

OCEAN OPTICS XXIV

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Thursday, October 11

Poster Session 4

10:30–12:00

Poster 172

STATISTICAL EVALUATION OF VIIRS OCEAN COLOR DATA RETRIEVALS

Validation of satellite ocean color data requires extensive comparisons with in-situ data. However, sparsity of in-situ data prohibits validation at global scales. Instead, time averaged satellite data itself can be used as a global reference to verify the data statistical consistency. This is especially justified in the open ocean where the relevant time scales of changes in water optical, biological, biogeochemical properties are longer and span time period of multiple satellite observations. We have used the recently improved Multi-Sensor Level-1 to Level-2 (MSL12) ocean color data processing system to obtain the normalized water-leaving radiance spectra from the Visible Infrared Imaging Radiometer Suite (VIIRS) measurements. We investigate the deviations of the normalized water-leaving radiances from the time averaged values, and collect the statistics of these deviations with respect to various retrieval parameters and sensing conditions. We demonstrate that MSL12 produces statistically consistent retrievals in the open ocean, with respect to majority of the retrieval parameters. We observe slightly increased radiances near clouds, however the band ratios used for deriving chlorophyll-a concentration and the water diffuse attenuation coefficient at 490 nm $K_d(490)$ are much less affected. In difficult retrieval conditions with very high solar- and sensor-zenith angles, MSL12 produces lower than average normalized water-leaving radiances, and this study yields the ranges of parameters in solar- and sensor-zenith angle for valid retrievals. Some statistics results from VIIRS ocean color data performance over coastal and inland waters will also be presented and discussed.

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