
Aeolization of the Atlantic coast of Galicia (NW Spain) from MIS2 to the Late Holocene.

Arce Chamorro Carlos^{*1}, Juan Ramón Vidal-Romani¹, and Guillaume Guérin²

¹Instituto Universitario de Xeoloxía - Universidade da Coruña – Espagne

²Université rennes 1, CNRS, Geosciences Rennes – Université rennes 1, CNRS, Geosciences Rennes – France

Résumé

The coast of Galicia (NW Spain), about 1700 km, is constituted by cliffs and deep estuaries (rias) formed during the Late Holocene, which more characteristic sediments are represented by marine and aeolian deposits. The study of aeolian sediments suggests the existence of massive aeolian accretion of sands that preceded the sea level rise since the end of MIS2. Then, the coastline was at least 120 m below the present one, resulting in subaerial exposure of the innermost continental shelf and the mobilisation of dunes (> 10 km inland) by strong coastal winds, covering reliefs of more than 250 m and advancing up the valleys. On the current Cies Islands at the mouth of the Ria de Vigo, a 39-17 ky old fossil climbing dune and 20-4 ky old barchans are preserved. Then, the Cies Islands were linked to each other and to the mainland, as the Ria deVigo was a densely vegetated fluvial valley. Between these islands, a 35 m thick flooded dune has been identified, similar to the 13 to 6 ky flooded dunes identified in the nearby Ría de Arousa - all of them presenting physical continuity with the relict coastal dunes accreted up to 2.5 ky ago. Sea level rise during the Early Holocene favoured sand mobilisation, accreting dunes against the cliff relief, as evidenced by climbing dunes over 160 m (apsl). This aeolian accretion caused the collapse of coastal ecosystems (forests or freshwater lagoons), as also observed on the Atlantic coast of Portugal, France and United Kingdom. More than 6 ky old archaeological and vertebrate fossil remains were also found under the dunes on Galician islands. This coastal aeolisation stopped during the Late Holocene when the sea-level rise sealed off the source-area of aeolian supply by flooding. At this point the wind becomes mostly erosive, favouring the destruction of the previous sedimentary series of aeolian origin deposited from the preceding interglacial to the present day.

Mots-Clés: Coastal aeolian accretion, glacioeustasy, MIS2, Holocene, fossil climbing, dunes, OSL dating, BayLum, NW Spain.

^{*}Intervenant