

Response to reviewer 1

We thank reviewer Howard Conway for his evaluations and comments. We have addressed the concerns and made the suggested revisions to the text and figures. Below we show the reviewer comments in black, and our response in red.

The manuscript reports new radar-detected ice thickness measurements from Glacier Schiaparelli in Tierra del Fuego. These are important and fundamental measurements from a remote site on the west coast of South America (S54.38, W70.87); measurements from the region are sparse and difficult to obtain. The study is a contribution to an international collaboration to evaluate climate variability and climate change in Patagonia and Tierra del Fuego. Ice thickness and surface elevation data from the study have been archived and are available at: <https://doi.org/10.1594/PANGAEA.919331>. This report provides details of the methods and results. The manuscript is well written and clear – nice work. As an aside, I am interested to know whether the depth of proglacial Lago Azul been sounded? If not, might that be possible to do that from a small boat in the future?

Yes, a group of scientists (co-authors of this paper) carried out bathymetry measurements at Lago Azul in April 2018. Preliminary results show a maximum depth of 60 m and the basin morphology reconstruction shows a U-shaped valley with transverse moraine ridges to the valley and glacier front.

Lines 12-13 were added in the Introduction to additionally describe Lago Azul. Further results are part of ongoing research and are material of a paper in preparation.

A question about data processing: I am surprised that a bandpass filter to eliminate high- and low-frequency signals was not mentioned in the results section. I am speculating that a filter might help improve the resolution of the bed reflection, thereby reducing the uncertainty in the bed picks. Does the software package allow you to apply a bandpass filter and adjust the bandwidth of the filter?

Yes, the software allows frequency filters. I originally eliminated low frequency noise for interpretation of the bedrock, which was made in full resolution of the radargram allowing a clear view of the reflector. However, we agree that eliminating high frequency noise improves the presentation of the image (lower resolution) in Figure 3, although it doesn't significantly improve the interpretation of the bedrock. We have added a bandpass filter to the processing flow and Figure 3 has been updated.

And two spelling corrections - Line 19: "multidisciplinary" rather than "multidiciplinary"- Figure 2 Caption "Triangulated" rather than "Triagulated"

These have been corrected.