

Response to Interactive comment: “Characterizing Arctic sea ice topography using high-resolution IceBridge data” by A. A. Petty et al.

Reviewer comments in black, our responses are in blue.

A difference document is also included as an author comment highlighting the changes made based on the reviewer comments (PETTY2015_TCD_DIFF.pdf).

Anonymous Referee #2 Received and published: 11 March 2016

Petty et al. present an in-depth analysis of Arctic sea-ice topography data and associated geophysical parameters, for example height and volume of ‘features’ (ridges and keels above and below the surface) and their spatial and temporal variability, as best as their data set allows. The authors perform a rigorous and thorough examination of Operation IceBridge data collected off the Canadian and Alaskan Arctic, between 2009 and 2014. The methodology is complex, but well presented/structured and comprehensible. The work addresses one of the most pressing research questions with respect to the state of the sea-ice environment: it’s three-dimensional structure. While I echo the comments provided by Reviewer #1, I have only a few additional remarks.

We thank the reviewer for taking the time to read through the manuscript and providing the following comments.

An editorial suggestion: It is common convention to hyphenate ‘sea-ice’ when followed by a (for example: topography, cover or surface). The authors were consistent (using no hyphen) throughout the manuscript, however I’d encourage to consider changing the spelling.

We appreciate that hyphenating sea ice is the correct English to use in those circumstances, but have decided it is more appropriate to keep sea ice unhyphenated. This was chosen to be consistent with other studies and the convention used in other papers/reports (e.g. the IPCC reports).

Figure 2 is not discussed in the manuscript (only referred to in the caption of Fig. 3 and in section 4.3). It is an informative/necessary figure, but could be moved to the supplement.

The winds are also referred to in Figure 4.2, where we discuss the coastal dependency. We have also added the following line to the data section to introduce the data coverage figure:

P6 L18-19: ‘The IceBridge sea ice data coverage over the western Arctic from 2009–2014 is shown in Figure 2.’

page 6513 line 27: replace ‘proceeding’ with ‘preceding’?

Thanks, we have changed this in the revised manuscript.

Thoroughly double check the List of References again.

We have gone through and made corrections to the reference list.