



*Read-me for Data Users*

**MEMORANDUM FOR:** The JPSS Program Record  
**SUBMITTED BY:** JPSS VIIRS Surface Type Team Lead Xiwu Zhan  
**CONCURRED BY:** JPSS Algorithm Management Project Lead Lihang Zhou  
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**APPROVED BY:** JPSS Program Scientist Mitch Goldberg, Satya Kalluri

**SUBJECT:** NOAA-20 VIIRS Surface Type Validated maturity status and public release  
**DATE:** 09/17/2020

**Validated maturity status declaration for S-NPP/NOAA-20 VIIRS Surface Type**

**Maturity Review Date:** 09/17/2020  
**Effective Date:** 09/25/2020  
**Operational System:** NESDIS STAR Offline Surface Type Production System

The JPSS Algorithm Maturity Readiness Review Board approved the release of the JPSS VIIRS Annual Surface Type (AST) to the public with a validated maturity level quality as of 9/25/2020 based on JPSS Validation Maturity Review held on 09/17/2020 (<https://drive.google.com/drive/folders/1K9ulvEzldSiZpQj88phD5DHfwgpZzw0Y>).

1. Maturity stage definition (reference to the AMM webpage for maturity definition:

<http://www.star.nesdis.noaa.gov/jpss/AlgorithmMaturity.php>)

- Product performance has been demonstrated over a large and wide range of representative conditions (i.e., global, seasonal).
- Comprehensive documentation of product performance exists that includes all known product anomalies and their recommended remediation strategies for a full range of retrieval conditions and severity level.
- Product analyses are sufficient for full qualitative and quantitative determination of product fitness-for-purpose.
- Product is ready for operational use based on documented validation findings and user feedback.
- Product validation, quality assurance, and algorithm stewardship continue through the lifetime of the instrument.

2. Algorithm Description:

N20 VIIRS AST has been generated with a full year surface reflectance data integrated with full year S-NPP VIIRS surface reflectance data. The final product is VIIRS AST V2019. AST products based on S-NPP VIIRS observations of year 2018 and before are available at Algorithm details and evaluation/validation results is provided in VIIRS AST ATBD, which can be found at [https://www.star.nesdis.noaa.gov/jpss/documents/ATBD/ATBD\\_VIIRS-SurfaceType\\_V2019.pdf](https://www.star.nesdis.noaa.gov/jpss/documents/ATBD/ATBD_VIIRS-SurfaceType_V2019.pdf)



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List of Products: VIIRS AST 2019

Product requirements/Exclusions: L1RD and GSegDPS-2019.

Quality flags: Quality is assessed for the whole global map with general accuracy. Results are provided in the product ATBD.

Product evaluation/validation: The N20 VIIRS AST product is evaluated for its 2019 data product version which requires surface reflectance data of a full 2019 year.

Product availability/reliability:

N20 VIIRS AST V2019 and previous version are available from

<ftp://ftp.star.nesdis.noaa.gov/pub/smcd/JPSS/VIIRS-AST>.

Algorithm performance dependence:

Surface reflectance, training data sets and classification algorithm

Known errors/issues/limitations: None

### 3. Changes since last maturity stage:

- More than 12 months of NOAA-20 data required by the AST algorithm have become available
- Developed methods/code for combining NOAA-20 and S-NPP data for improved surface type monitoring

### 4. Review board recommendations

### 5. Path Forward/Future Plan

- Need to continue to improve code robustness and efficiency to handle greatly increased data volume
- Develop more robust methods to integrate NOAA-20 and S-NPP for monitoring surface type changes
- Continue to monitor training/validation sites to identify surface type changes and relabel those changes
- Generate new GST products

### 6. Additional Items to note

Additional information is available in the JPSS VIIRS Surface Type algorithm theoretical basis document (ATBD) and validation maturity review briefing, which can be accessed at:

<http://www.star.nesdis.noaa.gov/jpss/Docs.php>

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