

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

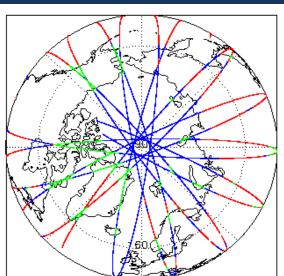
<u>21/12/2021</u>

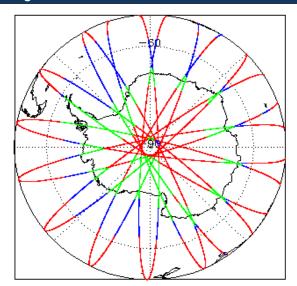
|                            |                                   | Check                                      | L1 & L2                 | P2P                     |
|----------------------------|-----------------------------------|--|-------------------------|-------------------------|
| Report Production:         | 05-Jan-2022                       | Server check: science-pds.cryosat.esa.int  | Nominal                 | Nominal                 |
| Davasara                   |                                   | Server check: calval-pds.cryosat.esa.int   | Nominal                 | Nominal                 |
| Processor Used:            | CryoSat Ocean Processor           | Product Software Check                     | Nominal                 | Nominal                 |
| Data Used:                 | Intermediate Ocean Products (IOP) | Product Format Check                       | Nominal                 | Nominal                 |
| 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    | Nominal                 |
|                            |                                   | Range, SWH & Backscatter Measurement Check | See Section 5.6         | See Section 6.6         |
|                            |                                   | Ocean Retracking Quality Check             | See Section 5.7         | See Section 6.7         |
|                            |                                   | QCC Error/ Warning Check                   | See Section 7.1 and 7.2 | See Section 7.1 and 7.2 |

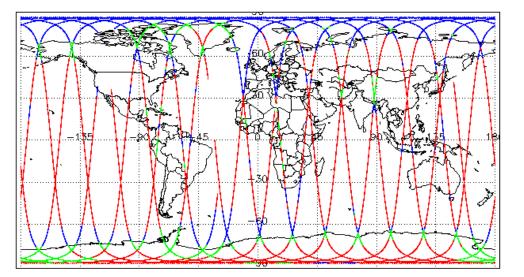
1. Overview

| Mission / Instrument News |  |  |
|---------------------------|--|--|
| 20-Dec-2021               | SIRAL unavailability due to an unplanned Platform Anomaly on 16 December 2021 08:29:13 to 20 December 2021 16:53:09. |  |
| 21-Dec-2021               | None   |  |
| 22-Dec-2021               | SIRAL unavailability due to a planned Orbit Manoeuvre on 22 December 2021 from 11:48:01 to 13:38:38.                 |  |

# 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 an   | d SPH in order to identify any in    | consistencies and/or errors raised by the ground-segment processing chain.                                   |  |  |  |
| L1B Processing Quality HR: The I1b_proc_flag_hr flag is currently set all L1<br>OSARIn chains. A modification is required in the next release.   | B IOPR and IOPN products bec         | ause the I1b_processing_quality_hr field is not correctly configured in the OSAR and                         |  |  |  |
| 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 pr  | e-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 reco  | rd. The bit value of this flag indig | ates any problems when set.  |  |  |  |
| Number of products with errors: 0  | 5                                    |  |  |  |  |
|  |                                      |  |  |  |  |
| 4.5 L1B Measurement Confidence Data Check  |                                      |  |  |  |  |
| CryoSat L1B data includes a measurement confidence flag for each measure   |                                      |  |  |  |  |
| Attitude Correction Missing: This flag is currently set in error for IOPR prod   | ucts due to a configuration issue    | . This is being investigated and will be updated in the next SW update.                                      |  |  |  |
| Number of products with errors: 0  |                                      |  |  |  |  |
| 4.6 L1B Waveform Group Data Check  |                                      |  |  |  |  |
| CryoSat L1B data includes a waveform data flag for each measurement recor  | d. The bit value of this flag indic  | ates any problems when set.  |  |  |  |
| Loss of Echo Flag: This flag is currently set for products over land, but this is  | to be expected.                      |  |  |  |  |
| Number of products with errors: 17   |                                      |  |  |  |  |
| Product  | Test Failed                          | Description  |  |  |  |
| CS_OFFL_SIR_IOPM1B_20211221T073437_20211221T073527_C001  | Loss of Echo                         | The tracking echo is missing for one or more records   |  |  |  |
| CS_OFFL_SIR_IOPM1B_20211221T201249_20211221T204537_C001  | Loss of Echo                         | The tracking echo is missing for one or more records   |  |  |  |
| CS_OFFL_SIR_IOPN1B_20211221T010526_20211221T010647_C001  | Loss of Echo                         | The tracking echo is missing for one or more records   |  |  |  |
| CS_OFFL_SIR_IOPN1B_20211221T024451_20211221T024704_C001  | Loss of Echo                         | The tracking echo is missing for one or more records   |  |  |  |
| CS_OFFL_SIR_IOPN1B_20211221T024845_20211221T025059_C001  | Loss of Echo                         | The tracking echo is missing for one or more records   |  |  |  |
| CS_OFFL_SIR_IOPN1B_20211221T042405_20211221T042855_C001  | Loss of Echo                         | The tracking echo is missing for one or more records   |  |  |  |
| CS_OFFL_SIR_IOPN1B_20211221T105437_20211221T105750_C001  | Loss of Echo                         | The tracking echo is missing for one or more records   |  |  |  |
| CS_OFFL_SIR_IOPN1B_20211221T150851_20211221T151345_C001  | Loss of Echo                         | The tracking echo is missing for one or more records   |  |  |  |
| CS_OFFL_SIR_IOPR1B_20211221T025409_20211221T025510_C001  | Loss of Echo                         | The tracking echo is missing for one or more records   |  |  |  |
| CS_OFFL_SIR_IOPR1B_20211221T055719_20211221T055850_C001  | Loss of Echo                         | The tracking echo is missing for one or more records   |  |  |  |
| CS_OFFL_SIR_IOPR1B_20211221T055914_20211221T060429_C001  | Loss of Echo                         | The tracking echo is missing for one or more records   |  |  |  |
| CS_OFFL_SIR_IOPR1B_20211221T091645_20211221T092544_C001  | Loss of Echo                         | The tracking echo is missing for one or more records   |  |  |  |
| CS_OFFL_SIR_IOPR1B_20211221T140617_20211221T140705_C001  | Loss of Echo                         | The tracking echo is missing for one or more records   |  |  |  |
| CS_OFFL_SIR_IOPR1B_20211221T141605_20211221T142252_C001<br>CS_OFFL_SIR_IOPR1B_20211221T183044_20211221T183331_C001   | Loss of Echo<br>Loss of Echo         | The tracking echo is missing for one or more records<br>The tracking echo is missing for one or more records |  |  |  |
| CS_OFFL_SIR_IOPR1B_202112217200930_202112217201249_C001  | Loss of Echo                         | The tracking cono is missing for one or more records   |  |  |  |
| CS_OFFL_SIR_IOPR1B_20211221T232935_20211221T233120_C001  | Loss of Echo                         | The tracking echo is missing for one or more records   |  |  |  |
|  |                                      |  |  |  |  |
| 5. <mark>IC</mark>   | P Level 2 Data Qu                    | ality Check  |  |  |  |
| 5.4 L 2 Droduct Format Chaok   |                                      |  |  |  |  |
| 5.1 L2 Product Format Check  |                                      |  |  |  |  |
| Each product, retrieved and unpacked from the science server, is checked to  | ensure it consists of both an XN     | IL header file (.HDR) and a binary product file (.DBL).  |  |  |  |
| Number of products with errors: 0  | Number of products with errors: 0    |  |  |  |  |
| 5.2 L2 Product Header Analysis   |                                      |  |  |  |  |
| For all products, a series of pre-defined checks are performed on the MPH an   | d SPH in order to identify any in    | consistencies 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 ch  | ecked 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.   |                                      |  |  |  |  |

> 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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| Number of products with errors: 56                      |   |   |
|---|---|---|
| Product   | Test Failed   | Description   |
| CS_OFFL_SIR_IOPM_2_20211221T073437_20211221T073527_C001 | Mean Dynamic Topography (1)   | There is an error with the Mean Dynamic Topography height for one or<br>more records  |
| CS_OFFL_SIR_IOPM_2_20211221T174254_20211221T174408_C001 | Mean Dynamic Topography (1), Total<br>Geocentric Ocean Tide (GOT)   | There is an error with the Mean Dynamic Topography (solution 1) and the<br>Total Geocentric Ocean Tide (solution 1: GOT) for one or more records                              |
| CS_OFFL_SIR_IOPN_2_20211221T001014_20211221T001249_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic<br>Topography height (solution 1)   |
| CS_OFFL_SIR_IOPN_2_20211221T010526_20211221T010647_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1), Total Geocentric Ocean<br>Tide (GOT)  | There is an error with the MSS height (solution 1), the Mean Dynamic<br>Topography (solution 1), the Total Geocentric Ocean Tide (solution 1:<br>GOT) for one or more records |
| CS_OFFL_SIR_IOPN_2_20211221T014539_20211221T015140_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic<br>Topography height (solution 1)   |
| CS_OFFL_SIR_IOPN_2_20211221T024451_20211221T024704_C001 | Mean Sea Surface (1), Mean Dynamic<br>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_20211221T024845_20211221T025059_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_20211221T032743_20211221T032930_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_20211221T033802_20211221T033955_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_20211221T042405_20211221T042855_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic<br>Topography height (solution 1)   |
| CS_OFFL_SIR_IOPN_2_20211221T064648_20211221T064808_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_20211221T064827_20211221T065045_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1), Total Geocentric Ocean<br>Tide (GOT), Total Geocentric Ocean<br>Tide (FES), Non-Equilibrium Long Period<br>Ocean Tide | There is an error with the MSS height (solution 1), the Mean Dynamic<br>Topography (solution 1), and tidal corrections for one or more records                                |
| CS_OFFL_SIR_IOPN_2_20211221T082640_20211221T082954_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic<br>Topography height (solution 1)   |
| CS_OFFL_SIR_IOPN_2_20211221T083513_20211221T083630_C001 | Mean Dynamic Topography (1)   | There is an error with the Mean Dynamic Topography height for one or<br>more records  |
| CS_OFFL_SIR_IOPN_2_20211221T100533_20211221T100843_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic<br>Topography height (solution 1)   |
| CS_OFFL_SIR_IOPN_2_20211221T101411_20211221T101535_C001 | Mean Dynamic Topography (1)   | There is an error with the Mean Dynamic Topography height for one or<br>more records  |
| CS_OFFL_SIR_IOPN_2_20211221T105437_20211221T105750_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1), Total Geocentric Ocean<br>Tide (GOT), Total Geocentric Ocean<br>Tide (FES), Non-Equilibrium Long Period<br>Ocean Tide | There is an error with the MSS height (solution 1), the Mean Dynamic<br>Topography (solution 1), and tidal corrections for one or more records                                |
| CS_OFFL_SIR_IOPN_2_20211221T115215_20211221T115355_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic<br>Topography height (solution 1)   |
| CS_OFFL_SIR_IOPN_2_20211221T123055_20211221T123223_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_20211221T123552_20211221T123649_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic<br>Topography height (solution 1)   |
| CS_OFFL_SIR_IOPN_2_20211221T133000_20211221T133213_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic<br>Topography height (solution 1)   |
| CS_OFFL_SIR_IOPN_2_20211221T141350_20211221T141604_C001 | Mean Dynamic Topography (1)   | There is an error with the Mean Dynamic Topography height for one or<br>more records  |
| CS_OFFL_SIR_IOPN_2_20211221T150851_20211221T151345_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic<br>Topography height (solution 1)   |
| CS_OFFL_SIR_IOPN_2_20211221T155033_20211221T155429_C001 | Mean Dynamic Topography (1)   | There is an error with the Mean Dynamic Topography height for one or<br>more records  |
| CS_OFFL_SIR_IOPN_2_20211221T165000_20211221T165155_C001 | Mean Dynamic Topography (1)   | There is an error with the Mean Dynamic Topography height for one or<br>more records  |
| CS_OFFL_SIR_IOPN_2_20211221T213832_20211221T213958_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic<br>Topography height (solution 1)   |
| CS_OFFL_SIR_IOPN_2_20211221T214508_20211221T214814_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1), Total Geocentric Ocean<br>Tide (GOT), Total Geocentric Ocean<br>Tide (FES), Non-Equilibrium Long Period<br>Ocean Tide | There is an error with the MSS height (solution 1), the Mean Dynamic<br>Topography (solution 1), and tidal corrections for one or more records                                |
| CS_OFFL_SIR_IOPN_2_20211221T231907_20211221T232201_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic<br>Topography height (solution 1)   |
| CS_OFFL_SIR_IOPN_2_20211221T232412_20211221T232934_C001 | Mean Sea Surface (1), Mean Dynamic<br>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_20211221T005818_20211221T010414_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic<br>Topography height (solution 1)   |
| CS_OFFL_SIR_IOPR_2_20211221T010415_20211221T010526_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic<br>Topography height (solution 1)   |
|   |   |   |

| CS_OFFL_SIR_IOPR_2_20211221T012748_20211221T013002_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1), Total Geocentric Ocean<br>Tide (GOT)  | There is an error with the MSS height (solution 1), the Mean Dynamic<br>Topography (solution 1), the Total Geocentric Ocean Tide (solution 1:<br>GOT) for one or more records                                       |
|---|---|---|
| CS_OFFL_SIR_IOPR_2_20211221T024037_20211221T024201_C001 | Mean Sea Surface (1), Mean Dynamic<br>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_20211221T024201_20211221T024450_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic<br>Topography height (solution 1)   |
| CS_OFFL_SIR_IOPR_2_20211221T025409_20211221T025510_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1), Total Geocentric Ocean<br>Tide (GOT)  | There is an error with the MSS height (solution 1), the Mean Dynamic<br>Topography (solution 1), the Total Geocentric Ocean Tide (solution 1:<br>GOT) for one or more records                                       |
| CS_OFFL_SIR_IOPR_2_20211221T041736_20211221T042404_C001 | Mean Sea Surface (1), Mean Dynamic<br>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_20211221T042921_20211221T043142_C001 | Mean Dynamic Topography (1), Total<br>Geocentric Ocean Tide (GOT), Total<br>Geocentric Ocean Tide (FES), Non-<br>Equilibrium Long Period Ocean Tide | There is an error with the Mean Dynamic Topography (solution 1), the<br>Total Geocentric Ocean Tide (solution 1: GOT and solution 2: FES) and<br>the Non-Equilibrium Long Period Ocean Tide for one or more records |
| CS_OFFL_SIR_IOPR_2_20211221T055914_20211221T060429_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic<br>Topography height (solution 1)   |
| CS_OFFL_SIR_IOPR_2_20211221T072714_20211221T072919_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_20211221T073244_20211221T073437_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_20211221T073819_20211221T074617_C001 | Mean Sea Surface (1), Mean Dynamic<br>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_20211221T091645_20211221T092544_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic<br>Topography height (solution 1)   |
| CS_OFFL_SIR_IOPR_2_20211221T105751_20211221T110537_C001 | Mean Sea Surface (1), Mean Dynamic<br>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_20211221T123649_20211221T123956_C001 | Mean Sea Surface (1), Mean Dynamic<br>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_20211221T123957_20211221T124231_C001 | Mean Sea Surface (1), Mean Dynamic<br>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_20211221T124247_20211221T124410_C001 | Total Geocentric Ocean Tide (FES), Non<br>Equilibrium Long Period Ocean Tide  | There is an error with the Total Geocentric Ocean Tide height (solution 2:<br>FES) and the Non-equilibrium Long Period Ocean Tide height for one or<br>more records   |
| CS_OFFL_SIR_IOPR_2_20211221T141605_20211221T142252_C001 | Mean Sea Surface (1), Mean Dynamic<br>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_20211221T155430_20211221T155950_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic<br>Topography height (solution 1)   |
| CS_OFFL_SIR_IOPR_2_20211221T173251_20211221T174254_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1), Total Geocentric Ocean<br>Tide (GOT)  | There is an error with the MSS height (solution 1), the Mean Dynamic<br>Topography (solution 1), the Total Geocentric Ocean Tide (solution 1:<br>GOT) for one or more records                                       |
| CS_OFFL_SIR_IOPR_2_20211221T191016_20211221T191753_C001 | Mean Sea Surface (1), Mean Dynamic<br>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_20211221T192816_20211221T192912_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_20211221T204902_20211221T205604_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic<br>Topography height (solution 1)   |
| CS_OFFL_SIR_IOPR_2_20211221T205604_20211221T205728_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic<br>Topography height (solution 1)   |
| CS_OFFL_SIR_IOPR_2_20211221T210728_20211221T211048_C001 | Mean Dynamic Topography (1)   | There is an error with the Mean Dynamic Topography height for one or<br>more records  |
| CS_OFFL_SIR_IOPR_2_20211221T222749_20211221T223504_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic<br>Topography height (solution 1)   |
| CS_OFFL_SIR_IOPR_2_20211221T223504_20211221T223917_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic<br>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. 0

Number of products with errors:

## 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_20211220T234019_20211221T000315_C001 |             | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |

| CS_OFFL_SIR_IOPM_2_20211221T002142_20211221T002747_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
|---|--|--|
| CS_OFFL_SIR_IOPM_2_20211221T003753_20211221T003907_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T004348_20211221T005110_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T010647_20211221T011000_C001 | OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality  | The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.   |
| CS_OFFL_SIR_IOPM_2_20211221T011220_20211221T011806_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T011933_20211221T012748_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T013002_20211221T014502_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T015140_20211221T015357_C001 | OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality  | The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.   |
| CS_OFFL_SIR_IOPM_2_20211221T020105_20211221T021536_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T021937_20211221T022854_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T025510_20211221T030118_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T030714_20211221T030724_C001 | OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality  | The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.   |
| CS_OFFL_SIR_IOPM_2_20211221T031115_20211221T032618_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T032930_20211221T033802_C001 | OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality  | The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.   |
| CS_OFFL_SIR_IOPM_2_20211221T034032_20211221T040305_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T041011_20211221T041035_C001 | OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality  | The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.   |
| CS_OFFL_SIR_IOPM_2_20211221T044231_20211221T050510_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T050839_20211221T051032_C001 | OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality  | The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.   |
| CS_OFFL_SIR_IOPM_2_20211221T051126_20211221T051609_C001 | OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality  | The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.   |
| CS_OFFL_SIR_IOPM_2_20211221T051948_20211221T052210_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T052354_20211221T054527_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T061752_20211221T064310_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T065046_20211221T065641_C001 | OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality  | The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.   |
| CS_OFFL_SIR_IOPM_2_20211221T065908_20211221T071847_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T073533_20211221T073643_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T074923_20211221T082259_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |

| CS_OFFL_SIR_IOPM_2_20211221T082954_20211221T083513_C001 | OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality  | The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.   |
|---|--|--|
| CS_OFFL_SIR_IOPM_2_20211221T083933_20211221T083952_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T084151_20211221T084315_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T091254_20211221T091527_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T091607_20211221T091645_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T092857_20211221T093757_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Attimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T094043_20211221T100229_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T100843_20211221T100957_C001 | OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality  | The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.   |
| CS_OFFL_SIR_IOPM_2_20211221T101004_20211221T101410_C001 | OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality  | The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.   |
| CS_OFFL_SIR_IOPM_2_20211221T101901_20211221T102917_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T103105_20211221T103715_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Attimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T110807_20211221T114123_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T114916_20211221T115215_C001 | OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality  | The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.   |
| CS_OFFL_SIR_IOPM_2_20211221T115957_20211221T121349_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T122557_20211221T123042_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T124505_20211221T124507_C001 | OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality  | The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.   |
| CS_OFFL_SIR_IOPM_2_20211221T124623_20211221T124624_C001 | OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality  | The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.   |
| CS_OFFL_SIR_IOPM_2_20211221T124950_20211221T130453_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Attimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T130518_20211221T132043_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Attimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T132249_20211221T132755_C001 | OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality  | The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.   |
| CS_OFFL_SIR_IOPM_2_20211221T132833_20211221T133000_C001 | OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality  | The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.   |
| CS_OFFL_SIR_IOPM_2_20211221T133732_20211221T134734_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T135354_20211221T140617_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T142811_20211221T144341_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T144521_20211221T145932_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20211221T150206_20211221T150706_C001 | OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality  | The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.   |
|   |  |  |

| Description         Description         Description         Description         Description           01_001_001_001_001_0011115500_001         Description         Description         Description         Description           01_001_001_001_001115500_001         Description         Description         Description         Description           01_001_001_001_001_001115500_001         Description         Description         Description         Description           01_001_001_001_001_001_001115500_001         Description         Description         Description         Description         Description           01_001_001_001_001_001_001115500_001         Description   | CS_OFFL_SIR_IOPM_2_20211221T150731_20211221T150741_C001 | OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality | The OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records. |
|---|---|---|---|
| Cit CPPL, SPL CPPL 2011211112212     and Backard Daily Root Size     and Backard Daily Root Size       Cit CPPL SPL CPPL 20112111221112211121112211     Cit CPPL 201121111211121112111211121112111211121  | CS_OFFL_SIR_IOPM_2_20211221T151443_20211221T153458_C001 | and Backscatter Quality, OCOG                             | and the OCOG Altimeter Range and Backscatter Quality Flags have been                          |
| <ul> <li>Ci, OHL, JRI, JOHZ, J. 2011221110103, J.2011221110103, CI011</li> <li>Citt, JRI, JOHZ, J. 2011221110103, J.2011221110103, CI01121110003, CI011</li> <li>Citt, JRI, JOHZ, J. 2011221110103, J.2011221110103, CI01121110003, CI011</li> <li>Citt, JRI, JOHZ, J. 2011221110103, J.2011221110003, CI011</li> <li>Citt, JRI, JOHZ, J. 2011221110103, J.2011221110003, CI011</li> <li>Citt, JRI, JOHZ, J. 2011221110103, J.2011221110003, CI011</li> <li>Citt, JRI, JOHZ, J. 2011221110003, J.20112211110003, CI0112</li> <li>Citt, JRI, JOHZ, J. 2011221110003, J.20112211110003, CI01121110003, CI01120110000, CI010000, CI0000, CI00</li></ul>                                      | CS_OFFL_SIR_IOPM_2_20211221T153500_20211221T153732_C001 | and Backscatter Quality, OCOG                             | and the OCOG Altimeter Range and Backscatter Quality Flags have been                          |
| DB_DPFL_BB_QPFL_2821221114832_0211221114832_0211221114832_0201     and DB-ackanite Quily_DDDD       DB_QPFL_BB_QPFL_28211221114824_0211221114824_0201     DDDD Allinese Range Quily_QDDD       DB_QPFL_BB_QPFL_28211221114824_02011221114824_0201     DDDD Allinese Range Quily_QDDD       DB_QPFL_BB_QPFL_28211221114824_02011221114824_0201     DDDD Allinese Range Quily_QDDD       DB_QPFL_BB_QPFL_28211221114824_02011221114844_02010     DDDD Allinese Range Quily_QDDD       DB_QPFL_BB_QPFL_28211221114824_02011221114844_02010     DDDD Allinese Range Quily_QDDD       DB_QPFL_BB_QPFL_28211221114244_02011221114844_02011221114844_02011     DDDD Allinese Range Quily_QDDD       DB_QPFL_BB_QPFL_282_02011221114244_02011221114844_02011221114990_0001     DDDD Allinese Range Quily_QDDD       DB_QPFL_BB_QPFL_282_02011221114244_02011221114990_0001     DDDD Allinese Range Quily_QDDD       DB_QPFL_BB_QPFL_282_02011221114244_02011221114990_0001     DDDD Allinese Range Quily_QDDD       DB_QPFL_BB_QPFL_282_02011221114294_02011221114990_0001     DDDD Allinese Range Quily_QDDD       DB_QPFL_BB_QPFL_282_02011221114990_0001     DDDD Allinese Range Quily_QDDD       DB_QPFL_BB_QPFL_282_02011221114990_0001     DDDD Allinese Range Quily_QDDD       DB_QPFL_BB_QPFL_282_02011221114990_0001     The Outer Mallinese Range Quily_QDDD       DB_QPFL_BB_QPFL_282_02011221114990_0001     The Outer Mallinese Range Quily_QDDD       DB_QPFL_BB_QPFL_282_02011221114990_0001     The Outer Mallinese Range QUILY_QPFL_282_000114_1111111111111111111111111111111   | CS_OFFL_SIR_IOPM_2_20211221T153855_20211221T154707_C001 | and Backscatter Quality, OCOG                             | and the OCOG Altimeter Range and Backscatter Quality Flags have been                          |
| Die Unit wird zum Hunt in Kenne (konne)         Beskender Gaulty         So owe in mer versich.           CB, OFFL, SR, IOFM, 2, 2021/2211194631, 2021/2211194660, CO01         DCGG Attender Range Gaulty, COOS         The Over Attender Range Gaulty, COOS           CB, OFFL, SR, IOFM, 2, 2021/2211194631, 2021/2211194681, CO01         DCGG Attender Range Gaulty, COOS         The Over Attender Range Gaulty, COOS           CB, OFFL, SR, IOFM, 2, 2021/2211194691, 2021/2211194691, CO01         DCGG Attender Range Gaulty, COOS         The Over Attender Range Gaulty, COOS           CB, OFFL, SR, IOFM, 2, 2021/2211194022, 2021/2211194042, 2021/2211194042, 2021/221119404, 2021/22119404   | CS_OFFL_SIR_IOPM_2_20211221T161631_20211221T163850_C001 | and Backscatter Quality, OCOG                             | and the OCOG Altimeter Range and Backscatter Quality Flags have been                          |
| Bit Activity Control         BioAssention Country         BioAssention Country         BioAssention Country         BioAssention Country           C5         OFFL_SIR_(OFFL_2_202112211163510_202112211174681_COUT         Decan Attention France and BioAssention Country         The Country Attention France and BioAssention Country         The Country Attention France and BioAssention Country         The Count Attention France and BioAssention Country         The Country Attention France and BioAssention Country         The Count Attention France and BioAssention Country   | CS_OFFL_SIR_IOPM_2_20211221T164248_20211221T164624_C001 |   |   |
| C2, OFFL_SR_JOP4_2.20211221116310_20211221117634_0001       Ind Basksetter Quality, OCCA         C3, OFFL_SR_JOP4_2.20211221116314_20211221117640_0001       DC00_Alterator Reage and Basksetter Quality Plags have been at the origon and textscatter Quality Plags have been at the origon and textscatter Quality Plags have been at the OCCA Alterator Reage and Basksetter Quality Plags have been at the OCCA Alterator Reage and Basksetter Quality Plags have been at the OCCA Alterator Reage and Basksetter Quality Plags have been at the OCCA Alterator Reage and Basksetter Quality Plags have been at the OCCA Alterator Reage and Basksetter Quality Plags have been at the OCCA Alterator Reage and Basksetter Quality Plags have been at the OCCA Alterator Reage and Basksetter Quality Plags have been at the OCCA Alterator Reage and Basksetter Quality Plags have been at the OCCA Alterator Reage and Basksetter Quality Plags have been at the OCCA Alterator Reage and Basksetter Quality Plags have been at the OCCA Alterator Reage and Basksetter Quality Plags have been at the OCCA Alterator Reage and Basksetter Quality Plags have been at the OCCA Alterator Reage and Basksetter Quality Plags have been at the OCCA Alterator Reage and Basksetter Quality Plags have been at the OCCA Alterator Reage and Basksetter Quality Plags have been at the OCCA Alterator Reage and Basksetter Quality Plags have been at the OCCA Alterator Reage and Basksetter Quality Plags have been at the OCCA Alterator Reage and Basksetter Quality Plags have been at the OCCA Alterator Reage and Basksetter Quality Plags have been at the OCCA Alterator Reage and Basksetter Quality Plags have been at the OCCA Alterator Reage and Basksetter Quality Plags have been at the OCCA Alterator Reage and Basksetter Quality Plags have been at the OCCA Alterator Reage and Basksetter Quality Plags have been at the OCCA Alterator Reage and Basksetter Quality Plags have been at the OCCA Alterator Reage and Baskse   | CS_OFFL_SIR_IOPM_2_20211221T164631_20211221T164640_C001 |   |   |
| CB_LEMPL_SHQUEMP_C_0011241114400_0011         Becksozier Quality         tr one or more records.           CB0FFL_SR_UOPM_2_02112211175232_20211221118530_0011         Ocean Alimeter Range and Becksozier Quality Flags have been set to one or more records.           CB0FFL_SR_UOPM_2_0211221118204_0011         DCOG Alimeter Range and Becksozier Quality Flags have been set to one or more records.           CB0FFL_SR_UOPM_2_0211221118204_0011         DCOG Alimeter Range and Becksozier Quality Flags have been set to one or more records.           CB0FFL_SR_UOPM_2_0211221118204_0011         DCOG Alimeter Range, SNA, SWH and Backsozier Quality Flags have been set to one or more records.           CB0FFL_SR_UOPM_2_02211221118204_00211221118204_0011         DCOG Alimeter Range, SNA, SWH and Backsozier Quality Flags have been set to one or more records.           CB0FFL_SR_UOPM_2_02211221118204_00211221118204_0001         Dccan Alimeter Range, SNA, SWH and Backsozier Quality Flags have been set to one or more records.           CB0FFL_SR_UOPM_2_02211221118204_0021         Dccan Alimeter Range, SNA, SWH and Backsozier Quality Flags have been set to one or more records.           CB0FFL_SR_UOPM_2_02211221118204_0021         Dccan Alimeter Range and Becksozier Quality Flags have been set to one or more records.           CB0FFL_SR_UOPM_2_02211221118204_0021         Dccan Alimeter Range and Becksozier Quality Flags have been set to one or more records.           CB0FFL_SR_UOPM_2_0221122112118204_0021         Dccan Alimeter Range and Becksozier Quality Flags have been set to one or more records.  | CS_OFFL_SIR_IOPM_2_20211221T165310_20211221T171954_C001 | and Backscatter Quality, OCOG                             | and the OCOG Altimeter Range and Backscatter Quality Flags have been                          |
| C8, DFH_SIR_IOPM_2_002112211192032_022112211192032_0001       and Beckscetter Quality, C006       and Min C006 Altmeter Roaps and Backscetter Quality Flags have been set for one innov records.         C8_OFFL_SIR_IOPM_2_002112211192032_022112211192039_0001       QC06 Altmeter Roaps Quality, OC00       The OC00 Altmeter Roaps and Backscetter Quality Flags have been set for one innov records.         C8_OFFL_SIR_IOPM_2_002112211192034_0001       QC06 Altmeter Roaps Quality, OC00       The OC00 Altmeter Roaps and Backscetter Quality Flags have been set for one innov records.         C9_OFFL_SIR_IOPM_2_002112211192034_0001       QC06 Altmeter Roaps Quality, OC00       The OC00 Altmeter Roaps Quality, SU00         C9_OFFL_SIR_IOPM_2_002112211190342_00112211190350_0001       QC06 Altmeter Roaps Quality, SU00       The OC00 Altmeter Roaps Quality, SU00         C9_OFFL_SIR_IOPM_2_002112211190342_01211211190350_0001       QC06A Altmeter Roaps Quality, SU00       The OC00 Altmeter Roaps and Backscetter Quality Flags have been set for one or none records.         C9_OFFL_SIR_IOPM_2_002112211190350_0001       QC06A Altmeter Roaps QUALITY, SU00A Altmeter Roaps QUALITY, Flags have been set for one or none records.       The OC00 Altmeter Roaps and Backscetter Quality Flags have been set for one or none records.         C9_OFFL_SIR_IOPM_2_002112211190350_0001       QC06A Altmeter Roaps QUALITY Flags SUN, SW1 and Backscetter Quality Flags have been set for one or none records.         C9_OFFL_SIR_IOPM_2_002112211200032_022112211200032_002112211200032_002112211200032_002112211200032_002112211200032_0001       QC06A Altmeter Roaps QUALITY SUN and Backsc   | CS_OFFL_SIR_IOPM_2_20211221T174254_20211221T174408_C001 |   |   |
| Displace   | CS_OFFL_SIR_IOPM_2_20211221T175232_20211221T181802_C001 | and Backscatter Quality, OCOG                             | and the OCOG Altimeter Range and Backscatter Quality Flags have been                          |
| Beckstatter Quality Beckstatter Quality Beckstatter Quality Beckstatter Quality Comment Comment Records. Co | CS_OFFL_SIR_IOPM_2_20211221T182032_20211221T182539_C001 |   |   |
| CS_OFFL_SIR_JOPM_2.20211221T215331_20211221T215064_001       and Backscatter Quality COCG Allineter Range and Backscatter Quality Flags have been Allineter Range and Backscatter Quality Flags have been Allineter Range and Backscatter Quality Flags have been Allineter Range and Backscatter Quality COCG Allineter Range and Backscatter Quality Flags have been Allineter Range and Backscatter Quality COCG Allineter Range and Backscatter Quality Flags have been Allineter Range and Backscatter Quality COCG Allineter Range and Backscatter Quality Flags have been Allineter Range and Backscatter Quality COCG Allineter Range and Backscatter Quality Flags have been at for one or more records.         CS_OFFL_SIR_JOPM_2.20211221T200032_00211221T200613_001       Ocean Allineter Range CSNA, SWH and Backscatter Quality Flags have been at for one or more records.         CS_OFFL_SIR_JOPM_2.20211221T201249_20211221T206437_C001       Ocean Allineter Range CSNA, SWH and Backscatter Quality Flags have been at for one or more records.         CS_OFFL_SIR_JOPM_2.20211221T201249_20211221T204537_C001       Ocean Allineter Range CSNA, SWH and Backscatter Quality Flags have been at for one or more records.         CS_OFFL_SIR_JOPM_2.20211221T215458_20211221T215458_20201       Ocean Allineter Range Quality. OCCG Allineter Range and Backscatter Quality Flags have been at for one or more records.         CS_OFFL_SIR_JOPM_2.20211221T215458_20211221T215458_20201       Ocean Allineter Range Quality. OCCG Allineter Range and Backscatter Quality Flags have been at for one or more records.         CS_OFFL_SIR_JOPM_2.20211221T215458_20211221T215458_2001       Ocean Allineter Range Quality. OCCG Allineter Range and Backscatter Quality Flags have been at for one or more records.  | CS_OFFL_SIR_IOPM_2_20211221T182546_20211221T182914_C001 |   |   |
| CS_OFFL_SIR_JOPM_2_20211221T193242_20211221T195660_0001       and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality, COG<br>Altimeter Range and Backscatter Quality, Flags have been set<br>for nen or more records.         CS_OFFL_SIR_JOPM_2_20211221T201249_20211221T200613_COD1       OCOG Altimeter Range SSHA, SWH<br>and Backscatter Quality, COG<br>Altimeter Range SSHA, SWH<br>and Backscatter Quality, COG<br>Altimeter Range SSHA, SWH and Backscatter Quality, Flags have been<br>set for one or more records.         CS_OFFL_SIR_JOPM_2_20211221T201249_20211221T21059_COD1       Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, Flags have been<br>Altimeter Range Quality, COG<br>Altimeter Range and Backscatter Quality, Flags have been<br>Altimeter Range Quality, COG<br>Altimeter Range and Backscatter Quality, Flags have been<br>Altimeter Range Quality, COG<br>Altimeter Range and Backscatter Quality, Flags have been<br>Altimeter Range Quality, COG<br>Altimeter Range and Backscatter Quality, Flags have been<br>alto core or more records.         CS_OFFL_SIR_JOPM_2_20211221T2115131_20211221T215250_COD1       Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, COG<br>Altimeter Range and Backscatter Quality, Flags have been<br>alto core or more records.         CS_OFFL_SIR_JOPM_2_20211221T2152501_20211221T225250_2001       Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, COG<br>Altimeter Range and Backscatter Quality, Flags h   | CS_OFFL_SIR_IOPM_2_20211221T183331_20211221T190634_C001 | and Backscatter Quality, OCOG                             | and the OCOG Altimeter Range and Backscatter Quality Flags have been                          |
| CS_OFFL_SIR_IOPM_2_20211221119522_0211221195540_C001       and Backscatter Quality. OCOG<br>Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.         CS_OFFL_SIR_IOPM_2_202112211200032_02112211200013_C001       CCGG Altimeter Range Quality. OCOG<br>Backscatter Quality. OCOG<br>Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.         CS_OFFL_SIR_IOPM_2_202112211201249_202112211204537_C001       Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality. OCOG<br>Altimeter Range and Backscatter Quality Flags have been<br>and the OCOG Altimeter Range, SSHA, SWH<br>and Backscatter Quality. OCOG<br>Altimeter Range and Backscatter Quality Flags have been<br>and the OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>and the OCOG Altimeter Range and Backscatter Qua                          | CS_OFFL_SIR_IOPM_2_20211221T193342_20211221T193650_C001 | and Backscatter Quality, OCOG                             | and the OCOG Altimeter Range and Backscatter Quality Flags have been                          |
| GS_OFFL_SIR_JOPM_2_202112211201249_202112211204537_C001       Backscatter Quality       For one or more records.         GS_OFFL_SIR_JOPM_2_202112211201249_202112211204537_C001       Ocean Allineter Range, SSHA, SWH and Backscatter Quality Flags have been Allineter Range, SSHA, SWH and Backscatter Quality Flags have been Allineter Range, SSHA, SWH and Backscatter Quality Flags have been Allineter Range, SSHA, SWH and Backscatter Quality Flags have been Allineter Range, SSHA, SWH and Backscatter Quality Flags have been Allineter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.         GS_OFFL_SIR_JOPM_2_202112217213958_20211221721508_C001       Ocean Allineter Range Quality, OCOG       The Ocean Allineter Range and Backscatter Quality Flags have been set for one or more records.         GS_OFFL_SIR_JOPM_2_202112217215131_20211221721536_C001       OCGA Allineter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.         GS_OFFL_SIR_JOPM_2_202112217215131_20211221722536_C001       Ocean Allineter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.         GS_OFFL_SIR_JOPM_2_202112217231234_C001       Ocean Allineter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.         GS_OFFL_SIR_JOPM_2_202112217232201_202112217232411_C001       Ocean Allineter Range Quality, OCOG       The Ocean Allineter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.         GS_OFFL_SIR_JOPM_2_202112217233120_20211221703350_C001       Ocean Allineter Range Quality, OCOG       The Ocean Allineter Range, SSHA, SWH and Backscatter Quality Flags have b   | CS_OFFL_SIR_IOPM_2_20211221T195222_20211221T195640_C001 | and Backscatter Quality, OCOG                             | and the OCOG Altimeter Range and Backscatter Quality Flags have been                          |
| CS_OFFL_SIR_IOPM_2_20211221T201249_20211221T201537_C001       and Backscatter Quality, COG Altimeter Range and Backscatter Quality Flags have been altimeter Range and Backscatter Quality Flags have been ast for one or more records.   | CS_OFFL_SIR_IOPM_2_20211221T200032_20211221T200613_C001 |   |   |
| CS_OFFL_SIR_IOPM_2_20211221T211845_20211221T213509_C001       and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality       and the OCOG Altimeter Range and Backscatter Quality Flags have been and the OCOG Altimeter Range and Backscatter Quality Flags have been and the OCOG Altimeter Range, SSHA, SWH<br>and Backscatter Quality       The OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been and the OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been<br>Altimeter Range, and Backscatter Quality Flags have been and the OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been<br>and the OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been<br>and the OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been<br>and the OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been<br>and the OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set<br>for one or more records.         CS_OFFL_SIR_IOPM_2_20211221T225501_20211221T23124_C001       Ocean Altimeter Range Quality, OCOG<br>Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.       The OCean Altimeter Range, SSHA, SWH<br>and Backscatter Quality Flags have been set<br>for one or more records.         CS_OFFL_SIR_IOPM_2_20211221T233120_20211221T025305_C001       Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.       The Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.         CS_OFFL_SIR_IOPM_2_20211221T025351_20211221T025409_C001       OCCGA Altimeter Range, SSHA, SWH  | CS_OFFL_SIR_IOPM_2_20211221T201249_20211221T204537_C001 | and Backscatter Quality, OCOG                             | and the OCOG Altimeter Range and Backscatter Quality Flags have been                          |
| GS_OFFL_SIR_IOPM_2_20211221T215131_20211221T22536_C001       Backscatter Quality       for one or more records.         GS_OFFL_SIR_IOPM_2_20211221T215131_20211221T22536_C001       Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality, SCOG<br>Altimeter Range and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality, Plags have been<br>ast for one or more records.         CS_OFFL_SIR_IOPM_2_20211221T225501_20211221T231234_C001       Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality, Plags have been<br>ast for one or more records.         CS_OFFL_SIR_IOPM_2_20211221T232201_20211221T232411_C001       OCCG Altimeter Range Quality, OCOG<br>Altimeter Range, SSHA, SWH<br>and Backscatter Quality Flags have been set<br>for one or more records.         CS_OFFL_SIR_IOPM_2_20211221T233120_20211221T232411_C001       OCCG Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.         CS_OFFL_SIR_IOPM_2_20211221T233120_20211221T00350_C001       OCean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.         CS_OFFL_SIR_IOPN_2_20211221T025351_20211221T025409_C001       OCCG Altimeter Range Quality, OCOG<br>Backscatter Quality, OCOG<br>Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range, SSHA, SWH<br>and Backscatter Quality, Flags have been set<br>for one or more records.         CS_OFFL_SIR_IOPN_2_20211221T025351_20211221T031115_C001       Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Ra  | CS_OFFL_SIR_IOPM_2_20211221T211845_20211221T213509_C001 | and Backscatter Quality, OCOG                             | and the OCOG Altimeter Range and Backscatter Quality Flags have been                          |
| CS_OFFL_SIR_IOPM_2_20211221T215131_20211221T222536_C001       and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality set for one or more records.         CS_OFFL_SIR_IOPM_2_20211221T225501_20211221T231234_C001       Ccean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality       The Ocean Altimeter Range, SSHA, SWH<br>and the OCOG Altimeter Range and Backscatter Quality Flags<br>and the OCOG Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Backscatter Quality, OCOG         CS_OFFL_SIR_IOPM_2_20211221T232201_20211221T232411_C001       OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality, OCOG<br>Backscatter Quality, OCOG<br>Altimeter Range, SSHA, SWH       The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.         CS_OFFL_SIR_IOPM_2_20211221T23201_20211221T232411_C001       OCean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.         CS_OFFL_SIR_IOPM_2_20211221T033120_20211221T025409_C001       OCCGG Altimeter Range Quality, OCOG<br>Backscatter Quality       The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.         CS_OFFL_SIR_IOPN_2_20211221T030724_20211221T031115_C001       OCCGA Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality Flags have been set       The OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records.         CS_OFFL_SIR_IOPN_2_20211221T030724_20211221T030724_20211221T030724_20211221T030724_20211221T030724_20211221T030724_20211221T040814_C001       OCCGA Altime  | CS_OFFL_SIR_IOPM_2_20211221T213958_20211221T214508_C001 |   |   |
| CS_OFFL_SIR_IOPM_2_20211221T225501_20211221T231234_C001       and Backscatter Quality, OCOG<br>Attimeter Range and Backscatter Quality Flags have been<br>set for one or more records.         CS_OFFL_SIR_IOPM_2_20211221T232201_20211221T232411_C001       OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality       The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.         CS_OFFL_SIR_IOPM_2_20211221T233120_2021122T000350_C001       Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.         CS_OFFL_SIR_IOPM_2_20211221T025351_20211221T025409_C001       OCCG Altimeter Range Quality, OCOG<br>Altimeter Range, SSHA, SWH<br>and Backscatter Quality       The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.         CS_OFFL_SIR_IOPN_2_20211221T025351_20211221T025409_C001       OCCG Altimeter Range, Quality, OCCG<br>Backscatter Quality, OCCG<br>Altimeter Range, SSHA, SWH<br>and Backscatter Quality       The OCCG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set<br>for one or more records.         CS_OFFL_SIR_IOPN_2_20211221T030724_20211221T031115_C001       Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality       The OCCG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records.         CS_OFFL_SIR_IOPN_2_20211221T030724_20211221T0301115_C001       OCCG Altimeter Range Quality, OCCG<br>Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records.         CS_OFFL_SIR_IOPN_2_20211221T040447_20211221T040444_20211221T040444_  | CS_OFFL_SIR_IOPM_2_20211221T215131_20211221T222536_C001 | and Backscatter Quality, OCOG                             | and the OCOG Altimeter Range and Backscatter Quality Flags have been                          |
| CS_OFFL_SIR_IOPM_2_202112211232201_202112211232411_0001       Backscatter Quality       for one or more records.         CS_OFFL_SIR_IOPM_2_202112211233120_202112221000350_C001       Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality Flags have been set for one or more records.         CS_OFFL_SIR_IOPN_2_202112211025351_202112211025409_C001       OCOG Altimeter Range Quality, OCOG Backscatter 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_202112211030724_202112211031115_C001       Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.         CS_OFFL_SIR_IOPN_2_202112211040447_202112211031115_C001       Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set for one or more records.         CS_OFFL_SIR_IOPN_2_202112211040447_202112211040444_202112211040444_202112211040444_20211221104044_202111221104044_20211221104044_20211221104044_20211221104044_202112211  | CS_OFFL_SIR_IOPM_2_20211221T225501_20211221T231234_C001 | and Backscatter Quality, OCOG                             | and the OCOG Altimeter Range and Backscatter Quality Flags have been                          |
| CS_OFFL_SIR_IOPM_2_20211221T233120_20211222T000350_C001       and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality       and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records.         CS_OFFL_SIR_IOPN_2_20211221T025351_20211221T025409_C001       OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality       The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.         CS_OFFL_SIR_IOPN_2_20211221T025351_20211221T025409_C001       Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality       The OCOG Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set<br>for one or more records.         CS_OFFL_SIR_IOPN_2_20211221T030724_20211221T031115_C001       Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been<br>set for one or more records.       The OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records.         CS_OFFL_SIR_IOPN_2_20211221T040447_20211221T040814_C001       OCOG Altimeter Range Quality, OCOG<br>Altimeter Range Quality, OCOG       The OCOG Altimeter Range and Backscatter Quality Flags have been set   | CS_OFFL_SIR_IOPM_2_20211221T232201_20211221T232411_C001 |   |   |
| CS_OFFL_SIR_IOPN_2_20211221T020305_20211221T020409_C001       Backscatter Quality       for one or more records.         CS_OFFL_SIR_IOPN_2_20211221T030724_20211221T031115_C001       Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags and Backscatter Quality, OCOG Altimeter Range and Backscatter Quality Flags have been set       The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags have been set  | CS_OFFL_SIR_IOPM_2_20211221T233120_20211222T000350_C001 | and Backscatter Quality, OCOG                             | and the OCOG Altimeter Range and Backscatter Quality Flags have been                          |
| CS_OFFL_SIR_IOPN_2_20211221T030724_20211221T031115_C001 and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>occog Altimeter Range Quality, OCOG<br>OCOG Altimeter Range Quality, OCOG<br>The OCOG Altimeter Range and Backscatter Quality Flags have been set  | CS_OFFL_SIR_IOPN_2_20211221T025351_20211221T025409_C001 |   |   |
|   | CS_OFFL_SIR_IOPN_2_20211221T030724_20211221T031115_C001 | and Backscatter Quality, OCOG                             | and the OCOG Altimeter Range and Backscatter Quality Flags have been                          |
|   | CS_OFFL_SIR_IOPN_2_20211221T040447_20211221T040814_C001 |   |   |

| CS_OFFL_SIR_IOPN_2_20211221T051032_20211221T051126_C001 | OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality  | The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.   |
|---|--|--|
| CS_OFFL_SIR_IOPN_2_20211221T065641_20211221T065809_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPN_2_20211221T100524_20211221T100533_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPN_2_20211221T114201_20211221T114348_C001 | OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality  | The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.   |
| CS_OFFL_SIR_IOPN_2_20211221T191753_20211221T191818_C001 | OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality  | The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.   |
| CS_OFFL_SIR_IOPN_2_20211221T195913_20211221T200032_C001 | OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality  | The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.   |
| CS_OFFL_SIR_IOPN_2_20211221T204841_20211221T204902_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPN_2_20211221T225420_20211221T225501_C001 | OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality  | The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.   |
| CS_OFFL_SIR_IOPR_2_20211221T030449_20211221T030554_C001 | OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality  | The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.   |
| CS_OFFL_SIR_IOPR_2_20211221T041736_20211221T042404_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T124635_20211221T124950_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T133213_20211221T133731_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T161441_20211221T161520_C001 | OCOG Altimeter Range Quality, OCOG<br>Backscatter Quality  | The OCOG Altimeter Range and Backscatter Quality Flags have been set<br>for one or more records.   |
| CS_OFFL_SIR_IOPR_2_20211221T181803_20211221T181857_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality, OCOG<br>Altimeter Range and Backscatter Quality | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>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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| Product   | Test Failed   | Description  |
|---|---|--|
| CS_OFFL_SIR_IOPN_2_20211221T001443_20211221T001805_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_IOPN_2_20211221T011001_20211221T011219_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_IOPN_2_20211221T014539_20211221T015140_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or<br>more records.   |
| CS_OFFL_SIR_IOPN_2_20211221T015855_20211221T020033_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or<br>more records.   |
| CS_OFFL_SIR_IOPN_2_20211221T024451_20211221T024704_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or<br>more records.   |
| CS_OFFL_SIR_IOPN_2_20211221T040447_20211221T040814_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or<br>more records.   |
| CS_OFFL_SIR_IOPN_2_20211221T042405_20211221T042855_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPN_2_20211221T082640_20211221T082954_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or<br>more records.   |
| CS_OFFL_SIR_IOPN_2_20211221T083513_20211221T083630_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or<br>more records.   |

| CS_OFFL_SIR_IOPN_2_20211221T085420_20211221T085512_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
|---|---|--|
| CS_OFFL_SIR_IOPN_2_20211221T085732_20211221T085917_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_IOPN_2_20211221T092634_20211221T092714_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_IOPN_2_20211221T105210_20211221T105255_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_IOPN_2_20211221T115215_20211221T115355_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_IOPN_2_20211221T123055_20211221T123223_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_IOPN_2_20211221T133000_20211221T133213_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPN_2_20211221T134735_20211221T134840_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_IOPN_2_20211221T140943_20211221T141244_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_IOPN_2_20211221T141350_20211221T141604_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_IOPN_2_20211221T150851_20211221T151345_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_IOPN_2_20211221T155033_20211221T155429_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_IOPN_2_20211221T155951_20211221T160025_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPN_2_20211221T175116_20211221T175232_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_IOPN_2_20211221T181858_20211221T182031_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_IOPN_2_20211221T190635_20211221T190835_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_IOPN_2_20211221T190848_20211221T191016_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPN_2_20211221T210615_20211221T210626_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_IOPN_2_20211221T213832_20211221T213958_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPN_2_20211221T225420_20211221T225501_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_IOPN_2_20211221T231907_20211221T232201_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T000316_20211221T001014_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T005410_20211221T005418_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_IOPR_2_20211221T005818_20211221T010414_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T012748_20211221T013002_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_IOPR_2_20211221T023806_20211221T023950_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |

| CS_OFFL_SIR_IOPR_2_20211221T024201_20211221T024450_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
|---|---|--|
| CS_OFFL_SIR_IOPR_2_20211221T030449_20211221T030554_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T032619_20211221T032743_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T043632_20211221T043841_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or<br>more records.   |
| CS_OFFL_SIR_IOPR_2_20211221T055914_20211221T060429_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T061557_20211221T061752_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or<br>more records.   |
| CS_OFFL_SIR_IOPR_2_20211221T064310_20211221T064648_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T072714_20211221T072919_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or<br>more records.   |
| CS_OFFL_SIR_IOPR_2_20211221T073244_20211221T073437_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or<br>more records.   |
| CS_OFFL_SIR_IOPR_2_20211221T073819_20211221T074617_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T082259_20211221T082640_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T083631_20211221T083933_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T090411_20211221T090749_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or<br>more records.   |
| CS_OFFL_SIR_IOPR_2_20211221T090958_20211221T091126_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T091645_20211221T092544_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T092620_20211221T092634_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T100229_20211221T100523_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T105751_20211221T110537_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T110625_20211221T110807_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or<br>more records.   |
| CS_OFFL_SIR_IOPR_2_20211221T115356_20211221T115956_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T123957_20211221T124231_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T124635_20211221T124950_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or<br>more records.   |
| CS_OFFL_SIR_IOPR_2_20211221T135141_20211221T135354_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or<br>more records.   |
| CS_OFFL_SIR_IOPR_2_20211221T140730_20211221T140943_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or<br>more records.   |
| CS_OFFL_SIR_IOPR_2_20211221T141605_20211221T142252_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T145933_20211221T150020_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have been<br>set for one or more records. |
|   |   |  |

| CS_OFFL_SIR_IOPR_2_20211221T155430_20211221T155950_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have beer<br>set for one or more records. |
|---|---|--|
| CS_OFFL_SIR_IOPR_2_20211221T160025_20211221T160125_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or<br>more records.   |
| CS_OFFL_SIR_IOPR_2_20211221T163851_20211221T164015_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have beer<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T173251_20211221T174254_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have beer<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T181803_20211221T181857_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have beer<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T190835_20211221T190848_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or<br>more records.   |
| CS_OFFL_SIR_IOPR_2_20211221T191016_20211221T191753_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have beer<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T192816_20211221T192912_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or more records.  |
| CS_OFFL_SIR_IOPR_2_20211221T194725_20211221T195222_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one o<br>more records.  |
| CS_OFFL_SIR_IOPR_2_20211221T195640_20211221T195913_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have beer<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T200930_20211221T201249_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have beer<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T204902_20211221T205604_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have beer<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T205739_20211221T205908_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have beer<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T210728_20211221T211048_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or<br>more records.   |
| CS_OFFL_SIR_IOPR_2_20211221T213510_20211221T213832_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have beer<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T214815_20211221T215131_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have beer<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T222633_20211221T222702_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one o<br>more records.  |
| CS_OFFL_SIR_IOPR_2_20211221T222749_20211221T223504_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or<br>more records.   |
| CS_OFFL_SIR_IOPR_2_20211221T223504_20211221T223917_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have beer<br>set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20211221T223931_20211221T224945_C001 | OCOG Altimeter Range Quality PLRM,<br>OCOG Backscatter Quality  | The OCOG Range and Backscatter Quality Flags have been set for one or<br>more records.   |
| CS_OFFL_SIR_IOPR_2_20211221T231235_20211221T231907_C001 | Ocean Altimeter Range, SSHA, SWH<br>and Backscatter Quality PLRM, OCOG<br>Altimeter Range and Backscatter Quality<br>PLRM | The Ocean Altimeter Range, SSHA, SWH and Backscatter Quality Flags<br>and the OCOG Altimeter Range and Backscatter Quality Flags have beer<br>set for one or more records. |

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.

56

205

Number of products with errors:

### 5.8 L2 Ocean Retracking Quality Check

#### L2 Retracking Flags (20Hz)

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

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

Number of products with errors:

#### L2 Retracking Flags (20Hz, PLRM)

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

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

### 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:

#### 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. 0

#### Number of products with errors:

### 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:

#### 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).

158

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.

| Product   | Test Failed   | Description   |
|---|---|---|
| CS_OFFL_SIR_IOP_220211220T232444_20211221T001420_C002 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)  |
| CS_OFFL_SIR_IOP_220211221T001420_20211221T010359_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)  |
| CS_OFFL_SIR_IOP_220211221T010359_20211221T015335_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1), Total Geocentric Ocean<br>Tide (GOT)  | There is an error with the MSS height (solution 1), the Mean Dynamic<br>Topography (solution 1), the Total Geocentric Ocean Tide (solution 1:<br>GOT) for one or more records   |
| CS_OFFL_SIR_IOP_220211221T015335_20211221T024314_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)  |
| CS_OFFL_SIR_IOP_220211221T024314_20211221T033250_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1), Total Geocentric Ocean<br>Tide (GOT)  | There is an error with the MSS height (solution 1), the Mean Dynamic<br>Topography (solution 1), the Total Geocentric Ocean Tide (solution 1:<br>GOT) for one or more records   |
| CS_OFFL_SIR_IOP_220211221T033250_20211221T042228_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)  |
| CS_OFFL_SIR_IOP_220211221T042228_20211221T051204_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1), Total Geocentric Ocean<br>Tide (GOT), Total Geocentric Ocean<br>Tide (FES), Non-Equilibrium Long Period<br>Ocean Tide | There is an error with the MSS height (solution 1), the Mean Dynamic<br>Topography (solution 1), and tidal corrections for one or more records  |
| CS_OFFL_SIR_IOP_220211221T051204_20211221T060143_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)  |
| CS_OFFL_SIR_IOP_220211221T060143_20211221T065119_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1), Total Geocentric Ocean<br>Tide (GOT), Total Geocentric Ocean<br>Tide (FES), Non-Equilibrium Long Period<br>Ocean Tide | There is an error with the MSS height (solution 1), the Mean Dynamic<br>Topography (solution 1), and tidal corrections for one or more records  |
| CS_OFFL_SIR_IOP_220211221T065119_20211221T074058_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic<br>Topography height (solution 1)   |
| CS_OFFL_SIR_IOP_220211221T074058_20211221T083034_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)  |
| CS_OFFL_SIR_IOP_220211221T083034_20211221T092012_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)  |
| CS_OFFL_SIR_IOP_220211221T092012_20211221T100948_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)  |
| CS_OFFL_SIR_IOP_220211221T100948_20211221T105927_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1), Total Geocentric Ocean<br>Tide (GOT), Total Geocentric Ocean<br>Tide (FES), Non-Equilibrium Long Period<br>Ocean Tide | There is an error with the MSS height (solution 1), the Mean Dynamic<br>Topography (solution 1), and tidal corrections for one or more records  |
| CS_OFFL_SIR_IOP_220211221T105927_20211221T114903_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)  |
| CS_OFFL_SIR_IOP_220211221T114903_20211221T123842_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)  |
| CS_OFFL_SIR_IOP_220211221T123842_20211221T132818_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1), Total Geocentric Ocean<br>Tide (FES), Non-Equilibrium Long Period<br>Ocean Tide                                       | There is an error with the MSS height (solution 1), the Mean Dynamic<br>Topography (solution 1), the Total Geocentric Ocean Tide (solution 2:<br>FES) and the Non-Equilibrium Long Period Ocean Tide for one or more<br>records |

| CS OFFL SIR IOP 2 20211221T132818 20211221T141756 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_IOP_220211221T141756_20211221T150732_C001  | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)  |
| CS_OFFL_SIR_IOP_220211221T150732_20211221T155711_C001  | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)  |
| CS_OFFL_SIR_IOP_220211221T155711_20211221T164647_C001  | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)  |
| CS_OFFL_SIR_IOP_220211221T164647_20211221T173626_C001  | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)  |
| CS_OFFL_SIR_IOP_220211221T173626_20211221T182602_C001  | Mean Sea Surface (1), Mean Dynamic<br>Topography (1), Total Geocentric Ocean<br>Tide (GOT)  | There is an error with the MSS height (solution 1), the Mean Dynamic<br>Topography (solution 1), the Total Geocentric Ocean Tide (solution 1:<br>GOT) for one or more records |
| CS_OFFL_SIR_IOP_220211221T182602_20211221T191541_C001  | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)  |
| CS_OFFL_SIR_IOP_220211221T191541_20211221T200517_C001  | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)  |
| CS_OFFL_SIR_IOP_2_20211221T200517_20211221T205455_C001 | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)  |
| CS_OFFL_SIR_IOP_220211221T205455_20211221T214431_C001  | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)  |
| CS_OFFL_SIR_IOP_220211221T214431_20211221T223410_C001  | Mean Sea Surface (1), Mean Dynamic<br>Topography (1), Total Geocentric Ocean<br>Tide (GOT), Total Geocentric Ocean<br>Tide (FES), Non-Equilibrium Long Perioc<br>Ocean Tide | There is an error with the MSS height (solution 1), the Mean Dynamic  |
| CS_OFFL_SIR_IOP_220211221T223410_20211221T232346_C001  | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)  |
| CS_OFFL_SIR_IOP_220211221T232346_20211222T001324_C001  | Mean Sea Surface (1), Mean Dynamic<br>Topography (1)  | There is an error with the MSS height (solution 1) and the Mean Dynamic Topography height (solution 1)  |
| 6 5 D2D Maggurament Confidence Data Check              |   |   |

## 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. 0 Number of products with errors:

| .6 P2P Measurement Quality Flag Check   |
|---|
| 2P Quality Flags (20Hz)   |
| ryoSat P2P data includes Quality Flags for each 20 Hz, 20 Hz PLRM and 1 Hz measurement record, copied from the corresponding L2 products.                           |
| ince the P2P Quality Flags are copied directly from the L2 Quality Flags, please see Section 5.6 for the full list of products affected.                            |
| umber of products with errors: 30   |
| 2P Quality Flags (20Hz PLRM)  |
| ince the P2P Quality Flags are copied directly from the L2 Quality Flags, please see Section 5.6 for the full list of products affected.                            |
| umber of products with errors: 30   |
| 2P Quality Flags (1 Hz & 1Hz PLRM)  |
| ince the P2P Quality Flags are copied directly from the L2 Quality Flags, please see Section 5.6 for the full list of products affected.                            |
| umber of products with errors: 30   |
| .8 P2P Ocean Retracking Quality Check   |
| 2P Retracking Flags (20Hz)  |
| ryosat 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. |
| cean Retracking Quality Flag (PLRM): This flag is currently set for products IOPR and IOPN products over sea ice, but this is to be expected.                       |
| umber of products with errors: 23   |
| 2P 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.

30

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.

| No. Products | No. QCC Reports                        | No. Valid   | No. Warnings  | No. Errors   |
|--------------|--|---|---|--|
| 207          | 207                                    | 8   | 199   | 0  |
| 132          | 109                                    | 4   | 105   | 0  |
| 109          | 132                                    | 0   | 132   | 0  |
| 207          | 207                                    | 150   | 57  | 0  |
| 132          | 109                                    | 40  | 69  | 0  |
| 109          | 132                                    | 37  | 91  | 4  |
| 29           | 29                                     | 0   | 26  | 3  |
|              | 207<br>132<br>109<br>207<br>132<br>109 | 207         207           132         109           109         132           207         207           132         109           109         132           109         132 | 207         207         8           132         109         4           109         132         0           207         207         150           132         109         40           109         132         37 | 207         207         8         199           132         109         4         105           109         132         0         132           207         207         150         57           132         109         40         69           109         132         37         91 |

13

2352

Total number of occurrences of each error

| Product Type R   | LOBOPNCDF | RL | RLOBOPNCDF | RL | - | - | - | - | - | - | - |
|------------------|-----------|----|------------|----|---|---|---|---|---|---|---|
| SIR_IOPR_2       | 4         | 4  | 4          | 4  |   |   |   |   |   |   |   |
|                  |           |    |            |    |   |   |   |   |   |   |   |
| Product Type R   | LOBOPNCDF | RL | RLOBOPNCDF | RL | - | - | - | - | - | - | - |
| SIR_IOP_2_       | 3         | 3  | 3          | 3  |   |   |   |   |   |   |   |
|                  |           |    | *          |    |   |   |   | • |   |   |   |
| Test Description | Kan       |    |            |    |   |   |   |   |   |   |   |

| Test Description Key: |                                 |  |  |  |
|-----------------------|---------------------------------|--|--|--|
| 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            | RangeLongitudeOrBlankOP_7NetCDF | Longitude should be between -180E7 and 180E7 |  |  |
| RL                    | RangeLongitude_7                | Longitude should be between -180E7 and 180E7 |  |  |

## 7.2 QCC Warnings

Number of QCC reports with warnings

| Number of QCC re | ports with warnings | 2352          | Total num         | ber of occurrences of | each warning      |                   |                    |
|------------------|---------------------|---------------|-------------------|-----------------------|-------------------|-------------------|--------------------|
| Product Type     | BCSHNCDF            | IOHHMOOR      | MVIOEPFDNCDF      | MVIOEPNCDF            | MVIONCDF          | RBSZOPOEPFDNCDF   | RBSZOPOEPFDPLRMNCD |
| SIR IOPM1B       |                     | 0             | 0                 | 0                     | 0                 | 0                 | 0                  |
| SIR IOPM 2       |                     | 0             | 39                | 39                    | 1                 | 35                | 0                  |
| SIR IOPN1B       | 102                 | 0             | 0                 | 0                     | 0                 | 0                 | 0                  |
| SIR IOPN 2       | 0                   | 0             | 6                 | 31                    | 4                 | 23                | 27                 |
| SIR IOPR1B       | 126                 | 0             | 0                 | 0                     | 0                 | 0                 | 0                  |
| SIR IOPR 2       | 0                   | 4             | 33                | 60                    | 5                 | 31                | 27                 |
|                  | 4                   |               | 4                 | 4                     |                   |                   | 1                  |
| Product Type     | RBSZOPOEPNCDF       | RLPTONCDF     | RNELPOTONCDF      | RPEPOPFDLRMNCDF       | RPEPOPFDPLRMSARNO | RPEPOPFDPLRMSINNC | DIRPEPOPFDSARNCDF  |
| SIR_IOPM1B       |                     | 0             | 0                 | 0                     | 0                 | 0                 | 0                  |
| SIR_IOPM_2       |                     | 2             | 0                 | 34                    | 0                 | 0                 | 0                  |
| SIR_IOPN1B       | 0                   | 0             | 0                 | 0                     | 0                 | 0                 | 0                  |
| SIR_IOPN_2       | 17                  | 27            | 0                 | 0                     | 0                 | 28                | 0                  |
| SIR_IOPR1B       | 0                   | 0             | 0                 | 0                     | 0                 | 0                 | 0                  |
| SIR_IOPR_2       | 11                  | 30            | 2                 | 0                     | 56                | 0                 | 63                 |
|                  |                     |               |                   |                       |                   |                   |                    |
| Product Type     |                     | RPEPOPLRMNCDF | RPEPOPSARNCDF     | RPEPOPSINNCDF         | RSSBCONCDF        | RSSHAOFDNCDF      | RSSHAOFDPLRMNCDF   |
| SIR_IOPM1B       |                     | 0             | 0                 | 0                     | 0                 | 0                 | 0                  |
| SIR_IOPM_2       |                     | 27            | 0                 | 0                     | 3                 | 27                | 0                  |
| SIR_IOPN1B       | 0                   | 0             | 0                 | 0                     | 0                 | 0                 | 0                  |
| SIR_IOPN_2       |                     | 0             | 0                 | 33                    | 20                | 38                | 55                 |
| SIR_IOPR1B       | 0                   | 0             | 0                 | 0                     | 0                 | 0                 | 0                  |
| SIR_IOPR_2       | 0                   | 0             | 55                | 0                     | 0                 | 68                | 32                 |
|                  |                     |               |                   |                       |                   |                   |                    |
| Product Type     |                     | RSWHOEPFDNCDF | RSWHOEPFDPLRMNCD  | RSWHOEPNCDF           | SPHRTASCNSNCDF    | SOOHHIFHD         | SCSTODHRNCDF       |
| SIR_IOPM1B       |                     | 0             | 0                 | 0                     | 1                 | 0                 | 0                  |
| SIR_IOPM_2       |                     | 34            | 0                 | 0                     | 1                 | 0                 | 0                  |
| SIR_IOPN1B       | 0                   | 0             | 0                 | 0                     | 0                 | 0                 | 46<br>0            |
| SIR_IOPN_2       | 36                  | 26            | 29                | 10                    | v                 | 2                 | °                  |
| SIR_IOPR1B       | 0                   | 0<br>39       | 0<br>50           | 0                     | 0                 | 0                 | 132                |
| SIR_IOPR_2       | 10                  | 39            | 50                | 1                     | 0                 | 9                 | 0                  |
| Product Type     | IOHHMOOR            | MVIOEPFDNCDF  | MVIOEPNCDF        | MVIONCDF              | RBSZOPOEPFDNCDF   | RBSZOPOEPFDPLRMN  |                    |
| SIR IOP 2        | 18                  | 28            | 29                | 8                     | 29                | 17                | 29                 |
| 0111_101-2_      | 10                  | 20            | 20                | U U                   | 20                |                   | 20                 |
| Product Type     | RLPTONCDF           | RNELPOTONCDF  | RPEPOPFDPLRMSINNC | DIRPEPOPFDSINNCDF     | RPEPOPSINNCDF     | RSSBCONCDF        | RSSHAOFDNCDF       |
| SIR_IOP_2_       | 29                  | 2             | 17                | 29                    | 25                | 17                | 29                 |
|                  |                     |               |                   |                       |                   |                   |                    |
| Product Type     |                     | RSSHAONCDF    | RSWHOEPFDNCDF     | RSWHOEPFDPLRMNCD      | F RSWHOEPNCDF     | SPHLPQWNCDF       | -                  |
| SIR IOP 2        | 18                  | 27            | 29                | 17                    | 9                 | 29                |                    |

| 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<br>between -70 and 70 degrees     |
| RBSZOPOEPFDPLRM         | 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<br>between -70 and 70 degrees     |
| RLPTONCDF               | RangeLongPeriodTideOceanNetCDF                              | The Long period tide height should be between -50mm and 50mm (or missing) for surface type = ocean -<br>NetCDF                                  |
| RNELPOTONCDF            | RangeNELPOceanTideOceanNetCDF                               | The Non-equilibrium long period ocean loading tide height should be between -40mm and 40mm (or missing) for<br>surface type = ocean             |
| RPEPOPFDLRMNCDF         | RangePeakinessExcludingPolarOPFD2LRMNetCDF                  | The Peakiness should be between 0 and 6400 (or missing) for surface type = ocean for latitudes between -70<br>and 70 degrees                    |
| RPEPOPFDPLRMSAR         | RangePeakinessExcludingPolarOPFD2PLRMSARNetCDF              | The Peakiness should be between 0 and 15000 (or missing) for surface type = ocean for latitudes between -70<br>and 70 degrees                   |
| RPEPOPFDPLRMSINN<br>CDF | RangePeakinessExcludingPolarOPFD2PLRMSINNetCDF              | The Peakiness should be between 0 and 90000 (or missing) for surface type = ocean for latitudes between -70 and 70 degrees                      |
| 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<br>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 =<br>ocean                                    |
| RSSHAOFDPLRMNCD         | RangeSeaSurfaceHeightAnomalyOceanFD3PLRMNetCDF              | The sea surface height anomaly should be between -3000mm and 3000mm (or missing) for surface type =<br>ocean                                    |
| RSSHAONCDF              | RangeSeaSurfaceHeightAnomalyOceanNetCDF                     | The sea surface height anomaly should be between -3000mm and 3000mm (or missing) for surface type =<br>ocean                                    |
| RSWHOEPFDNCDF           | RangeSignificantWaveHeightOceanExcludingPolarFD2NetCDF      | The significant wave height should be between 0mm and 15000mm (or missing) for surface type = ocean for<br>latitudes between -70 and 70 degrees |
| RSWHOEPFDPLRMNC<br>DF   | RangeSignificantWaveHeightOceanExcludingPolarFD2PLRMNetCDF  | The significant wave height should be between 0mm and 15000mm (or missing) for surface type = ocean for<br>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<br>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)   |
| 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   |
|                |   |   |
| 7.3 Missing QC | C Reports   |   |
|                | vith missing QCC reports: 0                         |   |