

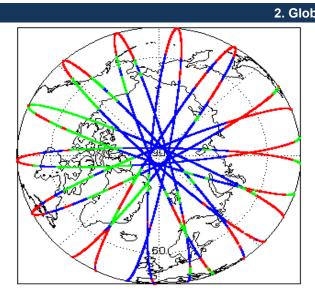
## **QA4EO Daily Report for OFFLINE data:**

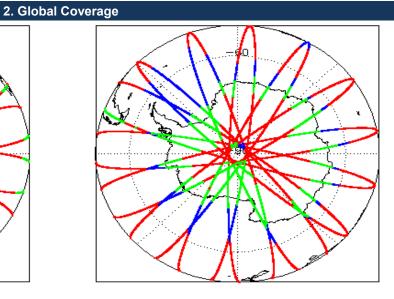
<u>19/05/2021</u>

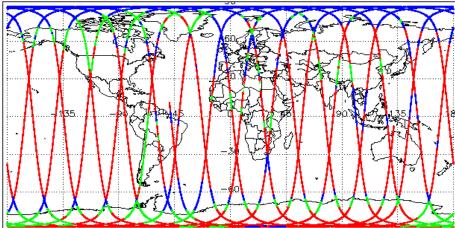
Report Production Date:	17-Jun-2021	Check	Status	
Report Production Date.	17-Juli-2021	Server check: science-pds.cryosat.esa.int	Nominal	
Processor Used:	CryoSat Ice Processor	Server check: calval-pds.cryosat.esa.int	Nominal	
FIOCESSOI USEU.	CryoSat ice Processor	Product Software Check	Nominal	
Data Used:	L1B and L2 OFFLINE Data	Product Format Check	Nominal	
Data Used:	LIB and L2 OFFLINE Data	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	

1. Overview

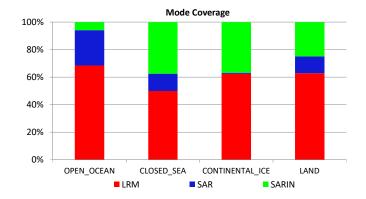
Mission / Instru	ment News
18-May-2021	None
19-May-2021	None
20-May-2021	SIRAL Unavailability due to Orbit Control Manoeuvre, on 20/05/2021 06:57:57 until 08:45:17

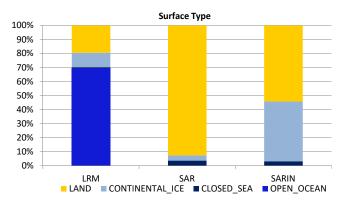






м	ode Coverage (	%)
	LRM	66.6
	SAR	20.2
	SARIn	13.3





3. Instrument Configuration

SIRAL - A

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

SIRAL instrument(s) in use:

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:

## 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. 0

Number of products with errors:

## 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.

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#### Number of products with errors:

Product	Test Failed	Description
CS_OFFL_SIR_LRM_1B_20210518T235923_20210519T001439_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T003118_20210519T004136_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T004243_20210519T004510_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T004756_20210519T010026_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T010107_20210519T010247_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T011654_20210519T013043_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T013501_20210519T013744_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T020149_20210519T020255_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T020803_20210519T024128_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T025532_20210519T030324_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T030431_20210519T030515_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T030923_20210519T033238_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T033653_20210519T034025_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T034047_20210519T034415_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T034708_20210519T041244_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T041247_20210519T041448_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T041450_20210519T041504_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T041507_20210519T041513_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T041516_20210519T041521_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T041524_20210519T041548_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T043808_20210519T044646_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T044648_20210519T044702_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T044705_20210519T051243_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T051947_20210519T052314_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T061713_20210519T062000_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T062033_20210519T062117_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T062316_20210519T062807_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T062810_20210519T063333_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T063707_20210519T064247_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T065436_20210519T070013_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T075528_20210519T075533_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T075855_20210519T075939_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T080003_20210519T080012_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T080023_20210519T080026_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T080438_20210519T080618_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T080801_20210519T081135_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T083400_20210519T083909_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T084522_20210519T091935_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T092033_20210519T092052_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T092055_20210519T092120_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20210519T092122_20210519T092129_D001	Loss of echo	The tracking echo is missing for one or more records

CS OFFL SIR LRM 1B 20210519T092133 20210519T092150 D001 CS OFFL SIR LRM 1B 20210519T094347 20210519T094808 D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T094904\_20210519T100639\_D001 CS OFFL SIR LRM 1B 20210519T102528 20210519T104051 D001 CS OFFL SIR LRM 1B 20210519T104053 20210519T104148 D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T105919\_20210519T105922\_D001 CS OFFL SIR LRM 1B 20210519T105925 20210519T105926 D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T105930\_20210519T110020\_D001 CS OFFL SIR LRM 1B 20210519T110022 20210519T110146 D001 CS OFFL SIR LRM 1B 20210519T113330 20210519T113453 D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T113455\_20210519T113456\_D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T113502\_20210519T114715\_D001 CS OFFL SIR LRM 1B 20210519T120422 20210519T121945 D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T122147\_20210519T123111\_D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T123409\_20210519T124134\_D001 CS OFFL SIR LRM 1B 20210519T125641 20210519T125712 D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T125741\_20210519T131031\_D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T131633\_20210519T131654\_D001 CS OFFL SIR LRM 1B 20210519T131703 20210519T131704 D001 CS OFFL SIR LRM 1B 20210519T140708 20210519T140803 D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T140806\_20210519T140821\_D001 CS OFFL SIR LRM 1B 20210519T141219 20210519T141315 D001 CS OFFL SIR LRM 1B 20210519T141317 20210519T141331 D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T141334\_20210519T141340\_D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T141344\_20210519T141426\_D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T141429\_20210519T141453\_D001 CS OFFL SIR LRM 1B 20210519T141459 20210519T141503 D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T141505\_20210519T142108\_D001 CS OFFL SIR LRM 1B 20210519T143618 20210519T145034 D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T151203\_20210519T151414\_D001 CS OFFL SIR LRM 1B 20210519T151435 20210519T152018 D001 CS OFFL SIR LRM 1B 20210519T152351 20210519T154819 D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T155210\_20210519T155701\_D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T161153\_20210519T161235\_D001 CS OFFL SIR LRM 1B 20210519T161358 20210519T161655 D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T161947\_20210519T162011\_D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T162014\_20210519T162014\_D001 CS OFFL SIR LRM 1B 20210519T162017 20210519T162154 D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T162158\_20210519T162159\_D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T162202\_20210519T164747\_D001 CS OFFL SIR LRM 1B 20210519T170216 20210519T172959 D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T173001\_20210519T173009\_D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T173011\_20210519T173043\_D001 CS OFFL SIR LRM 1B 20210519T173046 20210519T173049 D001 CS OFFL SIR LRM 1B 20210519T173052 20210519T173052 D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T173055\_20210519T173057\_D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T173059\_20210519T173106\_D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T173108\_20210519T173145\_D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T173148\_20210519T173356\_D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T173429\_20210519T173655\_D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T185024\_20210519T185620\_D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T185732\_20210519T190428\_D001 CS OFFL SIR LRM 1B 20210519T191003 20210519T191058 D001 CS OFFL SIR LRM 1B 20210519T191110 20210519T191233 D001 CS OFFL SIR LRM 1B 20210519T191233 20210519T191340 D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T191659\_20210519T191701\_D001 CS OFFL SIR LRM 1B 20210519T204245 20210519T204739 D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T204813\_20210519T204952\_D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T211114\_20210519T213247\_D001 CS OFFL SIR LRM 1B 20210519T215247 20210519T215645 D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T224741\_20210519T224944\_D001 CS OFFL SIR LRM 1B 20210519T230649 20210519T230759 D001 CS OFFL SIR LRM 1B 20210519T230802 20210519T232414 D001 CS\_OFFL\_SIR\_LRM\_1B\_20210519T233148\_20210519T233349\_D001 CS OFFL SIR LRM 1B 20210519T234223 20210519T235508 D001

Loss of echo Loss of echo Loss of echo Loss of echo l oss of echo Loss of echo oss of echo Loss of echo oss of echo Loss of echo oss of echo Loss of echo l oss of echo Loss of echo Loss of echo

The tracking echo is missing for one or more records The tracking echo is missing for one or more records

Each product is checked in order to ensure that the necessary calibration files have been used in processing
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Number of products with errors:

### 4.6 L1B Auxilary 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:

## 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:

#### 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: 3

Product	Test Failed	Description
CS_OFFL_SIR_LRM_1B_20210519T043808_20210519T044646_D001	Echo error, TRK echo error	The tracking echo has returned an error and the Rx1 Echo Error flag is set, indicating a degraded echo
CS_OFFL_SIR_LRM_1B_20210519T125641_20210519T125712_D001	Echo error, TRK echo error	The tracking echo has returned an error and the Rx1 Echo Error flag is set, indicating a degraded echo
CS_OFFL_SIR_LRM_1B_20210519T155210_20210519T155701_D001	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 product file (.DBL).

Number of products with errors:

#### 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:

## 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:

### 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.

0

Number of products with errors:

## 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.

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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:

Product	Test Failed	Description
CS_OFFL_SIR_LRM_220210518T235923_20210519T001439_D001	Height Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 2)	There is a height and backscatter error for Retracker 2 and a height error for Retracker 3 for one or more records
CS_OFFL_SIR_LRM_220210519T003118_20210519T004136_D001	Height Error (Retracker 2), Backscatter Error (Retracker 2)	There is a height and backscatter error for Retracker 2 for one or more records
CS_OFFL_SIR_LRM_220210519T004756_20210519T010026_D001	Height Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 2)	There is a height and backscatter error for Retracker 2 and a height error for Retracker 3 for one or more records
CS_OFFL_SIR_LRM_220210519T010107_20210519T010247_D001	Surface Model Unavailable	No DEM or Slope Model was used for the location of one or more records
CS_OFFL_SIR_LRM_220210519T013501_20210519T013744_D001	Height Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 2)	There is a height and backscatter error for Retracker 2 and a height error for Retracker 3 for one or more records
CS_OFFL_SIR_LRM_220210519T013923_20210519T015338_D001	Height Error (Retracker 2), Backscatter Error (Retracker 2)	There is a height and backscatter error for Retracker 2 for one or more records

Detection         Detection         Detection         Detection           CS_OFFL_SR_LEN_2_20210510102532_X0210510102528_0001         Surface Mode Universite         No DEM or Slope Model was used for the location of one or more records           CS_OFFL_SR_LEN_2_20210510102532_X0210510102528_0001         Height Error (Reinsder 2), Backbacker         There is a bright and backbacker error for Reinsder 2 for one or more records           CS_OFFL_SR_LEN_2_20210510102528_0001         Height Error (Reinsder 2), Backbacker         There is a bright and backbacker error for Reinsder 2 and a height or for Reinsder 2, and a height or for Reinsder 2
CH_DPH_SHL_RR_2_A0210519706230_0210519704708_20210519704708_20210519704708_20210519704708_20210519704708_20210519704744_D001       Height Enror (Retacker 2), Beckscatter Enror (Retac
CS_OFFL_SIR_LEM_2_20210519706/36       CS_OFFL_SIR_LEM_2_202105197061245_202105197061244_DOOT       Height Enror (Retracker 2), Height Enror (Retracker 2), CS_OFFL_SIR_LEM_2_202105197061245_202105197061244_DOOT       Height Enror (Retracker 2), Height Enror (Retracker 2), Edge Enror (Retracker 3), Edge Enror (Retracker 3), Edge Enror (Retracker 3), Edge Enror (Retracker 2),
CS_OFFL_SIR_LRM_2_20210519T041247_20210519T051243_D001       (Pointaker 3), Backscatter Emri (Retrucker 2)       Inter 5 a height and backscatter emror for Retracker 2 and a height at retrucker 3 for one or more records         CS_OFFL_SIR_LRM_2_20210519T044705_20210519T050247_D001       Height Emror (Retracker 2), Height Emror (Retrucker 2)       There is a height and backscatter emror for Retracker 2 and a height at the statusker 3 for one or more records         CS_OFFL_SIR_LRM_2_20210519T062033_20210519T060267_D001       Height Emror (Retracker 2), Backscatter Emror (Retracker 2)       There is a height and backscatter error for Retracker 2 for one or more records         CS_OFFL_SIR_LRM_2_20210519T062037_20210519T062217_D001       Height Emror (Retracker 2), Backscatter Emror (Retracker 2)       There is a height and backscatter error for Retracker 2 for one or more records         CS_OFFL_SIR_LRM_2_20210519T062316_20210519T062207_D001       Height Emror (Retracker 2), Backscatter Emror (Retracker 2)       There is a height and backscatter error for Retracker 2 for one or more records         CS_OFFL_SIR_LRM_2_20210519T065438_20210519T070013_D001       Surface Model Unavailable       No DEM or Stope Model was used for the location of one or more records         CS_OFFL_SIR_LRM_2_20210519T070519_0210519T076418_D001       Height Emror (Retracker 2), Height Emror (Retracker 2)       There is a height and backscatter error for Retracker 2 and a height error (Retracker 2)         CS_OFFL_SIR_LRM_2_20210519T070519_021517069305_D001       Height Emror (Retracker 2), Height Emror (Retracker 2)       There is a height and backscatter error for Retracker 2 and a hei
CS_OFFL_SIR_LRM_2_202105197044705_202105197051243_0001       IPRitude: 31, Backscatter Error (Retracker 2)       IPRitude: 32, Backscatter Error (Retracker 2), Backscatter Error (Ret
LS_OFFL_SIR_LRM_2_202105191062033_202105191062117_D001       Emrir (Retracker 2)       records         CS_OFFL_SIR_LRM_2_202105191062033_202105191062117_D001       Height Error (Retracker 2), Backscatter Error (Retracker 2), Engl Error (Retracker 2), Engl Error (Retracker 2), Height Error (Retracker 2), Engl Error (Retrac
CS_OFFL_SIR_LRM_2_20210519T062316_20210519T062807_D001       Error (Retracker 2)       records         CS_OFFL_SIR_LRM_2_20210519T062316_20210519T062807_D001       Height Error (Retracker 2)       Each status and the status and
CS_OFFL_SIR_LRM_2_202105191062316_20210519106247_D001       Error (Retracker 2)       records         CS_OFFL_SIR_LRM_2_202105191063707_202105191064247_D001       Height Error (Retracker 2), Backscatter       There is a height and backscatter error for Retracker 2 for one or more records         CS_OFFL_SIR_LRM_2_202105191065436_202105191070013_D001       Surface Model Unavailable       No DEM or Slope Model was used for the location of one or more records         CS_OFFL_SIR_LRM_2_202105191070629_202105191074015_D001       (Retracker 2), Height Error (Retracker 2), Height Error (Retracker 2), Surface model unavailable       No DEM or Slope Model was used for the location of one or more records         CS_OFFL_SIR_LRM_2_202105191070629_202105191074015_D001       (Retracker 2), Surface model unavailable       no DEM or Slope Model was used for the location of one or more records         CS_OFFL_SIR_LRM_2_202105191075316_202105191075418_D001       (Retracker 2), Backscatter Error (Retracker 3), Backscatter Error (Retracker 2), Backscatter Error (Retracker 3), Backscatter Error (Retracker 3), Backscatter Error (Retracker 2), Backscatter Error (Retracker 3), Backscatter Error (
CS_OFFL_SIR_LRM_2_202105191063/07_20210519100630_202105191070013_D001       Error (Retracker 2)       records         CS_OFFL_SIR_LRM_2_202105191065436_202105191070013_D001       Surface Model Unavailable       No DEM or Slope Model was used for the location of one or more records         CS_OFFL_SIR_LRM_2_202105191070629_2021051910704015_D001       Height Error (Retracker 2), Height Error (Retracker 2), Surface model unavailable       No DEM or Slope Model was used for the location of one or more records         CS_OFFL_SIR_LRM_2_2021051910705316_202105191075418_D001       Height Error (Retracker 2), Backscatter Error (Retracker 3), Height Error (Retracker 3), Backscatter Erro
CS_OFFL_SIR_LRM_2_20210519T070629_20210519T074015_D001       Height Error (Retracker 2), Height Error (Retracker 2), Surface model unavailable or more records       There is a height and backscatter error for Retracker 2, and a height error (Retracker 3), Backscatter Error (Retracker 2), Eight Error (Retracker 3), Backscatter Error (Retracker 3), Backscatter Error (Retracker 2), Eight Error (Retracker 2), Eight Error (Retracker 2), Backscatter Error (Retracker 2), Eight Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 3), Eight Error (Retracker 3),
CS_OFFL_SIR_LRM_2_20210519T070629_20210519T074015_D001       (Retracker 3), Backscatter Error (Retracker 2), Surface model unavailable or more records       Retracker 3, Backscatter Error (Retracker 2), Surface model unavailable or more records       There is a height and backscatter error for Retracker 2 and a height error (Retracker 2)         CS_OFFL_SIR_LRM_2_20210519T075316_20210519T075418_D001       Height Error (Retracker 2), Backscatter Error (Retracker 2)       There is a height and backscatter error for Retracker 2 and a height error (Retracker 2)         CS_OFFL_SIR_LRM_2_20210519T081245_20210519T083053_D001       Height Error (Retracker 2), Backscatter Error (Retracker 2)       There is a height and backscatter error for Retracker 2 for one or more records         CS_OFFL_SIR_LRM_2_20210519T084522_20210519T091935_D001       Height Error (Retracker 2), Backscatter Error (Retracker 2)       There is a height and backscatter error for Retracker 2 for one or more records         CS_OFFL_SIR_LRM_2_20210519T094347_20210519T094808_D001       Height Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 2)       There is a height and backscatter error for Retracker 2 and a height error (Retracker 2)         CS_OFFL_SIR_LRM_2_20210519T094904_20210519T100639_D001       Height Error (Retracker 2), Height Error (Retracker 2), Backscatter Error (Retracker 3), Backscatter Error (Retracker 3), Backscatter Error (Retracker 3), Backscatter Error (Retracker 2)       There is a height and backscatter error for Retracker 2 and a height error (Retracker 2)         CS_OFFL_SIR_LRM_2_20210519T104053_20210519T104051_D001       Retracker 2), Height Error (Retracker 2), Height Error (Retracker 2
CS_OFFL_SIR_LRM_2_20210519T075316_20210519T075418_D001       (Retracker 3), Backscatter Error (Retracker 2), Backscatter Error (Retracker 2), Backscatter Error (Retracker 2), Backscatter Error (Retracker 2), Backscatter error for Retracker 2 for one or more records         CS_OFFL_SIR_LRM_2_20210519T081245_20210519T083053_D001       Height Error (Retracker 2), Backscatter Error (Retracker 2), Backscatter error for Retracker 2 for one or more records         CS_OFFL_SIR_LRM_2_20210519T084522_20210519T091935_D001       Height Error (Retracker 2), Backscatter Error (Retracker 2), Backscatter error for Retracker 2 for one or more records         CS_OFFL_SIR_LRM_2_20210519T094347_20210519T094808_D001       (Retracker 3), Backscatter Error (Retracker 2), Height Error (Retracker 2), Height Error (Retracker 2), Height Error (Retracker 2), Backscatter Error (Retracker 2), Height Error (Retracker 2), Backscatter Error (Retracker 3), Backscatter Error (Retracker 3), Backscatter Error (Retracker 3), Backscatter Error (Retracker 3), Backscatter Error (Retracker 2), Backscatter Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 2), Height Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Ret
CS_OFFL_SIR_LRM_2_202105191083053_D001       Error (Retracker 2)       records         CS_OFFL_SIR_LRM_2_202105197084522_20210519T091935_D001       Height Error (Retracker 2), Backscatter       There is a height and backscatter error for Retracker 2 for one or more records         CS_OFFL_SIR_LRM_2_20210519T094347_20210519T094808_D001       Height Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 2), Height Error (Retracker 2), Height Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 3), Backscatter Error (Retracker 2), Height Error (Retracker 2), Height Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 2), Height Error (Retracker 2), Height Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 3), Backscatter Error (Retracker 3), Backscatter Error (Retracker 3),
CS_OFFL_SIR_LRM_2_202105191064522_202105191091935_D001       Error (Retracker 2)       records         CS_OFFL_SIR_LRM_2_20210519T094347_20210519T094808_D001       Height Error (Retracker 2), Height Error (Retracker 2), Height Error (Retracker 2), Sackscatter Error (Retracker 2)       There is a height and backscatter error for Retracker 2 and a height error (Retracker 2)         CS_OFFL_SIR_LRM_2_20210519T094904_20210519T100639_D001       Height Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 3), Backscatter Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 3), Backscatter Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 3), Backsc
CS_OFFL_SIR_LRM_2_20210519T094347_20210519T094808_D001       (Retracker 3), Backscatter Error (Retracker 2)       Intere is a height and backscatter error for Retracker 2 and a height error for Retracker 2 and a height error (Retracker 2)         CS_OFFL_SIR_LRM_2_20210519T094904_20210519T100639_D001       Height Error (Retracker 2), Height Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 2), Height Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 3), Backscatter Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 2), Height Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 3), Backscatter Error (Retracker 2), Height
CS_OFFL_SIR_LRM_2_20210519T1094904_20210519T100639_D001       (Retracker 3), Backscatter Error (Retracker 2)       Intere is a height and backscatter error for Retracker 2 and a height error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 3), Backscatter Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 3
CS_OFFL_SIR_LRM_2_20210519T102528_20210519T104051_D001       (Retracker 3), Backscatter Error (Retracker 2)       There is a height and backscatter error for Retracker 2 and a height error (Retracker 2), Height Error (Retracker 2), Backscatter Error (Retracker 3), Backscatter Error (Retracker 2), Height Error (Retracker 2), Backscatter Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 3), Backs
CS_OFFL_SIR_LRM_2_20210519T104053_20210519T104148_D001 (Retracker 3), Backscatter Error (Retracker 2), Height Error (Retracker 2), Height Error (Retracker 2), Height Error (Retracker 2), Backscatter Error (Retracker 3), Backscatter
CS_OFEL_SIR_LRM_2_20210510T10/230_20210510T10/500_D001 (Retracker 3) Backscatter Error
(Retracker 2) for Retracker 3 for one or more records
CS_OFFL_SIR_LRM_2_20210519T104715_20210519T105528_D001 Height Error (Retracker 2), Height Error (Retracker 2), Backscatter Error (Retracker 2), Backscatter Error (Retracker 2)
CS_OFFL_SIR_LRM_2_20210519T111419_20210519T113217_D001 Height Error (Retracker 2), Backscatter Error (Retracker 2), Backscatter error for Retracker 2 for one or more records
CS_OFFL_SIR_LRM_2_20210519T113502_20210519T114715_D001 Height Error (Retracker 2), Height Error (Retracker 2), Backscatter Error (Retracker 2), Backscatter Error (Retracker 2) height and backscatter error for Retracker 2 and a height end for Retracker 3 for one or more records
CS_OFFL_SIR_LRM_2_20210519T120422_20210519T121945_D001 Height Error (Retracker 2), Height Error (Retracker 2), Backscatter Error (Retracker 2), Backscatter Error (Retracker 2) height and backscatter error for Retracker 2 and a height error (Retracker 2) height Err
CS_OFFL_SIR_LRM_2_20210519T122147_20210519T123111_D001 Height Error (Retracker 2), Height Error (Retracker 2), Backscatter Error (Re
CS_OFFL_SIR_LRM_2_20210519T125741_20210519T131031_D001 Height Error (Retracker 2), Height Error (Retracker 2), Backscatter Error (Retracker 2), Backscatter Error (Retracker 2) height and backscatter error for Retracker 2 and a height error (Retracker 2) height Err
CS_OFFL_SIR_LRM_2_20210519T143618_20210519T145034_D001 Height Error (Retracker 2), Height Error (Retracker 2), Backscatter Error (Re
CS_OFFL_SIR_LRM_2_20210519T145037_20210519T150901_D001 Height Error (Retracker 2), Backscatter Error (Retracker 2), Backscatter error for Retracker 2 for one or more records
CS_OFFL_SIR_LRM_2_20210519T152351_20210519T154819_D001 Height Error (Retracker 2), Backscatter Error (Retracker 2), Backscatter error for Retracker 2 for one or more records

CS_OFFL_SIR_LRM_220210519T162017_20210519T162154_D001	Height Error (Retracker 2), Backscatter Error (Retracker 2)	There is a height and backscatter error for Retracker 2 for one or more records
CS_OFFL_SIR_LRM_220210519T162202_20210519T164747_D001	Height Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 2)	There is a height and backscatter error for Retracker 2 and a height error for Retracker 3 for one or more records
CS_OFFL_SIR_LRM_220210519T170216_20210519T172959_D001	Height Error (Retracker 2), Backscatter Error (Retracker 2)	There is a height and backscatter error for Retracker 2 for one or more records
CS_0FFL_SIR_LRM_220210519T175407_20210519T182640_D001	Height Error (Retracker 2), Backscatter Error (Retracker 2)	There is a height and backscatter error for Retracker 2 for one or more records
CS_0FFL_SIR_LRM_220210519T190611_20210519T190734_D001	Height Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 2)	There is a height and backscatter error for Retracker 2 and a height error for Retracker 3 for one or more records
CS_OFFL_SIR_LRM_220210519T191233_20210519T191340_D001	Height Error (Retracker 2), Backscatter Error (Retracker 2)	There is a height and backscatter error for Retracker 2 for one or more records
CS_OFFL_SIR_LRM_220210519T191759_20210519T191938_D001	Height Error (Retracker 2), Backscatter Error (Retracker 2)	There is a height and backscatter error for Retracker 2 for one or more records
CS_OFFL_SIR_LRM_220210519T193253_20210519T200613_D001	Height Error (Retracker 2), Backscatter Error (Retracker 2)	There is a height and backscatter error for Retracker 2 for one or more records
CS_OFFL_SIR_LRM_220210519T202045_20210519T203927_D001	Height Error (Retracker 2), Backscatter Error (Retracker 2)	There is a height and backscatter error for Retracker 2 for one or more records
CS_OFFL_SIR_LRM_220210519T204245_20210519T204739_D001	Height Error (Retracker 2), Backscatter Error (Retracker 2)	There is a height and backscatter error for Retracker 2 for one or more records
CS_OFFL_SIR_LRM_220210519T204813_20210519T204952_D001	Height Error (Retracker 2), Backscatter Error (Retracker 2)	There is a height and backscatter error for Retracker 2 for one or more records
CS_OFFL_SIR_LRM_220210519T211114_20210519T213247_D001	Height Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 2)	There is a height and backscatter error for Retracker 2 and a height error for Retracker 3 for one or more records
CS_OFFL_SIR_LRM_220210519T220103_20210519T222748_D001	Height Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 2)	There is a height and backscatter error for Retracker 2 and a height error for Retracker 3 for one or more records
CS_OFFL_SIR_LRM_220210519T222803_20210519T223509_D001	Height Error (Retracker 2), Backscatter Error (Retracker 2)	There is a height and backscatter error for Retracker 2 for one or more records
CS_OFFL_SIR_LRM_220210519T225116_20210519T230208_D001	Height Error (Retracker 2), Backscatter Error (Retracker 2), Surface model unavailable	There is a height and backscatter error for Retracker 2 and no DEM or Slope Model was used for the location of one or more records
CS_OFFL_SIR_LRM_220210519T230649_20210519T230759_D001	Height Error (Retracker 2), Backscatter Error (Retracker 2)	There is a height and backscatter error for Retracker 2 for one or more records
CS_OFFL_SIR_LRM_220210519T230802_20210519T232414_D001	Height Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 2)	There is a height and backscatter error for Retracker 2 and a height error for Retracker 3 for one or more records
CS_0FFL_SIR_LRM_220210519T234223_20210519T235508_D001	Height Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 2)	There is a height and backscatter error for Retracker 2 and a height error for Retracker 3 for one or more records
CS_OFFL_SIR_LRM_220210519T235722_20210520T001108_D001	Height Error (Retracker 2), Backscatter Error (Retracker 2)	There is a height and backscatter error for Retracker 2 for one or more records

# 6. QCC Report Analysis

The Quality Control for CryoSat (QCC) facility 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	No. Products	No. QCC Reports	No. Valid	No. Warnings	No. Errors
SIR_LRM_1B	161	161	161	0	0
SIR_SAR_1B	117	117	117	0	0
SIR_SIN_1B	103	103	103	0	0
SIR_LRM_2	161	161	157	4	0
SIR_SAR_2	103	117	117	0	0
SIR_SIN_2	117	103	101	2	0
SIR_GDR_2	15	15	0	0	15

## 6.1 QCC Errors

Number of products with QCC errors:

Product Type	MPHDUTNCDF	MPHXPFNCDF	MPHXVFNCDF	MPHYPFNCDF	MPHYVFNCDF	MPHZPFNCDF	MPHZVFNCDF	STRUCTURESIZ EANDREAD	•	-	-
SIR_GDR_2_	15	15	15	15	15	15	15	15			

15

Test Description Key:						
Abbreviation	Test name	Details				
MPHDUTNCDF	MPH_Delta_UT1_NetCDF	Delta_UT1 mismatch				
MPHXPFNCDF	MPH_X_Position_Float_v2_NetCDF	X_Position mismatch (DBL float (GDR), rounded to 100)				
MPHXVFNCDF	MPH_X_Velocity_Float_v2_NetCDF	X_Velocity mismatch (DBL float (GDR), rounded to 1)				
MPHYPFNCDF	MPH_Y_Position_Float_v2_NetCDF	Y_Position mismatch (DBL float (GDR), rounded to 100)				
MPHYVFNCDF	MPH_Y_Velocity_Float_v2_NetCDF	Y_Velocity mismatch (DBL float (GDR), rounded to 1)				
MPHZPFNCDF	MPH_Z_Position_Float_v2_NetCDF	Z_Position mismatch (DBL float (GDR), rounded to 100)				
MPHZVFNCDF	MPH_Z_Velocity_Float_v2_NetCDF	Z_Velocity mismatch (DBL float (GDR), rounded to 1)				
STRUCTURESIZEANDF	STRUCTURE_SIZE_AND_READ	Under investigation.				

## 6.2 QCC Warnings

 Number of QCC reports with warnings
 7

 Total number of occurrences of each warning
 Total number of occurrences of each warning

0

	Total number of occurrences of each warning									
Product Type	AXDME	AXSMMEOCI	AXSMEOOO	AXWMMEOOO	-	-	-			
SIR_LRM_2_	0	3	1	1						
SIR_SIN_2_	2	0	0	0						
		·			' '	, ,	,			
Test Description Key:										
Abbreviation	Test name			Details						
AXDME	AttributeXrefDemMustExist			The xref_dem attribute is mandatory in SIN products over continental ice						
AXSMMEOCI	AttributeXrefSlopeModelMustExistOverContinentalIce			The xref_slope_model is mandatory in LRM products over continental ice						
AXSMEOOO	AttributeXrefSsbMustExistOverOpenOcean			The xref_ssb is mandatory in LRM products over open ocean						
AXWMMEOOO	AttributeXrefWindModelMustExistOverOpenOcean			The xref_wind_model attribute is mandatory in LRM products over open ocean						

# 6.2 Missing QCC Reports

Number of products with missing QCC reports: