

On the coastal evolution of NW Iberia (Galicia) during the Late Pleistocene

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The main characteristic of the NW Iberian coast is the presence of the “Rias”. Its origin is tectonic, fluvial and marine. The high regional relief is the result of a long crustal uplift since the middle Eocene which controlled the morpho-structural characteristics of the coastline. However, the substratum lithology and the regional landscape evolution are responsible for the more detailed geomorphic features. This study presents the first sedimentological and OSL dating results of a coastal reach located in the right margin of the Pontevedra Ria mouth. More specifically, the site is located at a small embayment near Sanxenxo (Pontevedra, Spain). The rocky substratum is dominated by intensively fractured Precambrian-Silurian mica schists. Along the coast, a wave-cut platform, about 500 m long and 100 m wide, is subdivided into an eastern and western sector by a rocky headland. One can distinguish a modern wave-cut platform (only exposed at low tide) from an older wave-cut platform (rocky terrace) which has a slope of 4° and is exposed at an altitude of 1.8m to 4.5-5m above sea level. In the western sector the old wave-cut platform is overlain by a 2 m- thick reddish gravelly beach deposit having its base cemented by iron oxides. This beach deposit is erosively covered by a 4 m-thick colluvium, comprising debris flow deposits alternating with gravel pavements that are parallel to the slope. In the eastern sector, the 5 m-thick coastal terrace consists of a sandy-gravelly beach deposit grading upwards into aeolian yellowish medium sands. Locally, a lenticular bed of a greyish green silt was found interbedded in the aeolian sands. At the top, the aeolian sand unit is disconformably capped by a heterometric gravel containing angular clasts of quartz and mica schists inbedded in a sandy matrix. This coastal sedimentary succession is interpreted to represent a time interval of high sea-level, more elevated than the present one, during which the littoral platform was cut and later covered by gravelly beach sands (MIS5). Later, during MIS4, the climatic conditions and the progressive sea-level lowering lead to the accumulation of aeolian sands in the eastern sector. The rocky headland (40 m high) prevented sand deposition in the western sector indicating a prevalence of southwestern winds. Finally, the colluvium unit that disconformably covers the aeolian sands in the eastern sector and the beach deposits in the western sector, points to a cold and humid environment (MIS3 to MIS2) as suggested by the debris flow deposits and associated slumping features. The altitude of the MIS5 wave-cut platform is an indication for regional tectonic stability. Preliminary quartz OSL dating results seem to confirm our interpretation of the different sedimentary units; the final ages will be presented at the conference.

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