

Interactive comment on “Heat loss from the Atlantic water layer in the St. Anna Trough (northern Kara Sea): causes and consequences” by I. A. Dmitrenko et al.

Anonymous Referee #1

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Review of manuscript by Dmitrenko et al., “Heat loss from the Atlantic water layer in the St. Anna Trough (northern Kara Seas): Causes and consequences,” submitted to Ocean Science Discussions.

I reviewed this paper for Ocean Dynamics 3 times. In my last review, I made these comments:

(i) I asked that the authors change their abstract to more accurately reflect their inability to conclusively attribute heat loss to shear instability. They have done so in this latest version.

(ii) I asked the authors to estimate the uncertainty in their heat loss estimates in Section C62

4.2 based on undersampling. They have responded with an estimate of the uncertainty in their estimate of the horizontal temperature gradient of 1 degC / 10 km. I have two comments: First, I would like to see how they estimate this (presently it is “not shown”). Second, I am still looking for an estimate of the uncertainty in the vertical heat flux owing to spatial undersampling.

Also, the final paragraph in Section 4.2 discusses many ideas, but I cannot find a conclusion. Can you summarize your thoughts at the end of this section?

(iii) My final comment from the previous review was that your stated plans for another paper on the same subject using a different model implied that you might be covering the same material twice. Well, we will have to wait and see about that.

I have no further comments.

Interactive comment on Ocean Sci. Discuss., 11, 543, 2014.