



Paleosurface reconstruction of the Titel loess plateau (Vojvodina, Serbia) using GIS

S.B. Marković (1), D. Štrbac (2), U. Hambach (3), B. Machalet (3,4), M. Jovanović (1), L. Zöller (3), T. Lukić (1), T. Gaudenyi (1), B. Basarin (1)

(1) Chair of Physical Geography, Faculty of Sciences, University of Novi Sad, Trg Dositeja Obradovića 3, 21000 Novi Sad, Serbia, (2) Geographical Institute "Jovan Cvijić", Serbian Academy of Sciences and Arts, Djure Jakšića 9, 11000 Beograd, Serbia, (3) Chair of Geomorphology, University of Bayreuth, D-95440 Bayreuth, Germany, (4) Leibniz Institute for Applied Geosciences (GGA Institute), Stilleweg 2, D-30655 Hannover, Germany (zbir@im.ns.ac.yu / Fax: +381 21 459 696 / Tel: +381 21 485 2837)

The Titel plateau is a unique geomorphologic phenomenon representing one of the most western areas of extended loess plateau sedimentation in the Eurasian loess belt. The plateau is a very characteristic feature in the wide variety of loess landforms of the southern Pannonian realm (Vojvodina, Serbia). Different phases of fluvial erosion have shaped a ellipsoid loess island with maximal SE-NW extension of about 16 km and a maximal SW-NE width of 7.2 km. Thick loess deposits ranging in thickness from 35 to 55 m separated by 5 main pedocomplexes were deposited through the last 5 glacial/interglacial cycles (approx. 600 ka). Around the plateau, several steep loess cliffs are exposed revealing several important loess exposures enabling the reconstruction of the climatic and environmental evolution during the Middle and Late Pleistocene in this region.

The loess stratigraphy of Titel loess plateau is quite uniform. Mostly parallel loess and paleosol stratigraphic units are distinguished based on detailed morphological description and variations in magnetic susceptibility with depth.

We use a geographic information system (GIS) to map and to interpolate paleosurfaces within the Titel loess plateau and to gain insight into its landscape evolution through time. The well established relations between stratigraphy on the one hand and detailed

digital topographic database on the other hand allow the reconstruction of the idealized uneroded plateau surface for an area of approximately 80 km².

The obtained results yield valuable information for the paleoclimatic reconstruction of the Middle and Late Pleistocene at the western edge of the Eurasian loess belt.