Geophysical Research Abstracts,
Vol. 11, EGU2009-6650, 2009
EGU General Assembly 2009

Young Quartenary Paleofloods in the Sinai Mts., Egypt - Reconstruction of changes in a fluvial regime using Wadi fillings and corresponding fluvial fan sediments of the South Sinai Footplain

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The mapping, characterisation and dating of wadi sediment fillings in arid regions offer a good possibilities to reconstruct certain climatical and environmental components. In Southern Sinai in Egypt, an arid region with current precipitation < 20 mm/a, such sediments have been described and intensively investigated in the biggest wadi system, the Wadi Feiran and its tributaries. However, large wadi systems get influenced by many processes which complicate the final interpretation of sediments and according processes. Thus, we studied the Wadi Timan and several neighboured valleys, important wadi systems in the South of the Sinai Mountains near El Tor. Fluvial sediments fill the sides of the valleys up to 50 m. The fillings are cut by a deep channel which is also used by the sparse modern flood events. The fluvial filling change drastically within the vertical profile, so three main units can be distinguished. The bottom unit (1) consist of clearly laminated coarse sands and gravels with angular blocks probably represent short flood events in the sense of a muddy flow along the valley. The middle unit (2) consist of fine stratified layers of silt and sand. This unit, which has a large distribution also in the surrounding of the Wadi Timan, probably represents alluvial loess similar of that described in literature in the Wadi Feiran. The top unit (3) is characterised by fluvially transported sands and gravels with interbeddings of fine silt rich layers similar to those of unit (2). The sediments are partly cemented by carbonates and/or gypsum. At the valley end towards the West, several generations of alluvial fans have formed. The stratification starts rather flat at the bottom of the fan and gets steeper towards the top indicating gradual accumulation. The large difference between the units 1-3 and the several generations of alluvial fans offer a rich geoarchive to reconstruct changes in the fluvial system of the past, which might be a consequence of climate changes.