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Wednesday, October 10

Oral Session 7

11:10–12:30

11:30–11:50

CHARACTERIZING DIFFUSE ATTENUATION OF REEF AND ADJACENT WATERS IN HAWAII AND BERMUDA

Knowledge of water clarity is important to both reef ecology and remote sensing of shallow waters. However, there are currently few published records of water optical properties for coral reefs. The purpose of this study is to characterize the range and variability of the spectral diffuse attenuation coefficient (K_d) in coral reef and adjacent waters. Using a Biospherical PRR-800, approximately 200 vertical profiles of downwelling spectral irradiance were collected across the reefs and nearby optically deep waters of Hawaii and Bermuda. A single spectral K_d was calculated for each profile. Results reveal water types ranging from clear oceanic to strongly turbid coastal. The primary driver of the magnitude of K_d is suspended sediments, while the shape of K_d is heavily dependent on colored dissolved organic matter (CDOM). Chlorophyll does not appear to be an important driver of K_d . These results are consistent with well-known reef characteristics: (a) Suspended sediments are ubiquitous on coral reefs and chiefly comprised of calcium carbonate, which is effectively spectrally flat; (b) Reefs generate large amounts of DOM; and (c) Suspended chlorophyll is typically very low in the water column above reefs. This presentation discusses these patterns and their implications to reef ecology and remote sensing.

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