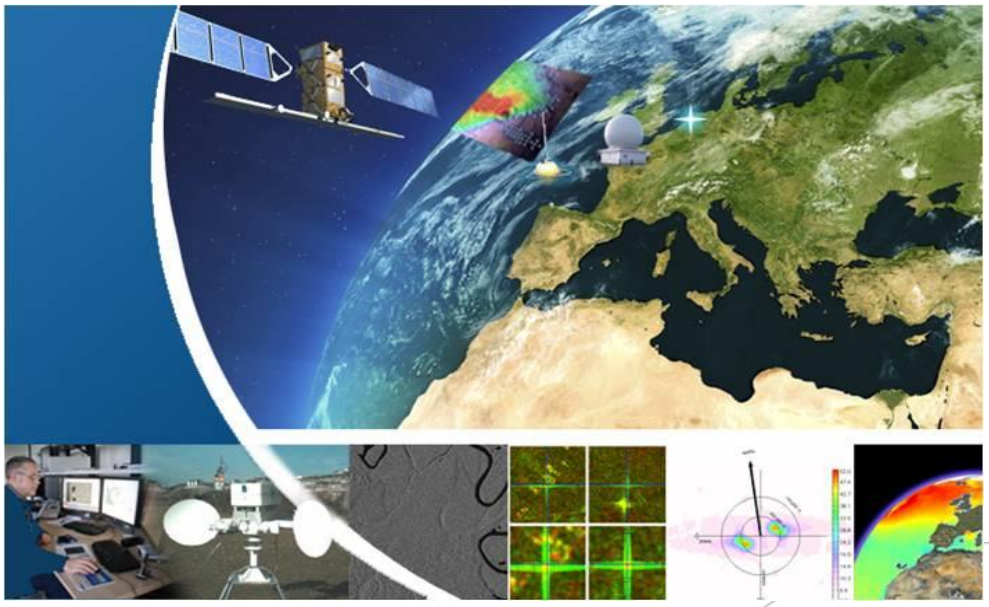
SAR MPC



S1-A N-Cyclic Performance Report - 2023-08

Cycles 309 to 312 (05th December 2023 to 22th January 2024)

Reference: MPC-0100

Nomenclature: DI-MPC-NPR

Issue: 2023-08. 0

Date: 2024,Mar.15

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Chronology Issues:

Issue:	Date:	Reason for change:
2023-08	15.03.24	First Issue: reporting period from 05th December 2023 to 22th January 2024

People involved in this issue:

Written by (*):	G.Hajduch M. Grignoux K. Schmidt *DLR* C. Gisinger *DLR* A. Cotrufo *Aresys*	Date + Initials:(visa or ref)
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Approved by (*):	G.Hajduch	Date + Initial:(visa ou ref) G.Hajduch
Application authorized by (*):		Date + Initial:(visa ou ref)

**In the opposite box: First and Last name of the person + company if different from CLS*

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Hyperlink:	

Distribution:

Company	Means of distribution	Names
ESA	Notification	M.Pinheiro

Applicable documents

None

Reference documents

[1] Piantanida R., Recchia A., Franceschi N., Valentino A., Miranda N., Schubert A., Small D., *Accurate Geometric Calibration of Sentinel - 1 Data*, Proc. *EUSAR 2018*; Aachen, Germany, 2018, 6 p.

[2] Gisinger C., Libert L., Marinkovic P., Krieger L. Larsen Y., Valentino A., Breit H., Balss U., Suchandt S., Nagler T., Eineder M., Miranda N., "The Extended Timing Annotation Dataset for Sentinel-1—Product Description and First Evaluation Results," in *IEEE Transactions on Geoscience and Remote Sensing*, vol. 60, pp. 1-22, 2022, doi: 10.1109/TGRS.2022.3194216.

[3] GMES Sentinel-1 System Requirements Document, Ref S1-RS-ESA-SY-0001, Issue 3., Rev. 3

[4] Gisinger C., Hajduch G., Pinheiro M., Valentino. A., “Update of S-1 Instrument Timing Calibration for ETAD ". SAR-MPC technical note, issue 1.2, 27.10.2023.

List of Contents

1. Introduction

1.1. Purpose of the document

The purpose of this document is to provide a status on the S-1A instrument and product performance for orbit repeat cycles:

- #309 from 5th December 2023 to 17th December 2023,
- #310 from 17th December 2023 to 29th December 2023,
- #311 from 29th December 2023 to 10th January 2024,
- and #312 from 10th January 2024 to 22th January 2024.

1.2. Structure of the document

- Chapter 1: This introduction
- Chapter 2: Executive Summary
- Chapter 3: Instrument Status
- Chapter 4: IPF and Auxiliary Date File Status
- Chapter 5: Manoeuvres
- Chapter 6: Products Status

The following appendices are also provided:

- Appendix A: List of Acronyms
- Appendix B: S1-A Transmit Receive Module Failures
- Appendix C: S1-A Instrument Unavailability
- Appendix D: S1-A Auxiliary Data Files
- Appendix E: S1-A Quality Disclaimers
- Appendix F: IPF Updates and descriptions
- Appendix G: SETAP Updates and descriptions

2. Executive Summary

There was no particular issue on S1A for cycles 309 to 312.

The list of Quality Disclaimers on the Sentinel-1A products performances and the list of the IPF Auxiliary Data Files can be accessed on the QC Web Server at following address:

https://sar-mpc.eu/

The Auxiliary Data Files can be downloaded using a queryable API documented at followed address:

https://sar-mpc.eu/doc/api/

3. Instrument Status

This section provides the status of the S1-A instrument during the reporting period is provided.

3.1. Antenna Status

There were no new S1-A antenna transmit/receive module failures during the reporting period.

TRM	Description	Date of Failure

Table 1 S1-A Antenna Transmit/Receive Module Failures

A full list of all TRM failures since S1-A launch is given in Appendix B:.

3.2. Instrument Unavailability

Start Date/Time	End Date/Time	MPC Reference	Summary

Table 2 S1-A Instrument Unavailabilities

A full list of all instrument unavailabilities since the S1-A launch is given in Appendix C:.

4. IPF and Auxiliary Date File Status

4.1. Processor updates

A processor update was performed on the 19th of October 2023 (deployment of version IPF 003.71).

The description of last applicable IPF and the full list of IPF description is provided on Sar-MPC website [link].

4.2. Auxiliary Data File Updates

There were no updates to S1-A Auxiliary Data Files (ADFs) during the reporting period.

Full list of applicable Auxiliary Data Files is provided on Appendix D:

Instrument ADF (AUX_INS)

ADF	Update Reason

Table 3 AUX_INS Updates

Calibration ADF (AUX_CAL)

ADF	Update Reason

Table 4 AUX_CAL Updates

L1 Processor Parameters ADF (AUX_PP1)

ADF	Update Reason

Table 5 AUX_PP1 Updates

L2 Processor Parameters ADF (AUX_PP2)

ADF	Update Reason

Table 6 AUX_PP2 Updates

Simulated Cross Spectra ADF (AUX_SCS)

ADF	Update Reason

Table 7 AUX_SCS Updates

5. Manoeuvres

Table 8 gives a list of the S1-A orbit manoeuvres that occurred during the reporting period:

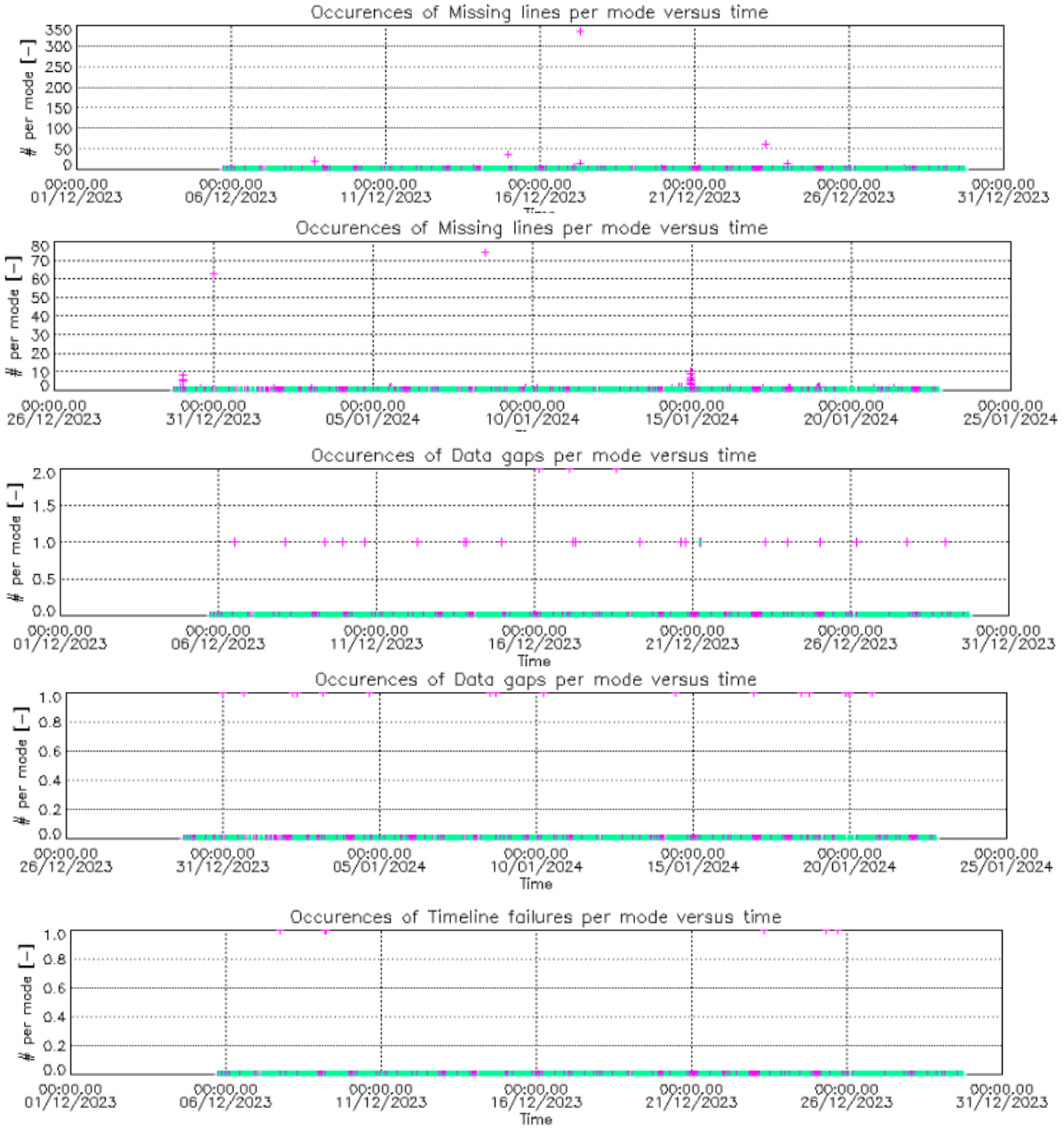
Start Date	Start Time	Stop Date	Stop Time	Comment
2023/12/06	22:26:42	2023/12/06	22:26:51	
2023/12/06	23:14:37	2023/12/06	23:14:56	
2023/12/13	21:15:00	2023/12/13	21:15:50	
2023/12/14	00:55:53	2023/12/14	00:56:21	
2023/12/14	01:44:13	2023/12/14	01:44:58	
2023/12/20	22:41:58	2023/12/20	22:42:38	
2023/12/21	00:20:43	2023/12/21	00:21:01	
2023/12/27	22:05:13	2023/12/27	22:05:52	
2024/01/01	05:29:49	2024/01/01	05:30:30	
2024/01/01	07:08:34	2024/01/01	07:09:15	
2024/01/01	08:47:19	2024/01/01	08:48:00	
2024/01/01	10:26:03	2024/01/01	10:26:44	
2024/01/01	12:04:46	2024/01/01	12:05:31	
2024/01/01	13:43:31	2024/01/01	13:44:15	
2024/01/01	15:22:15	2024/01/01	15:23:00	
2024/01/01	17:01:00	2024/01/01	17:01:45	
2024/01/01	18:39:45	2024/01/01	18:40:29	
2024/01/03	21:26:36	2024/01/03	21:26:39	
2024/01/11	01:43:54	2024/01/11	01:44:31	
2024/01/16	21:15:28	2024/01/16	21:16:09	
2024/01/16	22:04:01	2024/01/16	22:04:39	
2024/01/17	01:42:16	2024/01/17	01:42:35	
2024/01/19	23:12:47	2024/01/19	23:12:50	

Table 8 S1-A Orbit Manoeuvres

6. Products Status

6.1. Level 0 Products

Figure 1 shows missing lines, data gaps, and timeline failures derived from L1 annotation products (purple for IW, blue for EW and green for WV)



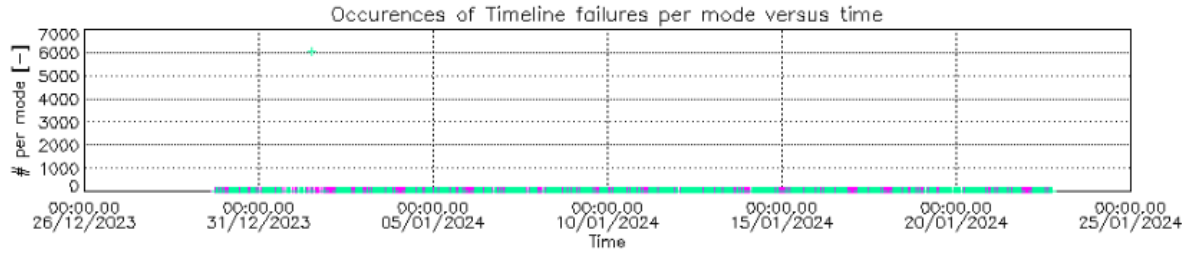


Figure 1 Missing Lines, Data Gaps and Timeline Failures.

The above plots indicate that few products suffer of missing lines, no significant problems with data or timeline failures.

Figure 2 and Figure 3 show I and Q trends and imbalance for IW and WV modes:

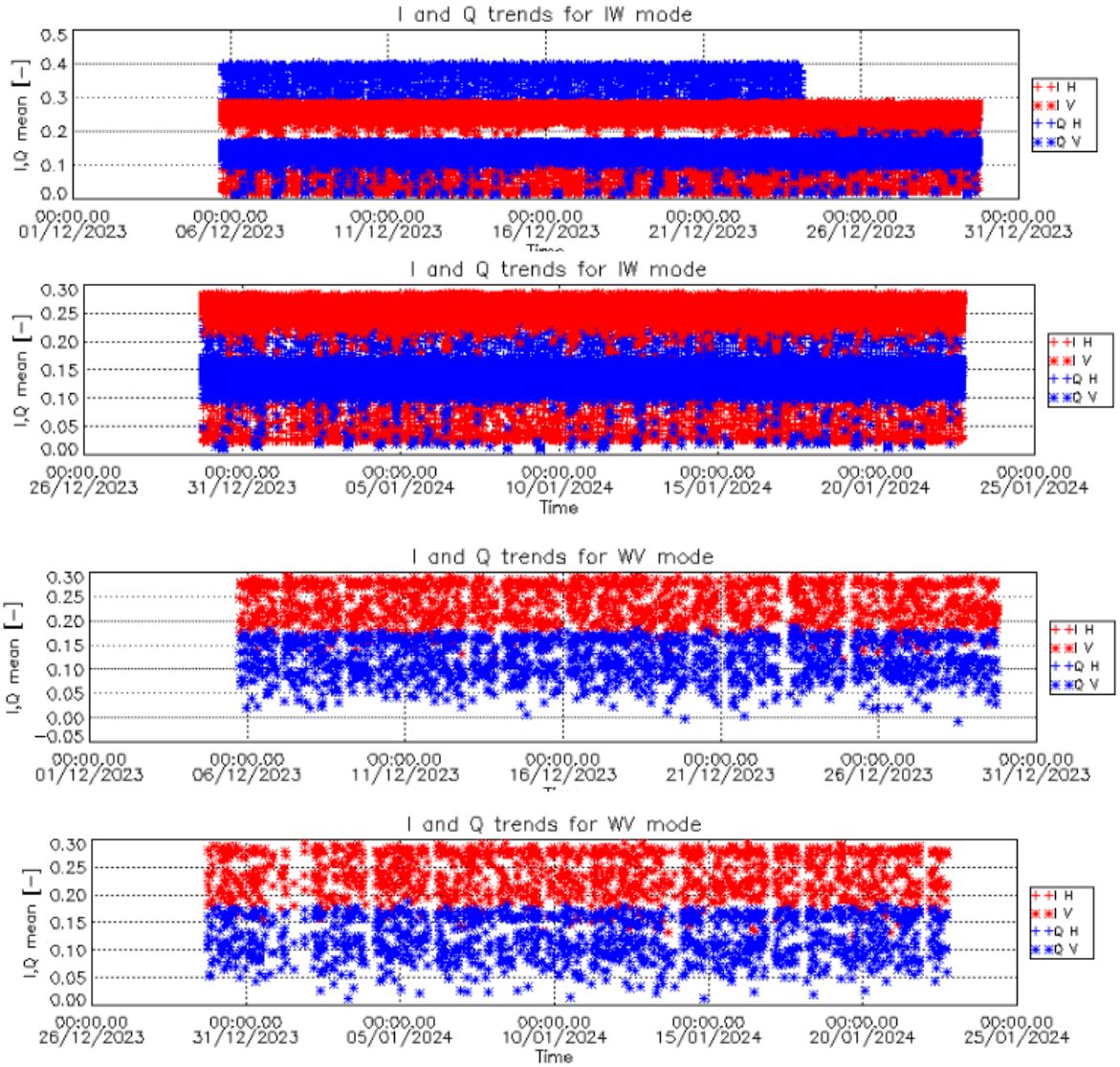
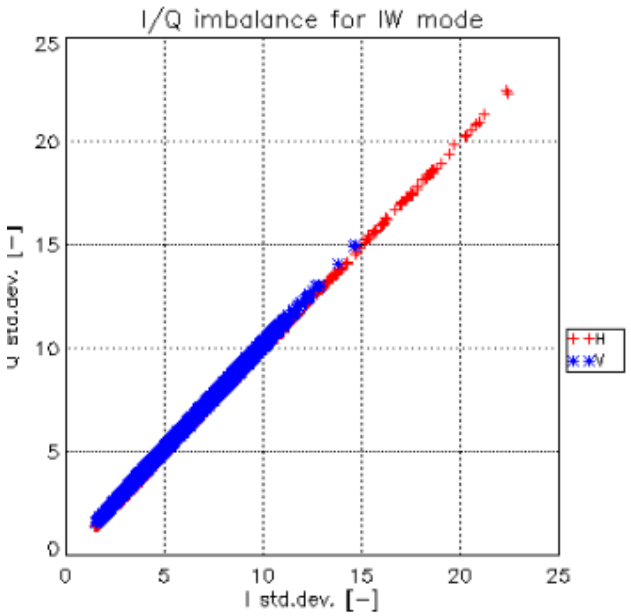
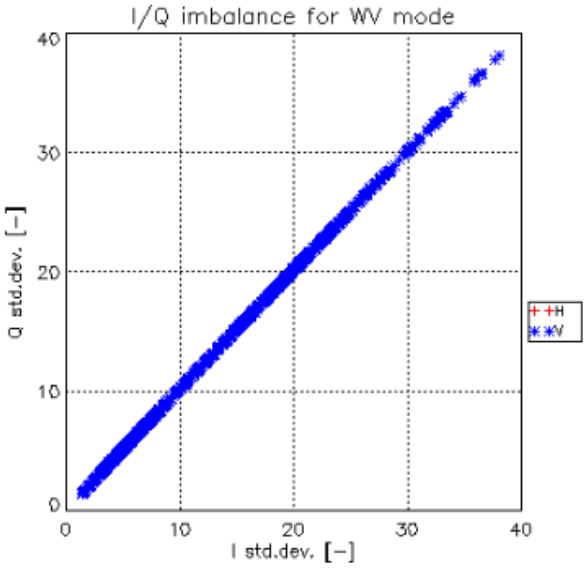


Figure 2 I&Q Channels

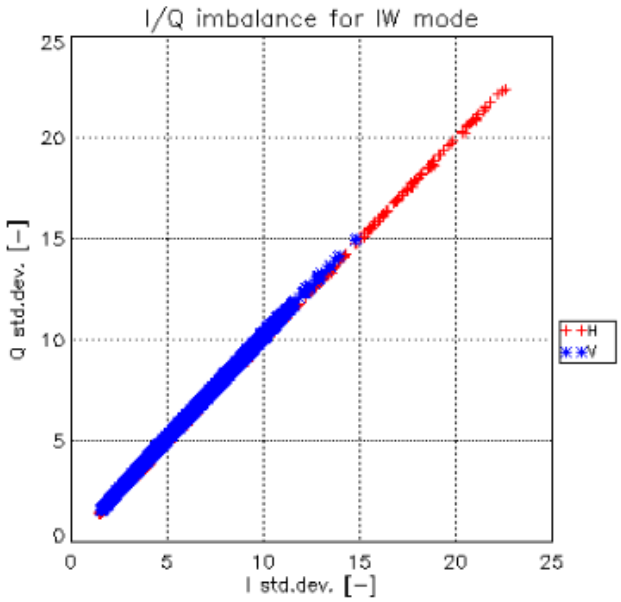
It can be noticed very stable distribution of I&Q for the time period. Jumps on the above time-series usually related to instrument switch on/off correspond to a normal behaviour, that is compensated at processing level. It therefore has no impact on data quality.



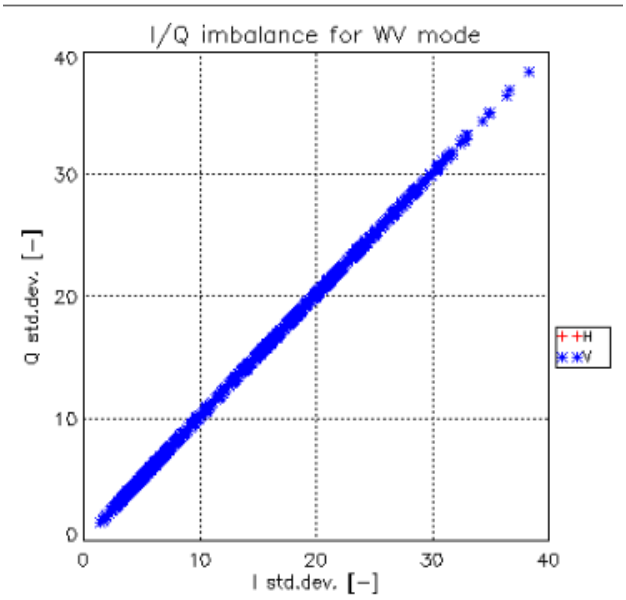
Cycles 309 & 310



Cycles 309 & 310



Cycles 311 & 312



Cycles 311 & 312

Figure 3 WV I&Q Channel Imbalance

The I & Q imbalance plots in the figure above (*left*: IW mode, *right*: WV mode) indicate that the Rx I and Q channels are perfectly balanced.

6.2. Level 1 Products

6.2.1. Image Quality

Figure 4 and Table 9 give the azimuth and range spatial resolution derived from IW imagery acquired during the reporting period, using the Australian corner reflector array and the DLR transponders and corner reflectors. For Australian corner reflector array, only the corner reflectors with the bigger size 2.0 m and 2.5 m (corresponding to 6 CR) are used. The spatial resolution has been derived from SLC data. Table 10 gives the impulse response function (IRF) sidelobe ratios derived from transponder results. These indicate a nominal IRF performance.

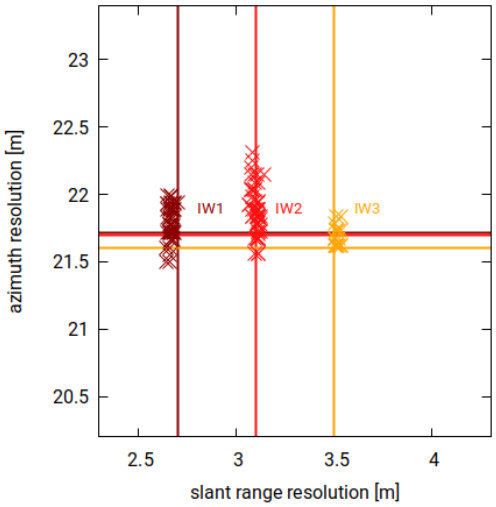


Figure 4 IW Azimuth and Slant Range Spatial Resolutions

Mode/Swath	Azimuth Spatial Resolution (m)	Slant Range Spatial Resolution (m)
IW1	21.79 ± 0.13	2.66 ± 0.01
IW2	21.88 ± 0.17	3.10 ± 0.01
IW3	21.69 ± 0.07	3.52 ± 0.01

Table 9 IW Azimuth and Slant Range Spatial Resolutions

Mode/Swath	ISLR azimuth (dB)	ISLR range (dB)	PSLR azimuth (dB)	PSLR range (dB)
IW1	-17.29 ± 0.12	-15.73 ± 0.22	-23.42 ± 0.36	-20.24 ± 0.99
IW2	-16.06 ± 0.15	-15.54 ± 0.15	-20.86 ± 0.35	-20.00 ± 0.39
IW3	-15.99 ± 0.06	-15.70 ± 0.13	-20.85 ± 0.19	-20.68 ± 0.35

Table 10 IW Sidelobe Ratios derived from transponders' IRF

No Equivalent Number of Looks/Radiometric Resolution and Ambiguity measurements were made during the reporting period.

6.2.2. Radiometric Calibration

Figure 5 depicts the absolute calibration factor derived from IW SLC data acquired during the reporting period using reference targets from the DLR calibration site (transponders and corner reflectors). The absolute calibration factor deviation is estimated as the difference between the measured radar cross section of each target response (transponder or corner reflector) with their own reference value. Table 11 summarizes mean value and standard deviation for the absolute calibration factor including separations between polarization channels VV and VH. The results indicate a nominal and stable radiometric performance for S1A with sufficient measurements for the reporting period.

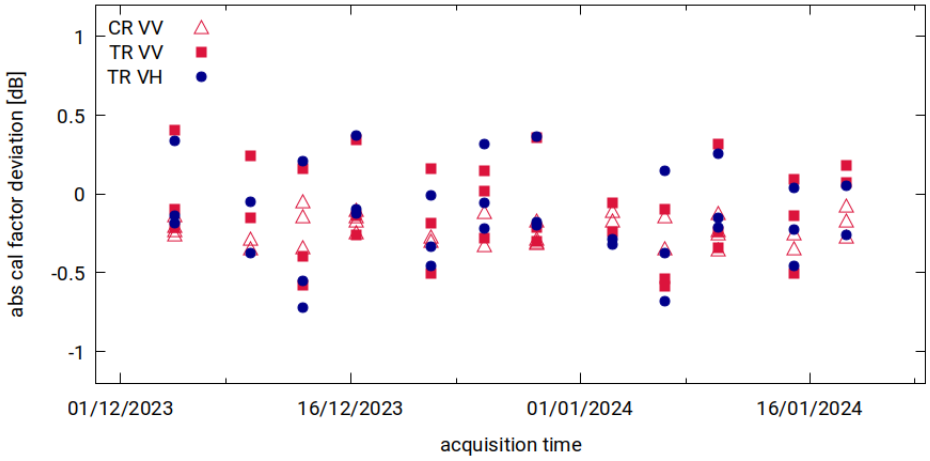


Figure 5 **S1A calibration factor deviation as a function of time for IW acquisitions derived from DLR calibration site (TRs and CRs) for VV (red) and VH (blue) polarization.**

polarization	Absolute calibration factor deviation (dB) mean value ± standard deviation (measurement points)
VV	-0.17 ± 0.22 (67)
VH	-0.14 ± 0.28 (33)
all	-0.16 ± 0.24 (100)

Table 11 S1A calibration factor deviation for IW acquisitions derived from DLR calibration site.

6.2.3. Geometric Calibration

Figure 6 shows the absolute location error (ALE) based on 13 S-1A SLC slice products from the IW acquisition mode acquired during the current reporting period (5 products acquired in DV polarization, 4 in SV, 4 in SH, in total 8 separate dates).

All the three TopSAR IW sub-swaths are represented. The points have been colour-coded according to the subswath the targets were visible in. The products were analysed using the same orbit files used for processing, i.e., the restituted orbit solution.

Corrections described in previous reports were made, including the atmospheric path delay (PD), the “intra-burst-dependent” range correction, “bulk bistatic” and “bistatic residual” corrections, and a topography-dependent Doppler centroid correction (the azimuth corrections are briefly described e.g. in [1]). Note that PD correction depends on the off-nadir angle, which is considered here for the individual corner reflectors spanning the over-100km wide array. Instrument range and azimuth calibration constants are applied in post-processing as described in [2] . The calibration numbers were determined in the 2023 re-calibration campaign using multiple corner reflector targets and 5.5 years of data [4]. Converted to units of meters, the values applied to S-1A read 0.1111m (Rg) and 0.0432m (Az).

Figure 6 shows the ALE scatter after the effects listed above were corrected during post-processing. The range and azimuth ALE mean, and standard deviations are annotated next to the figure. A possible residual separation of the ALE scatter "cloud" for the IW1 sub-swath is apparent in azimuth, see Table 12. The separation may represent an as-of-yet unidentified timing bias, or possibly a bias introduced by the antenna tile event of June 2016. In any case, a physical explanation for such a separation has yet to be identified. The observed range offset has been reduced by about 6cm due to the update of the instrument calibration constants. The small remaining range offsets may be due to the restituted orbit solution (the precise orbit solution was used when determining the instrument calibration) and unknown seasonal biases in the atmospheric path delay corrections. Compared to previous cycles, the range offsets have slightly increased to a few centimetres which is attributed to seasonal ionospheric effects driven by the currently increased solar activity.

In summary, the IW mode ALE plots indicate a localisation performance well within the sensor requirements. The ALE is within the specified 1-sigma for IW mode products (3.33m, i.e. 10m at 3 sigma; see section 5.5.2.2 of [3] .

Mode/Swath	ALE [m]	
	Range	Azimuth
IW1	+0.061 ± 0.060	-0.357 ± 0.286
IW2	+0.037 ± 0.050	-0.083 ± 0.280
IW3	+0.055 ± 0.052	-0.106 ± 0.357

Table 12 S1-A absolute localisation error based on S-1A IW SLC products acquired over the test site during the current reporting period

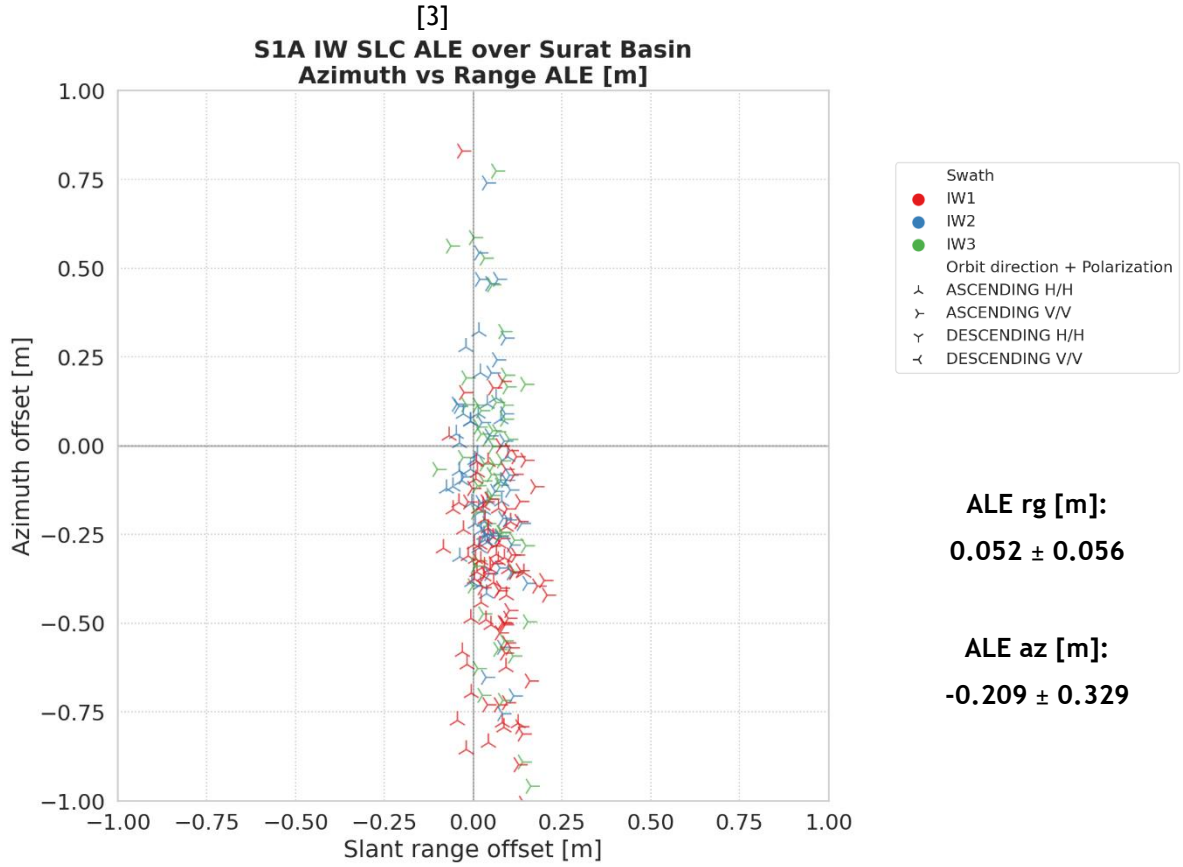


Figure 6 S1-A absolute localisation error based on S-1A IW SLC products acquired over the Surat Basin test site during the current reporting period (Dec 5, 2023, to Jan 22, 2024).

6.2.4. Polarimetric Calibration

Table 13 gives the co-registration between the two polarisations of dual-polarisation products acquired during the reporting period (based on DLR transponder measurements).

Mode/Swath	Range Co-registration Accuracy (m)	Azimuth Co-registration Accuracy (m)	Channel Imbalance (dB)
IW DV	-0.03 ± 0.06	-0.16 ± 0.40	0.03 ± 0.16

Table 13 Polarimetric Calibration Measurements

6.2.5. Elevation Antenna Patterns

No Elevation Antenna Patterns (EAPs) were updated during the reporting period.

6.2.6. Azimuth Antenna Patterns

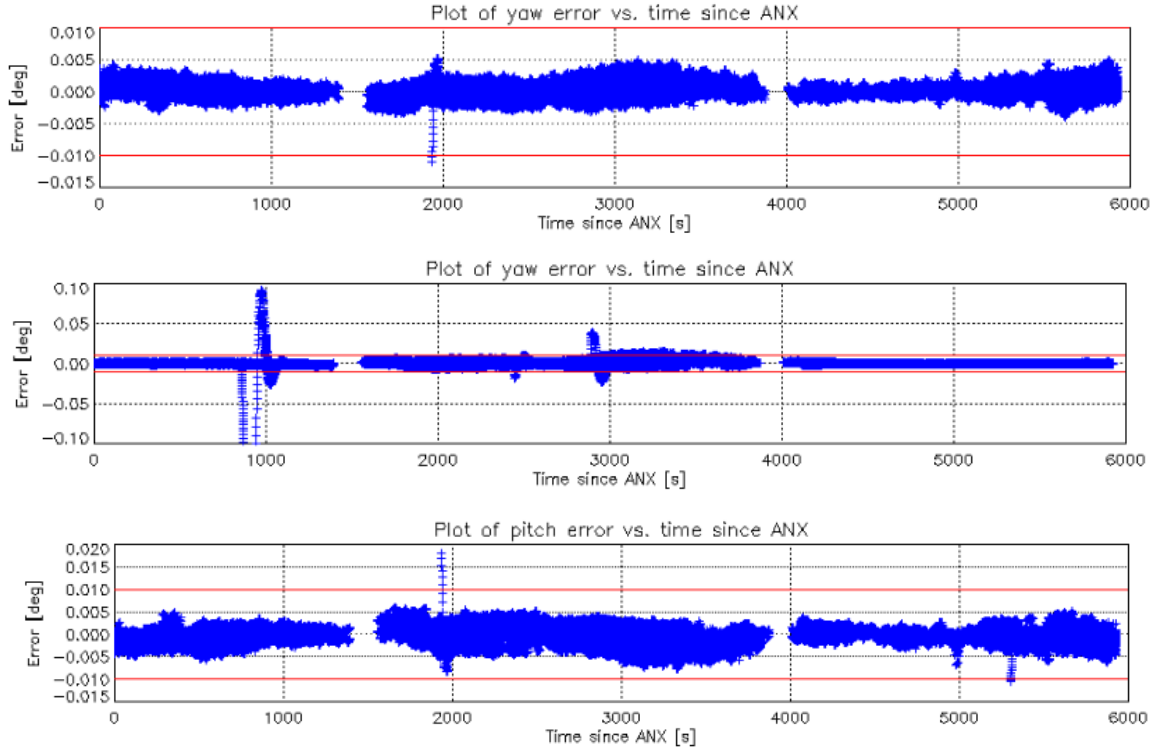
No Azimuth Antenna Patterns (AAPs) were updated during the reporting period.

6.2.7. Noise Equivalent Radar Cross-section

No NESZ measurements were made during the reporting period.

6.2.8. Antenna Pointing

Figure 7 shows yaw, pitch and roll errors calculated for the reporting period against ascending node crossing time (ANX). The red horizontal lines show the nominal ±0.01° bounds for these attitude errors – points outside these bounds are normally due to orbit manoeuvres. Please note that in February, April, August and October, it is seasonally recorded, an increase of the amplitude of yaw and pitch (around ANX ~3000s or either ANX 0/6000s, respectively descending and ascending equator node), which does not impact the Doppler Centroid estimate and is observable on the current reporting period.



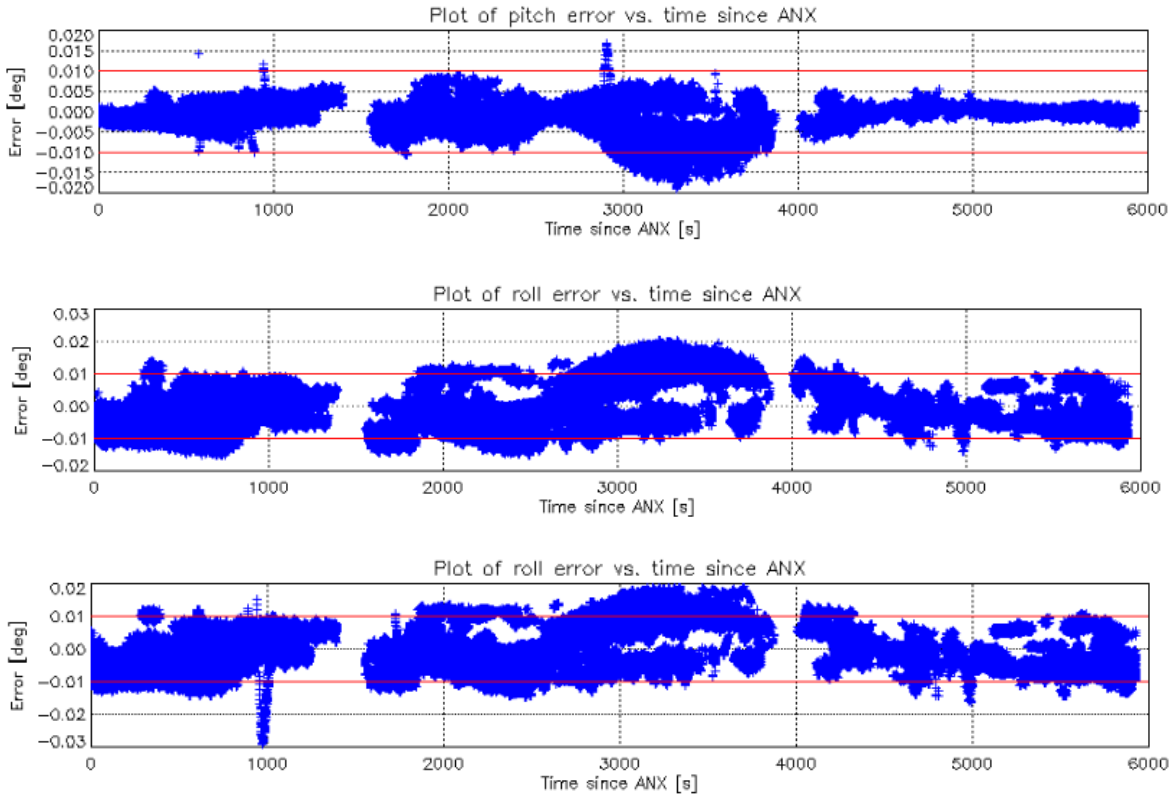
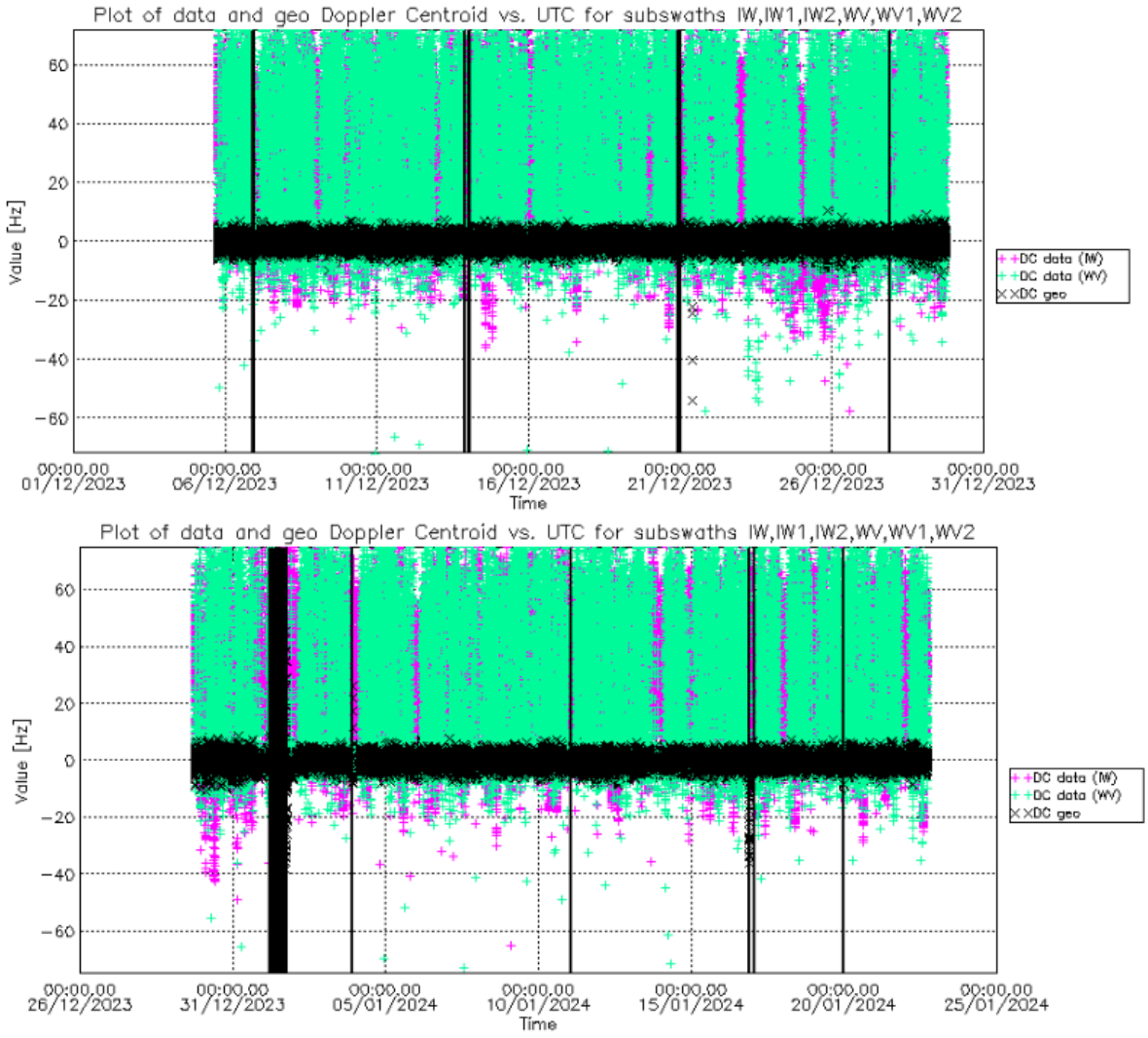


Figure 7 S1-A Yaw, Pitch and Roll Errors (top and bottom respectively cycle 301-302 and cycles 303-304) as function of ANX time

Figure 8 shows the Doppler Centroid frequency as a function of date and ANX. The data has been derived from IW & WV data and from geometry. Note that it is expected that the Doppler estimation from WV mode data will have a higher standard deviation than from IW mode due to the Doppler estimation over the ocean being noisier than over land.

Table 14 gives the statistics based on Doppler Centroid derived from IW and WV data. A more detailed plot of Doppler Centroid frequency distribution in time, derived over land from IW products, is shown in Figure 9.



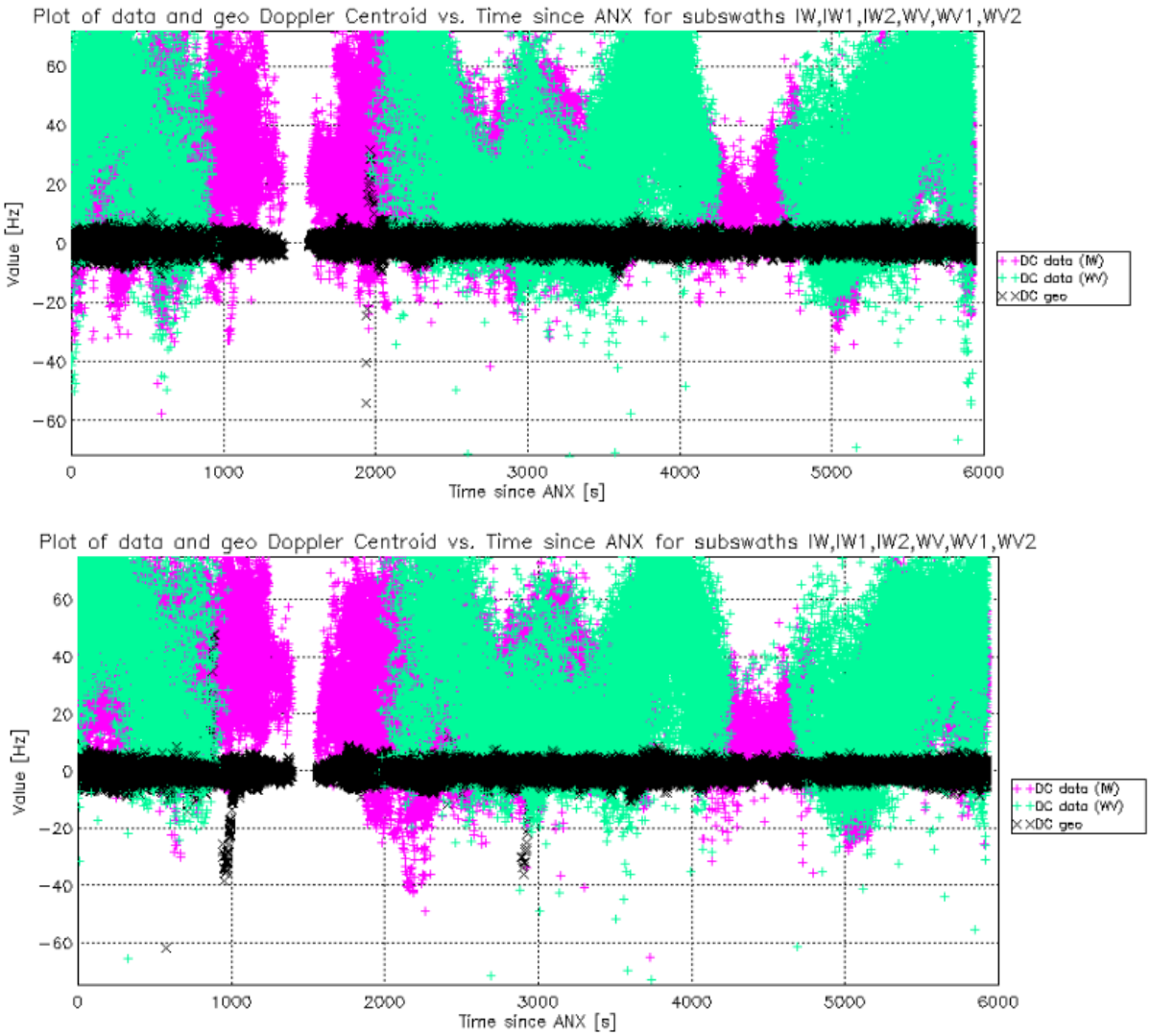


Figure 8 S1-A Doppler Centroid as respect to 1) time (vertical black lines representing the date of manoeuvres) and 2) ANX time (top and bottom respectively cycle 309-310 and cycles 311-312)

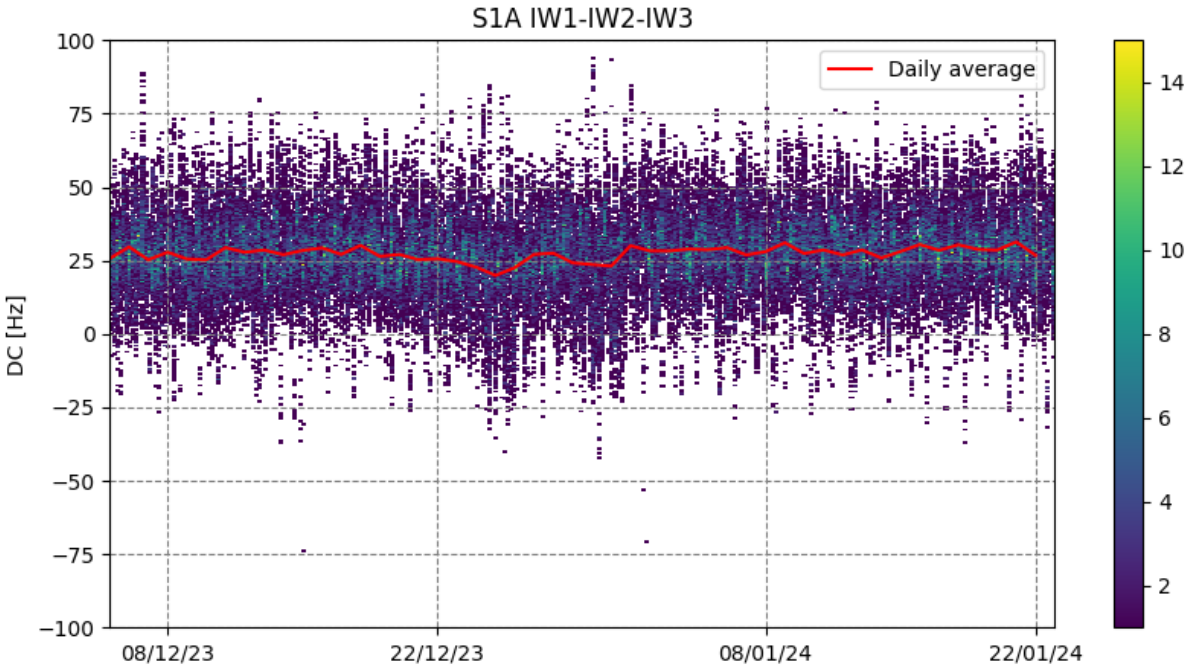


Figure 9 Sentinel1-A Doppler Centroid two-dimensional histogram. Red line shows average on a daily basis. Colorbar shows number of observations for each date-DC bin.

	Min (Hz)	Mean (Hz)	Max (Hz)
Cycles 309 & 310	-272.30	-30.039±15.401	173.26
Cycles 311 & 312	-119.02	31.831 ±14.989	159.24

Table 14 Doppler Centroid Statistics

6.2.9. Interferometric performance

6.2.9.1. Burst synchronisation

The burst synchronization between repeat pass interferometric acquisitions is relevant for the TOPSAR modes (IW and EW), to provide an indication of the quality of the interferometric phase that can be expected. The SAR acquisition start time is planned over a discrete set of points round orbit with precision down to milliseconds. The burst synchronization is systematically monitored by the MPC comparing the times of TopSAR acquisitions derived from current L0A products. The burst synchronization is always monitored by a relative comparison between two acquisitions. The standard monitoring approach has consisted in evaluating the burst synchronization error of each acquisition with respect to the corresponding acquisition performed in a fixed reference cycle from the past (monitoring with respect to reference cycle), namely cycle number 60 (30 September - 12 October 2015) for S-1A. The result of this monitoring for IW and EW modes for the cycles under exam are shown in Figure 10 in the form of an histogram. This method of monitoring benefits from having a fixed cycle of comparison but suffers from seasonal variations and discrepancies between acquisitions far in time. To complement this approach, Figure 11 monitors the burst synchronization error of each acquisition with respect to the corresponding acquisition in the previous cycle (monitoring with respect to previous cycle).

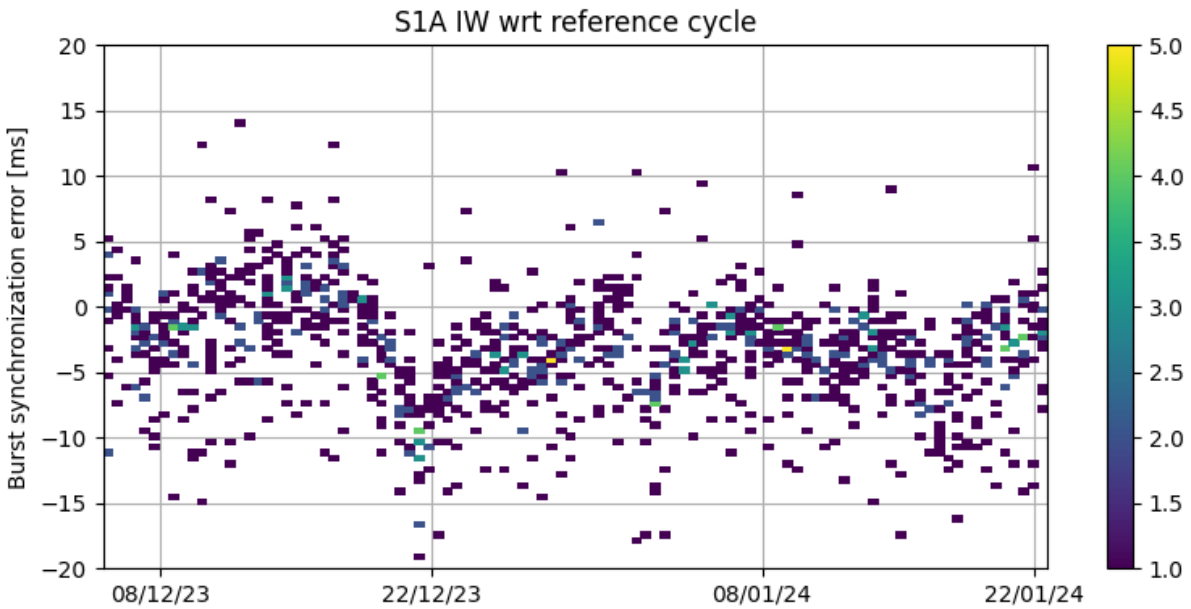
A synchronization timing error between two bursts causes a mismatch in the Doppler bands under which targets are observed, which in turn causes a loss of coherence. It can be shown that the loss of coherence is approximately linearly proportional to the timing error: for S-1 a synchronization error of 5 ms - corresponding to a Doppler spectrum overlap reduction of about 10 Hz in the SLC products - causes a coherence loss of about 3% for IW mode (that has a processed bandwidth around 300 Hz). This estimate is obtained considering only the Doppler mis-match due to the burst de-synchronization; an additional error in pointing may either increase or decrease the Doppler error depending on the sign, thus increasing or decreasing the coherence loss.

The synchronization compliance is computed as the percentage of measurements for which the burst synchronization error falls within $\pm 5\sqrt{2}$ ms (3 sigma interval), with respect to 0 ms. The interval length is obtained by multiplying the 5 ms timing requirement for single acquisitions by 2, as all the values in the image are obtained by combining the timing error of two independent acquisitions.

The measured compliance percentages are show in Table 15.

	IW	EW
Wrt reference cycle	81%	92%
Wrt previous cycle	94%	96%

Table 15 Burst synchronization error compliance percentages for IW and EW with the two monitoring strategies



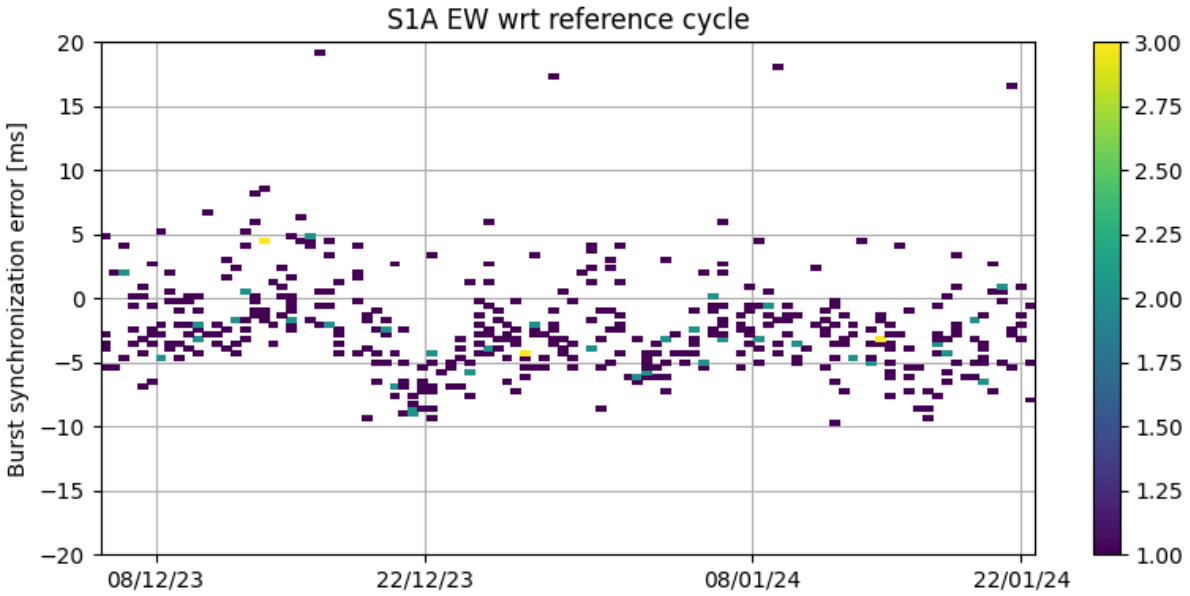


Figure 10:Burst synchronization error for current reporting period, monitoring with respect to reference cycle.

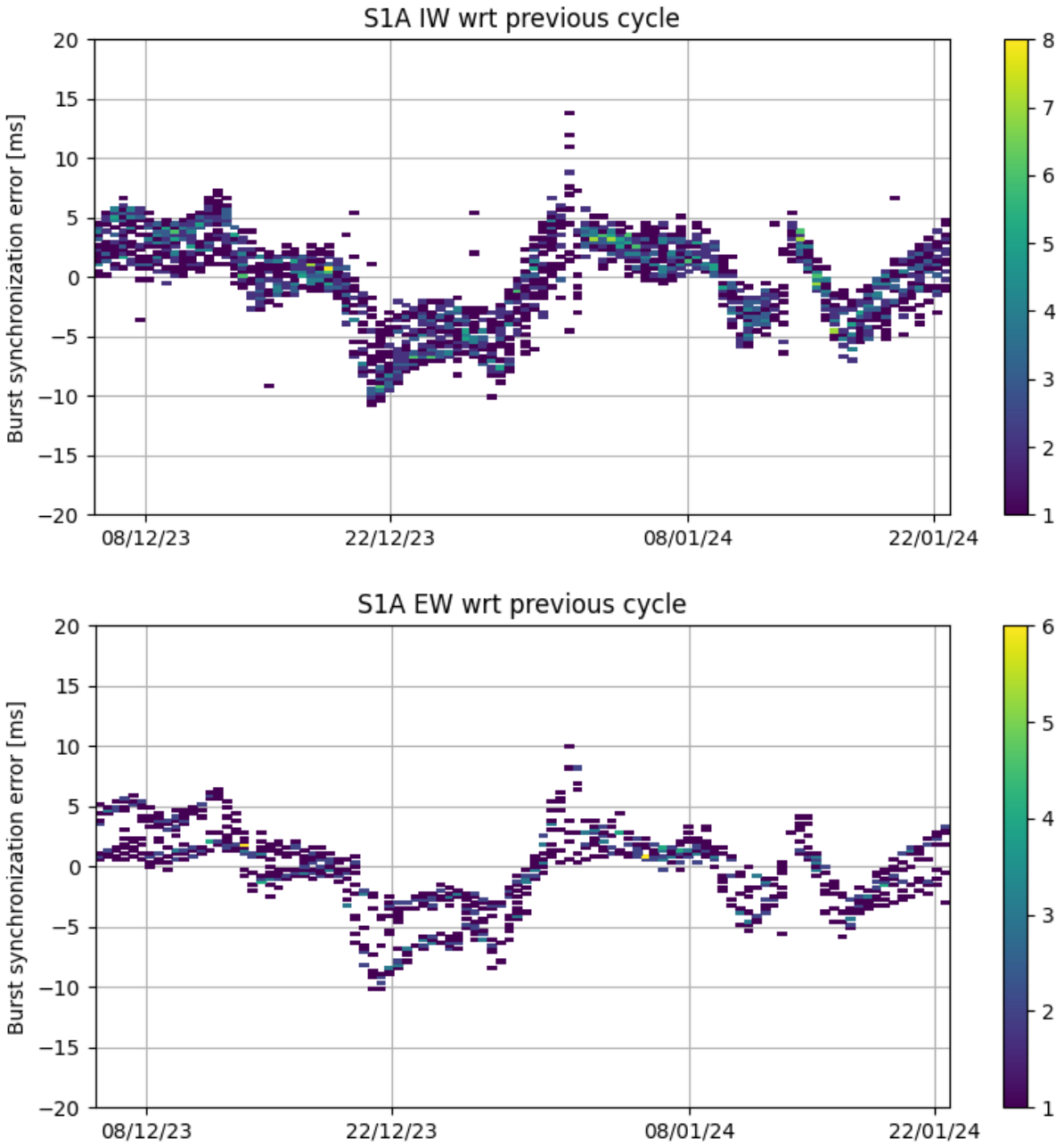


Figure 11 Burst synchronization error for current reporting period, monitoring with respect to previous cycle.

6.2.9.2. Orbit Interferometric Baseline

Repeat pass interferometry requires that acquisitions at different times are performed with a similar orbit to ensure high coherence interferograms. The “distance” between the orbits of a pair of interferometric acquisition is monitored in terms of the interferometric baseline. The interferometric baseline is always monitored by a relative comparison between two acquisitions. The standard monitoring approach has consisted in evaluating the interferometric baseline of each acquisition with respect to the corresponding acquisition performed in a fixed reference cycle from the past (monitoring with respect to reference cycle), namely cycle number 60 (30 September - 12 October 2015) for S-1A. The result of this monitoring for IW and EW modes for cycles under exam are shown

in Figure 12, showing the three components of the baseline. To complement this approach, Figure 13 monitors the interferometric baseline of each acquisition with respect to the corresponding acquisition in the previous cycle (monitoring with respect to previous cycle). The plots show the evolution during the current reporting period of the three interferometric baseline components (Parallel on top, Normal in the middle and Along-Track at the bottom). For each orbit the plots report the maximum baseline value (hot colormap), the average value (black dots), and the minimum baseline value (cold colormap). The hot and cold colormap span from 1 to 175, marking the 175 orbits in a 12-day cycle.

The most significant baseline component for the interferometric coherence is the normal one, which must be significantly lower than the critical baseline. For S-1A the swath-dependent critical baseline is about 5 km. The measured normal baseline (mid plot) shows that normal baselines are below 10% of the critical one, i.e., the worst-case coherence loss due to the interferometric baseline is always well below 10%.

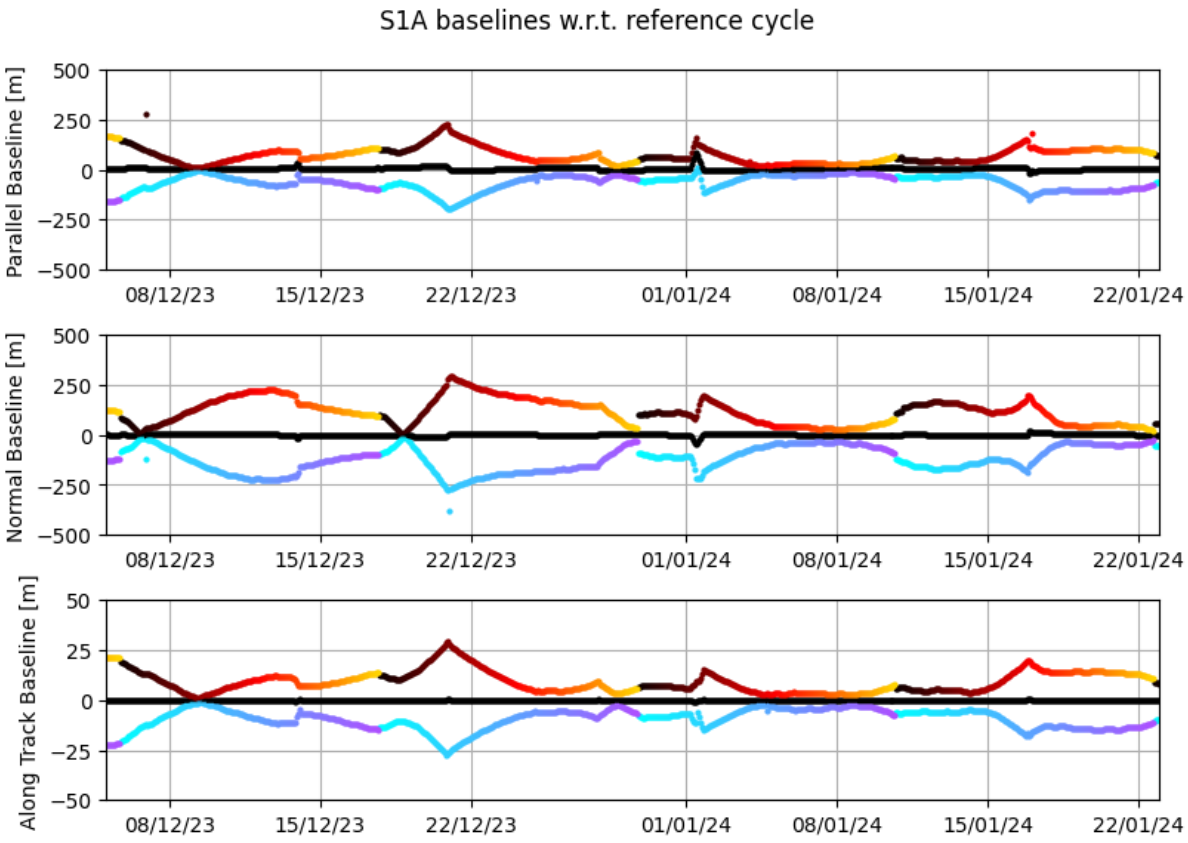


Figure 12: Interferometric baselines for reporting period, monitoring with respect to reference cycle

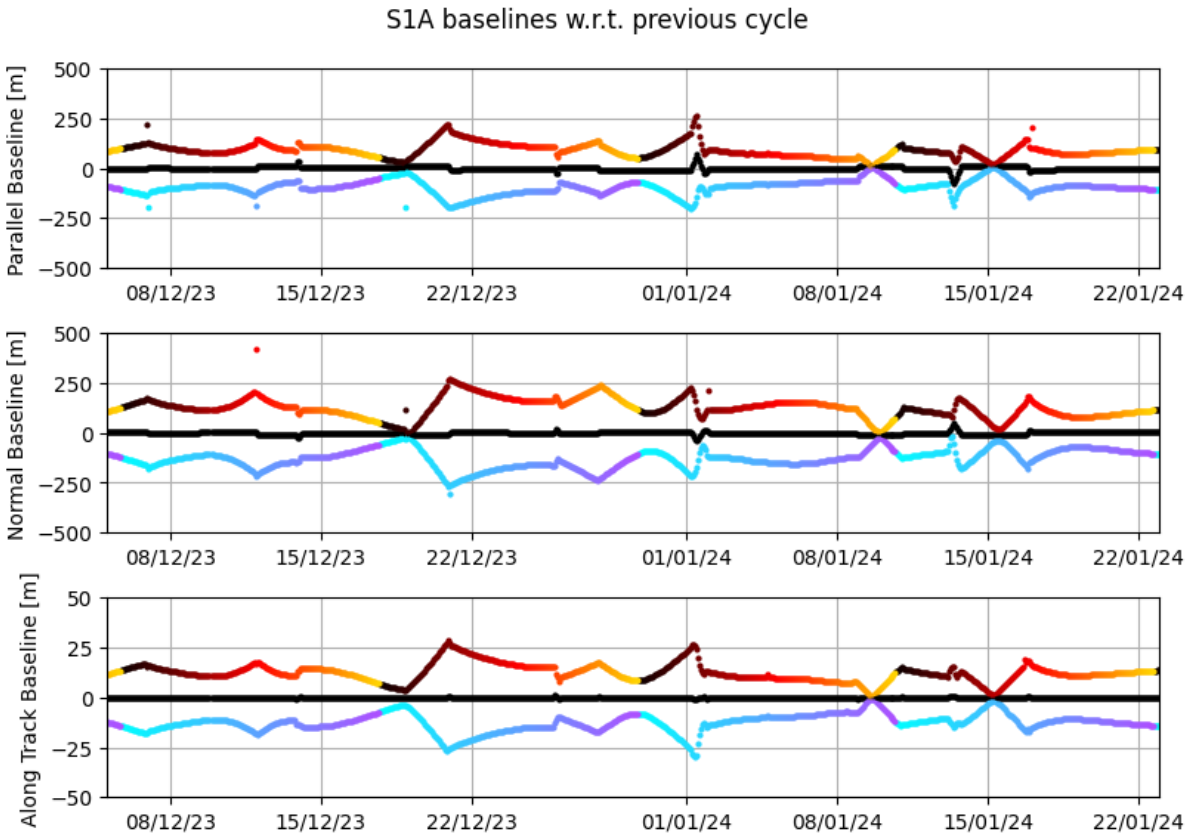


Figure 13 Interferometric baselines for reporting period, monitoring with respect to previous cycle

6.2.10. Summary of Anomalies

There were no anomalies during the reporting period.

6.2.11. Quality Disclaimers

The following quality disclaimers were issued or updated during the reporting period (see Appendix E: for a list of issued and prepared quality disclaimers). A full list of issued quality disclaimers can also be found on the QC Web site.

ID	Title	Start	Stop	Status
#184	Products with residual RFI degradation acquired in November 2023	2023-11-01 00:00:00	2023-12-01 00:00:00	Issue
#185	Invalid burst ID annotations (S1A IW SLC in cycle 308)	2023-11-24 23:37:54	2023-12-05 16:22:16	Issue
#186	Invalid burst ID annotations (S1A IW SLC in cycle 309)	2023-12-06 23:37:54	2023-12-17 16:22:15	Issue
#187	Products with residual RFI degradation acquired in December 2023	2023-12-01 00:00:00	2024-01-01 00:00:00	Issue

#188	Invalid burst ID annotations (S1A IW SLC in cycle 310)	2023-12-18 23:37:53	2023-12-29 16:22:14	Issue
#197	Products processed using degraded orbit files due to solar activity (08 November 2023 to 20 December 2023 included)	2023-11-11 05:17:43	2023-12-18 02:44:26	Issue

Table 16 Quality Disclaimers issued or updated during the reporting period

Quality disclaimers on recurring issues

Since March 2022 (IPF 3.51 deployment), the processor performs mitigation of Radio Frequency Interference (RFI). The purpose of this mitigation is to reduce the number of observable RFI. A non-exhaustive list of products affected by residuals of RFI are published by month starting with QD-154 for the month of May 2023.

Since November 2021 (IPF 3.40 deployment), the EW and IW SLC products contain an annotation of burst ID (relative and absolute burst ID). For some products, the burst ID annotation (absolute and relative burst ID) is shifted by 1 compared to the expected value [QD-77]. Those products are reported for a first period from November 2021 to April 2022 [QD-115] and then at the end of each cycle. The number of invalid burst ID annotation is planned to decrease thanks to the planned deployment of a new processor version (IPF 3.71).

Due to increased solar activity, the performances of AUX_PREORB and AUX_RESORB can be degraded[1]1, exceeding the 100cm (AUX_PREORB) and 10cm (AUX_RESORB) performance requirements. Monthly quality disclaimers are provided containing the list of Level 1 products processed with such degraded orbit files.

[1] https://sentinel.esa.int/en/web/sentinel/-/impact-of-high-solar-activity-on-sentinel-1a-aux-preorb-pod-files

Appendix A: List of Acronyms

AAP	Azimuth Antenna Pattern
AD	Applicable Document
ADF	Auxiliary Data File
ALE	Absolute Localisation Accuracy Error
ANX	Ascending Node Crossing Time
CR	Corner Reflector
EAP	Elevation Antenna Pattern
EW	Extra Wide Swath
IPF	Instrument Processing Facility
IRF	Impulse Response Function
IW	Interferometric Wide Swath
NESZ	Noise Equivalent Sigma0 Zero
PD	Path Delay
PSCAL	Permanent Scatter Calibration
RD	Reference Document
RDB	Radar Data Base
RFI	Radar Frequency Interference
Rx	Receive
SM	Stripmap
TBC	To be confirmed
TBD	To be defined
TRM	Transmit Receive Module
Tx	Transmit
WV	Wave Mode

Appendix B: S1-A Transmit Receive Module Failures

The following S1-A antenna TRM have failed since the S1-A launch:

TRM	Description	Date of Failure
Tile 4, Row 11	Tx, H & V	05-May-2014
Tile 4, Row 12	Tx, H & V	05-May-2014
Tile 4, Row 11	Rx, V	05-May-2014
Tile 4, Row 12	Rx, V	05-May-2014
Tile 4, Row 12	Rx, H	09-June-2014
Tile 5, all TRM failures (intermittent)	Rx, H & V	Between 18-Oct-2014, 15:29:30 UT and 20-Jan-2015, 19:04:54 UT
Tile 5, all TRM failures (intermittent)	Rx, H & V	Between 18-Mar-2015, 04:09:00 UT and 20-Mar-2015, 11:46:30 UT
Tile 5, all TRM failures (intermittent)	Rx, H & V	Between 26-Mar-2015, 16:20:00 UT and 28-Mar-2015, 02:50:30 UT
Tile 12, Row 16 (intermittent)	Tx V & Rx V	Between 16-Apr-2015 and 18-Apr-2015
Tile 5, all TRM failures (intermittent)	Rx, H & V	Between 18-Apr-2015, 17:40:21 UT and 24-Apr-2015, 17:48:08 UT
Tile 12, Row 16 (intermittent)	Tx V & Rx V	Between 20-Apr-2015 and 28-Apr-2015
Tile 5, all TRM failures (intermittent)	Rx, H & V	Between 25-Apr-2015 17:37:37 UT and 30-Apr-2015, 23:01:11 UT
Tile 4, Row 11	Rx H	29-Apr-2015, 21:57:30 UT
Tile 12, Row 16 (intermittent)	Tx V & Rx V	Between 01-May-2015 and 04-May-2015
Tile 5, all TRM failures (intermittent)	Rx, H & V	Between 05-May-2015, 05:12:51 UT and 06-May-2015, 00:44:43 UT
Tile 12, Row 16	Tx V & Rx V	18-May-2015, 22:33:36 UT
Tile 5, all TRM failures	Rx, H & V	Between 26-May-2015, 19:06:00 UT and 27-May-2015, 06:07:00 UT
Tile 5, all TRM failures	Rx, H & V	Between 06-Jun-2015, 06:35:00 UT and 14-July-2015, 10:43:00 UT
Tile 5, all TRM failures	Rx, H & V	Between 17-July-2015, 19:07:00 UT and 21-July-2015, 11:58:00 UT
Tile 11, Rows 1 to 10	Tx H, Tx V	16 June -27 June 2016
Tile 11	See below	

On the 16th October 2017 the S-1A antenna was reconfigured to optimize the electronic operation after the tile 11 issue on June 2016. The new antenna configuration, only related to the tile 11, was captured in RDB#6. From the SAR data point of view, the new antenna status is not much different from the previous one and the only observed effects are a slight increase of the PG (less than 0.1 dB) and a modification of the EAP from the S-1 AM (lower then ±0.1 dB).

Appendix C: S1-A Instrument Unavailability

The S1-A instrument has been unavailable during the following periods since S-1A launch:

Start Date/Time	End Date/Time	MPC Reference	Summary
26/04/2014 11:56	29/04/2014 12:13	SOB-23	Sentinel-1A Unavailability - Instrument Anomaly
29/05/2014 14:00	02/06/2014 17:00	SOB-27	Sentinel-1A Unavailability - Spacecraft Anomaly
06/07/2014 05:04	08/07/2014 15:22	SOB-39	Sentinel-1A Unavailability - Spacecraft Anomaly
21/07/2014 03:30	23/07/2014 08:35	SOB-40	Sentinel-1A Unavailability - Instrument Switch OFF for test
12/08/2014 09:37	12/08/2014 15:31	SOB-47	Sentinel-1A Unavailability - Onboard planned operation
21/08/2014 07:59	21/08/2014 15:29	SOB-49	Sentinel-1A Unavailability - Instrument Anomaly
25/08/2014 09:49	25/08/2014 17:50	SOB-50	Sentinel-1A Unavailability - SAR Instrument
03/09/2014 08:30	04/09/2014 15:11	SOB-53	Sentinel-1A Unavailability - SAR Instrument
20/09/2014 22:30	21/09/2014 12:06	SOB-62	SAR anomaly from 20/09 at 22:30 UTC to 21/09 12:06 UTC
23/09/2014 08:00	23/09/2014 20:00	SOB-60	S1PDGS - SAR & X-Band downlink unavailability on Tuesday 23rd from 08:00 CET to 20:00 CET
26/09/2014 21:40	27/09/2014 09:42	SOB-63	SAR instrument unavailable between 26/09/2014 21.40.48 UTC and 27/09/2014 09.42.38 UTC
29/09/2014 14:56	30/09/2014 15:17	SOB-64	SAR instrument unavailability from 29/09/2014 16.54 UTC to 30/09/2014 at 15.17 UTC.
06/10/2014 10:51	06/10/2014 14:05	SOB-70	Sentinel-1A Unavailability - SAR Anomaly
07/10/2014 06:30	07/10/2014 21:30	SOB-69	Sentinel-1A Unavailability - planned maintenance
10/10/2014 21:52	11/10/2014 11:03	SOB-73	Sentinel-1A Unavailability - SAR anomaly
13/10/2014 08:00	13/10/2014 12:48	SOB-71	Sentinel-1A Unavailability - Planned maintenance
19/11/2014 10:20	19/11/2014 14:50	SOB-91	Sentinel 1A unavailability
29/12/2014 20:45	30/12/2014 11:33	SOB-99	Sentinel-1A Unavailability
20/01/2015 07:30	20/01/2015 18:00	SOB-112	Sentinel-1A Unavailability - Planned maintenance

Start Date/Time	End Date/Time	MPC Reference	Summary
01/02/2015 07:50	02/02/2015 16:26	SOB-116	Sentinel-1A unavailability from 01/02/2015 7h50 to 02/02/2015 16h27
17/02/2015 19:56	18/02/2015 16:02	SOB-118	Sentinel-1A Unavailability - since 17/02/15 evening to 18/02/15 afternoon
19/02/2015 13:29	20/02/201510:15	SOB-121	Sentinel-1A unavailability from 19/02/2015 13h29 to 20/02/2015 10h15
14/04/2015 08:30	14/04/2015 17:00	SOB-147	Sentinel-1A unavailability planned on 14/04/2015 for maintenance
09/05/2015 23:19	10/05/2015 15:39	SOB-159	Sentinel-1A unavailability on 10/05/2015
19/05/2015 05:00	19/05/2015 12:00	SOB-168	Sentinel-1A planned unavailability on 19/05/2015 (RDB#4 uplink onboard)
28/05/2015 04:00	28/05/2015 14:30	SOB-170	Planned Sentinel-1A unavailability on 28/05/2015 for maintenance purpose
20/06/2015 15:30	21/06/2015 13:00	SOB-176	Sentinel-1A unavailability on 20 and 21/06/2015
22/07/2015 06:35	22/07/2015 08:21	SOB-206	Sentinel-1A Planned Unavailability (RDB#5)
03/08/2015 02:37	03/08/2015 18:33	SOB-207	Sentinel-1A Unavailability from orbit 7093 to 7101
04/08/2015 04:52	04/08/2015 13:47	SOB-208	Sentinel-1A Unavailability from orbit 7103 to 7114
04/08/2015 23:44	05/08/2015 11:20	SOB-209	Sentinel-1A Unavailability from orbit 7120 to 7128
09/08/2015 21:22	10/08/2015 16:14	SOB-210	Sentinel-1A Unavailability from orbit 7192 to 7204
04/09/2015 16:54	05/09/2015 11:08	SOB-214	Sentinel-1A Unavailability from 04/09 to 05/09/2015
23/09/2015 07:20	23/09/2015 11:56	SOB-222	Sentinel-1A Unavailability from orbit 7840 to 7842
19/10/2015 16:28	20/10/2015 07:27	SOB-226	Sentinel-1A Unavailability from 19/10 to 20/10/2015
21/10/2015 14:54	22/10/2015 07:12	SOB-227	Sentinel-1A Unavailability from 21/10 to 22/10/2015
05/11/2015 16:50	06/11/2015 12:20	SOB-229	Sentinel-1A Unavailability from 05/11 to 06/11/2015
07/11/2015 17:53	08/11/2015 12:10	SOB-230	Sentinel-1A Unavailability from 07/11 to 08/11/2015
18/11/2015 07:40	18/11/2015 12:28	SOB-233	Sentinel-1A Unavailability on 18/11/2015
29/11/2015 22:54	30/11/2015 11:10	SOB-251	Sentinel-1A Unavailability from 29/11 to 30/11/2015
10/12/2015 07:30	10/12/2015 13:00	SOB-252	Sentinel-1A Planned unavailability on 10/12/2015

Start Date/Time	End Date/Time	MPC Reference	Summary
11/12/2015 02:30	11/12/2015 16:00	SOB-253	Sentinel-1A Unavailability on 11/12/2015
02/01/2016 04:45	02/01/2016 15:14	SOB-255	Sentinel-1A Unavailability on 02/01/2016
16/01/2016 14:59	16/01/2016 19:57	SOB-257	Sentinel-1A Unavailability on 16/01/2016
21/02/2016 18:17	22/02/2016 10:51	SOB-310	Sentinel-1A Unavailability from 21/02/2016 to 22/02/2016
13/03/2016 08:23	13/03/2016 16:14	SOB-332	Sentinel-1A Unavailability on 13/03/2016
15/03/2016 07:46	15/03/2016 09:36	SOB-340	Sentinel-1A Planned Maintenance on 15/03/2016
06/05/2016 21:17	07/05/2016 14:27	SOB-389	Sentinel-1A Unavailability from 06/05/2016 to 07/05/2016
22/05/2016 14:51	22/05/2016 18:11	SOB-411	Sentinel-1A Unavailability on 22/05/2016
16/06/2016 05:59	16/06/2016 13:57	SOB-447	Sentinel-1A Unavailability on 16/06/2016
16/06/2016 16:45	17/06/2016 11:26	SOB-448	Sentinel-1A Unavailability between 16/06/2016 and 17/06/2016
17/06/2016 11:45	27/06/2016 16:32	SOB-467	Sentinel-1A Unavailability between 17/06/2016 and 27/06/2016
02/07/2016 04:52	02/07/2016 13:23	SOB-476	Sentinel-1A Unavailability on 02/07/2016
10/07/2016 06:39	10/07/2016 17:51	SOB-483	Sentinel-1A Unavailability on 10/07/2016
11/07/2016 21:32	12/07/2016 12:05	SOB-507	Sentinel-1A Unavailability on 11/07/2016
27/07/2016 07:49	27/07/2016 15:42	SOB-508	Sentinel-1A Unavailability on 27/07/2016
27/08/2016 23:58	28/08/2016 09:45	SOB-533	Sentinel-1A Unavailability from 27/08/2016 to 28/08/2016
24/11/2016 20:38	25/11/2016 11:34	SOB-614	Sentinel-1A Unavailability from 24/11/2016 to 25/11/2016
04/12/2016 06:52	04/12/2016 11:07	SOB-624	Sentinel-1A Unavailability on 04/12/2016
16/06/2017 09:09	16/06/2017 12:31	SOB-751	Sentinel-1A Unavailability on 16/06/2017
17/06/2017 11:43	17/06/2017 14:43	SOB-752	Sentinel-1A Unavailability on 17/06/2017
21/06/2017 14:09	21/06/2017 17:35	SOB-753	Sentinel-1A Unavailability on 21/06/2017

Start Date/Time	End Date/Time	MPC Reference	Summary
07/07/2017 02:20	07/07/2017 10:29	SOB-758	Sentinel-1A Unavailability on 07/07/2017
03/08/2017 13:30	03/08/2017 14:07	SOB-776	Sentinel-1A Unavailability on 03/08/2017
01/10/2017 12:06	01/10/2017 20:01	SOB-796	Sentinel-1A Unavailability on 01/10/2017
25/10/2017 08:25	25/10/2017 10:15	SOB-817	Sentinel-1A planned Unavailability on 25/10/2017
02/02/2018 14:27	02/02/2018 16:13	SOB-854	Sentinel-1A Unavailability on 02/02/2018
15/03/2018 20:06	16/03/2018 10:25	SOB-888	Sentinel-1A Unavailability between 15/03/2018 and 16/03/2018
16/05/2018 07:51	16/05/2018 09:34	SOB-892	Sentinel-1A Unavailability on 16/05/2018
22/05/2018 16:52	22/05/2018 19:00	SOB-895	Sentinel-1A Unavailability on 22/05/2018
31/05/2018 06:37	31/05/2018 09:54	SOB-897	Sentinel-1A Unavailability on 31/05/2018
02/06/2018 01:23	02/06/2018 09:42	SOB-898	Sentinel-1A Unavailability on 02/06/2018
29/06/2018 16:27	29/06/2018 18:16	SOB-911	Sentinel-1A Unavailability on 29/06/2018
06/07/2018 11:30	06/07/2018 13:11	SOB-916	Sentinel-1A Unavailability on 06/07/2018
13/08/2018 07:59	13/08/2018 11:21	SOB-917	Sentinel-1A Unavailability on 13/08/2018
05/12/2018 23:45	06/12/2018 09:29	SOB-953	Sentinel-1A Unavailability between 05/12/2018 and 06/12/2018
09/12/2018 18:53	10/12/2018 08:57	SOB-954	Sentinel-1A Unavailability between 09/12/2018 and 10/12/2018
14/02/2019 19:54	15/02/2019 10:26	SOB-997	Sentinel-1A Unavailability between 14/02/2019 and 15/02/2019
28/02/2019 09:25	28/02/2019 09:38	SOB-998	Sentinel-1A Planned Unavailability on 28/02/2019
12/03/2019 09:25	12/03/2019 09:38	SOB-1010	Sentinel-1A Planned Unavailability on 12/03/2019
18/04/2019 00:45	18/04/2019 15:00	SOB-1030	Sentinel-1A Unavailability on 18/04/2019
24/05/2019 17:37	25/05/2019 12:34	SOB-1047	Sentinel-1A Unavailability on 24/05/2019 and 25/05/2019
11/11/2019 15:34	11/11/2019 18:46	SOB-1216	Sentinel-1A Unavailability on 11/11/2019

Start Date/Time	End Date/Time	MPC Reference	Summary
03/12/2019 08:35	03/12/2019 09:17	SOB-1252	Sentinel-1A Unavailability on 03/12/2019
03/12/2019 15:42	03/12/2019 15:46	SOB-1255	Sentinel-1A Unavailability on 03/12/2019
06/01/2020 15:17	06/01/2020 15:42	SOB-1305	Sentinel-1A Unavailability on 06/01/2020
29/02/2020 14:43	29/02/2020 17:45	SOB-1396	Sentinel-1A Unavailability on 29/02/2020
09/09/2020 08:50	09/09/2020 11:05	SOB-1688	Sentinel-1A Unavailability on 09/09/2020
26/11/2020 10:06	26/11/2020 13:32	SOB-1839	Sentinel-1A Unavailability on 26/11/2020
19/01/2021 21:42	20/01/2021 10:02	SOB-1948	Sentinel-1A Unavailability on 19/01/2021 and 20/01/2021
02/03/2021 05:34	02/03/2021 11:52	SOB-2014	Sentinel-1A Unavailability on 02/03/2021
22/06/2021 11:10	22/06/2021 11:20	SOB-3357	Sentinel-1A Planned Unavailability on 22/06/2021
29/06/2021 09:24	29/06/2021 11:09	SOB-3358	Sentinel-1A Planned Unavailability on 29/06/2021
09/08/2021 06:23	09/08/2021 09:37	SOB-3418	Sentinel-1A Unavailability on 09/08/2021
11/08/2021 01:23	11/08/2021 09:23	SOB-3422	Sentinel-1A Unavailability on 11/08/2021
15/09/2021 08:40	15/09/2021 12:02	SOB-3496	Sentinel-1A Planned Unavailability on 15/09/2021
16/11/2021 05:11	16/11/2021 11:41	SOB-3559	Sentinel-1A Unavailability on 16/11/2021
16/11/2021 12:23	16/11/2021 16:38	SOB-3560	Sentinel-1A Unavailability on 16/11/2021 #2
19/11/2021 06:30	19/11/2021 08:54	SOB-3561	Sentinel-1A Unavailability on 19/11/2021
24/12/2021 19:32	25/12/2021 08:51	SOB-3611	Sentinel-1A Unavailability on 24/12/2021 and 25/12/2021
10/02/2022 11:25	10/02/2022 14:38	SOB-3691	Sentinel-1A Unavailability on 10/02/2022
22/02/2022 04:54	22/02/2022 14:37	SOB-3726	Sentinel-1A Unavailability on 22/02/2022
01/03/2022 19:07	02/03/2022 12:01	SOB-3727	Sentinel-1A Unavailability on 01/03/20022 and 02/03/2022
13/04/2022 20:52	14/04/2022 08:34	SOB-3809	Sentinel-1A Unavailability on 13/04/2022 and 14/04/2022

Start Date/Time	End Date/Time	MPC Reference	Summary
25/04/2022 06:17	25/04/2022 09:35	SOB-3810	Sentinel-1A Unavailability on 25/04/2022
12/05/2022 14:26	12/05/2022 21:12	SOB-3950	Sentinel-1A Unavailability on 12/05/2022
23/05/2022 16:21	24/05/2022 08:02	SOB-3951	Sentinel-1A Unavailability on 23/05/2022 and 24/05/2022
09/07/2022 18:26	10/07/2022 12:15	SOB-3952	Sentinel-1A Unavailability on 09/07/2022 and 10/07/2022
23/08/2022 23:20	24/08/2022 08:33	SOB-4005	Sentinel-1A Unavailability on 23/08/2022 and 24/08/2022
08/09/2022 23:01	09/09/2022 08:02	SOB-4015	Sentinel-1A Unavailability on 08/09/2022 and 09/09/2022
26/12/2022 11:24	26/12/2022 14:31	SOB-3183	Sentinel-1A Unavailability on 26/12/2022
02/02/2023 03:00	02/02/2023 12:41	SOB-4336	Sentinel-1A Unavailability on 02/02/2023
29/03/2023 09:09	29/03/2023 15:47	SOB-4337	Sentinel-1A Unavailability on 29/03/2023
26/10/2023 12:23	26/10/2023 18:13	SOB-4553	Sentinel-1A Unavailability on 26/10/2023
28/10/2023 16:46	29/10/2023 14:27	SOB-4554	Sentinel-1A Unavailability on 28/10/2023 and 29/10/2023

Appendix D: S1-A Auxiliary Data Files

This appendix provides the list of currently applicable ("active") ADF updates. They are the ADF corresponding to the most up to date characterisation of the instrument and SAR processor.

The full list of Auxiliary Data Files is available on the SAR MPC Web site at following address:

https://sar-mpc.eu/

while the list below corresponds to the "active" ones.

The Auxiliary Data Files can be downloaded using a queryable API documented at followed address:

https://sar-mpc.eu/doc/api/

Instrument ADF (AUX_INS)

ADF	Update Reason
S1A_AUX_INS_V20190228T092500_G20211103T111906.SAFE	Circulation of S1A_AUX_INS to be compliant with IPF3.40 with the introduction of two fields: - onBoardDecimationFilterParamsList for modes IW/EW to support RFI mitigation processing, - deltaTXLatch parameter used to perfom instrument timing correction. Related to RDB#7.
S1A_AUX_INS_V20171017T080000_G20211028T133136.SAFE	As above but related to RDB#6.
S1A_AUX_INS_V20160627T000000_G20211028T133055.SAFE	As above but related to RDB#5 (after tile #11 failure).
S1A_AUX_INS_V20150722T120000_G20211028T132901.SAFE	As above but related to RDB#5 (before tile #11 failure).
S1A_AUX_INS_V20150519T120000_G20211028T132821.SAFE	As above but related to RDB#4.
S1A_AUX_INS_V20140908T000000_G20211028T132730.SAFE	As above but related to RDB#3.
S1A_AUX_INS_V20140616T133500_G20211028T132453.SAFE	As above but related to RDB#2.
S1A_AUX_INS_V20140406T133000_G20211028T132414.SAFE	As above but related to RDB#1.

Calibration ADF (AUX_CAL)

ADF	Update Reason
S1A_AUX_CAL_V20190228T092500_G20210104T141310.SAFE	Refinement of S1A IW DH Elevation Antenna patterns. Compatible with RDB#7
S1A_AUX_CAL_V20171017T080000_G20210104T141000.SAFE	As above but related to RDB#6.
S1A_AUX_CAL_V20160627T000000_G20190626T100501.SAFE	Circulation of S1A_AUX_CAL to be compliant with IPF3.10.

	Modification of the noiseCalibrationFactor for SM, IW, EW and WV modes to accommodate for the software changes introduced in IPF 3.1.0 and related to noise normalization. In addition, the WV NESZ annotations have been re-calibrated. Compatible RDB#5 after tile 11 failure
S1A_AUX_CAL_V20150722T120000_G20190626T100253.SAFE	As above but related to RDB#5 before Tile #11 failure.
S1A_AUX_CAL_V20150519T120000_G20190626T100229.SAFE	As above but related to RDB#4
S1A_AUX_CAL_V20140908T000000_G20190626T100201.SAFE	As above but related to RDB#3
S1A_AUX_CAL_V20140616T133500_G20190626T100133.SAFE	As above but related to RDB#2
S1A_AUX_CAL_V20140406T133000_G20190626T100036.SAFE	As above but related to RDB#1

L1 Processor Parameters ADF (AUX_PP1)

ADF	Update Reason
S1A_AUX_PP1_V20190228T092500_G20220323T153041.SAFE	Circulation of S1A_AUX_PP1: 1)allowing the activation of RFI mitigation. - flag rfiMitigationPerformed triggering the activation of RFI mitigation processing, is set to BasedOnNoiseMeas for all S1A TOPS products (IW/EW Level1 and Level2 products), so that the RFI mitigation is applied if RFI detection from noise measurements - flag rfiMitigationDomain triggerring the method for RFI mitigation is set to TimeandFrequency 2) reviewing the processing gains of SL2/GR2 EW/IW for HH channel, in order to aligned S-1A wind speed performance to S-1B for OCN products Relative to RDB#7
S1A_AUX_PP1_V20171017T080000_G20220323T144732.SAFE	As above but related to RDB#6.
S1A_AUX_PP1_V20150722T120000_G20220323T144038.SAFE	As above but related to RDB#5.
S1A_AUX_PP1_V20150519T120000_G20220323T143127.SAFE	As above but related to RDB#4.
S1A_AUX_PP1_V20140908T000000_G20220323T142628.SAFE	As above but related to RDB#3.
S1A_AUX_PP1_V20140616T133500_G20220323T142238.SAFE	As above but Related to RDB#2.
S1A_AUX_PP1_V20140406T133000_G20220323T141316.SAFE	As above but Related to RDB#1.

L2 Processor Parameters ADF (AUX_PP2)

ADF	Update Reason
S1A_AUX_PP2_V20190228T092500_G20220607T093912.SAFE	Circulation of S1A_AUX_PP2 allowing the activation of TotalHs estimation - Flag activateTotalHs triggering the activation of TotalHs estimation based on machine learning method is set to true for WV mode, for both subswath WV1 and WV2. Consequently, oswTotalHs and oswTotalHsStdev will be populated for WV OCN products. The change affects only WV mode. Relative to RDB#7
S1A_AUX_PP2_V20171017T080000_G20220607T093818.SAFE	As above and compliant with RDB#6
S1A_AUX_PP2_V20150722T120000_G20220607T093737.SAFE	As above and compliant with RDB#5
S1A_AUX_PP2_V20150519T120000_G20220607T093644.SAFE	As above and compliant with RDB#4
S1A_AUX_PP2_V20140908T000000_G20220607T093557.SAFE	As above and compliant with RDB#3
S1A_AUX_PP2_V20140616T133500_G20220607T093510.SAFE	As above and compliant with RDB#2
S1A_AUX_PP2_V20140406T133000_G20220607T093358.SAFE	As above and compliant with RDB#1

SETAP Configuration File (AUX_SCF)

ADF	Update Reason
S1__AUX_SCF_V20140406T133000_G20221003T130002	First version of the AUX SCF prepared by SAR-MPC for the SETAP-IPF. It provides the default configuration for the computation of correction layers of nominal S-1 ETAD products. This version of AUX SCF is applicable to SETAP-IPF version 2.0, see specification in ETAD-DLR-DD-0009 Processor Configuration Description-Document Issue 1.5.

	References: RDBADF: RDBADF-129

Instrument Timing Calibration (AUX_ITC)

ADF	Update Reason
S1A_AUX_ITC_V20160627T000000_G20221003T125859.SAFE	First version of the S-1A AUX ITC prepared by SAR-MPC for the SETAP-IPF. This calibration product provides Sentinel-1A specific azimuth and range timing correction values for the generation of S-1 ETAD products. According to the timing offset calibration status as of August 2022 the correction values are uniform over beams and polarizations. According to the validity date this AUX ITC product is applicable for S-1A data acquired after the S-1A antenna tile #11 event on 2016-06-27. The AUX ITC is specified in ETAD-DLR-DD-0004 Input/Output Description Document Issue 2.2. References: RDBADF: RDBADF-130
S1A_AUX_ITC_V20160627T000000_G20230330T093840.SAFE	First version of the operational S-1A AUX ITC prepared by SAR-MPC for SETAP-IPF. This calibration product provides Sentinel-1A specific azimuth and range reference timing correction values and the beam and polarization dependent time offset values for the generation of S-1 ETAD products. According to the timing offset calibration status as of August 2022 the offset values are set to zero. The AUX ITC is specified in ETAD-DLR-DD-0009 Processor Configuration Description Document, Issue 1.6.
S1A_AUX_ITC_V20160627T000000_G20230406T084701.SAFE	Operational S-1A AUX ITC prepared by SAR-MPC for SETAP-IPF. This calibration product provides updated Sentinel-1A specific range and azimuth reference timing correction values for the

	generation of S-1 ETAD products. The value in / was changed from 1.1281e-09 to 7.4103e-10 seconds. The value in / was changed from 1.2873e-05 to 6.3522e-06 seconds.

Simulated Cross Spectra ADF (AUX_SCS)

ADF	Update Reason
S1__AUX_SCS_V20140402T000000_G20160413T103855.SAFE	Introduction of AUX_SCS. Related to RDB#1.
S1__AUX_SCS_V20140616T133700_G20160413T104849.SAFE	Introduction of AUX_SCS. Related to RDB#2.
S1__AUX_SCS_V20140908T000000_G20160413T105124.SAFE	Introduction of AUX_SCS. Related to RDB#3.
S1__AUX_SCS_V20150519T120000_G20160413T105253.SAFE	Introduction of AUX_SCS. Related to RDB#4.
S1__AUX_SCS_V20150722T120000_G20160413T105410.SAFE	Introduction of AUX_SCS. Related to RDB#5.
S1__AUX_SCS_V20171017T080000_G20171016T150910.SAFE	Update of ADF to be compliant with RDB#6.
S1__AUX_SCS_V20140406T133000_G20200623T142050.SAFE	This new AUX_SCS files was specifically developed to accompany a modification of the MTF (Modulation Transfer Function) estimated in the Level-2 Ocean Processor (LOP) in the ocean swell processing on IPF 3.30. This modification was performed to remove the several ad-hoc tunings applied to the initial MTF and to also propose a better compensation of the ocean wave spectral energy with respect to the ocean surface wind speed.
S1__AUX_SCS_V20210622T130000_G20210621T100158.SAFE	This version of the AUX_SCS embeds a new tunned version of the Real Aperture Radar Modulation Transfer Function (RAR MTF), specific to the optimised WV2 antenna configuration. This AUX_SCS impacts only WV2, and support the upgrade of RDB configuration (S1A RDB#7, S1B RDB#2).

Appendix E: S-1A Quality Disclaimers

The following Quality Disclaimers have been prepared since the S1-A launch:

Number	Description	Start Validity Date	End Validity Date	Issue Status
1	S1A_WV_SLC_1S products filled with zero (black products)	2014-09-30 15:17:26 UT	2014-10-03 03:34:01 UT	Issued
2	Failure on tile amplifier #5 of the receiving antenna	2014-10-18 15:29:30 UT	2015-01-20 19:04:54 UT	Issued
3	Level 1 products processed with incorrect gains	2014-09-30 15:17:26 UT	2014-10-03 04:07:54 UT	Issued
4	Incorrect Cycle Number and Relative orbit number in products processed in PAC2/DPA	2014-12-09 11:45:25 UT	2015-01-21 03:53:00 UT	Issued
5	Failure on Tile amplifier #5 of the receiving antenna from 18/03/2015 and 20/03/2015	2015-03-18 04:09:00 UT	2015-03-20 11:46:30 UT	Issued
6	Failure on Tile amplifier #5 of the receiving antenna from 26/03/2015 to 28/03/2015	2015-03-26 16:20:00 UT	2015-03-28 02:50:30 UT	Issued
7	Failure on Tile amplifier #5 of the receiving antenna from 18/04/2015 to 24/04/2015	2015-04-18 17:40:21 UT	2015-04-24 17:48:08 UT	Issued
8	Failure on Tile amplifier #5 of the receiving antenna from 25/04/2015 to 30/04/2015	2015-04-25 17:37:37 UT	2015-04-30 23:01:11 UT	Issued
9	Failure on Tile amplifier #5 of the receiving antenna from 05/05/2015 to 06/05/2015	2015-05-05 05:12:51 UT	2015-05-06 00:44:43 UT	Issued
10	Denoising vectors not qualified	2014-10-03 00:00:00 UT	2015-07-03 06:33:15 UT	Issued
11	S-1 L2 OCN product preliminary qualified	2015-07-02 00:31:03 UT	2030-01-01 00:00:00 UT	Issued
12	Failure of TRM #5 between 2015-05-26 and 2015-05-27.	2015-05-26 21:10:28 UT	2015-05-27 05:53:00 UT	Issued
13	Failure of TRM #5 between 2015-06-06 and 2015-07-14	2015-06-06 06:44:28 UT	2015-07-14 07:50:55 UT	Issued
14	Invalid radiometric calibration of WV L1 and L2 products	2015-03-19 02:29:22 UT	2015-07-03 08:09:02 UT	Issued
15	Failure of TRM #5 from 2015-07-17 to 2015-07-21	2015-07-17 18:58:56 UT	2015-07-21 12:04:57 UT	Issued
16	Invalid Orbit Number at UPA - before 2014-10-10	2014-10-03 00:00:00 UT	2014-10-10 06:28:50 UT	Issued
17	Incorrect Cycle Number in S1-A Products acquired between 26/01/2016 and 04/02/2016.	2016-01-26 21:17:42 UT	2016-02-04 16:29:59 UT	Issued
18	Invalid annotation of NSSDC identifier of Sentinel-1A between April 2014 and July 5th 2016	2014-09-30 15:17:26 UT	2016-07-05 10:16:00 UT	Issued
21	Issue on geolocation of Sentinel-1A SM SLC products with IPF v2.71	2016-05-11 21:02:59 UT	2016-08-22 21:35:50 UT	Issued
22	Invalid annotation of SSPPDU in the manifest of S-1A products	2014-09-30 15:17:26 UT	2019-04-17 06:30:03 UT	Issued
24	Incorrect Cycle Number in S1-A Products acquired between 12/01/2017 and 24/01/2017	2017-01-12 00:18:59 UT	2017-01-24 06:52:28 UT	Issued

26	S-1A products processed with invalid Restituted Orbit Files (AUX_RESORB) between 2017-09-06 and 2017-09-07	2017-09-06 18:57:47 UT	2017-09-07 08:07:45 UT	Issued
28	S-1A L2 OCN products provide reverse OSW wind direction respect to the specification	2015-11-24 12:03:51 UT	2018-03-13 02:30:17	Issued
30	Issue on the noise vector annotation of S-1A products generated from L0N with updated content	2018-03-13 01:00:42 UT	2018-03-15 14:01:26 UT	Issued
32	S-1A mis synchronisation with impact on azimuth bandwidth synchronisation for InSAR applications	2015-05-17 00:03:40 UT	2015-05-18 23:14:45 UT	Issued
33	S-1A products processed without Restituted Orbit Files (AUX_RESORB) between 2018-03-21 and 2018-03-22	2018-03-21 21:42:52 UT	2018-03-22 07:33:09 UT	Issued
35	S-1A products processed without Restituted Orbit Files (AUX_RESORB) between 2018-04-08 and 2018-04-11	2018-04-08 18:58:39 UT	2018-04-11 16:20:49 UT	Issued
37	S1A denoising vectors for Strip Map products were not properly calibrated after IPF 2.90 deployment	2018-03-13 11:54:53 UT	2018-06-21 18:53:32 UT	Issued
38	S-1A products processed without Restituted Orbit Files (AUX_RESORB) between 2018-07-07 and 2018-07-09	2018-07-07 11:49:47	2018-07-09 03:34:48	Issued
40	S-1A products processed without Restituted Orbit Files (AUX_RESORB) on 2018-09-20	2018-09-20 10:41:03	2018-09-20 16:15:34	Issued
42	Test of the new S-1A antenna configuration, aiming improvement of WV2 performances	2019-02-28 09:42:51	2019-03-12 00:00:00	Issued
43	S-1A Products generated without AUX_RESORB between 10 April 14:00 UTC to 11 April 07:00 UTC 2019	2019-04-18 15:20:30	2019-04-10 12:37:43	Issued
46	Products have been wrongly generated as S1B instead of S1A on 20th August 2019	2019-08-20 05:33:56	2019-08-20 13:42:08	Issued
47	S-1A Products generated without AUX_RESORB on 19th July 2019	2019-07-18 22:52:54	2019-07-18 23:55:52	Issued
49	S-1A Products generated without AUX_RESORB on 12th September 2019	2019-09-12 05:47:48	2019-09-12 05:54:28	Issued
50	S-1A Products generated without AUX_RESORB on 31th August 2019	2019-08-31 18:26:10	2019-08-31 23:16:23	Issued
51	S-1A Products generated without AUX_RESORB on 13th November 2019	2019-11-13 07:04:23	2019-11-13 12:54:52	Issued
52	S-1A Products generated without AUX_RESORB on 06 January 2020	2020-01-06 12:29:32	2020-01-06 13:33:35	Issued
53	S-1A OCN Products generated with missing wind information (OWI) content on 11th March 2020	2020-03-10 18:41:02	2020-03-11 23:49:57	Issued
55	S-1A radiometric jumps on S1A IW products on 08/03/2020	2020-03-08 17:35:11	2020-03-08 17:36:01	Issued
56	S-1A issue on the WV OCN: anomaly on swell spectrum energy with IPF 3.3x	2020-06-22 20:17:50	2020-07-02 02:00:46	Issued
58	Phase artefacts for products acquired over region with strong variations of terrain height in range direction	2015-11-13 23:40:21	2016-04-13 10:04:58	Issued

59	S-1A products on a same datatake processed with different processing configuration	2015-03-23 17:14:52	2019-06-18 17:14:49	Issued
#60	S-1A products containing data gaps	2021-01-18 16:46:17	2021-01-31 15:49:44	Issued
#62	Bias in OSW Wind Speed measurement for S-1A WV1 between 12th May 2020 and 23rd June 2020	2020-05-12 10:18:41	2020-06-23 01:38:51	Issued
#64	Bias in OSW Wind Speed measurement for S-1A WV2 starting from 12th May 2020 2020	2020-05-12 10:18:41	2030-01-01 00:00:00	Issued
#66	Bias in radiometric calibration of S1-A WV products acquired before 12th May 2020	2014-09-30 15:17:26	2020-05-12 10:18:41	Issued
#68	S-1A products generated without orbit file between 31/07/2021 and 02/08/2021	2021-07-29 23:11:10	2021-08-08 17:03:56	Issued
#70	S-1A products generated with inconsistent processing configuration following the IPF3.40 deployment	2021-11-03 03:43:32	2021-11-03 10:33:59	Issued
#72	For some IW products, a far range part of IW3 sub swath is missing	2014-10-14 09:10:48	2015-06-26 07:54:00	Issued
#73	S-1A Products processed without using orbit file	2021-03-25 00:00:00	2021-12-14 03:51:31	Issued
#75	S-1A Level 2 OCN products not containing the OWI (gridded wind field) and OSW (Swell) information	2021-12-12 23:57:58	2021-12-14 11:12:43	Issued
#77	Invalid Burst ID for some S-1A products	2021-11-02 23:07:50	2030-01-01 00:00:00	Issued
#79	Invalid annotation of acquisition anxTime for some S1-A RAW products	2014-09-30 15:17:26	2030-01-01 00:00:00	Issued
#81	S-1A OCN products with invalid xsd files	2022-03-23 07:50:46	2022-05-12 08:15:27	Issued
#82	S-1A Products generated without POD orbit file	2022-02-22 14:47:17	2022-02-25 13:16:37	Issued
#83	S-1A Products generated without POD orbit file	2022-03-02 12:11:35	2022-03-06 23:57:54	Issued
#84	S-1A products processed without using POD orbit file	2021-07-29 23:11:10	2021-08-08 17:03:56	Issued
#86	Sentinel-1A swell inversion (OCN/OSW processing) performed using invalid a priori wind speed and direction	2022-04-08 00:00:00	2022-05-12 08:25:01	Issued
#87	Auxiliary product information not properly projected on the SAR image, leading to major degradation of OCN measurements	2022-03-23 07:50:46	2022-05-12 08:25:01	Issued
#88	The Sentinel-1A StripMap OCN products are not operationally qualified	2014-10-04 02:43:30	2030-01-01 00:00:00	Issued

#90	S-1A Range shifts of denoising vectors for GRDM, GRDH and OCN products	2014-09-30 15:17:26	2022-03-23 10:25:10	Issued
#92	S-1A: Invalid POD orbit files used during the processing	2022-05-11 21:46:04	2022-05-12 13:15:58	Issued
#93	S-1A: Invalid POD orbit files used during the processing	2022-05-16 14:18:30	2022-05-17 06:40:32	Issued
#94	Sentinel-1A OCN products crossing Greenwich meridian with no OWI information and issue on rvlNrcs	2022-04-08 04:56:57	2022-05-12 08:25:01	Issued
#95	S-1A products with invalid data due to downlink issue through EDRS-C	2022-01-19 21:59:30	2022-02-18 18:08:52	Issued
#96	Degraded geolocation accuracy due to degraded AUX_PREORB	2022-10-12 10:56:30	2022-10-16 07:10:09	Issued
#97	Degraded geolocation accuracy due to degraded AUX_RESORB	2022-10-09 19:40:25	2022-10-15 22:05:46	Issued
#98	Product degradations due to acquisition during Orbit Control on 2022-10-18	2022-10-18 10:53:03	2022-10-18 20:54:23	Issued
#99	S-1A Products with RFI degradation acquired between 2014-09-15 and 2022-03-31	2014-09-15 00:00:00	2022-04-01 00:00:00	Issued
#101	Products with residual RFI degradation acquired in April 2022	2022-04-01 00:00:00	2022-05-01 00:00:00	Issued
#102	Products with residual RFI degradation acquired in May 2022	2022-05-01 00:00:00	2022-06-01 00:00:00	Issued
#103	Products with residual RFI degradation acquired in June 2022	2022-06-01 00:00:00	2022-07-01 00:00:00	Issued
#104	Products with residual RFI degradation acquired in July 2022	2022-07-01 00:00:00	2022-08-01 00:00:00	Issued
#105	Products with residual RFI degradation acquired in August 2022	2022-08-01 00:00:00	2022-09-01 00:00:00	Issued
#106	Products with residual RFI degradation acquired in September 2022	2022-09-01 00:00:00	2022-10-01 00:00:00	Issued
#107	Products with residual RFI degradation acquired in October 2022	2022-10-01 00:00:00	2022-11-01 00:00:00	Issued
#108	Products with residual RFI degradation acquired in November 2022	2022-11-01 00:00:00	2022-12-01 00:00:00	Issued
#109	Products with residual RFI degradation acquired in December 2022	2022-12-01 00:00:00	2023-01-01 00:00:00	Issued
#110	Products with residual RFI degradation acquired in January 2023	2023-01-01 00:00:00	2023-02-01 00:00:00	Issued
#111	S-1A products generated without POD orbit files	2023-02-01 05:25:50	2023-02-01 22:39:24	Issued
#112	Products with residual RFI degradation acquired in February 2023	2023-02-01 00:00:00	2023-03-01 00:00:00	Issued

#113	Products with residual RFI degradation acquired in March 2023	2023-03-01 00:00:00	2023-04-01 00:00:00	Issued
#114	Products with residual RFI degradation acquired in April 2023	2023-04-01 00:00:00	2023-05-01 00:00:00	Issued
#115	Invalid burst ID annotations (S1A IW/EW SLC in cycles 245 to 258)	2021-11-05 17:10:59	2022-04-10 18:51:34	Issued
#117	S1A TOPS SLC Range Denoising Vector range annotation	2014-10-03 03:34:01	2030-01-01 00:00:00	Issued
#119	S-1A WV SLC annotated noise vectors were improperly calibrated with IPF 2.9x	2018-03-13 00:34:07	2019-06-25 22:58:06	Issued
#121	Invalid burst ID annotations (S1A IW/EW SLC in cycle 259)	2022-04-15 10:56:21	2022-04-27 06:20:22	Issued
#122	Invalid burst ID annotations (S1A IW/EW SLC in cycle 260)	2022-04-27 18:59:41	2022-05-08 07:05:09	Issued
#123	Invalid burst ID annotations (S1A IW/EW SLC in cycle 261)	2022-05-09 18:59:42	2022-05-20 14:29:26	Issued
#124	Invalid burst ID annotations (S1A IW/EW SLC in cycle 262)	2022-05-21 18:59:43	2022-05-29 06:32:40	Issued
#125	Invalid burst ID annotations (S1A IW/EW SLC in cycle 263)	2022-06-02 18:59:44	2022-06-09 18:51:37	Issued
#126	Invalid burst ID annotations (S1A IW/EW SLC in cycle 264)	2022-06-14 18:59:45	2022-06-25 12:00:01	Issued
#127	Invalid burst ID annotations (S1B IW SLC in cycles 175 to 179)	2021-11-04 09:50:37	2021-12-22 18:59:00	Issued
#128	Invalid burst ID annotations (S1A IW/EW SLC in cycle 265)	2022-06-26 18:59:46	2022-07-06 15:54:48	Issued
#129	Invalid burst ID annotations (S1A IW/EW SLC in cycle 266)	2022-07-08 18:59:46	2022-07-17 07:12:49	Issued
#130	Invalid burst ID annotations (S1A IW/EW SLC in cycle 267)	2022-07-20 18:59:47	2022-07-30 11:16:51	Issued
#131	Invalid burst ID annotations (S1A IW/EW SLC in cycle 268)	2022-08-01 18:59:48	2022-08-08 18:51:41	Issued
#132	Invalid burst ID annotations (S1A IW/EW SLC in cycle 269)	2022-08-13 10:56:29	2022-08-20 18:51:42	Issued
#133	Invalid burst ID annotations (S1A IW/EW SLC in cycle 270)	2022-08-25 18:59:49	2022-09-04 19:08:22	Issued
#134	Invalid burst ID annotations (S1A IW/EW SLC in cycle 271)	2022-09-10 10:25:51	2022-09-11 07:45:35	Issued
#135	Invalid burst ID annotations (S1A IW/EW SLC in cycle 272)	2022-09-18 10:56:30	2022-09-25 07:42:53	Issued
#136	Invalid burst ID annotations (S1A IW/EW SLC in cycle 273)	2022-10-07 10:48:19	2022-10-09 07:12:53	Issued
#137	Invalid burst ID annotations (S1A IW/EW SLC in cycle 274)	2022-10-14 10:41:14	2022-10-23 14:30:24	Issued

#138	Invalid burst ID annotations (S1A IW/EW SLC in cycle 275)	2022-10-24 01:36:52	2022-11-04 15:05:13	Issued
#139	Invalid burst ID annotations (S1A IW/EW SLC in cycle 276)	2022-11-04 19:48:21	2022-11-13 10:08:51	Issued
#140	Invalid burst ID annotations (S1A IW/EW SLC in cycle 277)	2022-11-18 06:39:57	2022-11-20 06:24:31	Issued
#141	Invalid burst ID annotations (S1A IW/EW SLC in cycle 278)	2022-12-02 06:23:27	2022-12-04 07:59:03	Issued
#142	Invalid burst ID annotations (S1A IW/EW SLC in cycle 279)	2022-12-16 07:45:33	2022-12-18 09:17:55	Issued
#143	Invalid burst ID annotations (S1A IW/EW SLC in cycle 280)	2022-12-23 10:56:28	2022-12-25 07:21:02	Issued
#144	Invalid burst ID annotations (S1A IW/EW SLC in cycle 281)	2023-01-06 10:41:11	2023-01-15 08:40:20	Issued
#145	Invalid burst ID annotations (S1A IW/EW SLC in cycle 282)	2023-01-20 03:55:12	2023-01-27 12:00:02	Issued
#146	Invalid burst ID annotations (S1A IW/EW SLC in cycle 283)	2023-01-28 01:36:49	2023-02-04 07:29:15	Issued
#147	Invalid burst ID annotations (S1A IW/EW SLC in cycle 284)	2023-02-09 22:18:18	2023-02-19 09:53:00	Issued
#148	Invalid burst ID annotations (S1A IW/EW SLC in cycle 285)	2023-02-23 10:41:09	2023-03-04 15:05:10	Issued
#149	Invalid burst ID annotations (S1A IW/EW SLC in cycle 286)	2023-03-04 19:48:18	2023-03-16 11:54:01	Issued
#150	Invalid burst ID annotations (S1A IW/EW SLC in cycle 287)	2023-03-16 19:48:17	2023-03-26 08:58:00	Issued
#151	Invalid burst ID annotations (S1A IW/EW SLC in cycle 288)	2023-03-30 11:35:13	2023-04-09 10:21:28	Issued
#152	Invalid burst ID annotations (S1A IW/EW SLC in cycle 289)	2023-04-14 07:04:38	2023-04-21 15:05:10	Issued
#153	Invalid burst ID annotations (S1A IW/EW SLC in cycle 290)	2023-04-21 19:48:18	2023-04-23 06:40:57	Issued
#154	Products with residual RFI degradation acquired in May 2023	2023-05-01 00:00:00	2023-06-01 00:00:00	Issued
#155	Products with residual RFI degradation acquired in June 2023	2023-05-01 00:00:00	2023-06-01 00:00:00	Issued
#156	Invalid burst ID annotations (S1A IW/EW SLC in cycle 291)	2023-05-04 12:33:54	2023-05-14 07:58:59	Issued
#157	Invalid burst ID annotations (S1A IW/EW SLC in cycle 292)	2023-05-20 05:25:51	2023-05-27 15:05:12	Issued
#158	Invalid burst ID annotations (S1A IW/EW SLC in cycle 293)	2023-05-27 19:48:20	2023-06-04 07:29:17	Issued
#159	Products processed using degraded orbit files due to solar activity	2023-01-15 02:30:48	2023-07-22 07:42:56	Issued

#160	Invalid burst ID annotations (S1A IW/EW SLC in cycle 294)	2023-06-09 01:36:51	2023-06-18 07:12:52	Issued
#161	Products with residual RFI degradation acquired in July 2023	2023-07-01 00:00:00	2023-08-01 00:00:00	Issued
#162	Products with residual RFI degradation acquired in August 2023	2023-08-01 00:00:00	2023-09-01 00:00:00	Issued
#163	Invalid burst ID annotations (S1A IW/EW SLC in cycle 295)	2023-06-22 21:18:55	2023-07-02 08:40:23	Issued
#164	Invalid burst ID annotations (S1A IW/EW SLC in cycle 296)	2023-07-08 07:44:54	2023-07-14 14:29:32	Issued
#165	Invalid burst ID annotations (S1A IW/EW SLC in cycle 297)	2023-07-14 19:48:23	2023-07-23 10:08:53	Issued
#166	Invalid burst ID annotations (S1A IW/EW SLC in cycle 298)	2023-07-28 21:18:58	2023-08-07 05:18:45	Issued
#167	Products processed using degraded orbit files due to solar activity (26 July 2023 to 03 September 2023 included)	2023-07-26 10:15:54	2023-09-03 13:12:46	Issued
#168	Invalid burst ID annotations (S1A IW/EW SLC in cycle 299)	2023-08-08 05:58:53	2023-08-19 14:30:24	Issued
#169	Invalid burst ID annotations (S1A IW/EW SLC in cycle 300)	2023-08-20 01:36:56	2023-08-27 07:29:22	Issued
#170	Invalid burst ID annotations (S1A IW/EW SLC in cycle 301)	2023-09-01 10:56:35	2023-09-10 08:58:08	Issued
#171	Invalid burst ID annotations (S1A IW/EW SLC in cycle 302)	2023-09-14 21:19:00	2023-09-24 08:40:28	Issued
#172	Products with residual RFI degradation acquired in September 2023	2023-09-01 00:00:00	2023-10-01 00:00:00	Issued
#173	Degraded radiometric calibration due to acquisition close to a manoeuvre	2023-09-20 22:00:48	2023-09-20 22:01:18	Issued
#174	S-1A Products generated without POD orbit files	2023-10-04 04:46:41	2023-10-04 07:29:28	Issued
#175	Invalid burst ID annotations (S1A IW/EW SLC in cycle 303)	2023-09-29 05:25:16	2023-10-06 15:05:19	Issued
#176	Products processed using degraded orbit files due to solar activity (12 September 2023 to 09 October 2023 included)	2023-09-12 05:17:43	2023-10-09 18:46:09	Issued
#177	Invalid burst ID annotations (S1A IW/EW SLC in cycle 304)	2023-10-06 19:48:27	2023-10-15 06:32:51	Issued
#177	Invalid burst ID annotations (S1A IW/EW SLC in cycle 304)	2023-10-06 19:48:27	2023-10-15 06:32:51	Issue
#179	Products with residual RFI degradation acquired in October 2023	2023-10-01 00:00:00	2023-11-01 00:00:00	Issue
#180	Invalid burst ID annotations (S1A IW SLC in cycle 305)	2023-10-19 23:37:55	2023-10-30 16:22:17	Issue

#181	Invalid burst ID annotations (S1A IW SLC in cycle 306)	2023-10-31 23:37:55	2023-11-11 16:22:16	Issue
#182	Invalid denoising vector due to contamination by RFI	2023-01-31 15:55:17	2023-01-31 16:09:35	Issue
#183	Invalid burst ID annotations (S1A IW SLC in cycle 307)	2023-11-12 23:37:55	2023-11-23 16:22:16	Issue
#184	Products with residual RFI degradation acquired in November 2023	2023-11-01 00:00:00	2023-12-01 00:00:00	Issue
#185	Invalid burst ID annotations (S1A IW SLC in cycle 308)	2023-11-24 23:37:54	2023-12-05 16:22:16	Issue
#186	Invalid burst ID annotations (S1A IW SLC in cycle 309)	2023-12-06 23:37:54	2023-12-17 16:22:15	Issue
#187	Products with residual RFI degradation acquired in December 2023	2023-12-01 00:00:00	2024-01-01 00:00:00	Issue
#188	Invalid burst ID annotations (S1A IW SLC in cycle 310)	2023-12-18 23:37:53	2023-12-29 16:22:14	Issue

Appendix F: IPF Updates and descriptions

The full list of S1 IPF / SAR Processor together with the description of changes is provided on the SAR MPC web site at following address:

https://sar-mpc.eu/processor/ipf

The table below provides the status of this list at the time of preparation of this report.

version	delivery	start usage	end usage
003.71	2023-10-10 00:00:00	2023-10-19 09:42:00	
003.61	2023-03-17 12:00:00	2023-03-30 10:19:46	2023-10-19 09:59:00
003.52	2022-05-12 00:00:00	2022-05-12 10:48:19	2023-03-30 09:29:57
003.51	2022-03-04 00:00:00	2022-03-23 16:25:31	2022-05-12 09:31:31
003.40	2021-10-08 00:00:00	2021-11-04 07:56:32	2022-03-23 12:25:17
003.31	2020-06-19 12:00:00	2020-06-30 12:00:00	2021-11-03 11:08:26
003.30	2020-03-09 12:00:00	2020-06-23 08:00:00	2020-06-30 12:00:00
003.20	2019-12-16 12:00:00	2020-01-29 10:00:00	2020-06-23 08:00:00
003.10	2019-06-04 15:00:00	2019-06-26 10:00:00	2020-01-29 10:00:00
002.91	2018-05-29 00:00:00	2018-06-26 08:30:00	2019-06-26 10:00:00
002.90	2018-01-16 00:00:00	2018-03-13 12:00:00	2018-06-26 08:30:00
002.84	2017-07-12 00:00:00	2017-08-22 10:00:00	2018-03-13 12:00:00
002.82	2017-02-27 00:00:00	2017-03-28 06:00:00	2017-08-22 10:00:00
002.72	2016-07-29 00:00:00	2016-08-23 12:00:00	2017-03-28 12:00:00
002.71	2016-04-21 00:00:00	2016-05-11 12:00:00	2016-08-23 12:00:00
002.70	2016-03-31 00:00:00	2016-04-13 12:00:00	2016-05-11 12:00:00
002.62	2016-02-09 00:00:00	2016-03-14 17:51:00	2016-04-12 14:47
002.60	2015-10-09 00:00:00	2015-11-20 12:00:00	2016-04-13 12:00:00
002.53	2015-07-12 00:00:00	2015-07-18 17:48:00	2015-11-22 14:35:00
002.52	2015-06-30 00:00:00	2015-07-02 12:00:00	2015-11-24 12:00:00
002.45	2015-05-15 00:00:00	2015-06-17 14:35:00	2015-07-01 14:23:00
002.43	2015-03-09 00:00:00	2015-03-19 00:00:00	2015-07-02 12:00:00
002.36	2014-09-15 00:00:00	2014-10-01 13:18:00	2015-03-18 02:49:00

Appendix G: SETAP Updates and descriptions

The full list of SETAP Processor together with the description of changes is provided on the SAR MPC web site at following address:

https://sar-mpc.eu/processor/setap/

SETAP is used to generate the Extended Timing Annotation Dataset (ETAD) as described here: https://sentinels.copernicus.eu/ca/web/sentinel/missions/sentinel-1/data-products/etad-dataset

The table below provides the status of this list at the time of preparation of this report.

version	delivery	start usage	end usage
002.10	2023-07-02 00:00:00	2023-07-21 00:00:00	
002.00	2022-07-14 00:00:00	Products not made available to users	Products not made available to users