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Using interpolation methods for precipitation estimation

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Conventional interpolation methods for precipitation estimation use well-known algorithms such as Thiessen polygons or kriginig, which recalculate point precipitation measurement into a grid form. One of the advantages of the method is using relatively accurate precipitation data; thereafter the estimated neighbouring values of a precipitation measurement station represent the disadvantage.

The standard method used in meteorology is optimal interpolation one, i.e. interpolation of new observed values into so-called “preliminary field“ based on autocorrelation analysis, (mean “information effect” analysis of new observed values according to measurement errors and according to variability of analysed field). This method includes calculations of various factors, which influence precipitation field.

The contribution presents basic geostatistical methods for precipitation interpolation using diverse software (GRASS GIS, ArcGIS, GSTAT, ISATIS). Investigated outcomes are compared with optimal interpolation methods.