

Interactive comment on “Intense precipitation events in the Central range of the Iberian Peninsula” by Manuel Mora García et al.

Anonymous Referee #1

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This article reports about 19 heavy precipitation events at the central Spanish mountain range. Apart from precipitation flow direction, low level wind speed, moisture fluxes and Froude numbers are the main features investigated.

The results of this study are important for regional weather forecasters but are otherwise not new. In their abstract the authors write: "The effect of the Central range on the spatial distribution of precipitation on the Iberian Peninsula plateau results in a sharp increase in precipitation in the 15 south of the Central mountain range, followed by a decrease to the north of this range" - this is really not a new result. While some aspects of their analysis goes beyond classical synoptic reasoning, such as looking at Froude numbers and moisture fluxes, this kind of analysis is not new either. Methodically the analysis is correct, but the large scale data used are not optimal. For the period 1958-1978 the JRA55 reanalysis should be used, which are available since at

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least 2014, after that ERA-Interim data are available since 2011 at least. These data sets are much more homogeneous than ERA-40+operational ECMWF data. This is important since moisture fluxes from events in 1961 are difficult to compare with those of more recent events if the analysis methods are so different as they are between ERA-40 and operational ECMWF analyses. The intensity assessment for precipitation relies on a few station data. However the study shows precipitation maps and cross sections (Figs 3,6,7,9b) which must have been produced by some gridding technique. Did the authors just use Kriging or similar as it is available in the ARCGIS Software? There are better techniques for that (see e.g. Frei and Schär 1998, Isotta 2013).

I am also not happy with the quality of the figures. Many of them (Figs 1,2,4c,4d,5a,6b,8b,9b) seem to be just screen shots cut out from some display, since they do not have proper lat/lon axis frames. That is really below international standards. In Fig. 3 there is no x axis scaling.

A complete revision of the study with improved reanalysis data, improved precipitation analysis and higher figure quality is necessary to lift this manuscript up to international standards. Since this will likely take more time than acceptable for a review process, I recommend rejection of the manuscript, however encouraging resubmission.

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