

### 1. Overview

|                         |                         |
|-------------------------|-------------------------|
| Report Production Date: | 19-Jun-2023             |
| Processor Used:         | CryoSat Ice Processor   |
| Data Used:              | L1B and L2 OFFLINE Data |

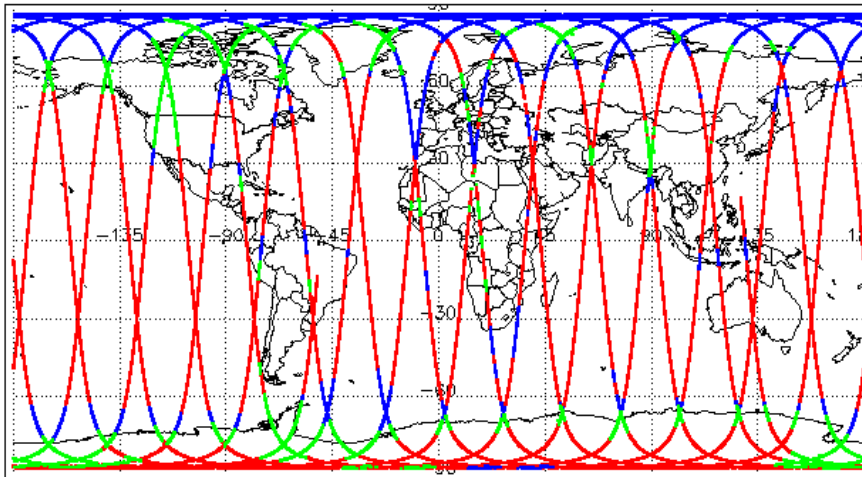
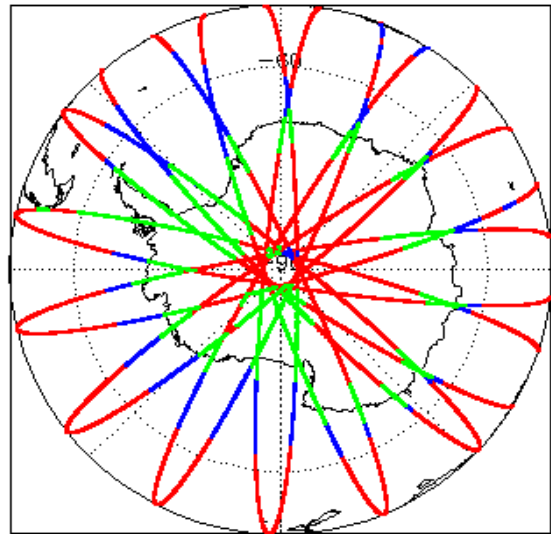
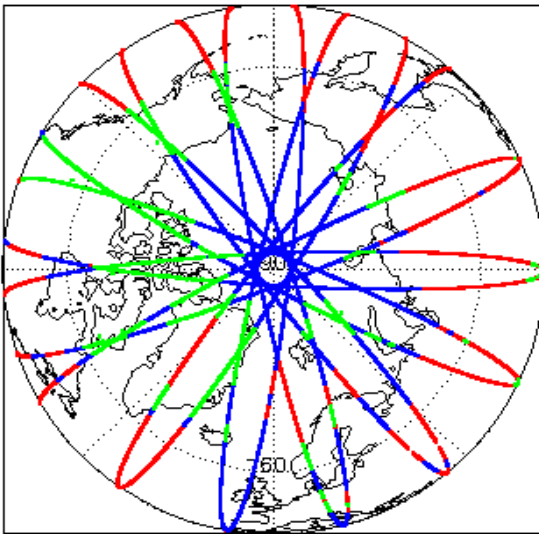
| Check                                      | Status                       |
|--|------------------------------|
| Server check: science-pds.cryosat.esa.int  | Nominal                      |
| Server check: calval-pds.cryosat.esa.int   | Nominal                      |
| Product Software Check                     | 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  | See Section 4.7 and 5.4      |
| 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 |

**We would love to hear from you!**  
 Please let us know your feedback about these daily quality reports: What do you like/ dislike? What quality information do you need? Send your feedback to [cs2\\_qc\\_team@telespazio.com](mailto:cs2_qc_team@telespazio.com)

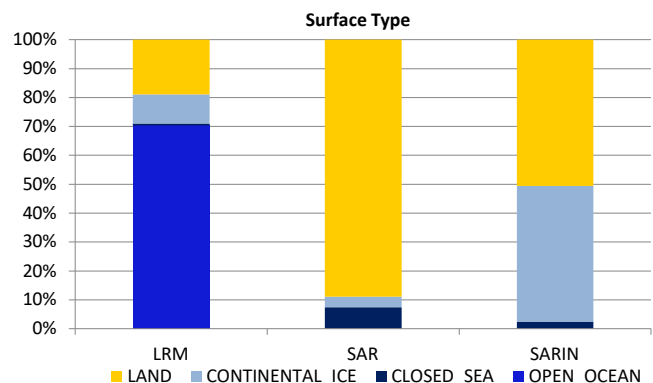
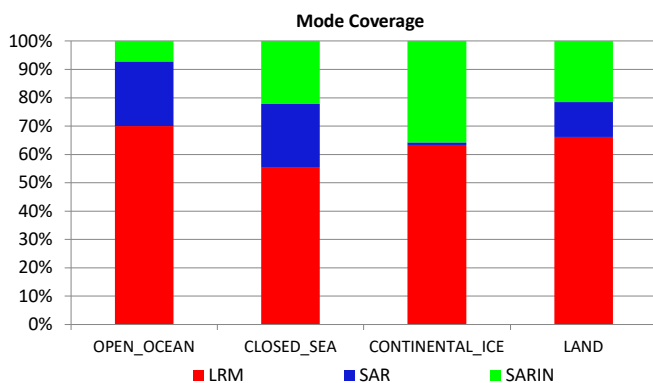
#### Mission / Instrument News

|             |                 |
|-------------|-----------------|
| 18-May-2023 | None            |
| 19-May-2023 | None            |
| 20-May-2023 | Nothing planned |

### 2. Global Coverage



| Mode Coverage (%) |  |      |
|-------------------|--|------|
| LRM               |  | 68.4 |
| SAR               |  | 18.4 |
| SARIn             |  | 13.1 |



### 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: 101

| Product   | Test Failed  | Description  |
|---|--------------|--|
| CS_OFFL_SIR_LRM_1B_20230518T235718_20230519T001210_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T001857_20230519T002111_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T002816_20230519T004250_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T004429_20230519T010045_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T010059_20230519T010111_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T010114_20230519T010512_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T010607_20230519T010623_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T011929_20230519T012121_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T012234_20230519T013205_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T013207_20230519T013410_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T013412_20230519T013425_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T015649_20230519T020516_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T023537_20230519T023615_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T023722_20230519T023825_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T023827_20230519T024404_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T025611_20230519T025635_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T025915_20230519T030354_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T030612_20230519T033234_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T035005_20230519T041228_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T041354_20230519T042031_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T042031_20230519T042218_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T052547_20230519T055358_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T055400_20230519T055428_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T055630_20230519T055731_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T055731_20230519T055744_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T060206_20230519T060348_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T065709_20230519T070229_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T071312_20230519T071704_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T071810_20230519T072144_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T072252_20230519T072318_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T072320_20230519T072446_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T073545_20230519T073556_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T073607_20230519T073625_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T073902_20230519T073915_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T085819_20230519T090424_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T090605_20230519T091054_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T093251_20230519T093305_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T093311_20230519T093312_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T093316_20230519T093324_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T093326_20230519T093409_E001 | Loss of echo | The tracking echo is missing for one or more records |
| CS_OFFL_SIR_LRM_1B_20230519T093411_20230519T093414_E001 | Loss of echo | The tracking echo is missing for one or more records |



## 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 for each measurement record. The bit value of this flag indicates any problems when set.

Number of products with errors: 2

| Product   | Test Failed  | Description  |
|---|--|--|
| CS_OFFL_SIR_SAR_1B_20230519T175608_20230519T175610_E001 | Dry tropospheric Correction Error, Wet tropospheric Correction Error | Due to missing Forecast Auxiliary Files, there is an error with the Dry Tropospheric, Wet Tropospheric and Inverse Barometric corrections. |
| CS_OFFL_SIR_SAR_1B_20230519T205322_20230519T205322_E001 | Dry tropospheric Correction Error, Wet tropospheric Correction Error | The auxiliary corrections are missing for one or more record; under investigation.   |

## 4.8 L1B Measurement Confidence Data Check

CryoSat L1B data includes a measurement confidence flag 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 Applied 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_20230519T125908_20230519T130944_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 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 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 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.

**Sea State Bias error:** This flag is currently set in all L2 LRM products over ocean, indicating a problem with the sea state bias. Due to a known anomaly, the sea state bias field is currently unfilled in all Baseline-E L2 LRM products. This anomaly will be resolved in the next IPF update.

**Snow Depth Model error:** This flag is currently set in all L2 SAR products over ocean, which fall outside of the extent of the current snow depth model. Currently the snow depth model is only available over the high-latitude Arctic. There is no model currently provided for the Antarctic or marginal Arctic regions. An updated model will be provided in the next IPF update.

Number of products with errors: 107

| Product  | Test Failed      | Description  |
|--|------------------|--|
| CS_OFFL_SIR_SAR_2_20230519T001210_20230519T001250_E001 | Snow depth model | There is an error with the Snow Depth value, where one or more records falls outside of the extent of the current snow depth model |
| CS_OFFL_SIR_SAR_2_20230519T002748_20230519T002815_E001 | Snow depth model | There is an error with the Snow Depth value, where one or more records falls outside of the extent of the current snow depth model |
| CS_OFFL_SIR_SAR_2_20230519T004250_20230519T004429_E001 | Snow depth model | There is an error with the Snow Depth value, where one or more records falls outside of the extent of the current snow depth model |
| CS_OFFL_SIR_SAR_2_20230519T010045_20230519T010059_E001 | Snow depth model | There is an error with the Snow Depth value, where one or more records falls outside of the extent of the current snow depth model |
| CS_OFFL_SIR_SAR_2_20230519T011420_20230519T011610_E001 | Snow depth model | There is an error with the Snow Depth value, where one or more records falls outside of the extent of the current snow depth model |
| CS_OFFL_SIR_SAR_2_20230519T011821_20230519T011928_E001 | Snow depth model | There is an error with the Snow Depth value, where one or more records falls outside of the extent of the current snow depth model |
| CS_OFFL_SIR_SAR_2_20230519T012121_20230519T012234_E001 | Snow depth model | There is an error with the Snow Depth value, where one or more records falls outside of the extent of the current snow depth model |
| CS_OFFL_SIR_SAR_2_20230519T013425_20230519T013709_E001 | Snow depth model | There is an error with the Snow Depth value, where one or more records falls outside of the extent of the current snow depth model |
| CS_OFFL_SIR_SAR_2_20230519T015327_20230519T015459_E001 | Snow depth model | There is an error with the Snow Depth value, where one or more records falls outside of the extent of the current snow depth model |
| CS_OFFL_SIR_SAR_2_20230519T020704_20230519T020747_E001 | Snow depth model | There is an error with the Snow Depth value, where one or more records falls outside of the extent of the current snow depth model |
| CS_OFFL_SIR_SAR_2_20230519T023020_20230519T023125_E001 | Snow depth model | There is an error with the Snow Depth value, where one or more records falls outside of the extent of the current snow depth model |
| CS_OFFL_SIR_SAR_2_20230519T025636_20230519T025914_E001 | Snow depth model | There is an error with the Snow Depth value, where one or more records falls outside of the extent of the current snow depth model |







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.

**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.

**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.

**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.

**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.

**Number of products with errors:** 254

| Product  | Test Failed  | Description  |
|--|--|--|
| CS_OFFL_SIR_LRM_2_20230518T235718_20230519T001210_E001 | 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_20230519T002816_20230519T004250_E001 | 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_20230519T004429_20230519T010045_E001 | 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_20230519T011929_20230519T012121_E001 | Surface Model Unavailable  | No DEM or Slope Model was used for the location of one or more records   |
| CS_OFFL_SIR_LRM_2_20230519T012234_20230519T013205_E001 | Height Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 2), Surface model unavailable | There is a height and backscatter error for Retracker 2, a height error for Retracker 3 and no DEM or Slope Model was used for the location of one or more records |
| CS_OFFL_SIR_LRM_2_20230519T013900_20230519T015327_E001 | 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_20230519T020748_20230519T023019_E001 | 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_20230519T023722_20230519T023825_E001 | Surface Model Unavailable  | No DEM or Slope Model was used for the location of one or more records   |
| CS_OFFL_SIR_LRM_2_20230519T023827_20230519T024404_E001 | 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_20230519T030612_20230519T033234_E001 | 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_20230519T035005_20230519T041228_E001 | 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_20230519T044508_20230519T051123_E001 | 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_20230519T052547_20230519T055358_E001 | 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_20230519T055400_20230519T055428_E001 | 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_20230519T060206_20230519T060348_E001 | 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_20230519T061647_20230519T065024_E001 | 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_20230519T074016_20230519T074412_E001 | 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_20230519T075559_20230519T082953_E001 | 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_20230519T084424_20230519T085631_E001 | 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_20230519T085819_20230519T090424_E001 | 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_20230519T090605_20230519T091054_E001 | 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_20230519T093509_20230519T100831_E001 | 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_20230519T102712_20230519T105810_E001 | 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_20230519T111125_20230519T111206_E001 | Surface Model Unavailable  | No DEM or Slope Model was used for the location of one or more records   |
| CS_OFFL_SIR_LRM_2_20230519T111626_20230519T113124_E001 | Height Error (Retracker 2), Height Error (Retracker 3), Backscatter Error (Retracker 2), Surface model unavailable | There is a height and backscatter error for Retracker 2, a height error for Retracker 3 and no DEM or Slope Model was used for the location of one or more records |
| CS_OFFL_SIR_LRM_2_20230519T113133_20230519T114757_E001 | 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_20230519T120455_20230519T121448_E001 | 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_20230519T122108_20230519T123351_E001 | 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   |

















