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DRAFT VERSION APPLICABLE TO SL_2_LST Test Data Sets

S3 Product Notice – SLSTR

Mission	S3A and S3B	
Sensor	SLSTR	
Product	• Level 2 Land Surface Temperature	
Product Notice ID	S3.PN-SLSTR-L2L.03	
Issue/Rev Date	25/11/2019	
Version	1.0	
Preparation	This Product Notice was prepared by the S3 Mission Performance Centre and by ESA experts	
Approval	ESA Mission Management	

Summary

This is a Product Notice for the release of Sentinel-3 Sea and Land Surface Temperature Radiometer (SLSTR) Level-2 Land Surface Temperature product for both S3A and S3B. The Notice describes the SLSTR current processing baseline relevant to Land Surface Temperature, product quality and limitations, and product availability.


Processing Baselines

	S3A	S3B
Processing Baseline	• Processing Baseline: 2.56	• Processing Baseline: 1.28
IPFs version	• SL_1 IPF version: 06.17 • SL_2_LST IPF version: 06.15 • PUG version: 3.36	

Current Operational Processing Baseline

IPF	IPF Version	In operation since (creation date)
S3A SL1	06.17	
S3A SL2	06.15	
S3B SL1	06.17	
S3B SL2	06.15	
PUG	03.36	

Status of the Processing Baseline

S3A

Level-2 LST Products

- The LST retrieval algorithm has been generated with a new set of retrieval coefficients which utilises an enhanced approach to simulating the across track variation in LST performance when generating the coefficients.
- Implementation of the new retrieval coefficients has improved the performance of the S3A LST product with respect to intercomparison against operational LSA SAF SEVIRI LST.
- The performance against in situ measurements remains within mission requirements of 1 K.
- The meteorological measurements considered during SLSTR L1 to compute the probabilistic cloud flag are now temporally interpolated, leading to an improvement of this flag performance.

S3B

Level-2 LST Products

- The LST retrieval algorithm has been generated with a set of retrieval coefficients which utilises an enhanced approach to simulating the across track variation in LST performance when generating the coefficients.
- Implementation of the retrieval coefficients has improved the comparability between S3A and S3B LST during the Tandem Phase.
- The performance against in situ measurements is within mission requirements of 1 K.
- The meteorological measurements considered during SLSTR L1 to compute the probabilistic cloud flag are now temporally interpolated, leading to an improvement of this flag performance.

Known product quality limitations

Common to S3A and S3B

LST Uncertainty

- The LST theoretical uncertainties are noise-limited at present and require evolution of the algorithm. The latest knowledge of LST uncertainties is not included in the existing model and updates are expected in the future.


- The user is advised to consider the following uncertainties, banded by atmosphere type, as a more representative upper estimate:
  - 0.8K for polar regions
  - 1.5K for mid-latitudes
  - 2K for equatorial latitudes

Orphan dataset:

Two known issues are impacting the LST_orphan measurements:

- During SLSTR L1 processing, the orphan pixels are well-associated with radiances, BTs and annotation datasets. But the UNFILLED bit inside the confidence_orphan flag is wrongly raised for each orphan, leading to an exception_orphan flag systematically set to "unfilled pixel". This issue implies that any orphan pixel is filtered out from the LST processing and no LST or LST_uncertainty is computed for the orphan pixels by the SLSTR L2 LST IPF.

  This issue, that can be observed on this SLSTR test dataset, has been resolved in the operational SLSTR L1 software
- Further to the updated SLSTR L1 regridding approach, some orphan pixel can be associated with a scan index lower that the first contributing scan index associated to each line, provided in the time file and corresponding to the image pixel. This difference creates an internal operational issue at the first row of SLSTR L2 image when the SLSTR L1 radiometric image is re-projected on the instrument grid. To solve this issue, it has been chosen to discard from processing these orphan pixels; They will be then associated with a _FillValue in the LST dataset.

Specific to S3A

- Nothing specific to S3A

Specific to S3B

Cloud screening

- The probabilistic cloud mask is still using an older version of the cloud coefficients ADF.

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Products Availability

☐ Copernicus Open Access Hub (https://scihub.copernicus.eu/), NRT and NTC

☐ ESA Internal Hub for Experts (https://inthub.copernicus.eu/s3exp/), NRT and NTC

☒ Other: TDS provided to users

Any other useful information

- None

User Support

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

References

- SLSTR L1 Product Notice, ref. S3.PN.SLSTR-L1.07, version 1.0, dated on XX/XX/2019
- Product Data Format Specification – SLSTR Level 2 Land Products, Ref: S3IPF.PDS.005.2, Issue: 2.8, Date: 20/09/2019
- https://sentinel.esa.int/web/sentinel/user-guides/sentinel-3-slstr/document-library

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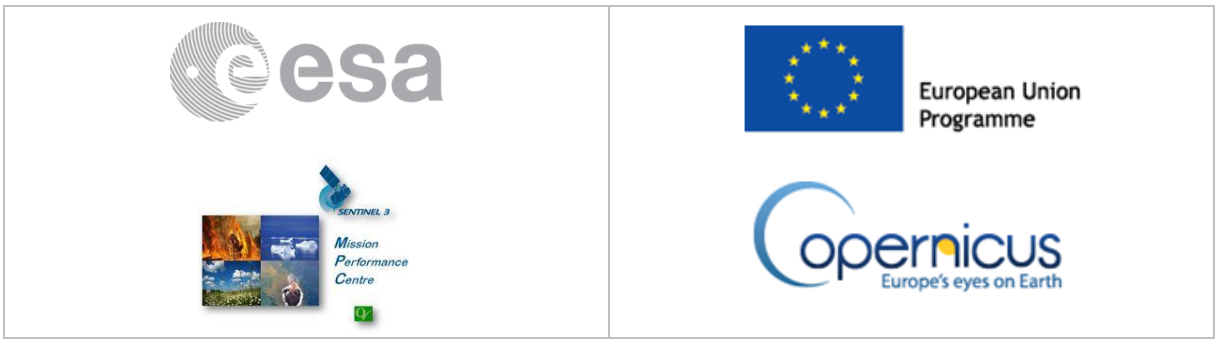
Static ADFs

S3A

- S3__SL_2_LSTBAX_20000101T000000_20991231T235959_20151214T120000_____MPC_O_AL_001.SEN3
- S3__SL_2_LSTVAX_20000101T000000_20991231T235959_20151214T120000_____MPC_O_AL_001.SEN3
- S3__SL_2_LSTWAX_20000101T000000_20991231T235959_20151214T120000_____MPC_O_AL_001.SEN3
- S3A_SL_2_F1N_AX_20000101T000000_20991231T235959_20151214T120000_____MPC_O_AL_001.SEN3
- S3A_SL_2_S7N_AX_20000101T000000_20991231T235959_20151214T120000_____MPC_O_AL_001.SEN3
- S3A_SL_1_N_S7AX_20160216T000000_20991231T235959_20170324T120000_____MPC_O_AL_006.SEN3
- S3__SL_2_SST_AX_20000101T000000_20991231T235959_20151214T120000_____MPC_O_AL_001.SEN3
- S3A_SL_2_S7O_AX_20000101T000000_20991231T235959_20151214T120000_____MPC_O_AL_001.SEN3
- S3A_SL_2_S8N_AX_20000101T000000_20991231T235959_20151214T120000_____MPC_O_AL_001.SEN3
- S3A_SL_2_S8O_AX_20000101T000000_20991231T235959_20151214T120000_____MPC_O_AL_001.SEN3
- S3A_SL_2_S9N_AX_20000101T000000_20991231T235959_20151214T120000_____MPC_O_AL_001.SEN3
- S3A_SL_2_S9O_AX_20000101T000000_20991231T235959_20151214T120000_____MPC_O_AL_001.SEN3
- S3A_SL_2_LSTCAX_20160216T000000_20991231T235959_20190215T120000_____MPC_O_AL_003.SEN3
- S3A_SL_2_LSTEAX_20160216T000000_20991231T235959_20170116T120000_____MPC_O_AL_002.SEN3
- S3A_SL_2_D2_CAX_20160216T000000_20991231T235959_20170116T120000_____MPC_O_AL_003.SEN3
- S3A_SL_2_D3_CAX_20160216T000000_20991231T235959_20170116T120000_____MPC_O_AL_003.SEN3
- S3A_SL_2_N2_CAX_20160216T000000_20991231T235959_20170116T120000_____MPC_O_AL_003.SEN3
- S3A_SL_2_N3_CAX_20160216T000000_20991231T235959_20170116T120000_____MPC_O_AL_003.SEN3
- S3A_SL_2_N3RCAX_20160216T000000_20991231T235959_20170116T120000_____MPC_O_AL_003.SEN3
- S3A_SL_2_PCP_AX_20160216T000000_20991231T235959_20180219T120000_____MPC_O_AL_005.SEN3
- S3A_SL_2_SDI2AX_20000101T000000_20991231T235959_20151214T120000_____MPC_O_AL_001.SEN3
- S3A_SL_2_SDI3AX_20000101T000000_20991231T235959_20151214T120000_____MPC_O_AL_001.SEN3
- S3A_SL_2_SSESAX_20000101T000000_20991231T235959_20160721T120000_____MPC_O_AL_002.SEN3

S3B

- S3__SL_2_LSTBAX_20000101T000000_20991231T235959_20151214T120000_____MPC_O_AL_001.SEN3
- S3__SL_2_LSTVAX_20000101T000000_20991231T235959_20151214T120000_____MPC_O_AL_001.SEN3
- S3__SL_2_LSTWAX_20000101T000000_20991231T235959_20151214T120000_____MPC_O_AL_001.SEN3
- S3B_SL_2_F1N_AX_20180425T000000_20991231T235959_20180409T120000_____MPC_O_AL_001.SEN3
- S3B_SL_2_S7N_AX_20180425T000000_20991231T235959_20180409T120000_____MPC_O_AL_001.SEN3



- S3__SL_2_SST_AX_20000101T000000_20991231T235959_20151214T120000_____MPC_O_AL_001.SEN3
- S3B_SL_2_S7O_AX_20180425T000000_20991231T235959_20180409T120000_____MPC_O_AL_001.SEN3
- S3B_SL_2_S8N_AX_20180425T000000_20991231T235959_20180409T120000_____MPC_O_AL_001.SEN3
- S3B_SL_2_S8O_AX_20180425T000000_20991231T235959_20180409T120000_____MPC_O_AL_001.SEN3
- S3B_SL_2_S9N_AX_20180425T000000_20991231T235959_20180409T120000_____MPC_O_AL_001.SEN3
- S3B_SL_2_S9O_AX_20180425T000000_20991231T235959_20180409T120000_____MPC_O_AL_001.SEN3
- S3B_SL_2_LSTCAX_20180425T000000_20991231T235959_20190215T120000_____MPC_O_AL_002.SEN3
- S3B_SL_2_LSTEAX_20180425T000000_20991231T235959_20180409T120000_____MPC_O_AL_001.SEN3
- S3B_SL_2_D2_CAX_20180425T000000_20991231T235959_20180409T120000_____MPC_O_AL_001.SEN3
- S3B_SL_2_D3_CAX_20180425T000000_20991231T235959_20180409T120000_____MPC_O_AL_001.SEN3
- S3B_SL_2_N2_CAX_20180425T000000_20991231T235959_20180409T120000_____MPC_O_AL_001.SEN3
- S3B_SL_2_N3_CAX_20180425T000000_20991231T235959_20180409T120000_____MPC_O_AL_001.SEN3
- S3B_SL_2_N3RCAX_20180425T000000_20991231T235959_20180409T120000_____MPC_O_AL_001.SEN3
- S3B_SL_2_PCP_AX_20180425T000000_20991231T235959_20180409T120000_____MPC_O_AL_001.SEN3
- S3B_SL_2_SDI2AX_20180425T000000_20991231T235959_20180409T120000_____MPC_O_AL_001.SEN3
- S3B_SL_2_SDI3AX_20180425T000000_20991231T235959_20180409T120000_____MPC_O_AL_001.SEN3
- S3B_SL_2_SSESAX_20180425T000000_20991231T235959_20180409T120000_____MPC_O_AL_001.SEN3

In red: modified ADFs

End of the Product Notice