# 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 | **See Section 5.3** |
| Auxiliary Correction Check | **See Section 4.4 and 5.4** |
| Measurement Data Set Check | **See Section 4.5 and 5.5** |

| | |
|---|---|
| **Report Production Date:** | 08-Jul-2013 |
| **Data Used:** | OFFLINE L1B and L2 Science Data |

| Mission / Instrument News | |
|---|---|
| 01-Jun-2013 | None |
| 02-Jun-2013 | None |
| 03-Jun-2013 | Nothing planned |

# 2. Global Coverage
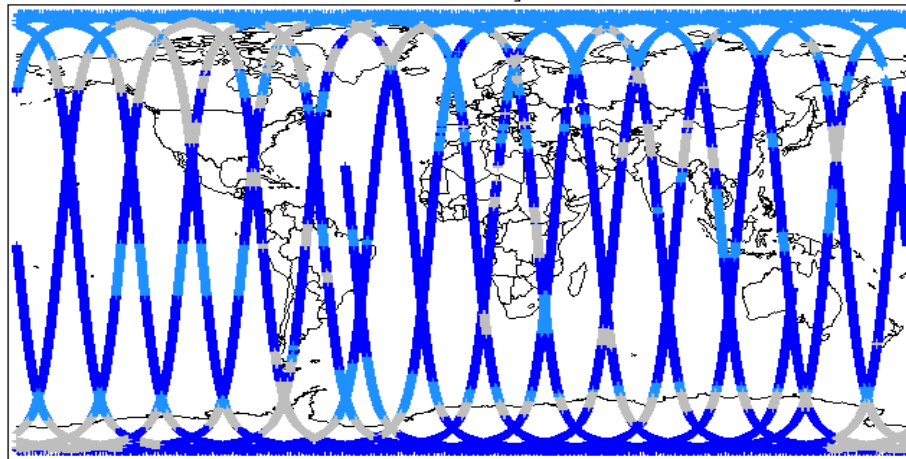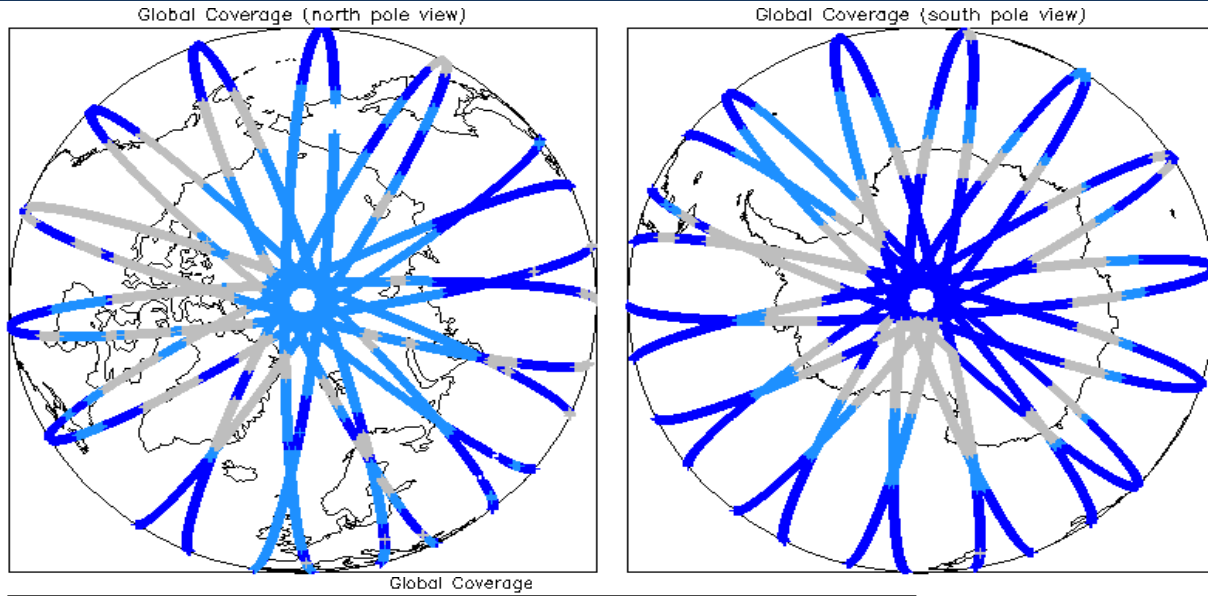


| Mode Coverage(%) | |
|---|---|
| **LRM** | 65.92 |
| **SAR** | 20.12 |
| **SIN** | 13.79 |



Mode Coverage

Surface Type
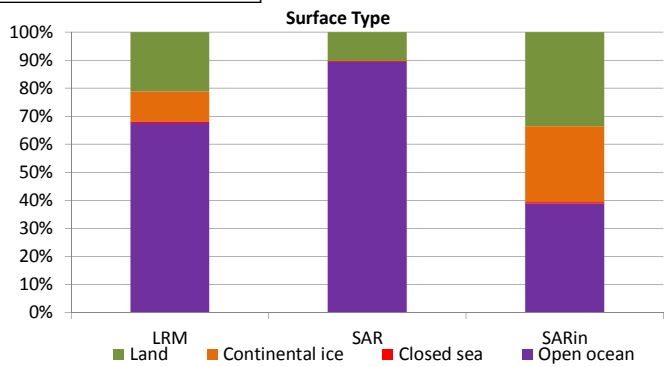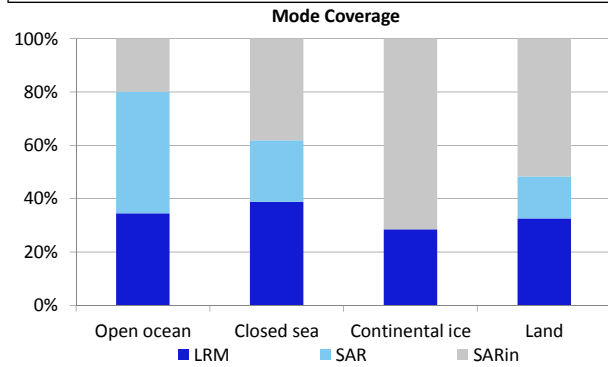
# 3. Instrument Configuration

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** |

# 4. 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 product file (.DBL).

**Number of products with errors:** 0

## 4.2 L1B Product Header Analysis

For all products, a series of pre-defined checks are 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

## 4.3 L1B Auxilary 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 L1B Flagged Auxiliary Correction Error Check

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

**Number of products with errors:** 3

| Product | Test Failed |
|---|---|
| CS_OFFL_SIR_LRM_1B_20130601T235421_20130602T001039_B001 | Dynamic atmosphere correction error |
| CS_OFFL_SIR_LRM_1B_20130602T175021_20130602T180608_B001 | Dynamic atmosphere correction error |
| CS_OFFL_SIR_SAR_1B_20130602T115947_20130602T120009_B001 | Dynamic atmosphere correction error |

## 4.5 L1B Measurement Confidence Data Check

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_LRM_1B_20130602T040943_20130602T041120_B001 | TRK echo error | The tracking echo has returned an error |
| CS_OFFL_SIR_LRM_1B_20130602T120009_20130602T121532_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_LRM_1B_20130602T173002_20130602T173247_B001 | TRK echo error | The tracking echo has returned an error |
| CS_OFFL_SIR_LRM_1B_20130602T233821_20130602T235043_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_SAR_1B_20130602T121532_20130602T121734_B001 | Attitude correction missing | The attitude has not been corrected |
| CS_OFFL_SIR_SAR_1B_20130602T235043_20130602T235228_B001 | Attitude correction missing | The attitude has not been corrected |

# 5. Level 2 Data Quality Check

## 5.1 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 product file (.DBL).

**Number of products with errors:** 0

## 5.2 L2 Product Header Analysis

For all products, a series of pre-defined checks are 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 L2 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:** 2

| Product | AUX File | Comment |
|---|---|---|
| CS_OFFL_SIR_GDR_2A_20130601T230343_20130602T004257_B001 | CS_OPER_AUX_ORBDOR_20130531T215525_20130602T 002325_0001 | Coverage missing for intervals [2013-06-02T00:23:25, 2013-06-02T00:42:57] |
| CS_OFFL_SIR_GDR_2A_20130602T235206_20130603T013120_B001 | CS_OPER_AUX_ORBDOR_20130601T215525_20130603T 002325_0001 | Coverage missing for intervals [2013-06-03T00:23:25, 2013-06-03T01:31:20] |

## 5.4 L2 Flagged Auxiliary Correction Error Check

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

**Number of products with errors:** 3

| Product | Test Failed |
|---|---|
| CS_OFFL_SIR_LRM_2__20130601T235421_20130602T001039_B001 | Dynamic atmosphere correction error |
| CS_OFFL_SIR_LRM_2__20130602T175021_20130602T180608_B001 | Dynamic atmosphere correction error |
| CS_OFFL_SIR_SAR_2A_20130602T115947_20130602T120008_B001 | Dynamic atmosphere correction error |

## 5.5 L2 Measurement Quality Flag Check

CryoSat L2 data includes a quality flag word (field 43) for each 20-Hz measurement record. The bit value of this flag is an assessment of the measurement quality by the ground-segment processing chains

Presently, there are several common data Quality Flag errors raised by the Level 2 products which are either expected due to changes made to the IPF processor in Baseline B or else are due to known issues with the data processors. The investigation of the known issues are on-going and are due to be resolved with the next update of the Level 2 processors. All common known issues are summarised in the list below, followed by a table highlighting any additional issues which may arise from this test.

**Freeboard Error:** This Quality Flag is correctly set in all products as this parameter is currently not provided in the L2 products and the Freeboard value is presently set to the default value of -9999.

**SARin x-track angle error:** Currently there is an on-going investigation into the high number of errors from the 'SARin x-track Error' Quality Flag over Antarctica.

**Height error and Backscatter error:** It has been noted that the number of errors arising from the 'Backscatter Error' and 'Height Error' Quality Flag is much higher than expected over land areas and this is currently part of an on-going investigation by expert teams.

**Number of products with errors:**          2

| Product | Test Failed | Description |
|---|---|---|
| CS_OFFL_SIR_SAR_2A_20130602T005630_20130602T005700_B001 | Peakiness error | There is an error in the peakiness derivation |
| CS_OFFL_SIR_SAR_2A_20130602T125135_20130602T125340_B001 | Peakiness error | There is an error in the peakiness derivation |

# 6. 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.

Nb. There is currently a discrepancy between the number of QCC reports and the number of products reported. This is a known issue and investigation is on-going.

| Product type | Nb. Products | Nb. QCC Reports | Nb. Valid | Nb. Warnings | Nb. Errors |
|---|---|---|---|---|---|
| SIR_GDR_2A | 19 | 17 | 0 | 17 | 0 |
| SIR_LRM_1B | 140 | 139 | 139 | 0 | 0 |
| SIR_LRM_2 | 137 | 137 | 1 | 136 | 0 |
| SIR_SAR_1B | 100 | 103 | 0 | 103 | 0 |
| SIR_SAR_2A | 103 | 103 | 7 | 96 | 0 |
| SIR_SIN_1B | 104 | 104 | 0 | 104 | 0 |
| SIR_SIN_2 | 104 | 104 | 0 | 104 | 0 |

## 6.1 QCC Errors

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

## 6.2 Missing QCC Reports

**Number of products with missing QCC reports:**          7

| Product name |
|---|
| CS_OFFL_SIR_GDR_2A_20130601T230343_20130602T004257_B001 |
| CS_OFFL_SIR_LRM_1B_20130601T235421_20130602T001039_B001 |
| CS_OFFL_SIR_LRM_2__20130601T235421_20130602T001039_B001 |
| CS_OFFL_SIR_SAR_2A_20130602T184323_20130602T184735_B001 |
| CS_OFFL_SIR_SIN_2__20130602T174114_20130602T174240_B001 |
| CS_OFFL_SIR_SIN_2__20130602T174336_20130602T174340_B001 |
| CS_OFFL_SIR_SIN_2__20130602T183452_20130602T183606_B001 |