1. Overview

| Report Production Date:	31-Jul-2020
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	
01-Jul-2020	None
02-Jul-2020	None
03-Jul-2020	Nothing planned

2. Global Coverage
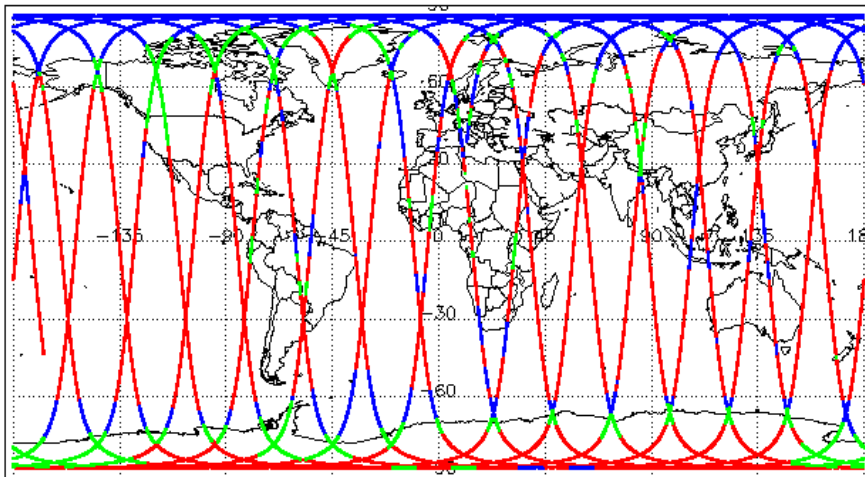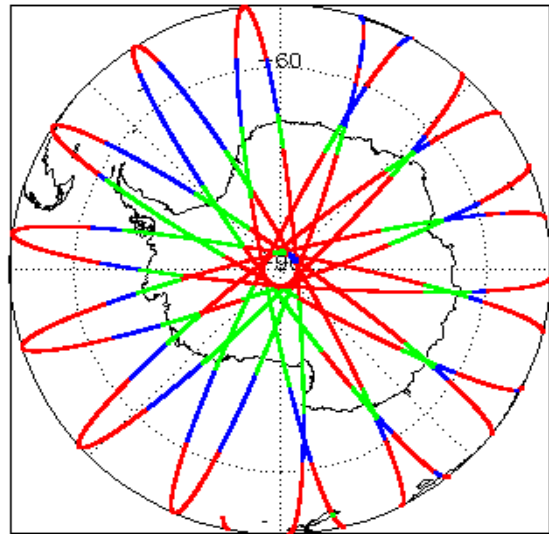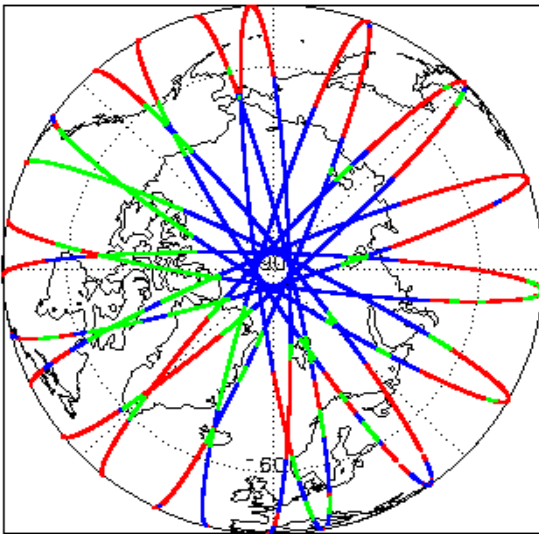
Mode Coverage (%)		
	LRM	67.3
	SAR	20.3
	SARIn	12.4

Mode Coverage

Surface Type
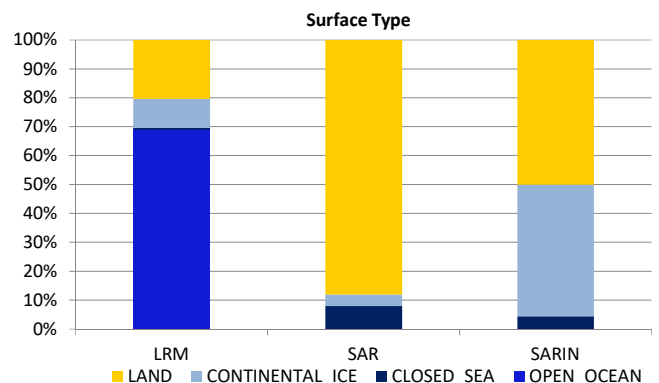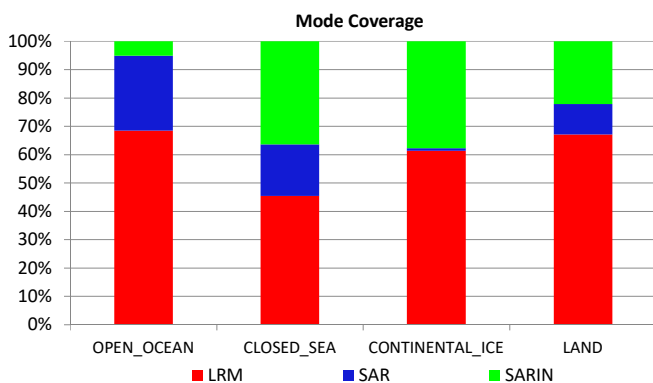
3. Instrument Configuration

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

SIRAL instrument(s) in use:	SIRAL - A

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 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: 94

Product	Test Failed	Description
CS_OFFL_SIR_LRM_1B_20200702T002944_20200702T002955_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T004725_20200702T004949_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T005103_20200702T005603_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T012256_20200702T012615_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T013329_20200702T013809_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T013819_20200702T020039_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T020112_20200702T020950_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T030327_20200702T030521_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T031845_20200702T032551_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T032734_20200702T032831_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T032833_20200702T032844_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T032846_20200702T032945_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T033257_20200702T034019_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T034300_20200702T034902_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T042040_20200702T042340_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T042446_20200702T043550_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T044211_20200702T044436_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T045838_20200702T050613_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T050752_20200702T050918_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T050920_20200702T052257_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T052300_20200702T052306_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T052308_20200702T052316_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T052349_20200702T052411_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T052413_20200702T052938_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T054212_20200702T054323_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T054445_20200702T054758_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T055317_20200702T055804_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T065409_20200702T065443_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T065829_20200702T065925_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T070053_20200702T070416_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T071933_20200702T072033_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T072155_20200702T075540_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T081102_20200702T083612_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T083615_20200702T083637_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T083639_20200702T083735_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T083737_20200702T083915_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T084021_20200702T084531_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T090441_20200702T090628_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T094935_20200702T100944_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T101010_20200702T101136_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T101138_20200702T101213_D001	Loss of echo	The tracking echo is missing for one or more records

CS_OFFL_SIR_LRM_1B_20200702T101215_20200702T101239_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T101243_20200702T101418_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T101420_20200702T101538_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T101649_20200702T101654_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T101658_20200702T101737_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T101739_20200702T101739_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T101741_20200702T101801_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T101945_20200702T102101_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T102134_20200702T102304_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T113858_20200702T113932_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T113935_20200702T114425_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T114452_20200702T114805_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T114819_20200702T115135_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T115318_20200702T115507_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T115525_20200702T115604_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T115956_20200702T120012_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T123117_20200702T125231_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T132137_20200702T132855_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T132937_20200702T133412_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T135615_20200702T143126_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T143945_20200702T144227_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T153441_20200702T154039_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T154042_20200702T154047_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T154049_20200702T154103_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T154137_20200702T155348_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T155552_20200702T161043_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T162741_20200702T163804_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T163910_20200702T164132_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T164423_20200702T165638_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T165730_20200702T165917_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T171329_20200702T172704_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T180529_20200702T182654_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T182657_20200702T183757_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T185157_20200702T185948_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T190100_20200702T190149_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T190550_20200702T192710_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T193712_20200702T194040_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T194351_20200702T201109_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T201113_20200702T201150_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T201154_20200702T201209_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T201213_20200702T201217_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T203429_20200702T204149_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T204152_20200702T210838_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T221042_20200702T221623_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T221657_20200702T221739_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T221939_20200702T222038_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T222113_20200702T222406_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T222409_20200702T222957_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T223331_20200702T223924_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T235158_20200702T235206_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T235518_20200702T235553_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T235615_20200702T235631_D001	Loss of echo	The tracking echo is missing for one or more records
CS_OFFL_SIR_LRM_1B_20200702T235643_20200702T235650_D001	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 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: 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: 0

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: 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: 60

Product	Test Failed	Description
CS_OFFL_SIR_LRM_2__20200701T235408_20200702T001527_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__20200702T001813_20200702T002828_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__20200702T003917_20200702T004348_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__20200702T005935_20200702T010419_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__20200702T010607_20200702T011633_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__20200702T013329_20200702T013809_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__20200702T013819_20200702T020039_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_2__20200702T020112_20200702T020950_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__20200702T022237_20200702T022937_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__20200702T023001_20200702T025353_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_2__20200702T031845_20200702T032551_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__20200702T032734_20200702T032831_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__20200702T032846_20200702T032945_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__20200702T033257_20200702T034019_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_2__20200702T034300_20200702T034902_D001	Surface Model Unavailable	No DEM or Slope Model was used for the location of one or more records
CS_OFFL_SIR_LRM_2__20200702T040302_20200702T041633_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__20200702T042446_20200702T043550_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__20200702T045838_20200702T050613_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__20200702T050752_20200702T050918_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__20200702T050920_20200702T052257_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_2__20200702T054212_20200702T054323_D001	Surface Model Unavailable	No DEM or Slope Model was used for the location of one or more records
CS_OFFL_SIR_LRM_2__20200702T054445_20200702T054758_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__20200702T054918_20200702T055154_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__20200702T055317_20200702T055804_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__20200702T060036_20200702T061629_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__20200702T063134_20200702T065325_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_2__20200702T072155_20200702T075540_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__20200702T081102_20200702T083612_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_2__20200702T090441_20200702T090628_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_2__20200702T090753_20200702T093412_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__20200702T094935_20200702T100944_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__20200702T101243_20200702T101418_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__20200702T103941_20200702T111321_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__20200702T120310_20200702T120704_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__20200702T121732_20200702T122831_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_2__20200702T123117_20200702T125231_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_2__20200702T132137_20200702T132855_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__20200702T132937_20200702T133412_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_2__20200702T134321_20200702T134346_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__20200702T135615_20200702T143126_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_2__20200702T145027_20200702T150258_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_2__20200702T150301_20200702T152034_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__20200702T153441_20200702T154039_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__20200702T154137_20200702T155348_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__20200702T155552_20200702T161043_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_2__20200702T162741_20200702T163804_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__20200702T164423_20200702T165638_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_2__20200702T165730_20200702T165917_D001	Surface Model Unavailable	No DEM or Slope Model was used for the location of one or more records

CS_OFFL_SIR_LRM_2__20200702T173129_20200702T173257_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__20200702T180529_20200702T182654_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_2__20200702T182657_20200702T183757_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__20200702T185157_20200702T185948_D001	Surface Model Unavailable	No DEM or Slope Model was used for the location of one or more records
CS_OFFL_SIR_LRM_2__20200702T190550_20200702T192710_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__20200702T194351_20200702T201109_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_2__20200702T204152_20200702T210838_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_2__20200702T212334_20200702T215726_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__20200702T221042_20200702T221623_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__20200702T222113_20200702T222406_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_2__20200702T224250_20200702T224731_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_2__20200702T230327_20200702T233646_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

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	157	157	157	0	0
SIR_SAR_1B	120	120	120	0	0
SIR_SIN_1B	107	107	107	0	0
SIR_LRM_2	157	157	152	5	0
SIR_SAR_2	107	119	119	0	0
SIR_SIN_2	119	107	105	2	0
SIR_GDR_2	15	15	0	0	15

6.1 QCC Errors

Number of products with QCC errors: 15

Product Type	MPHDUTNCDF	MPHXPFNCDF	MPHXVFNCDF	MPHYPFNCDF	MPHYVFNCDF	MPHZPFNCDF	MPHZVFNCDF	STRUCTURESIZ	-	-	-
SIR_GDR_2_	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)
STRUCTURESIZEANDR	STRUCTURE_SIZE_AND_READ	Under investigation.

6.2 QCC Warnings

Number of QCC reports with warnings 8

Total number of occurrences of each warning

Product Type	AXDME	AXSMMEOCI	-	-	-	-	-
SIR_GDR_2_	0	1					
SIR_LRM_2_	0	5					
SIR_SIN_2_	2	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

6.2 Missing QCC Reports

Number of products with missing QCC reports: 0