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Supplementary Reply on RC2 (Methods and Glacier Area Change)

Xuejing Leng et al.

Author comment on "The Spatiotemporal Regime of Glacier Runoff in Oases Indicates the Potential Climatic Risk in Dryland Areas of China" by Xuejing Leng et al., Hydrol. Earth Syst. Sci. Discuss., https://doi.org/10.5194/hess-2021-377-AC3, 2021

Thanks again for your helpful and valuable comments on our manuscript entitled "The Spatiotemporal Regime of Glacier Runoff in Oases Indicates the Potential Climatic Risk in Dryland Areas of China" (ID: HESS-2021-377). After studying your comments carefully, we have made some corrections which we hope to meet with approval.

- First of all, we rewrite the Methods and annotate parameters correctly. As for some details we have discussed too much, such as the reasons for choosing Shean Estimation and APHRODITE, we use charts and figures to illustrate them in supplementary materials. We also add the methods to calculate the glacier area change. The revised Methods with supplementary materials are attached in the supplement.
- We add the analysis of changes in glacier areas. Glacier outlines were extracted from Landsat TM scenes in the two periods (Region1985-1995 and Region1995-2005) in each basin at the end of ablation seasons (September to November), respectively, in Google Earth EngineTM (hereafter, GEE) based on band ratio segmentation method (Guo et al., 2015; Paul et al., 2009; Racoviteau et al., 2009). The distribution of different sizes in different basins is shown in the supplements. We also add an analysis of changes in glacier area in Results.

Hope the revised version meets your requirements.

Please also note the supplement to this comment:
https://hess.copernicus.org/preprints/hess-2021-377/hess-2021-377-AC3-supplement.pdf