

Interactive comment on “Hydrological response to different time scales of climatological drought: an evaluation of the standardized precipitation index in amountainous mediterranean basin” by S. M. Vicente-Serrano and J. I. López-Moreno

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Review of ‘Hydrological response to different time scales of climatological drought: an evaluation of the standardized precipitation index in a mountainous mediterranean basin’, by S. M. Vicente-Serrano and J. I. López-Moreno

General comments * The paper deals with an interesting matter, not only from a climatological/hydrological point of view but also in terms of water resources and water supply. * The methodological approach used is appropriate. The authors demonstrate a good and deep understanding of its underlying statistical advantages and limitations. * The structure of the article is correct. * The study basin is not well characterised.

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Readers can not find any indication of slopes, lithology, vegetation cover, fluvial regime, precipitation intensity, etc. which could explain the specific time scale behaviour. For not-Spanish people the area could be seen as unknown. Briefly, the Section 2, ‘Study area and the Yesa reservoir’ must be improved. * The discussion section is not very rich in new ideas, relationships between the results and the geographical characteristics of the basin, comparisons with other studied areas, etc. Sometimes the authors only repeat the results or they comment that more research is needed -certainly they have only a few scientific references about empirical studies. The optimum would have been to analyse two basins in the same mountainous area or in other Mediterranean ranges. In the present form, the authors should point out, at least as hypothesis for future research in the same field, what elements are more important to explain the specific results, apart from precipitation.

Specific comments * Introduction, 1223, line 10: Authors could add that drought is probably the best example of a ‘penetrating’ natural hazard. * Introduction, 1225, line 6: seasonal ‘as well as interannual’ variability * Section 2, 1225, line 22: ‘The annual variability is very high.’ Give an example, e.g. the highest and the lowest annual amount for one meteorological station in the study area. * Section 2, 1225, line 24: ‘1549 m a.s.l.’ So precise figure? It is an averaged value. * Section 2, 1225, last line, and 1226, first line: Re-write the sentence. ‘Above the 0 C isotherm’ has not sense. ‘Above’ refers to altitude not to temperature. * Section 2, 1225: Some information on precipitation intensity in the study area is needed, at least the recorded highest daily values in the 8 meteorological stations. * Section 3, 1226, line 20: Were not there any lack or missing values in the precipitation series of the 8 meteorological stations? * Section 3, 1227, line 7: ‘(R \geq 0.84)’ instead of ‘(R>0.84)’. * Sub-section 3.3., 1228: Some statistical comments on the quality of the river discharges and reservoir storages series are needed. Are they homogenous? Is not the last one very affected by the discharges for irrigation? * Section 4, 1229, lines 6 and 7: Please note that at the time scale of 14 months, and even at a shorter time scale, the same two important dry periods are also recognised. Some further discussion about the shortest

time scale that allows to established the main dry periods is needed. * Section 4, 1229, 4.1: It would be interesting to calculate the mean duration of the spells formed by years with $SPI < 0$ for the different time scales analysed. * Section 4, 1229, line 19: than? * Section 4, 1231, lines 6 and 7: I suggest to remove this sentence. According to the figure 7 the years 1973 and 1983 are counter-examples. * Section 5, 1231, paragraph 3, lines 17 to the end and the following two lines in page 1232: The lack of other comparative study cases produces a too much general discussion. What do geographical/geological/hydrological elements of the study basin have more influence in the results about the time scales? * Maybe it is better to say 'meteorological station' than 'observatory' in the text and in the caption of Figure 1.

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