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Copernicus Sentinel-6 Mission Product Notice (Altimetry)

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Doc.No. : EUM/RSP/DOC/21/1230254
Issue : v10C e-Signed
Date : 14 July 2026
WBS/DBS :

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Document Change Record

Version	Date of Version	Description of changes
1	09/06/2021	Initial version
1A	18/06/2021	AR 1973 and 2017 added. PO.DAAC information added. Version reviewed by MPWG.
2	29/07/2021	Release of Baseline Collection F03
3A	04/11/2021	Release of Baseline Collection F04
4	17/11/2021	Release of HR and NTC products
4A	19/11/2021	Added note that validation and cyclic reports follow NTC data release
4B	24/11/2021	Additional information on PO.DAAC data release and drift validation
4C	09/12/2021	Fixed error in global attribute name for characterisation file
5	08/03/2022	Addition of new processing baseline (F05), and update of AR status from previous versions, as well as report of any new ARs.
6	19/05/2022	Change of document format to be more user friendly. Addition of new processing baseline (F06), and update of ARs.
7	08/09/2022	Description of new processing baseline (F07), and update of ARs.
7a	21/09/2022	Added radiometer product format as applicable document, and corrected section 3.1.2.1.
8	02/03/2023	Description of new processing baseline (F08), and update of ARs
9	11/04/2024	Description of new processing baseline (F09), and update of ARs
10B	03/04/2025	Description of new processing baseline (G01), and update of ARs
10C	14/07/2026	Public Release of NRT/STC for Sentinel-6B



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1 INTRODUCTION

This document accompanies any change made to the Sentinel-6 Mission ground segment with significant impact to the altimetry data quality, data performance, or data delivery to the users. These changes may be the release of a new version of the Payload Data Acquisition and Processing system (PDAP); the release of a new Payload Data Processing (PDP) or the release of a new Processing Baseline (PB).

1.1 Scope

This document addresses all altimeter users of the Sentinel-6 mission [RD- 1]. This version of the document accompanies **the first public** release of altimetry data products from the Sentinel-6B satellite in NRT/STC. During this first half of the Sentinel-6B Commissioning Phase, the main focus of the Calibration and Validation (Cal/Val) activities was on the altimetry **LR/HR NRT and STC** products. These products have been successfully validated and they are now released to the general public. The S-6B delivery covers ALT LR/HR and MWR data processed in NRT and STC latency **from 16 July 2026 onward**. The products are generated at EUMETSAT, in the Payload Data Acquisition and Processing System known as PDAP.

Hence, the present document is applicable to **all timeliness (NRT, STC and NTC) for Sentinel-6A and to NRT/STC for Sentinel-B**, and for all the product levels and types (low resolution or LR and High Resolution or HR).

The product documentation relevant to the data release is provided at the locations described in Section 4.

Please note that the known anomalies are listed in Section 5.

This document is not intended to provide a product overview, a product cyclic report, or a mission status report. This document provides the relevant links to access the Sentinel-6 mission products from EUMETSAT or PO.DAAC. However, this document is not a user manual for data access.

1.2 Resources

1.2.1 Relevant documentation: product description

The Sentinel-6 mission user community can download all applicable documents (product format specifications, product generation specifications, etc.; See Section 1.3), as well as this product notice from EUMETSAT website [Using Sentinel-6 data](#).

1.2.2 Data monitoring: cyclic and mission status reports

Cyclic NTC validation reports, as well as Poseidon-4 instrumental reports, are available [here](#).

The EUMETSAT User Notification Service (UNS) gives up-to-date information on scheduled maintenance outages, new product releases and enhancements, and service alerts when anomalies occur. To access the User Notification Service, go to <https://uns.eumetsat.int/> ; users can subscribe to this service login into [EUMETSAT's User Portal](#).

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1.2.3 Data from EUMETSAT

EUMETSAT data is accessible in the EUMETSAT User Portal:

- Access to the data involves an initial registration process: [Register for data](#)
- ALT Low Resolution (LR) NRT is also available on EUMETCast: <https://www.eumetsat.int/eumetcast>
- BUFR products are available in the ALT L2 SAFE packages and through GTS since 9 September 2021

For questions concerning the provision of Sentinel-6 data by EUMETSAT please e-mail the EUMETSAT Help Desk (ops@eumetsat.int).

1.2.4 Data from PO.DAAC

PO.DAAC distributes a copy of the Sentinel-6 mission products in their native file formats accessible through [Earthdata Search](https://search.earthdata.nasa.gov/search?fpj=Sentinel-6) (<https://search.earthdata.nasa.gov/search?fpj=Sentinel-6>). A summary of products available at PO.DAAC is provided at the [Earthdata Sentinel-6 website](#).

Data are delivered to the PO.DAAC in tar packages structured according to the SAFE (Standard Archive Format for Europe¹) specification. At PO.DAAC, the SAFE packages are untarred upon delivery and reconfigured for distribution in compliance with NASA guidelines and system requirements. The data files are not changed during this process – they are simply unpacked and organized so users can obtain the data files by collection through tools and services maintained by the PO.DAAC and NASA Earthdata. Each component of the original SAFE package is accessible through the Earthdata common metadata repository and data discovery interfaces (e.g. Earthdata Search, PO.DAAC website). Ancillary data files (such as manifest files) can be accessed via links contained in the metadata for the corresponding data file.

NTC products will undergo an additional validation step that involves expert examination to identify potential errors, which would trigger user notifications. In addition, cyclic validation reports will be issued as well. PO.DAAC will mark the NTC data that have not undergone this step by adding the string `_unvalidated` to their filenames and remove this string once the products are validated.

If you have any issues accessing the data, please contact PO.DAAC through [Earthdata Forum](#) or at podaac@podaac.jpl.nasa.gov.

1.3 Applicable Documents

ID	Reference and Version	Title
AD- 1	EUM/LEO-JASCS/SPE/17/901031	Sentinel-6/Jason-CS ALT Level 1 Product Generation Specification (L1 ALT PGS)

¹ <https://earth.esa.int/SAFE/basicinfo.html>

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ID	Reference and Version	Title
AD- 2	EUM/LEO-JASCS/SPE/17/899201	Sentinel-6/Jason-CS ALT Level 1 Product Format Specification (L1 ALT PFS)
AD- 3	EUM/LEO-JASCS/SPE/17/947129	Sentinel-6/Jason-CS ALT Level 1 NetCDF Dump
AD- 4	EUM/LEO-JASCS/SPE/17/901321	Sentinel-6/Jason-CS ALT Level 2 Product Generation Specification (L2 ALT PGS)
AD- 5	JPL D-103429	AMR Level 2 Algorithm Theoretical Basis Document
AD- 6	EUM/LEO-JASCS/SPE/17/901187	Sentinel-6/Jason-CS ALT Level 2 Product Format Specification (L2 ALT PFS)
AD- 7	EUM/LEO-JASCS/SPE/17/957846	Sentinel-6/Jason-CS ALT Level 2 NetCDF Dump
AD- 8	EUM/LEO-JASCS/SPE/17/899679	Sentinel-6/Jason-CS ALT Level-1 Auxiliary Data Specification (L1 ALT ADS)
AD- 9	EUM/LEO-JASCS/SPE/17/900471	Sentinel-6/Jason-CS ALT Level-2 Auxiliary Data Specification (L2 ALT ADS)
AD- 10	EUM/LEO-JASCS/SPE/17/899450	Sentinel-6/Jason-CS Generic Auxiliary Data Specification (GADS)
AD- 11	EUM/LEO-JASCS/SPE/17/899011	Jason-CS/Sentinel-6 File Naming Convention
AD- 12	EUM/LEO-JASCS/SPE/17/897975	Sentinel-6/Jason-CS Generic Product Format Specification (GPFS)
AD- 13	JPL D-97812	AMR Science Data Product Description Document

1.4 Reference Documents

ID	Reference and Version	Title
RD- 1	Donlon, C. J, R. Cullen, L. Giulicchi, P. Vuilleumier, C. R. Francis, M. Kuschnerus, W. Simpson, A. Bouridah, M. Caleno, R. Bertoni, J. Rancano, E. Pourier, A. Hyslop, J. Mulcahy, R. Knockaert, C. Hunter, A. Webb, M. Fornari, P. Vaze, S. Brown, J. Willis, S. Desai, J.-D. Desjonqueres, R. Scharroo, C. Martin-Puig, E. Leuliette, A. Egido, W. H. F. Smith, P. B., S. Le Gac, N. Picot, and G. Tavernier, The Copernicus Sentinel-6 Mission: Enhanced Continuity of Satellite Sea Level Measurements from Space, Rem. Sens. Env. 258, doi:10.1016/j.rse.2021.112395, 2021	
RD- 2	Dettermering, D., C. Schwatke, Long-term stability of ionospheric GIM corrections in satellite altimetry data sets, Presented at OSTST 2022 conference, Venice. DOI: 10.24400/527896/a03-2022.3266	
RD- 3	Buchhaupt, C., L. Fenoglio-Marc, S. Dinardo, R. Scharroo, and M. Becker, A fast convolution-based waveform model for conventional and unfocused SAR altimetry, <i>Advances in Space Research</i> , 62(6), 1445-146, doi:10.1016/j.asr.2017.11.039, 2018.	
RD- 4	Dinardo S., Maraldi C., Cadier E., Rieu P., Aublanc J., Guerou A., Boy F., Moreau T. , Picot N., Scharroo R., Sentinel-6 MF Poseidon-4 radar altimeter: Main scientific results from S6PP LRM and UF-SAR chains in the first year of the mission, <i>Advances in Space Research</i> , Volume 73, Issue 1, 2024, Pages 337-375, ISSN 0273-1177, https://doi.org/10.1016/j.asr.2023.07.030 .	
RD- 5	Egido, A., C. Buchhaupt, F. Boy, C. Maraldi, and CNES Team. Correcting for the vertical wave motion effect in S6-MF observations of the open ocean. Presented at the OSTST Meeting, Venice, Italy, 31 October – 4 November 2023.	

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ID	Reference and Version	Title
RD- 6	S6VT #7 Program (https://ostst.aviso.altimetry.fr/fileadmin/documents/OSTST2026/S6VT_2026_program.pdf)	
RD- 7	Copernicus Sentinel-6 Michael Freilich Product Notice (Altimetry) V10B	
RD-8	S6B Commissioning Altimetry Cal/Val Report	

1.5 Acronyms

Acronym	Definition
ADS	Auxiliary Data Specification
ADF	Auxiliary Data File
ALT	Altimeter
AMR	Advanced Microwave Radiometer
BUFR	Binary Universal Form for the Representation of meteorological data
CAL1	Calibration type 1
DWD	Deutsche Wetter Dienst (German Meteorological Office)
GADS	Generic Auxiliary Data Specification
GIM	GPS-derived Ionosphere Maps
GTS	Global Telecommunication System
JA3	Jason-3
HR	High Resolution
L0, L1, L2	Level 0, Level 1, Level 2
LR	Low Resolution
LTM	Long Term Monitoring (auxiliary file)
MLE3, MLE4	Maximum Likelihood Estimator with 3 or 4 parameters, resp.
MPWG	Mission Performance Working Group
MWR	Microwave Radiometer
NAVATT	Navigation Attitude (auxiliary file)
NetCDF	Network Common Data Form
NR	Numerical Retracker
NRT	Near Real Time
NTC	Non Time Critical
OPE	Operational processing platform
P4, POS-4	Poseidon 4 altimeter
PB	Processing Baseline

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Acronym	Definition
PDAP	Payload Data Acquisition and Processing
PDP	Payload Data Processing
PFS	Product Format Specification
PGF	Product Generation Function (i.e., data processor)
PGS	Product Generation Specification
PTFA	Platform Attitude (auxiliary file)
PTR	Point Target Response
RfW	Request for Waver
S6A	Sentinel-6 Michael Freilich (Sentinel-6A)
S-6B	Sentinel-6B
SatIOV	Satellite In Orbit Verification
SSB	Sea State Bias
SSHA	Sea Surface Height Anomaly
STC	Short Time Critical
SWH	Significant Wave Height
TEC	Total Electron Content
VAL	Processing platform for Validation
VWM	Vertical Wave Motion
WMO	World Meteorological Office

2 PRODUCT OVERVIEW

2.1 Product suite

The user products publicly released by Sentinel-6 mission at the time of this product notice are given in Table 1:

Product	Latency	Format	Satellite	
			S-6B Mid-E1	S6A E2
ALT Low Resolution (LRM)	NRT	BUFR	L2	L2
		NetCDF	L2	L2
	STC	NetCDF	L1B, L2	L1B, L2
	NTC	NetCDF		L1B, L2
ALT High Resolution (HRM)	NRT	BUFR	L2	L2
		NetCDF	L2	L2
	STC	NetCDF	L1B, L2	L1A, L1B, L2
	NTC	NetCDF		L1A, L1B, L2
MWR	NRT	NetCDF	L2	L2
	STC	NetCDF	L2	L2
	NTC	NetCDF		L2

Table 1: user products publicly released by Sentinel-6 mission for this product notice. Note: ALT Level 2 NetCDF products: reduced (1-Hz only) and standard (1-Hz and 20-Hz)

2.2 Product details

Please note that the coverage of the products varies by latency, that is:

- In NRT
 - ALT LR and MWR products cover a full orbit dump, i.e., from ground station overflight to ground station overflight.
 - ALT HR products are chopped up into 10-minute segments (a.k.a. granules).
- In STC and NTC
 - All products cover a full pass, “from pole to pole”, with the pass numbering convention identical to that of Jason-3.

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2.3 Product and processing specifications

The specifications on the product format and the processing functions are presented in Section 1.3 as [AD-1] through [AD-12].

2.4 Product quality

A thorough analysis of the S-6B NRT/STC product quality was provided during the 7th Sentinel-6 Validation Team Meeting on 23rd June 2026 [RD- 6] and in [RD-8]. The main findings regarding the performance of the S-6B LR/HR NRT/STC data products release are:

- At POS4 instrument level, all specification requirements are met
- Altimeter geodetic pointing is largely exceeding the requirement
- Altimeter tracking performance (open-loop and closed-loop) is excellent
- All the POS4 internal calibrations are in place to fully calibrate the data for any instrumental variation
- AMR-C is performing within requirements with all parameters operating within expected range
- AMR-C meets the requirements on the wet path delay measurement error
- HRMR is also performing nominally, improving the AMR measurement in the coastal zone
- All POD performance requirements are fulfilled with margin
- LR NRT/STC performance requirements are fulfilled over ocean
- HR NRT/STC performance requirements are fulfilled over ocean
- PDAP production is nominal and within the completeness and timeliness requirements
- HR RAW vs. HR RMC consistency:
 - Performances over open ocean and coastal areas are excellent with negligible differences
- External calibrations are nominal for both Ku and C Band
- Validation results show equivalent performance of inland water retrievals between S6A and S-6B. Over very bright inland water targets, the S-6B LR waveforms are clipped, as is the case for S-6A

At the time of this product release, both S-6B POS4 and AMR are operating on the instrument's redundant side.

The error budgets for the S-6B NRT/STC 1 Hz corrected range in LR and HR are given respectively in Table 2 and Table 3:

	<i>NRT Req</i>	<i>STC Req</i>	<i>Observed</i>
LR Altimeter noise (Ku)		1.5cm at 2 m SWH	1.44 cm
Ionosphere		0.5 cm	0.4 cm
Sea State Bias		2.0 cm	2.0 cm (conservative estimation)
Dry troposphere	0.8 cm	0.7 cm	0.7 cm (conservative estimation)

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	NRT Req	STC Req	Observed
Wet troposphere	1.2 cm	1.2 cm	0.7 cm
Altimeter range RSS	2.93 cm	2.90 cm	< 2.68 cm, with bias < 1 cm

Table 2: Error Budget for 1 Hz corrected range in LR

	NRT Req	STC Req	Observed
HR Altimeter noise (Ku)	1.5cm at 2 m SWH		0.8 cm
Ionosphere	0.5 cm		0.4 cm
Sea State Bias	2.0 cm		2.0 cm (conservative estimation)
Dry troposphere	0.8 cm	0.7 cm	0.7 cm (conservative estimation)
Wet troposphere	1.2 cm	1.2 cm	0.7 cm
Altimeter range RSS	2.64 cm	2.61 cm	< 2.40 cm, with bias < 1 cm

Table 3: Error Budget for 1 Hz corrected range in HR

The error budgets for the S-6B NRT/STC 1 Hz SSH in LR and HR are given respectively in Table 4 and Table 5:

	NRT Req	STC Req	Observed
Altimeter range RSS	2.93 cm	2.90 cm	< 2.68 cm
RMS Orbit (Radial component)	5 cm	2 cm	1.2 cm in NRT 0.8 cm in STC
Total RSS sea surface height	5.79 cm	3.53 cm	NRT: < 2.93 cm STC: < 2.79 cm

Table 4: Error Budget for 1 Hz SSH in LR

	NRT Req	STC Req	Observed
Altimeter range RSS	2.64 cm	2.61 cm	< 2.40 cm

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	NRT Req	STC Req	Observed
RMS Orbit (Radial component)	5 cm	2 cm	1.2 cm in NRT 0.8 cm in STC
Total RSS sea surface height	5.65 cm	3.29 cm	NRT: < 2.68 cm STC: < 2.52 cm

Table 5: Error Budget for 1 Hz SSH in HR



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3 PRODUCT RELEASE HISTORY

This section holds a brief description of main upgrades from the previous product notice release [RD- 7] versus the current release in chronological order.

3.1.1 Baseline Collection G01 (S6A only)

The new baseline collection G01 [RD- 7] is adding a major improvement to both LR and HR:

1. the GDR-G standards. With the aim to harmonize the auxiliary files in use by all altimetry European operators a set of common auxiliary data have been defined by all partner agencies to facility the work of our user community.

In addition to the previous the new baseline:

2. Adds C band complex echoes in Level 1A altimetry products when the POS4 is acquiring data in RAW mode. Removes MLE3 variables from Level 2 products.
3. Adds VWM correction at 20Hz for NR HR, and for SAMOSA in Level 2 products.
4. Resolves anomalies as described in Section 6.

All the S6A mission data have been reprocessed in baseline collection G01. All the information is given [here](#). Users are warmly invited to use the baseline collection G01 in their data take.

3.1.2 Baseline Collection G01 with static ADF update for Sentinel-6B in NRT/STC

After the Cal/Val carried out during commissioning, a list of static ADF relative to S-6B (provided in 4.2) have been deployed in operations for the first S-6B NRT/STC public release.

**Copernicus Sentinel-6 Mission Product Notice (Altimetry)***This document is public***4 PRODUCT RELEASE DESCRIPTION****4.1 Release of Baseline Collection G01**

Overview	
Mission	S6A
Sensor	POS44/AMR-C (S6A POS4 operating on the redundant side)
Product Notice ID	EUM/RSP/DOC/21/1230254
Version	10B
Data Release Date	2025-04-03T10:30:00Z
Description	Upgrade to GDR-G standards. Addition of C band complex echoes at L1A. Removal of MLE3 variables at L2. Computation of VWM at 20Hz for NR HR and now also available for SAMOSA.
Processing details	
Processing baseline	PDAP v4.1.1 - ALT L1 PGF v3.8.0 - ALT L2 PGF v4.1.3 - AMR PGF v4.0
Installation date	OPE: 2025-04-08T10:30:00Z
Further relevant information	
How to identify this baseline?	The baseline number is G01, which can be found in the filename, the manifest (xfdumanifest.xml), or in the global attributes of the NetCDF files, i.e.: source = "Processing Baseline G01"
Static auxiliary data files (updates in PB G01 are in red)	
S6A_MW_2_CONF_AX_20151008T000000_20991231T235959_20241107T100000_EUM_OPE_AL_006.SEN6.tar S6A_MW_CHD_AX_20200101T000000_20990101T000000_20220915T090714_JPL_OPE_AL_003.SEN6.tar S6A_MW_MAP_AX_20200101T000000_20990101T000000_20220915T090746_JPL_OPE_AL_002.SEN6.tar S6A_P4_1_CHAN_AX_20151008T000000_20991231T235959_20201006T130723_EUM_OPE_AL_001.SEN6.tar S6A_P4_1_CHAR_AX_20151008T000000_20991231T235959_20201006T130723_EUM_OPE_AL_001.SEN6.tar S6A_P4_1_CONF_AX_20151008T000000_20991231T235959_20240925T120000_EUM_OPE_AL_015.SEN6.tar S6A_P4_1_WEIG_AX_20151008T000000_20991231T235959_20201006T130724_EUM_OPE_AL_001.SEN6.tar S6A_P4_2_CONF_AX_20151008T000000_20991231T235959_20250131T140000_EUM_OPE_AL_025.SEN6.tar S6A_P4_2_MLUT_AX_20151008T000000_20991231T235959_20250123T120000_EUM_OPE_AL_006.SEN6.tar S6A_P4_2_RLUT_AX_20151008T000000_20991231T235959_20220304T121645_EUM_OPE_AL_003.SEN6.tar S6A_P4_2_SIGL_AX_20151008T000000_20991231T235959_20201006T130724_EUM_OPE_AL_001.SEN6.tar S6A_P4_2_SSBH_AX_20151008T000000_20991231T235959_20231213T120000_EUM_OPE_AL_003.SEN6.tar S6A_P4_2_SSBH_AX_20151008T000000_20991231T235959_20231213T120000_EUM_OPE_AL_003.SEN6.tar S6A_P4_2_WNDH_AX_20151008T000000_20991231T235959_20210512T085908_EUM_OPE_AL_002.SEN6.tar S6A_P4_2_WNDL_AX_20151008T000000_20991231T235959_20210512T085908_EUM_OPE_AL_002.SEN6.tar S6A_P4_CHDN_AX_20151008T000000_20991231T235959_20231213T120000_EUM_OPE_AL_007.SEN6.tar S6A_P4_CHDR_AX_20151008T000000_20991231T235959_20250123T120000_EUM_OPE_AL_008.SEN6.tar S6_P4_2_CLIP_AX_20151008T000000_20991231T235959_20201006T130725_EUM_OPE_AL_001.SEN6.tar S6_P4_2_DSTC_AX_20151008T000000_20991231T235959_20201006T130726_EUM_OPE_AL_001.SEN6.tar S6_P4_2_GEOH_AX_20151008T000000_20991231T235959_20201006T130731_EUM_OPE_AL_001.SEN6.tar S6_P4_2_ITD_AX_20151008T000000_20991231T235959_20201006T130733_EUM_OPE_AL_001.SEN6.tar S6_P4_2_LTD1_AX_20151008T000000_20991231T235959_20201006T130734_EUM_OPE_AL_001.SEN6.tar S6_P4_2_LTD2_AX_20151008T000000_20991231T235959_20241104T120000_EUM_OPE_AL_003.SEN6.tar S6_P4_2_MAGG_AX_20151008T000000_20991231T235959_20201006T130750_EUM_OPE_AL_001.SEN6.tar S6_P4_2_MDT_AX_20151008T000000_20991231T235959_20240926T120000_EUM_OPE_AL_003.SEN6.tar S6_P4_2_MSS1_AX_20151008T000000_20991231T235959_20241017T143242_EUM_OPE_AL_005.SEN6.tar S6_P4_2_MSS2_AX_20151008T000000_20991231T235959_20240618T120000_EUM_OPE_AL_003.SEN6.tar	

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S6_P4_2_MSSG_AX_20151008T000000_20991231T235959_20201006T130756	EUM_OPE_AL_001.SEN6.tar
S6_P4_2_ODLE_AX_20151008T000000_20991231T235959_20201006T130759	EUM_OPE_AL_001.SEN6.tar
S6_P4_2_OTD1_AX_20151008T000000_20991231T235959_20201006T130807	EUM_OPE_AL_001.SEN6.tar
S6_P4_2_OTD2_AX_20151008T000000_20991231T235959_20241104T120000	EUM_OPE_AL_003.SEN6.tar
S6_P4_2_POTD_AX_20151008T000000_20991231T235959_20201006T130826	EUM_OPE_AL_001.SEN6.tar
S6_P4_2_S12P_AX_20151008T000000_20991231T235959_20201006T130827	EUM_OPE_AL_001.SEN6.tar
S6_P4_2_SETD_AX_20151008T000000_20991231T235959_20201006T130827	EUM_OPE_AL_001.SEN6.tar
S6_P4_CST_AX_20151008T000000_20991231T235959_20201006T130828	EUM_OPE_AL_001.SEN6.tar
S6_P4_SURF_AX_20151008T000000_20991231T235959_20201006T130828	EUM_OPE_AL_001.SEN6.tar

Known open product anomalies (further description available in Section 5)

<i>Title and impact (LR = ALT LR products, HR = ALT HR products, AMR = AMR-C products)</i>	<i>NRT</i>	<i>STC</i>	<i>NTC</i>
AR2221: Altimeter LR range noise not meeting requirement for low wave height <i>Closed but not by PB G01; for further information see section 6.1.</i>	-	-	LR
AR2222: Altimeter HR range noise not meeting requirement for high wave height <i>Closed but not by PB G01; for further information see section 6.2</i>	-	-	HR
AR2962 and AR2963: 2mm bias in Sentinel-6 range NRT versus STC	LR, HR	LR, HR	-
AR3065: Error in the GEOID input AUX file	LR, HR	LR, HR	LR, HR
AR 3068: 1.9 mm range bias error in MLE4 LUTs	LR, HR	LR, HR	LR, HR

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4.2 Release of Baseline Collection G01 with static ADF update for Sentinel-6B in NRT/STC

Overview	
Mission	S-6B
Sensor	S-6B POS4/AMR-C (POS4 and AMR operating on the redundant side)
Product Notice ID	EUM/RSP/DOC/21/1230254
Version	10C
Data Release Date	2026-07-16T09:00:00Z
Timeliness	NRT/STC
Description	First public release of Sentinel-6B NRT/STC data products. It includes Sentinel-6B static ADF updates compared to the pre-launch configuration
Processing details	
Processing baseline	PDAP v4.1.1 - ALT L1 PGF v3.8.0 - ALT L2 PGF v4.1.3 - AMR PGF v4.0
Installation date	OPE: 2026-07-14T09:30:00Z
Further relevant information	
How to identify this baseline?	The baseline number is G01, which can be found in the filename, the manifest (xfdumanifest.xml), or in the global attributes of the NetCDF files, i.e.: <pre>source = "Processing Baseline G01"</pre> The satellite name is also given in the filename as well the timeliness tag
Static auxiliary data files common between S6A and S-6B (in red the updated ones compared to previous product notice)	
S6_P4_2_CLIP_AX_20151008T000000_20991231T235959_20201006T130725	EUM_OPE_AL_001.SEN6.tar
S6_P4_2_DSTC_AX_20151008T000000_20991231T235959_20201006T130726	EUM_OPE_AL_001.SEN6.tar
S6_P4_2_GEOH_AX_20151008T000000_20991231T235959_20250314T120000	EUM_OPE_AL_003.SEN6.tar
S6_P4_2_ITD_AX_20151008T000000_20991231T235959_20201006T130733	EUM_OPE_AL_001.SEN6.tar
S6_P4_2_LTD1_AX_20151008T000000_20991231T235959_20201006T130734	EUM_OPE_AL_001.SEN6.tar
S6_P4_2_LTD2_AX_20151008T000000_20991231T235959_20241104T120000	EUM_OPE_AL_003.SEN6.tar
S6_P4_2_MAGG_AX_20151008T000000_20991231T235959_20201006T130750	EUM_OPE_AL_001.SEN6.tar
S6_P4_2_MDT_AX_20151008T000000_20991231T235959_20240926T120000	EUM_OPE_AL_003.SEN6.tar
S6_P4_2_MSS1_AX_20151008T000000_20991231T235959_20241017T143242	EUM_OPE_AL_005.SEN6.tar
S6_P4_2_MSS2_AX_20151008T000000_20991231T235959_20240618T120000	EUM_OPE_AL_003.SEN6.tar
S6_P4_2_MSSG_AX_20151008T000000_20991231T235959_20201006T130756	EUM_OPE_AL_001.SEN6.tar
S6_P4_2_ODLE_AX_20151008T000000_20991231T235959_20201006T130759	EUM_OPE_AL_001.SEN6.tar
S6_P4_2_OTD1_AX_20151008T000000_20991231T235959_20201006T130807	EUM_OPE_AL_001.SEN6.tar
S6_P4_2_OTD2_AX_20151008T000000_20991231T235959_20241104T120000	EUM_OPE_AL_003.SEN6.tar
S6_P4_2_POTD_AX_20151008T000000_20991231T235959_20201006T130826	EUM_OPE_AL_003.SEN6.tar
S6_P4_2_S12P_AX_20151008T000000_20991231T235959_20201006T130827	EUM_OPE_AL_001.SEN6.tar
S6_P4_2_SETD_AX_20151008T000000_20991231T235959_20201006T130827	EUM_OPE_AL_001.SEN6.tar
S6_P4_2_CST_AX_20151008T000000_20991231T235959_20201006T130828	EUM_OPE_AL_001.SEN6.tar
S6_P4_SURF_AX_20151008T000000_20991231T235959_20201006T130828	EUM_OPE_AL_001.SEN6.tar

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Static auxiliary data files for S6A (in red the updated ones compared to previous product notice)

S6A_MW_2_CONF_AX_20151008T000000_20991231T235959_20241107T100000	EUM_OPE_AL_006.SEN6.tar
S6A_MW_CHD_AX_20200101T000000_20990101T000000_20220915T090714	JPL_OPE_AL_003.SEN6.tar
S6A_MW_MAP_AX_20200101T000000_20990101T000000_20220915T090746	JPL_OPE_AL_002.SEN6.tar
S6A_P4_1_CHAN_AX_20151008T000000_20991231T235959_20201006T130723	EUM_OPE_AL_001.SEN6.tar
S6A_P4_1_CHAR_AX_20151008T000000_20991231T235959_20201006T130723	EUM_OPE_AL_001.SEN6.tar
S6A_P4_1_CONF_AX_20151008T000000_20991231T235959_20240925T120000	EUM_OPE_AL_015.SEN6.tar
S6A_P4_1_WEIG_AX_20151008T000000_20991231T235959_20201006T130724	EUM_OPE_AL_001.SEN6.tar
S6A_P4_2_CONF_AX_20151008T000000_20991231T235959_20250131T140000	EUM_OPE_AL_025.SEN6.tar
S6A_P4_2_MLUT_AX_20151008T000000_20991231T235959_20250327T120000	EUM_OPE_AL_008.SEN6.tar
S6A_P4_2_RLUT_AX_20151008T000000_20991231T235959_20220304T121645	EUM_OPE_AL_003.SEN6.tar
S6A_P4_2_SIGL_AX_20151008T000000_20991231T235959_20201006T130724	EUM_OPE_AL_001.SEN6.tar
S6A_P4_2_SSBH_AX_20151008T000000_20991231T235959_20231213T120000	EUM_OPE_AL_003.SEN6.tar
S6A_P4_2_SSDL_AX_20151008T000000_20991231T235959_20231213T120000	EUM_OPE_AL_003.SEN6.tar
S6A_P4_2_WNDH_AX_20151008T000000_20991231T235959_20210512T085908	EUM_OPE_AL_002.SEN6.tar
S6A_P4_2_WNDL_AX_20151008T000000_20991231T235959_20210512T085908	EUM_OPE_AL_002.SEN6.tar
S6A_P4_CHDN_AX_20151008T000000_20991231T235959_20231213T120000	EUM_OPE_AL_007.SEN6.tar
S6A_P4_CHDR_AX_20151008T000000_20991231T235959_20250123T120000	EUM_OPE_AL_008.SEN6.tar

Static auxiliary data files for S-6B (in red the updated ones compared to pre-launch configuration)

S6B_MW_2_CONF_AX_20151008T000000_20991231T235959_20250912T120000	EUM_OPE_AL_006.SEN6.tar
S6B_MW_CHD_AX_20200101T000000_20990101T000000_20260617T130531	JPL_OPE_AL_003.SEN6.tar
S6B_MW_MAP_AX_20200101T000000_20990101T000000_20250925T232031	JPL_OPE_AL_001.SEN6.tar
S6B_P4_1_CHAN_AX_20151008T000000_20991231T235959_20260224T150000	EUM_OPE_AL_002.SEN6.tar
S6B_P4_1_CHAR_AX_20151008T000000_20991231T235959_20250912T120000	EUM_OPE_AL_001.SEN6.tar
S6B_P4_1_CONF_AX_20151008T000000_20991231T235959_20250912T120000	EUM_OPE_AL_014.SEN6.tar
S6B_P4_1_WEIG_AX_20151008T000000_20991231T235959_20250912T120000	EUM_OPE_AL_001.SEN6.tar
S6B_P4_2_CONF_AX_20260521T074000_20991231T235959_20260526T160000	EUM_OPE_AL_027.SEN6.tar
S6B_P4_2_MLUT_AX_20151008T000000_20991231T235959_20250912T120000	EUM_OPE_AL_008.SEN6.tar
S6B_P4_2_RLUT_AX_20151008T000000_20991231T235959_20250912T120000	EUM_OPE_AL_003.SEN6.tar
S6B_P4_2_SIGL_AX_20151008T000000_20991231T235959_20250912T120000	EUM_OPE_AL_001.SEN6.tar
S6B_P4_2_SSBH_AX_20151008T000000_20991231T235959_20250912T120000	EUM_OPE_AL_003.SEN6.tar
S6B_P4_2_SSDL_AX_20151008T000000_20991231T235959_20250912T120000	EUM_OPE_AL_003.SEN6.tar
S6B_P4_2_WNDL_AX_20151008T000000_20991231T235959_20250912T120000	EUM_OPE_AL_002.SEN6.tar
S6B_P4_2_WNDH_AX_20151008T000000_20991231T235959_20250912T120000	EUM_OPE_AL_002.SEN6.tar
S6B_P4_CHDN_AX_20151008T000000_20991231T235959_20260408T110000	EUM_OPE_AL_002.SEN6.tar
S6B_P4_CHDR_AX_20151008T000000_20991231T235959_20260408T110000	EUM_OPE_AL_002.SEN6.tar

Known open product anomalies (further description available in Section 5)

Title and impact (LR = ALT LR products, HR = ALT HR products, AMR = AMR-C products)	NRT	STC	NTC
AR2962 and AR2963: 2mm bias in Sentinel-6 range NRT versus STC	LR, HR	LR, HR	-
AR/3332 Inconsistency in the Sentinel-6MF AMR-C Calibration File (MW___CAL__AX)	LR, HR	LR, HR	LR, HR
AR/3407 L2 PGF switches use of System_Bias_Sigma0 between C and Ku	LR, HR	LR, HR	LR, HR
AR/3422 Error in implementation of calibration delay for numerical retracers	LR, HR	LR, HR	LR, HR
AR/3375 Missing platform angles for S6A STC and NTC	-	LR, HR	LR, HR
Closed anomalies from previous product notice (further description available in Section 6)			
AR2221: Altimeter LR range noise not meeting a requirement note for low wave height <i>Closed by approved update of the Mission Performance Budget document</i>	-	-	LR
AR2222: Altimeter HR range noise not meeting a requirement note for high wave height	-	-	HR

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Closed by approved update of the Mission Performance Budget document			
AR3065: Error in the GEOID input AUX file Closed by static ADF S6__P4_2__GEOH_AX update since cycle 163	LR, HR	LR, HR	LR, HR
AR 3068: 1.9 mm range bias error in MLE4 LUTs Closed by static ADF S6A_P4_2__MLUT_AX update since cycle 163	LR, HR	LR, HR	LR, HR



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5 KNOWN OPEN PRODUCT ANOMALIES

For each of the known anomalies that are still open at the time of the release of this document, we provide indications about:

- Description
- Impact
- Fix planned

5.1 AR2962 and AR2963: 2 mm bias in Sentinel-6 range NRT versus STC

- A 2 mm range bias is depicted in PB F09 when comparing range between NRT and STC latency. The error is understood and corresponds to two anomalies. At Level-1 the variable `range_cor_com` in NRT should be computed by using as input the platform pitch angle while actually it is computed by using in input the POS4 antenna pitch angle, which are read from NAVATT ADF and transformed by rotation in the POS4 antenna reference frame
- The inconsistency was found by source code inspection. This amounts to an error of 1 mm. On top of this, another error of around 0.8 mm is made at NRT L1 since the coordinates of the P4 antenna reference points in the P4 CHD ADF are not the same as the one used by CNES SALP for NTC. Another anomaly has been created to address this second error (see related AR 2962).
- It is planned to be fixed in G02 baseline

5.2 AR3332: Inconsistency in the Sentinel-6MF AMR-C Calibration File (MW___CAL__AX)

- NASA/JPL reported that they have identified an inconsistency in the computation of the calibration parameters inside the Sentinel-6A AMR-C dynamic calibration files they are providing routinely to EUMETSAT.
- Impact: It affects all G01 products for S6A. Because of this anomaly, for S6A:
 - the reported brightness temperatures are too high by 0.2-0.5 K
 - the reported wet troposphere correction too wet by 0.4 mm
 - there is a negligible impact on Ku and C atmospheric attenuations. The impact is considered to be low in term of performance

For S-6B, the inconsistency has been corrected by JPL prior to deliver to EUMETSAT the first post-launch AMR-C calibration file.

- It is planned to be fixed in G02.

5.3 AR3407: L2 PGF switches use of System_Bias_Sigma0 between C and Ku

- A code analysis found the following software bugs in the L2 PGF code:

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- 1. LR MLE4 Ku-band Sigma0 is wrongly corrected for the C-band system bias (System_Bias_Sigma0_C) and the LR C-band Sigma0 is wrongly corrected for the Ku-band system bias (System_Bias_Sigma0_Ku).
- 2. LR NR Sigma0 is not corrected for either model corrections, nor for the Ku-band system bias (System_Bias_Sigma0_Ku_NR).
- 3. HR NR Ku-band Sigma0 is wrongly corrected for the C-band system bias (System_Bias_Sigma0_C).
- Luckily, none of this had any impact in the operational use of the ALT L2 processor, since the LR NR model corrections are set to zero as well as System_Bias_Sigma0.
- It is planned to be fixed in G02

5.4 AR3422: Error in the implementation of calibration delays for numerical retrackers

- The LR/HR NR retracker range (range_ocean_nr) has an erroneous constant offset per altimeter side. This anomaly was traced to a combination of a coding error and a specification error in the computation of the epoch for numerical retrackers.
- The impact is given by the following table:

Variable	S-6B (side-A)	S-6B (side-B)	S6A (Side A)	S6A (Side B)
Error in range_cor_internal_delay_att	2.0 mm	2.8 mm	1.7 mm	2.0 mm
Error in range_cor_att_cal_delay	1.6 mm	2.6 mm	1.2 mm	2.0 mm
Error in range_ocean_nr	-3.6 mm	-5.4 mm	-2.9 mm	-4.0 mm
Errors in iono_cor_alt*_nr	-0.6 mm	-1.0 mm	-0.5 mm	-0.7 mm
Error in ssha_nr	+4.2 mm	+6.4 mm	3.4 mm	4.7 mm

- The anomaly is planned to be fixed in G02 baseline.

5.5 AR3375: Missing platform angles for S6A STC and NTC

- Occasionally, the off-nadir platform angles: off_nadir_roll_angle_pf, off_nadir_roll_angle_pf, off_nadir_roll_angle_pf in the STC/NTC products are set to zero for a long period (hours).
- The estimated impact on the geophysical retrievals is null.
- The anomaly is under investigation.

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6 CLOSED PRODUCT ANOMALIES SINCE LAST RELEASE

For each of the anomalies that were detected since the last baseline released (PB G01) and were closed at the time of the release of this document, we provide indications about:

- Description of anomaly
- Fix implemented
- Validation of implementation

6.1 AR 2221: Altimeter LR range noise not meeting a requirement note for low wave height

- As outcome of the S6VT Meeting #3 [RD- 6] it was depicted that the SRD requirement notes R-S-00570 (NRT), R-S-00430 (STC) and R-S-00270 (NTC) on the Ku altimeter range noise were not met for lower values of SWH.

The requirement definition for NTC is:

[SRD] R-S-00270

For low-resolution ALT-NTC products, the noise of the 1-second along-track average of the low-resolution Ku-band altimeter range measurements shall be less than 1.5 cm at 2 m significant wave height.

Note: The requirement is applicable after ground re-tracking.

Note: The upper limit depends on SWH: 1.2 cm at 1 m SWH, 1.5 cm at 2 m SWH, 2.4 cm at 5 m SWH, and 3.2 cm at 8 m SWH.

Note: A goal is 1.0 cm at 2 m SWH.

- The note on 1m SWH is still not met. Current values show:
 - **Altimeter LR range noise** ([1.2, 1.5, 2.4, 3.2] cm at [1, 2, 5, 8] m SWH):
 - Side-A: [1.25, 1.44, 1.93, 2.41]
 - Side-B: [1.24, 1.45, 1.94, 2.41]
- The requirements are considered met since the requirements are defined for 2 m SWH and the non-compliance corresponds to a note. Nevertheless, the project agreed to update The Mission Performance Budget (MPB) document clarifying that these performance requirements (same requirement in three timelines) are the outcome of insufficient surface parameter modelling of the impact of SWH on range error i.e. too stringent. The MPB has been updated with this explanation and approved by partner agencies. Accordingly, the anomaly is closed

6.2 AR 2222: Altimeter HR Range Noise not meeting requirements for higher wave heights

- As output of S6VT#3 [RD- 6] it was depicted that the SRD requirement notes R-S-00970 (NRT), R-S-00840 (STC) and R-S-00690 (NTC) related to the Ku altimeter range noise were not met for higher values of SWH. This degrades the quality of the

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HR range measurements at high wave heights. The HR range noise is however still significantly lower than the LR range noise.

Requirement for NTC:

[SRD] R-S-00690

For high-resolution ALT-NTC products, the noise of the 1-second along-track average of the high-resolution Ku-band altimeter range measurements shall be less than 0.8 cm at 2 m significant wave height.

Note: the requirement is applicable after ground re-tracking.

Note: The upper limit depends on SWH: 0.7 cm at 1 m SWH, 0.8 cm at 2 m SWH, 1.3 cm at 5 m SWH, and 2.0 cm at 8 m SWH.

Note: A goal is 0.5 cm at 2m SWH.

- The note for 5 and 8 m SWH is not satisfied. Current values show:
 - **Altimeter HR range noise** ([0.7, 0.8, 1.3, 2.0] cm at [1, 2, 5, 8] m SWH):
 - Side-A: [0.62, 0.75, 1.46, 2.42]
 - Side-B: [0.62, 0.75, 1.45, 2.43] with reduced number of looks (322): [0.61, 0.77, 1.45, 2.41]
- The requirements are considered met since the requirements are defined for 2 m SWH and the non-compliance corresponds to a note. Nevertheless, the project agreed to update The Mission Performance Budget (MPB) document clarifying that these performance requirements (same requirement in three timelines) are the outcome of insufficient surface parameter modelling of the impact of SWH on range error i.e. too stringent. The MPB has been updated with this explanation and approved by partners agencies. Accordingly, the anomaly is closed

6.3 AR3065: Error in the GEOID input AUX file

- The NASA/JPL cal/val team identified an error in the level 2 processor EGM2008 geoid input auxiliary file. This input file is used for MOST altimetry missions including Sentinel-6. The error is a 0.5 arcmin shift in the latitude and longitude values included in the static auxiliary file S6__P4_2__GEOH_AX. The impact of this error is typically < 10 cm, but can reach +/- 45 cm in areas of large geoid gradients.
- A new static file is available correcting for this error.
- An updated GEOID auxiliary file has been deployed in operations with the fix of the anomaly since cycle 163. Full mission reprocessing with PB G01 will cover from beginning of mission to cycle 162 included.

6.4 AR 3068: 1.9 mm range bias error in MLE4 LUTs

- New MLE4 LUTs are added to PB G01. With the availability of LR NR data, new MLE4 LUTs have been computed and added operationally. The corrections perform excellent



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for all variables except for a constant -1.9 mm bias in MLE4 range. The bias is the same regardless of SWH.

- A corrected MLE4 LUT is available and has been deployed in operations with the fix of the anomaly since cycle 163. Full mission reprocessing with PB G01 will cover from beginning of mission to cycle 162 included.