

Interactive comment on “Changes in glacial lakes in the Poiqu River Basin in the central Himalayas” by Pengcheng Su et al.

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I feel this manuscript is a very interesting research with abundance of first hand data. To my knowledge, there are so many papers on glaciers and glacial lakes in Himalayas, and most are glacier and glacier lake inventory and their changes on regional scale and provide only overall statistics (e.g., Nie et al., 2014, 2017, 2018), seldom one sees detailed descriptions for theier contribution on water balance in individual lakes and glaciers . What I am most interested in is the reconstruction of the temporal changes in several lakes and their water balance calculations, which is mainly absent in glacier lakes. Involved in these points are some details I think should be further clarified: 1) the identification of glaciers and glacial lakes, especially their quantities (e.g., sizes, areas, volumes), which are crucial for the variation assertion. 2) temperature and rainfall

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data seem relatively weak in supporting the variation in glaciers and glacial lakes. No remarkable trend coincidence is established between them. The authors may consider the alternative possibilities that the effect of global warming might be little in such a small area. Then the variations may be more resulted from local conditions instead of global effects. This could be discussed in a broad scope. 3) the reconstruction of GB lake below the water level (i.e., Fig.18) is very helpful for tracing the lake changes, but the method in section 5.1 should be more detailed in briefing the technique and calculation. And it needs generalization to other lakes. 4) equations for water balance involve general realizations of glacier and snow melt water, which should be argued in more details with references. In other words, the parameters involved in Eq.6-11 are not well discussed one by one in details. Moreover, empirical parameters in relation to local conditions should be more specific to individual lakes and glaciers. 5) The water balance calculations are listed in tables, which are not well clear to reveal the correlation between water and lake variations. It is suggested that these results should be plotted with comparing curves. In summary, this work is a good contribution to the study of glaciers and glacial lakes in the central Himalayas; and its discussion on water balance can be generalized to the water resources in Tibetan Plateau.

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