The Cryosphere Discuss., 7, C1082–C1084, 2013
www.the-cryosphere-discuss.net/7/C1082/2013/

The Cryosphere
Discussions
Open Access

Interactive comment on "Tidally-induced velocity variations of the Beardmore Glacier, Antarctica, and their representation in satellite measurements of ice velocity" *by* O. J. Marsh et al.

O. J. Marsh et al.

oliver.marsh@pg.canterbury.ac.nz

Received and published: 15 July 2013

We thank the reviewer for their comments and have investigated the t_tide package for tidal analysis. Using this software we are able to identify tidal components with high signal to noise ratio at GPS-2 and GPS-3 but the signal is too small at GPS-1 and the data is too sparse at GPS-4. We have included a figure showing the phase of the tides at these two sites related to the CATS_2008opt tide model, similar to Figure 3 from Gudmundsson (2007) and showing the same general patterns as at the Rutford Ice Stream. As expected we could not solve for both MSf and Mf with a high degree of confidence, although could solve each component independently. We have

restructured some sections in line with reviewer #1s comments and elaborated on our methods, particularly relating to the tidal analysis.

Interactive comment on The Cryosphere Discuss., 7, 1761, 2013.

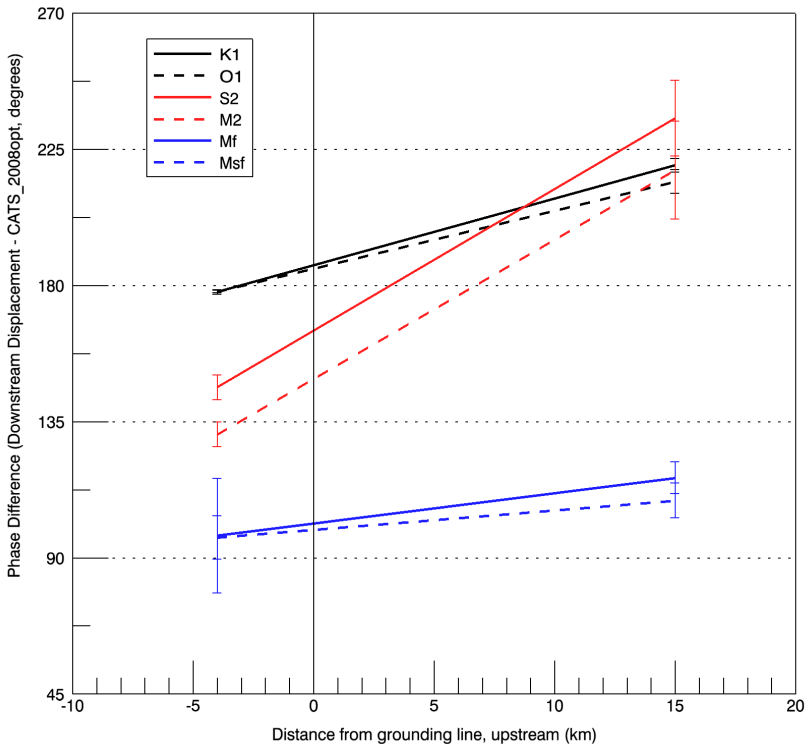

Fig. 1. Phase difference between measured horizontal displacements at GPS-2 and -3 and modelled vertical ocean tides from the CATS_2008opt tidal simulation (Padman et al., 2008).