



Regional wind field simulation and modelling of sediment distribution as a record of ongoing aeolian geomorphodynamics in endorheic basins of the Gobi Desert, Mongolia

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Due to the present aridity of the endorheic basins in the Gobi Desert (Mongolia), and seasonally strong wnw-winds (April - May), the translocation of sand and dust plays an important role in the aeolian geomorphologic processes. The selected working areas are situated between 100° to 104° E longitude and 43° to 46° N latitude, where more than 200 samples of the surface sediment were taken with sediment traps during three field expeditions in August 2007, April and August 2008. Furthermore, samples of aerosol particles were taken 10-100 cm above the sediment surface (10 – 100 cm) with a mobile filter sampling system (4 μ m Millipore®).

To demonstrate our ideas concerning the interaction of different but related factors (e.g. grain size distribution, surface cover, wind speed etc.) on the regional scale of the study area, we present first results of our experimental field work, as well as of dispersion modelling.

Based on raster electron microscopy and mass spectrometer analyses (focussing rare earth elements), geochemical fingerprints of surface sediments and airborne particles were elaborated to (a) identify the source areas of sand and dust, and (b) to validate the applied dispersion model (a Lagrangian algorithm realised by LASAT 3.0®).