

Interactive comment on “Comparing the steric height in the Northern Atlantic with satellite altimetry” by V. O. Ivchenko et al.

Anonymous Referee #3

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This paper examines the relative contributions roles that temperature and salinity play in the North Atlantic using dynamic height anomalies from Argo profiling buoys data. In addition, the authors compare these contributions with dynamic topography anomalies using satellite altimetry (TOPEX/Poseidon and Jason).

I found this paper very interesting and worthy of publication. The discussion and conclusion sections of the manuscript were short and precise, which I like. I found no problems with the science. However, there are a few points that need to be made clearer. These are as follows:

Major Points

1) Page 445, line 19 the equation error estimates for trends:

1a) Although I am not a statistician, I think the equation should be “n-1” years not “n” because you are using a standard deviation of the field not the variance of the field. I may be wrong but please check.

1b) r^2 should be r^2 .

2) Page 447, lines 9 to 12 Section 3.2: I found the sentence (i.e., The “temperature only (or “salinity only”)...) very confusing and difficult to read. Please make it clearer.

3) Page 449, line 17 the authors mention a 5 point low pass filter, this is meaningless as it is not clear what the temporal resolution of the Agro float data is. In addition, was the 5 point low pass filter applied to the full Agro float data or just Agro 50% data, this is not clear. Also, was the 5 point low pass “mean” or “median” filter ? I would prefer a median filter because all filtered values are still real numbers!

Minor points

1) Correspondence email address should be `voi@noc.soton.ac.uk` not `voi@soc.soton.ac.uk`

2) Page 446, line 20-23 rearrange the sentence so that the information in the brackets (that is, “i.e., 2000-2004; 1999 was excluded because salinity..”) is at the end of the sentence, it reads a lot better.

3) Mention the temporal resolution of both Altimetry and Agro float data in Figure 2, and that a 5 point low pass filter is used for the Agro 50% float data.

4) Label the x axis in Figure 4

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