

OCEAN OPTICS XXIV

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Tuesday, October 9

Poster Session 2

10:30–12:30

Poster 265

BIO-OPTICAL CHARACTERISTICS OF MESOSCALE EDDIES IN THE RED SEA

Mesoscale eddies have a significant role in the physical and biogeochemical dynamics of the Red Sea. Until recently, limited in situ studies could not capture the seasonal and biogeochemical variability of the mesoscale eddies in the Red Sea. The present study aims to exam the bio-optical properties of the eddies, with a particular focus on colored dissolved organic matter (CDOM), chlorophyll fluorescence (CHL) and multi-wavelength optical backscatter. Glider observations now provide extended time series observations in the central and northern Red Sea where significant mesoscale eddy activity is observed. This study discusses the effect of eddies on the relationship between backscattering, chlorophyll and CDOM, and their spatial and temporal variability. In addition, the glider observations better inform us how to interpret satellite remote sensed ocean color for this region. In the Red Sea, ocean color has been an important tracer for mesoscale eddies. The results show that remotely sensed chlorophyll may be influenced by components other than phytoplankton chlorophyll. Additional components including optical backscatter and CDOM, may contribute to the ocean color signature and derive from either the coastal region, or from Gulf of Aden water transported northward. Optical measurements not only characterize the spatial and temporal variability of phytoplankton chlorophyll, suspended particles and CDOM, but inform us about important subsurface physical processes associated with eddies, water mass transport, mixing dynamics which cannot be detected or resolved from remote sensing.

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