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Building a Historical Landslide Database for the Czech Republic: Principles, Constraints and Practical Implications

Pavel Raška (1) and Michal Bíl (2)

(1) Jan Evangelista Purkyně University in Ústí nad Labem, Faculty of Science, Czech Republic, (2) CDV - Transport Research Centre, Brno, Czech Republic (michal.bil@cdv.cz)

Increasing attention has been devoted in recent decades to establishing historical landslide databases throughout the world based on documentary data. The databases are considered a prerequisite for studies of landslide occurrence, impacts and causes, including their relation to the fluctuation of precipitation patterns under global climate change and to changing exposure due to human activity. In addition, historical landslide databases have been used to calibrate and evaluate the reliability of landslide susceptibility maps. In this contribution, we present a concept for a historical landslide database for the Czech Republic (historically the Czech Lands), connecting the existing regional databases developed by the authors through original archival surveys and through revisions of older databases over the last ten years.

First, we review the existing attempts at landslide databases in the Czech Republic and in the international context and argue for the need for a historical landslide database for the Czech Republic due to (i) specific environmental conditions (mid-altitude environments) and (ii) the extraordinary availability of a variety of documentary sources.

Second, we introduce the available documentary data and describe the current state of the database, which include more than 600 dated events, mostly representing two regions (the Carpathians and Northern Bohemia) with the highest susceptibility to landsliding. The oldest records date back to 1663 for the Carpathians and 1531 for NW Bohemia, respectively. The database already enabled the identification of more than 12 landslide phases for the period of 1531 – 1989, which may be correlated with hydrometeorological extremes known from documentary data.

Third, we discuss the design for the newly established database regarding its standardization, data mining possibilities (crowd-sourcing, web mining, etc.), accessibility and possible use by third parties, including researchers as well as public administration bodies (e.g., for the purpose of site-specific management of historical landslide locations, for territorial planning, or improvement of lay knowledge).