

Interactive comment on “Growth of a high-elevation large inland lake, associated with climate change and permafrost degradation in Tibet” by J. Liu et al.

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Dear Prof. Woo

Thank you so much for your comment on our paper to HESS.

Following is my response to your comment

(1) Yes, you are correct that permafrost underlies the watershed (2) The description about Mann-Kendall test is from a textbook (3) Yes, it is figure 4, instead of figure 5 which is for monthly test (4) Variation curve means anomaly to the annual average (5)

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Indeed, the entire mechanism of unfrozen water drainage is unclear. I proposed there is a layer of the unfrozen water between the active layer and the permafrost top as increasing active layer and more infiltration before frost, when the active layer develops downward to enclose the soils if the soil temperature is not so low than 0C, the unfrozen water can flow in an alpine watershed with big slope only. I found winter streamflow increase only in the alpine watersheds with permafrost, such as in Dahinganling Mts. of northeast China, the Altay Mts. and Tianshan Mts. of northwest China, and the Tibet-Himalaya as well (from my published papers cited in this manuscript).

Interactive comment on Hydrol. Earth Syst. Sci. Discuss., 6, 5445, 2009.