

OCEAN OPTICS XXIV

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Thursday, October 11

Poster Session 4

10:30–12:00

Poster 152

MERGING GLOBAL SNPP AND NOAA-20 VIIRS OCEAN COLOR DATA PRODUCTS

The Visible Infrared Imaging Radiometer Suite (VIIRS) on the Suomi National Polar-orbiting Partnership (SNPP) and NOAA-20 has been providing large amount of global ocean color data, which are critical for monitoring the ocean optical and biological processes and phenomena. However, VIIRS-derived daily ocean color image either on the SNPP or NOAA-20 is limited in ocean coverage due to its swath width, high sensor zenith angle, sun glint, and cloud, etc. Merging VIIRS ocean color products from the SNPP and NOAA-20 significantly increases the coverage of daily images. Two VIIRS sensors on the SNPP and NOAA-20 have similar sensor characteristics, and ocean color data are derived using the same ocean color data processing system. Therefore, the merged ocean color data are expected to have high quality with consistent statistical property and accuracy. In this presentation, a suite of merging methods is explored, including simple binning, weighted average, optimal interpolation, and machine learning method, to account for different satellite passing time and different solar and sensor zenith angles. In particular, since the spectral band wavelengths are slightly different between the two sensors, before merging process, the NOAA-20 normalized water-leaving radiances [$nL_w(l)$] are converted to the VIIRS SNPP bands using the relationship obtained from the MOBY in situ measurements. Results of merged VIIRS products, i.e., normalized water-leaving radiances $nL_w(l)$ at 410, 443, 486, 551, 638, and 671 nm, chlorophyll-a concentration (Chl-a), and water diffuse attenuation coefficient at 490 nm, $K_d(490)$, as well as comparisons among different merging methods will be presented and discussed.

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