

Karel KIRCHNER
editorial

Jaromír DEMEK

THE ROLE OF GEOMORPHOLOGY IN THE LANDSCAPE-ECOLOGICAL RESEARCH

This paper was presented as an opening address at the international conference of the Czech Geomorphologic Society "State of Geomorphological Studies in 2008" in the town of Šlapanice in 2008. The paper deals with the evaluation of the role of geomorphology in the landscape research. It is shown in the paper that geomorphology plays an important role in the landscape-ecological studies.

Peter PIŠŮT

ENDANGERMENT OF THE VILLAGE ČUNOVO (SLOVAKIA) BY LATERAL EROSION OF THE DANUBE RIVER IN THE 18TH CENTURY.

Analysis of old maps enabled reconstruction of extremely dynamic channel changes of the Danube River along the part of its Slovak reach at the end of the 18th century. Prior to 1790, rapid development of a new Danube meander led to partial destruction of the small village Čunovo near Bratislava. Stone groynes were constructed to protect the undercut banks and to divert the flow into the new channel. Retreat of eroded banks at Čunovo over the periods 1783-1790 and 1790-1794 reached up to 432 and 229 m, respectively. Corresponding maximum rates of lateral erosion 57-72 m per year and/or 31-76 m during a single event are comparatively high in Central European conditions. Initiation and rapid development of the new meander were related to 1) increased river activity during the last onset of the Little Ice Age period, 2) serious channel changes after 1760 on the immediately upstream reach from Bratislava to Rusovce, 3) siltation of the Lesser Danube, but also to 4) local predisposition of the floodplain topography.

Miloš STANKOVIANSKY, Štefan KOCO, Jozef PECHO, Marián JENČO, Jozef JUHÁS

GEOMORPHIC RESPONSE OF DRY VALLEY BASIN TO LARGE-SCALE LAND USE CHANGES IN THE SECOND HALF OF THE 20TH CENTURY AND PROBLEMS WITH ITS RECONSTRUCTION

Recent research revealed that large-scale land use changes in the Luskovica dry valley basin (the municipality of Krajné, Myjava Hilly Land, Slovakia) in the 1950s resulted in a significant increase of the number and geomorphic effectiveness of muddy floods. Based on the analysis of valley bottom filling, nine sediment layers were identified corresponding to nine muddy flood events in the period 1961-1995. The fact predestined this zero order agricultural catchment for an attempt to establish a sediment budget for it within a time scale of several decades. Current studies try to model water erosion, to estimate the volume of post-collectivization accumulation body laid by muddy floods, to date these events and to reconstruct meteorological, land cover and agrotechnical conditions of their formation.

Jacek B. SZMAŃDA, Milan LEHOTSKÝ, Ján NOVOTNÝ

SEDIMENTOLOGICAL RECORD OF FLOOD EVENTS FROM YEARS 2002 AND 2007 IN THE DANUBE RIVER OVERBANK DEPOSITS IN BRATISLAVA (SLOVENSKO)

The relationship between floods and their geomorphic effect is discussed in this article. Almost every flood event is registered in overbank alluvia. We investigated sediment structures and textures as responses to three flood events in 2002 and 2007 in the Danube River floodplain in Bratislava. The floods led to sedimentation mainly in the neighbourhood of the riverbank and on the roof of the natural levee. The 2002 spring flood has left lesser traces at the riverbank and bigger on the levee. The effect of 2002 summer flood was more equable. The effect of last flood (in 2007) manifested particularly in the close vicinity of the bank. Results show a relatively high variability of sedimentation processes during floods. The total amount of new sediments, their texture characteristics and spatial distribution do not depend only on the flood discharge, but also on the sources of floodwater and sediments in the river basin.

REPORTS

Zdeněk MÁČKA - INTERNATIONAL CONFERENCE „STATE OF GEOMORPHOLOGICAL RESEARCH IN THE YEAR 2008“