

Interactive comment on “A global comparison of Argo and satellite altimetry observations” by A.-L. Dhomps et al.

Anonymous Referee #1

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Review A Global comparison of Argo and satellite altimeter observations by Dhomps et al.

This paper performs a global comparison of two very important data sets: Argo and Altimeter. The main interest of the paper is to demonstrate that both observations can be combined and with that, increase the global data coverage of the upper kilometer of the world ocean, This is not the only paper doing so, however, it is always good to have another point of comparison.

With no doubt, the correlations between the two fields are going to be an improvement towards those that the authors compare with (GLL05 as they call it). Argo provides salinity and they go deeper than the XBTs. Papers like this one are needed. Before it is accepted for publication, I would suggest that the following comments are taken into

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consideration:

Section 2. Data and methods: First paragraph. Not clear at all. Why did they do that? Why not to get directly the latest full qc data set? By the time they get the second period, be sure, the qc of the first period was already improved. They should use the edited latest data delayed mode data for the whole period.

Section 3. I have a couple of concerns with respect to the analysis. It would be good to show the density of the Argo data (this can very easily obtained from the Argo web page). Correlations are done using averaged fields which already introduce errors. In addition there are regions with low correlation that I believe may correspond to regions where the density of Argo profiles is very low. Examples are southwestern Atlantic (density 50%) correlation 0.4. This may lead to erroneous interpretations. We need a better explanation on the smoothing of the data (first paragraph under 3) “Correlation coefficients between all collocated...” collocated in time and space? That big of an area? I’m not clear about the radius of influence of the ellipse? They find regions where correlation is low. It is attributed to the influence of deep baroclinic and barotropic signals. This could be correct (in addition of the fact of low density data) It could be easily proved: The signal of the altimeter minus the signal from the Argo data is the barotropic. They can try to verify that.

Section 4: Removing the effects of the seasonal signals. Here I am at lost. Please explain in better. We are talking Lagrangian (or quasi Lagrangian observations here). You filter the data along the trajectory? This needs more explanation in order to believe the conclusions.

In summary, I agree, that this is an interesting work. However, a much better explanation is needed on the treatment of the data to believe in the conclusions.

Interactive comment on Ocean Sci. Discuss., 7, 995, 2010.