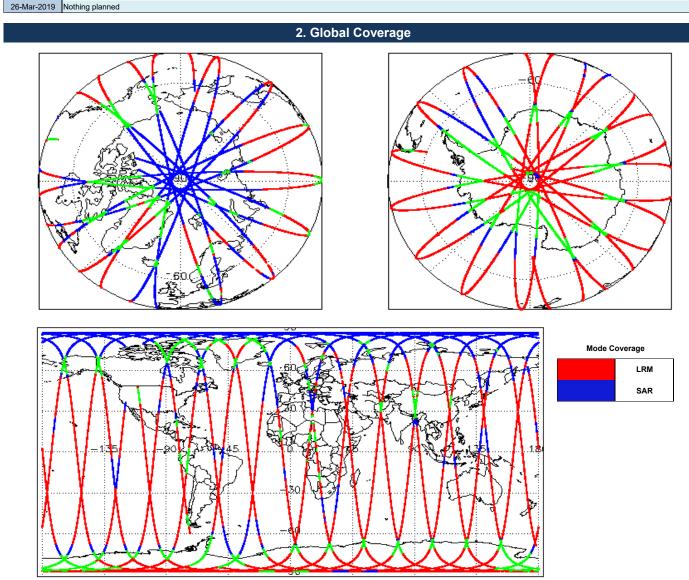


# IDEAS+ Daily Report for IOP data:

# 25/03/2019

| 1. Overview   |   |  |                      |                      |  |  |
|---|---|--|----------------------|----------------------|--|--|
| Check L1&L2 P2P   |   |  |                      |                      |  |  |
| Report Production:  | 29-Mar-2019   | Server check: science-pds.cryosat.esa.int  | Nominal              | Nominal              |  |  |
| Dressesser Lload  | CriveSet Occar Processor  | Server check: calval-pds.cryosat.esa.int   | Nominal              | Nominal              |  |  |
| Processor Used:   | CryoSat Ocean Processor   | Product Software Check                     | Nominal              | Nominal              |  |  |
| Data Used:  | Intermediate Ocean Products (IOP)<br>L1B, L2 & P2P Science Data | Product Format Check                       | Nominal              | Nominal              |  |  |
| Data Used:  |   | 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 Sect |   |  |                      |                      |  |  |
|   |   | 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 |  |  |  |
|                           |      |  |  |  |



# 3. Instrument Configuration

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

SIRAL - A

0

SIRAL instrument(s) in use:

4. IOP Level 1B Data Quality Check

## 4.1 L1B Product Format Check

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

Number of products with errors:

## 4.2 L1B Product Header Analysis

For all products, a series of pre-defined checks are performed on the MPH and SPH in order to identify any inconsistencies and/or errors raised by the ground-segment processing chain. Number of products with errors: 0

| Each product is checked for missing Data Set Descriptors with respect to a pr   | e-determined baseline and also to   | check the validity of Auxiliary Data Files is correct.  |
|---|---|---|
| Number of products with errors: 0   |   |   |
| 4.4 L1B Auxiliary Correction Error Check  |   |   |
| CryoSat L1B data includes a correction error flag for each measurement reco   | rd. The bit value of this flag indicat  | es 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 measure  | ment record. The bit value of this f  | ag indicates any problems when set.   |
| Attitude Correction Missing: This flag is currently set in error for IOPR produ   | ucts due to a configuration issue.  | This is being investigated and will be updated in the next SW update.   |
| Number of products with errors: 0   |   |   |
| 4.6 L1B Waveform Group Data Check   |   |   |
| 4.6 LTB Waveronn Group Data Check   |   |   |
|   |   |   |
| CryoSat L1B data includes a waveform data flag for each measurement recor   | d. The bit value of this flag indicate  | es any problems when set.   |
|   | -   | es any problems when set.   |
| Loss of Echo Flag: This flag is currently set for products over land, but this is   | -   | es any problems when set.   |
| Loss of Echo Flag: This flag is currently set for products over land, but this is Number of products with errors: 14  | -   | es any problems when set.           Description   |
| Loss of Echo Flag: This flag is currently set for products over land, but this is Number of products with errors: 14 Product  | s to be expected.   |   |
| Loss of Echo Flag: This flag is currently set for products over land, but this is Number of products with errors: 14 Product CS_OFFL_SIR_IOPM1B_20190325T021032_20190325T021157_C001  | s to be expected.   | Description   |
| Loss of Echo Flag: This flag is currently set for products over land, but this is Number of products with errors: 14 Product CS_OFFL_SIR_IOPM1B_20190325T021032_20190325T021157_C001 CS_OFFL_SIR_IOPM1B_20190325T035005_20190325T041047_C001  | s to be expected. Test Failed Loss of Echo  | Description<br>The tracking echo is missing for one or more records   |
| CryoSat L1B data includes a waveform data flag for each measurement recor<br>Loss of Echo Flag: This flag is currently set for products over land, but this is<br>Number of products with errors: 14<br>Product<br>CS_OFFL_SIR_IOPM1B_20190325T021032_20190325T021157_C001<br>CS_OFFL_SIR_IOPM1B_20190325T035005_20190325T041047_C001<br>CS_OFFL_SIR_IOPM1B_20190325T065154_20190325T071750_C001<br>CS_OFFL_SIR_IOPM1B_20190325T090731_20190325T090925_C001   | s to be expected.           Test Failed           Loss of Echo           Loss of Echo   | Description           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records   |
| Loss of Echo Flag:         This flag is currently set for products over land, but this is           Number of products with errors:         14           Product         14           CS_OFFL_SIR_IOPM1B_20190325T021032_20190325T021157_C001         157_C001           CS_OFFL_SIR_IOPM1B_20190325T035005_20190325T041047_C001         158_C001           CS_OFFL_SIR_IOPM1B_20190325T065154_20190325T071750_C001         158_C001  | s to be expected.           Test Failed           Loss of Echo           Loss of Echo           Loss of Echo  | Description           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records  |
| Loss of Echo Flag: This flag is currently set for products over land, but this is           Number of products with errors:         14           Product         14           CS_OFFL_SIR_IOPM1B_20190325T021032_20190325T021157_C001         14           CS_OFFL_SIR_IOPM1B_20190325T021032_20190325T041047_C001         14           CS_OFFL_SIR_IOPM1B_20190325T035005_20190325T041047_C001         14           CS_OFFL_SIR_IOPM1B_20190325T065154_20190325T071750_C001         14           CS_OFFL_SIR_IOPM1B_20190325T090731_20190325T090925_C001         14           CS_OFFL_SIR_IOPM1B_20190325T090731_20190325T090925_C001         14           CS_OFFL_SIR_IOPM1B_20190325T124054_20190325T131432_C001         14  | Test Failed<br>Loss of Echo<br>Loss of Echo<br>Loss of Echo<br>Loss of Echo   | Description           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records  |
| Loss of Echo Flag: This flag is currently set for products over land, but this is<br>Number of products with errors: 14<br>Product<br>CS_OFFL_SIR_IOPM1B_20190325T021032_20190325T021157_C001<br>CS_OFFL_SIR_IOPM1B_20190325T035005_20190325T041047_C001<br>CS_OFFL_SIR_IOPM1B_20190325T065154_20190325T071750_C001<br>CS_OFFL_SIR_IOPM1B_20190325T090731_20190325T090925_C001<br>CS_OFFL_SIR_IOPM1B_20190325T124054_20190325T131432_C001<br>CS_OFFL_SIR_IOPM1B_20190325T172250_20190325T172306_C001  | Test Failed         Loss of Echo  | Description           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records  |
| Loss of Echo Flag: This flag is currently set for products over land, but this is           Number of products with errors:         14           Product         14           CS_OFFL_SIR_IOPM1B_20190325T021032_20190325T021157_C001         16           CS_OFFL_SIR_IOPM1B_20190325T035005_20190325T041047_C001         16           CS_OFFL_SIR_IOPM1B_20190325T065154_20190325T071750_C001         17           CS_OFFL_SIR_IOPM1B_20190325T090731_20190325T090925_C001         16           CS_OFFL_SIR_IOPM1B_20190325T124054_20190325T131432_C001         14           CS_OFFL_SIR_IOPM1B_20190325T172250_20190325T172306_C001         15           CS_OFFL_SIR_IOPM1B_20190325T023819_20190325T172306_C001         15  | s to be expected.           Test Failed           Loss of Echo   | Description           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records   |
| Loss of Echo Flag: This flag is currently set for products over land, but this is           Number of products with errors:         14           Product         14           CS_OFFL_SIR_IOPM1B_20190325T021032_20190325T021157_C001         152           CS_OFFL_SIR_IOPM1B_20190325T035005_20190325T041047_C001         152           CS_OFFL_SIR_IOPM1B_20190325T065154_20190325T071750_C001         152           CS_OFFL_SIR_IOPM1B_20190325T090731_20190325T090925_C001         153           CS_OFFL_SIR_IOPM1B_20190325T124054_20190325T131432_C001         153           CS_OFFL_SIR_IOPM1B_20190325T172250_20190325T172306_C001         153           CS_OFFL_SIR_IOPM1B_20190325T023819_20190325T023940_C001         153           CS_OFFL_SIR_IOPN1B_20190325T031826_20190325T032437_C001         153   | s to be expected.           Test Failed           Loss of Echo  | Description           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records   |
| Loss of Echo Flag: This flag is currently set for products over land, but this is           Number of products with errors:         14           Product         14           CS_OFFL_SIR_IOPM1B_20190325T021032_20190325T021157_C001         152_001           CS_OFFL_SIR_IOPM1B_20190325T035005_20190325T041047_C001         152_001           CS_OFFL_SIR_IOPM1B_20190325T065154_20190325T071750_C001         162_001           CS_OFFL_SIR_IOPM1B_20190325T090731_20190325T090925_C001         152_001           CS_OFFL_SIR_IOPM1B_20190325T124054_20190325T131432_C001         152_0751_SIR_IOPM1B_20190325T172200_20190325T172306_C001           CS_OFFL_SIR_IOPM1B_20190325T023819_20190325T023940_C001         152_0FFL_SIR_IOPN1B_20190325T031826_20190325T032437_C001           CS_OFFL_SIR_IOPN1B_20190325T031826_20190325T032437_C001         152_0FFL_SIR_IOPN1B_20190325T031826_20190325T042401_C001  | Test Failed<br>Loss of Echo<br>Loss of Echo   | Description           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records  |
| Loss of Echo Flag: This flag is currently set for products over land, but this is           Number of products with errors:         14           Product         14           CS_OFFL_SIR_IOPM1B_20190325T021032_20190325T021157_C001         CS_OFFL_SIR_IOPM1B_20190325T035005_20190325T041047_C001           CS_OFFL_SIR_IOPM1B_20190325T065154_20190325T071750_C001         CS_OFFL_SIR_IOPM1B_20190325T090731_20190325T090925_C001           CS_OFFL_SIR_IOPM1B_20190325T124054_20190325T131432_C001         CS_OFFL_SIR_IOPM1B_20190325T12205_20190325T172306_C001           CS_OFFL_SIR_IOPM1B_20190325T023819_20190325T032437_C001         CS_OFFL_SIR_IOPN1B_20190325T042154_20190325T032437_C001           CS_OFFL_SIR_IOPN1B_20190325T042154_20190325T042401_C001         CS_OFFL_SIR_IOPN1B_20190325T042154_20190325T042401_C001  | Test Failed<br>Loss of Echo<br>Loss of Echo   | Description           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records   |
| Loss of Echo Flag: This flag is currently set for products over land, but this is           Number of products with errors:         14           Product         14           CS_OFFL_SIR_IOPM1B_20190325T021032_20190325T021157_C001         CS_OFFL_SIR_IOPM1B_20190325T035005_20190325T041047_C001           CS_OFFL_SIR_IOPM1B_20190325T065154_20190325T071750_C001         CS_OFFL_SIR_IOPM1B_20190325T090731_20190325T090925_C001           CS_OFFL_SIR_IOPM1B_20190325T124054_20190325T131432_C001         CS_OFFL_SIR_IOPM1B_20190325T172250_20190325T172306_C001           CS_OFFL_SIR_IOPM1B_20190325T023819_20190325T023940_C001         CS_OFFL_SIR_IOPN1B_20190325T031826_20190325T042401_C001           CS_OFFL_SIR_IOPN1B_20190325T042154_20190325T042401_C001         CS_OFFL_SIR_IOPN1B_20190325T055650_20190325T060148_C001           CS_OFFL_SIR_IOPN1B_20190325T122501_20190325T122535_C001         CS_OFFL_SIR_IOPN1B_20190325T055650_20190325T060148_C001 | Test Failed         Loss of Echo         Loss of Echo | Description           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records   |
| Loss of Echo Flag: This flag is currently set for products over land, but this is Number of products with errors: 14 Product CS_OFFL_SIR_IOPM1B_20190325T021032_20190325T021157_C001 CS_OFFL_SIR_IOPM1B_20190325T035005_20190325T041047_C001 CS_OFFL_SIR_IOPM1B_20190325T065154_20190325T071750_C001 CS_OFFL_SIR_IOPM1B_20190325T090731_20190325T090925_C001  | to be expected.   | Description           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records           The tracking echo is missing for one or more records |

### 5.1 L2 Product Format Check

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

Number of products with errors:

## 5.2 L2 Product Header Analysis

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

#### 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. 0

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).

Number of products with errors:

## 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. 75

| P | roduct   | Test Failed                  | Description  |
|---|--|------------------------------|--|
| C | S_OFFL_SIR_IOPM_2_20190325T001347_20190325T004717_C001 | Ocean Range Averaging Status | The Ocean Range Averaging Status Flag has been set for one or more<br>records. |

CS\_OFFL\_SIR\_IOPM\_2\_20190325T011152\_20190325T013610\_C001 CS OFFL SIR IOPM 2 20190325T013925 20190325T013952 C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T015420\_20190325T020136\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T020143\_20190325T021029\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T021032\_20190325T021157\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T021638\_20190325T022456\_C001 CS OFFL SIR IOPM 2 20190325T023940 20190325T024237 C001 CS OFFL SIR IOPM 2 20190325T024507 20190325T030041 C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T030256\_20190325T031742\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T032437\_20190325T032649\_C001 CS OFFL SIR IOPM 2 20190325T032733 20190325T033150 C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T033325\_20190325T034826\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T035005\_20190325T041047\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T042802\_20190325T043746\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T044449\_20190325T050004\_C001 CS OFFL SIR IOPM 2 20190325T050229 20190325T051052 C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T051251\_20190325T053553\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T061157\_20190325T063905\_C001 CS OFFL SIR IOPM 2 20190325T064415 20190325T064909 C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T065154\_20190325T071750\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T075041\_20190325T080037\_C001 CS OFFL SIR IOPM 2 20190325T080615 20190325T081811 C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T082336\_20190325T082933\_C001 CS OFFL SIR IOPM 2 20190325T083103 20190325T085936 C001 CS OFFL SIR IOPM 2 20190325T090730 20190325T090925 C001 CS OFFL SIR IOPM 2 20190325T092225 20190325T095718 C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T100243\_20190325T100804\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T100934\_20190325T101419\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T101438\_20190325T101600\_C001 CS OFFL SIR IOPM 2 20190325T104557 20190325T104944 C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T110214\_20190325T111045\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T111331\_20190325T113636\_C001 CS OFFL SIR IOPM\_2\_20190325T114136\_20190325T114246\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T114251\_20190325T114658\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T114833\_20190325T120202\_C001 CS OFFL SIR IOPM 2 20190325T120349 20190325T120949 C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T124054\_20190325T131432\_C001 CS OFFL SIR IOPM 2 20190325T131644 20190325T132143 C001 CS OFFL SIR IOPM 2 20190325T132752 20190325T132951 C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T133242\_20190325T140340\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T142344\_20190325T143125\_C001 CS OFFL SIR IOPM 2 20190325T143604 20190325T143657 C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T143700\_20190325T145353\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T145532\_20190325T150041\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T151032\_20190325T152422\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T152635\_20190325T153807\_C001 CS OFFL SIR IOPM 2 20190325T160608 20190325T161626 C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T161806\_20190325T163257\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T163452\_20190325T163952\_C001 CS OFFL SIR IOPM 2 20190325T163959 20190325T164011 C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T164828\_20190325T165006\_C001

Ocean Range Averaging Status Ice Range Averaging Status Ocean Range Averaging Status Ocean Range Averaging Status Ice Range Averaging Status Ice Range Averaging Status Ocean Range Averaging Status Ocean Range Averaging Status Ocean Range Averaging Status Ocean Range Averaging Status Ice Range Averaging Status Ocean Range Averaging Status Ocean Range Averaging Status Ice Range Averaging Status Ocean Range Averaging Status Ocean Range Averaging Status Ocean Range Averaging Status Ice Range Averaging Status Ocean Range Averaging Status Ocean Range Averaging Status Ocean Range Averaging Status Ice Range Averaging Status Ocean Range Averaging Status Ice Range Averaging Status Ice Range Averaging Status Ocean Range Averaging Status Ocean Range Averaging Status Ocean Range Averaging Status Ice Range Averaging Status Ocean Range Averaging Status Ice Range Averaging Status Ocean Range Averaging Status Ocean Range Averaging Status Ocean Range Averaging Status Ocean Range Averaging Status Ice Range Averaging Status Ice Range Averaging Status Ocean Range Averaging Status The Ocean Range Averaging Status Flag has been set for one or more records The Ocean Range Averaging Status Flag has been set for one or more ecords The Ocean Range Averaging Status Flag has been set for one or more records The Ocean Range Averaging Status Flag has been set for one or more records The Ocean Range Averaging Status Flag has been set for one or more records The Ocean Range Averaging Status Flag has been set for one or more records The Ice Range Averaging Status Flag has been set for one or more records The Ocean Range Averaging Status Flag has been set for one or more records The Ocean Range Averaging Status Flag has been set for one or more records The Ice Range Averaging Status Flag has been set for one or more The Ice Range Averaging Status Flag has been set for one or more records The Ocean Range Averaging Status Flag has been set for one or more records The Ocean Range Averaging Status Flag has been set for one or more ecords The Ocean Range Averaging Status Flag has been set for one or more records. The Ocean Range Averaging Status Flag has been set for one or more records The Ice Range Averaging Status Flag has been set for one or more ecords The Ocean Range Averaging Status Flag has been set for one or more records The Ocean Range Averaging Status Flag has been set for one or more record The Ice Range Averaging Status Flag has been set for one or more records The Ocean Range Averaging Status Flag has been set for one or more records The Ocean Range Averaging Status Flag has been set for one or more records The Ocean Range Averaging Status Flag has been set for one or more ecords The Ice Range Averaging Status Flag has been set for one or more records The Ocean Range Averaging Status Flag has been set for one or more records The Ocean Range Averaging Status Flag has been set for one or more records The Ocean Range Averaging Status Flag has been set for one or more records The Ice Range Averaging Status Flag has been set for one or more ecords The Ocean Range Averaging Status Flag has been set for one or more records. The Ocean Range Averaging Status Flag has been set for one or more records The Ocean Range Averaging Status Flag has been set for one or more records. The Ocean Range Averaging Status Flag has been set for one or more records The Ocean Range Averaging Status Flag has been set for one or more records The Ice Range Averaging Status Flag has been set for one or more ecords The Ice Range Averaging Status Flag has been set for one or more records The Ocean Range Averaging Status Flag has been set for one or more records The Ocean Range Averaging Status Flag has been set for one or more records. The Ocean Range Averaging Status Flag has been set for one or more records The Ice Range Averaging Status Flag has been set for one or more records The Ocean Range Averaging Status Flag has been set for one or more records The Ocean Range Averaging Status Flag has been set for one or more records The Ocean Range Averaging Status Flag has been set for one or more The Ocean Range Averaging Status Flag has been set for one or more records The Ocean Range Averaging Status Flag has been set for one or more records The Ice Range Averaging Status Flag has been set for one or more records The Ocean Range Averaging Status Flag has been set for one or more records The Ocean Range Averaging Status Flag has been set for one or more records The Ocean Range Averaging Status Flag has been set for one or more ecords The Ocean Range Averaging Status Flag has been set for one or more records The Ice Range Averaging Status Flag has been set for one or more record The Ice Range Averaging Status Flag has been set for one or more records 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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>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<br>records. |
| CS_OFFL_SIR_IOPN_2_20190325T213857_20190325T213913_C001 | Ice Range Averaging Status   | The Ice Range Averaging Status Flag has been set for one or more<br>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<br>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<br>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<br>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. 71

| Product   | Test Failed   | Description  |
|---|---|--|
| CS_OFFL_SIR_IOPM_2_20190325T001347_20190325T004717_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or<br>more records. |
| CS_OFFL_SIR_IOPM_2_20190325T011152_20190325T013610_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or<br>more records. |
| CS_OFFL_SIR_IOPM_2_20190325T013925_20190325T013952_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or<br>more records. |
| CS_OFFL_SIR_IOPM_2_20190325T015420_20190325T020136_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or<br>more records. |
| CS_OFFL_SIR_IOPM_2_20190325T020143_20190325T021029_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or<br>more records. |
| CS_OFFL_SIR_IOPM_2_20190325T021032_20190325T021157_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or<br>more records. |
| CS_OFFL_SIR_IOPM_2_20190325T021638_20190325T022456_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or<br>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<br>Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or<br>more records. |
| CS_OFFL_SIR_IOPM_2_20190325T030256_20190325T031742_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or<br>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<br>Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or<br>more records. |
| CS_OFFL_SIR_IOPM_2_20190325T035005_20190325T041047_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or<br>more records. |
| CS_OFFL_SIR_IOPM_2_20190325T042802_20190325T043746_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or<br>more records. |
| CS_OFFL_SIR_IOPM_2_20190325T044449_20190325T050004_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or<br>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<br>Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or<br>more records. |
| CS_OFFL_SIR_IOPM_2_20190325T061157_20190325T063905_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status | The SWH and Ocean Averaging Status Flags have been set for one or<br>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<br>records. |

CS\_OFFL\_SIR\_IOPM\_2\_20190325T065154\_20190325T071750\_C001 CS OFFL SIR IOPM 2 20190325T075041 20190325T080037 C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T080615\_20190325T081811\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T082336\_20190325T082933\_C001 CS OFFL SIR IOPM 2 20190325T083103 20190325T085936 C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T090730\_20190325T090925\_C001 CS OFFL SIR IOPM 2 20190325T092225 20190325T095718 C001 CS OFFL SIR IOPM 2 20190325T100243 20190325T100804 C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T104557\_20190325T104944\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T110214\_20190325T111045\_C001 CS OFFL SIR IOPM 2 20190325T111331 20190325T113636 C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T114136\_20190325T114246\_C001 CS OFFL SIR IOPM 2 20190325T114251 20190325T114658 C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T114833\_20190325T120202\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T120349\_20190325T120949\_C001 CS OFFL SIR IOPM 2 20190325T124054 20190325T131432 C001 CS OFFL SIR IOPM 2 20190325T131644 20190325T132143 C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T132204\_20190325T132518\_C001 CS OFFL SIR IOPM 2 20190325T132752 20190325T132951 C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T133242\_20190325T140340\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T142344\_20190325T143125\_C001 CS OFFL SIR IOPM 2 20190325T143700 20190325T145353 C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T145532\_20190325T150041\_C001 CS OFFL SIR IOPM 2 20190325T152635 20190325T153807 C001 CS OFFL SIR IOPM 2 20190325T160608 20190325T161626 C001 CS OFFL SIR IOPM 2 20190325T161806 20190325T163257 C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T163452\_20190325T163952\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T165203\_20190325T170241\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T170438\_20190325T171013\_C001 CS OFFL SIR IOPM 2 20190325T174904 20190325T181217 C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T181529\_20190325T181909\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T181930\_20190325T182231\_C001 CS OFFL SIR IOPM\_2\_20190325T182509\_20190325T185318\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T192534\_20190325T195134\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T195311\_20190325T195823\_C001 CS OFFL SIR IOPM 2 20190325T200431 20190325T201624 C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T202202\_20190325T203850\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T210157\_20190325T211942\_C001 CS OFFL SIR IOPM 2 20190325T212501 20190325T213133 C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T213310\_20190325T213856\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T213913\_20190325T214057\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T214351\_20190325T221753\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T223144\_20190325T223238\_C001 CS OFFL SIR IOPM 2 20190325T225354 20190325T231102 C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T231238\_20190325T231749\_C001 CS\_OFFL\_SIR\_IOPM\_2\_20190325T232306\_20190325T234600\_C001 CS OFFL SIR IOPM 2 20190325T234745 20190325T235753 C001 CS\_OFFL\_SIR\_IOPN\_2\_20190325T213857\_20190325T213913\_C001 CS\_OFFL\_SIR\_IOPR\_2\_20190325T042002\_20190325T042154\_C001 CS OFFL SIR IOPR 2 20190325T131433 20190325T131448 C001 CS\_OFFL\_SIR\_IOPR\_2\_20190325T213134\_20190325T213145\_C001

SWH Averaging Status, Ocean Backscatter Averaging Status SWH Averaging Status, Ocean Backscatter Averaging Status, Ocean Backscatter Averaging Status

Ice Backscatter Averaging Status

SWH Averaging Status, Ocean Backscatter Averaging Status SWH Averaging Status, Ocean Backscatter Averaging Status SWH Averaging Status, Ocean Backscatter Averaging Status

Ice Backscatter Averaging Status SWH Averaging Status, Ocean

Backscatter Averaging Status SWH Averaging Status, Ocean Backscatter Averaging Status SWH Averaging Status, Ocean Backscatter Averaging Status

Ice Backscatter Averaging Status

Ice Backscatter Averaging Status

SWH Averaging Status, Ocean Backscatter Averaging Status SWH Averaging Status, Ocean Backscatter Averaging Status SWH Averaging Status, Ocean Backscatter Averaging Status

Ice Backscatter Averaging Status

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Ice Backscatter Averaging Status

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Ice Backscatter Averaging Status

Ice Backscatter Averaging Status

SWH Averaging Status, Ocean Backscatter Averaging Status SWH Averaging Status, Ocean Backscatter Averaging Status

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Backscatter Averaging Status SWH Averaging Status, Ocean Backscatter Averaging Status SWH Averaging Status, Ocean Backscatter Averaging Status SWH Averaging Status, Ocean Backscatter Averaging Status

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Ice Backscatter Averaging Status

SWH Averaging Status, Ocean Backscatter Averaging Status SWH Averaging Status, Ocean Backscatter Averaging Status SWH Averaging Status, Ocean Backscatter Averaging Status

Ice Backscatter Averaging Status SWH Averaging Status, Ocean Backscatter Averaging Status

SWH Averaging Status, Ocean Backscatter Averaging Status

Ice Backscatter Averaging Status

SWH Averaging Status, Ocean Backscatter Averaging Status SWH Averaging Status, Ocean Backscatter Averaging Status SWH Averaging Status, Ocean Backscatter Averaging Status The SWH and Ocean Averaging Status Flags have been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records. The SWH and Ocean Averaging Status Flags have been set for one or

more records. The Ice Backscatter Averaging Status Flag has been set for one or more

records. The SWH and Ocean Averaging Status Flags have been set for one or

more records. The SWH and Ocean Averaging Status Flags have been set for one or

more records. The SWH and Ocean Averaging Status Flags have been set for one or

more records.

The Ice Backscatter Averaging Status Flag has been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The Ice Backscatter Averaging Status Flag has been set for one or more records.

The Ice Backscatter Averaging Status Flag has been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The Ice Backscatter Averaging Status Flag has been set for one or more records.

The Ice Backscatter Averaging Status Flag has been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The Ice Backscatter Averaging Status Flag has been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The Ice Backscatter Averaging Status Flag has been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The Ice Backscatter Averaging Status Flag has been set for one or more records.

The Ice Backscatter Averaging Status Flag has been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The Ice Backscatter Averaging Status Flag has been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The Ice Backscatter Averaging Status Flag has been set for one or more records.

The Ice Backscatter Averaging Status Flag has been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The Ice Backscatter Averaging Status Flag has been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The Ice Backscatter Averaging Status Flag has been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The SWH and Ocean Averaging Status Flags have been set for one or more records.

The SWH and Ocean Averaging Status Flags have 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:

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

#### 6.1 P2P Product Format Check

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

Number of products with errors:

#### 6.2 P2P Product Header Analysis

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

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Number of products with errors:

#### 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_220190325T023642_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. 29

| Product   | Test Failed   | Description  |
|---|---|--|
| CS_OFFL_SIR_IOP_220190325T000753_20190325T005728_C001 | Ocean Range Averaging Status                                | The Ocean Range Averaging Status Flag has been set for one or more records.              |
| CS_OFFL_SIR_IOP_220190325T005728_20190325T014707_C001 | Ocean Range Averaging Status                                | The Ocean Range Averaging Status Flag has been set for one or more records.              |
| CS_OFFL_SIR_IOP_220190325T014707_20190325T023642_C001 | Ocean Range Averaging Status                                | The Ocean Range Averaging Status Flag has been set for one or more records.              |
| CS_OFFL_SIR_IOP_220190325T023642_20190325T032620_C001 | Ocean Range Averaging Status, Ice<br>Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T032620_20190325T041555_C001 | Ocean Range Averaging Status, Ice<br>Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T041555_20190325T050534_C001 | Ocean Range Averaging Status, Ice<br>Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T050534_20190325T055509_C001 | Ocean Range Averaging Status, Ice<br>Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T055509_20190325T064447_C001 | Ocean Range Averaging Status, Ice<br>Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T064447_20190325T073423_C001 | Ocean Range Averaging Status, Ice<br>Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T073423_20190325T082401_C001 | Ocean Range Averaging Status                                | The Ocean Range Averaging Status Flag has been set for one or more records.              |
| CS_OFFL_SIR_IOP_220190325T082401_20190325T091336_C001 | Ocean Range Averaging Status, Ice<br>Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T091336_20190325T100315_C001 | Ocean Range Averaging Status                                | The Ocean Range Averaging Status Flag has been set for one or more records.              |
| CS_OFFL_SIR_IOP_220190325T100315_20190325T105250_C001 | Ocean Range Averaging Status, Ice<br>Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T105250_20190325T114228_C001 | Ocean Range Averaging Status, Ice<br>Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T114228_20190325T123203_C001 | Ocean Range Averaging Status, Ice<br>Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T123203_20190325T132142_C001 | Ocean Range Averaging Status, Ice<br>Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one or more records.    |
| CS_OFFL_SIR_IOP_220190325T132142_20190325T141117_C001 | Ocean Range Averaging Status, Ice<br>Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T141117_20190325T150055_C001 | Ocean Range Averaging Status, Ice<br>Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T150055_20190325T155030_C001 | Ocean Range Averaging Status                                | The Ocean Range Averaging Status Flag has been set for one or more records.              |
| CS_OFFL_SIR_IOP_220190325T155030_20190325T164009_C001 | Ocean Range Averaging Status, Ice<br>Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one or more records.    |
| CS_OFFL_SIR_IOP_220190325T164009_20190325T172944_C001 | Ocean Range Averaging Status                                | The Ocean Range Averaging Status Flag has been set for one or more records.              |
| CS_OFFL_SIR_IOP_220190325T172944_20190325T181922_C001 | Ocean Range Averaging Status, Ice<br>Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T181922_20190325T190858_C001 | Ocean Range Averaging Status, Ice<br>Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one<br>or more records. |

| CS_OFFL_SIR_IOP_220190325T190858_20190325T195836_C001 | Ocean Range Averaging Status, Ice<br>Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one<br>or more records. |
|---|---|--|
| CS_OFFL_SIR_IOP_220190325T195836_20190325T204811_C001 | Ocean Range Averaging Status                                | The Ocean Range Averaging Status Flag has been set for one or more records.              |
| CS_OFFL_SIR_IOP_220190325T204811_20190325T213750_C001 | Ocean Range Averaging Status                                | The Ocean Range Averaging Status Flag has been set for one or more records.              |
| CS_OFFL_SIR_IOP_220190325T213750_20190325T222725_C001 | Ocean Range Averaging Status, Ice<br>Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T222725_20190325T231703_C001 | Ocean Range Averaging Status, Ice<br>Range Averaging Status | The Ocean and Ice Range Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T231703_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 | or products | with errors: |  |
|-----------|-------------|--------------|--|
|           |             |              |  |

| Product   | Test Failed  | Description   |
|---|--|---|
| CS_OFFL_SIR_IOP_220190325T000753_20190325T005728_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status                                      | The SWH and Ocean Averaging Status Flags have been set for one or<br>more records.      |
| CS_OFFL_SIR_IOP_220190325T005728_20190325T014707_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status                                      | The SWH and Ocean Averaging Status Flags have been set for one or<br>more records.      |
| CS_OFFL_SIR_IOP_220190325T014707_20190325T023642_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status                                      | The SWH and Ocean Averaging Status Flags have been set for one or<br>more records.      |
| CS_OFFL_SIR_IOP_220190325T023642_20190325T032620_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status, Ice<br>Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T032620_20190325T041555_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status, Ice<br>Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T041555_20190325T050534_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status, Ice<br>Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T050534_20190325T055509_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status, Ice<br>Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T055509_20190325T064447_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status                                      | The SWH and Ocean Averaging Status Flags have been set for one or<br>more records.      |
| CS_OFFL_SIR_IOP_220190325T064447_20190325T073423_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status, Ice<br>Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T073423_20190325T082401_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status                                      | The SWH and Ocean Averaging Status Flags have been set for one or<br>more records.      |
| CS_OFFL_SIR_IOP_220190325T082401_20190325T091336_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status, Ice<br>Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T091336_20190325T100315_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status                                      | The SWH and Ocean Averaging Status Flags have been set for one or<br>more records.      |
| CS_OFFL_SIR_IOP_220190325T100315_20190325T105250_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status, Ice<br>Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T105250_20190325T114228_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status, Ice<br>Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T114228_20190325T123203_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status, Ice<br>Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T123203_20190325T132142_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status, Ice<br>Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T132142_20190325T141117_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status, Ice<br>Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T141117_20190325T150055_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status, Ice<br>Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T150055_20190325T155030_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status                                      | The SWH and Ocean Averaging Status Flags have been set for one or more records.         |
| CS_OFFL_SIR_IOP_220190325T155030_20190325T164009_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status, Ice<br>Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T164009_20190325T172944_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status                                      | The SWH and Ocean Averaging Status Flags have been set for one or more records.         |
| CS_OFFL_SIR_IOP_220190325T172944_20190325T181922_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status, Ice<br>Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T181922_20190325T190858_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status, Ice<br>Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T190858_20190325T195836_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status, Ice<br>Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one<br>or more records. |
| CS_OFFL_SIR_IOP_220190325T195836_20190325T204811_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status                                      | The SWH and Ocean Averaging Status Flags have been set for one or more records.         |
| CS_OFFL_SIR_IOP_220190325T204811_20190325T213750_C001 | SWH Averaging Status, Ocean<br>Backscatter Averaging Status, Ice<br>Backscatter Averaging Status | The SWH, Ocean and Ice Averaging Status Flags have been set for one<br>or more records. |

| CS_OFFL_SIR_IOP_220190325T213750_20190325T222725_C001  |  |  |  |
|--|--|--|--|
| CS_OFFL_SIR_IOP_2_20190325T222725_20190325T231703_C001 |  |  |  |
| CS OFFL SIR IOP 2 20190325T231703 20190326T000638 C002 |  |  |  |

SWH Averaging Status, Ocean Backscatter Averaging Status, Ice Backscatter Averaging Status SWH Averaging Status, Ocean Backscatter Averaging Status, Ice Backscatter Averaging Status SWH Averaging Status, Ocean Backscatter Averaging Status

The SWH, Ocean and Ice Averaging Status Flags have been set for one or more records.

The SWH, Ocean and Ice Averaging Status Flags have been set for one or more records.

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_220190325T000753_20190325T005728_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_220190325T005728_20190325T014707_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_220190325T014707_20190325T023642_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_220190325T023642_20190325T032620_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_220190325T032620_20190325T041555_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_220190325T041555_20190325T050534_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_220190325T050534_20190325T055509_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_220190325T055509_20190325T064447_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_220190325T064447_20190325T073423_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_220190325T082401_20190325T091336_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_220190325T091336_20190325T100315_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_220190325T105250_20190325T114228_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_220190325T114228_20190325T123203_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_220190325T123203_20190325T132142_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_220190325T132142_20190325T141117_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_220190325T141117_20190325T150055_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_220190325T150055_20190325T155030_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_220190325T155030_20190325T164009_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_220190325T164009_20190325T172944_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_220190325T172944_20190325T181922_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_220190325T181922_20190325T190858_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_220190325T195836_20190325T204811_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_220190325T204811_20190325T213750_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_220190325T213750_20190325T222725_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_220190325T222725_20190325T231703_C001 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
| CS_OFFL_SIR_IOP_220190325T231703_20190326T000638_C002 | Ocean Retracking Quality Flag | The Ocean Retracking Quality Flag has been set for one or more records. |
|   | 1                             | I   |