New version MISHv2.01 for modelling climate statistical parameters and RMSE

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The earlier versions of the method MISH (Meteorological Interpolation based on Surface Homogenized Data Basis; Szentimrey and Bihari) were developed formerly at the Hungarian Meteorological Service.

The main difference between MISH and the geostatistical interpolation methods can be found in the amount of information used for modelling the necessary statistical parameters. In general at the geostatistical methods built in GIS the sample for modelling is only the predictors, which is a single realization in time. At MISH method we use the spatiotemporal data for modelling since the long data series form a sample in time and space as well. The long data series is such a specialty of the meteorology that makes possible to model efficiently the statistical parameters in question.

The new developments of the new version MISHv2.01 are connected with modelling of some climate statistical parameters and the interpolation error RMSE.

At MISH method modelling of the climate statistical parameters is a cornerstone and the interpolation system is based on this one. The earlier modelling system was elaborated for the monthly and daily expected values and the spatial correlations. These are the basic statistical parameters of the interpolation procedures. At the new version the monthly and daily standard deviations and the daily temporal correlations also can be modelled. Consequently the modelling subsystem of MISH is completed for all the first two spatiotemporal moments. If the joint spatiotemporal probability distribution of the given variable is normal then the above spatiotemporal moments determined uniquely this distribution that is the mathematical model of the climate.

Another development is modelling of the interpolation error RMSE (Root Mean Square Error) in order to characterize quantitatively the uncertainties of the interpolation. This procedure is based on the earlier representativity modelling and the present standard deviation and temporal autocorrelation modelling together.