



## **The Central Asian (palaeo) dust cycle: a case study from the Northern fringe of the Tien Shan Mountains, Kazakhstan**

**B. Machalett (1,2)**

(1) Chair of Geomorphology, University of Bayreuth, 95440 Bayreuth, Germany  
(bjoern.machalett@uni-bayreuth.de / +49 12120-296566),

(2) Leibniz Institute for Applied Geosciences (GGA-Institut), Geochronology and Isotope  
Hydrology, Stilleweg 2, 30655 Hannover, Germany

The aeolian dust sedimentation in southeast Kazakhstan is strongly related to the climatic characteristics of the region. Very fine aeolian material enters into the area driven by cyclonic disturbances. Nevertheless local circulations have to be taken into account. The abundance of thermal-orographically induced, local wind systems has a strong influence on the regional winds. Variations in exposition and inclination of the mountains lead to strong, local winds which can transport large amounts of dust to the mountain foothills during the summer. Different types of wind systems determine the dust entry and sedimentation of the region, leading to different types of aeolian dust.

This circumstance is reflected by the granulometric results of the Remisowka loess-palaeosol sequence (SE-Kazakhstan) that show the coherence between the type of dust sedimentation and the prevailing climate. The grain size parameters provide an insight into regional and hemispheric changes of Pleistocene climates.

The changing atmospheric circulation patterns during the Pleistocene in Eurasia are still a matter of debate. This presentation reviews possible pathways and existing models of Eurasian atmospheric circulation, contributing ideas and suggestions for possible future investigations derived from examinations of the Remisowka loess-palaeosol sequence in southeast Kazakhstan.