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Signature of climate change in the lower Gangetic delta region: Implications and future

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Climate change induced temperature rise, salinity fluctuation and acidification are the major threats to mangrove ecosystem of the world. Several researchers observed through short term and long term experiments that climate change induced fluctuations of temperature, salinity and pH pose a serious threat to the coastal ecosystem. The present paper critically analysed three basic indicators of climate change for 30 years (1984-2013) in the frame work of Indian Sundarbans namely surface water temperature, salinity and pH to scan the pulse of climate change in this mangrove dominated delta in the lower Gangetic region. The ecosystem receives the tidal water from Bay of Bengal and thus serves as a natural experimental ground to observe the trend of the selected indicators and their future through exponential smoothening based forecast method. The implications of climate change are serious from the point of view of aquatic health as the gradual lowering of pH in the estuarine water has considerable impact on the compartmentation of heavy metals in the mangrove dominated estuarine system. The forecast values of selected heavy metals show that after 2040, the biologically available Cu and Pb in surface sediment will be lower than the detectable level, but the concentrations of dissolved Zn, Cu and Pb will exhibit a sharp rise. The present investigation strongly confirms the foot prints of climate change in lower Gangetic delta region.

Biography

Abhijit Mitra, Associate Professor and former Head, Dept. of Marine Science, University of Calcutta (India) has been active in the sphere of Oceanography since 1985. He has to his credit about 270 scientific publications in various national and international journals, and 26 books of postgraduate standards. He also visited as faculty member and invited speakers in several universities and academic institutes of Singapore, Kenya, Oman and USA. In 2008, he was invited as visiting Fellow at University of Massachusetts at Dartmouth, USA to deliver a series of lecture on Climate Change. He also successfully guided 21 PhD students. Presently his domain of expertise includes environmental chemistry, mangrove ecology, sustainable aquaculture, alternative livelihood, climate change and carbon sequestration.

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