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Middle Pleistocene palaeoenvironmental changes of the eastern Canary Islands – revealed by the Mála dune-palaeosol-sequence at Lanzarote (Canary Islands)

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The Canary Islands are located at the transition between the Mediterranean and the Saharan climate off NW-Africa. Thus, they are a key area for the investigation of palaeoenvironmental changes. Several terrestrial studies investigated the palaeoenvironmental development of that region during the later part of the last glacial cycle. However, apart from recent investigations of "vega" sediments on Lanzarote Island (Suchodoletz et al. 2010) the palaeoenvironmental evolution during the Middle Pleistocene is hardly studied yet, basically due to the lack of reliable geochronological data.

The Mála dune-palaeosol-sequence is located in the north of Lanzarote. It consists of marine shell detritus originally blown out from the insular shelf during periods of low global sea level, and to a small part of Saharan dust and fine quartz sand. The aeolian layers are intercalated with up to eight silty-clayey palaeosol horizons. Unlike the dune sands, the soils indicate stable landscape conditions with trapping of Saharan dust. Using a combination of ESR and luminescence dating techniques, we are able to place this sequence into the Middle Pleistocene, in contrast to former investigations based on 14C datings postulating a Late Pleistocene age (Ortiz et al. 2006). As a consequence, clayey-silty palaeosols represent periods of stable landscape conditions in the Canarian region during the Middle Pleistocene, which we compare with marine palaeoclimatic studies from the area.

References:

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