

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

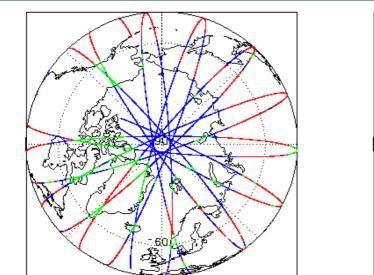
<u>14/02/2023</u>

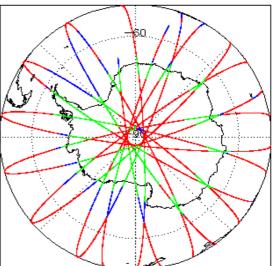
# IDEAS-QA4E0

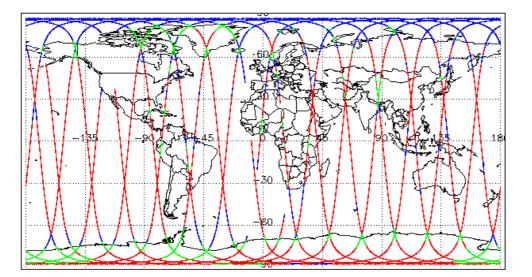
| Demost Dreduction.   | 17-Feb-2023   | Check                                      | L1 & L2                 | P2P                     |
|--|---|--|-------------------------|-------------------------|
| Report Production:   |   | Server check: science-pds.cryosat.esa.int  | Nominal                 | Nominal                 |
| Processor Used:  | Crucest Occas Brasses   | Server check: calval-pds.cryosat.esa.int   | Nominal                 | Nominal                 |
| Processor useu:  | CryoSat Ocean Processor   | Product Software Check                     | Nominal                 | Nominal                 |
| Data Used:   | Intermediate Ocean Products (IOP)<br>L1B, L2 & P2P Science Data | Product Format Check                       | Nominal                 | Nominal                 |
| Data Useu:   |   | Product Header Analysis                    | Nominal                 | Nominal                 |
| ·  |   | Auxiliary Data File Usage Check            | Nominal                 | Nominal                 |
| We would   | love to hear from you!  | Auxiliary Correction Error Check           | See Section 5.4         | See Section 6.4         |
|  | your feedback about these daily                                 | Measurement Confidence Data Check          | See Section 4.5, 4.6    | Nominal                 |
| quality reports: What do you like/ dislike? What quality<br>information do you need? Send your feedback to<br>cs2_gc_team@telespazio.com |   | 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 |

| Mission / Instrument News |                 |  |  |  |  |
|---------------------------|-----------------|--|--|--|--|
| 13-Feb-2023               | None            |  |  |  |  |
| 14-Feb-2023               | None            |  |  |  |  |
| 15-Feb-2023               | Nothing planned |  |  |  |  |

# 2. Global Coverage









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## 3. Instrument Configuration

SIRAL instrument(s) in use:

SIRAL - A

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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 NetCDF product file (.nc).

| 4.2 L1B Product Header Analy                         | sis  |
|--|--|
| For all products, a series of pre-defined chec       | ks are performed on the MPH and SPH in order to identify any inconsistencies and/or errors raised by the ground-segment processing chain.                    |
| Number of products with errors:                      | 0  |
| 4.3 L1B Auxilary Data File Usa                       | ge Check   |
| Each product is checked for missing Data Se          | t Descriptors with respect to a pre-determined baseline and also to check the validity of Auxiliary Data Files is correct.                                   |
| Number of products with errors:                      | 0  |
| 4.4 L1B Auxiliary Correction E                       | rror Check   |
| CryoSat L1B data includes a correction error         | flag for each measurement record. The bit value of this flag indicates any problems when set.  |
| Number of products with errors:                      | 0  |
| 4.5 L1B Measurement Confide                          | nce Data Check   |
| CryoSat L1B data includes a measurement c            | onfidence flag for each measurement record. The bit value of this flag indicates any problems when set.  |
| > Attitude Correction Missing: This flag is oupdate. | currently set in error for IOPR products due to a configuration issue. The attitude correction is actually not missing. This will be resolved in the next SW |
| Number of products with errors:                      | 0  |
|  |  |

### 4.6 L1B Waveform Group Data Check

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

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Loss of Echo Flag: This flag is currently set for products over land, but this is to be expected. The table provides the full list of products flagged.

#### Number of products with errors:

| Product   | Test Failed  | Description  |
|---|--------------|--|
| CS_OFFL_SIR_IOPM1B_20230214T015619_20230214T020242_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_IOPM1B_20230214T104201_20230214T104214_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_IOPM1B_20230214T104935_20230214T105018_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_IOPN1B_20230214T042505_20230214T042713_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_IOPN1B_20230214T050038_20230214T050634_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_IOPN1B_20230214T091111_20230214T091208_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_IOPN1B_20230214T101136_20230214T101303_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_IOPN1B_20230214T122617_20230214T122744_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_IOPN1B_20230214T140924_20230214T141246_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_IOPN1B_20230214T172446_20230214T172747_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_IOPN1B_20230214T172846_20230214T173033_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_IOPR1B_20230214T023005_20230214T023138_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_IOPR1B_20230214T032147_20230214T032511_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_IOPR1B_20230214T140747_20230214T140924_C001 | Loss of Echo | The tracking echo is missing for one or more records |

## 5. IOP Level 2 Data Quality Check

#### 5.1 L2 Product Format Check

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

#### 5.2 L2 Product Header Analysis

For all products, a series of pre-defined checks are performed on the MPH and SPH in order to identify any inconsistencies and/or errors raised by the ground-segment processing chain.

 Number of products with errors:
 0

#### 5.3 L2 Auxiliary Data File Usage Check

Each product is checked for missing Data Set Descriptors with respect to a pre-determined baseline and also to check the validity of Auxiliary Data Files is correct.

Number of products with errors:

#### 5.4 L2 Auxiliary Correction Error Check

For all products, the auxiliary corrections within the Geophysical Group are checked for the default error value (32767).

Currently, there are some common auxiliary correction errors raised in the Level 2 products which are expected due to surface type. All common flags are summarised in the list below, followed by a table highlighting any additional issues which may arise from this test.

> ECMWF Meteo Corrections: Currently the following corrections are not computed over CONTINENTAL ICE: Dry Tropospheric 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_IOPM_2_20230214T104201_20230214T104214_C001 | Iviean Dynamic Topography (1) | There is an error with the Mean Dynamic Topography height (solution 1) for one or more records |

| CS_OFFL_SIR_IOPM_2_20230214T160518_20230214T161852_C001  | Mean Dynamic Topography (1)   | There is an error with the Mean Dynamic Topography height (solution 1) for one or more records  |
|--|---|---|
| CS_OFFL_SIR_IOPN_2_20230214T000444_20230214T000610_C001  | Mean Dynamic Topography (1)   | There is an error with the Mean Dynamic Topography height (solution 1) for one or more records  |
| CS_OFFL_SIR_IOPN_2_20230214T001133_20230214T001441_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_20230214T014428_20230214T014622_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_20230214T015033_20230214T015402_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_20230214T032511_20230214T032746_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_20230214T042022_20230214T042142_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_20230214T050038_20230214T050634_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_20230214T051350_20230214T051528_C001  | Mean Dynamic Topography (1)   | There is an error with the Mean Dynamic Topography height (solution 1) for one or more records  |
| CS_OFFL_SIR_IOPN_2_20230214T055948_20230214T060200_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_20230214T060328_20230214T060551_C001  | Mean Dynamic Topography (1)   | There is an error with the Mean Dynamic Topography height (solution 1) for one or more records  |
| CS_OFFL_SIR_IOPN_2_20230214T065259_20230214T065457_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_20230214T073902_20230214T074352_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_20230214T100317_20230214T100542_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_20230214T114138_20230214T114450_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_20230214T131945_20230214T132336_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_20230214T132907_20230214T133032_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_20230214T140924_20230214T141246_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_20230214T150705_20230214T150847_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_20230214T155048_20230214T155144_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_20230214T164455_20230214T164710_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_20230214T172846_20230214T173033_C001  | Mean Dynamic Topography (1), Total<br>Geocentric Ocean Tide (GOT)   | There is an error with the Mean Dynamic Topography (solution 1) and the Total Geocentric Ocean Tide (solution 1: GOT) for one or more records                                 |
| CS_OFFL_SIR_IOPN_2_20230214T173033_20230214T173100_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_20230214T181513_20230214T181702_C001  | Mean Dynamic Topography (1)   | There is an error with the Mean Dynamic Topography height (solution 1) for one or more records  |
| CS_OFFL_SIR_IOPN_2_20230214T182349_20230214T182836_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_20230214T190528_20230214T190924_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_20230214T200502_20230214T200654_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_20230214T005409_20230214T010127_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_20230214T010127_20230214T010301_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_20230214T023400_20230214T024025_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_20230214T024025_20230214T024151_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_20230214T041313_20230214T041910_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_20230214T041910_20230214T042021_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_20230214T0555544_20230214T055649_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)  |
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|---|--|--|
| CS_OFFL_SIR_IOPR_2_20230214T055649_20230214T055948_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_20230214T073222_20230214T073902_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_20230214T091409_20230214T091928_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_20230214T104215_20230214T104417_C001 | Mean Dynamic Topography (1)  | There is an error with the Mean Dynamic Topography height (solution 1) for one or more records   |
| CS_OFFL_SIR_IOPR_2_20230214T105315_20230214T110111_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_20230214T122434_20230214T122617_C001 | Mean Dynamic Topography (1)  | There is an error with the Mean Dynamic Topography height (solution 1) for one or more records   |
| CS_OFFL_SIR_IOPR_2_20230214T123133_20230214T124047_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_20230214T141247_20230214T141811_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_20230214T155145_20230214T155726_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_20230214T155741_20230214T155904_C001 | Mean Dynamic Topography (1)  | There is an error with the Mean Dynamic Topography height (solution 1) for one or more records   |
| CS_OFFL_SIR_IOPR_2_20230214T172014_20230214T172204_C001 | Mean Dynamic Topography (1)  | There is an error with the Mean Dynamic Topography height (solution 1) for one or more records   |
| CS_OFFL_SIR_IOPR_2_20230214T173100_20230214T173747_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_20230214T190220_20230214T190451_C001 | Total Geocentric Ocean Tide (GOT),<br>Total Geocentric Ocean Tide (FES), Non<br>Equilibrium Long Period Ocean Tide | There is an error with the Total Geocentric Ocean Tide height (solution 1:<br>GOT and 2: FES) and the Non-equilibrium Long Period Ocean Tide height<br>for one or more records |
| CS_OFFL_SIR_IOPR_2_20230214T190925_20230214T191444_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_20230214T204743_20230214T205733_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_20230214T222515_20230214T222804_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_20230214T222804_20230214T223253_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_20230214T224304_20230214T224358_C001 | Mean Dynamic Topography (1)  | There is an error with the Mean Dynamic Topography height (solution 1) for one or more records   |
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# 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

## 5.6 L2 Measurement Quality Flag Check

### L2 Quality Flags (20 Hz)

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.

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

| Product   | Test Failed  | Description   |
|---|--|---|
| CS_OFFL_SIR_IOPM_2_20230214T000118_20230214T000425_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_20230214T000611_20230214T001132_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_20230214T001704_20230214T003942_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_20230214T004228_20230214T005136_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_20230214T010408_20230214T010750_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_20230214T012347_20230214T012835_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_20230214T014622_20230214T015032_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_20230214T015619_20230214T020242_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_20230214T021047_20230214T022851_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_20230214T024818_20230214T025346_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_20230214T025516_20230214T031812_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_20230214T032746_20230214T032939_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_20230214T033614_20230214T034324_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_20230214T034331_20230214T035230_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_20230214T035844_20230214T040549_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_20230214T042143_20230214T042504_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_20230214T042717_20230214T043034_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_20230214T043055_20230214T043303_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_20230214T043430_20230214T044245_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_20230214T044904_20230214T050005_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_20230214T050634_20230214T050854_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_20230214T050929_20230214T051350_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_20230214T051529_20230214T052236_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_20230214T052353_20230214T053032_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 |
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| CS_OFFL_SIR_IOPM_2_20230214T053415_20230214T054623_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_20230214T061346_20230214T061614_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_20230214T061736_20230214T062038_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_20230214T062211_20230214T062222_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_20230214T062546_20230214T064151_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_20230214T064424_20230214T065259_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_20230214T065516_20230214T071802_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_20230214T075707_20230214T082112_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_20230214T082336_20230214T082527_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_20230214T082624_20230214T083101_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_20230214T083341_20230214T083804_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_20230214T083926_20230214T090336_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_20230214T090442_20230214T090637_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_20230214T093249_20230214T100028_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_20230214T100542_20230214T101136_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_20230214T101304_20230214T103402_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_20230214T103504_20230214T103738_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_20230214T110414_20230214T113903_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_20230214T114450_20230214T115008_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_20230214T115148_20230214T115448_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_20230214T115647_20230214T115834_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_20230214T120812_20230214T120813_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_20230214T120816_20230214T120907_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_20230214T122324_20230214T122333_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_20230214T122744_20230214T123019_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_20230214T123121_20230214T123132_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 |
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| CS_OFFL_SIR_IOPM_2_20230214T124419_20230214T125254_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_20230214T125540_20230214T131815_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_20230214T132500_20230214T132907_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_20230214T133032_20230214T134413_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_20230214T134601_20230214T134931_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_20230214T142334_20230214T145649_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_20230214T145840_20230214T150352_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_20230214T150358_20230214T150405_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_20230214T150412_20230214T150705_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_20230214T151453_20230214T154529_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_20230214T154708_20230214T154955_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_20230214T160026_20230214T160028_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_20230214T160518_20230214T161852_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_20230214T162016_20230214T163604_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_20230214T163747_20230214T164251_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_20230214T164330_20230214T164455_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_20230214T165221_20230214T170230_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_20230214T170850_20230214T172014_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_20230214T174147_20230214T174208_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_20230214T174705_20230214T175439_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_20230214T175556_20230214T175838_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_20230214T180017_20230214T181454_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_20230214T181702_20230214T182202_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  |
| CS_OFFL_SIR_IOPM_2_20230214T182210_20230214T182221_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_20230214T182836_20230214T185228_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_20230214T185341_20230214T190220_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 |
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| CS_OFFL_SIR_IOPM_2_20230214T193139_20230214T195449_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_20230214T195746_20230214T200120_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_20230214T200142_20230214T200501_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_20230214T200727_20230214T203621_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_20230214T210720_20230214T213357_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_20230214T213530_20230214T214035_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_20230214T214042_20230214T214410_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_20230214T214712_20230214T222139_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_20230214T224753_20230214T225427_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_20230214T230720_20230214T231345_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_20230214T231530_20230214T232109_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_20230214T232636_20230215T000021_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_20230214T010301_20230214T010335_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_20230214T024656_20230214T024818_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_20230214T040903_20230214T040909_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_20230214T073222_20230214T073902_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_20230214T093054_20230214T093249_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_20230214T104215_20230214T104417_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_20230214T105126_20230214T105249_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_20230214T115123_20230214T115147_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_20230214T160420_20230214T160422_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_20230214T222515_20230214T222804_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_20230214T223318_20230214T223802_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   |

L2 Quality Flags (20 Hz 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_20230214T000444_20230214T000610_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_20230214T010750_20230214T010857_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_20230214T012024_20230214T012347_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_20230214T032511_20230214T032746_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_20230214T032939_20230214T033247_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_20230214T050038_20230214T050634_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_20230214T055948_20230214T060200_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_20230214T060328_20230214T060551_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_20230214T065259_20230214T065457_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_20230214T071942_20230214T072303_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_20230214T073902_20230214T074352_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_20230214T082214_20230214T082336_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_20230214T082527_20230214T082624_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_20230214T105250_20230214T105315_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_20230214T115008_20230214T115123_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_20230214T121229_20230214T121413_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_20230214T124137_20230214T124207_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_20230214T140703_20230214T140747_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_20230214T140924_20230214T141246_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_20230214T145659_20230214T145840_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_20230214T155048_20230214T155144_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_20230214T163605_20230214T163747_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_20230214T170231_20230214T170337_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_20230214T172446_20230214T172747_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_20230214T190528_20230214T190924_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_20230214T192420_20230214T192521_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_20230214T192602_20230214T192939_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_20230214T214410_20230214T214542_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_20230214T225427_20230214T225622_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_20230214T232311_20230214T232426_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_20230214T005136_20230214T005407_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_20230214T005409_20230214T010127_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_20230214T023005_20230214T023138_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_20230214T023144_20230214T023154_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_20230214T023400_20230214T024025_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_20230214T024204_20230214T024605_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_20230214T032148_20230214T032511_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_20230214T040809_20230214T040817_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_20230214T040903_20230214T040909_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_20230214T041313_20230214T041910_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_20230214T044245_20230214T044458_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_20230214T055401_20230214T055445_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_20230214T055649_20230214T055948_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_20230214T060201_20230214T060328_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_20230214T060551_20230214T060707_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_20230214T073222_20230214T073902_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_20230214T082112_20230214T082214_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_20230214T104100_20230214T104112_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_20230214T104215_20230214T104417_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_20230214T104735_20230214T104934_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_20230214T105126_20230214T105249_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 |

| <ul> <li>&gt; 1 Hz and 1 Hz Ocean SSHA Quality Flags: These flags are currently set for point of products with errors: 196</li> </ul> | products over sea ice, which is to be expecte   | a. I ne number of products with this error flag set is given below.   |
|---|---|---|
| Currently, there are several common flags raised in the Level 2 products, v   |   | d The number of products with this own flat action in the second  |
| L2 Quality Flags (1 Hz & 1 Hz PLRM)   |   |   |
| CS_OFFL_SIR_IOPR_2_20230214T222804_20230214T223253_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_20230214T222515_20230214T222804_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_20230214T222338_20230214T222356_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_20230214T204743_20230214T205733_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_20230214T190925_20230214T191444_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_20230214T190220_20230214T190451_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_20230214T173100_20230214T173747_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_20230214T172347_20230214T172446_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_20230214T170638_20230214T170850_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_20230214T160159_20230214T160341_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_20230214T155741_20230214T155904_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_20230214T155145_20230214T155726_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_20230214T142019_20230214T142033_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_20230214T141811_20230214T142015_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_20230214T141247_20230214T141811_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_20230214T124208_20230214T124419_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_20230214T121914_20230214T122240_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_20230214T105315_20230214T110111_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 |

## 5.8 L2 Ocean Retracking Quality Check

#### L2 Retracking Flags (20 Hz)

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.

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0

> 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. 60

# Number of products with errors:

## L2 Retracking Flags (20 Hz 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. The number of products with this error flag set is given below.

Number of products with errors:

## 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).

#### 6.2 P2P Product Header Analysis

For all products, a series of pre-defined checks are performed on the MPH and SPH in order to identify any inconsistencies and/or errors raised by the ground-segment processing chain.

Number of products with errors:

### 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).

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 check.

> ECMWF Meteo Corrections: Currently the following corrections are not computed over CONTINENTAL ICE: Dry Tropospheric Correction, Wet Tropospheric Correction, Inverse Barometric Correction and the U-Wind and V-Wind components of the ECMWF model wind vector. This is a known anomaly (CRYO-COP-3) and will be resolved in a future IPF update. The affected products are not reported in the table below.

> Sea State Bias & Sea State Bias PLRM: The error value is currently set for products over sea ice, but this is to be expected.

> Mean Sea Surface: The error value is currently set for products over land and sea ice, but this is to be expected.

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> Mean Dynamic Topography: The error value is currently set for products over land and sea ice, but this is to be expected.

> Altimetric Wind Speed Error: The error value is currently set for products over land and sea ice, but this is to be expected.

| Product  | Test Failed   | Description   |
|--|---|---|
| CS_OFFL_SIR_IOP_2_20230213T232054_20230214T001030_C002 | Mean Dynamic Topography (1)   | There is an error with the Mean Dynamic Topography height for one or more records   |
| CS_OFFL_SIR_IOP_2_20230214T001030_20230214T010009_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_20230214T010009_20230214T014945_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_20230214T014945_20230214T023924_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_20230214T023924_20230214T032900_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_20230214T032900_20230214T041838_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_2_20230214T041838_20230214T050814_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_2_20230214T050814_20230214T055753_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_20230214T055753_20230214T064729_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_2_20230214T064729_20230214T073708_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_20230214T073708_20230214T082644_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_20230214T082644_20230214T091622_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_20230214T091622_20230214T100559_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_2_20230214T100559_20230214T105537_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_20230214T105537_20230214T114513_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_20230214T114513_20230214T123452_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_20230214T123452_20230214T132428_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_20230214T132428_20230214T141407_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_2_20230214T141407_20230214T150343_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_2_20230214T150343_20230214T155321_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_2_20230214T155321_20230214T164257_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_20230214T164257_20230214T173236_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_2_20230214T173236_20230214T182212_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_2_20230214T182212_20230214T191151_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_2_20230214T191151_20230214T200127_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_20230214T200127_20230214T205105_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_220230214T205105_20230214T214042_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_2_20230214T214042_20230214T223020_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_2_20230214T223020_20230214T231956_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)                                      |
| 6 5 P2P Measurement 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.

 Number of products with errors:
 0

| 6.6 P2P Measurement Quality                         | Flag Check  |
|---|---|
| P2P Quality Flags (20 Hz)                           |   |
| CryoSat P2P data includes Quality Flags for         | each 20 Hz, 20 Hz PLRM and 1 Hz measurement record, copied from the corresponding L2 products.  |
| Since the P2P Quality Flags are copied di<br>below. | rectly from the L2 Quality Flags, please see Section 5.6 for the full list of products affected. The number of P2P products affected is given |
| Number of products with errors:                     | 30  |
| P2P Quality Flags (20 Hz PLRM)                      |   |
| Since the P2P Quality Flags are copied di<br>below. | rectly from the L2 Quality Flags, please see Section 5.6 for the full list of products affected. The number of P2P products affected is given |
| Number of products with errors:                     | 27  |
| P2P Quality Flags (1 Hz & 1 Hz P                    | LRM)  |
| Since the P2P Quality Flags are copied di<br>below. | rectly from the L2 Quality Flags, please see Section 5.6 for the number of L2 products affected. The number of P2P products affected is given |
| Number of products with errors:                     | 30  |
| 6.8 P2P Ocean Retracking Qu                         | ality Check   |
| P2P Retracking Flags (20 Hz)                        |   |
| Cryosat P2P data includes an ocean retrack          | ing quality flag (field 19) for each 20 Hz measurement record. The bit value of this flag indicates any problems when set.                    |
| > Ocean Retracking Quality Flag (PLRM):             | This flag is currently set for products IOPR and IOPN products over sea ice, but this is to be expected.                                      |
| Number of products with errors:                     | 24  |
| P2P Retracking Flags PLRM                           |   |
| CryoSat L2 data includes an ocean retrackin         | g quality flag for each 20 Hz PLRM measurement record. The bit value of this flag indicates any problems when set.                            |
| > Ocean Retracking Quality Flag (PLRM):             | This flag is currently set for products IOPR and IOPN products over sea ice, but this is to be expected.                                      |
| Number of products with errors:                     | 30  |
|   | 7. IOP QCC Report Analysis  |
| THE OF 11 OF 14 OF 0 OF 10000 ( 111                 |   |

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

| Product type | No. Products | No. QCC Reports | No. Valid | No. Warnings | No. Errors |
|--------------|--------------|-----------------|-----------|--------------|------------|
| SIR_IOPM1B   | 214          | 214             | 7         | 207          | 0          |
| SIR_IOPR1B   | 160          | 102             | 4         | 98           | 0          |
| SIR_IOPN1B   | 102          | 160             | 0         | 160          | 0          |
| SIR_IOPM_2   | 214          | 214             | 155       | 59           | 0          |
| SIR_IOPR_2   | 160          | 102             | 40        | 62           | 0          |
| SIR_IOPN_2   | 102          | 160             | 83        | 76           | 1          |
| SIR_IOP_P2P  | 29           | 29              | 0         | 28           | 1          |

## 7.1 QCC Errors

| Number of QCC | reports with er | rors: | 8          |    |              |                |                 |   |   |   |   |
|---------------|-----------------|-------|------------|----|--------------|----------------|-----------------|---|---|---|---|
|               |                 |       |            |    | Total number | of occurrences | s of each error |   |   |   |   |
| Product Type  | RLOBOPNCDF      | RL    | RLOBOPNCDF | RL | -            | -              | -               | - | - | - | - |
| SIR_IOPR_2    | 1               | 1     | 1          | 1  |              |                |                 |   |   |   |   |
|               |                 |       |            |    |              |                |                 |   |   |   |   |
| Product Type  | RLOBOPNCDF      | RL    | RLOBOPNCDF | RL | -            | -              | -               | - | - | - | - |
| SIR_IOP_2_    | 1               | 1     | 1          | 1  |              |                |                 |   |   |   |   |
|               |                 |       |            |    |              |                |                 |   |   |   |   |

| Fest 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

#### Total number of occurrences of each warning

|   | Total number of occurrences of each warning  |   |  |   |   |   |  |
|---|--|---|--|---|---|---|--|
| Product Type  | BCSHNCDF   | IOHHMOOR  | MVIOEPFDNCDF   | MVIOEPNCDF  | MVIONCDF  | RBSZOPOEPFDNCDF   | RBSZOPOEPFDPLRMNCE                           |
| SIR_IOPM1B  | 207  | 0   | 0  | 0   | 0   | 0   | 0  |
| SIR_IOPM_2  | 0  | 0   | 41   | 35  | 0   | 45  | 0  |
| SIR_IOPN1B  | 98   | 0   | 0  | 0   | 0   | 0   | 0  |
| SIR_IOPN_2  | 0  | 0   | 14   | 27  | 5   | 23  | 25   |
| SIR_IOPR1B  | 158  | 0   | 0  | 0   | 0   | 0   | 0  |
| SIR_IOPR_2  | 0  | 1   | 17   | 38  | 1   | 22  | 22   |
|   | 4  |   | I.   | I.  | I   |   |  |
| Product Type  | RBSZOPOEPNCDF  | RPEPOPFDLRMNCDF                                     | RPEPOPFDPLRMSARNC  | RPEPOPFDPLRMSINNCD  | RPEPOPFDSARNCDF   | RPEPOPFDSINNCDF   | RPEPOPLRMNCDF                                |
| SIR IOPM1B  | 0  | 0   | 0  | 0   | 0   | 0   | 0  |
| SIR IOPM 2  | 39   | 30  | 0  | 0   | 0   | 0   | 24   |
| SIR IOPN1B  | 0  | 0   | 0  | 0   | 0   | 0   | 0  |
| SIR IOPN 2  | 16   | 0   | 0  | 16  | 0   | 26  | 0  |
| SIR IOPR1B  | 0  | 0   | 0  | 0   | 0   | 0   | 0  |
| SIR IOPR 2  | 9  | 0   | 34   | 0   | 41  | 0   | 0  |
|   |  |   |  |   |   |   |  |
| Product Type  | RPEPOPSARNCDF  | RPEPOPSINNCDF                                       | RSSBCONCDF   | RSSHAOFDNCDF  | RSSHAOFDPLRMNCDF  | RSSHAONCDF  | RSWHOEPFDNCDF                                |
| SIR IOPM1B  | 0  | 0   | 0  | 0   | 0   | 0   | 0  |
| SIR IOPM 2  | 0  | 0   | 7  | 30  | 0   | 5   | 36   |
| SIR IOPN1B  | 0  | 0   | 0  | 0   | 0   | 0   | 0  |
| SIR IOPN 2  | 0  | 21  | 16   | 42  | 48  | 30  | 23   |
|   |  |   |  |   |   |   |  |
| SIR IOPR1B  | 0  | 0   | 0  | 0   | 0   | 0   | 0  |
| SIR_IOPR1B  | 0<br>33  | 0   | 0<br>2   | 0<br>58   | 0<br>26   | 0   | 0<br>21                                      |
| SIR_IOPR1B<br>SIR_IOPR_2  | 0<br>33  |   | 0<br>2   | -   | -   | -   | -  |
| SIR_IOPR_2  |  | 0   |  | -   | -   | -   | -  |
| SIR_IOPR_2 Product Type   | 33 RSWHOEPFDPLRMNCDF   | 0   | 2<br>SOOHHIFHD   | 58  | 26  | -   | -  |
| SIR_IOPR_2 Product Type SIR_IOPM1B  | 33   | 0   | 2  | 58<br>SCSTODHRNCDF  | 26<br>SCSTODNCDF  | -   | -  |
| SIR_IOPR_2<br>Product Type<br>SIR_IOPM1B<br>SIR_IOPM_2  | 33<br>RSWHOEPFDPLRMNCDF<br>0<br>0  | 0   | 2<br><b>SOOHHIFHD</b><br>0<br>0  | 58<br>SCSTODHRNCDF<br>0<br>0  | 26<br>SCSTODNCDF  | -   | -  |
| SIR_IOPR_2<br>Product Type<br>SIR_IOPM1B<br>SIR_IOPM_2<br>SIR_IOPN1B  | 33<br>RSWHOEPFDPLRMNCDF<br>0<br>0<br>0<br>0  | 0   | 2<br><b>SOOHHIFHD</b><br>0<br>0<br>0   | 58<br>SCSTODHRNCDF<br>0<br>0<br>44  | 26<br>SCSTODNCDF  | -   | -  |
| SIR_IOPR_2<br>Product Type<br>SIR_IOPM1B<br>SIR_IOPM_2<br>SIR_IOPN1B<br>SIR_IOPN_2  | 33<br>RSWHOEPFDPLRMNCDF<br>0<br>0<br>0<br>26   | 0<br>RSWHOEPNCDF<br>0<br>2<br>0<br>9                | 2<br><b>SOOHHIFHD</b><br>0<br>0<br>0<br>0<br>0   | 58<br><b>SCSTODHRNCDF</b><br>0<br>0<br>44<br>0                                      | 26<br>SCSTODNCDF<br>0<br>0<br>1   | -   | -  |
| SIR_IOPR_2<br>Product Type<br>SIR_IOPM1B<br>SIR_IOPM_2<br>SIR_IOPN1B<br>SIR_IOPN2<br>SIR_IOPR1B   | 33<br>RSWHOEPFDPLRMNCDF<br>0<br>0<br>0<br>26<br>0  | 0<br>RSWHOEPNCDF<br>0<br>2<br>0                     | 2<br><b>SOOHHIFHD</b><br>0<br>0<br>0   | 58<br>SCSTODHRNCDF<br>0<br>0<br>44  | 26<br>SCSTODNCDF<br>0<br>0<br>1<br>0<br>0   | -   | -  |
| SIR_IOPR_2<br>Product Type<br>SIR_IOPM1B<br>SIR_IOPM_2<br>SIR_IOPN1B<br>SIR_IOPN_2  | 33<br>RSWHOEPFDPLRMNCDF<br>0<br>0<br>0<br>26   | 0<br>RSWHOEPNCDF<br>0<br>2<br>0<br>9                | 2<br><b>SOOHHIFHD</b><br>0<br>0<br>0<br>0<br>0<br>0<br>0   | 58<br><b>SCSTODHRNCDF</b><br>0<br>0<br>44<br>0<br>160                               | 26<br>SCSTODNCDF<br>0<br>0<br>1<br>0<br>0   | -   | -  |
| SIR_IOPR_2<br>Product Type<br>SIR_IOPM1B<br>SIR_IOPM_2<br>SIR_IOPN1B<br>SIR_IOPN1B<br>SIR_IOPR1B<br>SIR_IOPR_2  | 33<br>RSWHOEPFDPLRMNCDF<br>0<br>0<br>0<br>26<br>0  | 0<br>RSWHOEPNCDF<br>0<br>2<br>0<br>9                | 2<br><b>SOOHHIFHD</b><br>0<br>0<br>0<br>0<br>0<br>0<br>0   | 58<br><b>SCSTODHRNCDF</b><br>0<br>0<br>44<br>0<br>160                               | 26<br>SCSTODNCDF<br>0<br>0<br>1<br>0<br>0   | -   | 21   |
| SIR_IOPR_2<br>Product Type<br>SIR_IOPM1B<br>SIR_IOPM_2<br>SIR_IOPN_2<br>SIR_IOPN_2<br>SIR_IOPR_2<br>SIR_IOPR_2<br>Product Type  | 33   | 0   | 2<br>SOOHHIFHD<br>0<br>0<br>0<br>0<br>0<br>0<br>4<br>MVIOEPNCDF  | 58<br>SCSTODHRNCDF<br>0<br>44<br>0<br>160<br>0<br>MVIONCDF                          | 26<br>SCSTODNCDF<br>0<br>1<br>0<br>7<br>0<br>RBSZOPOEPFDNCDF                            | 11 RBSZOPOEPFDPLRMNCI                                   | 21<br>-<br>RBSZOPOEPNCDF                     |
| SIR_IOPR_2<br>Product Type<br>SIR_IOPM1B<br>SIR_IOPM_2<br>SIR_IOPN_2<br>SIR_IOPN1B<br>SIR_IOPR1B<br>SIR_IOPR_2  | 33<br>RSWHOEPFDPLRMNCDF<br>0<br>0<br>0<br>26<br>0<br>38  | 0   | 2<br>SOOHHIFHD<br>0<br>0<br>0<br>0<br>0<br>4   | 58<br>SCSTODHRNCDF<br>0<br>44<br>0<br>160<br>0<br>MVIONCDF                          | 26<br>SCSTODNCDF<br>0<br>0<br>1<br>0<br>7<br>0<br>0                                     | -   | 21   |
| SIR_IOPR_2           Product Type           SIR_IOPM1B           SIR_IOPM2           SIR_IOPN1B           SIR_IOPN1B           SIR_IOPN1B           SIR_IOPN2           SIR_IOPR1B           SIR_IOPR2           SIR_IOPR_2           SIR_IOPR_2           SIR_IOPR_2                               | 33   | 0   RSWHOEPNCDF  0  2  0  9  0  1  MVIOEPFDNCDF  27 | 2<br>SOOHHIFHD<br>0<br>0<br>0<br>0<br>0<br>0<br>4<br>MVIOEPNCDF  | 58<br>SCSTODHRNCDF<br>0<br>44<br>0<br>160<br>0<br>MVIONCDF                          | 26<br>SCSTODNCDF<br>0<br>1<br>0<br>7<br>0<br>RBSZOPOEPFDNCDF                            | 11 RBSZOPOEPFDPLRMNCI                                   | 21<br>-<br>RBSZOPOEPNCDF                     |
| SIR_IOPR_2<br>Product Type<br>SIR_IOPM1B<br>SIR_IOPM_2<br>SIR_IOPN_2<br>SIR_IOPN_2<br>SIR_IOPR_2<br>SIR_IOPR_2<br>Product Type  | 33           RSWHOEPFDPLRMNCDF           0         0           0         26           0         38           IOHHMOOR         11   | 0   RSWHOEPNCDF  0  2  0  9  0  1  MVIOEPFDNCDF  27 | 2<br>SOOHHIFHD<br>0<br>0<br>0<br>0<br>0<br>4<br>MVIOEPNCDF<br>28   | 58<br>SCSTODHRNCDF<br>0<br>44<br>0<br>160<br>0<br>MVIONCDF<br>6                     | 26<br>SCSTODNCDF<br>0<br>0<br>1<br>0<br>7<br>0<br>RBSZOPOEPFDNCDF<br>29                 | 11<br>-<br>RBSZOPOEPFDPLRMNCH<br>16                     | 21<br>                                       |
| SIR_IOPR_2           Product Type           SIR_IOPM1B           SIR_IOPM2           SIR_IOPN2           SIR_IOPN2           SIR_IOPR1B           SIR_IOPR2           Product Type           SIR_IOP_2           Product Type           SIR_IOP_2   | 33           RSWHOEPFDPLRMNCDF           0         0           0         26           0         38           IOHHMOOR         11           RPEPOPFDPLRMSINNCD  | 0   | 2<br>SOOHHIFHD<br>0<br>0<br>0<br>0<br>0<br>4<br>MVIOEPNCDF<br>28<br>RPEPOPSINNCDF                                | 58<br>SCSTODHRNCDF<br>0<br>0<br>44<br>0<br>160<br>0<br>MVIONCDF<br>6<br>RSSBCONCDF  | 26<br>SCSTODNCDF<br>0<br>0<br>1<br>0<br>7<br>0<br>RBSZOPOEPFDNCDF<br>29<br>RSSHAOFDNCDF | 11<br>-<br>RBSZOPOEPFDPLRMNCI<br>16<br>RSSHAOFDPLRMNCDF | 21<br>RBSZOPOEPNCDF<br>27<br>RSSHAONCDF      |
| SIR_IOPR_2           Product Type           SIR_IOPM1B           SIR_IOPM2           SIR_IOPN2           SIR_IOPN2           SIR_IOPR1B           SIR_IOPR2           Product Type           SIR_IOP_2           Product Type           SIR_IOP_2   | 33           RSWHOEPFDPLRMNCDF           0         0           0         26           0         38           IOHHMOOR         11           RPEPOPFDPLRMSINNCD  | 0   | 2<br>SOOHHIFHD<br>0<br>0<br>0<br>0<br>0<br>4<br>MVIOEPNCDF<br>28<br>RPEPOPSINNCDF<br>22                          | 58<br>SCSTODHRNCDF<br>0<br>0<br>44<br>0<br>160<br>0<br>MVIONCDF<br>6<br>RSSBCONCDF  | 26<br>SCSTODNCDF<br>0<br>0<br>1<br>0<br>7<br>0<br>RBSZOPOEPFDNCDF<br>29<br>RSSHAOFDNCDF | 11<br>-<br>RBSZOPOEPFDPLRMNCI<br>16<br>RSSHAOFDPLRMNCDF | 21<br>RBSZOPOEPNCDF<br>27<br>RSSHAONCDF      |
| SIR_IOPR_2           Product Type           SIR_IOPM1B           SIR_IOPM_2           SIR_IOPN_2           SIR_IOPN_2           SIR_IOPN_2           SIR_IOPR_2           SIR_IOPR_2           SIR_IOPR_2           SIR_IOP_2_           Product Type           SIR_IOP_2_           SIR_IOP_2_     | 33           RSWHOEPFDPLRMNCDF           0         0           0         26           0         38           IOHHMOOR         11           RPEPOPFDPLRMSINNCD         14                                   | 0   | 2<br>SOOHHIFHD<br>0<br>0<br>0<br>0<br>0<br>4<br>MVIOEPNCDF<br>28<br>RPEPOPSINNCDF<br>22                          | 58<br>SCSTODHRNCDF<br>0<br>44<br>0<br>160<br>0<br>MVIONCDF<br>6<br>RSSBCONCDF<br>20 | 26<br>SCSTODNCDF<br>0<br>0<br>1<br>0<br>7<br>0<br>RBSZOPOEPFDNCDF<br>29<br>RSSHAOFDNCDF | 11<br>-<br>RBSZOPOEPFDPLRMNCI<br>16<br>RSSHAOFDPLRMNCDF | 21<br>RBSZOPOEPNCDF<br>27<br>RSSHAONCDF      |
| SIR_IOPR_2           Product Type           SIR_IOPM1B           SIR_IOPM_2           SIR_IOPN_2           SIR_IOPN_2           SIR_IOPN_2           SIR_IOPR_2           Product Type           SIR_IOP_2_           Product Type           SIR_IOP_2_           Product Type           SIR_IOP_2_ | 33           RSWHOEPFDPLRMNCDF           0           0           0           26           0           38           IOHHMOOR           11           RPEPOPFDPLRMSINNCD           14           RSWHOEPFDNCDF | 0   | 2<br>SOOHHIFHD<br>0<br>0<br>0<br>0<br>0<br>0<br>4<br>4<br>MVIOEPNCDF<br>28<br>RPEPOPSINNCDF<br>22<br>RSWHOEPNCDF | 58  SCSTODHRNCDF  0  44  0  160  0  MVIONCDF  6  RSSBCONCDF  20  SPHLPQWNCDF        | 26<br>SCSTODNCDF<br>0<br>0<br>1<br>0<br>7<br>0<br>RBSZOPOEPFDNCDF<br>29<br>RSSHAOFDNCDF | 11<br>-<br>RBSZOPOEPFDPLRMNCI<br>16<br>RSSHAOFDPLRMNCDF | 21<br>RBSZOPOEPNCDF<br>27<br>RSSHAONCDF      |
| SIR_IOPR_2           Product Type           SIR_IOPM1B           SIR_IOPM_2           SIR_IOPN_2           SIR_IOPN_2           SIR_IOPN_2           SIR_IOPR_2           Product Type           SIR_IOP_2_           Product Type           SIR_IOP_2_           Product Type           SIR_IOP_2_ | 33           RSWHOEPFDPLRMNCDF           0           0           0           26           0           38           IOHHMOOR           11           RPEPOPFDPLRMSINNCD           14           RSWHOEPFDNCDF | 0   | 2<br>SOOHHIFHD<br>0<br>0<br>0<br>0<br>0<br>0<br>4<br>4<br>MVIOEPNCDF<br>28<br>RPEPOPSINNCDF<br>22<br>RSWHOEPNCDF | 58  SCSTODHRNCDF  0  44  0  160  0  MVIONCDF  6  RSSBCONCDF  20  SPHLPQWNCDF        | 26<br>SCSTODNCDF<br>0<br>0<br>1<br>0<br>7<br>0<br>RBSZOPOEPFDNCDF<br>29<br>RSSHAOFDNCDF | 11<br>-<br>RBSZOPOEPFDPLRMNCI<br>16<br>RSSHAOFDPLRMNCDF | 21<br>-<br>RBSZOPOEPNCDF<br>27<br>RSSHAONCDF |

| Test Description Key:   |   |   |  |  |  |  |
|-------------------------|---|---|--|--|--|--|
| Abbreviation            | Test name   | Details   |  |  |  |  |
| BCSHNCDF                | BurstCounterStep20HzNetCDF                                  | The burst counter should be one higher with regard to the previous burst counter  |  |  |  |  |
| IOHHMOOR                | IndexOf1Hzin20HzMappingOutOfRange                           | The mapping of 20 Hz to 1 Hz measurements should be in the range 0 to (number of 1 Hz samples - 1)  |  |  |  |  |
| MVIOEPFDNCDF            | MissingValueIntOceanExcludingPolarFD2NetCDF                 | The value should not be a 'missing value' for surface type 0 only for latitudes between -70 and 70 degrees                                      |  |  |  |  |
| MVIOEPNCDF              | MissingValueIntOceanExcludingPolarNetCDF                    | The value should not be a 'missing value' for surface type 0 only for latitudes between -70 and 70 degrees                                      |  |  |  |  |
| MVIONCDF                | MissingValueIntOceanNetCDF                                  | The value should not be a 'missing value' for surface type 0 only   |  |  |  |  |
| RBSZOPOEPFDNCDF         | RangeBackscatterSigmaZeroOPOceanExcludingPolarFD2NetCDF     | The backscatter sigma zero should be between 700 and 7500 (or missing) for surface type = ocean for latitudes between -70 and 70 degrees        |  |  |  |  |
| RBSZOPOEPFDPLRM<br>NCDF | RangeBackscatterSigmaZeroOPOceanExcludingPolarFD2PLRMNetCDF | The backscatter sigma zero should be between 700 and 7500 (or missing) for surface type = ocean for latitudes between -70 and 70 degrees        |  |  |  |  |
| RBSZOPOEPNCDF           | RangeBackscatterSigmaZeroOPOceanExcludingPolarNetCDF        | The backscatter sigma zero should be between 700 and 7500 (or missing) for surface type = ocean for latitudes between -70 and 70 degrees        |  |  |  |  |
| RPEPOPFDLRMNCDF         | RangePeakinessExcludingPolarOPFD2LRMNetCDF                  | The Peakiness should be between 0 and 6400 (or missing) for surface type = ocean for latitudes between -70 and 70 degrees                       |  |  |  |  |
| RPEPOPFDPLRMSAR<br>NCDF | RangePeakinessExcludingPolarOPFD2PLRMSARNetCDF              | The Peakiness should be between 0 and 15000 (or missing) for surface type = ocean for latitudes between -70 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 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<br>F    | 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 |  |  |  |  |
| SOOHHIFHD               | SameOrOneHigher1HzIndexFor20HzData                          | The 1 Hz index of a 20 Hz sample should be the same or 1 higher than its previous sample  |  |  |  |  |
| SCSTODHRNCDF            | SequenceCounterStepTODHRNetCDF                              | The sequence counter should be modulo 4 higher with regard to the previous sequence counter   |  |  |  |  |
| SCSTODNCDF              | SequenceCounterStepTODNetCDF                                | The sequence counter should be one higher (modulo 16384) with regard to the previous sequence counter   |  |  |  |  |

7.3 Missing QCC Reports

i.

Number of products with missing QCC reports: 0