

Dear Olaf Eisen,

thank you for the quick iteration on the minor revision.

Dear Martin, Ryan and Summer,
thank you for the replies, which clarified some issues. I'm aware that the holes at SP (south pole) were drilled with hot water, but I would ask you to add a few words, e.g. in the water-filled boreholes (from hot water drilling before refreezing after 2-3 days).

Thank you for the suggestion. We added
"(from hot water drilling and before completely refreezing after 2-3 weeks)" to the text.

Please add the private communication as such (e.g. NAME, personal communication, 2019). Then it is obvious where the info is coming from.

As detailed in the previous response we feel that adding the section, to which this citation would be relevant, *"would clutter the manuscript. From the current explanations it should be clear that both grain shape, orientation and fabric can have an effect on the propagation of light. As neither the current data, nor the current simulation offer the possibility to distinguish the different crystal properties, we prefer to leave these details for for a future paper."* As such the private communication was not incorporated.

Data repository: it is not a requirement, but it is greatly appreciated in the context of open science and the guidelines to make your data set publicly available. Moreover, data sets (citations, downloads) are becoming another metrics for science evaluation, so it is an opportunity for you, too.

With the previous iteration we added the following data availability section:
"A single stratigraphy is currently available from <https://doi.org/10.15784/601222> (Bay, R. (2019)). The full set of logs may be released in the future."

Best regards
Summer, Ryan & Martin