

## COMPARISON OF SPATIAL INTERPOLATION METHODS IN RAINFALL ESTIMATION

### GEOREFERENCED WORDS

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#### **Abstract**

Continuous precipitation data in grid format are required to run models for hydrological and agricultural research as well as water resources planning and management. The spatial pattern of precipitation is well known to be highly depended on geographical and meteorological conditions. Precipitation patterns are usually not very well known in mountainous regions. One part of the problem is due to strong topography of mountainous areas, which leads to complex precipitation patterns. A second part of the problem comes from the lack of information in this region. The raingauge network are typically sparse and of uneven density. The objective of this study was to test and compare methods and tools for the spatial interpolation of the maximum daily precipitation totals. The analysis was made using data from 29 precipitation stations in the upper Morava river basin and from 19 precipitation stations in Becva river basin. Several method of point measurement interpolation are applied: inverse distance weighted, ordinary and simple kriging, Topo To Raster, cokriging and stochastic simulation. The followed methodology can be divided in three steps. First, secondary variable having significant correlations with the precipitation was derived. Secondly, precipitation was interpolated with different methods. Finally, the derived models were compared in terms of predicted errors. It was found out that integration of digital elevation model into interpolation procedure over better estimates of area precipitation events.

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