

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

E. Moreira et al.

efnm@fct.unl.pt

Received and published: 3 September 2014

Q1. The authors do not provide any analysis on the NAO and how this atmospheric oscillation is connected to droughts in Portugal. However, they claim that the drought cycles of 6 and 9.4 years are caused by the NAO. Furthermore, no explanation is given for the cycle of 4.4/4.7 years. The authors should provide a detailed discussion about the plausible causes of drought periodicities and the identified significant drought cycles.

Reply: An analysis on the NAO and how this atmospheric oscillation is connected to droughts in Portugal is out of scope of our research and is being the object of study by other researchers. However, a set of new references to studies referring to Portugal are

C1955

added, namely in the introduction (lines 91-94) and discussion are improved and more focused, mainly in lines 575-591, where the role of NAO in forcing the precipitation regime is better dealt. Relative to the 4.4/4.7 years cycles, no interpretation is provided but the following sentence also applies “Further studies to improve the understanding of teleconnections between drought indices and large scale atmospheric circulation indices for Portugal and the Mediterranean are needed.” The authors provided a discussion about drought periodicities and the identified significant drought cycles in pgs 7-8. However, the plausible causes of periodicities are many and relate to the atmosphere circulation patterns as influenced by NAO, AO, ENSO and EAWR; since we did not find agreements with AO, ENSO and EAWR we did not mention in the MS.

Q2. The authors present only the results of analysis for December. No results are presented for the other months. Are the drought periodicities remain the same? Are the causative factors the same? The authors should present results for other months and, certainly, make the comparison and discuss in detail the results.

Reply: See reply to Q1 of Rev#1.

Q3. The conclusion section of the paper should be updated. For example, the authors write “In our point of view the simplicity of the approach used to compare to other. . .” but no other methods are presented and no comparison is made.

Reply: See reply to Q4 of Rev#1.

COMMENTS 1. The quality of some figures is very bad. The authors should improve the Figures 2, 3, 4, 5, 6.

Reply: Figures were improved.

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

C1956