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EXPLORATORY SPATIAL DATA ANALYSIS OF HEAVY METALS CONCENTRATION IN TWO SAMPLING SITES ON SIRET RIVER

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Abstract

The study site is located on South of Bacau City, Romania, on two water courses: the Siret River – the branch flowing through the old riverbed downstream Galbeni Reservoir, and one of its tributaries - an infiltration channel, both of them being used by the locals for fishing and irrigation, and the common meadow for grazing. The study covers the right side of the Siret River, between the interception point up to Galbeni Reservoir dam and the equivalent length of the infiltration channel. The sampling/analyzing process was conducted on the field, where the values for pH, and the concentrations of Pb, Mn, Cd and Zn from water were determined. Clear differences between the water courses on pH (slightly alkaline on the channel, and alkaline on Siret River), Pb and Mn (the range of values is higher on the channel than on Siret River) and Cd (the range of values is higher on the Siret River than on the channel) were observed. From the spatial exploratory analysis there were identified: a common cluster of high values for Pb located between the right bank of the Siret River and the left bank of the channel, a small cluster of high values for Mn on the right bank of the channel and another cluster of high values for Cd located on the right side of Siret River. Regarding Zn concentrations, they were in similar value domains in both water courses, and no clusters of high values were identified.

Key words: heavy metal, spatial exploratory analysis, statistical analysis, water course

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