

Remote Sensing of suspended sediments along the Tamil Nadu coastal waters

Prakash Chauhan, Shailesh Nayak, R Ramesh, R Krishnamoorthy, S Ramachandran

Abstract

Indian Remote Sensing satellite (IRS) 1A & 1B digital data in combination with field measurement were used to map distribution and concentration of suspended sediments along the Tamil Nadu coastal waters for monsoon and non-monsoon periods. Qualitative suspended sediment mapping was done for entire Tamil Nadu coast while quantitative studies were taken at two selected sites (eg. Tuticorin and Ennore). For qualitative mapping both monsoon (17-12-90) and non-monsoon (18-4-90) season data were analysed by level slicing technique and a qualitative scale was assigned to different sediment classes based on tonal variations. The suspended sediment concentration (SSC) samples were collected on April 15, 1992 and March 10, 1992 around Ennore and Tuticorin coastal waters respectively, synchronous to IRS-1A satellite overpass. This data was used for quantitative estimation of SSC using digital chromaticity technique. The study shows that the plumes of high suspended sediment concentration are contributed from the nearshore wetlands and river mouths and were finally dispersing towards Jaffna coast. Different classes of high to low SSC values ranging from less than 5 mg/L in offshore areas to 21 mg/L in nearshore of Tuticorin were also delineated. The dispersal pattern of the sediments on different is discussed.