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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Drought propagation and construction of a comprehensive drought index based on the SWAT-$K_{C'}$: A case study for the Jinta River basin in Northwestern China" *by* Zheng Liang et al.

Anonymous Referee #2

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In this paper, author constructed single variable drought indexes such as SPEI, SDI, and SSI based on the SWAT hydrological model of Jinta River basin. The comprehensive drought index MAHDI based on empirical Kendall distribution function was developed, and the spatial and temporal trend characteristics of comprehensive drought in the study area were analyzed. This study is really interesting and helpful to drought monitoring and drought decision-making. Therefore, I recommend the manuscript to be minor revising after the following questions/issues addressed: 1. There are too many words in the abstract, so it needs to be simplified. 2. The sentence "Reliable

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drought monitoring and mastering the laws of drought propagation are..." should be changed to "Monitoring drought and mastering the laws of drought propagation are...". 3. In the sentence "however, too short or missing hydrological variables in cold and arid regions make it difficult to monitor drought.", "too short hydrological variables" is unclear. 4. Drought control is mentioned in lines 48-49, but is not the subject of this manuscript. You should pay attention to the preciseness of the paper. 5. Line 70-71: please check the grammar. 6. Line 192: " DIp " should be the parametric drought index value, please check it. 7. Line 209-210: please add related references about "warming and humidification of the Shiyang River Basin". 8.Line 278-280: this sentence is not clear, please revise it.

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