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Sea-level rise and coastal submergence along the Southeast coast of Nigeria

Saviour P Udo-Akuaibit
University of Port Harcourt, Nigeria

Coastal submergence and shoreline retreat constitute a serious threat to shoreline management in the Niger Delta. Short-term and long-term changes on the shoreline adjoining Qua-Iboe River estuary, south-east coast of Nigeria are analysed to assess the impact of sea-level rise and climate change on the shoreline. A comparison of the 2002 and 2013 editions of the maps of the shoreline indicates a landward retreat of the shoreline and a submergence of village of Itak Abasi in the Atlantic Ocean over an estimated area of 180000m² along the coastline. Analysis of shoreline changes over neap-spring tidal phase confirmed that the submerged area of the updrift shoreline was threatened by severe and chronic erosion in which the rate has reduced to 178m³ per day. The downdrift experienced high rate of accretion at 1490m³ per day with sediment gained from the updrift shoreline and the ebb tidal delta as well as input from fluvial discharge into the estuary. Near-shore wave climate was characterized by the wave breaker heights which fluctuated between 30cm and 70cm at a period which ranged between 5 to 8 seconds, the occurrence of edge waves during mid-flood tidal stage along the mid foreshore, predominantly eastward directed long-shore currents and storm surge events at the updrift shoreline are considered as the hydrodynamic processes which caused the shoreline retreat and submergence. The intensity and magnitude of the impact of the processes on the shoreline are attributed to sea-level rise and climate change. Sustainable shoreline management strategies including measures for mitigations and adaptations to climate change are recommended.

Biography

Saviour P Udo-Akuaibit has just defended his MSc Dissertation at the age of 40 years from University of Port Harcourt, Nigeria. He had a Bachelor of Science Degree in Geology and a Post Graduate Diploma in Integrated Coastal Zone Management from the University of Calabar, Nigeria. He has co-authored 6 papers in reputed journals and currently serving as the Editor-in-Chief of the *Natural Environment Magazine*- a publication of graduate students of Institute of Natural Resources, Environment and Sustainable Development, University of Port Harcourt, Nigeria.

udo.saviour@ymail.com