The Cryosphere Discuss., 6, C2127–C2130, 2012
www.the-cryosphere-discuss.net/6/C2127/2012/
© Author(s) 2012. This work is distributed under
the Creative Commons Attribute 3.0 License.

The Cryosphere Discussions

Interactive comment on "Variability and trends in Laptev Sea ice outflow between 1992–2011" *by* T. Krumpen et al.

T. Krumpen et al.

tkrumpen@awi.de

Received and published: 6 November 2012

Dear Reviewer 1,

we very much appreciate your feedbacks and comments on our manuscript.

Please note that reviewer Nr. 2 was missing a more in depth description of the methodology section. Therefore, some parts were modified and reformulated.

Please find our answers and revised sections (in latex format, marked with ". . .") to the questionnaire below.

Again, many thanks for help! Best regards

Thomas Krumpen

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

****
****
****

Comment: 2893, 13: “consideration of” instead of “to consider”

Answer: Changed

Comment: 2894, 10: “have” 2895, 16: “time-lagged”

Answer: Changed

Comment: 2895,22-23: the limitations near-shore region is primarily because of the low spatial resolution of the sensor data used for the ice motion retrieval, correct? This would be worth mentioning.

Answer: That’s correct and was added: “In particular during winter months, when the atmospheric moisture content is low and surface melt processes are absent, the quality of the drift estimates is high. Restrictions may arise from the spatial resolution of the sensors in near-shore regions characterized by a complex coastline, extensive fast ice areas and polynyas.”

Comment: 2896, 8-10: reference, using the recommended citation, the NSIDC data (and the others if provided)

Answer: Section has been modified. See also comments from reviewer 2. We now provide correct reference to the NSIDC data.

Comment: 2896, 15-30: I find it interesting that there are differences in bias between the V and U components for the iFremer vs. ADCP and vs. SAR – in one the bias is higher vs. ADCP but lower for the other component. I’m talking about Figure 2. This is interesting and I’m wondering why? Why should the relative bias change depending on the component. I suspect it may be due to the grid and the mean motion relative to the grid, but I think this is worth a bit of discussion. Also, in Figure 2, the linear fit lines

TCD

6, C2127–C2130, 2012

aren't explicitly noted in the caption. It's not too hard to figure out the which is the solid line and which is the dashed line, but it would be good to put it in the caption anyway.

Answer: Yes, we agree that discussion on accuracy of IFREMER drift estimates became relatively short. Reviewer 2 argues that probably the comparison may contain some uncertainties due to the limited number of data points, and the upscaling problem if comparing drift estimates of low resolution (Ifremer) with high resolution ADCP data. In agreement with reviewer 2 we concluded that because of these limitations it is not possible to draw conclusions out of the differences in linear fits, other than the general validity of the IFREMER dataset. This topic is now included in the manuscript. Please also note that the outline of the data section was changed. The linear fits in Figure 2 are now mentioned in the caption.

Comment: 2898, 5: "higher than" instead of "above"

Answer: Changed

Comment: 2898, 20: I'm wondering why Fram Strait flux is from a different paper? Is it the same data set? If so, then that's reasonable. But if it's a different data set, it seems like you may not be comparing consistent numbers/methods, and I wonder why not just use the iFremer data set used for the Laptev?

Answer: Good point. I was recently trying to extract Fram Strait fluxes using IFREMER data myself. However, a problem with using the IFREMER dataset in near Fram Strait areas is the low spatial resolution of the drift dataset. Areas like the Laptev Sea do have a high drift vector coverage. Not so in the Fram Strait. During some monthes, there is hardly any information available, while if present, it seems that it underestimates drift. Thats why we have to refer to a paper that used a method other than the one presented in our manuscript. However, note that Smedsrud 2011 compares his flux estimates to SAR based drift vectors. Therefor we believe provided Fram Strait fuxes to be relatively accurate.

TCD

6, C2127–C2130, 2012

CC BY

Comment: 2899, 14 and 27-29: Figure 8 is reference before Figure 7, and 7b is referenced before 7a. The figures should come sequentially in the text.

Answer: Thanks for hint. Figure numbers were changed. 7a is now referenced before 7b and 8.

Comment: 2902, 23: “calculations” – you mean “model calculations”, correct?

Answer: Yes, correct. Changed.

Comment: 2908, 16: SSM/I is a sensor on DMSP platforms, not Nimbus-7. Nimbus-7 carried SMMR.

Answer: Thanks, this has been changed.

Comment: 2908, 28: no comma after “February”

Answer: Changed.

Comment: 2911, 9: “mesoscale”

Answer: Changed.

Comment: Figure 2 caption: see note above about describing the linear fit lines

Answer: Thanks, added.

Comment: Figure 3 caption: missing “s” at the end for “boundaries”

Answer: Changed.

Please also note the supplement to this comment:
http://www.the-cryosphere-discuss.net/6/C2127/2012/tcd-6-C2127-2012-supplement.pdf

---

Interactive comment on The Cryosphere Discuss., 6, 2891, 2012.