

Monday, October 8

Poster Session 1

16:00–18:00

Poster 204

OPTICAL PROPERTIES OF FINE SUB-MICRON PARTICLES ON AMAZON FLOODPLAIN LAKES: THE ROLE OF THE 0.2-0.7 GAP ON TOTAL ABSORPTION AND SCATTERING COEFFICIENTS

The impact of sub-micron particles on total absorption and scattering coefficients has been investigated in different aquatic environments with results showing low impact. At the Amazon floodplain lakes, however, the choice of different pore size filters to separate dissolved and particulate matter can have a significant impact on both coefficients. In this study the role of the 0.2-0.7 gap was investigated in Amazon floodplain lakes. The first set of sampled lakes is located within the first and largest Sustainable Development Reserve in Brazil dedicated to the protection of the Amazonian floodplain, whilst the remaining lakes are located in a human impacted region of the Amazon basin. Moreover, the lakes are also affected by the interplay of the Amazon and Tapajos rivers, what brings high variability to their optical properties. Measurements were taken with a 10 cm AC-S on deck, after filtration by a 0.2 and 0.7 micron filters. Laboratory spectrophotometry and Scanning Electron Microscopy (SEM) were also performed to validate ACS measurements and investigate the nature of sub-micron particles. Results show that the 0.2-0.7 gap can represent up to 40% of the particulate absorption coefficient depending on the lake hydrological characteristics and proximity to the Amazon and Tapajos rivers. The same impact was not observed in the scattering coefficient reaching only up to 10% of the total scattering coefficient. SEM also demonstrated that the 0.2-0.7 gap presented a significant load of inorganic material which indicates that the absorption coefficient is not only related to the organic fraction of the particulate.

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