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Surface chlorophyll-a of waters surrounding Sri Lanka as seen from sea WiFS

Ocean colour data obtained from Sea-viewing Wide Field-of-view Sensor (Sea WiFS) through NASA's Goddard DAAC Center are processed and analyzed. Materials such as phytoplankton, suspended sediments and dissolved organic matter affect ocean colour. In this paper distribution of pigment chlorophyll-a (in phytoplankton) in surface waters around Sri Lanka are analyzed. An ocean colour sensor records upward radiance from the sea surface after modification by intervening atmospheric path. Empirical relations have been established that link changes in radiance with changes in chlorophyll-a concentration in sea. Raw data of 1 Km resolution within the area of latitudes 2N-13.5N and longitudes between 76.5E-88.0E on relatively cloud free days during the year 1999 are processed to produce chlorophyll maps. Processed data include about 90 single day maps and composite maps were made for each month and season. The month of June is omitted due to insufficient data.

The seasons are defined approximately as follows: First Inter-monsoon (March-May), Southwest (SW) monsoon (June- September), Second Inter-monsoon (October-November) and Northeast (NE monsoon (December-February). During SW monsoon waters off west and southwest coats show upwelling regions and exhibit higher surface pigment concentrations (> 1 mg M^{-3}). This region exhibits a shallow mixed layer (only about 30 M deep) during SW monsoon which supports possible upwelling in the region. During SW monsoon currents originate from the Arabian Sea, where strong upwelling waters to wards south. This enhances surface pigment concentrations as well. During NE monsoon and First Inter-monsoon, waters around Sri Lanka show relatively low chlorophyll-a concentrations (<0.5 mg m^{-3}) except few upwelling areas off northeast coast. Further research is underway to study correlation between chlorophyll and other relevant atmospheric and oceanographic parameters and also to study criteria to identify possible fishing grounds using chlorophyll maps.