



Read-me for Data Users

MEMORANDUM FOR: The JPSS Program Record
SUBMITTED BY: NOAA-21 Flood Inundation Mapping (FIM) Team Lead,
Sean Helfrich/Liqun Ma
CONCURRED BY: JPSS Algorithm Management Project Lead Lihang Zhou
JPSS STAR Program Manager Ingrid Guch
APPROVED BY: JPSS Program Scientist Satya Kalluri

SUBJECT: NOAA-21 Product Provisional maturity status and public release
DATE: 12/14/2023

Provisional maturity status declaration for NOAA-21 Flood Mapping Product

Maturity Review Date: 08/23/2023
Effective Date: 12/14/2023
Operational System: Enterprise Flood Mapping, Version2.0

The JPSS Algorithm Maturity Readiness Review Board approved the release of the NOAA-21 Flood Inundation Mapping (FIM) to the public with a Provisional maturity level quality as of 12/14/2023, based on JPSS Validation Maturity Review held on 08/23/2023 (https://docs.google.com/presentation/d/14dBsfwMpPunMK6e7vAQXThGUxVOgLy3b05CB1_yNbQ/edit#slide=id.p1).

1. Maturity stage definition (reference to the AMM webpage for maturity definition:
<http://www.star.nesdis.noaa.gov/jpss/AlgorithmMaturity.php>)

2. Algorithm Description:

List of Products (Collection Short Name (CSN))

VFM PDA Short Name	VFM PDA Filename pattern(new)
VFM_1day_GLB	VIIRS-Flood-1day-GLBxxx_v2r0_blend_syzyymddmmhhsss_eyyyymddhmmsss_cyyymddhmmsss.nc
VFM_1day_GLB_tif	VIIRS-Flood-1day-GLBxxx_v2r0_blend_syzyymddmmhhsss_eyyyymddhmmsss_cyyymddhmmsss.tif
VFM_1day_GLB_Shapefiles	VIIRS-Flood-1day-GLBxxx_v2r0_blend_syzyymddmmhhsss_eyyyymddhmmsss_cyyymddhmmsss.shapefiles.zip
VFM_1day_GLB_png	VIIRS-Flood-1day-GLBxxx_v2r0_blend_syzyymddmmhhsss_eyyyymddhmmsss_cyyymddhmmsss.png
VFM_5day_GLB	VIIRS-Flood-5day-GLBxxx_v2r0_blend_syzyymddmmhhsss_eyyyymddhmmsss_cyyymddhmmsss.nc
VFM_5day_GLB_tif	VIIRS-Flood-5day-GLBxxx_v2r0_blend_syzyymddmmhhsss_eyyyymddhmmsss_cyyymddhmmsss.tif
VFM_5day_GLB_Shapefiles	VIIRS-Flood-5day-GLBxxx_v2r0_blend_syzyymddmmhhsss_eyyyymddhmmsss_cyyymddhmmsss.shapefiles.zip
VFM_5day_GLB_png	VIIRS-Flood-5day-GLBxxx_v2r0_blend_syzyymddmmhhsss_eyyyymddhmmsss_cyyymddhmmsss.png
VFM_NWS_Mosaic	VIIRS-Flood-NWSxxx_v2r0_n20/npp_syzyymddmmhhsss_eyyyymddhmmsss_cyyymddhmmsss.nc
VFM_NWS_Mosaic_png	VIIRS-Flood-NWSxxx_v2r0_n20/npp_syzyymddmmhhsss_eyyyymddhmmsss_cyyymddhmmsss.png
BUNDLED_NUPS_VFM_Granule	VIIRS-Flood_v2r0_npp/n20_syzyymddmmhhsss_eyyyymddhmmsss_cyyymddhmmsss.tar



Read-me for Data Users

Product requirements/Exclusions (DPS)

Attribute	Threshold	Observed/validated
Geographic coverage	CONUS and Alaska region	Same as requested
Mapping Accuracy	80%	Same as requested
Latency	40 min	Same as requested
Horizontal Cell Size	375 m	Same as requested
Timeliness	3 hours (after last measurement)	Same as requested
Measurement Range	Water fractions between 25% and 100%	Same as requested
Measurement Accuracy	80% under clear-sky conditions	Same as requested
Measurement Precision	NA	NA

Attribute	Threshold	Observed/validated
Geographic coverage	Global Land	Same as requested
Mapping Accuracy	80%	Same as requested
Latency	40 min	Same as requested
Horizontal Cell Size	375 m	Same as requested
Timeliness	3 hours (after last measurement)	Same as requested
Measurement Range	Water fractions between 25% and 100%	Same as requested
Measurement Accuracy	80% under clear-sky conditions	Same as requested
Measurement Precision	NA	NA



Quality flags (Table)

Variable	Type	Description	Dim	Units	Range
QualityFlag	Short	0: high quality detection, 1: moderate quality detection, 2: low quality detection, 255: FillValue	2	None	N/A

Product evaluation/validation

JPSS Validation Maturity Review

(https://docs.google.com/presentation/d/14dBsfwMpPunMK6e7vAQXThGUxVOgLyi3b05CB1_yNbQ/edit#slide=id.p1).

Product availability/reliability

NOAA-21 Flood Mapping Product data were produced since 12/14/2023.

Algorithm performance dependence

JPSS L1B products

Known errors/issues/limitations

N/A

3. Changes since last maturity stage

N/A

4. Review board recommendations

The effective date will be upon successful integration of v1.1 of the algorithm to be delivered in September 2023. The review team requests that the flood team provide a few slides to indicate successful implementation for their awareness and a new memo with the exact effective date will be sent out. The review team also encourages the flood team to consider the incorporation of additional validation sources in their methodology to include in-situ information, and thanks the team for the work done to date.

5. Path Forward/Future Plan

- .Better discrimination between wet soil and floodwater during snow-melting season
- .Improve the quality of salt-like water detection against melting snow surface
- .Improve the quality of water fraction retrieval on flood pixels with minor sun-glint contamination
- .Improve the quality of water detection over regions with permanent water bodies in the water reference map
- . More cross comparison with Suomi-NPP&NOAA-20/VIIRS flood products for consistent water detection among different sensors
- .More quantitative analysis using Landsat-8&9/OLI images
- .Work with users for evaluation and feedback

6. Additional Items to note

N/A

Additional information is available in the NOAA VIIRS/ABI Flood Mapping (FM) Product algorithm theoretical basis document (ATBD) and validation maturity review briefing, which can be accessed at:

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

Point of Contact:



Read-me for Data Users

Name: Sean Helfrich /Liqun Ma

Email: sean.helfrich@noaa.gov /Liqun.ma@noaa.gov

Phone: 301-683-3328/301-683-3226