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SPATIAL AND TEMPORAL VARIATION OF SUSPENDED SEDIMENT CONCENTRATION IN THE NEAR SHORE WATERS, SOUTHERN KARNATAKA, INDIA

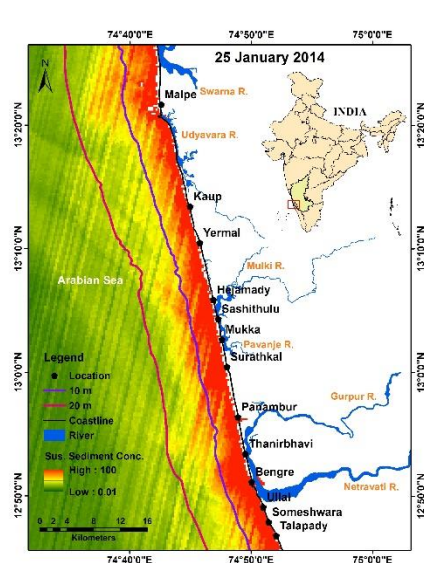
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Suspended Sediment Concentrations (SSC) were estimated for the period of four months (November, 2013 to February 2014) using Oceansat-II (Ocean Colour Monitor) satellite images to understand the coastal dynamics and regional sediment transport, especially distribution and budgeting in coastal waters. The geo-rectified OCM images were atmospherically corrected and SSC were derived based on modified Tassan algorithm [1].

During November 2013, high SSC (~100 mg/l) along 10 m depth contour is observed to the south of Udyavara River mouth. The sediment drift pattern shows a southerly transport and further downstream to the south of Kaup rock outcrops, the ocean water is observed to be of low SSC (~13.96 mg/l). Whereas along 20 meter bathymetric contour, high SSC (~25.75 mg/l) was observed at off Thanirbhavi which is attributed to the sediment supply from Mulki and Pavanje Rivers and low SSC (~7.20 mg/l) is observed south of Kaup rock outcrops. These outcrops act as a barrier to the southern transport of sediment from the Udyavara River.



from OCM
Image

During December, 2013 at 10 meter bathymetry, off Thanirbhavi, high SSC of ~47.12 mg/l is attributed to dredging activity in the navigation channel, whereas low SSC of ~22.02 mg/l near Hejamady attributed to the location of this station (lies north of Mulki-Pavanje River) where the current direction is southwards. Whereas at 20 meter bathymetric depth, high SSC (~35.52 mg/l) was observed off Panambur which is due to sediment supply from Mulki and Pavanje Rivers and low SSC (~11.44 mg/l) south of St. Marys Island which act as a barrier for southward sediment transport.

In the month of January, 2014 also high SSC (~51.12 mg/l) was observed at 10 meter bathymetry off Panambur which would be due to dredging activity and low SSC (~15.53 mg/l) south of Kaup rock outcrops. Whereas at 20 meter bathymetric depth high SSC of ~21.38 mg/l at off Thanirbhavi and low SSC of ~10.43 mg/l at off Sashithlu (south of Mulki and Pavanje River mouth) are attributed to sediment from Netravati and Gurpur Rivers and northerly currents respectively.

In February, 2014 at 10 meter bathymetry, high SSC (~50.33 mg/l) off Thanirbhavi could be due to sediment input from Netravati and Gurpur Rivers and low SSC (~20.45 mg/l) at off Malpe due to northerly currents. Whereas at 20 meter depth high SSC (~31.48 mg/l) was observed off Thanirbhavi

which is due to sediment input from Netravati and Gurpur Rivers and low SSC (~13.02 mg/l) north of Kaup rock outcrops as the current direction was towards north. The study reveals that sediment dynamics are primarily controlled by currents and the river input.

References:

[1] Tassan S. (1994) Applied Optics 33(12): 2369-2378.

