

Author's response to comments of Henning Löwe

Authors

L. Leppänen, A. Kontu, H-R. Hannula, H. Sjöblom, and J. Pulliainen

Paper Title

Sodankylä manual snow survey program

Thank you for a complete and relevant review of the paper. We will answer your comments in the presented order.

We will submit a modified version of the paper after the review period. As suggested, we will modify the paper structure to include presentation of all sites, detailed measurement procedures and description of each instrument. We will add more citations, including references to this special issue. In addition, some of the measurements described in the paper are now available online. Details for downloading the data will be added to the paper.

We will include more figures and tables to show the data and add more analysis and comparison of data from different sites. We will also add detailed description of measurement procedures. However, the aim of this paper is to present the available data and be a reference for anyone who wants to use the Sodankylä snow measurements in their research.

General Comments

As suggested, we will modify the paper structure to more clearly and consistently define sites, variables, instruments, measurement protocols, and data sets. We will also modify the map to include Lake Orajärvi and Tanhua sites.

We will also add data examples of all the data sets and include analysis of e.g. spatial variation of SWE and SD from all available measurements. A short comparison with other measurement sites (Weissfluhjoch and Col de Porte) will be added.

Measurement protocols will be described in detail so that measurements can be reproduced using the paper as a guideline. We will also add better description of the used instruments with photos of the measurement systems.

Specific Comments

abstract: We will add more detailed descriptions of all the measurement sites including soil type.

p408,12: We will add Sodankylä town as well as all the missing measurement sites to Fig. 1.

p408,16: We will change the x-axis to show dates (which will not be correct for leap years).

p408,110: We will add listings of all the automatic measurements at the sites described in the paper, and include references to other GI Sodankylä special issue papers, which describe automatic measurements at other sites in FMI-ARC.

p409,l6: We will add more plots of the measurements, including the long time series of SD and SWE to illustrate possible changes in snow conditions.

Sec 3.3: We will rewrite the section with more details. We will also include the measurement spots in Fig. 1. We will also add more analysis of spatial and temporal variation in SD and SWE.

p415,l21: We will correct this.