General comments

This paper explores the impact of several factors on the accuracy and smoothness of interpolated hourly rainfall maps, such as the type of variogram estimator, the interpolation algorithm, and nature of secondary information. Some implementation steps are rather unusual, such as the averaging of semivariogram parameters instead of experimental semivariogram values or the use of the semivariogram of original rainfall data instead of residuals for KED. In general, most steps or techniques need to be better described (see specific comments). Notation lacks consistency throughout the manuscript and multiple typos (e.g. then instead of than) are present.

Specific comments

- The automatic fitting procedure needs to be better described. Which type of basic semivariogram models was considered? Which fitting method was used (e.g. least-squares regression, maximum likelihood)? Which parameters (e.g. nugget effect, sill, range) were actually estimated? The fact that the nugget effect is always zero suggests that this parameter was forced to be zero.
- A reference must be provided to support the statement regarding the impact of transformation of secondary information on the smoothness of interpolated values.
- In theory KED should be equivalent to OK when there is no correlation between primary and secondary variables, hence the benefit of using a correlation threshold is unclear.
- Since the DEM resolution is 1×1km, it is unclear how the index is calculated on a 5.75×5.75 km resolution.
- The application of KED requires the availability of secondary information at all interpolation grid nodes. It is unclear how daily rainfall data were derived at these locations.
- Four different thresholds for rainfall intensity are used (1.0, 0.5, 0.25 and 0.1 mm/hr) for semivariogram estimation, computation of summary statistics, interpolation and cross-validation without any clear justification of why such thresholds need to differ.
- The RMSE values in Table 4 are rather large since they indicate prediction errors of the same order of magnitude as the rainfall average.
- The statement on Page 6423 (line 12) is vague. Which tests do the authors refer to? What does the statement “works best” mean?
- Although some interpolations were conducted on log-transformed values, no information is provided regarding the subsequent back-transform.

Technical corrections

1. Page 6411, line 22. If a regionalized variable is stationary, it is also intrinsic. So the word “and” should be replaced by “or”.
2. Page 6412, line 1. N(**h**) is the number of data pairs, not data points. Same comment applies to Page 6413, line 19.
3. Page 6412, line 23. The expression “spatial anisotropy” should be used.
4. Page 6413, line 3. The correct spelling for the author is “Journel”.

5. Page 6414, Eq. (6). The notation $Z^*(u_0)$ should be used for consistency with the notation in the kriging system (Eq. 8).
6. Page 6414, Eq. (7). The notation m instead of j for number of additional variables should be used for consistency with the notation in the kriging system (Eq. 8).
7. Page 6415, Eq. (8). The correct notation for the right-hand side of last equation is $Y_k(u_0)$.
8. Page 6416, line 6. The output of indicator kriging is probability, not rainfall intensity hence the unit reported for the threshold of 0.5 is incorrect.
9. Page 6416, line 17. Replace “sensitivity” by “impact”.
10. Page 6422, line 13. Replace “EDK” by “KED”.
11. Pages 6424 and 6425, line 6. Replace “then” by “than”.
12. Page 6435, Table 4. Write “event anisotropic”.