

## ***Interactive comment on “Intense precipitation events in the Central range of the Iberian Peninsula”***

by Manuel Mora García et al.

Response to RC1

"...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. ..."

So far, we are not aware that there are similar studies to our for the area of interest.

"...For the period 1958-1978 the JRA55 reanalysis should be used, which are available since at 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. ..."

We think that the JRA55 reanalysis had an objective to improve information, mainly in the area of Asia. In addition, we do not believe that there is a clear pronouncement of the scientific community on which of the models of reanalysis is the most adequate, or if the JRA55 is better than ERA-INTERIM.

There are numerous studies comparing reanalysis models, but all agree on the great similarity of results. In any case, they present some differences in certain parameters, mainly those that depend strongly on the altitude, seasonality or area of study.

For example, in this reference <https://climatedataguide.ucar.edu/climate-data/jra-55> there are some weaknesses presented by JRA55:

Key limitations:

As with most reanalyses, diagnostic variables including precipitation and evaporation should be used with extreme caution.

Dry bias in upper and middle troposphere and in regions of deep convection.

Time-varying warm bias in the upper troposphere.

Accordingly, the calculation of the moisture flows is also not very reliable in the JRA55. To corroborate that there is no unanimity in the model to be chosen, we indicate an analysis of the data from Ireland, in which it is not clear which of the models, ERA- Interim, ERA-40 or NCEP, is the most appropriate. <http://eprintsprod.nuim.ie/2513/1/MooneyMulliganFealy2011.pdf>

"...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?

Regarding the grid technique, the one supplied in the Arcmap package (ArcGis) was used. Taking into account the complex orography of the study area, the maps representing precipitation should be understood as an estimate of the

possible real precipitation field, and we are not aware of any interpolation technique in highly irregular mountainous areas that optimize the representation of the precipitation field.

“...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. . .”

We will try to improve the quality of the figures.

\*\* After making the corrections proposed by all reviewers, we believe have improved the quality of the figures and have clarified some issues.