



SERBIAN ACADEMY OF SCIENCES AND ARTS

INQUA LOESS FOCUS GROUP

University of Novi Sad | Faculty of Sciences
DEPARTMENT OF GEOGRAPHY, TOURISM AND HOTEL MANAGEMENT

Loess2M

modelling & mapping

ABSTRACT BOOK



Novi Sad, 2016



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and Cracow Uplands. We used different techniques to establish a chronological framework for this site. 21 samples for luminescence dating were collected from the investigated loess profile in Złota. Combined infrared (post-IR IRSL for the deepest part of the profile) and blue light stimulated luminescence (OSL) dating were applied to the polymineral fine grains (4-11 μ m) and medium grained quartz fraction (45-63 μ m), respectively. Radiocarbon dating was performed for snail shells and humic acid extracted from loess and palaeosol deposits. The dating results are accompanied by detailed analyses of the grain-size distribution, carbonate and organic carbon content, geochemical composition and magnetic susceptibility. Based on such a large stratigraphic dataset OxCal (Ramsey and Lee, 2013) age-depth model has also been constructed for this site.

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Moska, P., Jary, Z., Adamiec, G., Bluszcz A., 2015. OSL chronostratigraphy of a loess-paleosol sequence in Złota using quartz and polymineral fine grains. *Radiation Measurements*. 81, 23-31.

Bronk Ramsey, C., Lee, S. (2013). Recent and Planned Developments of the Program OxCal. *Radiocarbon*, 55(2-3), 720-730.

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Distribution of mercury in soil according to the geomorphological units of Vojvodina province

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Establishing Hg background levels in various soils is problematic. The main problem is distinguishing human input (pollution) from natural Hg input. Geostatistical methods and Geographic Information System (GIS) mapping have been used in numerous studies to determine spatial distribution and behavior of heavy metals in soils and to identify their sources. A grid superimposed on Vojvodina land by means of a GIS tool (GIS ArcView 10) has divided land into 4x4 km units, each representing an area of 16 km². Total number of 1,370 bulked soil samples were taken (0-30 cm depth) from agricultural land and analysed for total mercury content

THg. The samples were analysed using Direct Mercury Analyzer DMA 80 Milestone. Quality control was carried out with IRMM BCR reference materials 143R. The aim of this study was to determine the total content of Hg in agricultural soils, its spatial distributions in different parts of Vojvodina Province. It was indicated that the content of Hg coincides with main geomorphological units of Vojvodina Province. Hg spatial distribution indicated that most of Vojvodina Province area has geochemical origin of Hg. Average values of Hg concentrations for soils formed on different geomorphological units were: 0.031 for sandy area with dune fields, 0.048 for alluvial terraces, 0.055 for upper Pleistocene terraces, 0.058 for loess plateaus, 0.083 for mountains, and 0.092 mg kg⁻¹ for alluvial plains. Content increase in soils formed on specific geomorphological units in the following order - sandy area < alluvial terraces < upper Pleistocene terraces < loess plateaus, can be explained by organic matter increase in these soils. However, it is not the case with soils formed on mountains and alluvial plains. Higher concentrations of Hg in top soils are indicated in alluvial plains of the Danube, the Sava, the Tisa and the Tamiš rivers and in the central part of the Fruška gora mountains and southern slopes of the Vršачke mountains. Higher Hg content in mountain region can be explained by specific geological, and thus the pedological basis. Higher concentration of Hg on alluvial plains indicated that the origin of Hg near rivers could be from anthropogenic source. The main rivers in Vojvodina have been dammed more than a century ago. Thus, higher concentrations of Hg in their alluvial plains out of narrow dammed zone around the rivers must be related to natural and anthropogenic sources located in their huge catchments.