

SUSPENDED SEDIMENT TRANSPORT IN SERBIAN RIVERS

Authors: *Sanja Enes Mustafić**, University of Belgrade-Faculty of Geography, Serbia; *Tanja Dobrosavljević*; *Jelena Luković*, University of Belgrade, Faculty of Geography, Serbia; *Predrag Manojlović*; *Marko Milosević*

Abstract: Soil erosion as well as sedimentation and transportation processes are complex in Serbia. The processes of erosion are widely distributed and determined by quite favorable natural conditions. Examination of suspended sediment load transport in Serbia is very popular recently. Frequent extreme meteorological and hydrological conditions imply permanent loss of land. In this study, the inter-annual sediment load is examined in the Morava River Basin. Suspended load (Q_s) monitoring was carried out by Met office at 16 profiles. Identified trends were obtained using the nonparametric Mann-Kendall test. Average transport of suspended sediment within the Morava drainage basin is ranged from 15.1 to 160.5 t/km²/year. The results of the Mann-Kendall test showed different trends. Six stations identified a negative trend significant at 0.001, at three stations significance at 0.1, while four stations didn't reveal any significant result. The average negative trend in suspended sediment load is ranged from 0.03 to 7.6 t/km²/year. On the other hand, on three stations a positive trend is identified. The differences can be attributed to the impact of climate change as well as anthropogenic factors. Increasing rainfall trend may have an impact on suspended sediment load on specific stations. On the other hand, extensive years of erosion control measures, as well as the depopulation of rural settlements in some parts of the basin led to reduced intensity of the erosion as well as suspended sediment load transportation.

SLOT2

Chair: *Zoltán Szalai*

Schedule: Tuesday, 1 September, 10:45–12:30

EXAMINATION OF SOIL EROSION PROCESSES AND THEIR RATES BASED ON DATA FROM DIFFERENT LAND USE INTENSITIES

Authors: *Boglárka Szabó*; *Csaba Cseri*; *Gergely Jakab**, Geographical Institute RCAES HAS, Hungary; *Judit Szabó*; *Zoltán Szalai*, Eötvös Loránd University / RCAES HAS, Hungary

Keywords: dynamics, land use, soil erosion

Abstract: Different land use intensities yield various rate of soil erosion. The rate of soil erosion and the change of this rate over a longer slope can be examined based on certain soil properties. The purpose of this paper is to prove that there are very simple techniques to prove that measurements of basic soil parameters can provide information over soil erosion dynamics on each examined slopes and in between land use types with different land use intensities. For this examination we chose an arable land and a grassland in Gerézdpuszta at the Koppány-valley of Hungary. Both slopes are or were prone to water erosion. We sampled the upper 30 cm soil layer in every 10 meters. It resulted 32-32 point samples on the arable and on the grassland, respectively. We analyzed basic soil physical and chemical parameters. In the present case we wish to publish of our results concerning the chemical soil properties and their interrelations: CaCO₃, pH, AL-P2O₅, AL-K₂O and SOM. The results proved that soil water erosion dynamics can be proved by these simple parameters as on the one hand they follow the slope topography, on the other hand they behave distinctly under different land use intensities while even on present grasslands there can be signs of former effects of water erosion.

EXTREME SOIL MOISTURE CONTENT AND EROSION

Authors: *Judit Alexandra Szabó**, Eötvös Loránd University, Hungary; *Gergely Jakab*, Geographical Institute RCAES HAS, Hungary

Keywords: rainfall simulator, runoff, soil erosion

Abstract: The inland inundation and drought are potential nature hazards in the agricultural regions of Hungary, year by year. Laboratory-scale rainfall simulator was used to examine the erosion of simulated flooded and droughty soil surfaces to compare the erosion processes and soil loss of the two extreme moisture content situation. Soil loss samples were collected separately per aggregate size fractions and both precipitations were divided three periods to detect the change in the quality and quantity of the soil loss by the time. The aggregate and particle size distribution were measured. In both case, the dominating aggregate fraction of the soil loss was the silt fraction with 70-75% and the micro aggregate fraction with 15-20%. The ratio of the macro aggregate fraction >1mm was negligible. The particle size distribution of the aggregates was mostly similar, but in case of inland inundation the ratio of the fine sand was bigger in the micro- and macro aggregate fractions. The lack of macro aggregate fraction in the sediment is related to the weak soil structure and raindrop erosion. The main difference between the situations can be detected in the direction of the sediment transport. While from the saturated soil surface all water was running down, in case of the drought runoff sank in the soil rifts and transported the sediment to the deeper region of the monolith. The difference in the soil replacement directions could require different erosion protection in the same area in successive years so it very important to study these situations.