

### 1. Overview

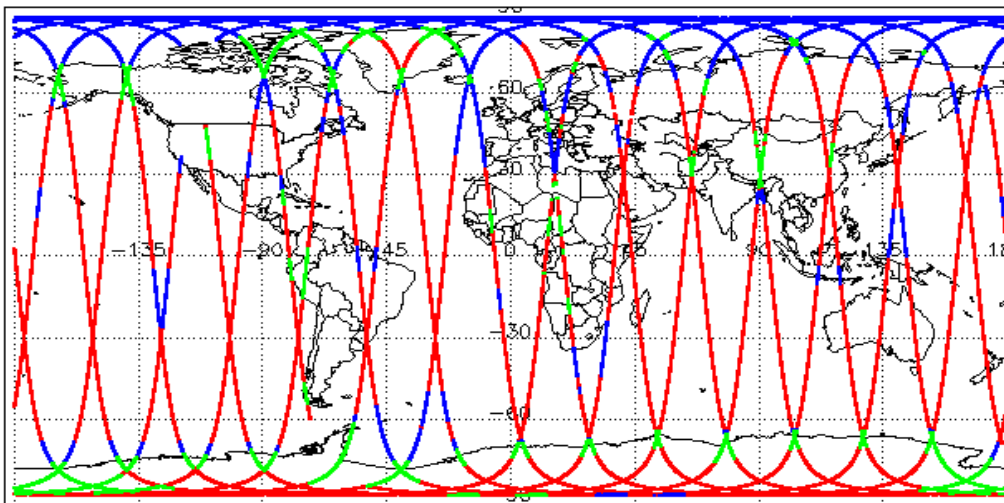
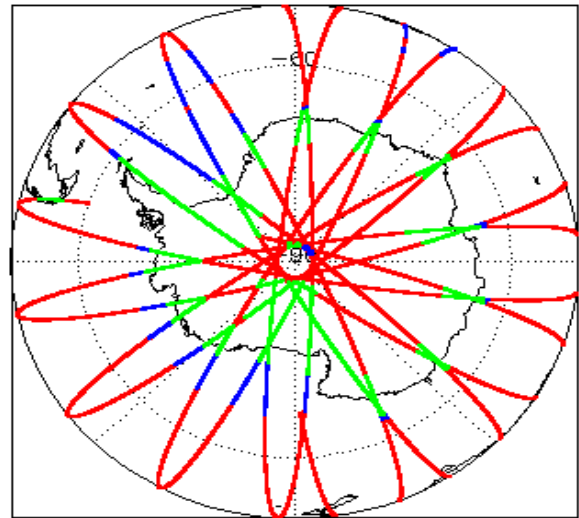
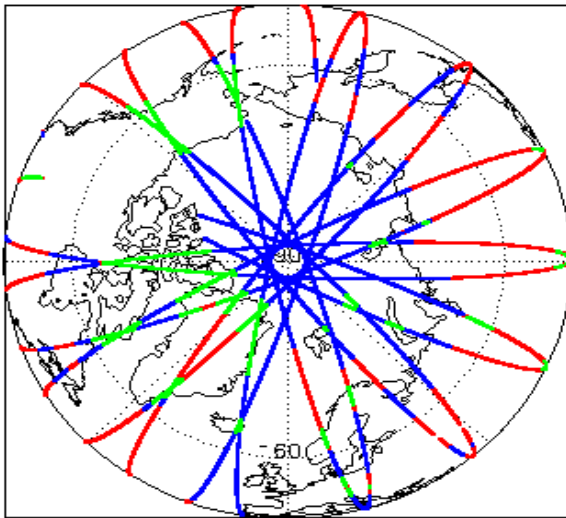
|                           |   |
|---------------------------|---|
| <b>Report Production:</b> | 29-Mar-2019   |
| <b>Processor Used:</b>    | CryoSat Ocean Processor   |
| <b>Data Used:</b>         | Intermediate Ocean Products (IOP)<br>L1B, L2 & P2P Science Data |

| Check                                      | L1 & L2                      | P2P                  |
|--|------------------------------|----------------------|
| Server check: science-pds.cryosat.esa.int  | Nominal                      | Nominal              |
| Server check: calval-pds.cryosat.esa.int   | Nominal                      | Nominal              |
| Product Software Check                     | Nominal                      | Nominal              |
| Product Format Check                       | Nominal                      | Nominal              |
| Product Header Analysis                    | Nominal                      | Nominal              |
| Auxiliary Data File Usage Check            | Nominal                      | Nominal              |
| Auxiliary Correction Error Check           | Nominal                      | Nominal              |
| Measurement Confidence Data Check          | See Section 4.5, 4.6 and 5.5 | See Section 6.5      |
| Range, SWH & Backscatter Measurement Check | See Section 5.6, 5.7         | See Section 6.6, 6.7 |
| Ocean Retracking Quality Check             | See Section 5.8              | See Section 6.8      |

**Mission / Instrument News**

|             |                 |
|-------------|-----------------|
| 24-Mar-2019 | None            |
| 25-Mar-2019 | None            |
| 26-Mar-2019 | Nothing planned |

### 2. Global Coverage



### 3. Instrument Configuration

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

|                                    |           |
|------------------------------------|-----------|
| <b>SIRAL instrument(s) in use:</b> | SIRAL - A |
|------------------------------------|-----------|

### 4. IOP Level 1B Data Quality Check

#### 4.1 L1B Product Format Check

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

Number of products with errors: 0

#### 4.2 L1B Product Header Analysis

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

Number of products with errors: 0

### 4.3 L1B Auxiliary Data File Usage Check

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

Number of products with errors: 0

### 4.4 L1B Auxiliary Correction Error Check

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

Number of products with errors: 0

### 4.5 L1B Measurement Confidence Data Check

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

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

Number of products with errors: 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.

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

Number of products with errors: 14

| Product   | Test Failed  | Description  |
|---|--------------|--|
| CS_OFFL_SIR_IOPM1B_20190325T021032_20190325T021157_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_IOPM1B_20190325T035005_20190325T041047_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_IOPM1B_20190325T065154_20190325T071750_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_IOPM1B_20190325T090731_20190325T090925_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_IOPM1B_20190325T124054_20190325T131432_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_IOPM1B_20190325T172250_20190325T172306_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_IOPN1B_20190325T023819_20190325T023940_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_IOPN1B_20190325T031826_20190325T032437_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_IOPN1B_20190325T042154_20190325T042401_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_IOPN1B_20190325T055650_20190325T060148_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_IOPN1B_20190325T122501_20190325T122535_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_IOPN1B_20190325T154633_20190325T154847_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_IOPN1B_20190325T205023_20190325T205056_C001 | Loss of Echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_IOPR1B_20190325T123034_20190325T123819_C001 | Loss of Echo | The tracking echo is missing for one or more records |

## 5. IOP Level 2 Data Quality Check

### 5.1 L2 Product Format Check

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

Number of products with errors: 0

### 5.2 L2 Product Header Analysis

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

Number of products with errors: 0

### 5.3 L2 Auxiliary Data File Usage Check

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

Number of products with errors: 0

### 5.4 L2 Auxiliary Correction Error Check

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

Number of products with errors: 0

### 5.5 L2 Measurement Confidence Data Check

CryoSat L2 data includes a measurement confidence flag for each 20-Hz measurement record. The bit value of this flag indicates any problems when set.

Number of products with errors: 1

| Product   | Test Failed         | Description   |
|---|---------------------|---|
| CS_OFFL_SIR_IOPM_2_20190325T030256_20190325T031742_C001 | Power scaling error | There is an error in the scaling of the L2 waveform for one or more records |

### 5.6 L2 Range Measurement Check

CryoSat L2 data includes an Ocean and Ice Range Averaging Status flag for each measurement record. The bit value of this flag indicates any problems when set.

Currently, there are two common status flags 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.

**Ocean Range Averaging Status Flag:** This flag is currently set for products over land and sea ice, but this is to be expected.

**Ice Range Averaging Status Flag:** This flag is currently set for products over land, but this is to be expected.

Number of products with errors: 75

| Product   | Test Failed                  | Description   |
|---|------------------------------|---|
| CS_OFFL_SIR_IOPM_2_20190325T001347_20190325T004717_C001 | Ocean Range Averaging Status | The Ocean Range Averaging Status Flag has been set for one or more records. |



|   |                              |   |
|---|------------------------------|---|
| CS_OFFL_SIR_IOPM_2_20190325T165203_20190325T170241_C001 | Ocean Range Averaging Status | The Ocean Range Averaging Status Flag has been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T170438_20190325T171013_C001 | Ocean Range Averaging Status | The Ocean Range Averaging Status Flag has been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T174904_20190325T181217_C001 | Ocean Range Averaging Status | The Ocean Range Averaging Status Flag has been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T181529_20190325T181909_C001 | Ice Range Averaging Status   | The Ice Range Averaging Status Flag has been set for one or more records.   |
| CS_OFFL_SIR_IOPM_2_20190325T181930_20190325T182231_C001 | Ice Range Averaging Status   | The Ice Range Averaging Status Flag has been set for one or more records.   |
| CS_OFFL_SIR_IOPM_2_20190325T182509_20190325T185318_C001 | Ocean Range Averaging Status | The Ocean Range Averaging Status Flag has been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T192534_20190325T195134_C001 | Ocean Range Averaging Status | The Ocean Range Averaging Status Flag has been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T195311_20190325T195823_C001 | Ice Range Averaging Status   | The Ice Range Averaging Status Flag has been set for one or more records.   |
| CS_OFFL_SIR_IOPM_2_20190325T200431_20190325T201624_C001 | Ocean Range Averaging Status | The Ocean Range Averaging Status Flag has been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T202202_20190325T203850_C001 | Ocean Range Averaging Status | The Ocean Range Averaging Status Flag has been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T210157_20190325T211942_C001 | Ocean Range Averaging Status | The Ocean Range Averaging Status Flag has been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T212501_20190325T213133_C001 | Ocean Range Averaging Status | The Ocean Range Averaging Status Flag has been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T213310_20190325T213856_C001 | Ice Range Averaging Status   | The Ice Range Averaging Status Flag has been set for one or more records.   |
| CS_OFFL_SIR_IOPM_2_20190325T213913_20190325T214057_C001 | Ice Range Averaging Status   | The Ice Range Averaging Status Flag has been set for one or more records.   |
| CS_OFFL_SIR_IOPM_2_20190325T214351_20190325T221753_C001 | Ocean Range Averaging Status | The Ocean Range Averaging Status Flag has been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T223144_20190325T223238_C001 | Ocean Range Averaging Status | The Ocean Range Averaging Status Flag has been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T225354_20190325T231102_C001 | Ocean Range Averaging Status | The Ocean Range Averaging Status Flag has been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T232306_20190325T234600_C001 | Ocean Range Averaging Status | The Ocean Range Averaging Status Flag has been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T234745_20190325T235753_C001 | Ocean Range Averaging Status | The Ocean Range Averaging Status Flag has been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T213857_20190325T213913_C001 | Ice Range Averaging Status   | The Ice Range Averaging Status Flag has been set for one or more records.   |
| CS_OFFL_SIR_IOPR_2_20190325T042002_20190325T042154_C001 | Ocean Range Averaging Status | The Ocean Range Averaging Status Flag has been set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20190325T131433_20190325T131448_C001 | Ocean Range Averaging Status | The Ocean Range Averaging Status Flag has been set for one or more records. |
| CS_OFFL_SIR_IOPR_2_20190325T213134_20190325T213145_C001 | Ocean Range Averaging Status | The Ocean Range Averaging Status Flag has been set for one or more records. |

## 5.7 L2 SWH and Backscatter Measurement Check

CryoSat L2 data includes a SWH Averaging Status flag and an Ocean and Ice Backscatter Averaging Status flag for each measurement record. The bit value of this flag indicates any problems when set.

**Currently, there are three common status flags 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.**

**SWH Averaging Status Flag:** This flag is currently set for products over land and sea ice, but this is to be expected.

**Ocean Backscatter Averaging Status Flag:** This flag is currently set for products over land and sea ice, but this is to be expected.

**Ice Backscatter Averaging Status Flag:** This flag is currently set for products over land, but this is to be expected.

**Number of products with errors:** 71

| Product   | Test Failed  | Description   |
|---|--|---|
| CS_OFFL_SIR_IOPM_2_20190325T001347_20190325T004717_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T011152_20190325T013610_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T013925_20190325T013952_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T015420_20190325T020136_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T020143_20190325T021029_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T021032_20190325T021157_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T021638_20190325T022456_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T023940_20190325T024237_C001 | Ice Backscatter Averaging Status                         | The Ice Backscatter Averaging Status Flag has been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T024507_20190325T030041_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T030256_20190325T031742_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T032437_20190325T032649_C001 | Ice Backscatter Averaging Status                         | The Ice Backscatter Averaging Status Flag has been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T032733_20190325T033150_C001 | Ice Backscatter Averaging Status                         | The Ice Backscatter Averaging Status Flag has been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T033325_20190325T034826_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T035005_20190325T041047_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T042802_20190325T043746_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T044449_20190325T050004_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T050229_20190325T051052_C001 | Ice Backscatter Averaging Status                         | The Ice Backscatter Averaging Status Flag has been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T051251_20190325T053553_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T061157_20190325T063905_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOPM_2_20190325T064415_20190325T064909_C001 | Ice Backscatter Averaging Status                         | The Ice Backscatter Averaging Status Flag has been set for one or more records. |



## 5.8 L2 Ocean Retracking Quality Check

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

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

**Number of products with errors:** 61

## 6. IOP L2 Pole-to-Pole Data Quality Check

### 6.1 P2P Product Format Check

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

**Number of products with errors:** 0

### 6.2 P2P Product Header Analysis

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

**Number of products with errors:** 0

### 6.3 P2P Auxiliary Data File Usage Check

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

**Number of products with errors:** 0

### 6.4 P2P Auxiliary Correction Error Check

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

**Number of products with errors:** 0

### 6.5 P2P Measurement Confidence Data Check

CryoSat P2P data includes a measurement confidence flag for each 20-Hz measurement record. The bit value of this flag indicates any problems when set.

**Number of products with errors:** 1

| Product   | Test Failed         | Description   |
|---|---------------------|---|
| CS_OFFL_SIR_IOP_2__20190325T023642_20190325T032620_C001 | Power scaling error | There is an error in the scaling of the L2 waveform for one or more records |

### 6.6 P2P Range Measurement Check

CryoSat P2P data includes an Ocean and Ice Range Averaging Status flag for each measurement record. The bit value of this flag indicates any problems when set.

**Currently, there are two common status flags raised in the P2P 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.**

**Ocean Range Averaging Status Flag:** This flag is currently set for products over land and sea ice, but this is to be expected.

**Ice Range Averaging Status Flag:** This flag is currently set for products over land, but this is to be expected.

**Number of products with errors:** 29

| Product   | Test Failed  | Description   |
|---|--|---|
| CS_OFFL_SIR_IOP_2__20190325T000753_20190325T005728_C001 | Ocean Range Averaging Status                             | The Ocean Range Averaging Status Flag has been set for one or more records.           |
| CS_OFFL_SIR_IOP_2__20190325T005728_20190325T014707_C001 | Ocean Range Averaging Status                             | The Ocean Range Averaging Status Flag has been set for one or more records.           |
| CS_OFFL_SIR_IOP_2__20190325T014707_20190325T023642_C001 | Ocean Range Averaging Status                             | The Ocean Range Averaging Status Flag has been set for one or more records.           |
| CS_OFFL_SIR_IOP_2__20190325T023642_20190325T032620_C001 | Ocean Range Averaging Status, Ice Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T032620_20190325T041555_C001 | Ocean Range Averaging Status, Ice Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T041555_20190325T050534_C001 | Ocean Range Averaging Status, Ice Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T050534_20190325T055509_C001 | Ocean Range Averaging Status, Ice Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T055509_20190325T064447_C001 | Ocean Range Averaging Status, Ice Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T064447_20190325T073423_C001 | Ocean Range Averaging Status, Ice Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T073423_20190325T082401_C001 | Ocean Range Averaging Status                             | The Ocean Range Averaging Status Flag has been set for one or more records.           |
| CS_OFFL_SIR_IOP_2__20190325T082401_20190325T091336_C001 | Ocean Range Averaging Status, Ice Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T091336_20190325T100315_C001 | Ocean Range Averaging Status                             | The Ocean Range Averaging Status Flag has been set for one or more records.           |
| CS_OFFL_SIR_IOP_2__20190325T100315_20190325T105250_C001 | Ocean Range Averaging Status, Ice Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T105250_20190325T114228_C001 | Ocean Range Averaging Status, Ice Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T114228_20190325T123203_C001 | Ocean Range Averaging Status, Ice Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T123203_20190325T132142_C001 | Ocean Range Averaging Status, Ice Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T132142_20190325T141117_C001 | Ocean Range Averaging Status, Ice Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T141117_20190325T150055_C001 | Ocean Range Averaging Status, Ice Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T150055_20190325T155030_C001 | Ocean Range Averaging Status                             | The Ocean Range Averaging Status Flag has been set for one or more records.           |
| CS_OFFL_SIR_IOP_2__20190325T155030_20190325T164009_C001 | Ocean Range Averaging Status, Ice Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T164009_20190325T172944_C001 | Ocean Range Averaging Status                             | The Ocean Range Averaging Status Flag has been set for one or more records.           |
| CS_OFFL_SIR_IOP_2__20190325T172944_20190325T181922_C001 | Ocean Range Averaging Status, Ice Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T181922_20190325T190858_C001 | Ocean Range Averaging Status, Ice Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one or more records. |

|   |  |   |
|---|--|---|
| CS_OFFL_SIR_IOP_2__20190325T190858_20190325T195836_C001 | Ocean Range Averaging Status, Ice Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T195836_20190325T204811_C001 | Ocean Range Averaging Status                             | The Ocean Range Averaging Status Flag has been set for one or more records.           |
| CS_OFFL_SIR_IOP_2__20190325T204811_20190325T213750_C001 | Ocean Range Averaging Status                             | The Ocean Range Averaging Status Flag has been set for one or more records.           |
| CS_OFFL_SIR_IOP_2__20190325T213750_20190325T222725_C001 | Ocean Range Averaging Status, Ice Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T222725_20190325T231703_C001 | Ocean Range Averaging Status, Ice Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T231703_20190326T000638_C002 | Ocean Range Averaging Status                             | The Ocean Range Averaging Status Flag has been set for one or more records.           |

## 6.7 P2P SWH and Backscatter Measurement Check

CryoSat P2P data includes a SWH Averaging Status flag and an Ocean and Ice Backscatter Averaging Status flag for each measurement record. The bit value of this flag indicates any problems when set.

Currently, there are three common status flags raised in the P2P 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.

**SWH Averaging Status Flag:** This flag is currently set for products over land and sea ice, but this is to be expected.

**Ocean Backscatter Averaging Status Flag:** This flag is currently set for products over land and sea ice, but this is to be expected.

**Ice Backscatter Averaging Status Flag:** This flag is currently set for products over land, but this is to be expected.

**Number of products with errors:** 29

| Product   | Test Failed  | Description  |
|---|--|--|
| CS_OFFL_SIR_IOP_2__20190325T000753_20190325T005728_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status                                   | The SWH and Ocean Averaging Status Flags have been set for one or more records.      |
| CS_OFFL_SIR_IOP_2__20190325T005728_20190325T014707_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status                                   | The SWH and Ocean Averaging Status Flags have been set for one or more records.      |
| CS_OFFL_SIR_IOP_2__20190325T014707_20190325T023642_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status                                   | The SWH and Ocean Averaging Status Flags have been set for one or more records.      |
| CS_OFFL_SIR_IOP_2__20190325T023642_20190325T032620_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status, Ice Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T032620_20190325T041555_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status, Ice Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T041555_20190325T050534_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status, Ice Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T050534_20190325T055509_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status, Ice Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T055509_20190325T064447_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status                                   | The SWH and Ocean Averaging Status Flags have been set for one or more records.      |
| CS_OFFL_SIR_IOP_2__20190325T064447_20190325T073423_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status, Ice Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T073423_20190325T082401_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status                                   | The SWH and Ocean Averaging Status Flags have been set for one or more records.      |
| CS_OFFL_SIR_IOP_2__20190325T082401_20190325T091336_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status, Ice Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T091336_20190325T100315_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status                                   | The SWH and Ocean Averaging Status Flags have been set for one or more records.      |
| CS_OFFL_SIR_IOP_2__20190325T100315_20190325T105250_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status, Ice Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T105250_20190325T114228_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status, Ice Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T114228_20190325T123203_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status, Ice Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T123203_20190325T132142_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status, Ice Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T132142_20190325T141117_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status, Ice Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T141117_20190325T150055_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status, Ice Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T150055_20190325T155030_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status                                   | The SWH and Ocean Averaging Status Flags have been set for one or more records.      |
| CS_OFFL_SIR_IOP_2__20190325T155030_20190325T164009_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status, Ice Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T164009_20190325T172944_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status                                   | The SWH and Ocean Averaging Status Flags have been set for one or more records.      |
| CS_OFFL_SIR_IOP_2__20190325T172944_20190325T181922_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status, Ice Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T181922_20190325T190858_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status, Ice Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T190858_20190325T195836_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status, Ice Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T195836_20190325T204811_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status                                   | The SWH and Ocean Averaging Status Flags have been set for one or more records.      |
| CS_OFFL_SIR_IOP_2__20190325T204811_20190325T213750_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status, Ice Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one or more records. |

|   |  |  |
|---|--|--|
| CS_OFFL_SIR_IOP_2__20190325T213750_20190325T222725_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status, Ice Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T222725_20190325T231703_C001 | SWH Averaging Status, Ocean Backscatter Averaging Status, Ice Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T231703_20190326T000638_C002 | SWH Averaging Status, Ocean Backscatter Averaging Status                                   | The SWH and Ocean Averaging Status Flags have been set for one or more records.      |

## 6.8 P2P Ocean Retracking Quality Check

Cryosat P2P data includes an ocean retracking quality flag (field 19) for each 20-Hz measurement record. The bit value of this flag indicates any problems when set.

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

**Number of products with errors:** 26

| Product   | Test Failed                   | Description   |
|---|-------------------------------|---|
| CS_OFFL_SIR_IOP_2__20190325T000753_20190325T005728_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T005728_20190325T014707_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T014707_20190325T023642_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T023642_20190325T032620_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T032620_20190325T041555_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T041555_20190325T050534_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T050534_20190325T055509_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T055509_20190325T064447_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T064447_20190325T073423_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T073423_20190325T082401_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T082401_20190325T091336_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T091336_20190325T100315_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T100315_20190325T105250_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T105250_20190325T114228_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T114228_20190325T123203_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T123203_20190325T132142_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T132142_20190325T141117_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T141117_20190325T150055_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T150055_20190325T155030_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T155030_20190325T164009_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T164009_20190325T172944_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T172944_20190325T181922_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T181922_20190325T190858_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T190858_20190325T204811_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T204811_20190325T213750_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T213750_20190325T222725_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T222725_20190325T231703_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_2__20190325T231703_20190326T000638_C002 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |