

Interactive comment on “Deglaciation and future stability of the Coats Land ice margin, Antarctica” by Dominic A. Hodgson et al.

A. Hein (Referee)

andy.hein@ed.ac.uk

Received and published: 26 April 2018

This manuscript integrates a wide range of published and unpublished datasets (of different vintage and source) to build an impression of bathymetry off the Coat’s Land margin on the eastern side of the Weddell Sea embayment, Antarctica. The data derive from multibeam echo sounder measurements obtained during several different cruises, regional bathymetry from the International Bathymetric Chart of the Southern Ocean, and a new 500 m regional grid of bathymetry near the Brunt Ice Shelf and Stancomb-Wills Glacier Tongue. The latter was derived from a range of datasets that measured sea floor depth, including seismic soundings, historical ship tracks inland of the present ice-shelf front, and single-beam echo sounding measurements. A geomorphological investigation of the new bathymetry data, supplemented by data

Printer-friendly version

Discussion paper



from sub bottom profilers, seismic reflection surveys and radiocarbon dated sediment cores, is then used to build an understanding of the process and timing of ice retreat off the Coat's Land margin following the last glacial maximum. The authors find the Coat's Land glaciers merged with the palaeo-Filchner Ice Stream at the LGM, after ~ 24 cal kyr BP. They also suggest four phases of ice retreat that include the establishment of ice shelves. The data provide new insight on the evolution of this margin of the Antarctic Ice Sheet following the LGM, and insight on the future stability of ice along this coast. This is an impressive amount of diverse data coming together to shed new light on ice history along the Coat's Land margin. In my view the conclusions are reasonable and are based on sensible interpretations of the data. Therefore, I recommend it be published with only minor changes (see attached document under "Supplement").

Please also note the supplement to this comment:

<https://www.the-cryosphere-discuss.net/tc-2018-9/tc-2018-9-RC2-supplement.pdf>

Interactive comment on The Cryosphere Discuss., <https://doi.org/10.5194/tc-2018-9>, 2018.

[Printer-friendly version](#)

[Discussion paper](#)

