Geophysical Research Abstracts
Vol. 14, EGU2012-389, 2012
EGU General Assembly 2012

100 Kyr Old Desert of Western India: Morhodynamics and Environmental Significance

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The Late Quaternary oscillations in sea levels and resultant changes in the coastal environment have remained a popular aspect of study amongst the earthscientists and archaeologists. The Saurashtra peninsula of the western India that lies on the southwestern side of the Thar Desert, has archived a fascinating record of such environmental changes since last interglacial ($\sim$120kyr) in the form of a fossil desert exhibiting various aeolian land forms constituted by the sand largely derived from the coastal areas due to an oscillatory sea level change. A variety of dunes viz., coastal transverse, parabolic, longitudinal, barchans, climbing and falling dunes along with valley fills and sand sheets have been mapped. Being biogenic calcium carbonate rich, the sands have been lithified under the influence of an increase in moisture and thus the dune and bed forms are preserved in its best shape. The intense aeolian activities are also evident in the form of desert varnish on rocky outcrops. The sequence comprises smaller climate perturbations in the form of stabilization, erosion and karstification of older dunes and deposition of fluvial sediments in between. The paper deals with the mode of occurrence, response of sediments to wind dynamics and palaeo topography, internal structures, later modifications of sediments and significance of the geochronologically constrained aeolianites in understanding of environmental changes since 100kyr in the region.