Thursday, October 11
Poster Session 4
10:30–12:00

**Poster 16**

## BIOGEOCHEMICAL CONTROLS OF CDOM FLUXES FROM SEDIMENTS AND THE ASSOCIATED EFFECTS ON THE GULF OF MEXICO WATER COLUMN OPTICAL PROPERTIES

Because of the importance of Colored Dissolved Organic Matter (CDOM) in the transfer of carbon from land to sea, CDOM is a frequent target of satellite remote sensing efforts. Simultaneously, CDOM can interfere with the detection of other optical properties such as chlorophyll or suspended sediments. It is thus essential to understand the controls of the production, alteration, and transport of both terrestrial and marine-derived CDOM, as well as associated absorption effects. However, despite a potentially large role in shallow regions, sediment-derived CDOM inputs and the associated effects on water column optical properties have received little attention. During a summer, 2017 cruise to the northern Gulf of Mexico, shelf and slope sediment pore water hyperspectral CDOM absorption was measured as part of a larger campaign to examine sediment respiratory processes. Absorptions (a440; 0.3 to 56 $m^{-1}$) were elevated relative to surface waters and typically increased with depth. Additionally, spectral slopes (S350-440; 0.006 to 0.027) diverged significantly from the relatively constant values of surface waters (0.015 – 0.018). While surface CDOM spectra were characterized by monotonic exponential decrease, sediment pore waters displayed several discrete inflection regions. CDOM properties were most affected by disparate microbial processes between shelf and slope sediments, but overall iron mineral dissolution and complexation played the largest role. Finally, results will be presented from a simple shelf and slope system sediment/water column box model, in which absorption properties were associated with dissolved pore water organic carbon concentrations and diffusive fluxes were calculated for each site.

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