Ocean Sci. Discuss., 6, C1059–C1061, 2010
www.ocean-sci-discuss.net/6/C1059/2010/

Ocean Science Discussions

Interactive comment on "Mediterranean subsurface circulation estimated from Argo data in 2003–2009" *by* M. Menna and P. M. Poulain

M. Menna and P. M. Poulain

mmenna@ogs.trieste.it

Received and published: 10 February 2010

1. Referee #1 suggests to provide more evidence to support our conclusions. We provide this evidence in the revised text. 2. Referee #1 suggests to discuss more in detail the hypothesis of a vertical linear velocity shear. We decided not to take into account explicitly the velocity shear and to consider the extrapolated surface positions (XAE,YAE), (XDS,YDS) to compute pseudo-eulerian statistics. More details about this conclusion are explained in the answers 1 and 2 to Referee #2.

Minor comments:

1. Term 'subsurface' and LIW core depth. Referee #1 suggests to avoid the term 'subsurface' with 'LIW core depth' or some equivalent. We accept this comment but

Full Screen / Esc

Printer-friendly Version

Interactive Discussion

Discussion Paper

prefer not to use the term ‘LIW core depth’. As explained in the text, the depth of 350 m was chosen because, according to the traditional knowledge, LIW sinks to a depth between 200 and 500 m and its core is located around 350 m. Moreover, a recent study on Mediterranean floats salinity data (Notarstefano and Poulain, 2009) recognizes the ‘LIW core’ (salinity maximum) close to the surface in the Levantine basin, at 300–350 m in the centre of Mediterranean Sea and deeper then 350 m in the Liguro-ProvencÂÿal basin. From these results it can be said that the velocities at 350 m depth follow the ‘LIW core’ in the central Mediterranean (Ionian Sea), are located below the ‘LIW core’ in the eastern basin and above the ‘LIW core’ in the western basin. For this reason, we prefer to use the term ‘intermediate current’ or ‘intermediate circulation’ to refer to the currents at 350 m.

2. The text has been modified according to the other minor comments. Some comments follow:

âĂć NKE electronics is the manufacturer of the Provor floats. âĂć The ratio EKE/MKE is useful to provide the energy distribution between mean constant and fluctuating currents in the Mediterranean Sea. This ratio, and by the way all the pseudo-Eulerian statistics, are not sensitive to the methods used for estimating the subsurface currents. âĂć In general Argo floats are not equipped with DVL since the main objective of Argo is to measure CTD profiles with a maximum number of floats. âĂć Table A1. The Cost Function is an non-dimensional quantity because it is actually the squared difference between the extrapolated and observed positions, divided by a standard deviation squared; âĂć The Alboran Sea and the extreme eastern part of Mediterranean are not included in the domain and figures because there are no data in those regions and we prefer to emphasize the covered areas.

Please also note the supplement to this comment:
http://www.ocean-sci-discuss.net/6/C1059/2010/osd-6-C1059-2010-supplement.pdf

OSD
6, C1059–C1061, 2010

Interactive comment on Ocean Sci. Discuss., 6, 2717, 2009.

OSD

6, C1059–C1061, 2010

Interactive Comment