Evaluation of sedimentation in the navigational channel of Damietta port, Egypt

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The Port of Damietta is connected with deep water offshore by means of a dredged channel which creates greater than normal depths with the result that littoral materials accumulate there in. The main object of the present work is to evaluate the monthly sedimentation rates in the navigation channel of the Damietta harbor using Bailard's (1981) and Rijn's (1991) formulae. The data used in the present work were obtained during the bathymetric survey of the harbor by the Coastal Research Institute in August, 1998. The investigation revealed that the summer season is, generally, characterized by lower monthly sedimentation rates ($< 0.1 \times 10^6$ m^3 month ^{1}), with a minimum value of about 0.027×10^6 m^3 month ^{1} occurred in September, 1998. Higher monthly sedimentation rates ($> 0.1 \times 10^6$ m^3 month ^{1}), generally, occurred in winter, where a maximum value of 0.345×10^6 m^3 month ^{1} was estimated for January, 1999. These differences of sedimentation rates are mainly due to the relatively strong storms that are frequent to occur during the winter season (January March). The annual sedimentation rate was estimated to be about 1.38×10^6 m^3 yr ^{1}, of this value the suspended-load transport contributed about 20%, which is in agreement with the other estimates that had been done in this area.

Holocene evolution of mangrove vegetation at Chandrapur, Chilka Lake, Orissa, India in relation to pollution and anthropogenic impact

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Chilka Lake lying along the eastern coast of Orissa State is one of the ecological and socio-economical important wetlands of India. This largest open lagoon of Asia covering an area of 1165 sq. km is showing alarming environmental degradation. The fine resolution palynostratigraphy of a sediment profile collected from Chandrapur village, Chilka Lake, Orissa has exhibited the significance of mangroves in unfolding the fluctuations of sea level, transgressive and regressive facies and depositional environments.

In order to translate the significant bio-and-climatic events of last two millennia, six biostratigraphical units as pollen zones (CH-1 CH-6) has been identified from three metre deep sediment profile. Pollen zone CH-I exhibited the marine environment whereas pollen zone CH-2 recorded the shift of vegetation from mangrove forest to midland forest. Pollen zone CH-3 signified the total absence of mangrove forest and is succeeded by the open land vegetation dominated by Chenopodiaceae and other non-arboreal. Pollen zone CH-4 exhibited the re-emergence of core mangrove forest vegetation and pollen zone CH-5 suggested the prevalence of deltaic environment wherein both mangroves and land plants co-existed in juxtaposition. The uppermost part of the Chandrapur profile encompassing a total period of 300 years has suggested that the mangrove forest, albeit in degraded form, existed till recently along with the land plants. The varying concentrations of metals such as Co, Cr, Cu, Ni, V, Zn As, Pb, Cd were registered at different levels indicating the environmental stress of the ecosystem. It has been inferred that these chemicals are mainly incorporated by the use of fertilizers and pesticides in agriculture. However, siltation, eutrophication and industrial development are major threatening factors affecting the sensitivity of lake, its shrinkage and total disappearance of surrounding vegetation.

Quantifying the morphological changes of the Ganges in Bangladesh using geospatial data

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The objective of this paper was to quantify morphological changes of the Ganges basin in Bangladesh by using geospatial data. Two historical maps along with remotely sensed data between 1930 and 2007 were acquired and used to quantify the changes in river morphology. In addition, hydrological data during 1951-2007 were collected and incorporated in this study. First of all, topographic maps were scanned and rectified to the UTM system. Using the rectified