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The Cryosphere Discussions

Interactive comment on "Glacier changes and climate trends derived from multiple sources in the data scarce Cordillera Vilcanota region, Southern Peruvian Andes" *by* N. Salzmann et al.

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Many thanks for the constructive comments, which helps us to improve the manuscript considerably. Please find the replies to each point of your comments below.

Major points

1) Thank you very much for the proposed additional references. We will include them in the manuscript. Also, we will give a clearer fashion on the change in areal extent. 2) Since the dry season is not the main season for mass loss, the impact on the mass balance is relatively low, also with a potential shift towards more favorable conditions for sublimation. We will briefly take up this point in our discussion. 3) Thanks, this is

indeed a good idea and we will analyze the trends for pre 1985 and post 1985 period.

Minor points:

- abstract: we will add the quantities on glacier area extent changes.

- references: We will add the recent paper of Chevallier et al. 2011 and references therein.

- 392-1: We will mention Laguna Sibinacocha.

- 393-8: Ok, we will skip the first sentence

- Reference 'debris cover': We do not know of a reference. However, from extensive field survey and detailed satellite image analyses there is a high confidence in the statement that debris cover is not of major importance at CV. We will extend somewhat this part of the manuscript.

- 395-18: Thanks, we will change this.

- Bahr: As mentioned on p. 395, the volume-area scaling method of Bahr is currently under considerable debate. Therefore we decided to use the method of Haberli and Hoelzle only. However, if the reviewer/editor wish us to include a comparative estimate using Bahr's method, we will be happy to do so. It is unlikely, however, to significantly reduce uncertainties to values below 20-30% uncertainty, as shown by specific studies, which are already cited in the manuscript.

398 -5: Yes, thanks, we will replace it.

399-3: Ok, we will do this.

401-7: We will include more Andean studies in the manuscript (among others the references you are suggesting (Baraer et al. and Rabatel et al.). However, on a global scale we believe, that a quick comparison with the Alps is of interest, particularly because there is no other mountain region on earth with such a dense and long-term climate

and glacier observation network. Furthermore, in terms of advancing the understanding of glacier retreat, and the fact that air temperature trends in over the Alps are much stronger than over the Andes, but at the same time glacier retreat is stronger in the Andes than in the Alps, we believe this is important to mention.

Tables: We will combine the tables you are proposing.

Interactive comment on The Cryosphere Discuss., 6, 387, 2012.