Sentinel-3 Product Notice – SYNergy

Mission	S3A & S3B
Sensor	SYNERGY products (combination of OLCI and SLSTR)
Product	• SY_2_SYN • SY_2_VG

Product Notice ID	S3.PN-SYN-L2.07	
Issue/Rev Date	14/06/2021	
Version	1.0	
Preparation	This Product Notice was prepared by the Sentinel 3 (S3) Mission Performance Centre and by ESA experts	
Approval	ESA Mission Management	

Summary
This is a product notice for the release of operational Sentinel-3 SYNERGY Level 2 products to user's community. The notice gives a clear indication of the current status of the latest processing baseline delivered for SYN products and known limitations. The products are currently available via the Copernicus Open Access Hub. The latest SYNERGY processing baseline corrects two issues which are detailed hereafter.

Processing Baseline

	S3A	S3B
Processing Baseline	• IPF Processing Baseline: 2.77	• IPF Processing Baseline: 1.55
IPFs version	• SY_2 IPF version: 06.21 • SY_2_VGS IPF version: 06.09 • OL_1 IPF version: 06.11 • SL_1 IPF version: 06.18 • PUG version: 03.40	• SY_2 IPF version: 06.21 • SY_2_VGS IPF version: 06.09 • OL_1 IPF version: 06.11 • SL_1 IPF version: 06.18 • PUG version: 03.40

Current Operational Processing Baseline

IPF	IPF Version	In operations since (creation date)
S3A		
OL1	06.11 (PB 2.76)	28/04/2021 08:35 UTC
SL1	06.18 (PB 2.75)	18/05/2021 08:10 UTC
SY2	06.21	14/06/2021 08:21 UTC
SY2-VGS	06.09	14/06/2021 08:21 UTC
PUG	03.40	14/06/2021 08:21 UTC
S3B		
OL1	06.11 (PB 1.54)	28/04/2021 08:35 UTC
SL1	06.18 (PB 1.53)	18/05/2021 08:10 UTC
SY2	06.21	14/06/2021 08:21 UTC
SY2-VGS	06.09	14/06/2021 08:21 UTC
PUG	03.40	14/06/2021 08:21 UTC
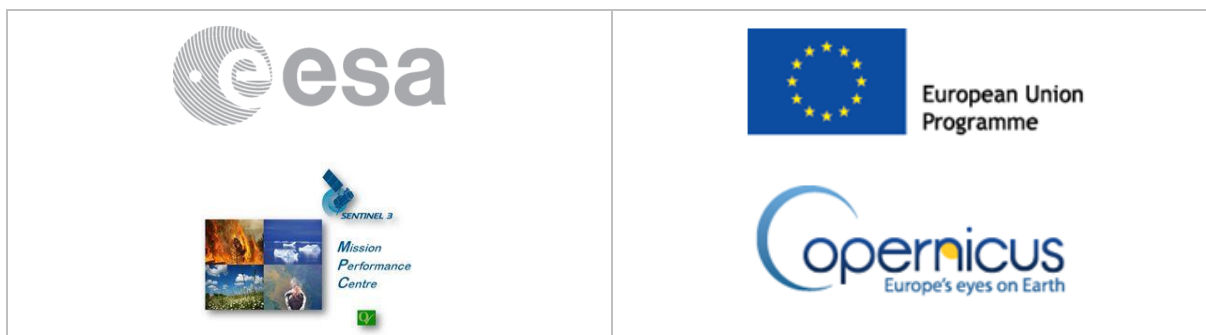
Status of the Processing Baseline

Common to S3A and S3B

- An issue in SYN VGT-S like products has been detected and corrected in the last IPF processing baseline: the NDVI dataset provided by these products were wrongly defined as a TOA NDVI.

- SYNERGY VGT daily and decadal composite are providing a NDVI value for all pixels. To be consistent with VGT and PROBA-V products, the expected NDVI value is defined as a surface NDVI value.

- However, the composite method is using a Top of Atmosphere NDVI value computed from SYN L2 VGT-P TOA radiances.

- To be consistent with user's expectations and compliant with Sentinel 3 operational requirements, the format of SYNERGY VGT-S1 products has been modified : both surface and TOA NDVI are now provided.

- The SYNERGY VGT-S10 product is only providing the surface NDVI as expected.

Specific to S3A

- Nothing specific to S3A

Specific to S3B

- Nothing specific to S3B

Known product quality limitations

Common to S3A and S3B

Despite these evolutions and corrections, some choices and limitations need to be underlined:

- The operational SY_2_V10 processing is not able to deal with two different formats of VG1 products. Therefore, following the deployment of modified SY_2_VG1 format, there will be a gap of one V10 product corresponding to the period from 11 to 20 June 2021.

- To avoid strong interfaces between the different aerosol models and waiting for an update of the corresponding Auxiliary Data Files, **only the continental model is considered**. This limitation can create erroneous patterns over deserts or mountains.

- Similarly, to OLCI level 2 products, camera interfaces can also be visible on some SYN L2 products.

- As the **aerosol retrieval algorithm is different between "nadir-only view" area (based only on spectral constraints) and "dual-view" area (based only on both angular and spectral constraints)**, a transition between these two areas can be observed in some SYN L2 products. In most products, this transition is visible through sharp differences in the Aerosol Optical thickness Values.

- When the OLCI orbit file starts in ascending mode, an operational issue prevented the SLSTR data to be correctly processed by the SYN L2 module, when processing the whole OLCI orbit. To avoid having no SLSTR data in the SYN product and an aerosol retrieval performed using only OLCI pixels, the NTC SYNERGY orbits products are now processed pole to pole and no SYNERGY data are available on the ascending part of OLCI orbit. Note that this limitation is not present in STC timeliness.

- The combination of {SYN_success; SYN_aerosol_filled; SYN_AOT_climato} flags can be misleading. These flags are firstly defined on the macro-pixel resolution. Then, during the aerosol interpolation, for each 300m pixel, the flags associated with the 4 closest macro-pixels are taken into account:

  - If only one of these macro-pixels is flagged cosmetic fill SYN_aerosol_filled or SYN_AOT_climato, the 300m pixel is flagged accordingly.

  - However, the 300m pixel is flagged as SYN_success if the 4 macro-pixels are flagged as SYN_success.

- As a consequence, depending on the used macro-pixels, a 300m pixel can be flagged by both SYN_AOT_climato and SYN_aerosol_filled.

- If successfully retrieved AOT values are available, those will be always used for the interpolation. However, if a 300m pixel is interpolated from 3 SYN_success macro-pixels and one SYN_aerosol_filled macro-pixel, it will be flagged as SYN_aerosol_filled and not SYN_success.

Specific to S3A
• Nothing specific to S3A

Specific to S3B
• Nothing specific to S3B

Products Availability

☒ Copernicus Open Access Hub (https://scihub.copernicus.eu/)

☐ S3 Expert Users Data Hub

☐ Other

Any other useful information

- SYN products are now available in Short-Term Critical (STC) timeliness since the 4th of June 2019
- During the period from the 30th of May and the 7th of Jun 2019, either STC or NTC products are available, but not both.

User Support

- Questions about SYN products can be asked to the Sentinel-3 User Support desk at:
  - eosupport@copernicus.esa.int

References

- OLCI L1 Product Notice
  - S3.PN.OLCI-L1.08, v1.0 dated on 28/04/2021
- SLSTR L1 Product Notice
  - S3.PN.SLSTR-L1.08, v1.0 dated on 18/05/2021
- Product Data Format Specification − SYNERGY Level 1 & 2 Instrument Products, Ref: S3IPF.PDS.006, Issue: 1.9, Date: 04/12/2017

https://sentinel.esa.int/web/sentinel/user-guides/sentinel-3-synergy/document-library

- SYN Land User Handbook, ref. S3MPC.HBK.003, Issue 1.1, Date: 28/04/2021

https://sentinel.esa.int/documents/247904/4598110/Sentinel-3-Synergy-Land-Handbook.pdf

Static ADFs
S3A

- S3A_SL_1_MCHDAX_20160216T000000_20991231T235959_20170120T120000_____MPC_O_AL_003.SEN3
- S3A_SY_1_GCPBAX_20160216T000000_20991231T235959_20170120T120000_____MPC_O_AL_003.SEN3
- S3A_OL_1_MCHDAX_20160216T000000_20991231T235959_20170120T120000_____MPC_O_AL_003.SEN3
- S3A_SY_1_PCP_AX_20160216T000000_20991231T235959_20170120T120000_____MPC_O_AL_005.SEN3
- S3__SY_1_CDIBAX_20000101T000000_20991231T235959_20151214T120000_____MPC_O_AL_001.SEN3
- S3A_SY_2_PCP_AX_20160216T000000_20991231T235959_20181207T120000_____MPC_O_AL_005.SEN3
- S3A_SY_2_RAD_AX_20160216T000000_20991231T235959_20190912T120000_____MPC_O_AL_003.SEN3
- S3A_SY_2_RADPAX_20160216T000000_20991231T235959_20190912T120000_____MPC_O_AL_002.SEN3
- S3A_SY_2_RADSAX_20160216T000000_20991231T235959_20190912T120000_____MPC_O_AL_002.SEN3
- S3A_SY_2_SPCPAX_20000101T000000_20991231T235959_20151214T120000_____MPC_O_AL_001.SEN3
- S3__SY_2_AODCAX_20000101T000000_20991231T235959_20180704T120000_____MPC_O_AL_001.SEN3
- S3A_SY_2_PCPSAX_20160216T000000_20991231T235959_20181207T120000_____MPC_O_AL_002.SEN3

S3B

- S3B_SL_1_MCHDAX_20180425T000000_20991231T235959_20180409T120000_____MPC_O_AL_001.SEN3
- S3B_SY_1_GCPBAX_20180425T000000_20991231T235959_20180409T120000_____MPC_O_AL_001.SEN3
- S3B_OL_1_MCHDAX_20180425T000000_20991231T235959_20180409T120000_____MPC_O_AL_001.SEN3
- S3B_SY_1_PCP_AX_20180425T000000_20991231T235959_20180409T120000_____MPC_O_AL_001.SEN3
- S3__SY_1_CDIBAX_20000101T000000_20991231T235959_20151214T120000_____MPC_O_AL_001.SEN3
- S3B_SY_2_PCP_AX_20180425T000000_20991231T235959_20181207T120000_____MPC_O_AL_003.SEN3
- S3B_SY_2_RAD_AX_20180425T000000_20991231T235959_20190912T120000_____MPC_O_AL_002.SEN3
- S3B_SY_2_RADPAX_20180425T000000_20991231T235959_20190912T120000_____MPC_O_AL_002.SEN3
- S3B_SY_2_RADSAX_20180425T000000_20991231T235959_20190912T120000_____MPC_O_AL_002.SEN3
- S3B_SY_2_SPCPAX_20180425T000000_20991231T235959_20180409T120000_____MPC_O_AL_001.SEN3
- S3__SY_2_AODCAX_20000101T000000_20991231T235959_20180704T120000_____MPC_O_AL_001.SEN3
- S3B_SY_2_PCPSAX_20180425T000000_20991231T235959_20181207T120000_____MPC_O_AL_002.SEN3

End of the Product Notice