



Advancements in Assimilation of Ocean Color Radiance Data

The Sea-ice, Ocean, and Coupled Assimilation (SOCA) project is one of the main projects of the Joint Center for Satellite Data Assimilation (JCSDA). The domain of SOCA project involves the integration of data assimilation techniques across the marine elements of the Earth system, encompassing the ocean, sea-ice, waves, and ocean biogeochemistry, while also addressing the interconnections among these components. A significant emphasis lies in constructing foundational elements for a coupled ocean/sea-ice/atmosphere data assimilation capability. Through the employment of the coupled Joint Effort for Data Assimilation Integration (JEDI) infrastructure, the direct assimilation of surface-sensitive microwave/infrared/visible radiances for observations like ocean color becomes achievable. First step to assimilate the ocean color radiance is a coupled $H(x)$ to simulate these observations. Here, the progress in integration of NASA's Ocean Atmosphere Spectral Irradiance Model (OASIM) ocean color forward operator in the Unified Forward Operator (UFO) will be discussed, and $H(x)$ for ocean color observations will be demonstrated with existing MODIS observations.

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