Natural Hazards
and Earth System
Sciences

Discussions

Interactive comment on "Assessing drought cycles in SPI time series using a Fourier analysis" by E. Moreira et al.

Anonymous Referee #1

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The paper addresses the cyclic behavior of hydrological drought during December in Portugal by means of the SPI computed on 12-month time scale. The method of analysis is based on the Fourier Transform of the SPI time series after having applied the Principal Component Analysis (PCA) and Cluster Analysis. The topic falls within the scope of the Journal and the overall quality of the paper is good. The manuscript deserves publication after minor corrections according to the following comments:

1) The authors provide only an analysis for December. This should be clearly stated in the abstract and figure captions, and should be better motivated in the text (perhaps in relation to the precipitation climatology). Then, I am asking what happens when a different month of the year is considered like July when the NAO variability is expected to be less. How the results change?

2) In the present context, the use of Clustering technique can be considered equivalent to the Varimax rotation? This point should be discussed.

3) I suggest improving Figs. 2b, 4, 5 and 6: the X ticks labels get confused in the plots, while dots do not allow to see the periodic character of the signals.

4) In the conclusions the authors point out the simplicity of their method compared to others. What are the other methods? Note that the sentence at page 2746 lines 20–22 is the same as at page 2747 lines 3–5. The concluding section should be improved.

Interactive comment on Nat. Hazards Earth Syst. Sci. Discuss., 2, 2731, 2014.