

# IDEAS+ Daily Report for IOP data:

## 30/05/2019



			1. Overview		
	14 hrs 2010		Check	L1 & L2	P2P
Report Production:	14-Jun-2019		Server check: science-pds.cryosat.esa.int	Nominal	Nominal
Processor Used:	CryoSat Ocean Processor		Server check: calval-pds.cryosat.esa.int	Nominal	Nominal
FIOCESSOI OSEU.	CryoSat Ocean Processor		Product Software Check	Nominal	Nominal
Data Used:	Intermediate Ocean Products (IOP)		Product Format Check	Nominal	Nominal
Duia Occu.	L1B, L2 & P2P Science Data		Product Header Analysis	Nominal	Nominal
			Auxiliary Data File Usage Check	Nominal	Nominal
			Auxiliary Correction Error Check	See Section	
			Measurement Confidence Data Check	See Section 4.5, 4.0	
		R	ange, SWH & Backscatter Measurement Check		
			Ocean Retracking Quality Check	See Section	5.7 See Section 6.7
29-May-2019 None 30-May-2019 None 31-May-2019 Nothing	planned		2. Global Coverage		
A STAND					
					Mode Coverage

## 3. Instrument Configuration

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

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SIRAL instrument(s) in use:

4. IOP Level 1B Data Quality Check

### 4.1 L1B Product Format Check

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

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Number of products with errors:

## 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 I1b\_proc\_flag\_hr flag is currently set all L1B IOPR and IOPN products because the I1b\_processing\_quality\_hr field is not correctly configured in the OSAR and OSARIn chains. A modification is required in the next release.

### 4.3 L1B Auxilary 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:

#### 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:

#### 4.5 L1B Measurement Confidence Data Check

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

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

Number of products with errors:

### 4.6 L1B Waveform Group Data Check

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

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

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#### Number of products with errors:

Product	Test Failed	Description
CS_OFFL_SIR_IOPM1B_20190530T094145_20190530T101421_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPM1B_20190530T113817_20190530T115336_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPM1B_20190530T134659_20190530T142020_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPN1B_20190530T074416_20190530T074543_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPN1B_20190530T083727_20190530T084138_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPN1B_20190530T092919_20190530T093048_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPN1B_20190530T110318_20190530T110456_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPN1B_20190530T193052_20190530T193113_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPR1B_20190530T042800_20190530T042919_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPR1B_20190530T061120_20190530T061914_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPR1B_20190530T074943_20190530T075856_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPR1B_20190530T123924_20190530T123941_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPR1B_20190530T124551_20190530T124646_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPR1B_20190530T160538_20190530T161534_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPR1B_20190530T174313_20190530T175050_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPR1B_20190530T184224_20190530T184521_C001	Loss of Echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_IOPR1B_20190530T210039_20190530T210754_C001	Loss of Echo	The tracking echo is missing for one or more records

## 5. IOP Level 2 Data Quality Check

### 5.1 L2 Product Format Check

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

Number of products with errors:

### 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:

### 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.

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> 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:

Product	Test Failed	Description
CS_OFFL_SIR_IOPM_2_20190530T142245_20190530T142328_C001		There is an error with the MSS height (solution 1), the Mean Dynamic Topography height (solution 1) and the tidal corrections for one or more records

CS_OFFL_SIR_IOPN_2_20190530T001850_20190530T002442_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_IOPN_2_20190530T011757_20190530T011851_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_IOPN_2_20190530T020046_20190530T020229_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography height for one or more records
CS_OFFL_SIR_IOPN_2_20190530T021108_20190530T021311_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography height for one or more records
CS_OFFL_SIR_IOPN_2_20190530T025710_20190530T030158_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_IOPN_2_20190530T051954_20190530T052113_C001	Mean Sea Surface (1)	There is an error with the MSS height (solution 1) for one or more records
CS_OFFL_SIR_IOPN_2_20190530T052118_20190530T052348_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), the Mean Dynamic Topography height (solution 1) and the tidal corrections for one or more records
CS_OFFL_SIR_IOPN_2_20190530T065942_20190530T070255_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_IOPN_2_20190530T074416_20190530T074543_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_IOPN_2_20190530T083727_20190530T084138_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_IOPN_2_20190530T084711_20190530T084836_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_IOPN_2_20190530T092649_20190530T092919_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_IOPN_2_20190530T092919_20190530T093048_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_IOPN_2_20190530T102503_20190530T102646_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_IOPN_2_20190530T110850_20190530T110945_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_IOPN_2_20190530T120255_20190530T120513_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_IOPN_2_20190530T124647_20190530T124859_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_IOPN_2_20190530T133309_20190530T133502_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography height for one or more records
CS_OFFL_SIR_IOPN_2_20190530T134150_20190530T134633_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_IOPN_2_20190530T142328_20190530T142722_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_IOPN_2_20190530T151315_20190530T151547_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography height for one or more records
CS_OFFL_SIR_IOPN_2_20190530T152307_20190530T152455_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_IOPN_2_20190530T165157_20190530T165308_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography height for one or more records
CS_OFFL_SIR_IOPN_2_20190530T183214_20190530T183328_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography height for one or more records
CS_OFFL_SIR_IOPN_2_20190530T184108_20190530T184223_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography height for one or more records
CS_OFFL_SIR_IOPN_2_20190530T201127_20190530T201250_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_IOPN_2_20190530T201800_20190530T202109_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), the Mean Dynamic Topography height (solution 1) and the tidal corrections for one or more records
CS_OFFL_SIR_IOPN_2_20190530T215213_20190530T215458_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_IOPN_2_20190530T215703_20190530T220231_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_IOPN_2_20190530T224755_20190530T225222_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_IOPN_2_20190530T233136_20190530T233412_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190530T011357_20190530T011455_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190530T011455_20190530T011757_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190530T025024_20190530T025710_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)

CS OFFL SIR IOPR 2 20190530T043213 20190530T043736 C001	Mean Sea Surface (1), Mean Dynamic	There is an error with the MSS height (solution 1) and the Mean Dynamic
	Topography (1)	Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190530T060024_20190530T060218_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography height for one or more records
CS_OFFL_SIR_IOPR_2_20190530T061120_20190530T061914_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190530T074943_20190530T075856_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190530T093049_20190530T093836_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190530T110945_20190530T111526_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190530T124859_20190530T125547_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190530T142723_20190530T143241_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190530T160538_20190530T161534_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190530T174313_20190530T175050_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190530T180009_20190530T180205_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography height for one or more records
CS_OFFL_SIR_IOPR_2_20190530T192105_20190530T192855_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190530T192855_20190530T193017_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190530T210039_20190530T210754_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190530T210754_20190530T211156_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190530T211221_20190530T212235_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography height for one or more records
CS_OFFL_SIR_IOPR_2_20190530T224034_20190530T224133_C001	Mean Dynamic Topography (1)	There is an error with the Mean Dynamic Topography height for one or more records
CS_OFFL_SIR_IOPR_2_20190530T224226_20190530T224647_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOPR_2_20190530T224647_20190530T224755_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: 1

Product	Test Failed	Description
CS_OFFL_SIR_IOPM_2_20190530T012712_20190530T013421_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.

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ber of products with errors:
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Product	Test Failed	Description
CS_OFFL_SIR_IOPM_2_20190530T000713_20190530T001850_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T002737_20190530T003159_C001	OCOG Altimeter Range Quality, OCOG Backscatter Quality	The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T003421_20190530T004842_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T005021_20190530T010533_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T012712_20190530T013421_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T014332_20190530T015920_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T020229_20190530T021108_C001	OCOG Altimeter Range Quality, OCOG Backscatter Quality	The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T021340_20190530T023605_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.

CS_OFFL_SIR_IOPM_2_20190530T031404_20190530T033816_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T034432_20190530T034906_C001	OCOG Altimeter Range Quality, OCOG Backscatter Quality	The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T035306_20190530T042143_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T045016_20190530T050048_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T050626_20190530T051709_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T052349_20190530T052942_C001	OCOG Altimeter Range Quality, OCOG Backscatter Quality	The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T053128_20190530T055619_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T060840_20190530T060936_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T062213_20190530T065607_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T070255_20190530T070812_C001	OCOG Altimeter Range Quality, OCOG Backscatter Quality	The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T071056_20190530T071253_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T071453_20190530T071702_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T074543_20190530T074943_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T080208_20190530T081057_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T081343_20190530T083520_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T084304_20190530T084711_C001	OCOG Altimeter Range Quality, OCOG Backscatter Quality	The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T085026_20190530T090218_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T090406_20190530T091023_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T094145_20190530T101421_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T101639_20190530T102155_C001	OCOG Altimeter Range Quality, OCOG Backscatter Quality	The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T102214_20190530T102502_C001	OCOG Altimeter Range Quality, OCOG Backscatter Quality	The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T103256_20190530T110310_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T110824_20190530T110850_C001	OCOG Altimeter Range Quality, OCOG Backscatter Quality	The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T112158_20190530T113613_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T113817_20190530T115336_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T120059_20190530T120106_C001	OCOG Altimeter Range Quality, OCOG Backscatter Quality	The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T121017_20190530T122033_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T122652_20190530T123923_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T131355_20190530T131638_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T131817_20190530T133234_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T133502_20190530T134003_C001	OCOG Altimeter Range Quality, OCOG Backscatter Quality	The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T134659_20190530T142020_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T144948_20190530T151132_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T151547_20190530T151919_C001	OCOG Altimeter Range Quality, OCOG Backscatter Quality	The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T151942_20190530T152307_C001	OCOG Altimeter Range Quality, OCOG Backscatter Quality	The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.

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CS_OFFL_SIR_IOPM_2_20190530T152602_20190530T155443_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T162436_20190530T165135_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T165329_20190530T165833_C001	OCOG Altimeter Range Quality, OCOG Backscatter Quality	The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T165840_20190530T170208_C001	OCOG Altimeter Range Quality, OCOG Backscatter Quality	The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T170546_20190530T171642_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T172219_20190530T173944_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T180206_20190530T181223_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T182517_20190530T183042_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T183328_20190530T183905_C001	OCOG Altimeter Range Quality, OCOG Backscatter Quality	The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T184522_20190530T191905_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T193204_20190530T193305_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T195135_20190530T200946_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T201250_20190530T201800_C001	OCOG Altimeter Range Quality, OCOG Backscatter Quality	The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T202414_20190530T205824_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T212235_20190530T212656_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T212751_20190530T214528_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T220418_20190530T222457_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T222604_20190530T223425_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T225304_20190530T231108_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T231407_20190530T232600_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T233412_20190530T233612_C001	OCOG Altimeter Range Quality, OCOG Backscatter Quality	The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T233726_20190530T234114_C001	OCOG Altimeter Range Quality, OCOG Backscatter Quality	The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20190530T234311_20190530T235834_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_IOPN_2_20190530T111526_20190530T111540_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_IOPN_2_20190530T151315_20190530T151547_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_IOPR_2_20190530T011455_20190530T011757_C001	Ocean Altimeter Range Quality, Ocean SSHA Quality, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20190530T211221_20190530T212235_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.

## 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.

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Number of products with errors:

Product	Test Failed	Description
	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_IOPN_2_20190530T025710_20190530T030158_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.
	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_IOPN_2_20190530T034906_20190530T035125_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_IOPN_2_20190530T065942_20190530T070255_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_IOPN_2_20190530T083727_20190530T084138_C001
CS_OFFL_SIR_IOPN_2_20190530T084711_20190530T084836_C001
CS_OFFL_SIR_IOPN_2_20190530T092919_20190530T093048_C001
CS_OFFL_SIR_IOPN_2_20190530T110850_20190530T110945_C001
CS_OFFL_SIR_IOPN_2_20190530T115407_20190530T115549_C001
CS_OFFL_SIR_IOPN_2_20190530T120255_20190530T120513_C001
CS_OFFL_SIR_IOPN_2_20190530T124647_20190530T124859_C001
CS_OFFL_SIR_IOPN_2_20190530T133309_20190530T133502_C001
CS_OFFL_SIR_IOPN_2_20190530T134150_20190530T134633_C001
CS_OFFL_SIR_IOPN_2_20190530T151315_20190530T151547_C001
CS_OFFL_SIR_IOPN_2_20190530T174202_20190530T174313_C001
CS_OFFL_SIR_IOPN_2_20190530T183214_20190530T183328_C001
CS_OFFL_SIR_IOPN_2_20190530T184108_20190530T184223_C001
CS_OFFL_SIR_IOPN_2_20190530T193052_20190530T193113_C001
CS_OFFL_SIR_IOPN_2_20190530T201800_20190530T202109_C001
CS_OFFL_SIR_IOPN_2_20190530T215213_20190530T215458_C001
CS_OFFL_SIR_IOPN_2_20190530T215703_20190530T220231_C001
CS_OFFL_SIR_IOPN_2_20190530T233136_20190530T233412_C001
CS_OFFL_SIR_IOPN_2_20190530T234114_20190530T234255_C001
CS_OFFL_SIR_IOPR_2_20190530T011455_20190530T011757_C001
CS_OFFL_SIR_IOPR_2_20190530T015920_20190530T020046_C001
CS_OFFL_SIR_IOPR_2_20190530T025024_20190530T025710_C001
CS_OFFL_SIR_IOPR_2_20190530T035126_20190530T035306_C001
CS_OFFL_SIR_IOPR_2_20190530T043213_20190530T043736_C001
CS_OFFL_SIR_IOPR_2_20190530T051710_20190530T051953_C001
CS_OFFL_SIR_IOPR_2_20190530T061120_20190530T061914_C001
CS_OFFL_SIR_IOPR_2_20190530T065607_20190530T065942_C001
CS_OFFL_SIR_IOPR_2_20190530T074943_20190530T075856_C001
CS_OFFL_SIR_IOPR_2_20190530T083520_20190530T083727_C001
CS_OFFL_SIR_IOPR_2_20190530T093049_20190530T093836_C001
CS_OFFL_SIR_IOPR_2_20190530T110945_20190530T111526_C001
CS_OFFL_SIR_IOPR_2_20190530T120513_20190530T121017_C001
CS_OFFL_SIR_IOPR_2_20190530T124551_20190530T124646_C001
CS_OFFL_SIR_IOPR_2_20190530T124859_20190530T125547_C001
CS_OFFL_SIR_IOPR_2_20190530T131638_20190530T131817_C001

Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality OCOG Altimeter Range Quality PLRM, OCOG Backscatter Quality Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality Ocean Animeter Range Quality PLRIVI, OCOG Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality Ocean Backscatter Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality Ocean Aumeter Kange Quality PLKW, OCOG Altimeter Range Quality PLRM. Ocean SSHA Quality PLRM, Ocean SWH Ouglity O OCOG Altimeter Range Quality PLRM. OCOG Backscatter Quality OCOG Altimeter Range Quality PLRM, OCOG Backscatter Quality Ocean Altimeter Range Quality PLRM. Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality Ocean Animeter Range Quality PLRW, OCOG Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality Ocean Alumeter Range Quality PLRIVI, OCOG Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean WH Quality Ocean Rack OCOG Altimeter Range Quality PLRM. OCOG Backscatter Quality ean Allmeler Range Quality P OCOG Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean OCOG Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean OCOG Altimeter Range Quality PLRM, OCOG Backscatter Quality Ocean Allimeter Range Quality PLRIV OCOG Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality Ocean Altimeter Range Quality PLRM. Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM. Ocean SWH Quality, Ocean Backscatter Quality Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality. Ocean Backscatter Quality Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM. Ocean

The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.

The OCOG Range and Backscatter Quality Flags have been set for one or more records.

The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.

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.

The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.

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.

The OCOG Range and Backscatter Quality Flags have been set for one or more records.

The OCOG Range and Backscatter Quality Flags have been set for one or more records.

The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.

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.

The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.

The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.

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.

The OCOG Range and Backscatter Quality Flags have been set for one or more records.

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.

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.

The OCOG Range and Backscatter Quality Flags have been set for one or more records.

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.

The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.

The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.

The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.

The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.

The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.

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The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.

The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.

The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.

The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.

Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality Flags have been set for one or more records.

CS_OFFL_SIR_IOPR_2_20190530T142021_20190530T142245_C001	Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags			
C3_011 L_3IK_10FK_2_201903301142021_201903301142243_C001	SWH Quality, Ocean Backscatter Quality	have been set for one or more records.			
CS_OFFL_SIR_IOPR_2_20190530T142723_20190530T143241_C001	SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.			
CS_OFFL_SIR_IOPR_2_20190530T151133_20190530T151315_C001		The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.			
CS_OFFL_SIR_IOPR_2_20190530T160538_20190530T161534_C001	Ocean Altimeter Range Quality PLRM, Ocean SSHA Quality PLRM, Ocean SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.			
CS_OFFL_SIR_IOPR_2_20190530T174313_20190530T175050_C001		The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.			
CS_OFFL_SIR_IOPR_2_20190530T184224_20190530T184521_C001		The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.			
CS_OFFL_SIR_IOPR_2_20190530T192105_20190530T192855_C001		The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.			
CS_OFFL_SIR_IOPR_2_20190530T192855_20190530T193017_C001	SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.			
CS_OFFL_SIR_IOPR_2_20190530T193113_20190530T193204_C001	SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.			
CS_OFFL_SIR_IOPR_2_20190530T202109_20190530T202414_C001		The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.			
CS_OFFL_SIR_IOPR_2_20190530T210039_20190530T210754_C001	SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.			
CS_OFFL_SIR_IOPR_2_20190530T210754_20190530T211156_C001	SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.			
CS_OFFL_SIR_IOPR_2_20190530T214528_20190530T215212_C001	SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.			
CS_OFFL_SIR_IOPR_2_20190530T224034_20190530T224133_C001	SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.			
CS_OFFL_SIR_IOPR_2_20190530T224647_20190530T224755_C001	SWH Quality, Ocean Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.			
CS_OFFL_SIR_IOPR_2_20190530T232600_20190530T233136_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, wh	ich are summarised below.				
> 1Hz and 1Hz Ocean SSHA Quality Flags: These flags are currently set for pro	ducts 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 measure	ment record. The bit value of this flag indica	ates any problems when set.			
Ocean Retracking Quality Flag: This flag is currently set for products over land a	and sea ice, but this is to be expected. The r	number of products with this error flag set is given below.			
Number of products with errors:         62					
L2 Retracking Flags (20Hz, PLRM)					
CryoSat L2 data includes an ocean retracking quality flag for each 20-Hz PLRM m	easurement record. The bit value of this flag	g 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: 152					
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.

Product	Test Failed	Description
CS_OFFL_SIR_IOP_220190529T233657_20190530T002634_C002	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_220190530T002634_20190530T011611_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_220190530T011611_20190530T020548_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_220190530T020548_20190530T025524_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_220190530T025524_20190530T034502_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_220190530T034502_20190530T043438_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_220190530T043438_20190530T052415_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), the Mean Dynamic Topography height (solution 1) and the tidal corrections for one or more records
CS_OFFL_SIR_IOP_220190530T052415_20190530T061351_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_220190530T061351_20190530T070329_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_220190530T070329_20190530T075305_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 heig (solution 1: GOT) for one or more records
CS_OFFL_SIR_IOP_220190530T075305_20190530T084242_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_220190530T084242_20190530T093218_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 heig (solution 1: GOT) for one or more records
CS_OFFL_SIR_IOP_220190530T093218_20190530T102156_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_220190530T102156_20190530T111132_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_220190530T111132_20190530T120109_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_220190530T120109_20190530T125046_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 heig (solution 1: GOT) for one or more records
CS_OFFL_SIR_IOP_220190530T125046_20190530T134023_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_220190530T134023_20190530T142959_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), the Mean Dynamic Topography height (solution 1) and the tidal corrections for one or more records
CS_OFFL_SIR_IOP_220190530T142959_20190530T151937_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_220190530T151937_20190530T160913_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_220190530T160913_20190530T165850_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_220190530T165850_20190530T174826_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_220190530T174826_20190530T183804_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_220190530T183804_20190530T192740_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_220190530T192740_20190530T201717_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_220190530T201717_20190530T210653_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), the Mean Dynamic Topography height (solution 1) and the tidal corrections for one or more records
CS_OFFL_SIR_IOP_220190530T210653_20190530T215631_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_220190530T215631_20190530T224607_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)
CS_OFFL_SIR_IOP_220190530T224607_20190530T233544_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)

## 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: 1

Product		Test Failed	Description		
CS_OFFL_SIR_IOP_220190530T011611_20190530T	F020548_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, plea	ase see Section 5.6 for the full list of p	roducts affected.		
Number of products with errors: 3	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: 2	26				
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: 3	80				
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: 2	29				
P2P Retracking Flags PLRM					
CryoSat L2 data includes an ocean retracking quality flag for each 20-Hz PLRM measurement record. The bit value of this flag indicates any problems when set.					
Ocean Retracking Quality Flag (PLRM): This flag is currently set for products NOPR and NOPN products over sea ice, but this is to be expected.					
			•		