ESRIN-EOP-GMQ / IDEAS+

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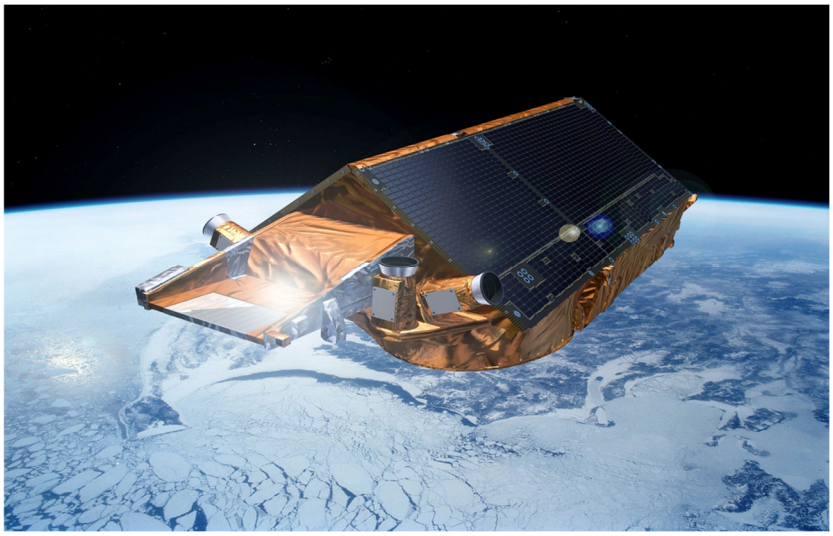
CRYOSAT ICE DATA QUALITY STATUS SUMMARY



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AMENDMENT RECORD SHEET

The Amendment Record Sheet below records the history and issue status of this document.

ISSUE	DATE	CHANGE LOG
1	20 May 2011	Updated following AR review.
1.1	23 August 2011	Updated following AR review.
1.2	11 November 2011	Updated following AR review.
2	9 March 2012	Updated following AR review.
3	25 June 2012	Updated following AR review.
4	2 November 2012	Updated following AR review.
5	8 March 2013	Updated following AR review.
6	15 July 2013	Updated following AR review.
7	11 February 2014	Updated following AR review.
8	5 November 2014	Updated following AR review.
9	7 December 2015	Updated following the implementation of Ice Baseline-C.
10	3 August 2017	Updated to new format and content.
11	25 July 2019	Updates following the implementation of Ice Baseline-D.
12	6 January 2020	Updated with a new AR.
13	16 August 2022	Updates following the implementation of Ice Baseline-E.

TABLE OF CONTENTS

1 INTRODUCTION

1.1 Purpose and Scope

This document provides details of all known anomalies and planned evolutions which are being tracked, and that could affect the quality of the CryoSat Ice Level 1 and Level 2 data products generated operationally by the CryoSat Ice Processor and distributed by ESA.

This list of anomalies and potential evolutions is complete and up to date as of **16th August 2022**. An updated version of this document is released following every processor upgrade and includes any additional anomalies identified since the previous version of this document.

1.2 Applicable Ice Processing Baseline and Ice Products

The anomalies and evolutions discussed in this document are related to CryoSat data products processed with the latest version of the CryoSat IPFs; Baseline-E (IPF1 vO2.2 & IPF2 vO2.2). Further information on historic processor versions and dates of when operational CryoSat data production with each processor commenced is available on the CryoSat IPF Baseline webpage.

Figure 1 highlights (in red) the CryoSat Ice Products, generated operationally, to which this document is applicable. Further information on the products is also provided below, and in the CryoSat Baseline-E Ice Product Handbook.

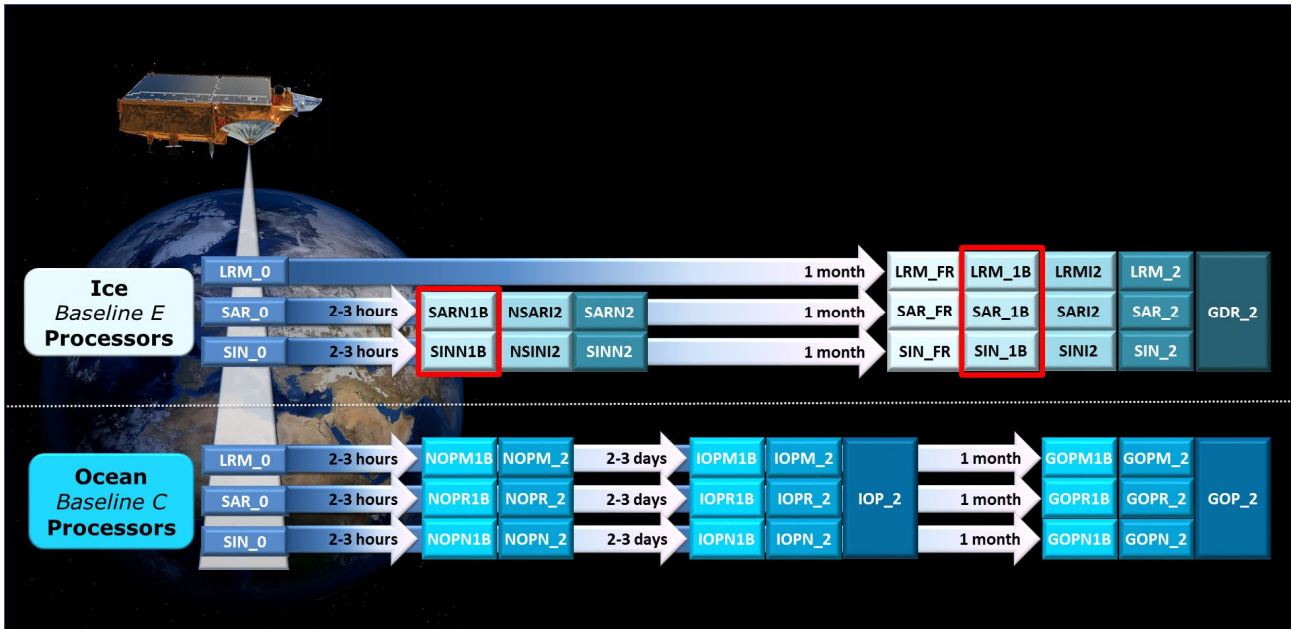

Figure 1. CryoSat Data Products

Level 1B and Level 2 CryoSat Ice Products are distributed in order to specifically achieve the Mission objectives over the cryosphere.

CryoSat L1B Ice Products consist of an echo for each point along the ground track of the satellite. In all three modes, the data consist of multi-looked echoes at a rate of approximately 20 Hz. The L1B products contain time and geo-location information as well as SIRAL measurements in engineering units. Calibration corrections are included and have been applied to the window delay computations.

CryoSat L2 Ice Products consist of individual estimates of the surface elevation and other surface parameters, such as the radar backscattering coefficient, determined from each echo in the Level 1B data.

L1B and L2 Offline Ice Products (LRM, SAR & SARIn) are generated 30-days after acquisition using a Precise Orbit file and the geophysical corrections are computed from analysis Auxiliary Data Files (ADFs). The L1B and L2 Near Real Time (NRT) products are generated 2-3 hours after acquisition, using a Predicted Orbit file and the geophysical corrections are computed from forecast ADFs. In both cases all corrections are included in the data products and therefore the range can be calculated by taking into account the surface type.

1.3 Referenced Documents

The following list is a list of documents with a direct bearing on the content of this report. Where referenced in the text, these are identified as RD.n, where 'n' is the number in the list below:

RD.1 CryoSat Ice netCDF L1B Product Format Specification [PFS-I-L1B],

C2-RS-ACS-ESL-5364, 1.8, 04/12/2018

RD.2 CryoSat Ice netCDF L2 Product Format Specification [PFS-I-L2],

C2-RS-ACS-ESL-5265, 1.6, 14/03/2019

RD.3 CryoSat-2 Product Handbook, Baseline-E v1.0

C2-LI-ACS-ESL-5319, 1.0, 20/09/2021

1.4 Acronyms and Abbreviations

ADF	Auxiliary Data File
AR	Anomaly Report
DEM	Digital Elevation Model
ESA	European Space Agency
FDM	Fast Delivery Marine mode
GDR	Geophysical Data Record
IDEAS+	Instrument Data quality Evaluation and Analysis Service
IPF	Instrument Processing Facility
L0/L1B/L2	Level 0/Level 1B/Level 2
LRM	Low Resolution Mode
NRT	Near Real Time
PCONF	Parameter Configuration File
PDS	Payload Data System
RMS	Root Mean Square
SAR	Synthetic Aperture Radar mode

SARIn	SAR Interferometric mode
SID	SARIn Degraded
SIRAL	SAR Interferometric Radar Altimeter
SPR	Software Problem Report
SW	Software
TTO	Transfer to Operations

2. OVERVIEW

2.1 Summary Table of Tracked Anomalies

The tables below lists all the current anomalies which are open on the operational CryoSat Ice Baseline-E products and **are visible to users.** These will be fixed in an upcoming processing baseline.

The table also summarises which specific data processor and product mode/level is affected by each anomaly. Further details on each anomaly can be found in Section 3 of this document.

Table 1: Anomalies affecting the CryoSat Offline Ice products

Anomaly ID	Product Mode/Level Affected							To be fixed in Baseline
	Level 1B			Level 2				
	LRM	SAR	SIN	LRM	SAR	SIN	GDR	
CRYO-IDE-275	No	Yes	Yes	No	No	No	No	F (TBC)
CRYO-IDE-324	No	No	No	Yes	No	Yes	No	F (TBC)
CRYO-IDE-325	No	No	Yes	No	No	No	No	F (TBC)
CRYO-IDE-327	Yes	Yes	Yes	Yes	Yes	Yes	Yes	F (TBC)
CRYO-IDE-331	Yes	Yes	Yes	No	No	No	No	F (TBC)
CRYO-IDE-361	No	No	No	Yes	No	No	No	F (TBC)

Table 2: Anomalies affecting the CryoSat NRT Ice products

Anomaly ID	Product Mode/Level Affected				To be fixed in Baseline
	Level 1B		Level 2		
	SAR	SIN	SAR	SIN	
CRYO-IDE-312	Yes	Yes	Yes	Yes	F (TBC)
CRYO-IDE-366	Yes	Yes	Yes	Yes	F (TBC)

Table 3: Anomalies affecting the CryoSat STR products

Anomaly ID	Product Mode/Level Affected		To be fixed in Baseline
	ATTREF	ATTCOP	
CRYO-IDE-319	Yes	No	F (TBC)
CRYO-IDE-343	Yes	Yes	F (TBC)

2.2 Summary Table of Planned Evolutions

The table below lists a number of evolutions, which are being considered for the next Ice Processor Baseline (Baseline-F). Further details for each evolution can be found in Section 5 of this document.

Table 4: Evolutions considered for the next Ice processor update

Evolution ID	Title	Future Ice Processor Baselines
CRYO-IDE-210	Perform IPF1 multi-look without zeroes introduced by contributing beam alignment	F (TBC)
CRYO-IDE-222	Along-track slope calculation from the Doppler shift	F (TBC)
CRYO-IDE-257	New High Resolution tidal model over the Polar Oceans	F (TBC)
CRYO-IDE-304	Baseline-E: adding RIP to L1B products	F (TBC)
CRYO-IDE-307	Baseline-E: Expand variables names and harmonisation	F (TBC)
CRYO-IDE-355	Review of the CryoSat product flags and conventions	F (TBC)

3. ANOMALIES

3.1 Level 1 Data Anomalies

AR ID	CRYO-IDE-275	AR Title	Interburst Alignment
Affected Processor | Mode		IPF1 | SAR & SARIn	
Description	There is currently a SW bug in the IPF1 chain for SAR and SARIn products. The bug is in the processing function which aligns the bursts for the altitude rate; currently this alignment is not performed in Baseline-C or Baseline-D. In order to resolve this issue a switch has to be enabled in the PCONF which will be performed in a future ice processor update.		
AR Status	To be resolved in a future Ice processor update.		

AR ID	CRYO-IDE-325	AR Title	L1B SIN product with stop time of 60s
Affected Processor | Mode		IPF1 | SARIn	
Description	An individual L1B SIN product has been found with an incorrect stop time of 60s: CS_OFFL_SIR_SIN_1B_20150630T234143_20150630T234160_C001 The corresponding L2 product correctly has a stop time of 59s. The L1B product was analysed and all input files appear to be correct. However, It is recommended to resolve this issue since the Cold Backup Archive cannot ingest such products.		
AR Status	To be resolved in a future Ice processor update.		

AR ID	CRYO-IDE-331	AR Title	Baseline-E: L1b netCDF format issue for Python users
Affected Processor | Mode		IPF1 | All	
Description	This issue is relevant to users working with L1B products in Python. The L1B power waveforms are scaled to 0-65535. Python interprets a value of 65535 in the waveform as missing data. When the ice products were switched to NetCDF, the _FillValue variable was removed from the waveform variable. However, NetCDF has a convention that the maximum value is treated as the fill value if one is not defined, and Python respects that convention. As a result Python interprets a value of 65535 in the waveform as missing data. Therefore you have to ask Python to unmask the data to get the correct results. It does not occur on every waveform, just those with a maximum of 65535. https://unidata.github.io/netcdf4-python/netCDF4/index.html#netCDF4.Variable.set_auto_mask		
AR Status	To be resolved in a future Ice processor update.		

3.2 Level 2 Data Anomalies

AR ID	CRYO-IDE-324	AR Title	Baseline-E: DSD name inconsistency in L2 LRM/ SIN products
Affected Processor | Mode		IPF2 | LRM & SIN	
Description	There is a minor inconsistency in the HDR file metadata in the L2 LRM and SARIn Baseline-E products – both in operations and at DSI (reprocessing). There is an inconsistency in the L1B input product DSD name: In the L2 SAR and GDR products, the L1B inputs have the DSD name: *"SIRAL_LEVEL_1B_FILE",* whereas in the L2 LRM and L2 SIN products, it is labelled *"SIR_L1B_LRM"/ "SIR_L1B_SIN"*. This DSD is also omitted from the Table in Section 5.1 of the L2 Ice Format Specification (v1.6). This is only a very minor metadata issue and does not affect the quality of the products or any science parameters, but for consistency the naming should be aligned in Baseline-F.		
AR Status	To be resolved in a future Ice processor update.		

AR ID	CRYO-IDE-361	AR Title	SSB unfilled in Baseline-E L2 LRM
Affected Processor | Mode		IPF2 | LRM, GDR	
Description	In the L2 Baseline-E LRM products, the Sea State Bias (sea_state_bias_01_ku) is currently unfilled dueto a bug in the code. SSB is expected to be provided in all L2 LRM products over ocean and is computed using the SSB static aux file, but the SSB values (sea_state_bias_01_ku) are missing in the products. This was found to be due to a bug in the code where the SSB is set to the default value in LRM, rather than 'when not in LRM' as expected. This will be corrected in a future ice processor update.		
AR Status	To be resolved in a future Ice processor update.		

3.3 Anomalies affecting L1 and L2 Data

AR ID	CRYO-IDE-312	AR Title	Forecast AUXI Meteo xrefs in Ice Baseline-D NRT products
Affected Processor | Mode		NRT IPF1 & IPF2 | All	
Description	There are currently some inconsistencies in the metadata of the new NRT SAR and SARIn products. The Data Set Descriptor (DSD) for the Forecast Meteo (AUXI) IONGIM file is missing from the product HDR files. Similarly the IONGIM xref (xref_gim) is missing from the Global Attributes of the data file. The corresponding GIM Ionospheric correction is available in the products, indicating that the file has been correctly used in processing, but has simply not been copied to the HDRs.		
AR Status	To be resolved in a future Ice processor update.		

AR ID	CRYO-IDE-327	AR Title	Inconsistent cycle numbers
Affected Processor | Mode		IPF1 & IPF2 | All	
Description	The cycle numbers reported in the product headers do not always follow the expected/ logical pattern. In principle a cycle number is added whenever relative orbit 1 is achieved (i.e. a cycle of 5344 orbits is completed). In addition to this case, there is the convention to add an additional cycle to the cycle number if there is a change of repeat cycle / cycle length from one orbital change to the next. Investigation is ongoing to understand cases where the expected convention has not been followed and to correct these in the next ice processor update.		
AR Status	Under investigation. To be resolved in a future Ice processor update.		

AR ID	CRYO-IDE-366	AR Title	Short NRT products due to incomplete inputs
Affected Processor | Mode		NRT IPF1 & IPF2 | All	
Description	There is currently an issue causing some L1 NRT products to be generated shorter than the inputs L0 due to incomplete inputs at the time of generation. This affects up to 10 products a day. All cases are related to the differing coverage of the input L0 science and tracking products and the timing of when these inputs arrive. Sometimes NRT processing requires multiple L0 science and tracking products to provide full coverage of the product validity, however these arrive at different times. Processing is triggered by the arrival of the first products and starts before the full set is available, causing the output L1 products to be shorter than expected. The proposed solution is to update the processor selection policies to make the processor wait until the full coverage of L0 products is available before starting.		

AR Status	To be resolved in a future Ice processor update.

3.4 Anomalies affecting STR Data

AR ID	**CRYO-IDE-319**	**AR Title**	**Baseline-D: STR1 Attref Data Gap - Unexpected Condition in Baseline-D STR Processor**
Affected Processor | Mode		STR | STR ATTREF	
Description	Occasional data gaps have been identified within STR_ATTREF Roll, Pitch and Yaw plots coinciding with a period where the primary star tracker would have been STR1. STR_ATTCOP has not been impacted. This is due to an unexpected condition in the Baseline-D STR Processor.		
AR Status	To be resolved in Baseline-F.		

AR ID	**CRYO-IDE-343**	**AR Title**	**STR_ATTREF and STR_ATTCOP gaps due to poor quality L0 STR data**
Affected Processor | Mode		STR | STR ATTREF and STR ATTCOP	
Description	During operations, occasionally the STR_ATTREF and STR_ATTCOP files contain gaps in the data values. The data gap in the STR_ATTREF/STR_ATTCOP can be attributed to the fact that ECOFI functions cannot read the STR L0 files, likely due to some inconsistencies in the STR L0 files just at the end of the files.		
AR Status	To be resolved in Baseline-F.		

4 PLANNED EVOLUTIONS

Evolution ID	CRYO-IDE-210	Evolution Title	Perform IPF1 multi-look without zeroes introduced by contributing beam alignment
Description	The multilooking process within the L1B SAR and SARIn processors should not take into account the zeroes introduced by the alignment of the contributing beams. For each surface sample, i.e. a point on Earth's surface, a 20 Hz L1B waveform is computed by multilooking (averaging) of the corresponding Surface Sample Stack (SSS). The SSS is the collection of all the single-look waveforms that are referred to the current surface sample. By averaging all the single-look waveforms in the SSS, the 20 Hz L1B multilooked waveform is obtained. Averaging is the crucial operation in the multilooking and it determines the shape of the 20 Hz L1B waveform. The main objective is to reduce the impact of speckle. The stack is constructed by aligning the single look echoes with respect to the delay of each burst with respect to the surface sample. Since the acquisition window of the instrument is limited, the single look echoes from different bursts cannot cover the same interval of delays; when there is no data the samples of the stack matrix are set to zero. Currently the multilook average is computed by summing all samples and dividing by the number of the contributing beams, therefore it does not take into account that a lot of samples are equal to zero because they were out of the acquisition window for the corresponding single look echo. This should be resolved in a future update. As the new averaging method could have an impact on the L2 retrieval capabilities, further analysis is needed before the change can be applied.		
Evolution Status	Further R&D required studying impact on L2. Potentially included in Ice Baseline-F.		

Evolution ID	CRYO-IDE-222	Evolution Title	Along-track slope calculation from the Doppler shift
Description	An observation was noted about the about the along track slope calculation from the Doppler shift. It has been proposed to calculate this extremely useful parameter from the L0 data and include it in the L1B/L2 product. It is currently not possible to do this with the L1B data because the doppler data have been previously summed. The feasibility of extracting this parameter and integrating it in L1B and L2 products is under investigation and may be included within the framework of Baseline E.		
Evolution Status	Further R&D required. Potentially included in Ice Baseline-F.		

Evolution ID	CRYO-IDE-257	Evolution Title	New High Resolution tidal model over the Polar Oceans
Description	The Arctic Ocean is a challenging region for tidal modelling, because of its complex and poorly documented bathymetry, the intermittent presence of sea ice and the shortage of in-situ tidal observations at such high latitudes. As a consequence, the accuracy of the global tidal models decreases by several centimetres in the Polar Regions. Better knowledge of the tides would improve the quality of the high latitudes altimeter sea surface heights and of all derived products, such as the CryoSat-derived freeboard. NOVELTIS and DTU Space have recently developed a regional, high-resolution tidal atlas in the Arctic Ocean, in the framework of an extension of the CryoSat Plus for Oceans (CP4O) project funded by ESA. This Tidal atlas might be used to improve the freeboard retrieval, especially over polar shallow-water areas of the Arctic and Antarctic Oceans (generally operating in SARIn).		
Evolution Status	Evolution under discussion. To be potentially included in Baseline-F.		

Evolution ID	CRYO-IDE-304	Evolution Title	Baseline-E: adding RIP to L1b products
Description	It has been requested to provide the stack-derived Range Integrated Power (RIP) and corresponding characteristics in the L1B product, however this could significantly increase the size of the L1B products. Discussion is ongoing.		
Evolution Status	Evolution under discussion. To be potentially included in Baseline-F.		

Evolution ID	CRYO-IDE-307	Evolution Title	Baseline-E: Expand variables name and harmonization
Description	In order to make the CryoSat Ice product contents clearer to users, it has been requested to expand the variable names wherever possible. E.g. Orb_alt_rate → orbit_altitude_rate At the same time, the variable names should be harmonised between the L1B and L2 products and with the variable names used by the CryoSat Ocean Processor.		
Evolution Status	Evolution under discussion. To be potentially included in Baseline-F.		

Evolution ID	CRYO-IDE-355	Evolution Title	Review of the CryoSat product flags and conventions
Description	We recognise the need to provide users with more information about the CryoSat product flags, how to read them, understand them and use them to filter the CryoSat data.		

	It would be useful to perform a review of the CryoSat flag conventions in line with user expectations/ recommendations. The first step of the review must be to determine the level of backwards compatibility that must be maintained, and the level of increase in product size that is acceptable. Many 'ease of use' changes are possible, such as switching from numbered retrackers to named: e.g. height_1_20_ku becomes height_ocog_20_ku in LRM mode. Each change however requires action on the part of current data users. It has been proposed to provide information about what flags to use to mask the data in the 'ancillary variables' attribute. This should be adopted consistently over all processors, which would be time consuming and could have an impact on delivery timeline. Although it is a simple comment change, tracing back all the information, verifying and checking all variables could require time. Instead it was agreed to continue the discussion and provide this update in a future baseline.
Evolution Status	Evolution under discussion. To be potentially included in Baseline-F.

5 IPF ANOMALIES CLOSED WITH THE LATEST CRYOSAT BASELINE

Details of the last IPF upgrades are provided on the ESA webpage. The table below lists all of the anomalies, which were resolved with the Ice Processor versions in operation since February 2022.

Anomaly ID	Title	Status	Component	Implemented in release:
CRYO-IDE-205	Spike correction in CAL2SIN products	Resolved	IPF1	vN1.0
CRYO-IDE-214	Window Delay not referred to central sample of the waveforms	Resolved	IPF2	vN1.0
CRYO-IDE-215	SAR NRT L2 orders hanging in eligible status	Resolved	IPF2	vN1.0 / NRT vN1.1
CRYO-IDE-219	Freeboard computation in SARIn sea-ice area	Resolved	IPF2	vN1.0
CRYO-IDE-221	Define and optimise strategy for L2 NRT SAR Production	Resolved	IPF2	vN1.0 / NRT vN1.1
CRYO-IDE-223	Issue in L1b time increment	Resolved	IPF1	vN1.0
CRYO-IDE-224	Outliers in CAL1 LRM Gain Variation Type2 corrections	Resolved	IPF1	vO2.1
CRYO-IDE-226	Missed quantized values in CAL1 SARin Path Delay correction on Rx1	Resolved	IPF1	vO2.1
CRYO-IDE-232	New improved Slope Correction/DEM for LRM (i.e Bamber, Helm, SPIRIT? other?)	Resolved	IPF2	vN1.0
CRYO-IDE-235	STR File Format Change	Resolved	STR	vM1.0.1
CRYO-IDE-236	CryoSat Geophysical_Constants file precision	Resolved	Config	N/A
CRYO-IDE-237	Reprocessing Task 'IPF1_SRNP' finished with exit code 128 but expected 0	Resolved	IPF1	vN1.0
CRYO-IDE-239	USO frequency correction on window delay	Resolved	IPF1 & IPF2	vN1.0
CRYO-IDE-240	IPF2 preprocessor issue affecting SIRAL B processing	Obsolete	IPF2	vN1.0
CRYO-IDE-241	Discrepancy in L1B and L2 Filename Validity Times	Resolved	IPF1	vN1.0
CRYO-IDE-242	Datation outside processing window due to out of range Offset counter	Resolved	IPF1	vN1.0
CRYO-IDE-243	Memory issues in Specialized SAR/SARIn IPF1	Resolved	IPF1	vN1.0
CRYO-IDE-244	Inconsistency between L1b 1Hz waveform and L2 1Hz height	Resolved	IPF1	vN1.0
CRYO-IDE-245	Pitch estimation from CryoSat data in L1b Product (Baseline D)	Resolved	IPF1	vN1.0
CRYO-IDE-246	Zero Mask for Surface Sample Stack characterisation	Resolved	IPF1	vO2.1

CRYO-IDE-247	Error Computing Cartesian state vector	Resolved	IPF2	vN1.0
CRYO-IDE-248	Error in writing function of CAL2 Flag in MCD	Resolved	IPF1	vN1.0
CRYO-IDE-249	New L1b-S Stack Product for CryoSat	Resolved	IPF1	vO2.1
CRYO-IDE-250	Pseudo LRM Processing from SARin Acquisition	Resolved	IPF1 & IPF2	vO2.1
CRYO-IDE-252	Change the EECFI flag for aberration correction to Reverse and Update attitude biases	Resolved	IPF1	vN1.0
CRYO-IDE-253	Unknown failure in Rep. Campaign	Resolved	IPF1	vN1.0
CRYO-IDE-254	Time anomaly in last SS in L1b product	Resolved	IPF1	vN1.0
CRYO-IDE-255	Peakiness of Stack in BBP & SAR sea-ice new discrimination	Resolved	IPF1 & IPF2	vN1.0
CRYO-IDE-256	Uncorrected range and altitude to be included in L2/L2i/GDR	Resolved	IPF2	vN1.0
CRYO-IDE-258	Non-monotonically increase of time stamp at Mode transitions	Resolved	IPF2	vN1.0
CRYO-IDE-261	Switch to NetCDF Format	Resolved	IPF1 & IPF2	vN1.0
CRYO-IDE-262	STR Process with aux file for varying mispointing angle biases	Resolved	STR	vM1.0.1
CRYO-IDE-264	Tune/improve of the existing Baseline C retracker over sea-ice (Artic + Antarctic) and Land ice	Resolved	IPF2	vN1.0
CRYO-IDE-266	Improved information on surface characteristics	Resolved	IPF1 & IPF2	vN1.0
CRYO-IDE-268	Geophysical correction in the L2 ice product	Resolved	IPF2	vN1.0
CRYO-IDE-269	Link between 1Hz and 20 Hz measurements	Resolved	IPF1	vN1.0
CRYO-IDE-270	Decommissioning of FDM production	Resolved	IPF1	n/a
CRYO-IDE-271	FBR LRM Product remove from Inventory List	Resolved	IPF1	vN1.0
CRYO-IDE-272	Duplicated datation in time_avg_01_ku variable	Resolved	IPF1 & IPF2	vN1.0
CRYO-IDE-273	Missing xref global attributes	Resolved	IPF1	vN1.0
CRYO-IDE-274	Unexpected Values for AGC ch 1	Resolved	IPF1	vN1.0
CRYO-IDE-276	SAR Sea ICE Concentration	Resolved	IPF2	vN1.0
CRYO-IDE-277	Increased number of bad-flagged points in inland water areas (from baseline B to baseline C)	Resolved	IPF2	vN1.0
CRYO-IDE-278	New Snow Depth correction dedicated to sea-ice areas and land ice areas	Resolved	IPF2	vO2.1
CRYO-IDE-282	SARin power scaling issue in multilooking	Resolved	IPF1	vN1.0

CRYO-IDE-283	CAL4 not applied to the first 19 bursts in SARin Level1 processing	Resolved	IPF1	vN1.0
CRYO-IDE-284	PCONF fields do not updated for the oversampling	Resolved	IPF1	vN1.0
CRYO-IDE-285	Baseline-D TDS: Flag_echo_20_ku field not correctly filled in L1B LRM NetCDF	Resolved	IPF1	vN1.1
CRYO-IDE-287	Baseline-D TDS: Negative flag_mcd values are handled as unsigned	Resolved	IPF1	vN1.1
CRYO-IDE-288	Baseline-D TDS: Window offset applied flagging	Resolved	IPF2	vN1.1
CRYO-IDE-289	Baseline-D TDS: Mismatch in values between HDR and global attributes	Resolved	IPF1	vN1.1
CRYO-IDE-290	Baseline-D TDS: Inconsistency in attribute descriptors of L1B variables	Resolved	IPF1	vN1.1
CRYO-IDE-291	Baseline-D TDS: L2 Calibration Warning	Resolved	IPF2	vN1.1
CRYO-IDE-292	Baseline-D TDS: Updates to variable attributes and PFS	Resolved	IPF1 & IPF2	vN1.1
CRYO-IDE-294	New Set of AUX_STRDBs for BaselineD Reprocessing	Resolved	Config	N/A
CRYO-IDE-295	Baseline-D Digital Object Identifier field implementation in L1b and L2	Resolved	IPF1 & IPF2	vN1.1
CRYO-IDE-296	Baseline-D TDS: implementation of comments from Aresys	Resolved	IPF1 & IPF2	vN1.1
CRYO-IDE-297	Baseline-D TDS: Wrong Reference to PFS documents in L1b and L2	Resolved	IPF1 & IPF2	vN1.1
CRYO-IDE-298	Baseline-D NRT Latency Reduction	Resolved	IPF1	NRT vN1.0
CRYO-IDE-299	Baseline-D -3dB bias on sigma-0 Implemented at L2 (PCONF)	Resolved	IPF2	vN1.1
CRYO-IDE-300	Baseline-D Lead detection retracker (and derived values) bug fix	Resolved	IPF2	vN1.1
CRYO-IDE-301	Baseline-E: adding variables lat_cor_01 lon_cor_01 to L1b products	Resolved	IPF1	vO2.1
CRYO-IDE-302	Baseline-E: compression of netCDF	Resolved	IPF1 & IPF2	vO2.1
CRYO-IDE-303	Baseline-E: adding PLRM @20Hz to ICE L1b products	Resolved	IPF1	vO2.1
CRYO-IDE-305	Baseline-E: SARin ambiguity check flag bits	Resolved	IPF2	vO2.1
CRYO-IDE-306	Baseline-E: SARIn Degraded processing	Resolved	IPF1 & IPF2	vO2.1
CRYO-IDE-308	Baseline-E: Window Delay Comment update	Resolved	IPF1	vO2.1
CRYO-IDE-309	Baseline-E: 1 Hz WF Height field name update	Resolved	IPF1	vO2.1

CRYO-IDE-310	Baseline-E: Range field comments update	Resolved	IPF2	vO2.1
CRYO-IDE-311	Baseline-E: Land Ice Retracker improvements	Resolved	IPF1 & IPF2	vO2.1
CRYO-IDE-313	Baseline-C: Short L1 products due to Offset Counter out of range	Resolved	IPF1	vO2.1
CRYO-IDE-315	CAL1 product not used in preprocessor IPF1 NRT task	Resolved	IPF1	NRT vN1.1
CRYO-IDE-320	Baseline-E: Instrument Range Correction Comments update	Resolved	IPF1	vO2.1
CRYO-IDE-321	Baseline-E: SAR mode peakiness scaling for non-sea-ice surfaces	Resolved	IPF2	vO2.1
CRYO-IDE-333	GDR products not cut at equator (ANX)	Resolved	IPF2	vN1.2