

Response to T. Mölg

(Original comments are in bold, our replies are in standard font.)

This is a valuable study to get a more comprehensive understanding of mass-balance characteristics in the monsoon-dominated part of High Asia. I understand that the paper focuses on observed mass-balance and related variables rather than on climatic drivers, but it would be interesting to see if the interannual mass-balance variability of the glaciers is related to precipitation conditions in the monsoon onset phase (roughly, June). This was evident in our recent case study for another "summer accumulation" glacier, which focused on the mechanistic background (Mölg et al., 2012).

Maybe you could take a look at monthly precipitation in June from the four stations in Fig. 2 and relate it to the subsequent ablation season? This is just a suggestion in case the authors wish to include 2-3 more sentences on climatic drivers. I hope the reference is helpful anyway.

Mölg, T., Maussion, F., Yang, W., and Scherer, D.: The footprint of Asian monsoon dynamics in the mass and energy balance of a Tibetan glacier, *The Cryosphere*, 6, 1445-1461, doi:10.5194/tc-6-1445-2012, 2012.

Thanks a lot for your comment. Unfortunately, our dataset could not allow us to find a clear relationship between ablation and the onset of the monsoon season (See Fig. B in our response to C. Mayer) but even though our dataset was too short to highlight this point, we agree that the monsoon onset may play a significant role to control the mass balance of glaciers in Nepal. Some sentences discussing this specific point have been added in the discussion section:

“Mölg et al. (2013) demonstrated quantitatively that monsoon onset (i.e. June mainly) strongly affects the ablation season of glaciers in Tibet, with late monsoon onset causing negative mass balances because of lower accumulation and enhanced ablation due to an increased absorption of short-wave incoming radiation. But so far no clear relationship between the monsoon onset and annual mass balances could be retrieved from our too-short dataset.”

And farther in the same section a sentence has been completed:

“It is likely that moderately negative mass balances of central Himalayan glaciers over the last decade are due to the weakening of the Indian monsoon (Bollasina et al., 2011) or a delay of the monsoon onset (Mölg et al., 2013) or a combination of both. Both phenomena may lead to higher atmospheric temperatures (and thus snowfall replaced by rainfall at glacier elevations), lower precipitation (Yao et al., 2012) and an increase in the available energy for ablation primarily through changes in absorbed short-wave radiation.”