

## ***Interactive comment on “Design flood hydrographs from the relationship between flood peak and volume” by L. Mediero et al.***

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The authors greatly appreciate the suggestions of the Anonymous Referee 2, including the corresponding changes in the paper. In the following, we respond to each comment.

Some comments are suggested as follows:

General Comments:

1) The paper should be revised by a native English translator.

The paper has been revised by a native English translator including the suggested

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corrections in the revised paper.

2) It is difficult to follow the argument presented in the Introduction and I would recommend the authors to re-write it.

The Introduction has been re-written. An additional paragraph has been included in the paper (second paragraph of the Introduction), to better understand the paper objectives. The paper has been revised by a native English translator

3) Marginal distributions of peak flow are fitted by a regional method applied to a homogenous region identified in the Tagus basin. Heterogeneity tests and regional statistics of the AMD series should be included in the paper, in the same way as it has been done with AMV series.

Table 3 has been extended with the results of the AMD series, including results of heterogeneity tests and regional statistics.

4) Two types of regressions are fitted to peak-volume pairs, one at each station and one in the whole homogeneous region by means of standardization. Both regression equations are well explained in the paper, but the calculation of their residual variance ( $\sigma_{reg}$ ) should be better explained as Eq. 9 uses  $V_i$ , while this symbol is the weighted standard deviation of the at site sample L-moment ratio in Eq. 3 and 4, and there could be some differences between both methods.

In fact, Equation 9 should be different for both regression equations. This has been corrected, adding two equations (Eq. 9 and 10), one for the local model and one for the regional model. An appendix with a list of symbols used in the equations has been added to the paper.

Smaller comments:

1) On page 4821, line 16, please, introduce the name of the reservoir after the reference number of each station.

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The name of the reservoirs has been included in the paper.

2) On page 4821, line 14, you say that the three reservoirs belong to the 32nd homogeneous region, but there are only 30 regions. Then, I suppose that it is region 3.2.

Spanish homogeneous regions have been named by the code of the basin as first number and the number of the region in that basin clockwise from west to east. In this case, the Tagus basin has the code '3' and there are three homogeneous regions in it: 31 (Western), 32 (Middle) and 33 (Eastern).

3) On page 4822, line 19, it seems that "CV" should be "L-CV"

In fact, it should be L-CV; "CV" has been changed for "L-CV"

4) On page 4823, line 3, "maximum instantaneous discharges" should be changed for "instantaneous maximum discharges"

"maximum instantaneous discharges" has been changed for "instantaneous maximum discharges"

5) On Table 3, "AVD" should be "AMV"

"AVD" has been changed for "AMV"

6) The location of the three selected reservoirs cannot be seen in Figure 1

Figure 1 has been improved, showing the three selected reservoirs

7) The legends on Figure 3 are difficult to read

The legends have been enlarged

8) The legends on Figure 7 are difficult to read

The legends have been enlarged

9) Pay attention to the symbols applied to represent different variables. In some occa-

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sions there are the same although variables are different

Symbols have been changed, in order to avoid confusions. An appendix with a list of symbols used in equations has been included in the paper.

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