

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

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Section 2. Data and methods: First paragraph. Our study has been performed in two times: first the study of the 2001-2007 periods, and then the decision was made to include the year 2008. Instead of uploading the full data set again and reprocessed the full data set again, we have decided only to add the year 2008 and to keep the 2001-2007 datasets as they were in September 2008. We are aware that the Argo data sets is “alive” and that the QC of the first period would have been improved if uploading again in January 2009. Nevertheless, there are only 4 months separating September 2008 and January 2009 and since delayed-mode procedures are long and slow processes, we did assumed that only a very small fraction of the datasets has been modified during this period.

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Section 3. Correlation between Argo and altimeter observations The density of the Argo data used in this study is provided in two figures. The first one (Fig1) shows the number of T/S profiles available in  $1^\circ \times 1^\circ$  boxes for the 2001-2008 period (the color scale ranges from 0 to 50). Even if the coverage is almost global some blank areas still remain and only 15 to 20 observations are available in  $1^\circ \times 1^\circ$  boxes. The second figure (Fig2) shows the number of T/S profiles available for the calculation of the statistics (correlation, regression) using observations in a  $5^\circ$  longitude by  $2^\circ$  latitude radius of influence around each  $1^\circ \times 1^\circ$  grid point. The  $5^\circ$  longitude by  $2^\circ$  latitude radius of influence of the ellipse has been chosen in order to have enough observations ( $> 500$  in most part of the ocean) to increase the confidence on the estimations. Correlations are computed using instantaneous DHA and SLA collocated pairs in time and space (see end of section2: Finally, SLA maps are interpolated to the time and location of each in situ DHA measurement using a linear space/time interpolation.). We don't use averaged fields. The sentence "They were then averaged on a . . ." is misleading and will be replaced by "Correlation coefficients between all collocated SLA and DHA time series were first calculated on a  $1^\circ \times 1^\circ$  horizontal grid using observations available in a  $5^\circ$  longitude by  $2^\circ$  latitude radius of influence around each grid point."

We don't really understand the following comment, could you specify?: "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." We have computed altimeter minus Argo signal, as seasonal means for the 2001-2008 periods, see Fig6.

Section 4: Removing the effects of the seasonal signals. Yes, SLA and DHA time series have been filtered along the float trajectories using a temporal low pass filter that is to say considering it as a fixed platform. Except in high variability regions and in the ACC, Argo floats are slow moving platform and usually stay in 'seasonally' consistent regions. We thus believe that our assumption is correct and that our method is effi-

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cient to separate intra-seasonal and mesoscale signals from seasonal and interannual signals.

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

**OSD**

7, C298–C302, 2010

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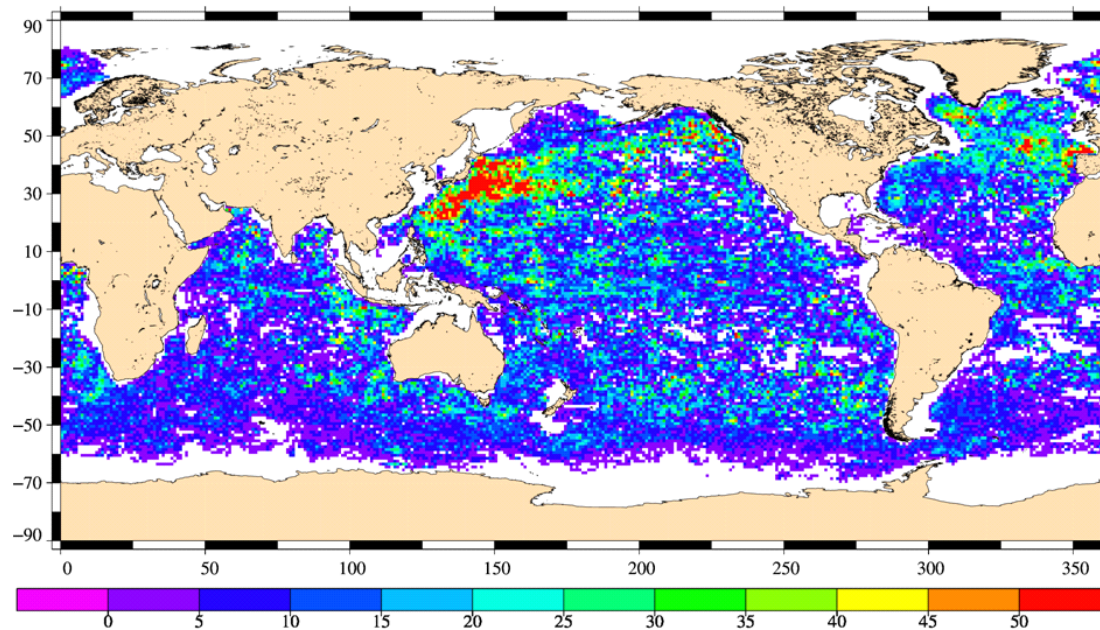
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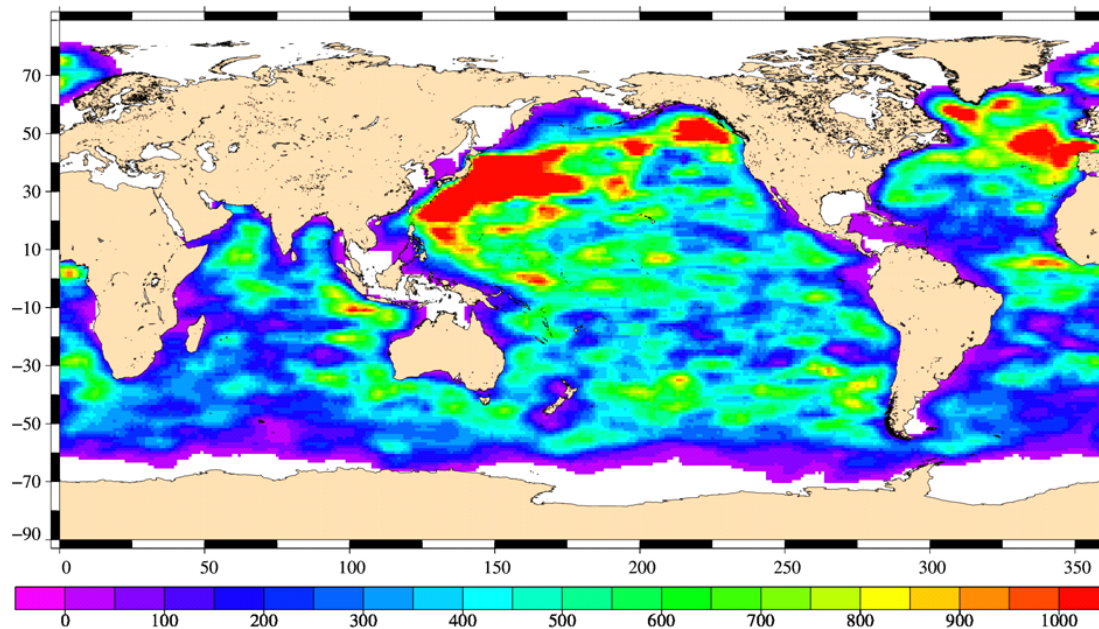
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**Fig. 1.** Number of T/S profiles available in  $1^\circ \times 1^\circ$  boxes for the 2001-2008 period and valid up to 1000 m

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**Fig. 2.** Number of T/S profiles available for the calculation of the statistics using observations in a  $5^\circ$  longitude by  $2^\circ$  latitude radius of influence around each  $1^\circ \times 1^\circ$  grid point

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