Geophysical Research Abstracts
Vol. 16, EGU2014-3489, 2014
EGU General Assembly 2014

The hydrological dynamics of the Greater Caucasus during the Weichselian deglaciation – influenced by solar cycles?

Hans von Suchodoletz (1), Peter Kühn (2), and Dominik Faust (3)

(1) Leipzig University, Institute of Geography, Leipzig, Germany (hans.von.suchodoletz@uni-leipzig.de, +49 341 97 32799), (2) University of Tübingen, Institute of Geography, Tübingen, Germany, (3) University of Technology Dresden, Institute of Geography, Germany

Along the middle course of the Alazani River in eastern Georgia located at the southern foothill of the Greater Caucasus, sequences of 5-6 m of fine overbank deposits originating from the late Weichselian period are naturally outcropped today. These overbank fines contain several distinctive horizontal layers, showing a blackish colour due to high occurrences of finely distributed charcoal as well as a mostly clayey matrix. These layers are interpreted as short-time palaeosurfaces, i.e. initial soils that indicate short disruptions of overbank sedimentation. 14C-datings of in-situ material (burnt grasses and sedges) allow a precise dating of these layers and indicate their occurrence with frequencies of ca. 200 years.

Due to the dominant influence of the Greater Caucasus Mountains on the hydrologic regime of the Alazani river, the cause of the observed cyclic fluvial pattern must have been located in that mountain range. Large-scale glaciation of the Greater Caucasus during the Weichselian period points to a glacial trigger for the observed discharge pattern of the Alazani river during the Weichselian deglaciation, i.e. to rhythmic interruptions of glacier melting that followed a 200 year-cycle. Our findings could indicate that this sedimentation rhythm is linked to the solar Suess cycle, however, further investigations are needed to confirm this hypothesis.