

Interactive comment on “Region-wide glacier mass balances over the Pamir-Karakoram-Himalaya during 1999–2011” by J. Gardelle et al.

T. Nuimura (Referee)

nuimura@nagoya-u.jp

Received and published: 2 May 2013

General comments

In this paper, authors presents to evaluate mass balance in extent area over the PKH region. The DEM differentiation method used in this study is well established robust method. Therefore this is valuable and important result as validation against recent extensive mass balance evaluation by advanced/developed procedure (e.g. Jacob et al., 2012; Kääb et al., 2012). Appropriate pre-processings, developed by previous studies including authors themselves, are comprehensively well performed before DEM differentiation. The evaluated heterogeneous mass balance are basically consistent

C460

with previous studies. I also fully agree with comments by other reviewers. Therefore, I consider this paper has quality for publishing after revision about comments from reviewers.

I am also interested in off-glacier elevation change same with anonymous referee 2, Gardner, and Bolch. Showing off-glacier elevation change is helpful for reader to evaluate quality of calculation.

Specific comments

P980/L6–7 : How do you extrapolate the result to extent area? Did you consider altitudinal distribution and geographical proximity?

P984/L1–3 : Could you show standard deviation of digitized ELA in Table 2?

P986/L17–19 : Is the screening threshold for unexpected elevation change from average or median?

P987/L9–11 : Isn't there surge type glacier with small truncated part.

P987/L27–29 : Including explanation about that why you did not use all three adjacent study sites to average calculation might be helpful for reader.

P990/L1–4 : Did you calculate the 15% by simply averaging all error between user-defined and RGI glacier area in Table 1? As Cogley pointed out, RGI in Hengduan Shan needs further investigation. It could be omit for calculating average. And I also agree with Gardner that area-weighted average should be used.

C461

P991/L8 : Can you show the standard deviation of elevation change in each altitude bin as error bar in Fig.4?

P995/L21-23 : Showing numbers are helpful for reader.

P999/L8-22 : I agree with anonymous referee #2's comment that it is only loosely related and could be removed. Especially, the suggestion about that "supraglacial lakes are not appropriate indicators" is arisen suddenly here.

Stylistic comments

P995/L2,P996/L5 : Table A2 does not exist.

Interactive comment on The Cryosphere Discuss., 7, 975, 2013.