



Morphodynamic changes in a rocky coastal sector during the last 1600 yr (Cantabrian coast of the NW Iberian Peninsula)

Alejandra Feal-Pérez and Ramón Blanco-Chao

Department of Geography, Santiago de Compostela University, Spain (alejandra.feal@usc.es)

Ancient Beach sediments at relatively high elevations above the present sea-level is a common feature in the north coast of the NW Iberian Peninsula. These beach levels usually correspond to Pliocene–Holocene sea-level highstands. In this work, we study a sequence of three beach levels, interbedded with organic-rich layers, at elevations between 3.45 and 4.4 m above the present spring high tide level and that were interpreted as storm crests deposited in the last 1600 yr. The area of study is a narrow embayment in a rocky coastal sector in the cantabrian coast of the Iberian Peninsula. The beach levels are at the top of a complex sedimentary cliff that today shows an erosive, vertical profile. Grain-size and morphometric analysis was carried out on the beach levels and two AMS C14 dates were obtained, one at the base of the lowest beach level (1590–1736 yr. cal BP) and other in the organic rich level below the second highest beach (565–587 yr. cal BP). The uppermost beach level was not dated by C14 because is too young.

Results suggest that the evolution of this sector is related with changes in the morphodynamic environment by a combination of variations in the sediment supply and in the wave energy. The only possible source of sediment for beaches was the erosion by the Holocene rising sea-level of the ancient deposits now forming a cliff at the back of the embayment. At least in the last 1600 yr, the cliff-beach system experienced a process of adjustment to the present sea-level, and after sea-level stabilization the cliff-beach retreated with a high rate of sediment supply, through several episodes of increased wave energy that constructed the beach crests. The erosion of the cliff continued and a reduction in the sediment supply lead to the reorganization of the present beach inside the embayment.

A. Feal-Pérez is supported by the grant AP2006-03854 (Spanish Ministry of Education)