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## Copernicus S3 Product Notice – Altimetry

<b>Mission</b>		Copernicus Sentinel-3 Surface Topography Mission
<b>Sensor</b>		SRAL / MWR
<b>Product</b>		LAND L2 NRT, STC and NTC
<b>Product Notice ID</b>		S3A.PN-STM-L1L-L2L
<b>Issue/Rev Date</b>		25/07/2022
<b>Version</b>		1.0
<b>Preparation</b>		This Product Notice was prepared by the Sentinel-3 Mission Performance Cluster (MPC) and ESA experts
<b>Approval</b>		ESA Mission Management

### Summary

This is a Product Notice (PN) for the Copernicus Sentinel-3A, and Sentinel-3B Surface Topography Mission (STM) Level-1 and Level-2 Land products at Near Real Time (NRT), Short Time Critical (STC) and Non Time Critical (NTC) timeliness.

The Notice describes the Sentinel-3 STM state of the art, product quality and limitations, and product availability status.



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### Processing Baseline

S3A / S3B	
<b>Processing Baseline</b>	<ul style="list-style-type: none"> <li>Processing Baseline: 3.10</li> </ul>
<b>IPFs version</b>	<ul style="list-style-type: none"> <li>S3_SR_1 IPF version: 07.02</li> <li>MW_1 IPF version: 06.13</li> <li>S3_SM2_SI IPF version 07.02</li> <li>S3_SM2_HY IPF version 07.02</li> <li>S3_SM2_LI IPF version 07.02</li> </ul>

### Current Operational Processing Baseline

IPF	IPF Version	In OPE since
S3_SR1	07.02	Land Production Service S3A: TBD Land Production Service S3B: TBD
S3_MW1	06.13	Land Production Service S3A: TBD Land Production Service S3B: TBD
S3_SM2_SI	07.02	Land Production Service S3A: TBD Land Production Service S3B: TBD
S3_SM2_HY	07.02	Land Production Service S3A: TBD Land Production Service S3B: TBD
S3_SM2_LI	07.02	Land Production Service S3A: TBD Land Production Service S3B: TBD

### Status of the Processing Baseline

The Processing Baseline (PB) 3.10 is currently operated as a pilot processing in parallel of the current one running at the ESA Product Services (PS). The PB 3.10 or higher version for the Thematic IPF will be deployed on the ESA Processing centres at a later stage.

Starting from this PB release (version 3.10), the Sentinel-3 STM level-2 LAND products are now delivered in "Thematic Products". The objective is to address the specific needs of the user communities for the three surfaces in the scope of the Sentinel-3 LAND products: **Hydrology, Sea Ice and Land Ice**.

⇒ **This is a major change, three different LAND level-2 products are now delivered to the users, covering therefore different surfaces (see notice #S3-6 for information about data coverage)**



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Separated and dedicated level-2 processing chains have been designed and developed for the three surfaces: the level-2 Thematic Instrument Processing Facilities (T-IPF). The delay-Doppler processing is now integrated into the level-2. The main processing evolutions are:

- **For Hydrology and Sea Ice:** Hamming window and waveform zero-padding have been implemented in the delay-Doppler processing in SAR mode. Therefore, the number of waveform samples is now doubled compared to previous PB (256 samples compared to 128 previously).
- **For Land Ice:** The “extended-window” has been implemented in the delay-Doppler processing, to optimise the generation of SAR mode waveforms over rough and/or steeply sloping surfaces. The SAR mode waveforms over land ice are now centered around sample 44. In addition, the slope model used to relocate measurements at Point Of Closest Approach was also updated.

The Sea Ice and Land Ice Thematic products are “equator-to-equator”, and Hydrology Thematic products remain “pole-to-pole” (for the start and end of the track in NetCDF files). Pending the release of a dedicated Product Handbook, more information related the new Sentinel-3 STM LAND Thematic products are available in Sentinel On-Line, in a web-news presenting the release of a pilot production of Sentinel-3 LAND Thematic products:

<https://sentinel.esa.int/web/sentinel/-/copernicus-sentinel-3-stm-land-thematic-products-operational-release-of-pilot-data-set>

The product content was also updated and adjusted to be relevant for each thematic surface. Regarding this aspect, more information is available in the Products Data Format Specification (PDFS), available here:

<https://sentinel.esa.int/documents/247904/2753172/Sentinel-3+Product+Data+Format+Specification+L2+Land.pdf>

In addition, the 3.10 PB includes some level-1 evolutions, as detailed below in the documents.

The history of the Processing Baselines deployed in the Sentinel-3 processing centres can be found in <https://sentinel.esa.int/web/sentinel/technical-guides/sentinel-3-altimetry/processing-baseline>.

Starting from Processing Baseline PB 3.10, Sentinel-3A and Sentinel-3B will have a unique processing baseline identification

Installation Date	Processing Baseline (PB)	IPF Version
2020-07-09	S3A: 2.67 S3B: 1.41	SR1 06.18 SM2 06.19
2020-07-16	S3A: 2.69 S3B: 1.45	SR1 06.19 SM2 06.19
2020-12-02	S3A: 2.72 S3B: 1.49	SR1 06.20 SM2 06.19
TBD	3.10	S3_SR1 07.02 S3_SM2_SI 07.02



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		S3_SM2_HY 07.02 S3_SM2_LI 07.02
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## Known product quality limitations and recent evolutions

### Common to S3A and S3B

The Sentinel-3A and Sentinel-3B STM products have some known processing limitations. Some of them have been corrected, this is summarized in the next pages.

#### **Anomaly #S3-1: Degraded quality of atmospheric attenuation over coastal areas (S3MPC-1934)**

- The MWR atmospheric attenuation was improved over coastal zone except for some specific cases over coastal areas, for which the attenuation is negative (-0.3 dB). This anomaly affects only 0.25% of the ocean measurements and occurs when backscatter coefficient exceeds 18 dB.
- This anomaly was introduced in version 06.10 and all versions up to and including 06.18 are impacted. Version 06.18 provides significant improvements thanks to the definition of a new version of the side lobe correction ADF. However, to reach an optimal data quality in these areas, a refinement of the MWR neural network algorithm is required (to be deployed in a future IPF-SM2 version).

#### **Anomaly #S3-2: Global attribute “pass number” wrong information (S3MPC-3263)**

- In the global attribute of the product, the first pass of a cycle is labeled as 771 instead of 1.

#### **Anomaly #S3-3: Error in the Sentinel-3B USO correction (S3MPC-5401)**

- The minus sign of the USO correction is dropped during the ADF reading. This anomaly impacts mainly Sentinel-3B, as Sentinel-3A USO correction remains positive, except first cycles of the mission. In consequence, the Sentinel-3B range is drifting of about ~3 mm/yr due to wrong USO correction values.
- The anomaly is fixed since PB 3.06. The Sentinel-3B drift error is removed.

#### **Anomaly #S3-4: PLRM tracker range anomaly (S3MPC-5152)**

- The PLRM tracker range is affected by an anomaly due to mathematical truncations applied during the processing. This creates latitude patches of ~3-4 mm amplitude in the sea level-estimates.
- The anomaly is fixed since PB 3.06.



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### **Notice #S3-1: High level of retracker failure in continental ice sheets (S3MPC-1014)**

- Over the inland ice sheets of Antarctica and Greenland there are much higher levels of the ice sheet retracker failure than found in previous missions (i.e. CryoSat LRM or Envisat RA2) over sloping surfaces. The anomaly on the SAR ice margin retracker also impacts the slope correction, which is set to FillValue in a high number of occurrences.
- The Sentinel-3 data quality over ice sheets have been significantly improved with last IPF releases (adjustment and tuning of the Level-2 ice sheet retracker and use of more recent slopes model corrections). Recent studies have demonstrated that the Sentinel-3 altimeters trackers behave as expected. They also showed that the data coverage over these steepest areas can be improved (by more than 10%) thanks to an innovative Level-1 algorithm named “extended window”. This innovative method dedicated to the Land ice surface will be implemented in a near future in the frame of the IPF improved branches development. With such implementation, the Sentinel-3 performances over ice sheets come closer to the ones obtained with Envisat RA2 and Cryosat-2 SARM.
- Partially fixed since PB 3.10, with the implementation of the extended window processing. More “valid” waveforms are now recovered over ice sheets. The retracking failures are reduced, especially over the polar ice sheet margins.

### **Notice #S3-2: Range internal path delay computed with “Center Of Gravity” (COG) method (S3MPC-3938)**

- The method to extract the range internal path delay from the CAL1 signals has been changed. Since PB 3.06 a COG calculation is employed, instead of the half-power estimation. The objective is to provide more stable topography estimations to the users. For Sentinel-3A, a 0.3 mm/yr range drift observed during the 2 two first years of the mission is now corrected (July 2016 – July 2018 period).
- Implemented since PB 3.06

### **Notice #S3-3: New CAL2 normalisation method (S3MPC-5314)**

- The CAL2 normalization is now performed using an average value of the signal plateau (i.e., without the 12 first and last samples). This evolution shall provide a better stability to the averaged CAL2 signals, leading subsequently to a better stability of the Sigma-0 over the time. In the previous PB the vector maximum value was used to normalize the signal.
- Implemented since PB 3.06



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#### **Notice #S3-4: CAL2 signals averaged over a window of 90 days**

- In order to compute more stable CAL2 signals, the moving average is now performed over a 90 days window instead of 27 days window.
- Implemented since PB 3.06

#### **Notice #S3-6: Update of Sentinel-3B calibration bias (S3MPC-5038)**

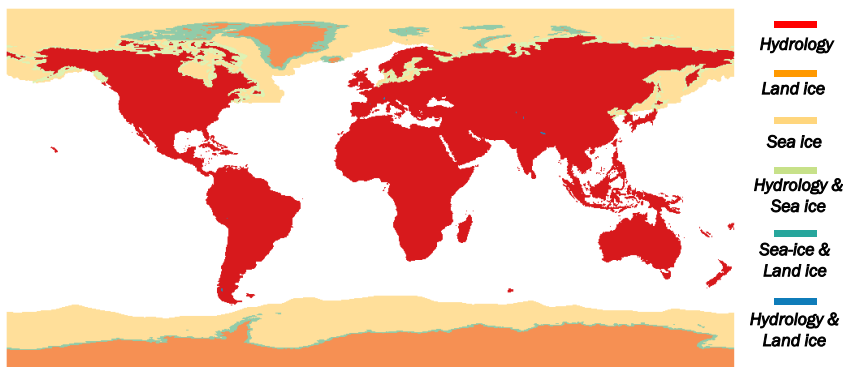
- Range calibration biases applied to Sentinel-3B, and recorded in the CHDNAX ADF, have been updated: +1.8 cm on Ku-band and -1.7 cm on C-band.
- Implemented since PB 3.08

#### **Notice #S3-5: CAL2 is no more applied to CAL1 (JCR-173)**

- The CAL2 filter is no more applied to the CAL1 signals, following recommendations from Instrument experts.
- Implemented since PB 3.08

#### **Notice #S3-6: Geographical coverage of the new LAND Level-2 Thematic products:**

- Since PB 3.10, the Sentinel-3 STM LAND Level-2 products are delivered into thematic products. A “thematic mask” ADF has been developed by the MPC, in agreement with ESA, to define the coverage of the new thematic products for the three surfaces: Hydrology, Sea Ice and Land Ice (see figure below). Some boundary areas are common to several thematic products.



*Sentinel-3 thematic mask used during level-2 processing to define the coverage of the LAND Thematic products*



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### Specific to S3A

There is no limitation that affect Sentinel-3A STM mission only.

### Specific to S3B

The Sentinel-3B STM products have some known processing limitations, which are reported here below.

#### **Anomaly #S3B-1: Degraded SRAL calibration quality for S3B between 6 June and 21 June 2018 (SIIIMPC-2823)**

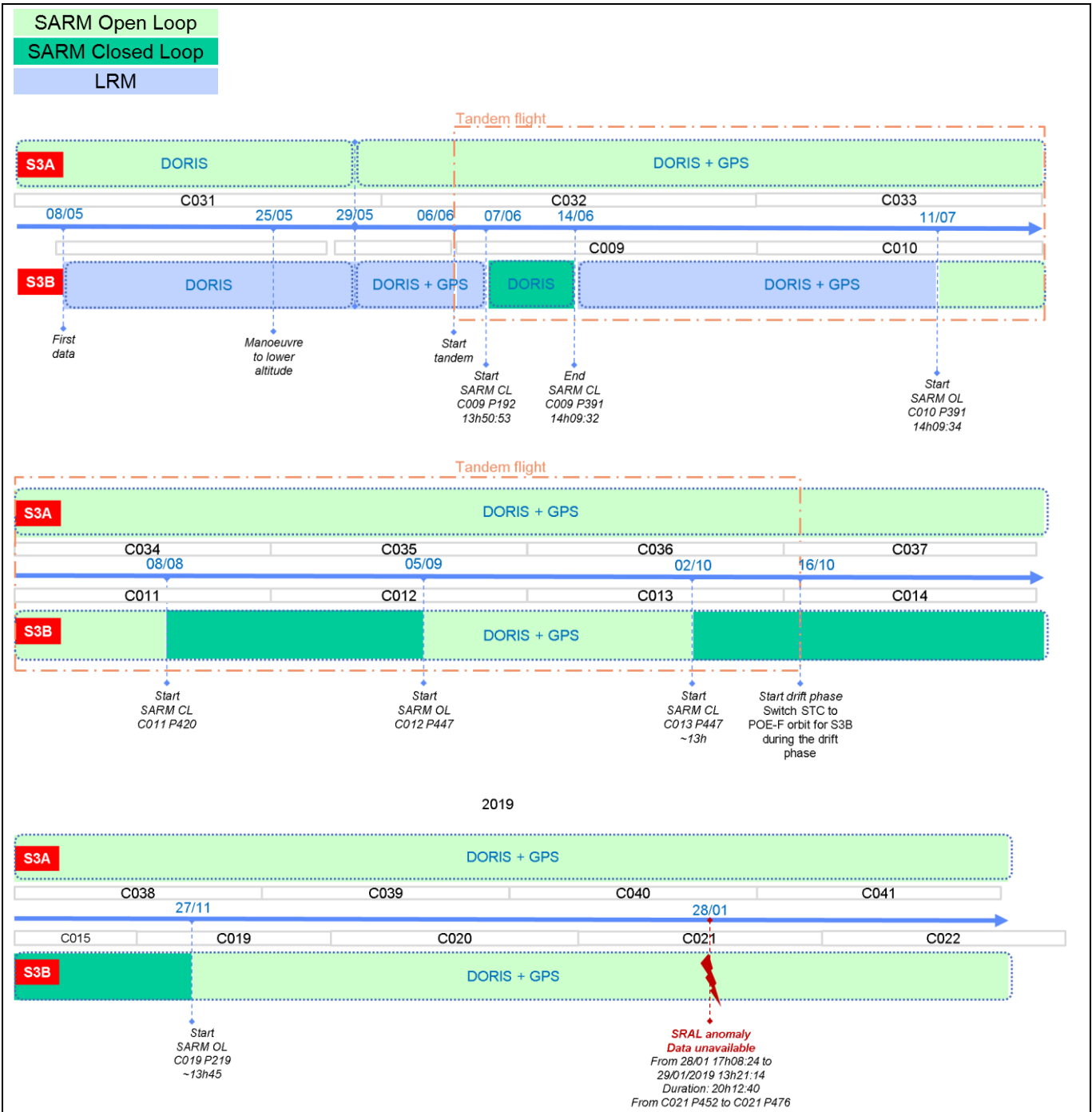
- Due to different parameterisation of SRAL commanding on board, SRAL Level 1 products acquired between 7 June and 21 June have been processed with old CAL1 data.
- The impact on the L1 and L2 data is negligible.

### Products Availability

- Copernicus Open Access Hub (<https://scihub.copernicus.eu/>), NRT and NTC
- FTP server address login: login password: password
- Other

### Operational useful information: Sentinel-3 drift & tandem phases

- The following schema summarizes and describes the different configurations and operations that occurred since the Sentinel-3B switch-on (8 May 2018) and until it reached its final orbit (23 November 2018)



- The geographic coverage of S3B mission was partial until 29 May 2018. Indeed, since the altimeter PRF was not changed during the drifting phase, there have been no SRAL acquisitions below 50°S until 24 May 2018, then partial coverage between 24 and 29 May 2018.
- Note that the strategy of cycle numbering during the S3B drifting phase is that the cycle number is incremented at each major satellite manoeuvre. This results in very short cycles from Cycle 2 to Cycle 8. Between Cycle 9 (start of the tandem phase) and cycle 13 (end of tandem phase), the repeat





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cycles have the nominal duration of 27 days. Then, cycles 14 to 17 are also shorter than 27 days during the second drifting phase needed to reach the final orbit.

- From 8 May 2018 till 25 May 2018, MWR calibrations were performed over open-ocean as part of the MWR commissioning activities. As a consequence, the brightness temperatures for both channels are not computed and 1 Hz parameters derived from the MWR are set to default values in the product, except for the atmospheric attenuation. This affects the wet tropospheric correction, water vapour content and cloud liquid water content. Since 25 May 2018, the MWR calibration was changed so that data are no more lost over ocean
- Due to different thermal conditions on Sentinel-3B SRAL sensor, there is a jump of 0.2 dB on the SRAL C-band CAL1 power values that occurred on 29 May 2018. The impact on the L2 science data is a ramp of 0.2 dB on C-band sigma0 between 29 May and 7 June 2018, due to 10-day window averaging in the processing.
- Due to different parametrization of SRAL commanding on board, SRAL Level 1 products acquired between 7 June and 21 June 2018 have been processed with old CAL1 data. The impact on the L1 and L2 data is negligible and will not impact science data.

### Operational useful information: Post tandem & drift phases

- Between the 23<sup>rd</sup> of November 2018 and the 9<sup>th</sup> of May 2019, the Sentinel-3B navigation bulletin was derived from GNSS instrument. After this date it is derived from Doris instrument. The use of GNSS information slightly impact the waveform centering. The impact on Level-2 parameters is negligible.
- Sentinel-3B SRAL instrument entered in Safe Hold Mode from the 28-01-2019 at 17:08 to the 29-01-2019 at 13:21
- The Sentinel-3 OLTC tables are updated on a yearly basis to include new targets, in particular over inland water areas. Information about the updates of the Sentinel-3 OLTC tables is available on <https://sentinel.esa.int/web/sentinel/user-guides/sentinel-3-altimetry/overview/oltc>.
- More information is available at <https://sentinel.esa.int/web/sentinel/news/-/article/copernicus-sentinel-3-improves-observation-of-inland-waters>
- Since 14<sup>th</sup> of June 2019, Sentinel-3B is switched to Open Loop Fixed Gain mode over the Svalbard Transponder.
- Since the 29<sup>th</sup> of June 2019, Sentinel-3A is switched to Open Loop Fixed Gain mode over the Svalbard Transponder.



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### Useful information related to the products

- The EGM2008 geoid estimations interpolated and available in the level-2 products (field “geoid\_01”) are wrong before release of PB 2.61/1.33 (S3A/S3B), occurring on January 21<sup>st</sup>, 2020. This was due to an inconsistent formatting of the longitude vector recorded in the geoid ADF. Therefore, users must not use the geoid in the Sentinel-3 products generated before January 21<sup>st</sup>, 2020.
- The brightness temperatures exhibit a difference of up to 1 K between ascending and descending tracks for the 23.8 GHz channel, both for Sentinel-3A and Sentinel-3B missions. This difference is explained by the variations of the OLCI wall temperature. A dedicated correction will be implemented in a near future.
- The composite wet tropospheric correction has not been calibrated yet and should not be used (comp\_wet\_tropo\_cor\_01\_ku and comp\_wet\_tropo\_cor\_01\_plrm\_ku).
- The ocean Ku band sigma0 in all modes (LRM, PLRM and SAR) has been biased to be aligned on Envisat mean value (10.8 dB without the atmospheric attenuation). A system bias of -0.65 dB is applied to SARM Ku band and of -1.8 dB to the LRM and PLRM Ku band.
- Note that the sigma0 derived from ice sheet, sea ice and OCOG retracker exhibits a mean value close to 42 dB. Since version 06.18 this mean bias is reduced to 24 dB.
- The ocean C-band sigma0 in all modes (LRM and PLRM) has not been biased and exhibit a mean value around 11 dB which is lower by 4 dB compared to Jason-2.
- The higher noise of the C band range inherent to the PLRM processing contributes to a high noise in the dual frequency ionospheric correction. Since version 06.18, a new field containing the smoothed dual frequency ionosphere correction is provided for each P-LRM and SAR modes.
- The rain flag is presently based on Envisat flag and it has not been tuned for Sentinel missions.
- Note that the SRAL observations over inland waters are meaningful only over water bodies. The improved 3D meteorological corrections (mod\_dry\_tropo\_cor\_meas\_altitude\_01\_ku and mod\_wet\_tropo\_cor\_meas\_altitude\_01\_ku) should not be used to correct SRAL observations outside these targets.
- Note that the LRM data have additional biases due to the use of PLRM instrumental look up tables. This mainly affects the Ku band range parameter that is biased by 1 cm (range being too short than expected). For dual frequency ionospheric correction, PLRM look up tables induce an additional bias of 0.5 cm on the dual frequency ionospheric correction. This results in a total bias of 1.5 cm on ssha parameter, ssha being too high than expected.
- The antenna aperture angles for both Sentinel-3A and -3B satellites have been updated since version 06.18. The mispointing information derived from waveform is now centred around 0 degrees<sup>2</sup>.



- The size of the Level-2 products has been significantly reduced since version 06.18, thanks to the activation of the netcdf compression.
- The coverage of the Level-2 LAND products is modified. See Notice #S3-8 above.

### References

- Sentinel-3 Mission Requirements Traceability Document (MRTD), C. Donlon, EOP-SM/2184/CD-cd, 2011  
<https://sentinel.esa.int/documents/247904/1848151/Sentinel-3-Mission-Requirements-Traceability>
- Product Data Format Specification – SRAL-MWR Level 2 Land Products Product Data Format Specification L2 Land: 3.1, Date: 10/06/2022  
<https://sentinel.esa.int/documents/247904/2753172/Sentinel-3+Product+Data+Format+Specification+L2+Land.pdf>

### SR1 Static ADFs updated

The following list is the complete list of static ADF used by the L1 Land processor. Any change from the previous processing baseline is highlighted in red.

#### Sentinel-3A ADFs

- S3A\_SR\_\_CHDNAX\_20160216T000000\_20991231T235959\_20200312T120000\_\_\_\_\_MPC\_O\_AL\_006.SEN3
- S3A\_SR\_\_CHDRAX\_20160216T000000\_20991231T235959\_20190402T120000\_\_\_\_\_MPC\_O\_AL\_005.SEN3
- S3A\_SR\_1\_CONCAX\_20160216T000000\_20991231T235959\_20220428T120000\_\_\_\_\_MPC\_O\_AL\_005.SEN3
- S3A\_SR\_1\_CONTAX\_20160216T000000\_20991231T235959\_20220425T120000\_\_\_\_\_MPC\_O\_AL\_002.SEN3

#### Sentinel-3B ADFs

- S3B\_SR\_\_CHDNAX\_20180425T000000\_20991231T235959\_20220426T120000\_\_\_\_\_MPC\_O\_AL\_006.SEN3
- S3B\_SR\_\_CHDRAX\_20180425T000000\_20991231T235959\_20220426T120000\_\_\_\_\_MPC\_O\_AL\_005.SEN3



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- S3B\_SR\_1\_CONCAX\_20180425T000000\_20991231T235959\_20220428T120000\_\_\_\_\_MPC\_O\_AL\_003.SEN3
- S3B\_SR\_1\_CONTAX\_20180425T000000\_20991231T235959\_20220425T120000\_\_\_\_\_MPC\_O\_AL\_002.SEN3

#### Common ADFs

- S3\_AX\_\_CST\_AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3\_SR\_\_LSM\_AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3

#### SM2 Static ADFs updated

The following list is the complete list of static ADF used by the L2 processors. Any change from the previous processing baseline is highlighted in red.

#### Sentinel-3A ADFs

- S3A\_SR\_2\_CCT\_AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3A\_SR\_2\_IC01AX\_20160216T000000\_20991231T235959\_20161010T120000\_\_\_\_\_MPC\_O\_AL\_002.SEN3
- S3A\_SR\_2\_IC02AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3A\_SR\_2\_IC03AX\_20160216T000000\_20991231T235959\_20161010T120000\_\_\_\_\_MPC\_O\_AL\_002.SEN3
- S3A\_SR\_2\_IC04AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3A\_SR\_2\_IC05AX\_20160216T000000\_20991231T235959\_20161010T120000\_\_\_\_\_MPC\_O\_AL\_002.SEN3
- S3A\_SR\_2\_IC06AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3A\_SR\_2\_IC07AX\_20160216T000000\_20991231T235959\_20161010T120000\_\_\_\_\_MPC\_O\_AL\_002.SEN3
- S3A\_SR\_2\_IC08AX\_20160216T000000\_20991231T235959\_20161010T120000\_\_\_\_\_MPC\_O\_AL\_002.SEN3
- S3A\_SR\_2\_IC09AX\_20160216T000000\_20991231T235959\_20161010T120000\_\_\_\_\_MPC\_O\_AL\_002.SEN3
- S3A\_SR\_2\_IC10AX\_20160216T000000\_20991231T235959\_20161010T120000\_\_\_\_\_MPC\_O\_AL\_002.SEN3
- S3A\_SR\_2\_SBLAX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3A\_SR\_2\_SBSAX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3A\_SR\_\_CHDRAX\_20160216T000000\_20991231T235959\_20190402T120000\_\_\_\_\_MPC\_O\_AL\_005.SEN3
- S3A\_SR\_\_CHDNAX\_20160216T000000\_20991231T235959\_20200312T120000\_\_\_\_\_MPC\_O\_AL\_006.SEN3
- S3A\_MW\_\_CHDNAX\_20160216T000000\_20991231T235959\_20210929T120000\_\_\_\_\_MPC\_O\_AL\_005.SEN3
- S3A\_MW\_\_CHDRAX\_20160216T000000\_20991231T235959\_20170908T120000\_\_\_\_\_MPC\_O\_AL\_004.SEN3

Specific for S3\_SM2\_SI

- S3A\_SR\_2\_COSIAX\_20160216T000000\_20991231T235959\_20220203T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3

Specific for S3\_SM2\_HY

- S3A\_SR\_2\_COHYAX\_20160216T000000\_20991231T235959\_20220203T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3



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Specific for S3\_SM2\_LI

- S3A\_SR\_2\_COLIAX\_20160216T000000\_20991231T235959\_20220329T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3

### Sentinel-3B ADFs

- S3B\_SR\_2\_CCT\_AX\_20180425T000000\_20991231T235959\_20180409T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3B\_SR\_2\_IC01AX\_20180425T000000\_20991231T235959\_20180409T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3B\_SR\_2\_IC02AX\_20180425T000000\_20991231T235959\_20180409T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3B\_SR\_2\_IC03AX\_20180425T000000\_20991231T235959\_20180409T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3B\_SR\_2\_IC04AX\_20180425T000000\_20991231T235959\_20180409T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3B\_SR\_2\_IC05AX\_20180425T000000\_20991231T235959\_20180409T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3B\_SR\_2\_IC06AX\_20180425T000000\_20991231T235959\_20180409T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3B\_SR\_2\_IC07AX\_20180425T000000\_20991231T235959\_20180409T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3B\_SR\_2\_IC08AX\_20180425T000000\_20991231T235959\_20180409T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3B\_SR\_2\_IC09AX\_20180425T000000\_20991231T235959\_20180409T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3B\_SR\_2\_IC10AX\_20180425T000000\_20991231T235959\_20180409T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3B\_SR\_2\_SSLAX\_20180425T000000\_20991231T235959\_20180409T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3B\_SR\_2\_SBSAX\_20180425T000000\_20991231T235959\_20180409T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3B\_SR\_\_\_CHDNAX\_20180425T000000\_20991231T235959\_20220426T120000\_\_\_\_\_MPC\_O\_AL\_006.SEN3
- S3B\_SR\_\_\_CHDRAX\_20180425T000000\_20991231T235959\_20220426T120000\_\_\_\_\_MPC\_O\_AL\_005.SEN3
- S3B\_MW\_\_\_CHDNAX\_20180425T000000\_20991231T235959\_20210929T120000\_\_\_\_\_MPC\_O\_AL\_003.SEN3
- S3B\_MW\_\_\_CHDRAX\_20180425T000000\_20991231T235959\_20181116T120000\_\_\_\_\_MPC\_O\_AL\_002.SEN3

Specific for S3\_SM2\_SI

- S3B\_SR\_2\_COSIAX\_20180425T000000\_20991231T235959\_20220509T120000\_\_\_\_\_MPC\_O\_AL\_002.SEN3

Specific for S3\_SM2\_HY

- S3B\_SR\_2\_COHYAX\_20180425T000000\_20991231T235959\_20220509T120000\_\_\_\_\_MPC\_O\_AL\_002.SEN3

Specific for S3\_SM2\_LI

- S3B\_SR\_2\_COLIAX\_20180425T000000\_20991231T235959\_20220509T120000\_\_\_\_\_MPC\_O\_AL\_002.SEN3

### Common ADFs

- S3\_SR\_2\_CP00AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3\_SR\_2\_CP06AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3\_SR\_2\_CP12AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3\_SR\_2\_CP18AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3



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- S3\_SR\_2\_EOT2AX\_20160216T000000\_20991231T235959\_20190402T120000\_\_\_\_\_MPC\_O\_AL\_003.SEN3
- S3\_SR\_2\_FLT\_AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3\_SR\_2\_GEO\_AX\_20160216T000000\_20991231T235959\_20190402T120000\_\_\_\_\_MPC\_O\_AL\_002.SEN3
- S3\_SR\_2\_LNEQAX\_20160216T000000\_20991231T235959\_20190402T120000\_\_\_\_\_MPC\_O\_AL\_003.SEN3
- S3\_SR\_2\_LRC\_AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3\_SR\_2\_LT2\_AX\_20160216T000000\_20991231T235959\_20190402T120000\_\_\_\_\_MPC\_O\_AL\_003.SEN3
- S3\_SR\_2\_LUTEAX\_20160216T000000\_20991231T235959\_20170713T120000\_\_\_\_\_MPC\_O\_AL\_002.SEN3
- S3\_SR\_2\_LUTFAX\_20160216T000000\_20991231T235959\_20170713T120000\_\_\_\_\_MPC\_O\_AL\_002.SEN3
- S3\_SR\_2\_MAG\_AX\_20160216T000000\_20991231T235959\_20170811T140000\_\_\_\_\_MPC\_O\_AL\_002.SEN3
- S3\_SR\_2\_MDT\_AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3\_SR\_2\_MLM\_AX\_20160216T000000\_20991231T235959\_20200512T120000\_\_\_\_\_MPC\_O\_AL\_004.SEN3
- S3\_SR\_2\_MSMGAX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3\_SR\_2\_MSS1AX\_20160216T000000\_20991231T235959\_20170713T120000\_\_\_\_\_MPC\_O\_AL\_002.SEN3
- S3\_SR\_2\_MSS2AX\_20160216T000000\_20991231T235959\_20190402T120000\_\_\_\_\_MPC\_O\_AL\_003.SEN3
- S3\_SR\_2\_ODLEAX\_20160216T000000\_20991231T235959\_20170322T120000\_\_\_\_\_MPC\_O\_AL\_002.SEN3
- S3\_SR\_2\_RET\_AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3\_SR\_2\_RRC\_AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3\_SR\_2\_S1AMAX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3\_SR\_2\_S1PHAX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3\_SR\_2\_S2AMAX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3\_SR\_2\_S2PHAX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3\_SR\_2\_SD01AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3\_SR\_2\_SD02AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3\_SR\_2\_SD03AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3\_SR\_2\_SD04AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3\_SR\_2\_SD05AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3\_SR\_2\_SD06AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3\_SR\_2\_SD07AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3\_SR\_2\_SD08AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3\_SR\_2\_SD09AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3\_SR\_2\_SD10AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3\_SR\_2\_SD11AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3\_SR\_2\_SD12AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3\_SR\_2\_SET\_AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- S3\_SR\_2\_SFL\_AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3



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- S3\_SR\_2\_SHD\_AX\_20160216T000000\_20991231T235959\_20200220T120000\_\_\_\_\_MPC\_O\_AL\_003.SEN3
  - S3\_SR\_2\_SI01AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
  - S3\_SR\_2\_SI02AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
  - S3\_SR\_2\_SI03AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
  - S3\_SR\_2\_SI04AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
  - S3\_SR\_2\_SI05AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
  - S3\_SR\_2\_SI06AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
  - S3\_SR\_2\_SI07AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
  - S3\_SR\_2\_SI08AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
  - S3\_SR\_2\_SI09AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
  - S3\_SR\_2\_SI10AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
  - S3\_SR\_2\_SI11AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
  - S3\_SR\_2\_SI12AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
  - S3\_SR\_2\_SIGLAX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
  - S3\_SR\_2\_SIGSAX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
  - S3\_SR\_2\_SSM\_AX\_20160216T000000\_20991231T235959\_20220203T120000\_\_\_\_\_MPC\_O\_AL\_003.SEN3
  - S3\_SR\_2\_SST\_AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
  - S3\_SR\_2\_SURFAX\_20160216T000000\_20991231T235959\_20161010T120000\_\_\_\_\_MPC\_O\_AL\_002.SEN3
  - S3\_SR\_2\_WNDLAX\_20160216T000000\_20991231T235959\_20190402T120000\_\_\_\_\_MPC\_O\_AL\_002.SEN3
  - S3\_SR\_2\_WNDSAX\_20160216T000000\_20991231T235959\_20190402T120000\_\_\_\_\_MPC\_O\_AL\_002.SEN3
  - S3\_SR\_2\_POT\_AX\_20160216T000000\_20991231T235959\_20200220T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
  - S3\_SR\_2\_EOT1AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
  - S3\_SR\_2\_LT1\_AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
  - S3\_AX\_\_CST\_AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
  - S3\_SR\_\_LSM\_AX\_20000101T000000\_20991231T235959\_20151214T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
  - S3\_SR\_2\_THM\_AX\_20160216T000000\_20991231T235959\_20220329T120000\_\_\_\_\_MPC\_O\_AL\_002.SEN3
- Specific for S3\_SM2\_SI
- S3\_SR\_2\_LUTHAX\_20160216T000000\_20991231T235959\_20220203T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- Specific for S3\_SM2\_HY
- S3\_SR\_2\_LUTHAX\_20160216T000000\_20991231T235959\_20220203T120000\_\_\_\_\_MPC\_O\_AL\_001.SEN3
- Specific for S3\_SM2\_LI
- S3\_SR\_2\_LUTSAX\_20160216T000000\_20991231T235959\_20181127T120000\_\_\_\_\_MPC\_O\_AL\_003.SEN3



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