

Response to editors

Dear editors

I have attached a revised manuscript, which includes all the recommended changes as identified in the previous response to reviewers. I thank the two reviewers again, who provided constructive feedback and recommendations for minor corrections.

In particular, the point regarding my chosen threshold for comparing with the ERA5 and AWS data. In the original manuscript I used a threshold of 50%. However, following the reviewer suggestions I compared the offset between the ERA5 and AWS when just using data where over 90% of the hourly data was available. The correlations between the two datasets remained the same, but the offset between the two records increased from 0.93 to 1.07 °C. This offset has been updated throughout the text.

Responding to the specific point (1) by the editor, I can confirm that I have updated the dating figure (Fig. 2) to include a larger suite of ions (including MSA, Ca and Cl). The intention is to demonstrate the coherence between all the species used to identify the seasonal peaks.

Regarding the second point (2) I find this is not possible. I would argue that the ability to “unequivocally” identify the source of volcanic deposition and timing of melt layers is not possible in any ice core. As stated in my review, the identification of tephra is not a simple task, and is certainly beyond the scope of this study.

The aim of this paper is to explore the potential that chemistry and isotopes from Peter 1st island are related to climate variability. I fully acknowledge the limitations of using a short proxy record in the text. However, given the unique location I feel there is value in presenting the record, despite some unavoidable uncertainties.

I hope the editor will agree that I have made sufficient amendments to the manuscript. I hope the editor can now agree with the two reviewer’s recommendations as minor revision and accept it for publication in this special issue of climate of the past.

Kind regards

Liz