



Dynamic correlation structures for interpolation of precipitation patterns

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The use of Kriging-like techniques for interpolation of continuous spatially distributed variables is used when only point observations are available. One of main limitations of this approach is the assumption of a time-invariant correlation structure, which often cannot be verified. This situation is especially critical when interpolation of real-time precipitation patterns is required, due to the long term average characteristics of the correlation structure, which does not necessarily guarantee an adequate approximation of the actual conditions of the precipitation system. To overcome this, a mixture of local correlation structures is proposed, where each one is derived from measurements of the variable of interest, based on the fact that optimal semivariograms are dependent on average precipitation intensity for a particular precipitation event. The implementation and validation of this methodology is presented in two European catchments, where one is a densely observed catchment, and the other is a lesser observed Alpine Mediterranean catchment.