Hydrology and
Earth System
Sciences

Discussions

Interactive comment on "Geostatistical interpolation by Quantile Kriging" by Henning Lebrenz and Andras Bárdossy

Anonymous Referee #3

The article presents an interesting approach to kriging with skewed variables and to non-stationarity: i) For every single location the distribution over time is estimated and quantiles are estimated. ii) To the quantiles of a given time-step a Beta-distribution is fitted. iii) The quantiles of the Beta-distribution are transformed by a Normal-Score transformation into standard Gaussian variables. iv) Ordinary kriging of the transformed variables. v) Backtransformation of the kriging results to the original scale

One to my opinion main result now is that the variance of the prediction is dependent on the data values themselves, too, and not as in ordinary kriging only dependent on the kriging location. The methodology reminds me somewhat to trans-Gaussian kriging, where you have a similar effect, with the difference that you are still stationary. Maybe you could a little bit comment on this and also on the relationship to copulas.

Non-stationarity comes into play because you estimate at each spatial location the quantiles separately. You calculate quantiles, and quantiles are always related to copulas,- is there also here a relationship to copulas? Please, elaborate on that. I am also not completely sure, why you need the Beta-distribution at all and not directly calculate the Normal-Score transformation.