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Natural Hazards and Earth System Sciences
Discussions

Interactive comment on "Research on Occurrence and Development of Pasture Drought Events in Alpine Grassland using the Drought Threshold" *by* Tiaofeng Zhang et al.

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Aiming at pasture in China's alpine grassland (Qinghai Plateau), the paper studied the response of pasture to soil drought, the quantitative expression of soil drought degree and the monitoring threshold of drought degree. The water characteristics of the profile during the drought process in the grassland and the impact of precipitation on the drought were obtained. An index D characterizing the degree of drought was established. The article has clear ideas, unique methods and reasonable analysis. The research has a good reference significance for the occurrence, development process and monitoring and early warning of drought in alpine grassland. This can be officially

published as a research paper in the journal.

But there are still some issues that need to be modified:

1. The topic cannot accurately express the research content of the article. It is recommended to change it. It is necessary to highlight the characteristics of the drought development process and the drought early warning technology. It can be changed to "The study of drought occurrence and development process and drought monitoring in alpine grassland pasture".

2. The map of China in Figure 1 needs to be redrawn. It is necessary to add the South China Sea Islands and the nine-segment line. Otherwise, this is a very serious mistake! !

3. The expression of Equation 1 is not standardized and should be: I=1-f(x)=1-eˆ((1+a)) (1) Where f(x) is the change in layer moisture, a is...

4. Lines 202-204: "The regression coefficient (a) has the following characteristics. If a<0, thenâŤĆaâŤĆ>1 indicates the process of water loss and âŤĆaâŤĆ<1 indicates the process of water gaining." The statement is cumbersome, please modify it to make it more refined.

5. What are the correlation coefficients in Table 2? All are 1? Is it reasonable?

6, 237-240 lines: "In different groups, duration of mild drought and moderate drought first increased and then decreased with the continuous reduction of soil volumetric water content, whereas the duration of severe drought achieved exponential growth.", the statement is unclear . What does "first increased and then decreased with the continuous" mean?

7. Discussion Section 4.2 analyzes the availability of the drought threshold established in the paper, but does not point out the advantages and disadvantages of some existing index thresholds for monitoring drought.

In general, the research content of the article is novel and has published value. However, some of the analysis of the article is not deep enough, just mentioning. In addition, English expression is another important issue that needs to be addressed. Therefore, the article needs to be further modified before the publication.

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