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Landslide dams in the Czech part of the Flysch Carpathians

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The emergence and subsequent destruction of landslide dams is often related to tectonically active and still strongly seismic mountain regions. However, landslide dams also form in tectonically less active mid-mountain ranges, constituting a natural hazard whose potential influence on human activities in the future is evident.

In the mid-mountain region of the Flysch Carpathians landslide dams represent relatively numerous forms of the relief, significantly affecting geomorphologic regime of valleys even after a few-thousand-year-old existence. Up to the present day about 20 cases of (largely fossil) landslide damming have been analyzed in detail. Most of them originated as a consequence of fast flow-like landslides or due to the reactivization of frontal parts of larger (often rotational) landslide areas.

Lithological situation of concrete localities has significant impact on the persistence of dams and the process of backwater sedimentation. Typical upvalley impoundment sediments have only been found in valleys blocked by clay-rich rocks. By contrast, in areas with prevailing sandstones water is not generally retained in the form of lakes or swamps for a long time, therefore upvalley sediments are either absolutely absent or the sedimentation space was only filled with clastic fluvial, proluvial or debris flow deposits accumulated by a single event.

Absolute dating results show that valley damming processes took place during the whole Holocene. Minimum ages of the studied landslide dams range between 8,730

$\pm$ 220 ^{14}C BP and 930 $\pm$ 150 ^{14}C BP. However, due to a small amount of obtained data, the correlation of the data with palaeoclimatic reconstructions in other central European ranges cannot be carried out yet. Despite this fact, dating results show slight acceleration of valley damming processes in more humid periods of the Holocene, especially in the Subatlantic chronozone.

The investigation shows that beside peat bogs situated on the surface of the landslides, backwater accumulations represent the only settings with datable Holocene sedimentary record in mountain areas of the Flysch Carpathians.