Comments answers:

Referee #2.

1. Error estimation of subsurface currents

We agree with Referee #2 when she/he writes that ‘the skill is not necessary well correlated with the accuracy of extrapolation’. For this reason, we tested the extrapolation method with actually known positions (according to Park et al., 2004). The results are as follows:

We have examined the error of the extrapolating surfacing and diving positions, removing the first and last fixes and using the extrapolation procedure to make an estimation of these positions from the remaining observations. We selected for the test only the cycles with more then 5 observed positions, to make the extrapolation with 3 observed positions at least. The selected cycles are divided in different classes according to their skill interval. Test results are shown in Table 1:

Table 1. Variation of extrapolation error with skill.

Skill interval	Error (km)	Number of cycles available for test
0.5-0.6	2.41	79
0.6-0.7	1.97	112
0.7-0.8	1.33	180
0.8-0.9	**1.21**	425
0.9-1	**1.19**	1838

With the increase of skill, the error between extrapolated and observed positions decreases. From these results we decided to consider, in order to compute diving and surfacing positions, a dataset composed by all consecutive cycles with skill larger than 0.8.

2. Drift computation during ascending and descending

Referee #2 recommends to not increase the error in our estimation of the positions at 350 m depth, by adding the drift during ascending and descending. For this purpose, we decided to calculate the differences in kilometres between surfacing and diving extrapolated positions $((X^{AE},Y^{AE});(X^{DS},Y^{DS}))$ and the respective positions at 350 m (departure (X^{DPS},Y^{DPS}) and arrival (X^{DE},Y^{DE}) positions at parking depth) obtained through the application of a vertical linear velocity shear. The results are shown in Table 2:

Table 2.

Skill interval	(X^{AE},Y^{AE})- (X^{DPS},Y^{DPS})	(X^{DS},Y^{DS})- (X^{DE},Y^{DE})
0.8-0.9	2.02 km	3.5 km
0.9-1	2.32 km	5.0 km

The differences have the same order of magnitude of the error between extrapolated and observed positions (Table 1). From these results, we concluded that the application of shear actually represents an additional source of error in the estimation of the positions at 350 m, which is comparable to the surface extrapolation error. As a result, we decided not to take into account explicitly the velocity shear and to consider the extrapolated positions (X^{AE},Y^{AE}), (X^{DS},Y^{DS}) to compute pseudo-eulerian statistics.

3. Meaning of mean and variance in each bin:

As suggested by Referee #2, we provided also the standard error of bin-averaged velocities (Figure 1). The degrees of freedom in each bin are equal to the number of observations in the bin. The maximum value of the standard error is 3.9 cm/s, achieved in a bin with less then 5 observations. Due to the non-uniform temporal distribution of the data in the bins, the interpretation of standard error is not straightforward. We can only state that the strong currents are in excess of their standard errors. The text has been modified to discuss this error issue but for clarity purpose, the standard error ellipses have not been added in the mean flow map.

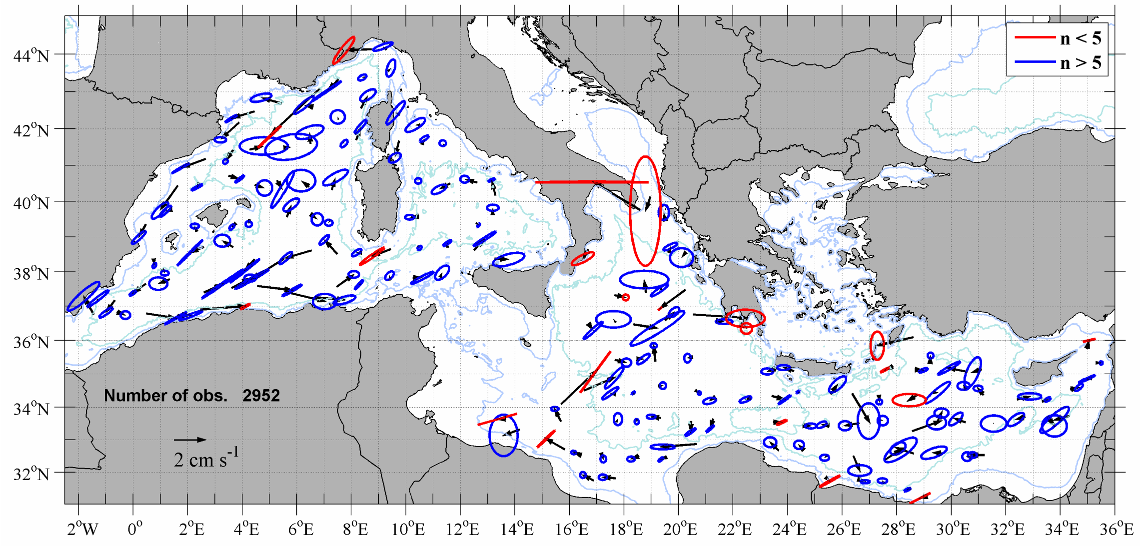

Figure 1. Mean intermediate currents and standard error ellipses computed from float data.

4. Following bathymetry

Since relative vorticity is relatively small and f can be assumed constant over the limited Mediterranean domain, isocurves of potential vorticity coincide approximately with the isobaths. We show that , by conserving potential vorticity, the intermediate flow has a tendency to follow the bathymetry (that is, to be along isobaths, especially in areas with strong bathymetry gradients like the continental slope). This is explained in the new text.

5. Linkage with water mass distribution.

As explained in the revised text, a recent study using Mediterranean float 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 central Mediterranean Sea and deeper than 350 m in the Liguro-Provençal basin. The LIW depth distribution is shown in Figure 2.

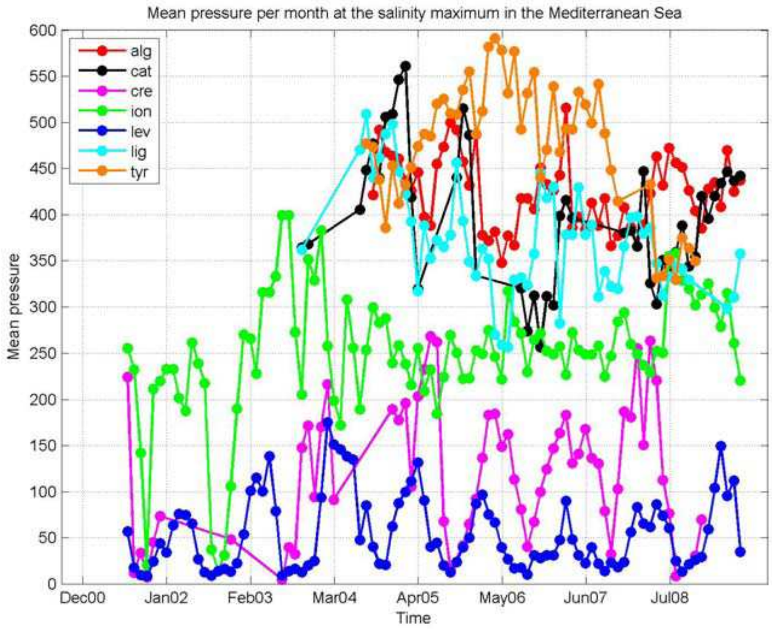

Figure 2. Depth of salinity maximum in the Mediterranean basin between December 2000 and June 2009 computed from float data (Notarstefano and Poulain, 2009).

We have described the connection between our velocity results and the water mass distribution in the revised text.

6. Misspell.

We corrected it in the revised text.