Authors Response:

In the response letter to Valerie Maupin, you said that vertical measurements are included in Fig. 4 and Fig. 6, but only Fig. 4 presents the data. Add the same to Fig. 6.

We have adjusted the Fig. 7 (not Fig. 6, mistake in our RL) respectively.

Other editorial points. All page/line numbers refer the version with tracked changes.

P3L58: Kluskiewicz et al. (2017, JGlac, 63, 603-617) present sonic logging of WAIS Divide borehole and relevant theories, which might be of your interest.

Thank you very much! Indeed, a publication that fits perfectly in this content here. Therefore, we adjusted a sentence of our introduction: "Kluskiewicz et al. (2017) have successfully demonstrated the advantages of this method to analyse the COF in ice core boreholes."

P3L69: typo, "ist" -> "is"

Changed.

P3L72: change "CT analyses" to "X ray tomography analyses"

Changed.

P3L85: COF is already defined earlier.

Changed, now only using abbreviation here.

P6L151: Change to "= 0\deg and 90\deg"

Changed.

P8L213: Is it a typo of Fig. 2n?

Yes, Latex \ref-command adjusted to Fig. 2n.

P8 Table 1: Clarify that these values are derived from measured COF patterns (not acoustic measurements).

We adjusted the caption: "Mean, minimum, maximum calculated p-wave velocity (i.e. derived from the COF pattern and not from ultrasonic experiments, without air correction) and degree of anisotropy for each COF sample."

P9L244: at 45 m

Changed.

P10L268: "T" is not defined in this paper. Maybe "ambient temperature of -5oC"?

We adjusted this information "(\rho = 1.3163 kg\,m^-3 at an ambient temperature of T=-5°C)". Furthermore, we also added "T = -5°C" in line 147 (page 7) to be consistent.

P10L272: I think citation of Fig. 4 should be changed to Fig. 3.

No, this reference is correct as we want to refer to the azimuthal profiles and declare that there are no relative changes of these horizontal profiles but just a constant shift of the entire dataset. However, the indirect reference is misleading. To make our point clear we just added an *in* before the reference.

P17L498-499: remove 2020b reference (it is a duplication of 2021 just below).

This is only an issue of this track-changes file: Latexdiff compares the old and the new version and then needs both citations to have the old citation printed in red and the new one printed in blue. Unfortunately, the TC template then adds both references. The same appears for Monz et al 2020 and Monz et al 2021 (although they have slightly adjusted their title).
In the final version of the manuscript, it is already correct and only the peer-reviewed papers of 2021 are cited and in the references.

Figure 3: change the left panel text to "Mean velocity parallel to …."

Adjusted.

Figs. 3 and 4: the light red (or pink?) shaded areas are said in different ways to refer the same feature. Please describe it in the same way in these two figures.

No, the range is slightly different: In Fig. 3, we calculated the mean velocity and the standard deviation of all azimuths in each depth (about 80 measurements). If we would plot maxima and minima, the red area in Fig. 3b would be much larger and any curve would fit since the azimuthal variations are rather large (in contrast, in Fig 3a, no changes would appear since there is no azimuthal variation). In contrast, we want to show the full max-min range of the 4-6 measurements for each azimuth in Fig. 4.

Figure 4: spell out "respective"

Changed.

Figure 6: change the caption to "The mean grain size \phi per sample is…" and remove "and area" from the y axis level.

Changed.
As announced to the editor, we did not properly update this figure in our previous manuscript version. Now, this issue is also solved. The total number of grains slightly increases due to the adjustments in the clustering algorithm that was requested by Ms. Maupin.