

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

**Anonymous Referee #1**

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This study describes the movement of ARGO floats according to SSH anomalies in the Arabian Sea. Although most of the trajectories can be associated to surface mesoscale eddies at the 200 km scale, some are related to either deep water movements or topographic influence or coastal forcing. This study provides some information on the water masses at play in the Arabian Sea and their distribution. Although the description the connection between float trajectories, water masses and SSH is accurate, the correlation with other features such as deep water movements, topography and coastal features is weak, as they stand as the default reason if the correlation with surface mesoscale features fails. Maybe more effort could be put in tracking down the former correlations in a revised manuscript.

General comments

C693

I suggest here general improvements to the figures that will greatly improved the clarity of the manuscript. 1. This manuscript needs an introductory map of the region. I had to google maps in order to understand the introduction and the geography of the region. 2. Floats trajectories need to be better labeled: one specific label for the starting and final point and number of days at each star location. That will greatly facilitate the reading of the text and the figures

Specific comments

Page 1371 Line 5: where do the surface oceanic currents form a cyclonic gyre? Line 10: the longitude and latitude units should be the same between the figure and the text. Line 25: why do the authors say that the other details of the trajectory must be attributed to deep water mass characteristics. Why not topography? Can the bathymetry on the maps be used?

Page 1374 Line 24: Where do the authors see a strong northwestward flow on the map of 23 November 2005 ?

Page 1377 Lines 17-18: is this an assumption or a hypothesis? Is that the explanation of the mismatch between float and altimetry? Please clarify.

Page 1378 Line 9: I’m not sure about the direction of the trajectory. Is it southwestward instead and then northeastward?

Page 1379 Lines 22-23: how can the influence of topographic features be shown?

Page 1380 Lines 4-6: do the authors have any previous results or references to substantiate the fact that deeper and cold water masses correspond to eddies or fragments?. Where do they originate from? Regarding the upwelled cold water, are there references on upwellings in that region?

Line 20: explain what is the front of Ras al Hadd?

Technical comments Titles and labels on sections and SSH map should be bigger.

C694

The quality of ferret images should be improved by getting the metafile instead of the gif image and removing the data link from the plot. From the metafile, the postscript file can be produced with a better image quality.

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