_SIR_GOPR_2_20190524T175028_20190524T175804_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) for one or more records
CS_OFFL_SIR_GOPR_2_20190524T180837_20190524T180924_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography (solution 1) for one or more records
CS_OFFL_SIR_GOPR_2_20190524T192919_20190524T193617_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) for one or more records
CS_OFFL_SIR_GOPR_2_20190524T193617_20190524T193921_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) for one or more records
CS_OFFL_SIR_GOPR_2_20190524T210801_20190524T211516_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) for one or more records
CS_OFFL_SIR_GOPR_2_20190524T211516_20190524T211736_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) for one or more records
CS_OFFL_SIR_GOPR_2_20190524T224947_20190524T225411_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) for one or more records
CS_OFFL_SIR_GOPR_2_20190524T225411_20190524T225521_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) for one or more records

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: 2

Product	Test Failed	Description
CS_OFFL_SIR_GOPM_2_20190524T141946_20190524T142734_C001	Power scaling error	There is an error in the scaling of the L2 waveform for one or more records
CS_OFFL_SIR_GOPM_2_20190524T231937_20190524T233252_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: 87

Product	Test Failed	Description
CS_OFFL_SIR_GOPM_2_20190523T235248_20190524T000814_C001	Ocean Altimeter Range Quality, OCOG Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean and OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPM_2_20190524T001028_20190524T002524_C001	Ocean Altimeter Range Quality, OCOG Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean and OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPM_2_20190524T003208_20190524T003423_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_GOPM_2_20190524T003503_20190524T003922_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_GOPM_2_20190524T004128_20190524T005602_C001	Ocean Altimeter Range Quality, OCOG Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean and OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPM_2_20190524T005742_20190524T010018_C001	Ocean Altimeter Range Quality, OCOG Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean and OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPM_2_20190524T010020_20190524T011347_C001	Ocean Altimeter Range Quality, OCOG Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean and OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPM_2_20190524T013544_20190524T014224_C001	Ocean Altimeter Range Quality, OCOG Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean and OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPM_2_20190524T015158_20190524T020637_C001	Ocean Altimeter Range Quality, OCOG Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean and OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPM_2_20190524T020958_20190524T021827_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_GOPM_2_20190524T022059_20190524T024331_C001	Ocean Altimeter Range Quality, OCOG Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean and OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPM_2_20190524T031915_20190524T034542_C001	Ocean Altimeter Range Quality, OCOG Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean and OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPM_2_20190524T035149_20190524T035636_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_GOPM_2_20190524T040027_20190524T040233_C001	Ocean Altimeter Range Quality, OCOG Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean and OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPM_2_20190524T040242_20190524T042543_C001	Ocean Altimeter Range Quality, OCOG Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean and OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPM_2_20190524T042702_20190524T043340_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_GOPM_2_20190524T045814_20190524T050809_C001	Ocean Altimeter Range Quality, OCOG Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean and OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPM_2_20190524T051347_20190524T052430_C001	Ocean Altimeter Range Quality, OCOG Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean and OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPM_2_20190524T053109_20190524T053705_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_GOPM_2_20190524T053855_20190524T060013_C001	Ocean Altimeter Range Quality, OCOG Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean and OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPM_2_20190524T061513_20190524T061656_C001	Ocean Altimeter Range Quality, OCOG Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean and OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.

CS_OFFL_SIR_GOPM_2_20190524T221135_20190524T224359_C001	Ocean Altimeter Range Quality, OCOG Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean and OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPM_2_20190524T230018_20190524T231855_C001	Ocean Altimeter Range Quality, OCOG Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean and OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPM_2_20190524T231937_20190524T233252_C001	Ocean Altimeter Range Quality, OCOG Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean and OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPM_2_20190524T235031_20190525T000557_C001	Ocean Altimeter Range Quality, OCOG Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean and OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPN_2_20190524T102221_20190524T102254_C001	Ocean Altimeter Range Quality, OCOG Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean and OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPN_2_20190524T124956_20190524T125257_C001	Ocean Altimeter Range Quality, OCOG Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean and OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPN_2_20190524T152657_20190524T152703_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_20190524T192848_20190524T192919_C001	Ocean Altimeter Range Quality, OCOG Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean and OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPN_2_20190524T233859_20190524T234134_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_GOPR_2_20190524T011826_20190524T011914_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_GOPR_2_20190524T011934_20190524T012016_C001	Ocean Altimeter Range Quality, OCOG Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean and OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPR_2_20190524T012055_20190524T012233_C001	Ocean Altimeter Range Quality, OCOG Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean and OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPR_2_20190524T072041_20190524T072213_C001	Ocean Altimeter Range Quality, OCOG Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean and OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPR_2_20190524T085557_20190524T085732_C001	Ocean Altimeter Range Quality, OCOG Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean and OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPR_2_20190524T102137_20190524T102221_C001	Ocean Altimeter Range Quality, OCOG Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality, OCOG Backscatter Quality	The Ocean and OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_GOPR_2_20190524T142734_20190524T143025_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: 92

Product	Test Failed	Description
CS_OFFL_SIR_GOPN_2_20190524T002602_20190524T003207_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_20190524T003423_20190524T003502_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_20190524T012515_20190524T012728_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_20190524T012917_20190524T013128_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_20190524T014740_20190524T015158_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_20190524T024510_20190524T024844_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_20190524T161308_20190524T162250_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_GOPR_2_20190524T171058_20190524T171303_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_GOPR_2_20190524T175028_20190524T175804_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_GOPR_2_20190524T175830_20190524T180308_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_GOPR_2_20190524T182724_20190524T183234_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_GOPR_2_20190524T184944_20190524T185237_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_GOPR_2_20190524T192919_20190524T193617_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_GOPR_2_20190524T193617_20190524T193921_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_GOPR_2_20190524T194128_20190524T194508_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_20190524T201717_20190524T201845_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_GOPR_2_20190524T210801_20190524T211516_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_GOPR_2_20190524T215346_20190524T215913_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_GOPR_2_20190524T224947_20190524T225411_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_GOPR_2_20190524T225411_20190524T225521_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_GOPR_2_20190524T224947_20190524T225411_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_GOPR_2_20190524T225411_20190524T225521_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_GOPR_2_20190524T231856_20190524T231937_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_20190524T233252_20190524T233859_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.

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: 191

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: 65

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 GOPR and GOPN products over sea ice, but this is to be expected.

Number of products with errors: 148

6. GOP 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.

> **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__20190523T234418_20190524T003354_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__20190524T003354_20190524T012331_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_GOP_2__20190524T012331_20190524T021308_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) for one or more records
CS_OFFL_SIR_GOP_2__20190524T021308_20190524T030245_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) for one or more records
CS_OFFL_SIR_GOP_2__20190524T030245_20190524T035221_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), the Total Geocentric Ocean Tide height (solution 2: FES) and the Non-equilibrium Long Period Ocean Tide height for one or more records
CS_OFFL_SIR_GOP_2__20190524T035221_20190524T044159_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) for one or more records
CS_OFFL_SIR_GOP_2__20190524T044159_20190524T053135_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), the Total Geocentric Ocean Tide height (solution 2: FES) and the Non-equilibrium Long Period Ocean Tide height for one or more records
CS_OFFL_SIR_GOP_2__20190524T053135_20190524T062112_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) for one or more records
CS_OFFL_SIR_GOP_2__20190524T062112_20190524T071048_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) for one or more records
CS_OFFL_SIR_GOP_2__20190524T071048_20190524T080026_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) for one or more records
CS_OFFL_SIR_GOP_2__20190524T080026_20190524T085002_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) for one or more records
CS_OFFL_SIR_GOP_2__20190524T085002_20190524T093939_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_GOP_2__20190524T093939_20190524T102915_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) for one or more records
CS_OFFL_SIR_GOP_2__20190524T102915_20190524T111853_C001	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__20190524T111853_20190524T120829_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) for one or more records
CS_OFFL_SIR_GOP_2__20190524T120829_20190524T125806_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) for one or more records
CS_OFFL_SIR_GOP_2__20190524T125806_20190524T134743_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) for one or more records
CS_OFFL_SIR_GOP_2__20190524T134743_20190524T143720_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) for one or more records
CS_OFFL_SIR_GOP_2__20190524T143720_20190524T152656_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) for one or more records

CS_OFFL_SIR_GOP_2__20190524T152656_20190524T161633_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) for one or more records
CS_OFFL_SIR_GOP_2__20190524T161633_20190524T170610_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) for one or more records
CS_OFFL_SIR_GOP_2__20190524T170610_20190524T175547_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) for one or more records
CS_OFFL_SIR_GOP_2__20190524T175547_20190524T184523_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) for one or more records
CS_OFFL_SIR_GOP_2__20190524T184523_20190524T193501_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) for one or more records
CS_OFFL_SIR_GOP_2__20190524T193501_20190524T202437_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) for one or more records
CS_OFFL_SIR_GOP_2__20190524T202437_20190524T211414_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), the Total Geocentric Ocean Tide height (solution 2: FES) and the Non-equilibrium Long Period Ocean Tide height for one or more records
CS_OFFL_SIR_GOP_2__20190524T211414_20190524T220350_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) for one or more records
CS_OFFL_SIR_GOP_2__20190524T220350_20190524T225328_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) for one or more records
CS_OFFL_SIR_GOP_2__20190524T225328_20190524T234304_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), the Total Geocentric Ocean Tide height (solution 2: FES) and the Non-equilibrium Long Period Ocean Tide height for one or more records
CS_OFFL_SIR_GOP_2__20190524T234304_20190525T003241_C002	GPD Wet Tropospheric Correction	There is an error with the GPD Wet Tropospheric Correction 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: 2

Product	Test Failed	Description
CS_OFFL_SIR_GOP_2__20190524T134743_20190524T143720_C001	Power scaling error	There is an error in the scaling of the L2 waveform for one or more records
CS_OFFL_SIR_GOP_2__20190524T225328_20190524T234304_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 GOPR and GOPN 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 GOPR and GOPN products over sea ice, but this is to be expected.

Number of products with errors: 30