



# Analysis on Variations in Spectral Reflectance Characteristics of Coral Reef Benthic Compositions from Gulf of Mannar, Tamil Nadu, India

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**Abstract:** This study focussed on analysing the variations in spectral signature of different end members in coral reef benthic compositions with respect to varying monsoon conditions and varying chlorophyll concentrations from Gulf-of-Mannar, India. The *in-situ* measurements were made at two different time periods for same end-members at same geographical locations; the first set of *in-situ* measurements were collected during Pre-Monsoon season (March-2018) and the second set of *in-situ* measurements were collected during Monsoon season (August-2018). RAMSES-TriOS Hyperspectral radiometer was used to collect the Up-welling radiance and Downwelling irradiance for the visible and Near Infra-Red spectral region (350-900 nm) and WET-Star Fluorometer was used to collect the chlorophyll concentration. Necessary processing steps were carried out to retrieve the spectral signature for all end-members. Further, derivative analysis was carried out to identify the minor variations among spectral signatures. All the end-members provide a consistency in terms of spectral shape and spectral magnitude. It denotes that, the spectral pattern won't change with respect to varying monsoon conditions and different chlorophyll concentration.

**Keywords:** Coral-reefs, *in-situ* measurement, Pre-monsoon and monsoon, Variations in spectral shape and magnitude

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