NOAA-20 Algorithm Maturity Review
March 21, 2019

Review Team Members: Mitch Goldberg (chair), Lihang Zhou, Satya Kalluri, Arron Layns, Jim Yoe, Kevin Schrab, Rick Stumpf, Michael Ford, Gary Wick, Tom Renkevens, Jim Gleason

Summary

All teams did an excellent job presenting N20 cal val results. The review panel recommends NCOMP (COD, CEPS), VI/GVF, LST, LSA, and SR have all reached Provisional maturity. Vegetation Health has reached Validated maturity.

The review panel wants to remind all science teams that for all future N20 maturity reviews, comparisons with SNPP performance are required.

Action for JPSS, OSGS, and STAR management (Arron Layns, Brandon Bethune, Satya Kalluri, Lihang Zhou + others): By the end of 2019, need to meet to discuss the sustainment plan for NDE algorithms and how we can manage future science or software changes given that NDE is currently not funded to receive additional DAPs.

Surface Reflectance

At the review March 19, 2019, the review team recommended that SR had reached provisional maturity if the SNPP comparisons are same or better (due: Tues March 27). If comparisons are worse than SNPP, then recommend the product remain at Beta maturity. If the results with SNPP are satisfactory, then recommend N20 SR be included in the April 2019 release. Following the review on March 27, 2019, the science team provided comparisons of each band between SNPP and N20. All the visual comparisons look quite good with the exception of I3 where N20 looks noticeable worse than SNPP. This may be due to the I3 bad detector. The science team is verifying that the QFs are flagging this issue and the SR codes are handling it properly. Based on these preliminary comparisons, the review panel recommends SR has reached **Provisional maturity**.

Please confirm that the SR running in I&T has NO changes to SNPP SR. The one being promoted should ONLY add N20. If there are any changes to SNPP SR, then they need to wait until the next promotion deadline in order to allow the 30 day notices from ESPC to occur.

QF4 (AOT quality) does not make sense. Need to better understand the cause of the difference between NDE and NASA SIPS. Eric mentioned Aerosol, Aerosol models, etc.; Mitch recommended to do global comparisons with MODIS for next review; also possible future applications of solar geometry corrections to the imagery products.

The validation results are valid for the NDE release in April 10th, we can recommend the team to put together global statistics for MODIS and SNPP before the release and the effective date

will be pending on close of these actions. The N20 CalVal plan indicated they should do the MODIS and SNPP comparisons for Provisional maturity.

Generally speaking, there are no external users of the SR product - only internal data product production, and since the validation results from VI/GVF show that SR is working quite well, this is good evidence that SR is ready for operational use.

Green Vegetation Fraction / Vegetation Index

GVF and VI have reached **provisional maturity**. The global statistics for both products are shown to meet the JPSS requirements.

Slide 4 and 5, L1RD tables need to be updated with the latest version. Ivan raised the issue that there are still some cloud effects in the weekly GVF; and suggested that using both SNPP and NOAA-20 to generate weekly to improve it in future.

Slide 14 - There is no value in comparing N20 IDPS VI with N20 NDE VI because no work has been done on validating or updating the N20 IDPS production. The science team is requested to please stop doing these comparisons as there is little to no value.

Slide 26 shows the combined statistics globally, and the Vegetation Indices are meeting the requirements.

When Bob says, VI/GVF is running slow -- what does this mean? Too slow for what or compared to what? If the team thinks this is important, recommend the team develop a white paper discussing the technical things they want to improve, the benefit or value in working towards them, and how these might fit with the enterprise land processing systems.

Action for AMP/JSTAR: coordinate a follow up meeting to discuss the plans for DAP deliveries after reaching validated maturity.

No requirements for 1km VI or GVF. JPSS requests the science team stop work on this effort using JPSS funds.

Vegetation Health

Based on the available validation data sources and the science team's CalVal plan, this product is at **Validated Maturity**. There is no way to validate directly to other VH data because no other validation sources exist. This review showed 3 weeks of statistical data comparisons with SNPP plus >1 year of visual comparisons with SNPP (slide 18).

The comparisons between SNPP and N20 are excellent showing consistency between the two products. This was a previous recommendation to the VH team from the review panel.

Recommend the VH team do a “simple” test run of a week of data using Bob Yu’s NDVI product vs Felix’s NDVI product as input. Provide simple visual comparison as a start.

Recommend Felix provide feedback to Bob Yu’s team on his NDVI products.

Nighttime Cloud Optical and Microphysical Properties

All required products (Cloud optical depth and cloud effective particle size) are generally meeting the accuracy and precision requirements (some exceptions in precision) given the available validation sources. All products appear visually consistent with SNPP. COD and CEPS have reached **Provisional maturity**.

Slide 6, 12, 43 are very clear. Thank you!

In previous reviews, was there a risk on the cloud products related to continued availability of CALIPSO data? If so, does the cloud team see this as a possible risk in getting to validated maturity?

Land Surface Temperature / Surface Albedo

LST and LSA have reached **Provisional maturity**.

For LST: Good comparisons with SNPP, G16, and MODIS. Small concern with slides 20-21 (SNPP comparisons). I understand there are differences in view angle and time, but, for future reviews, is there a way to compare apples to apples?

For LSA: Very good statistics comparing with in situ and other satellites.