

# Temporal variation of suspended sediment load in the Velika Morava River at the mouth of the Danube River for the period 1967-2007

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The paper is concerned with identifying changes in the time series of discharge (Q), suspended sediment concentration (SSC) and sediment load (Qs) of the Velika Morava River. The catchment area on farthest hydrological profile Ljubičevski most on Velika Morava River is approximately 35496 km<sup>2</sup>. In this profile were carried out daily measurements of flow and concentration of silt in the period 1967 to 2007. Average perennial transport of suspended sediment is  $2,57 \cdot 10^6$  t (72,4 t/km<sup>2</sup>/y) and ranged from  $0,17 \cdot 10^6$  t (4,8 t/km<sup>2</sup>/y) to  $10,02 \cdot 10^6$  t (282,2 t/km<sup>2</sup>/y). Trends determined for

Q, SSC and Qs are statistically obtained using the non-parametric Mann-Kendall test. Results of Mann-Kendall test show that Q has a slight declining trend of annual values which do not show statistical significance. Decline in trendline SSC and Qs is a significant at a level of 0.01. Calculating the standardized regression coefficients, it was found that the relative impact of SSC on sediment load is 3.1 time higher than the impact of discharge. For the period 1967-2007 the average decrease in sediment load at the mouth of the Velika Morava was 3,1 t/km<sup>2</sup>/y. Decrease in suspended sediment

concentrations in recent period can be explained by changes in land use, negative demographic development trends (depopulation of rural areas), carrying out conservation works in the catch-

ment and hydro-technical works in the river bed of the Velika Morava river.

**Key words:** trend of discharge, suspended sediment concentration, suspended load, Velika Morava, Serbia