



## **Uplift history of the Rwenzori Mountains (Uganda) revealed from the sedimentary record of alluvial fans and adjacent rift-graben deposits**

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Any information about erosional and depositional conditions extractable of the sedimentary rocks in the vicinity of the Rwenzori Mountains is an important contribution to the data set of the RIFTLINK project. The latter is performed with the objective of reconstructing the uplift history of the rift flanks in the central part of the western branch of the East African Rift system. The relationship and bilateral influence between tectonics, climatic changes, and finally the evolution of early hominids in the east African realm is the main focus of the interdisciplinary research.

The sedimentary inventory has at its base pre-Rwenzorian lacustrine sediments of the former Lake Obweruka, which was separated to the today's geometry of two rift-valley lakes north and south of the mountain chain after initiation of the main uplift of the Rwenzori block. The overlying Pliocene-Pleistocene deposits are then - dependent on spatial and temporal evolution of erosional and depositional parameters - laterally interfingering fluvial and alluvial in nature.

Dense tropical vegetation and thick pedogenesis to a certain extent hamper continuous and area-wide sedimentological investigations, but some scarcely available outcrops provide insights both in the lake and river sediments and into several of the uplift-induced alluvial fan deposits, respectively, and admit some relative age assumptions, as well as examinations of lithology, structure, and facies-type.

An available high-resolved digital elevation model (30 m) of the investigated area decidedly facilitates the field investigations. The DEM is also used to analyse the landscape morphology with respect to catchment size and hydrological properties.

During the first two field campaigns, the main rivers draining the Rwenzori flanks of the Ugandan part of the mountain chain were sampled for their sand to measure the amount of in-situ produced cosmogenic nuclides. The concentration of the latter give and exposure age and indirectly the recent erosion rates.

For age estimations of Quaternary and late Tertiary deposits, samples for measurements of Optically Stimulated Luminescence (OSL) are taken. Both the distal and proximal parts of the alluvial fans, as well as the distal floodplains and lacustrine deposits were sampled and should – together with the results of the RIFTLINK-thermochronology working group - give a reliable time frame for reconstruction of the Rwenzori's tectonic history.