

# **QA4EO Daily Report for IOP data:**

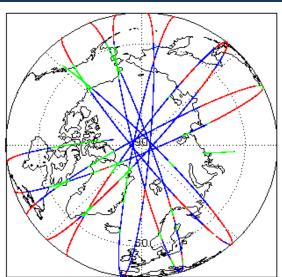
<u>15/12/2021</u>

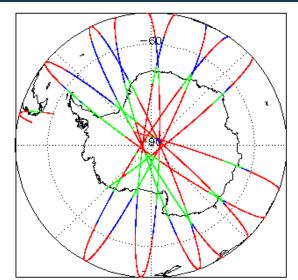
	20-Dec-2021	Check	L1 & L2	P2P
eport Production:	20-Dec-2021	Server check: science-pds.cryosat.esa.int	Nominal	Nominal
Processor Used:	CryoSat Ocean Processor	Server check: calval-pds.cryosat.esa.int	Nominal	Nominal
Processor Useu.	CryoSat Ocean Processor	Product Software Check	Nominal	Nominal
Data Used:	Intermediate Ocean Products (IOP)	Product Format Check	Nominal	Nominal
L1B, L2 & P2P Science Data	L1B, L2 & P2P Science Data	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
		QCC Error/ Warning Check	See Section 7.1 and 7.2	See Section 7.1 and 7

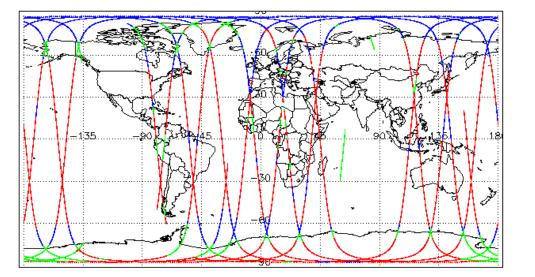
1. Overview

Mission / Instrument News		
14-Dec-2021	None	
15-Dec-2021	SIRAL unavailability due to Roll Manoeuvres on 15 December 2021, from 03:27:30 to 06:52:28 and from 16:01:00 to 19:11:49.	
16-Dec-2021	6-Dec-2021 SIRAL unavailability due to an unplanned Platform Anomaly on 16 December 2021 from 08:29:13 onwards.	

# 2. Global Coverage











# 3. Instrument Configuration

SIRAL instrument(s) in use:

SIRAL - A

0

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

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).

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.					
Number of products with errors: 0					
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: 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 indicate	s 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 measurem	ont record. The bit value of this flo	ng indicates any problems when set			
Attitude Correction Missing: This flag is currently set in error for IOPR produc					
Number of products with errors: 1	to due to a configuration locae. In				
	Test Failed	Description There is an error in the scaling of the L1B waveform for one or more			
CS_OFFL_SIR_IOPM1B_20211215T070449_20211215T073257_C001	Power scaling error	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 indicate	s any problems when set.			
Loss of Echo Flag: This flag is currently set for products over land, but this is t	o be expected.				
Number of products with errors: 17					
Product	Test Failed	Description			
CS_OFFL_SIR_IOPM1B_20211215T075527_20211215T082836_C001	Loss of Echo	The tracking echo is missing for one or more records			
CS_OFFL_SIR_IOPM1B_20211215T125546_20211215T130423_C001	Loss of Echo	The tracking echo is missing for one or more records			
CS_OFFL_SIR_IOPM1B_20211215T201834_20211215T205116_C001	Loss of Echo	The tracking echo is missing for one or more records			
CS_OFFL_SIR_IOPN1B_20211215T011524_20211215T011650_C001	Loss of Echo	The tracking echo is missing for one or more records			
CS_OFFL_SIR_IOPN1B_20211215T110045_20211215T110334_C001	Loss of Echo	The tracking echo is missing for one or more records			
CS_OFFL_SIR_IOPN1B_20211215T141604_20211215T141742_C001	Loss of Echo	The tracking echo is missing for one or more records			
CS_OFFL_SIR_IOPN1B_20211215T141935_20211215T142146_C001	Loss of Echo	The tracking echo is missing for one or more records			
CS_OFFL_SIR_IOPN1B_20211215T152257_20211215T152523_C001	Loss of Echo	The tracking echo is missing for one or more records			
CS_OFFL_SIR_IOPN1B_20211215T192326_20211215T192401_C001	Loss of Echo	The tracking echo is missing for one or more records			
CS_OFFL_SIR_IOPR1B_20211215T024603_20211215T024748_C001	Loss of Echo	The tracking echo is missing for one or more records			
CS_OFFL_SIR_IOPR1B_20211215T073257_20211215T073358_C001	Loss of Echo	The tracking echo is missing for one or more records			
CS_OFFL_SIR_IOPR1B_20211215T090929_20211215T091317_C001	Loss of Echo	The tracking echo is missing for one or more records			
CS_OFFL_SIR_IOPR1B_20211215T105827_20211215T110044_C001	Loss of Echo	The tracking echo is missing for one or more records			
CS_OFFL_SIR_IOPR1B_20211215T115954_20211215T120258_C001	Loss of Echo	The tracking echo is missing for one or more records			
CS_OFFL_SIR_IOPR1B_20211215T141311_20211215T141604_C001 CS_OFFL_SIR_IOPR1B_20211215T201514_20211215T201834_C001	Loss of Echo Loss of Echo	The tracking echo is missing for one or more records The tracking echo is missing for one or more records			
CS_OFFL_SIR_IOPR1B_20211215T224516_20211215T225241_C001	Loss of Echo	The tracking echo is missing for one or more records			
5. 10	P Level 2 Data Qual	ity Check			
5.1 L2 Product Format Check					
Each product ratriaved and uppacked from the science server is checked to a	asure it consists of both an XML b	eader file ( HDR) and a binany product file ( DRI )			
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	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 Corection, 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.

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Product	Test Failed	Description There is an error with the MSS height (solution 1) and the Mean Dynamic
CS_OFFL_SIR_IOPN_2_20211215T001557_20211215T001833_C001	Mean Sea Surface (1), Mean Dynamic Topography (1)	Topography height (solution 1)
CS_OFFL_SIR_IOPN_2_20211215T011113_20211215T011233_C001	Mean Sea Surface (1), Mean Dynamic Topography (1), Total Geocentric Ocean Tide (GOT)	There is an error with the MSS height (solution 1), the Mean Dynamic Topography (solution 1), the Total Geocentric Ocean Tide (solution 1: GOT) for one or more records
CS_OFFL_SIR_IOPN_2_20211215T015314_20211215T015728_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_20211215T025030_20211215T025134_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_20211215T065426_20211215T065628_C001	Mean Sea Surface (1), Mean Dynamic Topography (1), Total Geocentric Ocean Tide (GOT), Total Geocentric Ocean Tide (FES), Non-Equilibrium Long Perioc Ocean Tide	There is an error with the MSS height (solution 1), the Mean Dynamic Topography (solution 1), and tidal corrections for one or more records
CS_OFFL_SIR_IOPN_2_20211215T083217_20211215T083537_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_20211215T084101_20211215T084219_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_20211215T101113_20211215T101433_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_20211215T110045_20211215T110334_C001	Mean Sea Surface (1), Mean Dynamic Topography (1), Total Geocentric Ocean Tide (GOT)	There is an error with the MSS height (solution 1), the Mean Dynamic Topography (solution 1), the Total Geocentric Ocean Tide (solution 1: GOT) for one or more records
CS_OFFL_SIR_IOPN_2_20211215T114744_20211215T114943_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_20211215T115822_20211215T115954_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_20211215T124134_20211215T124235_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_20211215T133548_20211215T133754_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_20211215T141935_20211215T142146_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_20211215T142146_20211215T142150_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_20211215T150604_20211215T150750_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_20211215T152257_20211215T152523_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_20211215T155606_20211215T160020_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_20211215T191149_20211215T191551_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_20211215T200445_20211215T200610_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_20211215T214414_20211215T214540_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_20211215T215052_20211215T215355_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_20211215T232955_20211215T233511_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_20211215T010411_20211215T010854_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_20211215T010854_20211215T011113_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_20211215T024402_20211215T024535_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_20211215T024603_20211215T024749_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_20211215T024749_20211215T025030_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_20211215T073257_20211215T073358_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_20211215T073837_20211215T074023_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_20211215T074357_20211215T075208_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_20211215T092249_20211215T093109_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_20211215T110334_20211215T111126_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_20211215T124235_20211215T124819_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_20211215T142150_20211215T142837_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_20211215T160020_20211215T160100_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_20211215T191551_20211215T192326_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_20211215T205500_20211215T210148_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_20211215T210148_20211215T210446_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_20211215T223327_20211215T224048_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_20211215T224048_20211215T224241_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_20211215T070449_20211215T073257_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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Product	Test Failed	Description
CS_OFFL_SIR_IOPM_2_20211214T234605_20211215T000858_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T002735_20211215T004449_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T004931_20211215T005802_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T011234_20211215T011524_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_20211215T011720_20211215T013331_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T013545_20211215T015025_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T015728_20211215T015939_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_20211215T020025_20211215T020441_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_20211215T020634_20211215T022153_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T022354_20211215T023315_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T030046_20211215T031246_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T031749_20211215T032730_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and 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_20211215T065629_20211215T070229_C001		The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T070449_20211215T073257_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T073401_20211215T073438_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_20211215T073607_20211215T073612_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_20211215T074023_20211215T074227_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T075527_20211215T082836_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T083537_20211215T084101_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_20211215T084445_20211215T084856_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T085145_20211215T085516_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_20211215T091906_20211215T092248_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T093455_20211215T094342_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T094627_20211215T100819_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T101433_20211215T101541_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_20211215T101547_20211215T101954_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_20211215T102441_20211215T103500_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T103648_20211215T104137_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T111333_20211215T114655_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T114943_20211215T115440_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_20211215T115501_20211215T115822_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_20211215T120541_20211215T123703_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T123927_20211215T124133_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_20211215T125546_20211215T130423_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T131022_20211215T132633_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T132828_20211215T133339_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_20211215T133346_20211215T133353_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_20211215T134337_20211215T135723_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and 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_20211215T140010_20211215T141311_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T143357_20211215T143407_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_20211215T143906_20211215T144925_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T145104_20211215T150513_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T150751_20211215T151251_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_20211215T152127_20211215T152257_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T152523_20211215T153512_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T154600_20211215T155218_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_20211215T194028_20211215T194220_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T194449_20211215T195309_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T195801_20211215T200238_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T200610_20211215T201159_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_20211215T201834_20211215T205116_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T212701_20211215T212849_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T213005_20211215T214055_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T214540_20211215T215052_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_20211215T215719_20211215T221908_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T222152_20211215T223126_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T224453_20211215T224516_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T230147_20211215T232019_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPM_2_20211215T232732_20211215T232955_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_20211215T233656_20211216T000954_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPN_2_20211215T065228_20211215T065347_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_IOPN_2_20211215T065426_20211215T065628_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_IOPN_2_20211215T074353_20211215T074357_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPN_2_20211215T091456_20211215T091507_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_IOPN_2_20211215T124819_20211215T124831_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_IOPN_2_20211215T201401_20211215T201514_C001		The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T024402_20211215T024535_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T151252_20211215T151258_C001		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.
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> OCOG Altimeter Range and Backscatter PLRM Quality Flags: These flags are currently set for occasional records over continental ice.

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Product	Test Failed	Description
CS_OFFL_SIR_IOPN_2_20211215T001557_20211215T001833_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPN_2_20211215T002026_20211215T002652_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPN_2_20211215T011113_20211215T011233_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPN_2_20211215T011524_20211215T011650_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_IOPN_2_20211215T020442_20211215T020616_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPN_2_20211215T023316_20211215T023411_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_IOPN_2_20211215T025215_20211215T025302_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_IOPN_2_20211215T025453_20211215T025659_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPN_2_20211215T031246_20211215T031748_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_IOPN_2_20211215T042102_20211215T042346_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_IOPN_2_20211215T065228_20211215T065347_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPN_2_20211215T074353_20211215T074357_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPN_2_20211215T075208_20211215T075527_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPN_2_20211215T090123_20211215T090144_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_IOPN_2_20211215T090336_20211215T090459_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_IOPN_2_20211215T091813_20211215T091906_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_IOPN_2_20211215T093110_20211215T093429_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPN_2_20211215T101954_20211215T102119_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPN_2_20211215T104137_20211215T104455_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_IOPN_2_20211215T110045_20211215T110334_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_IOPN_2_20211215T115822_20211215T115954_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPN_2_20211215T141604_20211215T141742_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPN_2_20211215T141935_20211215T142146_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPN_2_20211215T143640_20211215T143906_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_IOPN_2_20211215T152257_20211215T152523_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_IOPN_2_20211215T153512_20211215T153809_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_IOPN_2_20211215T155606_20211215T160020_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPN_2_20211215T191149_20211215T191551_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_IOPN_2_20211215T200445_20211215T200610_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_IOPN_2_20211215T205133_20211215T205231_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_IOPN_2_20211215T211207_20211215T211250_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_IOPN_2_20211215T212121_20211215T212306_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_IOPN_2_20211215T230113_20211215T230146_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_IOPR_2_20211215T000858_20211215T001557_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T005932_20211215T010024_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_IOPR_2_20211215T010411_20211215T010854_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T024603_20211215T024749_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T024749_20211215T025030_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T025302_20211215T025452_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T025659_20211215T030046_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T073438_20211215T073452_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_IOPR_2_20211215T074357_20211215T075208_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T082836_20211215T083217_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T084219_20211215T084445_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T091539_20211215T091757_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_IOPR_2_20211215T100819_20211215T101113_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T110334_20211215T111126_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T111156_20211215T111247_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_IOPR_2_20211215T115954_20211215T120258_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T124235_20211215T124819_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T125204_20211215T125233_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_IOPR_2_20211215T133755_20211215T134337_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T135723_20211215T140010_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_IOPR_2_20211215T141742_20211215T141935_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T191551_20211215T192326_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T192401_20211215T192820_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T201514_20211215T201834_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T205500_20211215T210148_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T210148_20211215T210446_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T210656_20211215T210725_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T210747_20211215T211044_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_IOPR_2_20211215T211334_20211215T211654_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_IOPR_2_20211215T214055_20211215T214414_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T221908_20211215T222152_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T223327_20211215T224048_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T224048_20211215T224241_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T224516_20211215T225241_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_IOPR_2_20211215T232019_20211215T232430_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.
CS_OFFL_SIR_IOPR_2_20211215T233512_20211215T233656_C001	Ocean Altimeter Range, SSHA, SWH and Backscatter Quality PLRM, OCOG Altimeter Range and Backscatter Quality PLRM	The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and the OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.

## L2 Quality Flags (1 Hz & 1Hz PLRM)

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

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

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 la	and 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: 46					
L2 Retracking Flags (20Hz, PLRM) CryoSat L2 data includes an ocean retracking quality flag for each 20-Hz PLR	M measurement record. The hit value of this fla	an indicates any problems when set			
Ocean Retracking Quality Flag (PLRM): This flag is currently set for produc					
Number of products with errors: 122		•			
	2 Pole-to-Pole Data Quality	Chack			
		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 an	d SPH in order to identify any inconsistencies a	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 pr	e-determined baseline and also to check the va	alidity 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 ch	necked for the default error value (32767)				
Currently, there are some common auxiliary correction errors raised in t		e to surface type. All common flags are summarised in the list below,			
followed by a table highlighting any additional issues which may arise fr		, , , , , , , , , , , , , , , , , , ,			
ECMWF Meteo Corrections: Currently the following corrections are not con Correction and the U-Wind and V-Wind components of the ECMWF model win not reported in the table below.					
> Sea State Bias & Sea State Bias PLRM: The error value is currently set fo	or products over sea ice, but this is to be expected	ed.			
		ed.			
> Mean Sea Surface: The error value is currently set for products over land a	and sea ice, but this is to be expected.				
<ul> <li>&gt; Mean Sea Surface: The error value is currently set for products over land a</li> <li>&gt; Mean Dynamic Topography: The error value is currently set for products or</li> <li>&gt; Altimetric Wind Speed Error: The error value is currently set for products</li> </ul>	and sea ice, but this is to be expected. over land and sea ice, but this is to be expected	L			
<ul> <li>&gt; Mean Sea Surface: The error value is currently set for products over land a</li> <li>&gt; Mean Dynamic Topography: The error value is currently set for products or</li> <li>&gt; Altimetric Wind Speed Error: The error value is currently set for products</li> <li>Number of products with errors: 23</li> </ul>	and sea ice, but this is to be expected. over land and sea ice, but this is to be expected over land and sea ice, but this is to be expected	l. d.			
<ul> <li>&gt; Mean Sea Surface: The error value is currently set for products over land a</li> <li>&gt; Mean Dynamic Topography: The error value is currently set for products or a currently set for products over land a</li> <li>&gt; Altimetric Wind Speed Error: The error value is currently set for products</li> <li>&gt; Number of products with errors: 23</li> <li>Product</li> </ul>	and sea ice, but this is to be expected. over land and sea ice, but this is to be expected over land and sea ice, but this is to be expected Test Failed	d. Description			
<ul> <li>&gt; Mean Sea Surface: The error value is currently set for products over land a</li> <li>&gt; Mean Dynamic Topography: The error value is currently set for products or a Altimetric Wind Speed Error: The error value is currently set for products</li> <li>&gt; Altimetric Wind Speed Error: The error value is currently set for products</li> <li>&gt; Mumber of products with errors: 23</li> <li>Product</li> </ul>	and sea ice, but this is to be expected. over land and sea ice, but this is to be expected over land and sea ice, but this is to be expected	d. Description			
> Mean Sea Surface: The error value is currently set for products over land a > Mean Dynamic Topography: The error value is currently set for products of > Altimetric Wind Speed Error: The error value is currently set for products Number of products with errors: 23 Product CS_OFFL_SIR_IOP_2_20211214T233027_20211215T002003_C001	And sea ice, but this is to be expected. Ever land and sea ice, but this is to be expected over land and sea ice, but this is to be expected Test Failed Mean Sea Surface (1), Mean Dynamic Topography (1) Mean Sea Surface (1), Mean Dynamic Topography (1)	d. There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)			
> Mean Sea Surface: The error value is currently set for products over land a > Mean Dynamic Topography: The error value is currently set for products of > Altimetric Wind Speed Error: The error value is currently set for products Number of products with errors: 23 Product CS_OFFL_SIR_IOP_2_20211214T233027_20211215T002003_C001 CS_OFFL_SIR_IOP_2_20211215T002003_20211215T010942_C001	And sea ice, but this is to be expected. over land and sea ice, but this is to be expected over land and sea ice, but this is to be expected <b>Test Failed</b> Mean Sea Surface (1), Mean Dynamic Topography (1) Mean Sea Surface (1), Mean Dynamic	d. <b>Description</b> There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) There is an error with the MSS height (solution 1) and the Mean Dynamic			
> Mean Sea Surface: The error value is currently set for products over land a > Mean Dynamic Topography: The error value is currently set for products of > Altimetric Wind Speed Error: The error value is currently set for products Number of products with errors: 23 Product CS_OFFL_SIR_IOP_2_20211214T233027_20211215T002003_C001 CS_OFFL_SIR_IOP_2_20211215T002003_20211215T010942_C001 CS_OFFL_SIR_IOP_2_20211215T010942_20211215T015917_C001	and sea ice, but this is to be expected.         over land and sea ice, but this is to be expected         over land and sea ice, but this is to be expected         Test Failed         Mean Sea Surface (1), Mean Dynamic         Topography (1)	Description There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) There is an error with the MSS height (solution 1), the Mean Dynamic Topography (solution 1), the Total Geocentric Ocean Tide (solution 1: GOT) for one or more records			
•	Ind sea ice, but this is to be expected.         over land and sea ice, but this is to be expected         over land and sea ice, but this is to be expected         Image: Test Failed         Mean Sea Surface (1), Mean Dynamic         Topography (1)         Mean Sea Surface (1), Mean Dynamic         Topography (1), Total Geocentric Ocean         Tide (GOT)         Mean Sea Surface (1), Mean Dynamic	Description There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1) There is an error with the MSS height (solution 1), the Mean Dynamic Topography (solution 1), the Total Geocentric Ocean Tide (solution 1: GOT) for one or more records There is an error with the MSS height (solution 1) and the Mean Dynamic			
> Mean Sea Surface: The error value is currently set for products over land a > Mean Dynamic Topography: The error value is currently set for products of > Altimetric Wind Speed Error: The error value is currently set for products Number of products with errors: 23 Product CS_OFFL_SIR_IOP_2_20211214T233027_20211215T002003_C001 CS_OFFL_SIR_IOP_2_20211215T002003_20211215T010942_C001 CS_OFFL_SIR_IOP_2_20211215T010942_20211215T015917_C001 CS_OFFL_SIR_IOP_2_20211215T015917_20211215T024856_C001	Index sea ice, but this is to be expected.         over land and sea ice, but this is to be expected         over land and sea ice, but this is to be expected         Image: Test Failed         Mean Sea Surface (1), Mean Dynamic         Topography (1)         Mean Sea Surface (1), Mean Dynamic         Topography (1), Total Geocentric Ocean         Tide (GOT)         Mean Sea Surface (1), Mean Dynamic         Topography (1)         Mean Sea Surface (1), Mean Dynamic         Topography (1)         Mean Sea Surface (1), Mean Dynamic         Topography (1)	Description         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1), and the Mean Dynamic Topography (solution 1), the Total Geocentric Ocean Tide (solution 1: GOT) for one or more records         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1), the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1), the Mean Dynamic Topography height (solution 1)			
> Mean Sea Surface: The error value is currently set for products over land a > Mean Dynamic Topography: The error value is currently set for products of > Altimetric Wind Speed Error: The error value is currently set for products Number of products with errors: 23 Product CS_OFFL_SIR_IOP_2_20211214T233027_20211215T002003_C001 CS_OFFL_SIR_IOP_2_20211215T002003_20211215T010942_C001 CS_OFFL_SIR_IOP_2_20211215T010942_20211215T015917_C001 CS_OFFL_SIR_IOP_2_20211215T015917_20211215T024856_C001 CS_OFFL_SIR_IOP_2_20211215T024856_20211215T033832_C001	Index sea ice, but this is to be expected.         over land and sea ice, but this is to be expected         over land and sea ice, but this is to be expected         Image: Test Failed         Mean Sea Surface (1), Mean Dynamic         Topography (1)         Mean Sea Surface (1), Mean Dynamic	Description         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1), the Mean Dynamic Topography (solution 1), the Total Geocentric Ocean Tide (solution 1: GOT) for one or more records         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1), the Mean Dynamic Topography height (solution 1)			
> Mean Sea Surface: The error value is currently set for products over land a > Mean Dynamic Topography: The error value is currently set for products of > Altimetric Wind Speed Error: The error value is currently set for products Number of products with errors: 23 Product CS_OFFL_SIR_IOP_2_20211214T233027_20211215T002003_C001 CS_OFFL_SIR_IOP_2_20211215T002003_20211215T010942_C001 CS_OFFL_SIR_IOP_2_20211215T010942_20211215T015917_C001 CS_OFFL_SIR_IOP_2_20211215T015917_20211215T015917_C001 CS_OFFL_SIR_IOP_2_20211215T015917_20211215T024856_C001 CS_OFFL_SIR_IOP_2_20211215T024856_20211215T033832_C001 CS_OFFL_SIR_IOP_2_20211215T060726_20211215T065701_C001	Index sea ice, but this is to be expected.         over land and sea ice, but this is to be expected         over land and sea ice, but this is to be expected         Image: Test Failed         Mean Sea Surface (1), Mean Dynamic         Topography (1)         Mean Sea Surface (1), Mean Dynamic	J         Description         There is an error with the MSS height (solution 1) and the Mean Dynamic         Topography height (solution 1)         There is an error with the MSS height (solution 1) and the Mean Dynamic         Topography height (solution 1)         There is an error with the MSS height (solution 1), the Mean Dynamic         Topography (solution 1), the Total Geocentric Ocean Tide (solution 1:         GOT) for one or more records         There is an error with the MSS height (solution 1) and the Mean Dynamic         Topography height (solution 1)         There is an error with the MSS height (solution 1) and the Mean Dynamic         Topography height (solution 1)         There is an error with the MSS height (solution 1) and the Mean Dynamic         Topography height (solution 1)         There is an error with the MSS height (solution 1), the Mean Dynamic         Topography height (solution 1)         There is an error with the MSS height (solution 1), the Mean Dynamic         Topography (solution 1), and tidal corrections for one or more records         There is an error with the MSS height (solution 1) and the Mean Dynamic         Topography (solution 1), and tidal corrections for one or more records         There is an error with the MSS height (solution 1) and the Mean Dynamic         Topography height (solution 1)			
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Surface (1), Mean Dynamic         Topography (1)         Mean Sea Surface (1), Mean Dynamic         Topography (1), Total Geocentric Ocean         Tide (GOT)         Mean Sea Surface (1), Mean Dynamic         Topography (1)         Mean Sea Surface (1), Mean Dynamic         Topography (1)         Mean Sea Surface (1), Mean Dynamic         Topography (1)         Mean Sea Surface (1), Mean Dynamic         Topography (1), Total Geocentric Ocean         Tide (GOT), Total Geocentric Ocean         Mean Sea Surface (1), Mean Dynamic         Topography (1), Total Geocentric Ocean         Tide (GOT), Total Geocentric Ocean         Mean Sea Surface (1), Mean Dynamic         Topography (1)         Mean Sea Surface (1), Mean Dynamic         Topography (1)         Mean Sea Surface (1), Mean Dynamic         Topography (1)         Mean Sea Surface (1), Mean Dynamic </td <td>J         Description         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height 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Mean Sea Surface: The error value is currently set for products over land a Mean Dynamic Topography: The error value is currently set for products or Altimetric Wind Speed Error: The error value is currently set for products or Number of products with errors: 23           Product         23           CS_OFFL_SIR_IOP_2_20211214T233027_20211215T002003_C001         CS_OFFL_SIR_IOP_2_20211215T002003_20211215T010942_C001           CS_OFFL_SIR_IOP_2_20211215T010942_20211215T015917_C001         CS_OFFL_SIR_IOP_2_20211215T015917_20211215T015917_C001           CS_OFFL_SIR_IOP_2_20211215T015917_20211215T024856_C001         CS_OFFL_SIR_IOP_2_20211215T065701_20211215T065701_C001           CS_OFFL_SIR_IOP_2_20211215T060726_20211215T065701_C001         CS_OFFL_SIR_IOP_2_20211215T065701_20211215T074641_C001           CS_OFFL_SIR_IOP_2_20211215T074641_20211215T083616_C001         CS_OFFL_SIR_IOP_2_20211215T074641_20211215T083616_C001	Index       Second	J         d.         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1), and the Mean Dynamic Topography (solution 1), the Total Geocentric Ocean Tide (solution 1: GOT) for one or more records         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1), the Mean Dynamic Topography (solution 1), and tidal corrections for one or more records         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1) and			
Mean Sea Surface: The error value is currently set for products over land a Mean Dynamic Topography: The error value is currently set for products or Atlimetric Wind Speed Error: The error value is currently set for products. Number of products with errors: 23   Product   CS_OFFL_SIR_IOP_2_20211214T233027_20211215T002003_C001   CS_OFFL_SIR_IOP_2_20211215T002003_20211215T010942_C001   CS_OFFL_SIR_IOP_2_20211215T010942_20211215T015917_C001   CS_OFFL_SIR_IOP_2_20211215T015917_20211215T024856_C001   CS_OFFL_SIR_IOP_2_20211215T024856_20211215T033832_C001   CS_OFFL_SIR_IOP_2_20211215T065701_20211215T065701_C001   CS_OFFL_SIR_IOP_2_20211215T065701_20211215T074641_C001   CS_OFFL_SIR_IOP_2_20211215T074641_20211215T083616_C001   CS_OFFL_SIR_IOP_2_20211215T074641_20211215T083616_C001   CS_OFFL_SIR_IOP_2_20211215T074641_20211215T083616_C001   CS_OFFL_SIR_IOP_2_20211215T074641_20211215T083616_C001   CS_OFFL_SIR_IOP_2_20211215T074641_20211215T083616_C001   CS_OFFL_SIR_IOP_2_20211215T083616_20211215T092555_C001   CS_OFFL_SIR_IOP_2_20211215T083616_20211215T092555_C001	Index       Second	J         Description         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1), the Mean Dynamic Topography (solution 1), the Total Geocentric Ocean Tide (solution 1: GOT) for one or more records         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1), the Mean Dynamic Topography (solution 1), and tidal corrections for one or more records         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)         There is an error with the MSS height (solution 1)			

CS_OFFL_SIR_IOP_220211215T133400_20211215T142339_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_220211215T142339_20211215T151315_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_220211215T151315_20211215T160254_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_220211215T192123_20211215T201059_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_220211215T201059_20211215T210038_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_220211215T210038_20211215T215014_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_220211215T215014_20211215T223953_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_220211215T223953_20211215T232928_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_220211215T232928_20211216T001907_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\_2\_20211215T065701\_20211215T074641\_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	n errors: 23	5

#### 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.

23

23

20

23

Number of products with errors:

#### 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:

#### 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:

#### 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 IOPR and IOPN products over sea ice, but this is to be expected.

Number of products with errors:

## 7. IOP QCC Report Analysis

The Quality Control for CryoSat (QCC) facility performs a primary survey of data products immediately after production by the PDS and LTA processing facilities. A list of the tests which raised errors or warnings is provided below.

Product type	No. Products	No. QCC Reports	No. Valid	No. Warnings	No. Errors
SIR_IOPM1B	149	149	2	147	0
SIR_IOPR1B	101	80	0	80	0
SIR_IOPN1B	80	101	0	101	0
SIR_IOPM_2	149	149	111	38	0
SIR_IOPR_2	101	80	29	51	0
SIR_IOPN_2	80	101	38	60	3
SIR_IOP_P2P	22	22	0	18	4

## 7.1 QCC Errors

Number of QCC reports with er	rors:	13								
				Total number	of occurrences	of each error				
Product Type RLOBOPNCDF	RL	RLOBOPNCDF	RL	-	-	-	-	-	-	-
SIR_IOPR_2 3	3	3	3							
Product Type RLOBOPNCDF	RL	RLOBOPNCDF	RL	-	-	-	-	-	-	-
SIR_IOP_2_ 4	4	4	4							
· i				•	•	•	•	•		
To at Data substitute Kana										

Abbreviation	Test name	Details
RLOBOPNCDF	RangeLatitudeOrBlankOP_7NetCDF	Latitude should be between -90E7 and 90E7
RL	RangeLatitude_7	Latitude should be between -90E7 and 90E7

RLOBOPNCDF RL RangeLongitudeOrBlankOP\_7NetCDF RangeLongitude\_7

7.2 QCC Warnings

```
Number of QCC reports with warnings
```

Product Type	BCSHNCDF	IOHHMOOR	MVIOEPFDNCDF	per of occurrences of ea MVIOEPNCDF	MVIONCDF	RBSZOPOEPFDNCDF	RBSZOPOEPFDPLRMN
SIR IOPM1B	147	0	0	0	0	0	0
SIR IOPM 2	0	0	30	31	0	29	0
SIR_IOPN1B	79	0	0	0	0	0	0
SIR IOPN 2	0	0	10	28	3	25	25
SIR IOPR1B	96	0	0	0	0	0	0
SIR IOPR 2	0	3	30	40	0	21	14
	-	-			-		
Product Type	RBSZOPOEPNCDF	RPEPOPFDLRMNCDF	RPEPOPFDPLRMSARNCE	RPEPOPFDPLRMSINNCD	RPEPOPFDSARNCDF	RPEPOPFDSINNCDF	RPEPOPLRMNCDF
SIR_IOPM1B	0	0	0	0	0	0	0
SIR IOPM 2	22	29	0	0	0	0	23
SIR IOPN1B	0	0	0	0	0	0	0
SIR_IOPN_2	18	0	0	19	0	28	0
SIR_IOPR1B	0	0	0	0	0	0	0
SIR_IOPR_2	10	0	39	0	46	0	0
Product Type	RPEPOPSARNCDF	RPEPOPSINNCDF	RSSBCONCDF	RSSHAOFDNCDF	RSSHAOFDPLRMNCDF	RSSHAONCDF	RSWHOEPFDNCDF
SIR_IOPM1B	0	0	0	0	0	0	0
SIR_IOPM_2	0	0	2	17	0	0	28
SIR_IOPN1B	0	0	0	0	0	0	0
SIR_IOPN_2	0	22	12	40	42	31	26
SIR_IOPR1B	0	0	0	0	0	0	0
SIR_IOPR_2	39	0	0	51	24	8	34
			r	i	n	r	1
Product Type	RSWHOEPFDPLRMNCDF			SPHRTASCNSNCDF	SOOHHIFHD	SCSTODHRNCDF	SCSTODNCDF
SIR_IOPM1B	0	0	0	0	0	0	0
SIR_IOPM_2	0	0	0	0	0	0	0
SIR_IOPN1B	0	0	1	0	0	37	0
SIR_IOPN_2	25	16	0	0	0	0	0
SIR_IOPR1B	0	0	0	1	0	101	9
SIR_IOPR_2	43	2	0	0	9	0	0
		W//OEDEDWODE	MU/OFPHOPF	NU/IONODE	DD070D05D5DN0D5	PROTODOCOCODO DUNIO	PROTOPOLEDNODE
Product Type	IOHHMOOR	MVIOEPFDNCDF	MVIOEPNCDF	MVIONCDF	RBSZOPOEPFDNCDF	RBSZOPOEPFDPLRMNCI	
SIR_IOP_2_	18	21	21	4	21	14	19
Product Type	RPEPOPFDPLRMSINNCD		RPEPOPSINNCDF	RSSBCONCDF	RSSHAOFDNCDF	RSSHAOFDPLRMNCDF	RSSHAONCDF
SIR IOP 2	14	21	20	11	22	15	21
511<_IUF_2_		21	20		<u></u>	10	21
	RSWHOEPFDNCDF	RSWHOEPFDPLRMNCDF	DSW/HOEDNODE	SPHLPQWNCDF			
Product Type							

Test Description Key:		
Abbreviation	Test name	Details
BCSHNCDF	BurstCounterStep20HzNetCDF	The burst counter should be one higher with regard to the previous burst counter
IOHHMOOR	IndexOf1Hzin20HzMappingOutOfRange	The mapping of 20 Hz to 1 Hz measurements should be in the range 0 to (number of 1 Hz samples - 1)
MVIOEPFDNCDF	MissingValueIntOceanExcludingPolarFD2NetCDF	The value should not be a 'missing value' for surface type 0 only for latitudes between -70 and 70 degrees
MVIOEPNCDF	MissingValueIntOceanExcludingPolarNetCDF	The value should not be a 'missing value' for surface type 0 only for latitudes between -70 and 70 degrees
MVIONCDF	MissingValueIntOceanNetCDF	The value should not be a 'missing value' for surface type 0 only
RBSZOPOEPFDNCDF	RangeBackscatterSigmaZeroOPOceanExcludingPolarFD2NetCDF	The backscatter sigma zero should be between 700 and 7500 (or missing) for surface type = ocean for latitudes between -70 and 70 degrees
RBSZOPOEPFDPLRM NCDF	RangeBackscatterSigmaZeroOPOceanExcludingPolarFD2PLRMNetCDF	The backscatter sigma zero should be between 700 and 7500 (or missing) for surface type = ocean for latitudes between -70 and 70 degrees
RBSZOPOEPNCDF	RangeBackscatterSigmaZeroOPOceanExcludingPolarNetCDF	The backscatter sigma zero should be between 700 and 7500 (or missing) for surface type = ocean for latitudes between -70 and 70 degrees
RPEPOPFDLRMNCDF	RangePeakinessExcludingPolarOPFD2LRMNetCDF	The Peakiness should be between 0 and 6400 (or missing) for surface type = ocean for latitudes between -70 and 70 degrees
RPEPOPFDPLRMSAR	RangePeakinessExcludingPolarOPFD2PLRMSARNetCDF	The Peakiness should be between 0 and 15000 (or missing) for surface type = ocean for latitudes between -70 and 70 degrees
RPEPOPFDPLRMSINN CDF	RangePeakinessExcludingPolarOPFD2PLRMSINNetCDF	The Peakiness should be between 0 and 90000 (or missing) for surface type = ocean for latitudes between -70 and 70 decrees
RPEPOPFDSARNCDF	RangePeakinessExcludingPolarOPFD2SARNetCDF	The Peakiness should be between 0 and 15000 (or missing) for surface type = ocean for latitudes between -70 and 70 degrees
RPEPOPFDSINNCDF	RangePeakinessExcludingPolarOPFD2SINNetCDF	The Peakiness should be between 0 and 90000 (or missing) for surface type = ocean for latitudes between -70 and 70 degrees
RPEPOPLRMNCDF	RangePeakinessExcludingPolarOPLRMNetCDF	The Peakiness should be between 0 and 6400 (or missing) for surface type = ocean for latitudes between -70 and 70 degrees
RPEPOPSARNCDF	RangePeakinessExcludingPolarOPSARNetCDF	The Peakiness should be between 0 and 15000 (or missing) for surface type = ocean for latitudes between -70 and 70 degrees
RPEPOPSINNCDF	RangePeakinessExcludingPolarOPSINNetCDF	The Peakiness should be between 0 and 90000 (or missing) for surface type = ocean for latitudes between -70 and 70 degrees
RSSBCONCDF	RangeSeaStateBiasCorrectionOceanNetCDF	The sea state bias correction should be between -500mm and 0mm (or missing) for surface type = ocean
RSSHAOFDNCDF	RangeSeaSurfaceHeightAnomalyOceanFD3NetCDF	The sea surface height anomaly should be between -3000mm and 3000mm (or missing) for surface type = ocean
	RangeSeaSurfaceHeightAnomalyOceanFD3PLRMNetCDF	The sea surface height anomaly should be between -3000mm and 3000mm (or missing) for surface type = ocean
RSSHAONCDF	RangeSeaSurfaceHeightAnomalyOceanNetCDF	The sea surface height anomaly should be between -3000mm and 3000mm (or missing) for surface type = ocean
RSWHOEPFDNCDF	RangeSignificantWaveHeightOceanExcludingPolarFD2NetCDF	The significant wave height should be between 0mm and 15000mm (or missing) for surface type = ocean for latitudes between -70 and 70 degrees
RSWHOEPFDPLRMNC	RangeSignificantWaveHeightOceanExcludingPolarFD2PLRMNetCDF	The significant wave height should be between 0mm and 15000mm (or missing) for surface type = ocean for latitudes between -70 and 70 degrees
RSWHOEPNCDF	RangeSignificantWaveHeightOceanExcludingPolarNetCDF	The significant wave height should be between 0mm and 15000mm (or missing) for surface type = ocean for latitudes between -70 and 70 degrees
SPHRTASCNSNCDF	SPH_Rel_Time_ASC_Node_Start_v2_NetCDF	Rel_Time_ASC_Node_Start mismatch (DBL ASC, rounded up to 0.1)
SPHRTASCNSNCDF	SPH_Rel_Time_ASC_Node_Stop_v2_NetCDF	Rel_Time_ASC_Node_Stop mismatch
SOOHHIFHD	SameOrOneHigher1HzIndexFor20HzData	The 1 Hz index of a 20 Hz sample should be the same or 1 higher than its previous sample
SCSTODHRNCDF	SequenceCounterStepTODHRNetCDF	The sequence counter should be modulo 4 higher with regard to the previous sequence counter
SCSTODNCDF	SequenceCounterStepTODNetCDF	The sequence counter should be one higher (modulo 16384) with regard to the previous sequence counter

# 7.3 Missing QCC Reports