

VIIRS Ocean Color Chlorophyll (OCC) Release, Provisional Data Quality
Last Updated: 05/27/2015
Read-me for Data Users

The Joint Polar Satellite System (JPSS) Algorithm Engineering Review Board approved the release of the VIIRS Ocean Color Chlorophyll Environmental Data Record (EDR) with a Provisional level maturity as of February 10, 2014. The data product is represented by Collection Short Name (CSN) VIIRS-OCC-EDR (Ocean Color Chlorophyll EDR). An evaluation of the product generated after that date has shown it to satisfy the criteria for Provisional-level maturity. Those criteria are:

- Product quality may not be optimal
- Incremental product improvements are still occurring
- Version control is in affect
- General research community is encouraged to participate in the QA and validation of the product, but need to be aware that product validation and QA are ongoing
- Users are urged to consult the EDR product status document prior to use of the data in publications
- Ready for operational evaluation

The Board recommends that users be informed of the following product information and characteristics when evaluating the product:

- The VIIRS Ocean Color EDR Product produced at IDPS is being replaced by the NOAA-MSL-12 EDR Product which is currently being produced at NOAA STAR. Information about the Ocean Color MSL-12 product, algorithm, and team can be found by following the Ocean Color links at: <http://www.star.nesdis.noaa.gov/jps/Teams.php> . The NOAA-MSL-12 product achieved validated maturity in March of 2015.
- OCC EDR data were produced since November 21, 2011, but data before February 6, 2012 were not reliable because the SDR were not correctly calibrated.
- The chlorophyll-a algorithm was changed from Carder algorithm to OC3V since implementation in operations on December 9, 2011.
- Significant sensor near-infrared/shortwave infrared (NIR/SWIR) degradation has been an issue after VIIRS launch, but after the new scan-by-scan RSB calibration algorithm /F-LUT was implemented in operations on August 10, 2012; it has no negative impact on OCC EDR.
- The significant NIR/SWIR degradation may still be an important issue, although currently no negative impact on OCC EDR has been found.
- OCC EDR anomaly occurred for some scenes due to VIIRS onboard calibration dual gain switch issue. This issue was resolved in Mx6.3 which was implemented in operations on Oct 15, 2012.
- Before Mx6.3, there are no Chl-a retrievals in case of negative remote-sensing reflectance in M1–M5. Since Mx6.3, Chl-a data have been retrieved in case of negative remote-sensing reflectance at the band M5. There are still no Chl-a retrievals in case of negative remote-

sensing reflectance at any bands M1–M4. Has been applied in the operational IDPS OCC EDR processing since Mx6.5 (DRs4869, 4877, 4898 – CCR 12-0685)

- No retrievals in coastal and inland waters. Has been applied in the operational IDPS OCC EDR processing since Mx6.5 (DRs4869, 4877, 4898 – CCR 12-0685)
- Vicarious calibration has been applied in the operational IDPS OCC EDR processing since Mx8.0 (DR7157-CCR1006)
- IDPS OCC EDR quality flags modifications/improvements operational IDPS OCC EDR processing since Mx8.0. (DR7106-CCR13-1011)
- Sun glint masking/correction algorithm has been modified/improved in the operational IDPS OCC EDR processing since MX8.5. (DR7384 – CCR14-1582)
- Inherent Optical Property for absorption (IOP-a) and backscattering (IOP-s) products have not been evaluated yet, and these products are considered experimental products. It may require a different IOP algorithm for improved products.
- There are atmospheric correction problems in coastal turbid and inland waters due to the algorithm issue. The required algorithm for correction of the NIR water-leaving radiance contributions has not been implemented in the IDPS OCC EDR data processing.
- Some $nL_w(\lambda)$ biases in the blue bands since mid-May 2012 are due to VIIRS SDR issue. We expect that this SDR-related issue will be addressed/resolved soon. See the VIIRS SDR readme for more detail.

Additional information on VIIRS and algorithm theoretical basis documents (ATBDs) is available at: <http://www.star.nesdis.noaa.gov/jpss/ATBD.php>.

Point of Contact

Dr. Menghua Wang

OCC EDR Team Lead

Menghua.Wang@noaa.gov

301-683-3325