

A systematic assessment of drought termination in the United Kingdom

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The authors substantially revised the first manuscript based upon the comments of the reviewer. The study is original and it certainly is worthwhile to be published in HESS, after responding to a few (minor) comments.

I understand your point that a full sensitivity analysis would imply another comprehensive study, which is beyond the scope of this paper. I appreciate that you added a separate section on the sensitivity of the parameters to identify drought chronologies (Section 3.2), which refers to Fig. 3 that shows the sensitivity for 2 contrasting UK catchments. I think that this limited sensitivity analysis in principle is sufficient to make readers aware that the presented chronologies depend on the choices of the parameters, in particular D , R , and T . However, the sensitivity aspect is not mentioned in the Abstract and Conclusions. I believe that one sentence about the sensitivity needs to be added in both sections.

Through the parameter selection ($D=10$, $R=1$, $T=2$), focus is on the termination of multi-year, multi-season drought events. This also needs to be mentioned in the Abstract and Conclusions. For suggestions, see minor comments below.

In the Discussion section you mention that the selected monthly average flow threshold is higher than those sometimes (HVL: usually) applied in threshold-based studies. This requires a justification. I suggest to include the justification made by you in reply to my comment 2 (Hydrol. Earth Syst. Sci. Discuss., doi:10.5194/hess-2015-476-AC2, 2016).

I welcome the paragraph in the Discussion about the importance of missing water (deficit volume, e.g. for reservoir or aquifer management), which is very relevant for the managers of these resources.

As said earlier, this study is one of the first on ending of a drought. It would be good to set the terminology right from the beginning. The authors use the term “termination” for the last phase of a drought (decrease of the deficit to zero), whereas I thought that termination is more associated with an instantaneous point in time. I would use termination for the latter and “recovery” for the last phase. The authors come in their reply with a good number of reasons (e.g. from ecology) to use the terms in the manuscript. They clarified this in the text. I believe we need to find another platform to discuss terms associated with the ending of a drought.

Minor comments:

- Pg. 1, line 19: Add/revise “.....regionally-coherent, termination of multi-year, multi-season drought events.....”;
- Pg. 3, line 12: you can add here a line about the sensitivity analysis and that the study aims at detection of the termination of multi-year, multi-season drought events;
- Pg. 4, line 16: something is wrong with the format of the Equation; does not properly show up in the document;
- Pg. 5, lines 18-23: D and R are explained, whereas this is missing for $T=2$;

- Pg. 13, lines 9-23: The heading of Section 5.2 is about drought “termination” whereas the text section is about entire droughts. Could you make the validation of the termination a bit more specific?
- Pg. 17, line 22: Add/revise “For the first time, termination of multi-year, multi-season drought events have been.....”;
- Pg. 32, line 7: Add: “...rate. $D7-D36$: 7-36 months that for which Z_{anom} is negative, $R1-R3$: 1-3 months within the D -months duration for which Z_{anom} is permitted to be positive, $T2-T6$: 2-6 consecutive months for which Z_{anom} is positive. The bold box ...”.