

***Interactive comment on “An improved bathymetry compilation for the Bellingshausen Sea, Antarctica, to inform ice-sheet and ocean models” by A. G. C. Graham et al.***

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Received and published: 1 December 2010

The paper presents novel data and addresses scientific questions that are relevant (as correctly stated since the abstract) and within the scope of TC. Substantial conclusions are reached with regards to the cross-shelf trough (inadequately imaged by previous bathymetry) and the results are sufficient to support the interpretations and conclusions. The scientific methods and assumptions are valid and adequately outlined. The authors give proper credit to related work. However, along the references to bathymetric compilations contained in the caption of fig. 5, I would include also Rebesco, M., Camerlenghi, A., Zanolla, C., (1998) Bathymetry and Morphogenesis of the Continen-

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tal Margin West of the Antarctic Peninsula, *Terra Antarctica*, 5 (4), pp. 715-725, since it already reproduced the cross-shelf morphologies west of the Antarctic Peninsula. The title clearly reflect the contents of the paper and the abstract provide a concise and complete summary. The overall manuscript is well structured and clear, with a fluent and precise language.

I agree with the short comment by Stewart Jamieson that the ridge in northern George VI trough has to be discussed. It is similar to the ridge at the grounding line of the Ferrigno Glacier shown in fig. 2). Are both features real or artefacts?

I am also curious about the fact that the Belgica Trough is widening close to the shelf edge. Convergence in the inner shelf is described, but this widening is not discussed and I wonder if this is produced by a sort of divergence or lateral migration.

Finally: -in the caption of fig. 4 c: the reference to location in fig. 2 is missing; - Vertical accuracy in table 1. In noted it is reported "1-8 m" with reference to Dowdeswell et al., 2010. However that paper reports 1 m of vertical accuracy. It is hence not clear where "8" comes from. - the reference to Jenkins et al., 2010 does not appear in the text. - pag. 2085, line 3: not clear what "amplitude" means. - pag. 2090, line 3: "that WERE? Occupied..."? - pag. 2090, line 19: "...cross-shelf troughs that were ... repeatedly channelled arteries of ice flow...?"

Interactive comment on The Cryosphere Discuss., 4, 2079, 2010.

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