

Nat. Hazards Earth Syst. Sci. Discuss., referee comment RC1  
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## **Comment on nhess-2020-416**

Anonymous Referee #1

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Referee comment on "Evaluating Spatiotemporal Patterns and Trends of Drought in Japan Associated with Global Climatic Drivers" by Ke Shi et al., Nat. Hazards Earth Syst. Sci. Discuss., <https://doi.org/10.5194/nhess-2020-416-RC1>, 2021

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This paper tried to explore the spatiotemporal characteristics of droughts over Japan and also linked the droughts with global circulation indices. Exploring the occurrences, development and underlying mechanisms of drought is the key to understanding them. From this point of view, this paper will be of great importance to Japan drought research.

Therefore, it is an interesting topic and suitable for Natural Hazards and Earth System Sciences. However, there are some issues that should be addressed by the author before publication. Especially lack of some physical mechanism discussion. Specific comments are as follows:

### **1. Introduction**

L49-59: While some relevant works about Japan drought have been cited, I feel the literature review appears weak. I recommend the authors to include all studies focusing on Japan drought. Discuss your results and compare them with the results from the previous studies in the appropriate places (results/discussion sections).

### **2. Materials and Methodology**

L116: The study area of this paper is small, therefore, is the 0.5° resolution meet the purpose of this research? The author should explain that.

L118: Add space before 'The'.

L163: I wasn't able to access the details of the data following the link. It appears that there may be a typo in the link, and potentially an access issue.

L169: Check the reference.

L167, L201, L218: Please check the font size.

### **3. Results and Discussion**

L313-314: This part is interesting. The author should try to further explain the physical mechanism about the impact of spatial variation of rainfall on drought.

L321: Replace 'Spatial and temporal' with 'Spatiotemporal'. It should be consistent with the rest of the document.

L330-339: Expand the explanation for physical interpretation of the DEOF1 and DEOF2. If needed, make a reference to other variables.

L348 Figure 8: Show the W and N regions in your figure.

L393 Figure 12: Replace 'In' with 'in'

### **Appendix**

L526 Figure A4: There is a strange horizontal line under the title of Figure A4(b). Please check all figures.