

Interactive comment on “Spatial interpolation of hourly rainfall – effect of additional information, variogram inference and storm properties” by A. Verworn and U. Haberlandt

A. Verworn and U. Haberlandt

a.verworn@iww.uni-hannover.de

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We are very grateful to the editor Nunzio Romano for constructively handling the submitted manuscript and supporting the review process with valuable comments. We will respond to the comments in the following.

We agree that setting the sill equal to the sample variance is a simplification. This has been done only for the automatic variogram estimation method with the objective to provide sufficiently robust results. This way only the two parameters range and ratio of nugget to sill are optimised, instead of three parameters range, sill and nugget. Tests

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have shown that with three parameters much more often poor objective function values were obtained or the method did not converge. For each time step the obtained objective function value for the automatic variogram was compared with a value considering the averaged variogram instead and that variogram with the lower objective function value was selected. Also, if no convergence could be reached, the averaged semivariogram was chosen and scaled with the variance. We are aware that an automatic procedure cannot fully replace the manual fitting as some decisions have to be made by the user, like choosing the general type of basic semivariogram model. A fully automatic procedure is especially critical, when only a sparse sample is available.

We have prepared a revised version of the manuscript taken into account all comments made by the two referees and the editor.

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