

Interactive comment on “Impacts of changes in vegetation cover on soil water heat coupling in an alpine meadow, Qinghai-Tibet Plateau, China” by W. Genxu et al.

Anonymous Referee #1

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Authors are touching very interesting field in very important region by valuable data gained under difficult condition. The conclusion must be very interesting to huge colleagues. Authors seem made effort to elucidate impact of vegetation by comparing soil water-thermal processes under different vegetation coverage. However, the comparison were absolutely not enough and clear, for instance, soil moisture under different coverage never mentioned. Thereby, I would like to suggest that the paper could be published after major revise.

Major comments: 1. Abstract and Introduction: the paper is entitled of "impacts

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of changes in vegetation..... The mechanism of this theme should be: Different vegetation→soil moisture, property and heat budget→thaw/freeze process, Soil moisture-T coupling and Interaction between soil and atmosphere (Ta-Ts)

Thereby, I would like to suggest authors summarize their results in abstract; and describe their motivation in Introduction;

2. moisture-T coupling should be one of key issue in this paper, it should be mention in 8220;Introduction8221; as well.

2. Study area: The works were conducted in a permafrost region and make valuable of this paper, that permafrost should be introduced in detail here.

3.1: Change the title to be 8220;Field observation8221;. What you told here not only 952; and T observation but also others 3.3: soil storage just mentioned in title but not in the txt. Show model can calculate Gs as well, isn8217;t it?

4. Results Present observational results of vegetation (grass), like season change and so on, must helpful for reader understand following analysis. PS: All analysis in the paper was based on different vegetation coverage of 93, 65 and 30Or authors build their time series by sorting the data with various vegetation coverage? In another word, e.g. the curves of 65

4.1: Both LE and H seem larger for 93

4.2: The results shown by Fig 5 and 6 were gained under 0 oC. 952;v was defined as volumetric liquid water content of soil, which was determined by frequency domain reflectometry. So, I wonder there are so rich liquid water under 0 oC, and also it so variable.

4.3.1: 916;Ta-s, actually, is parameter determining H, which implies the heating of ground to atmosphere. It may very interesting to analysis 916;Ta-s together with H.

4.3.2: I cannot follow this analysis, it is mistake understanding for the process. 916;Ta-s

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cannot alter moisture anymore but by contrast! 920;v change 916;Ta-s through altering Ts. So, it no meaning to plot Ta vs 920;v. It is reasonable to show correlation of Ts vs moisture.

4.3.3: Present thaw/frozen depth may better than the temperature.

Minor comments: 1. Clarify name of yours

2. What means of 8220; along with the amplitude of its variation 8221;?

3. The word of 8220; upon 8221; are used quite frequently in the txt, please be care its suitability.

3. Change 8220; degree of vegetation coverage 8221; to 8220; vegetation coverage 8221;

4. Unit in Fig 5 is strange 8212; MJ/m², MJ/m²d used in Txt is right but not so popular. W/m² is normal for such analysis.

5. Use 8220; freezing/thawing process 8221; instead 8220; freezing/thawing period 8221;; the later may confuse a lot of reader by 8220; frozen/thaw period 8221;.

6. Caption of Fig 8 just note left panel but no for right panel.

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 5, 2543, 2008.

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