

Editor Decision: Publish subject to minor revisions (review by editor) (27 May 2020)

by Xavier Fettweis

Comments to the Author:

Dear Authors,

With respect to the recommendations of the reviewer (who I would like to thank a lot), I'm happy to accept your paper for publication. However, some well justified minor revisions, requested by reviewer, are still needed that I will review afterwards myself.

All the best,

Xavier F.

Reply to Xavier F.

Dear Editor,

We are happy to know the final results of this manuscript and appreciate the reviewer's and your effort and time. Next you can read our responses to the comments of the reviewer.

Best regards,

Feiteng Wang

On behalf of the coauthorship

Review of second revision of “Applying artificial snowfalls to reduce the melting of the Muz Taw Glacier, Sawir Mountains” by Wang et al.

Samuel Morin, 24 May 2020.

Wang et al. have performed extensive modifications on their manuscript, in order to address a flaw identified during the previous review round. Indeed, the revised manuscript clearly recognize the difficulty in partitioning natural and artificial precipitation in cloud seeding experiments, and the revised manuscript provides a more balanced overview of this difficulty for the present experiment.

I have no more major reservations on this manuscript, although there are several instances, as indicated before, where I think the manuscript deserves to be improved and made clearer. I expect that the editing process following the potential acceptance of the manuscript will provide an opportunity to clarify the wording and remove potential remaining ambiguities. Please find below some suggestions and comments, which can hopefully be quickly addressed by the authors.

Re: We appreciate that the reviewer gives recognition to our revision and will respond to the comments one by one below. The modified places in the manuscript have been underlined with red lines.

Page 2, line 13: The statement “decreased by 32 to 41 mm w.e.” can be misleading. I suggest rephrasing into “decreased by between 32 and 41 mm w.e.” and propagate this change throughout the manuscript.

Re: The confusing statement has been changed and propagated throughout the context.

Page 3, line 41 to 43: the statement about ski resorts near Grenoble is totally extraneous to the topic of this publication, I strongly suggest to remove it, as it makes little sense in the logical flow of information.

Re: We have removed it from the manuscript.

Page 3, line 46: The term “administrative” is not appropriate here, I suggest deleting, or replace by a more adequate term (“technical” ?)

Re: We have changed the term from “administrative” to “technical”.

Page 3, line 57: This paragraph starts abruptly about the toxicity of cloud seeding material, without any introduction about cloud seeding and whether this has been tested for reducing glacier mass loss. I strongly suggest that some statements are added prior to this paragraph, in order to introduce cloud seeding in general, and whether this has been tested for reducing glacier mass loss in previous study (apparently not), and indicate that this is the purpose of this study. The paragraph from Page 3, line 57 to Page 4, line 63, could then be positioned at the end of the paragraph from Page 4, line 65 to Page 4, line 75. All in all, the flow of the information needs to be carefully checked, in order to guide the reader through the introduction in a meaningful way.

Re: In the beginning of the paragraph, we added “Cloud-seeding over a glacier to generate and enhance snowfall for reducing mass loss has rarely been tested in previous study”. We also re-position the original paragraph from Page 3, line 57 to Page 4, line 63 to Page 4, line 75 in the original text.

Page 6, line 117: The paragraph from Page 6, line 117 to Page 6, line 125, does not specifically belong to the subsection “3.1 Artificial-precipitation experiment” but

rather another subsection to be added before it, which could be referred to as “3.1 Meteorological radar observations”.

Re: We adjusted the structure as advised.

Page 6, line 128: “We” in “We distributed” is unclear. In previous statements, it was indicated that the smog generators were installed by the local meteorological service (Page 4, line 80 “These smog generators were set up there by the local meteorological service for artificial-precipitation tasks”). It becomes unclear whether the smog generators were installed there already, and used by opportunity to test whether they could be efficient in reducing glacier mass loss, or if they were installed specifically for the purpose of the experiment.

Re: The statement has been changed to “Fourteen silver-iodide (AgI) smog generators have been distributed along the rivers for artificial-precipitation tasks by the local meteorological service”.

Page 12, line 291: I suggest that it is always stated which AWS is dealt with, when referred to in the text. Only referring to “AWS” is unclear because it could refer to the “grassland” or “ELA” AWS. I also suggest, for clarity, that the “ELA AWS” is in fact referred to as the “glacier AWS”. I believe this will increase the overall readability.

Re: The AWS denotations throughout the manuscript have been specified and checked for consistency.

Page 16, line 361: I suggest replacing “less” by “lower”.

Re: Yes, has been replaced.