



The Holocene flood variability of rivers in the Lesser Caucasus region – natural and human causes

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Flooding constitutes a serious hazard for human civilisations. In order to predict future flooding it is necessary to understand the former dynamics of river systems, i.e. causes and triggers for changes of their flood variability during the past. Fluvial sediments are generally good archives for studying flood events at centennial and millennial time scales. However, due to the discontinuous and complex character of fluvial sequences these studies have to be comprehensive and must be compared with other palaeoenvironmental archives from the studied region.

Floodplains in the Caucasus area are generally densely populated and regularly hit by strong inundations. This demonstrates the urgent need to understand the flood variability of rivers in this region. Accordingly, during the last years we comparatively studied Holocene fluvial sediments along several rivers in eastern Georgia that originate from the Lesser Caucasus Mountains. These sediments are naturally outcropped in numerous sections and were investigated with geomorphologic, stratigraphic, sedimentologic and geochronologic methods. Our investigations demonstrate that the flood variability of the investigated rivers showed a similar pattern during the first part of the Holocene that obviously followed climatically-controlled vegetation changes. More humid periods were characterized by geomorphic stability indicated by soil formation, whereas more arid periods showed geomorphic activity characterized by the accumulation of fluvial sediments. In difference, the late Holocene pattern of flood variability showed increasing differences between the rivers what indicates a dominant anthropogenic influence during that period. Altogether, it appeared that the natural pattern of flood variability of this region is similar to that of other semi-arid to semi-humid regions.