

### 1. Overview

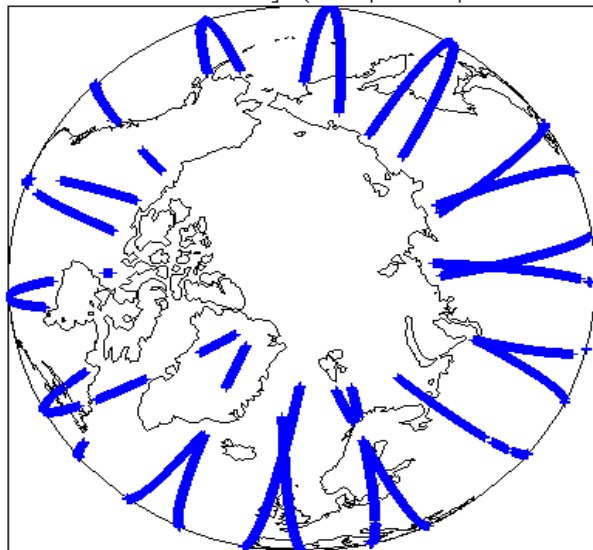
|                                |   |
|--------------------------------|---|
| <b>Report Production Date:</b> | 10-Jun-2013   |
| <b>Data Used:</b>              | L1 and L2 Fast Delivery Marine Mode (FDM), and CAL Data |

| Check                                     | Status                                  |
|---|---|
| Server check: science-pds.cryosat.esa.int | Nominal                                 |
| Server check: calval-pds.cryosat.esa.int  | Nominal                                 |
| Product Software Check                    | Nominal                                 |
| Product Format Check                      | Nominal                                 |
| Product Header Analysis                   | Nominal                                 |
| Auxiliary Data File Usage                 | See Section 5.3 and 6.3                 |
| Correction Error Flags                    | See Sections 5.4 and 6.4                |
| Measurement Confidence Flags              | See Sections 5.5, 6.5, 6.6, 6.7 and 6.8 |

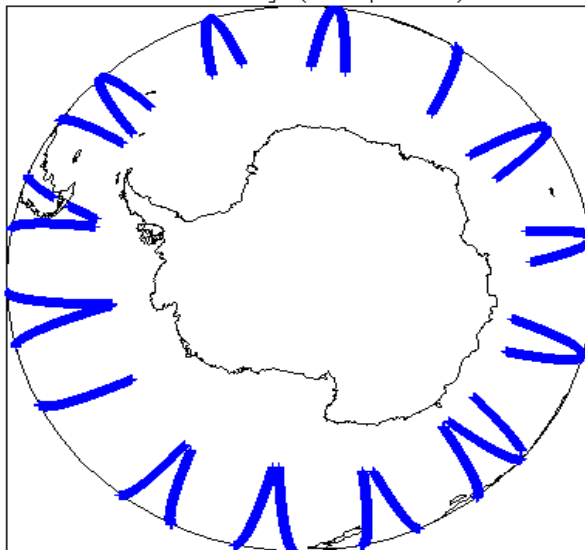
| Mission / Instrument News |  |
|---------------------------|--|
| 05-Jun-2013               | None   |
| 06-Jun-2013               | SIRAL unavailability from 06-Jun-2013 05:10:48 to 06:57:54 due to a planned orbit manoeuvre. |
| 07-Jun-2013               | Nothing planned  |

### 2. Global Coverage

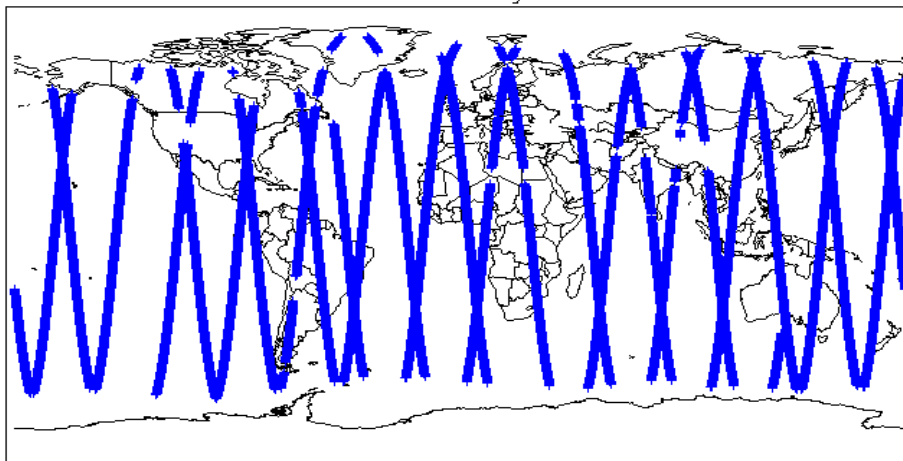
Global Coverage (north pole view)



Global Coverage (south pole view)



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      |
| <b>Star Tracker(s) in use:</b>     | Star Tracker 1 |

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

#### 4.1 L1 CAL 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 L1 CAL Product Header Analysis

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

Number of products with errors: 0

### 4.3 L1 CAL Auxiliary Data File Usage Check

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

Number of products with errors: 0

### 4.4 L1 CAL Measurement Confidence Flags

CryoSat Cal1 and Cal2 data includes a measurement confidence flag word (field 11) for each measurement record. The bit value of this flag indicates any problems when set.

Number of products with errors: 0

## 5. Level 1B FDM Data Quality Check

### 5.1 L1B FDM 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 L1B FDM Product Header Analysis

For all products, a series of pre-defined checks are carried out 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 L1B FDM Auxiliary Data File Usage Check

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

Number of products with errors: All

| Product   | AUX File   | Comment   |
|---|--|---|
| All SIR_FDM_1B_products from 20130606T000000 to 20130606T060000 | CS_OPER_AUXISURFPS_20130606T000000_20130606T000000_0_0001<br>CS_OPER_AUXISURFPS_20130606T060000_20130606T060000_0_0001 | Missing Forecast Auxiliary Files:<br>CS_OPER_AUXISURFPS |
| All SIR_FDM_1B_products from 20130606T060000 to 20130606T120000 | CS_OPER_AUXISURFPS_20130606T060000_20130606T060000_0_0001<br>CS_OPER_AUXISURFPS_20130606T120000_20130606T120000_0_0001 | Missing Forecast Auxiliary Files:<br>CS_OPER_AUXISURFPS |
| All SIR_FDM_1B_products from 20130606T120000 to 20130606T180000 | CS_OPER_AUXISURFPS_20130606T120000_20130606T120000_0_0001<br>CS_OPER_AUXISURFPS_20130606T180000_20130606T180000_0_0001 | Missing Forecast Auxiliary Files:<br>CS_OPER_AUXISURFPS |
| All SIR_FDM_1B_products from 20130606T180000 to 20130607T000000 | CS_OPER_AUXISURFPS_20130606T180000_20130606T180000_0_0001<br>CS_OPER_AUXISURFPS_20130607T000000_20130607T000000_0_0001 | Missing Forecast Auxiliary Files:<br>CS_OPER_AUXISURFPS |

### 5.4 L1B Correction Error Flags

Each product is checked to detect auxiliary corrections flagged by the ground-station processing chain as missing or containing errors.

Number of products with errors: All

| Product                 | Test Failed   | Description   |
|-------------------------|---|---|
| All SIR_FDM_1B products | Dry tropospheric correction error, Wet tropospheric correction error, Inverse barometric correction error | Due to multiple missing Forecast Auxiliary Files, there was an error with the Dry tropospheric, Wet tropospheric and Inverse barometric corrections |

### 5.5 L1B FDM Measurement Confidence Flags

CryoSat L1B data includes a measurement confidence flag word (field 14) for each measurement record. The bit value of this flag indicates any problems when set.

Number of products with errors: 6

| Product   | Test Failed                 | Description   |
|---|-----------------------------|---|
| CS_OFFL_SIR_FDM_1B_20130606T033820_20130606T040633_B001 | Echo error                  | The Echo Rx1 Error flag is set, indicating a degraded raw echo. |
| CS_OFFL_SIR_FDM_1B_20130606T074604_20130606T075118_B001 | Echo error                  | The Echo Rx1 Error flag is set, indicating a degraded raw echo. |
| CS_OFFL_SIR_FDM_1B_20130606T154300_20130606T154856_B001 | Attitude correction missing | The attitude has not been corrected                             |
| CS_OFFL_SIR_FDM_1B_20130606T172512_20130606T172514_B001 | Attitude correction missing | The attitude has not been corrected                             |
| CS_OFFL_SIR_FDM_1B_20130606T185654_20130606T190317_B001 | Attitude correction missing | The attitude has not been corrected                             |
| CS_OFFL_SIR_FDM_1B_20130606T215218_20130606T222557_B001 | Attitude correction missing | The attitude has not been corrected                             |

## 6. Level 2 FDM Data Quality Check

### 6.1 L2 FDM 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

## 6.2 L2 FDM Product Header Analysis

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

Currently there is a high number of processing error flags set within the Level 2 FDM products (Product\_Err and L2\_Proc\_Flag). These flags are set within L2 Header files (MPH field #19 and SPH field #29) and also within the L2 Product files (MPH field #35 and SPH field #33). They are set by the FDM processor when an error is detected during the L2 processing and also when the percentage of Data Set Records free of processing errors is below the minimum acceptable threshold set within the processor (currently set to 5%).

This issue is under investigation.

Number of products with errors: 0

## 6.3 L2 FDM Auxiliary Data File Usage Check

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

Number of products with errors: All

| Product   | AUX File   | Comment   |
|---|--|---|
| All SIR_FDM_2_ products from 20130606T000000 to 20130606T060000 | CS_OPER_AUXISURFPS_20130606T000000_20130606T000000_0_0001<br>CS_OPER_AUXISURFPS_20130606T060000_20130606T060000_0_0001 | Missing Forecast Auxiliary Files:<br>CS_OPER_AUXISURFPS |
| All SIR_FDM_2_ products from 20130606T060000 to 20130606T120000 | CS_OPER_AUXISURFPS_20130606T060000_20130606T060000_0_0001<br>CS_OPER_AUXISURFPS_20130606T120000_20130606T120000_0_0001 | Missing Forecast Auxiliary Files:<br>CS_OPER_AUXISURFPS |
| All SIR_FDM_2_ products from 20130606T120000 to 20130606T180000 | CS_OPER_AUXISURFPS_20130606T120000_20130606T120000_0_0001<br>CS_OPER_AUXISURFPS_20130606T180000_20130606T180000_0_0001 | Missing Forecast Auxiliary Files:<br>CS_OPER_AUXISURFPS |
| All SIR_FDM_2_ products from 20130606T180000 to 20130607T000000 | CS_OPER_AUXISURFPS_20130606T180000_20130606T180000_0_0001<br>CS_OPER_AUXISURFPS_20130607T000000_20130607T000000_0_0001 | Missing Forecast Auxiliary Files:<br>CS_OPER_AUXISURFPS |

## 6.4 L2 FDM Correction Error Flags

Each product is checked to detect auxiliary corrections flagged by the ground-station processing chain as missing or containing errors.

Number of products with errors: All

| Product                | Test Failed   | Description   |
|------------------------|---|---|
| All SIR_FDM_2 products | Dry tropospheric correction error, Wet tropospheric correction error, Inverse barometric correction error | Due to a missing Forecast Auxiliary File, there was an error with the Dry tropospheric, Wet tropospheric and Inverse barometric corrections |

## 6.5 L2 FDM Measurement Confidence Flags

CryoSat L2 data includes a quality flag word (field 8) for each 20-Hz measurement record. The bit value of this flag is an assessment of the measurement quality by the processing chain.

Number of products with errors: 7

| Product   | Test Failed                 | Description   |
|---|-----------------------------|---|
| CS_OFFL_SIR_FDM_2__20130606T033820_20130606T040633_B001 | Echo error                  | The Echo Rx1 Error flag is set, indicating a degraded raw echo. |
| CS_OFFL_SIR_FDM_2__20130606T074604_20130606T075118_B001 | Echo error                  | The Echo Rx1 Error flag is set, indicating a degraded raw echo. |
| CS_OFFL_SIR_FDM_2__20130606T154300_20130606T154856_B001 | Attitude correction missing | The attitude has not been corrected                             |
| CS_OFFL_SIR_FDM_2__20130606T172512_20130606T172514_B001 | Attitude correction missing | The attitude has not been corrected                             |
| CS_OFFL_SIR_FDM_2__20130606T185654_20130606T190317_B001 | Attitude correction missing | The attitude has not been corrected                             |
| CS_OFFL_SIR_FDM_2__20130606T204035_20130606T204324_B001 | Attitude correction missing | The attitude has not been corrected                             |
| CS_OFFL_SIR_FDM_2__20130606T215218_20130606T222557_B001 | Attitude correction missing | The attitude has not been corrected                             |

## 6.6 L2 FDM Range Measurement Flags

Each product is checked to detect range measurements flagged by the processing chain as missing or containing errors.

Number of products with errors: 2

| Product   | Test Failed               | Description  |
|---|---------------------------|--|
| CS_OFFL_SIR_FDM_2__20130606T161042_20130606T163827_B001 | OCOg Retracked Range Flag | The master fail flag is set by the OCOg call, for one or more records, indicating the values stored in fields #18, #19, #20 and #21 should be ignored for these records. |
| CS_OFFL_SIR_FDM_2__20130606T204324_20130606T204833_B001 | OCOg Retracked Range Flag | The master fail flag is set by the OCOg call, for one or more records, indicating the values stored in fields #18, #19, #20 and #21 should be ignored for these records. |

## 6.7 L2 FDM SWH and Backscatter Measurement Flags

Each product is checked to detect parameters related to SWH and sigma0 that are flagged by the processing chain as missing or containing errors.

Number of products with errors: 1

| Product  | Test Failed                  | Description   |
|--|------------------------------|---|
| CS_OFFL_SIR_FDM_2_20130606T020008_20130606T023216_B001 | OCO2 Backscatter Status Flag | The master fail flag is set by the CFI call, for one or more records, indicating the values stored in fields #47, #48, #49 and #50 should be ignored for these records. |

## 6.8 L2 FDM Geophysical Measurement Flags

Each product is checked to detect geophysical measurements flagged by the processing chain as missing or containing errors.

Number of products with errors: All

| Product  | Test Failed                                    | Description  |
|--|--|--|
| All SIR_FDM_2 products                                 | U-Wind component error, V-Wind component error | Due to a missing Forecast Auxiliary File, there was an error with the U-Wind and V-wind components of the ECMWF model wind vector. |
| CS_OFFL_SIR_FDM_2_20130606T161042_20130606T163827_B001 | Ocean Retracking Quality Flag                  | The Ocean Retracking Quality Flag is set indicating the CFI Ocean Retracker was not successfully executed for one or more records. |
| CS_OFFL_SIR_FDM_2_20130606T185654_20130606T190317_B001 | Ocean Retracking Quality Flag                  | The Ocean Retracking Quality Flag is set indicating the CFI Ocean Retracker was not successfully executed for one or more records. |
| CS_OFFL_SIR_FDM_2_20130606T204324_20130606T204833_B001 | Ocean Retracking Quality Flag                  | The Ocean Retracking Quality Flag is set indicating the CFI Ocean Retracker was not successfully executed for one or more records. |

## 7. QCC Check

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

| Product type | Nb. Products | Nb. QCC Reports | Nb. Valid | Nb. Warnings | Nb. Errors |
|--------------|--------------|-----------------|-----------|--------------|------------|
| SIR_FDM_1B   | 60           | 64              | 55        | 9            | 0          |
| SIR_FDM_2    | 64           | 53              | 0         | 53           | 0          |

### 7.1 QCC Errors

Number of QCC reports with errors: 0

### 7.2 Missing QCC Reports

Number of products with missing QCC reports: 12

| Product name  |
|---|
| CS_OFFL_SIR_FDM_1B_20130605T232907_20130606T000526_B001 |
| CS_OFFL_SIR_FDM_2_20130605T232907_20130606T000526_B001  |
| CS_OFFL_SIR_FDM_2_20130606T190317_20130606T190757_B001  |
| CS_OFFL_SIR_FDM_2_20130606T190850_20130606T191017_B001  |
| CS_OFFL_SIR_FDM_2_20130606T192329_20130606T195642_B001  |
| CS_OFFL_SIR_FDM_2_20130606T201222_20130606T204030_B001  |
| CS_OFFL_SIR_FDM_2_20130606T204035_20130606T204324_B001  |
| CS_OFFL_SIR_FDM_2_20130606T222557_20130606T222558_B001  |
| CS_OFFL_SIR_FDM_2_20130606T222810_20130606T222954_B001  |
| CS_OFFL_SIR_FDM_2_20130606T223825_20130606T225913_B001  |
| CS_OFFL_SIR_FDM_2_20130606T225916_20130606T231443_B001  |
| CS_OFFL_SIR_FDM_2_20130606T233127_20130607T000521_B001  |