

OCEAN OPTICS XXIV

Valamar Lacroma Dubrovnik Hotel | Dubrovnik, Croatia | October 7–12, 2018

<https://oceanopticsconference.org>

Tuesday, October 9

Poster Session 2

10:30–12:30

Poster 229

OPTICAL RETRIEVAL OF THE MEAN DIAMETER OF SUSPENDED MINERAL AND ORGANIC PARTICLES

A significant factor in the study of the biogeochemistry of coastal and open ocean waters is the nature of and particle size distribution (PSD) of the suspended matter. For modeling purposes the mean particle size is often used to characterize at the first order the various particle chemical relations and the important sorption/desorption relations of suspended particles. The first step in biogeochemical studies is to characterize the nature of suspended particles, i.e. the relative amounts of suspended mineral matter and suspended organic matter. We have done this for several stations of our March 2016 two week field campaign conducted on the shelf/slope in the northern Gulf of Mexico near the Mississippi River Delta. Combining these data with the volume total scattering coefficient at the stations yields the true mass-specific scattering cross section of the suspended mineral matter and the suspended organic matter. The theoretical derivation of the mass-specific scattering cross section involves the particle diameter that generates that cross section. Thus we derive a mean particle size for the suspended minerals and the suspended organics. We also have LISST data for the total particle suite at each station and the derived mean particle sizes will be checked against the LISST distributions with techniques derived by Risović to characterize the PSD. The nature of the organic mean particles will be investigated further with HPLC data on the pigmentation of the suspended organics.

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