

Review of the revision by Tijdeman and Menzel: Controls on the development and persistence of soil moisture drought across Southwestern Germany

General comments

This manuscript investigates the role of soil characteristics in the root zone and climate properties in determining the probability of occurrence and characteristics of agricultural drought. Although I was very critical towards the initial submission and even recommended rejection with a resubmission, I would like to complement the authors with the way they managed to improve this manuscript. In my opinion only a few issues remain.

- The authors write in their reply that their main focus is on agriculture, hence justifying a purely soil-based (and not climate-based) metric for S_{rootzone} . Yet, I do think that the focus on agricultural regions should be mentioned more explicitly at the end of the introduction where they introduce their objectives (end of Section 1), in the description of the study region (Section 2.1), in the description of their modelling approach (Section 2.3) and in the conclusions (Section 5). Also, it should be made clear why some areas that hardly have any agriculture were not left out of the analysis.
- I am happy to see model performance analysis of the TRAIN model, yet, I think this can be taken some steps further in order to rule out the possibility that the conclusions about the importance of AWC are based on systematic errors in estimating the available water to plants (i.e., AWC). Some suggestions:
 - o In Figure 5 it would be interesting to see whether there is a relationship between over- or underestimation of the observed flow with AWC. The authors could, for example, include a color scale with AWC and give each dot a color corresponding to the average AWC in that catchment to show, hopefully for the authors, that AWC is not systematically associated with an over- or underestimation.
 - o The same analysis as Figure 5 could also be performed on monthly basis. In case this just confirms Fig. 5 just as supplement, but in case significant problems occur, the authors might need to reconsider the fact that AWC in the TRAIN model is not calibrated.
 - o Include a figure that answers the question: What is the performance of TRAIN in specific drought years and does or does that not relate to AWC?

Technical corrections

Fig. 7. One of the y-axes still has 'likelihood' instead of probability. Please correct.