Hydrological characteristics of the Timok River, Eastern Serbia

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The Timok River is the largest rivers in Eastern Serbia, and one of the tributary to the Danube River. The major purpose of this paper is to assess the hydrological characteristics of the Timok River. In order to achieve this goal, 30 stations along the Timok River are visited during the summer of 2011. Basic physico-chemical characteristics (pH, temperature, salinity, specific conductivity, turbidity, river depth, and channel width) are measured and analyzed in order to assess the changes of water quality at different sites. Measured physico-chemical variables of the Timok River are analyzed using multivariate analyses and discussed in relation to different geology and land use characteristics of its watershed. Obtained results show clear separation of the less polluted headwater sites from more polluted sites affected by urban discharge and industrial activities in the region. The mining industry has been present in this region for more than a century. Our results show that the most degraded sites are in the vicinity of the mining localities and we concluded that mining industry has the great influence on changed water quality of the Timok River. In addition, results shows that despite the obvious degradation of water quality at some urban and industrial (mostly mining) sites, it can be noticed that most downstream stations on the Timok River (closer to its confluence with the Danube River) show gradual improvement in water quality, probably due to the ability of this river for auto-purification. This research is funded within the ongoing project supported by the Ministry of Education and Science of the Republic of Serbia (ON176019).

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