**Ocean Science
Discussions**

Interactive comment on "Mesoscale variability of water masses in the Arabian Sea as revealed by ARGO floats" *by* X. Carton and P. L'Hegaret

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Firstly we thank both referees for their detailed and in-depth analysis of our paper. We are presently working on a major revision to provide a new version of the paper which will be sent later. Here we list how we will answer the referees' remarks in this revised version. Since the two reviews contained similar remarks, we answer both of them simultaneously.

A) A better correlation of the float motion with bottom topography, surface and deep currents, and coastal features, should be provided.

Firstly, we are presently analysing the float motion in terms of histograms of individual displacement (via short segments), and then in terms of spectra for this motion. We

will also analyse the loops in the trajectory by calculating their radii and periods and by calculating histograms of these values.

Once this is done, we will provide a finer and more quantitative correlation of float motion with

a) sea level anomaly and bottom topography by calculating angles between the float trajectories and the isobath or isolines of SLA. The time series of these angles will be provided for each float and will be described in terms of the major events in the course of these trajectories.

b) the deep flow: we will calculate geostrophic currents from climatology and a deep level of no motion. If possible we will extract deep flow fields from numerical model output in the region and calculate spectra that we will compare with the float motion spectra.

c) the coastal features: we will provide information on the seasonal features which are dominant in the coastal areas of the domain and try to correlate them with the float motion when the float enters these areas. In particular, we will identify on an introductory map the location of upwellings and fronts.

d) PGW and RSOW: emphasis will be put on the identification of the pathways of PGW and of RSOW identified by the float measurements and a comparison with previous results (in the literature) will be provided.

e) mechanisms for the float motion: their identification will result from the analysis above (which correlation is the strongest between float motion and the other dynamical elements ?)

B) Improve the quality of maps and provide a more clear description of each map

a) we will improve the quality of altimetric maps (postscript plots from metafiles instead of ferret gif images). We will increase the size of the titles and labels on each plot.

b) we will cut the float trajectories into shorter segments which can be more easily compared with the instantaneous altimetric maps (they will be superimposed); for each segment, the starting point, the end point and the direction of the drift will be added

c) we will insist on the most striking events in the text and select the corresponding figures

d) an introductory map of the region will be provided (a bathymetric map, a map of water masses at several levels, and finally a map of the previously observed, and recurrent, circulation patterns and mesoscale features).

C) Individual comments

Finally each individual comment concerning a specific figure or comment in the text will be adressed once the major revision is carried out.

This process will lead to the submission of the revised version to Ocean Science.

Interactive comment on Ocean Sci. Discuss., 8, 1369, 2011.

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