



Reconstruction of a Holocene average catchment denudation from the landslide-dammed lakes in the Outer Western Carpathians

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In the mid-mountain region of the Outer Western Carpathians, fossil landslide-dammed lakes with preserved sedimentary sequences are the key sources of information about the Holocene geomorphological conditions. Importance of the landslide-dammed lakes as data sources lies particularly in i) dating of the related landslides, ii) study of the palaeoenvironmental conditions, iii) quantification of the sediment budgets and iv) understanding risks connected with landslides. Most of the studied sedimentary records contain frequent variations in sediment genetic type (e.g. lacustrine anorganic clay and silt, organic gyttja and peat of swampy facies with often minerogenic intercalations, fluvial sub-rounded gravel, etc.), which well document dynamic changes in the type of geomorphic processes in the contributing catchments. Radiocarbon dating together with the palynological and sedimentological analyses detect the repeated changes in the depositional conditions connected with the palaeoenvironmental changes during the Holocene. Results of the radiocarbon dating of the lake sediments' basal parts show that landslides causing the valley damming originated throughout the whole Holocene with significant increase of landslide activity in the Subatlantic chronozone. For the understanding of the relief development dynamics throughout the Holocene, linear lake sedimentation rates and minimum average catchment denudation for selected contributing catchments in different time spans were calculated. Minimum mean mechanical denudation of landslide-dammed catchments varies between $2.5-13.4 \text{ mm.}ky^{-1}$. Obtained denudation rates well correspond with the other researches on erosion rates in the studied region: mean total denudation rates = $39-79 \text{ mm.}ky^{-1}$, $79-158 \text{ mm.}ky^{-1}$, $120 \text{ mm.}ky^{-1}$, $280 \text{ mm.}ky^{-1}$ for the Outer Western Carpathians; mean mechanical denudation rate = $15-30 \text{ mm.}ky^{-1}$ for the Central Europe, respectively.

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