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Discussions

Interactive comment on "Sval_Imp_v1: A gridded forcing dataset for climate change impact research on Svalbard" *by* Thomas Vikhamar Schuler and Torbjørn Ims Østby

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General comments:

This paper presents a 1 km gridded meteorological dataset for Svalbard that is generated through a hybrid statistical-simple dynamical method. They downscale ERA-40 and ERA-Interim data from 1957-2017 using linear mountain wave theory for precipitation and a combination of simple 2-D and more complex 3-D interpolation for other meteorological variables such as temperature and radiation. The base methods used for this dataset have been published previously, there are only minor modifications here.

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The performance evaluation given by the authors builds on previous studies and uses snow surveys to evaluate precipitation in more detail. I find this particularly useful and a good addition to the dataset documentation. More clarification of methods and the product evaluation should be included so users have a more complete reference paper.

Specific comments:

1) Although the authors give citations to other papers that evaluate this product, it would be beneficial to have a more explicit summary of those results in this paper so they are more readily available in one location.

2) The paper needs more discussion of the differences in performance between the ERA-40 and ERA-Interim time periods using the overlap period wherever possible. This will be very useful to users of the full dataset. There is some discussion of this for temperature, but not for any other variables.

3) Are there any other snow transect data available that could be added to this analysis? It appears that another paper evaluated this product on another glacier named Hansbreen, could those data be reproduced here? Following that, it may be worth adding a spatial plot of the precipitation differences using the transects.

4) What is the specific 'simple' 2D interpolation method used in sections 2.3 and 2.5?

5) Is the code used to generate this dataset available?