MEDCOAST 99 – EMECS 99 Joint Conference, Land-Ocean Interactions: Managing Coastal Ecosystems
9 – 13 November 1999; Antalya, Turkey, E. Özhan (Editor)

Influence of Rivers on Adjacent Coastal Waters: Observations on the Rhoneo Nile Rivers

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Abstract

The interface between land and marine coastal waters are hard to study due to their high-frequency changes in time and space and variability of composition and extension of the dilution plume. Most of the strategies which are currently employed in classical oceanographic studies appear to be often unadapted, due either to their time and space limits (network of sampling stations), their resolution, or their cost. We present here a simple and relatively low-cost recording system which collects hydrological data of surface water layer, at high space frequency resolution (1min#250m), mesospace scale (10 to 30 km) and georeferenced by satellite positioning (GPS). This system was first deployed in France during four years, at a bimonthly periodicity, in the marine zone influenced by the Rhône River, on board of an 15m-oceanographic boat, and then employed in 98-99 in Egypt, at the vicinity of the Nile (from Abu-Quir Bay to the Rosetta branch), by using a smaller boat dedicated to fishery and leisure activities. Strategy and results are discussed here from an instrumental point of view and future application in coastal monitoring.