

## NOAA-20 Algorithm Maturity Review Sept 19 and 20, 2019

### Review Panel:

Mitch Goldberg (Chair), Lihang Zhou, Satya Kalluri, Jim Yoe, Kevin Schrab, Rick Stumpf, Michael Ford, Gary Wick, Tom Renkevans, Jim Gleason, Ingrid Guch, Banghua Yan

### Summary:

All teams did an excellent job presenting N20 cal val results. The review panel found **MIRS** products to be at **Validated** Maturity level and **Annual surface type** to be at **Beta** Maturity level. The review panel found **OMPS NM SDR and Total Ozone EDR** to be at **Validated** Maturity level. The review panel found **OMPS NP SDR and Ozone Profile EDR** to be at the **Provisional** Maturity level.

### MIRS:

#### Temperature and Water Vapor Profiles

Temperature retrieval results meet the specifications when comparing to radiosondes and models (ECMWF, GDAS). The review team recommends updating the results with the latest version of the models. Water vapor for NOAA-20 is showing accuracy/precision slightly better than SNPP.

#### Surface Temperature and Emissivity

The presentation showed extensive useful comparisons with SURFRAD station measurements and VIIRS surface properties. **The review team recommends looking at LANDSAT emissivity and leveraging the same validation data and approach as used by VIIRS IST and ISE.**

#### Sea ice concentration

The Sea-ice concentration comparison with SSMIS indicated good agreement and that the statistics meet specifications. Review team recommends picking clear days and comparing with VIIRS ice concentration and MIRS surface temperature for consistency check. **Review team recommends using JAXA sea ice concentration as one of the future references in addition to the SSMIS.**

#### Snow water equivalent

The snow water equivalent product comparisons showed good agreement with JAXA AMSR2 and in general that the product meets the specifications. **Review team recommends additional analysis for the product over Tibet plateau where the difference with IMS is large.**

#### Rain rate

Rain rate comparisons with Stave IV and MRMS products showed that rain rate meets specifications with exception of false alarm rates. **Review team recommends additional comparisons with JAXA GCOM rain rate product.**

## Cloud Liquid Water

Cloud liquid water results indicate it is meeting specifications based upon comparison with GCOM AMSR2 and models.

User Feedback positive for Total Precipitable Water, Rain Rate, and Snow-Fall Rate products.

## Surface type

Surface type results were compared with Suomi-NPP and found to be consistent for daily, monthly and annual products. The review team recommends that further analysis of the annual changes of the surface types be conducted. For gridding work, the review team recommends that the team leverage enterprise gridding algorithms. **The review team recommends that the team consider a paper on deforestation that can be seen with the VIIRS products as compared to Landsat products.**

## OMPS

OMPS NM SDRs meet the spec and at the validated maturity, after the verification of the table updates (DR 9093 and DR 9094) implemented as expected, which addressed the issues related to inconsistency between NOAA 20 and SNPP. The README and ATBD updates needed. Users (EDR team) provided positive feedback with comprehensive analysis verifying OMPS NM SDR performance.

OMPS NP SDR is at the Provisional Maturity. There are several issues related to the OMPS NP SDR should be fully addressed before reaching the validated maturity: e.g. the wavelength shift, latitude dependency bias, and geolocation error.

## OMPS Ozone

OMPS Total Ozone EDR meet the spec and at the Validated Maturity, effective April 2019  
OMPS Nadia Profile EDR is a Provisional level pending on resolving the OMPS NP SDR related issues.

### **Actions for OMPS SDR and EDR teams:**

- OMPS SDR team to address the concerns from EDR team on the delta between the SNPP and NOAA-20 NP wavelength (slide 12); need to show what .01 nm wavelength error looks like, and better understand the difference between the SNPP and NOAA\_20.
- OMPS SDR team to investigate why the large difference between NOAA and NASA SDR over the south polar region as shown on slide 26
- OMPS EDR team to evaluate the updated wavelength table and provide feedback to the SDR team