Wednesday, October 10
Poster Session 3
16:00–18:00

Poster 234
ASSESSING THE UNCERTAINTIES IN IOP RETRIEVAL AND IN-SITU VALIDATION FOR A COASTAL ENVIRONMENT.

Approaches have been developed to allow the retrieval of water Inherent Optical Properties (IOP) from above-water reflectance. The performance of these models is consistently improving, however their sensitivity to uncertainties in measurements is yet to be fully explored. We quantified the impacts of uncertainties associated to input data for different IOP retrieval models and how their outputs perform compared to uncertainties of in-situ IOP measurements. All samples and radiometric measurements were carried out in the Damariscotta river estuary (Maine, USA) at 5 stations in 2 consecutive days, as part of the 2017 Ocean Optics Class (NASA/University of Maine). In each station we obtained vertical profiles of temperature, salinity, chlorophyll fluorescence, light absorption, beam attenuation and backscattering and collected discrete water samples for particle light absorption and chlorophyll-a concentration. Finally, above and in-water radiometric measurements were conducted using the HyperSAS and HyperPRO profiler, respectively. All IOP retrieval models showed less variability in the output data when using Rrs from HyperPRO in buoy mode. IOPs obtained from the filter pad technique have proven to be highly variable, while the best validation of retrieved IOPs is achieved when using AC-S data. The better performance of in-situ measurements (HyperPRO and AC-S) versus above water (HyperSAS) and discrete samples is likely due to the reduced effect of surface waves in the light field and sample handling, respectively. We plan to run forward simulations with Hydrolight and compare both retrieved and measured IOPs and Rrs.

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