

General Comments This manuscript provides a detailed overview of the synoptic and mesoscale patterns associated with a high impact snowstorm over the Andes of southern Peru and Bolivia in August 2013. The manuscript is very well organized and generally well written, although many paragraphs are quite short and could be expanded/combined. The data, methods, and analyses are all appropriate and conclusions are consistent with the results. The discussion section, however, could be strengthened considerably, as there are only a handful of other papers referenced, and comparison of results with other published literature could be beneficial. Many of the figure panels are very small and difficult to read/interpret and some enlargement could be helpful.

We would like to thank the reviewer for the comments expressed here. We agree that the discussion section can be improved and some extra literature can be included to compare our results to other works. The other reviewers also expressed their concern about the figures and we agree that they need to be updated.

#### Specific Comments

p. 2, line 2: A number of recent studies (e.g., Romatchske and Houze 2013, Mohr et al. 2014, Endries et al. 2018) have demonstrated that much of the precipitation in the central Andes of Peru and Bolivia is stratiform and not exclusively convective.

This is correct. This information must be included since most of the stratiform precipitation occur during night (Perry et al., 2014, 2017). We will add a sentence about this.

p. 2, line 23: How is the spatial distribution of snowfall clear?

We agree that this has to be developed (or maybe reworded). The revised manuscript will address this.

p. 4, line 16: Incomplete sentence?

We will rephrase this sentence.

p. 7, lines 15-19 and Fig. 6: The grey shading is somewhat confusing as there is a class of >100% and >1.0 m corresponding to grey in Figs. 6a and 6b. Suggest removing this grey class from the legend. The colors for the graduated circles are also a bit hard to interpret but this is partly ameliorated by the graduate size. Adding an inset map for the La Paz vicinity could help? It could be placed in the southern Altiplano/northern Chile?

We thank the reviewer for this remark. As remarked in the reply to the general comments, many figures need to be updated and we will gladly take into account these suggestions.

p. 9, lines 1-10 and Fig. 10: It is not clear what the ending heights (pressure or amsl) for the different panels. Please clarify.

Thank you. We will verify this.

p. 11, lines 17-20: What is the rationale in support of there being daytime and nighttime convection during this event? If no strong evidence then suggest changing "convection" to "precipitation" or "snowfall."

We realize there is not enough evidence to use the word convection. We will modify this sentence.

p. 12, lines 14-15: Again, what evidence is there to support the assertion that there was nighttime convection? Per first comment, recent work has demonstrated that nighttime precipitation across the region is mainly stratiform. Are there any manual or acoustic snowfall observations from Chacaltaya or Zongo in Bolivia?

We tried to connect lake instability with convection. But the reviewer is correct that the evidence is lacking for this claim. We will rephrase this sentence.

#### Technical Comments

We are thankful to the reviewer for pointing out the technical errors. Since we already plan a good amount of rewriting in the revised manuscript, we are not sure these errors will still be there. However, we will take into account those who will be still present.

p. 3, line 20: Consider replacing "trustful" with "reliable"?

Thank you

p. 4, line 4: s not needed in "conditions" p. 8, line 18: "analysis suggest" should be changed to "analysis suggests"

Thank you

p. 9, line 16: Avoid use of apostrophes (doesn't)

Thank you

p. 10, line 5: Period not needed after 24

Thank you

p. 10, line 7: Change "A colder lake restrict" to "A colder lake restricts"

Thank you

p. 11, line 9: Missing "of" between "relationship" and "PV"?

Thank you

p. 11, line 13: Missing "the" between "for" and "Vuille"?

Thank you

p. 12, line 16: Incomplete sentence

Thank you