

Interactive comment on “Spatial and temporal distributions of surface mass balance between Concordia and Vostok stations, Antarctica from combined radar and ice core data: First results and detailed error analysis” by Emmanuel Le Meur et al.

E. Isaksson (Referee)

elisabeth.isaksson@npolar.no

Received and published: 16 August 2017

Review of Le Meur et al.

This paper concerns new data regarding surface mass balance from interior East Antarctica, collected during IPY as part of the project TASTE-IDEA. Obtaining reliable data of surface mass balance from these low accumulation areas is very difficult and this paper takes on this challenge in a careful and systematic way. The authors have

C1

used a combination of radar (GPR) and shallow ice cores and have thus been able to achieve a good coverage of both spatial and temporal distributions of SMB during the past 600 years. The fact that this area is a possible location for a new deep ice core (Beyond EPICA-Oldest Ice project) makes this paper particularly important and interesting. It is very important to have field data for validation of models and then it is absolutely crucial that the field data are of good quality. This paper is an excellent example of such a study! It was a true pleasure to read this paper; it is exceptionally well-written, has a good structure and the data is well presented in both figures and text. In particular I like the careful consideration of the density and error analysis. In my view this paper is more or less ready to be accepted. I can only point out some editorial issues to correct- I recommend the authors to proof read the paper a little more carefully.

Editorial comments

Be consistent with the use of Fig. , Figure, Figs throughout the paper.

Examples:

o. 11.line 278 “colored dots on the figure”- which one?

p.11 line 285. “Figs1 and 2”

p. 14, line 336. Which figure?

p. 14 line 356 “Figure 4” ,

p.11 line 285. “Figs1 and 2”

- and many more.

The same issue also goes for the use of Section, Sect.

p. 9 lines 243-248. Not consistent use of CE and AD. There are many more examples in the paper so please go over and change these.

C2

p. 14, line337. "Volcano" should all be lower case.

p. 15, line 368. "Sweden" is misspelled

p. 20. Line 498. Section ?

p. 24, line 587.should be: Following Muller et al. (2010), the same problem with parenthesis on line 590.

p. 27. Line 661. Should be: late 1990ies

p. 28. Figure caption first line: should be Urbini et al. (2008), same issue for line 3.

p. 29. Figure caption: same issues with parenthesis for references as in previous caption - and actually many similar issues throughout the paper. I found particularly many in sections 6.2 and 6.3.

Interactive comment on The Cryosphere Discuss., <https://doi.org/10.5194/tc-2017-104>, 2017.