Hydrology and Earth System Sciences Discussions

Interactive
Comment

Interactive comment on "Mapping rainfall erosivity at a regional scale: a comparison of interpolation methods in the Ebro Basin (NE Spain)" *by* M. Angulo-Martínez et al.

Anonymous Referee #2

General: The topic of the paper is of broad interest for scientists dealing with erosion modelling, interpolation of climate variables and interpolation in general. Interpolation of climate input is still one of the main uncertainties in hydrological modelling and modelling of erosion processes. The methodology and the results are well presented and discussed in the paper. The figures and tables are accurate and support the understanding of the results. However, there are some technical and scientific aspects, which have to be clarified and worked out in greater detail. Therefore, the paper should be subject to minor to moderate revision. My major request is that the authors should include some additional interpolation methods or at least discuss additional ones.

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

Detailed comments: Abstract / Introduction: The abstract is to the point and includes the necessary information, and the introduction presents the motivation and the general background information in a comprehensive way.

Materials and methods: The description of the study site is adequate and the climate measurements are suitable to gain the monitoring data to support the investigation of the different methods. A small drawback is the fact that the authors mention the strong seasonality in the target area but do not describe how it looks like. The different methods are well presented (in a comprehensive way), but the following are for some reasons interesting but not included: • External Drift Kriging (EDK) as a combination of geostatistical and regression methods which is quite easy to apply and therefore of interest for a broader public; • Indicator Kriging (IK): IK can help to also consider outliers in the interpolation (and this is important for erosion modelling). However, the data support might be too small – but IK should be discussed at least; • Geostatistical Simulation (GS): GS especially is a method to maintain the inherent heterogeneity of the input data. The authors state that the lost of the variability is the main disadvantage of the different methods, application or at least extensive discussion of GS methods is therefore a must. If the authors don't apply GS, they have to argue why.

Results: The results are well presented. Some questions to be clarified: • For Simple Kriging (SK), the mean of the variable has to be known for each site (or cell) of the resulting map. Where do the authors have this information from? • Cokriging is an interpolation technique that allows one to better estimate map values by kriging if the distribution of a secondary variate sampled more intensely than the primary variate is known. The question now is what was the secondary variable in this study? • How many neighbours were used in the interpolation? The number of neighbours has a strong influence on the variability of the results.

Discussion: The discussion reads well, but as mentioned before, additional methods should be included in the investigation (EDK, GS) and discussed (IK). Also, the influ-

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

ence of the number of neighbours in the interpolation should be discussed.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 6, 417, 2009.

Interactive
Comment

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper