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Wind strength and direction during the Pleistocene at the Eastern Canary Islands (Spain)

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From loess and palaeosol sequences spanning at least 200 ka we used grain size data and clay mineralogy for reconstructing the wind dynamics and the wind pattern. The clay assemblage indicates that, controlled by the northerly Trade Winds and the southerly Saharan Air-Layer, two distinct source areas exist for the dust reaching the Canary Islands.

A clear glacial/interglacial cyclicity is outlined by high-resolution grain-size analyses of the dust-born fraction 63-125 μ m. Wind dynamics is higher during glacials than during interglacials. In contrast to other studies we did not observe enhanced wind strength during Termination II. To discriminate between air-borne dust and local volcanic input we used the following methods: magnetic susceptibility and semi quantitative XRD. This approach may help to deduce the original palaeo-climate signal from the grain size data of mixed samples.