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Hydrology and Earth System Sciences Discussions

Interactive comment on "Coupled decadal variability of the North Atlantic Oscillation, regional rainfall and spring discharges in the Campania region (Southern Italy)" *by* P. De Vita et al.

Anonymous Referee #4

Received and published: 9 January 2012

TITLE: Coupled decadal variability of the North Atlantic Oscillation, regional rainfall and spring discharges in the Campania region (Sourthern Italy).

AUTHORS: De Vita, P., Alloca, V., Manna, F., Fabbrocino, S.

GENERAL COMMENTS This paper analyzes the annual variability and relationship between the North Atlantic Oscillation and the regional precipitation and spring discharges in the Campania region (Italy). The topic of the study presents great interest

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since the analysis of the links between the NAO and groundwater hydrology have been not yet addressed in the Mediterranean context, where these types of interactions are highly relevant. Nevertheless, the paper presents several problems which need to be solved in order to achieve the adequate level for publication in HESS. As other reviewers highlighted, the paper is overloaded with many figures, most of them overelaborated, which do not facilitate the interpretation of the results. Moreover, the structure itself is a bit weird, and this reviewer missed a proper discussion section where the obtained results were contextualized and related to recent studies focused in the same topic (at least those concerning precipitation).

SPECIFIC COMMENTS

INTRODUCTION The paragraph reviewing the recent scientific literature focused in the NAO-river discharges interactions (pag 11236, lines 23 and on) is almost the same paragraph which can be found in Lorenzo-Lacruz et al., (2011). The paragraph must be reworked to avoid plagiarism.

STUDY AREA This reviewer missed the inclusion of information concerning surface hydrological features, land use and aquifer exploitation.

DATABASE A lack of information about the spring discharge series was found. There is no mention about where the spring discharges time series were obtained from (water agency, particular measurements?), the method to fill the gaps of the time series and the validation method used. The authors mentioned Gerardo Ventafridda of the AQP S.p.A. (please specify the meaning of the abbreviations) in the Acknowledgements as the provider of the time series, however this information should be included in the database section and treated more in depth.

METHODS The use of the T-Student and also F-Fisher tests to assess the significance of the correlations is redundant. A paragraph introducing the Fourier analysis performed in the last section of the results is needed.

HESSD

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RESULTS Page 11248, line 18: replace l994 with 1994.

FIGURES Figure 1: the inclusion of a graphical scale bar would be preferable instead of using a UTM grid (with missing information about datum and zone). Figure 2: The NAO index is not a percentage. Figure 5: Legend is incomplete. Please, replace 1 with “rain gauges” and 2 with “correlations”.

BIBLIOGRAPHY Page 11260, line 31: add the abbreviation (eds.) to Vicente-Serrano and Trigo (2011). Page 11261, line 1: replace Viesbeck with Visbeck.

REFERENCES Lorenzo-Lacruz, J., Vicente-Serrano, S.M., López-Moreno, J.I., González-Hidalgo, J.C., Morán-Tejeda, E. (2011): The response of Iberian rivers to the North Atlantic Oscillation, Hydrology and Earth System Sciences 15, 2581-2597.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 8, 11233, 2011.