

COASTLINE CHANGES: INTERRELATION OF BATHYMETRY AND SEDIMENTARY PROCESSES

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Frequently, coastal margins are drawn as precise lines on nautical charts, yet anyone who has walked on a beach knows that coastlines are differently unstable features. This poster shows historical maps of the Cabo Frio coastline situations that were examined to determine their stable morphology. The morphodynamics of the internal shelf of a beach located on a cove semi closed in Cabo Frio, Rio de Janeiro State - Brazil, was examined by bathymetric charts. The studied area is delimited for coordinates 22° 53 ' the 00" and 22° 57 S, and 041° 58 ' 30" and 042° 02 ' 00" W, in the internal continental shelf. Twenty and six samples of were collected, at the study area until 40m of the depth, between May of 2006 and August of 2007. The operations of collected was made with the participation of teams of support of the Group of Geology of the Research Institute of Brazilian Navy named Instituto de Estudos do Mar Almirante Paulo Moreira (IEAPM) located at Arraial do Cabo town. The historical sampling was made in the National Data Center Oceanography archives (BNDO) of the Hydrograph Center of Brazilian Navy (CHM). The Echo-sounding lead of Navigation (E-700) was used connected to DGPS system of positioning of the boat "Diadorim" of the IEAPM/of the navy of Brazil. The bathymetric data were dealt with in agreement methodology like used in the nautical charts of the Directorate of Hydrographic and Navigation (DHN) of Brazilian navy of Ministry of Defense / Brazilian Navy, scale 1:10.000. The nautical charts were digitalized by software Arcgis 9.3 as datum chart – Corrego Alegre (Brazil) in geographic reference system. This procedure led to an improvement of the sample density and made the collection operations easier. Sediment collecting in the area of the internal shelf in front at beach in Cabo Frio town, Rio de Janeiro State - Brazil was carried through with the support of the Diadorim boat of the Navy of Brazil. The measurements operations were made at different seasonal conditions between August 2006 and May 2007. Collected data were analyzed by Coastal Geology, Sedimentology and Environmental Laboratory (National Museum) of the Federal University of Rio de Janeiro. A seaward and contrary movement of the iso-lines in several places of the research area was noted. The dynamic depositional processes were analyzed to update coastline contour maps and rates of movement at two times. This study it is based on the fact of that the stability of the coastal areas generally reflects depositions sedimentary conditions of the distribution of the grains sized and of bathymetric parameters. The main hypothesis of this study has as premise the fact of that the knowledge of the bathymetric variations and sediments of the internal shelf of Cabo Frio, in distinct occasions, it allows to define sedimentary mechanisms that characterize the dynamics of distribution of the sediments in this region. In this context, the possibilities are evaluated in relation of cyclical processes of sedimentation between studied environments.