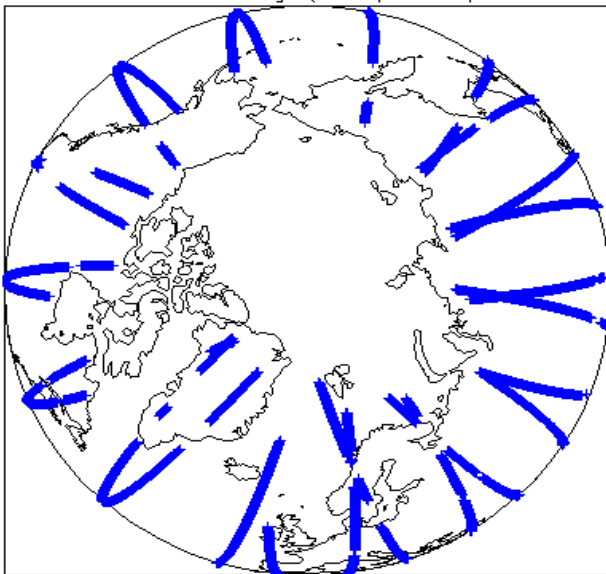## 1. Overview

| 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 | Nominal |
| Correction Error Flags | Nominal |
| Measurement Confidence Flags | See Sections 5.5, 6.5, 6.6 and 6.8 |

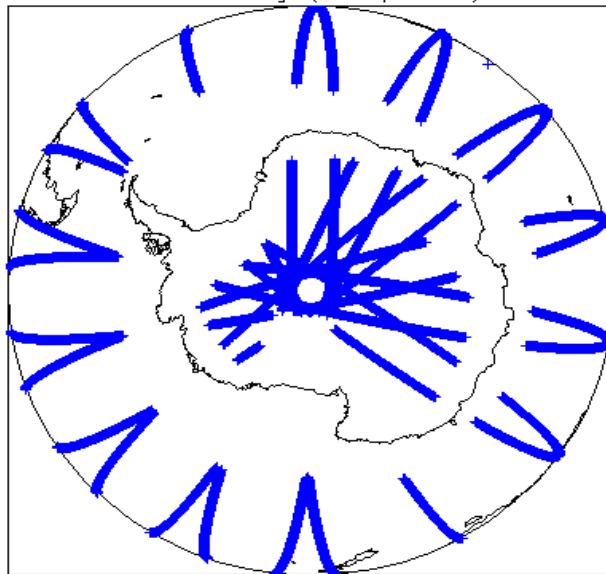| | |
|---|---|
| **Report Production Date:** | 29-May-2013 |
| **Data Used:** | L1 and L2 Fast Delivery Marine Mode (FDM), and CAL Data |

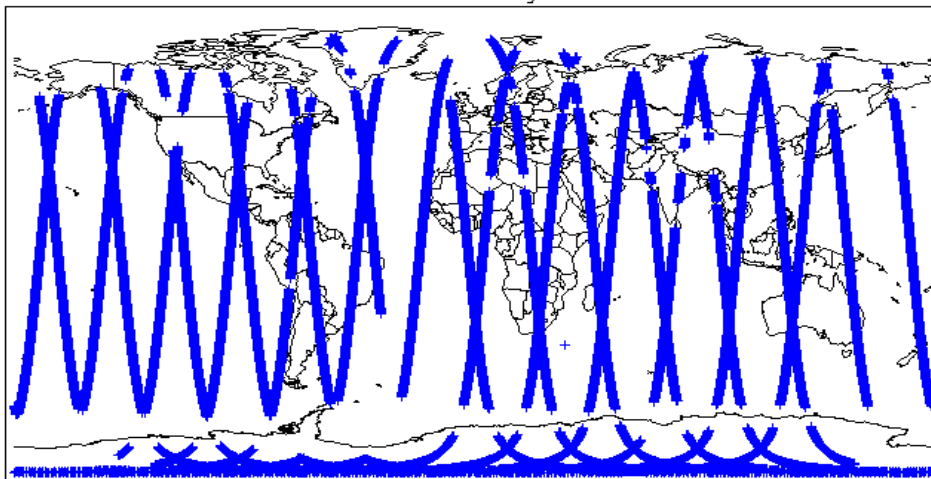| Mission / Instrument News | |
|---|---|
| 21-May-2013 | None |
| 22-May-2013 | Unplanned Ground Segment Anomaly from 22-May-2013 21:56:09 to 23-May-2013 06:12:02 |
| 23-May-2013 | Nothing planned |

## 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.

| | |
|---|---|
| **SIRAL instrument(s) in use:** | **SIRAL - A** |
| **Star Tracker(s) in use:** | **Star Tracker 1 & 2** |

## 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:**                    0

## 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:**                    0

## 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:**                    16

| Product | Test Failed | Description |
|---|---|---|
| CS_OFFL_SIR_FDM_1B_20130522T021547_20130522T023642_B001 | Echo error | The Echo Rx1 Error flag is set, indicating a degraded raw echo. |
| CS_OFFL_SIR_FDM_1B_20130522T085154_20130522T085326_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_1B_20130522T085348_20130522T085351_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_1B_20130522T085502_20130522T085919_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_1B_20130522T090000_20130522T090510_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_1B_20130522T090653_20130522T092932_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_1B_20130522T093253_20130522T093759_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_1B_20130522T094405_20130522T101732_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_1B_20130522T101942_20130522T102039_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_1B_20130522T103205_20130522T110749_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_1B_20130522T111437_20130522T111703_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_1B_20130522T112416_20130522T115540_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_1B_20130522T115755_20130522T120028_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_1B_20130522T165012_20130522T165605_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_1B_20130522T200454_20130522T201115_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_1B_20130522T211918_20130522T215154_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:**                              0

## 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:**                              0

## 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:**                              16

| Product | Test Failed | Description |
|---|---|---|
| CS_OFFL_SIR_FDM_2__20130522T021547_20130522T023642_B001 | Echo error | The Echo Rx1 Error flag is set, indicating a degraded raw echo. |
| CS_OFFL_SIR_FDM_2__20130522T085154_20130522T085326_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_2__20130522T085348_20130522T085351_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_2__20130522T085502_20130522T085919_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_2__20130522T090000_20130522T090510_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_2__20130522T090653_20130522T092932_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_2__20130522T093253_20130522T093759_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_2__20130522T094405_20130522T101732_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_2__20130522T101942_20130522T102039_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_2__20130522T103205_20130522T110749_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_2__20130522T111437_20130522T111703_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_2__20130522T112416_20130522T115540_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_2__20130522T115755_20130522T120028_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_2__20130522T165012_20130522T165605_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_2__20130522T200454_20130522T201115_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_FDM_2__20130522T211918_20130522T215154_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:**                              3

| Product | Test Failed | Description |
|---|---|---|
| CS_OFFL_SIR_FDM_2__20130522T021547_20130522T023642_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__20130522T071923_20130522T075036_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__20130522T183710_20130522T183836_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:**                              0

## 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:** 9

| Product | Test Failed | Description |
|---|---|---|
| CS_OFFL_SIR_FDM_2__20130522T004127_20130522T011323_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__20130522T021547_20130522T023642_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__20130522T071923_20130522T075036_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__20130522T085502_20130522T085919_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__20130522T112416_20130522T115540_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__20130522T130314_20130522T134015_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__20130522T135641_20130522T141341_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__20130522T180051_20130522T182944_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__20130522T183710_20130522T183836_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 | 91 | 90 | 86 | 4 | 0 |
| SIR_FDM_2 | 91 | 90 | 0 | 90 | 0 |

## 7.1 QCC Errors

**Number of QCC reports with errors:** 0

## 7.2 Missing QCC Reports

**Number of products with missing QCC reports:** 2

| Product name |
|---|
| CS_OFFL_SIR_FDM_1B_20130521T235049_20130522T002305_B001 |
| CS_OFFL_SIR_FDM_2__20130521T235049_20130522T002305_B001 |