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## ***Interactive comment on “Snow accumulation variability in Adelie Land (East Antarctica) derived from radar and firn core data. A 600 km transect from Dome C” by D. Verfaillie et al.***

### **Anonymous Referee #1**

Received and published: 15 August 2012

I read the paper and believe that it should be published as a means of placing into the record the important work that has been done to perform snow accumulation measurements along a transect in an important area of Antarctica. The paper does not present "ground breaking new ideas", but rather presents solid, informative and useful field data in a manner that is well digested.

One of the interesting aspects of the paper that I took away was the fact that it is possible to compare atmospheric model predictions of surface accumulation (technically SMB) with data such as measured on the transect reported in this study.

I don't recommend heavy revision other than to correct certain English style elements,

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some of which I've noted, but many I have not. This paper would benefit from a copy edit by the Copernicus group, as indicated on the Cryosphere website.

Specific comments:

- The paper will need to be combed through to fix several of the English usage errors that occur here and there. (There are not many, but the authors will want this addressed in a final publication.)

- on page 2 it is said that accurate mass balance can be obtained through modeling. . . “This is mainly achieved through field mass balance measurements or modeling.”

From my perspective, modeling is not a technique for obtaining mass balance. Mass balance must always be measured.

- Italo-French should be Italian-French

- in section 2.1 the “advantages” of GPR as a means of getting SMB are discussed, but what are the disadvantages? Shouldn't they also be mentioned?

- ReflexW should be trade marked not copyrighted . . . the circle-c seems incorrect as a legal trademark.

- remove the word “Sadly” . . . on page 2860. . . It is best to leave out human emotions from scientific writing. . .

- 2864 “mantenuation” should be “maintenance”

- The section preview in the introduction seems to be mis-numbered. . . discussion starts in section 4, but is said in the introduction to start in section 3. . .

- page 2868, “ondulations” should be undulations. . . also, are these undulations related to the “megadune” phenomena that is also in the literature (I am not a snow scientist, so my personal knowledge is sparser than what is needed to answer this question)?

- page 2870, I'm not sure I understand what is meant by “thus it does not respond to

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kriging” . . . this seems nonsensical (as I understand it, kriging is a statistical method of expressing variation, thus I’m not not certain what “it” in the sentence should be. . .)

- we might be better abbreviated as w.e. because “we” is also an English pronoun. . .

- 2871, one-sentence, one line paragraphs don’t read well. It would be better to simply have a list.

Date interval in Table 1 seems strange (a.m. and p.m. . . not sure that is sufficiently scientific) I’d give dates for real with real times (UTC) if the times are needed for clarity. . .

- what are A and B in Figure 6?

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Interactive comment on The Cryosphere Discuss., 6, 2855, 2012.

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