



## **Optically Stimulated Luminescence dating of deposits from the Tachia river catchment (Taiwan) - a test for suitability**

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In the course of different field campaigns samples from the Tachia river catchment (high mountains of Taiwan) were collected for Optically Stimulated Luminescence (OSL) dating. The 515 km<sup>2</sup> upper catchment area of Tachia river shows elevations from 1400 m at the Deji-Reservoir to over 3800 m in the summit areas of Hsueh Shan and Nanhuta Shan. Sediments were collected from different depositional environments, such as fluvial terraces, the recent riverbed at Sung Mao, and from the Jia Yang alluvial fan. The latter is located at the lower limit of a tributary of the Tachia River draining the Jia Yang Shan summit area. Despite its relatively small size of about 11 km<sup>2</sup> the material originating from this sub-catchment has built up an alluvial fan of remarkable dimensions. The transport distance between the summit area and the alluvial fan is roughly 6 km spanning a height difference from 3306 m to 1480 m asl. The lowest parts of the fan nowadays lie below the water level of the Deji Reservoir.

The recent riverbed samples from Sung Mao turned out to contain only minimal fractions of quartz and feldspar at all, and therefore were not suitable for luminescence dating techniques. Nevertheless, this highlights the strong dependency of the suitability of sediments from the high mountains of Taiwan for luminescence dating on the geological conditions within different catchments or even sub-catchments. The samples from the Jia Jang alluvial fan on the opposite contained enough quartz for OSL dating. After the extraction of the quartz, a series of test measurements including preheat tests and dose recovery tests were conducted in order to ensure the suitability of the quartz for optical dating. In a second step the bleaching characteristics of the sediments were analyzed, as incomplete bleaching is likely to occur in sediments related to hill slope processes and mass movements. First results of these analyses will be presented at the meeting.