



## **The Gobi desert depositional record in the Gaxun Nur basin: tipping from humid to arid sedimentation**

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Central Asia is a principal area of dust origin and dust transportation. Studying sediment records allows for resolving the main drivers of landscape dynamics in the intracontinental desert belt. It includes extensional tectonics in the Tibetan foreland and changing water supply on glacial-interglacial time scales.

We studied a 223 m long sediment core from the Gaxun Nur basin in the Gobi Desert, which can be subdivided into the following main stages based on macroscopical description, XRF core scans and magnetic susceptibility, grain size modi, clay and bulk mineral composition, loss-on-ignition, and total organic carbon contents: a terminal lake (lower core portion to 112 m core depth), a fluvial-lacustrine system (upper core portion), an intermittence river forming a giant sediment fan (uppermost 35 m of core). The preliminary age model is based on geomagnetic reversals and <sup>14</sup>C AMS dates. The tipping of the primary sedimentation regime at about 112 m depth from a more fine grained (i.e. silt to clay) to an overlying more heterogeneous and coarse grained deposition (i.e. silt, sand, and gravel) is associated with a delta progradation into the intracontinental basin.

The discussion of results considers the alternation of sediment transport processes (i.e. fluvial versus aeolian versus playa and lacustrine deposition) and source areas (i.e. mountain belts in the S versus the NW). Furthermore, we interpret the sediment record to result from glacial to interglacial dynamics triggering the hydrological regime and the Hei He River history to be overprinted by foreland tectonics and climate (monsoonal) dynamics in the mountain catchment.