

***Interactive comment on* “Trends in rainfall erosivity in NE Spain at annual, seasonal and daily scales, 1955–2006” by M. Angulo-Martínez and S. Beguería**

Anonymous Referee #2

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Review of: Trends in rainfall erosivity in Ne Spain at annual, seasonal, and daily scales, 1955-2006. Co-authored by M. Angulo-Martínez and S. Beguería.

The manuscript is an interesting contribution for a better understanding of future effects on NE Spain of rainfall erosivity. Time trends on rainfall erosivity are correlated with pluviometric regimes and time evolution of several teleconnection indices (NAO, MO and WeMO).

Questions concerning time trend analysis: -Linear regression of rainfall erosivity and time could not be sometimes the optimum method to quantify trends. I would propose,

with the aim of comparing results and improving trend accuracy, the method based on the computation of all possible pairs of finite differences, being then assigned the median of these differences to the most probable trend (Kendall-tau procedure; Zhang et al., 2004, *Journal of Climate*, 17, 1945-1952).

-After applying the Mann-Kendall test, the authors assume significant local trends at $\alpha = 0.05$ confidence level. Local trends could be then classified into positive (significant), negative (significant) and, whatever their signs, not significant. I would propose a Monte Carlo test of field significance, based on randomly rearrangement of erosivity series and computation of their trends. A high enough number of random rearrangements could quantify, for instance at the 95% confidence level, the statistical significance of a set of empiric positive (negative) significant trends. In this way, the whole Ebro valley, or an area within it, could be associated with statistically verified regional trends on erosivity processes.

Questions concerning connections of erosivity with NAO, MO and WeMO indices. -The role played by atmospheric teleconnection indices on erosivity should be discussed and explained with more detail. The three indices are cited in page 5 (lines 12-14) and some arguments are briefly cited in the last paragraph of Discussion. What do thin and thick lines represent in Figure 9? Cross-correlation between erosivity and NAO, MO and WeMO series would be very illustrative.

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