Validation of a Phytoplankton Model Over a Coastal Fishing Reef Using Satallite Data

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Due to current patterns and heavy nutrient loads from rivers, phytoplankton production rates can cause algal blooms. Since earth observation delivers a synoptic view of the ocean, together spatially and temporally, satellite ocean colour sensors' data are broadly used for exposure, mapping and monitoring of these blooms. Therefore, the research was focused on validating a phytoplankton model from the images derived from SeaDAS software using chlorophyll-a algorithm.

Here in-situ (cruise) data were compared with daily satellite image data obtained from NASA ocean colour website with 4km resolution and a sensor with least error was selected. Then monthly chlorophyll concentrations retrieved from Indian Ocean using MODIS (Moderate Resolution Imaging Spectroradiometer) Aqua sensor for the period of 2009-January to 2016-September were analysed and selected a bloom effect region as a geo location and particular time period that occurred. Also certain parameters which caused that were identified such as ocean nutrients, currents and wind.

The obtained information indicated that despite the normal low chlorophyll concentration ($0.01-0.1$ mgm^{-3}) in these oligotrophic waters, there is a characteristic seasonal bloom in June–August on the South-West coast of India and in South coast of Sri Lanka concurrent with summer monsoon currents and winds.