

Dear Editor,

Thank you for your input! We completely agree that Section 2.1 was by far too short, both as an individual section and too short to introduce the topic. We have now expanded this section by giving a brief introduction to the radar system as well as its scope and we listed details to the measurement at EastGRIP. Furthermore, we give a short overview of the course of a measurement as well as the processing to achieve an amplitude and phase profile. At the end of this section, we deal with the signal-to-noise ratio. In this way, we shifted the short description of the processing from Section 2.3 to 2.1 and focus on the melt rate analysis in 2.3.

We hope that this will make it easier for the reader to follow the logical order: 'What data?' (2.1) -> 'How to obtain melt rates from that type of measurement in general' (2.2) -> 'How did we derive the melt rate from our dataset in particular?' (2.3). This is why we suggest the structure as presented in the new version. However, we are open to change this. We tried to improve the titles of our subsection, which may also help to make this route more clear and to support the structure.

Please find attached the point-to-point response to your comments.
Again, many thanks for your support in improving this manuscript!

Best regards,
Ole and Angelika

Author's Point-to-point response

L24: to understand => of understanding

Agreed and changed accordingly

L35: the passage of => the orientation of

Reviewer 2 suggested 'passage' which we think fits quite well to describe a plate moving across a feature.

L37: is drilled => is being drilled [or] has been drilled

Changed to "is being drilled".

L38: in the course of => as part of

Agreed and changed accordingly

L89-90: This second point does not seem immediately clear, and I believe it is related to the lack of information in Section 2.1. Over which range of ice thicknesses does the ApRES radar sounding give information? I.e., from which region of the ice column are you extrapolating? Why doesn't it measure down to the base? I would suggest this be made clear in Section 2.1, so that this statement more immediately understandable.

Thanks for raising this point. You are absolutely right. This sentence was misleading and could not be understood without the information given later in Section 2.3. Since these three points are also included in Section 2.3, we decided to remove them here.

The radar measured reflections down to the ice base. However, due to weak reflections in the lower part of the ice column, noise prevents a reliable estimation of displacement for this range in depth. This was stated in Section 2.3 and is now mentioned at the end of section 2.1. We have then shortened the corresponding sentence in Section 2.3.

L90: "extrapolated to the surface (the location of the ApRES)" <= Do you mean "(from the location of the ApRES)"? I understand that the ApRES measurements are not taken at the surface, but ~8m down. This sentence as written seems to imply it is at the surface. I see this is explained in Sect. 2.3, which should therefore appear beforehand as suggested above.

Thanks! Again, you are absolutely right. With "surface", we meant the location of the ApRES. As written above, the three points have been removed as they are explained in Section 2.3. Here and in other sentences, we have replaced "surface" with "depth of the ApRES".

L142, now L147: cannot exclude that => cannot exclude the possibility that

Agreed and changed accordingly

L144, now L149: would be in average more => would be, on average, more

Agreed and changed accordingly

L200, now L204: is at place => is active

Agreed and changed accordingly

L223, now L226/227: "maximum roughness ten times larger 10^{-3} to 10^{-2} ." <= ten times larger than what? this statement is not clear. Please modify so that the reader can clearly see the values of C^i_{sw} and v_{sw} used.

We changed it this way:

"[...], for which we consider a range from the roughness of the ice shelf base of 10^{-3} to a maximum roughness ten times as large."

L241, now L245: Sentence is unclear, please rephrase.

We rephrased the sentence to:

"Large basal melting mainly affects basal sliding, as it increases the effective normal pressure."

L245, now L248: "after successful completion" <= After successful completion of what?

We changed this sentence as follows:

"[...] after successful completion of the drilling to the ice base [...]"

L258: "which we want to encourage herewith" <= Remove, not necessary.

Agreed and changed accordingly