

This paper discusses the important issues of alpine grasslands including the soil moisture, drought duration and intensity based on daily 10-minute interval data. Researchers had a nice experimental setup. The results should be published but the quality of the paper at this point do not satisfy the publication quality. I suggest publishing after careful revision. Need to revise the language and grammar in order to make the paper clear. I am sure, authors had clear story to tell and supported by the experimental results, but for the scientific paper it has to be clearly written and explained thoroughly.

General comments: There are so many different kind of droughts and different metrics that do not have individual clear definition. Check grammar, sentence structure and meaning very carefully.

Specific comments:

Lines 59 – 61: Define the Meteorological drought and crop drought before you discuss this. There are many more different kind of droughts in this paper that do not have proper definitions. Please define them all.

Lines 62-66: The sentence is not clear. Please revise it.

Line 64: "... difference, With the advantages, " Is it comma or period after the word "difference"? If it is comma do not need to start with capital letter "W".

Lines 70-73: Did not understand the sentence: "Chen et al.(2007b),Ma et al.(2017)pointed out that a dynamic drought index (soil drought degree) centered on the soil volumetric moisture content can effectively characterize the dynamic development and long-term accumulation characteristics of droughts" Also use space after comma, periods and parenthesis (before the word "pointed").

Lines 74-78: First, define the Atmospheric and soil droughts respectively. Also describe these few studies: "few studies concerning the soil drought threshold of pasture"

Line 79: What are the problems?

Lines 167-168: What is "constant evaporation and secondary evaporation"?

3.1.2 Could simply name this "Soil moisture balance" Corresponding figure should have cited in here.

Lines 209-210: "Pasture cannot normally survive if the level of  $D$  stays at 1 for a long time without decreasing." What do you want to say without decreasing? Long time is how long? What do you mean by normally survive?

Lines 210-211: "On the contrary" to what? I did not understand what you were comparing. On the contrary of what you expected or on the contrary of  $D$ ?

Lines 224-225: What is the "root layer"? Clarify which specific soil layers you are talking about by root layer.

Lines: 295-296: "Soil moisture in the 0-30 cm layer declined continuously in all groups after gradient processing of precipitation." What do you mean by "gradient processing of precipitation"?

Figure 3. There are 5 different layers of soil water content: 0-10, 0-20, 0-30 cm and 10-20 and 20-30 cm:

Would soil water content of 0-20 cm represent the sum or average of 0-10 cm and 10-20 cm?

Would soil water content of 0-30 cm represent the sum or average of 0-10 cm and 10-20 cm and 20-30 cm? Please clarify.

Table. 2: Why the correlation coefficients are all 1? Did you round decimal numbers? Please use at least two digits after decimal points.

Table. 4: Please explain, how did you define drought degree thresholds as light, medium and heavy and thresholds as 0.45 and 0.70? Based on what criteria?

Technical comments: Check very carefully the use of periods and commas: If you use a comma, do not start with capital letter, get a space after comma and period etc.