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ASSESSMENT OF ANNUAL AVERAGE TURBIDITY IN A RIVER SECTION USING EMPIRICAL RELATIONSHIPS BASED ON GIS TECHNIQUES

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Abstract

The design of hydrotechnical constructions requires knowing certain hydrological quantities necessary for their dimensioning. The annual average turbidity is one of these quantities. The issue is that, in some river sections direct observations and measurements do not exist regarding this hydrological quantity, so that different empirical relationships developed by various authors based on long observations and measurements are applied, such as that developed by Poliakov. Turbidity depends on basin characteristics for the section considered. All coefficients that occurs in Poliakov's formula and which depend on the river section characteristics can be extracted with high precision using GIS maps and plans. The use of GIS involves the determination, in more accurate manner of the coefficients included in Poliakov's formula. The values obtained from turbidity computation on these lines must be balanced with some measurements made by competent authorities for the targeted sections to see if the values obtained empirically fall within the values obtained by direct measurements. In this paper, calibration and verification of data obtained by this method was made on Jijia River in computing section Victoria.

Key words: annual average turbidity, calibration of the results, digital terrain model (DTM), empirical relations, GIS techniques

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