

Technical Corrections:

Dear authors,

Congratulations on your accepted publication. I would like to propose the following technical edits to your paper.

1. The manuscript itself is very well written and the updated version in particular is very clear. However, in reading through it I was a little unclear what the ultimate aim of the project here is. Are you seeking to derive an empirical relationship between SMB and air temperature? And should this be used to interpret ice core records? Or is the aim rather to make projections of SMB change based on temperature projections? I think it would strengthen your paper to add one or two sentences to clarify this at the very start of your paper before you go in to describing the different contributions to the total mass budget.

At the end of the paper you write:

“This implies that we must correct for the local processes present in each ice core record so that their spatial representativity is closer to that of the models, or models must increase their spatial resolution to better resolve wind effects, in order to improve our confidence in using SMB as a direct proxy for SAT over the entire AIS.”

So perhaps something anticipating this conclusion that directly links surface air temperature with SMB at the very start would help

In addition I noticed a few typos, missing references and I suggest a couple of English corrections:

Line 31: surpassing or outpacing but not “outpassing”

Lines 46, 196: there is a reference missing

Line 316: “such **as** the”

Several uses of the word representativity. It’s not wrong as such but it’s used more to indicate political representation in English. The word representativeness is more common for scientific publications.

I may not have caught them all so please do proof read a final time.

Congratulations on a very interesting and well-written paper!