

### 1. Overview

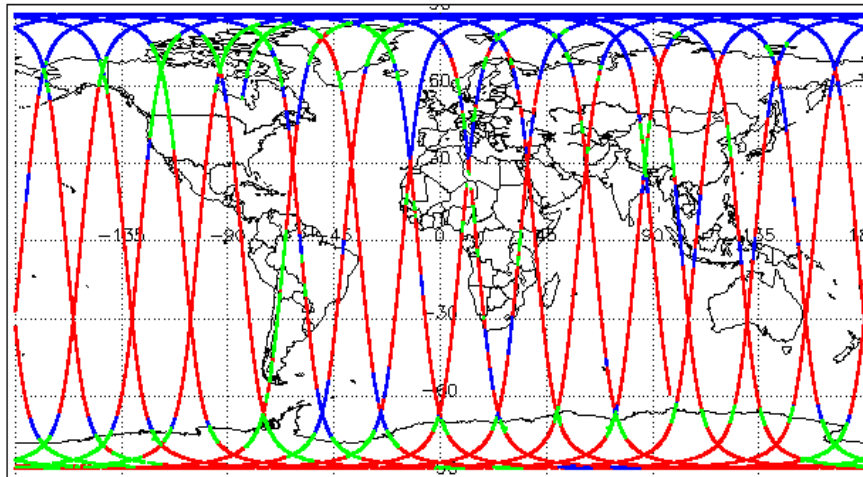
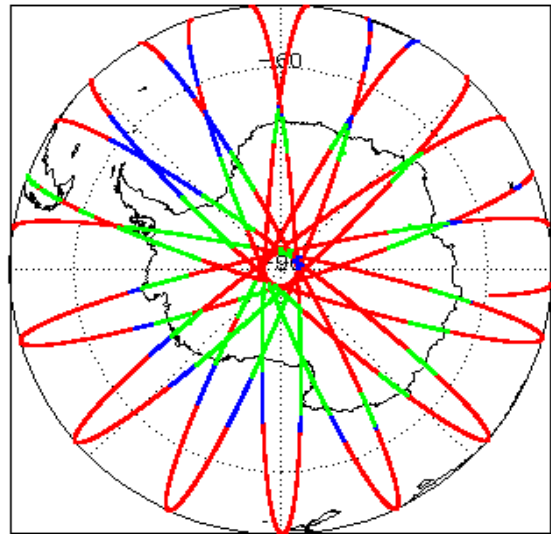
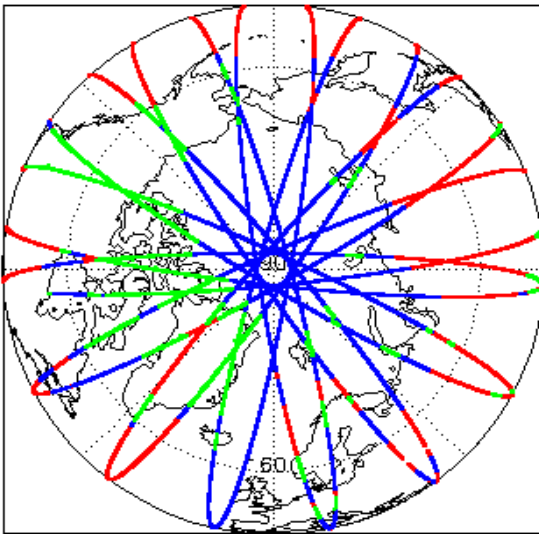
Report Production Date:	07-Apr-2022
Processor Used:	CryoSat Ice Processor
Data Used:	L1B and L2 OFFLINE Data

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
Star Tracker Usage Check	Nominal
L1B Tracking Flag Check	See Section 4.4
L1B Calibration Usage Check	Nominal
L1B & L2 Auxiliary Data File Usage Check	Nominal
L1B & L2 Auxiliary Correction Error Check	Nominal
L1B & L2 Measurement Confidence Data Check	See Section 4.8 and 5.5
QCC Errors/ Warnings	See Section 6.1, 6.2 and 6.3

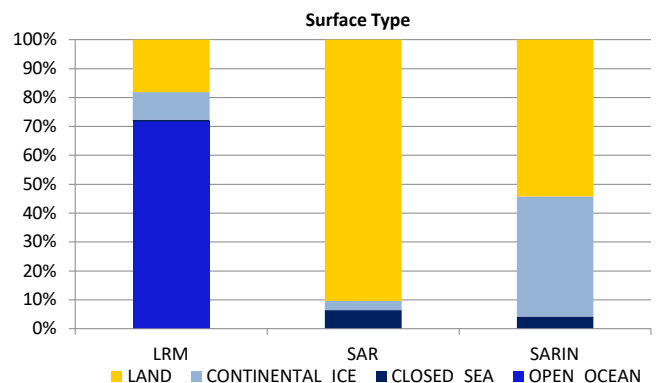
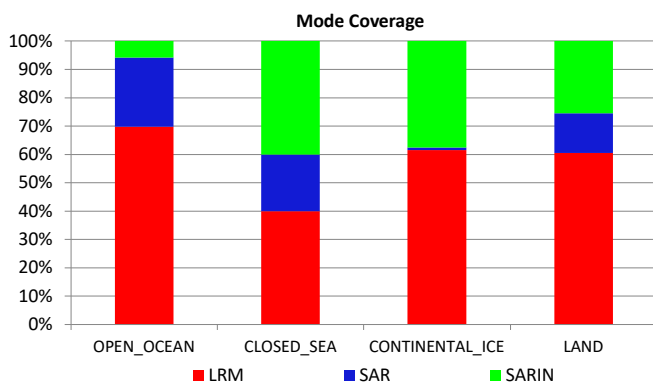
#### Mission / Instrument News

07-Mar-2022	None
08-Mar-2022	None
09-Mar-2022	Nothing planned

### 2. Global Coverage



Mode Coverage (%)		
	LRM	66.8
	SAR	19.8
	SARIn	13.4



### 3. Instrument Configuration

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

SIRAL instrument(s) in use:	SIRAL - A
-----------------------------	-----------

### 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 NetCDF product file (.nc).

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 Star Tracker Usage Check

Each product is checked in order to ensure a valid star tracker file has been used in processing.

Number of products with errors: 0

#### 4.4 L1B Tracking Flags Check

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

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

Number of products with errors: 138

Product	Test Failed	Description
CS_OFFL_SIR_LRM_1B_20220308T002556_20220308T002643_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T002804_20220308T002823_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T002825_20220308T002828_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T002830_20220308T002832_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T002901_20220308T002931_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T002933_20220308T003411_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T004912_20220308T005834_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T005837_20220308T005844_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T005847_20220308T005912_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T005914_20220308T012413_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T012919_20220308T013354_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T014220_20220308T020229_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T020233_20220308T020630_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T020737_20220308T021048_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T021048_20220308T021235_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T023321_20220308T023350_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T031557_20220308T033545_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T033547_20220308T033552_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T033554_20220308T033818_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T033827_20220308T033830_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T033840_20220308T033851_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T033854_20220308T034121_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T034126_20220308T034336_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T034406_20220308T034456_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T034459_20220308T034511_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T034709_20220308T034759_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T034759_20220308T034819_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T035232_20220308T035311_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T035329_20220308T035431_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T050354_20220308T050512_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T050517_20220308T051155_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T051230_20220308T051522_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T051707_20220308T051852_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T052035_20220308T052211_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T052651_20220308T052707_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T052707_20220308T052729_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T053035_20220308T053312_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T064855_20220308T065512_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T065525_20220308T065601_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T065647_20220308T070130_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T072331_20220308T072426_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T090200_20220308T090302_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T090308_20220308T090312_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T090316_20220308T090337_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T090340_20220308T090351_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T090357_20220308T090403_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T090405_20220308T090415_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T090425_20220308T090436_E001	Loss of echo	The tracking echo is missing for one or more records



CS_OFFL_SIR_LRM_1B_20220308T224736_20220308T224821_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T225018_20220308T225143_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T225727_20220308T230517_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T233056_20220308T233203_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T233559_20220308T233745_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T233747_20220308T233849_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T233851_20220308T233853_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T233857_20220308T233857_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T233900_20220308T233905_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T233909_20220308T233918_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T233921_20220308T233927_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T233929_20220308T233936_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T233939_20220308T234004_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T234006_20220308T234140_E001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20220308T234143_20220308T234459_E001	Loss of echo	The tracking echo is missing for one or more records

#### 4.5 L1B Calibration Usage Check

Each product is checked in order to ensure that the necessary calibration files have been used in processing.

Number of products with errors: 0

#### 4.6 L1B Auxiliary Data File Usage Check

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

Number of products with errors: 0

#### 4.7 L1B Auxiliary Correction Error Check

CryoSat L1B data includes a correction error flag (field 54) for each measurement record. The bit value of this flag indicates any problems when set.

Number of products with errors: 0

#### 4.8 L1B Measurement Confidence Data Check

CryoSat L1B data includes a measurement confidence flag (field 18) for each measurement record. The bit value of this flag indicates any problems when set.

Currently, there are several common error flags raised in the Level 1B products which are expected due to operational mode or surface type. All common flags are summarised in the list below, followed by a table of any additional issues arising from this test.

**Block Degraded Flag:** This flag is currently set for a number of individual records generally at the start or end of products (all modes), but this is to be expected.

**Phase Perturbation Flag:** This flag is currently set for all L1B SARIn products, indicating that the ADC correction application is deactivated, but this is in line with the current configuration.

Number of products with errors: 1

Product	Test Failed	Description
CS_OFFL_SIR_LRM_1B_20220308T005914_20220308T012413_E001	Echo error, TRK echo error	The tracking echo has returned an error and the Rx1 Echo Error flag is set, indicating a degraded echo

### 5. Level 2 Data Quality Check

#### 5.1 L2 Product Format Check

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

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 with respect to a pre-determined baseline and also to check the validity of Auxiliary Data Files is correct.

Number of products with errors: 0

#### 5.4 L2 Auxiliary Correction Error Check

CryoSat L2 data includes a correction error flag (field 30) for each measurement record. The bit value of this flag indicates any problems when set.

Number of products with errors: 0

#### 5.5 L2 Measurement Quality Flag Check

CryoSat L2 data includes a quality flag (field 50) for each 20 Hz measurement record. The bit value of this flag indicates any problems when set.

Currently, there are several common error flags raised in the Level 2 products which are expected due to operational mode or surface type. All common flags are summarised in the list below, followed by a table of any additional issues arising from this test.

**Freeboard error:** This flag is correctly set in all L2 SAR products that are not discriminated as sea-ice, and for which freeboard cannot be calculated.

**Height and Backscatter errors:** These flags are currently set for products over land, but this is to be expected. Retracker 1 Height and Backscatter error flags are also set for products over sea-ice, but this is to be expected.

**Peakiness error:** This flag is currently set for products over sea-ice, but this is to be expected.

**SARIn X-Track Angle Error:** This flag is set when the difference between the computed surface elevation and the DEM is >50 m. The DEM is only available over Greenland and Antarctica and as a result this flag is set for L2 SARIn products in all other locations as expected.

**SSHA interpolation error:** This flag is currently set for a number of SAR products occurring at surface type boundaries, but this is to be expected.

Number of products with errors: 244

















CS_OFFL_SIR_SIN_2_20220308T203258_20220308T203725_E001	Backscatter Error (Retracker 2), Backscatter Error (Retracker 3), SARIn X-track Angle Error	There is a backscatter error for Retracker 2 and 3 and an ambiguous angle was detected for SARIn mode for one or more records
CS_OFFL_SIR_SIN_2_20220308T211639_20220308T211914_E001	Backscatter Error (Retracker 2), Backscatter Error (Retracker 3)	There is a backscatter error for Retracker 2 and 3 for one or more records
CS_OFFL_SIR_SIN_2_20220308T212113_20220308T212227_E001	SARIn X-track Angle Error	An ambiguous angle was detected for SARIn mode for one or more records
CS_OFFL_SIR_SIN_2_20220308T212615_20220308T212755_E001	Backscatter Error (Retracker 2), Backscatter Error (Retracker 3), SARIn X-track Angle Error	There is a backscatter error for Retracker 2 and 3 and an ambiguous angle was detected for SARIn mode for one or more records
CS_OFFL_SIR_SIN_2_20220308T215459_20220308T215802_E001	Backscatter Error (Retracker 2), Backscatter Error (Retracker 3), SARIn X-track Angle Error, Surface model unavailable	There is a backscatter error for Retracker 2 and 3, an ambiguous angle was detected for SARIn mode, and no DEM or Slope Model was used for the location for one or more records
CS_OFFL_SIR_SIN_2_20220308T221159_20220308T221310_E001	Backscatter Error (Retracker 2), Backscatter Error (Retracker 3), SARIn X-track Angle Error	There is a backscatter error for Retracker 2 and 3 and an ambiguous angle was detected for SARIn mode for one or more records
CS_OFFL_SIR_SIN_2_20220308T221429_20220308T221627_E001	Backscatter Error (Retracker 2), Backscatter Error (Retracker 3), SARIn X-track Angle Error	There is a backscatter error for Retracker 2 and 3 and an ambiguous angle was detected for SARIn mode for one or more records
CS_OFFL_SIR_SIN_2_20220308T223422_20220308T224024_E001	SARIn X-track Angle Error, Surface model unavailable	An ambiguous angle was detected for SARIn mode and no DEM or Slope Model was used for one or more records
CS_OFFL_SIR_SIN_2_20220308T224055_20220308T224736_E001	SARIn X-track Angle Error, Surface model unavailable	An ambiguous angle was detected for SARIn mode and no DEM or Slope Model was used for one or more records
CS_OFFL_SIR_SIN_2_20220308T224821_20220308T225018_E001	Backscatter Error (Retracker 2), Backscatter Error (Retracker 3), SARIn X-track Angle Error, Surface model unavailable	There is a backscatter error for Retracker 2 and 3, an ambiguous angle was detected for SARIn mode, and no DEM or Slope Model was used for the location for one or more records
CS_OFFL_SIR_SIN_2_20220308T225143_20220308T225231_E001	Backscatter Error (Retracker 2), Backscatter Error (Retracker 3)	There is a backscatter error for Retracker 2 and 3 for one or more records
CS_OFFL_SIR_SIN_2_20220308T225357_20220308T225726_E001	Backscatter Error (Retracker 2), Backscatter Error (Retracker 3), SARIn X-track Angle Error	There is a backscatter error for Retracker 2 and 3 and an ambiguous angle was detected for SARIn mode for one or more records
CS_OFFL_SIR_SIN_2_20220308T230518_20220308T230705_E001	Backscatter Error (Retracker 2), Backscatter Error (Retracker 3), SARIn X-track Angle Error	There is a backscatter error for Retracker 2 and 3 and an ambiguous angle was detected for SARIn mode for one or more records
CS_OFFL_SIR_SIN_2_20220308T233203_20220308T233559_E001	SARIn X-track Angle Error, Surface model unavailable	An ambiguous angle was detected for SARIn mode and no DEM or Slope Model was used for one or more records
CS_OFFL_SIR_SIN_2_20220308T235119_20220308T235610_E001	Backscatter Error (Retracker 2), Backscatter Error (Retracker 3), SARIn X-track Angle Error, Surface model unavailable	There is a backscatter error for Retracker 2 and 3, an ambiguous angle was detected for SARIn mode, and no DEM or Slope Model was used for the location for one or more records
CS_OFFL_SIR_SIN_2_20220308T235632_20220308T235705_E001	Backscatter Error (Retracker 2), Backscatter Error (Retracker 3)	There is a backscatter error for Retracker 2 and 3 for one or more records
CS_OFFL_SIR_SIN_2_20220308T235919_20220309T000042_E001	Backscatter Error (Retracker 2), Backscatter Error (Retracker 3)	There is a backscatter error for Retracker 2 and 3 for one or more records