

Comment on **essd-2021-274**

Joel Harper (Referee)

Referee comment on "The Greenland Firn Compaction Verification and Reconnaissance (FirnCover) dataset, 2013–2019" by Michael J. MacFerrin et al., Earth Syst. Sci. Data Discuss., <https://doi.org/10.5194/essd-2021-274-RC2>, 2021

The dataset presented in this paper is novel and resulted from a large work effort. These data are therefore important and have high value to the scientific community. The manuscript is well-written, well-organized, and is comprehensive. I support publication of this paper in ESSD as a strong contribution to the literature. I have a small number of minor comments.

-The data are high quality and are accessible from a reputable data repository.

-Data ratings:

>significance: excellent

>uniqueness: excellent

>completeness: excellent

Comments

line 85: I believe the 'is' should be 'are' to match plurality.

Line 134: I was confused about numbers here. Understand that it was a lot of work for a failed installation, but it seems much more straightforward to just tell us about the 48 sensors with actual records.

Line 140: could report manufacture's specs on strain of the wire. Over these short runs I would assume it's a non-issue?

Line 145: if you excavated the PVC platforms, it would be nice to know how they settled with time: i.e., did they tilt heavily to one side?

Line 157: the approximate depth, or range of depths, of the snowpit installations would be good information to provide.

Section 3.2

-while the air temp appears to have been measured hourly, the firn temps were measured once per day? Clarification would be useful because some users may be interested in high time resolution firn temps.

-were the firn temperature holes backfilled (if so, how?) or left standing air filled? This is important information to include for future data users.

Line 170: 'clearing chips' will confuse some readers. "due to accumulated drill shavings on the bottom of the hole" ...or some such.

Line 195-paragraph: appreciate this approach/section.

Figure 3:

-"...depth plus 120 days" is awkward wording that hung me up (L+T ?).

-The caption needs clarification of what the legend numbers/lines are ...e.g., "legend is sensor number in Table X".

Line 244: recognize that the scope of this paper is limited, but you mention a hypothesis that noise stems from interaction between meltwater and the borehole. This could use a bit more elaboration – meltwater dribbling down the hole somehow generates a noisy signal?

Figure 4: as w/ Fig 3, the caption could use explanation of the legend numbers.

-Overall, an enjoyable read and high value contribution.

