

Interactive comment on “A generic method for hydrological drought identification across different climate regions” by M. H. J. van Huijgevoort et al.

S. Thompson (Editor)

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Dear Authors,

You have received two thoughtful and critical reviews of the manuscript. Having read these reviews in light of the manuscript, I conclude that there are several major concerns of both conceptual and technical nature relating to the contribution made by this study. To merit publication, the revised manuscript must address these issues. Most importantly, if you elect to revise your paper, please ensure that the following points are comprehensively addressed:

- a) The validity of using modeled data as a basis for the development of the technique.
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This point was raised by both reviewers. In the absence of validation of the modeled flow data, particularly in light of some of the difficulties associated with predicting flow in arid rivers using many land surface schemes, the implementation of the drought identification approach proposed here is one that compares model data with model data. There is a need to bring this back to "reality" with use of measured flow data. Should such a comparison now be attempted, please bear in mind two very valuable comments made by reviewer 2: firstly that the length of record used must be sufficiently long to capture the large interannual and even interdecadal variability in flow regimes in many arid basins; and secondly, that the identification of low or no flow conditions from gauge data may be problematic and merits additional validation prior to using the flow record directly.

b) Both reviewers were somewhat skeptical about the conceptual approach adopted. Reviewer 1 questioned the use of single metrics as indicators of drought. Reviewer 2 questioned both the novelty of the approach and its ability to detect meaningful symptoms of hydrological drought that could feasibly occur under low flow regimes, even when flow was maintained overall. The conceptual basis for the proposed method therefore requires additional justification. Reviewer 1 proposed some additional literature that could be consulted to bolster this aspect of the paper.

Yours truly,

Sally Thompson

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