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## Bio-Optics of the Chesapeake Bay from Measurements and Radiative Transfer Calculations

By Maria Tzortziou

Bibliogov, United States, 2013. Paperback. Book Condition: New. 246 x 189 mm. Language: English . Brand New Book \*\*\*\*\* Print on Demand \*\*\*\*\*.We combined detailed bio-optical measurements and radiative transfer (RT) modeling to perform an optical closure experiment for optically complex and biologically productive Chesapeake Bay waters. We used this experiment to evaluate certain assumptions commonly used when modeling bio-optical processes, and to investigate the relative importance of several optical characteristics needed to accurately model and interpret remote sensing ocean-color observations in these Case 2 waters. Direct measurements were made of the magnitude, variability, and spectral characteristics of backscattering and absorption that are critical for accurate parameterizations in satellite bio-optical algorithms and underwater RT simulations. We found that the ratio of backscattering to total scattering in the mid-mesohaline Chesapeake Bay varied considerably depending on particulate loading, distance from land, and mixing processes, and had an average value of 0.0128 at 530 nm. Incorporating information on the magnitude, variability, and spectral characteristics of particulate backscattering into the RT model, rather than using a volume scattering function commonly assumed for turbid waters, was critical to obtaining agreement between RT calculations and measured radiometric quantities. In situ measurements of absorption coefficients need to...



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