

Interactive comment on “Tracking the Mediterranean Abyss” by Simona Aracri et al.

Anonymous Referee #1

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The tracks of sub-surface floats are used to estimate velocities in the deep layers of the northwestern Mediterranean Sea. The results show that the Northern Current appears strong and even rather turbulent in the deep sea. According to me, this paper is a very superficial and fundamentally flawed study of the deep currents in the NW Mediterranean based on a few floats. The instruments used and the methodology adopted are scarcely described. The results are not robust and do not increase significantly the knowledge on the deep circulation in the NW Mediterranean. As a result, I believe that the manuscript is well below the level of the Ocean Science Journal, and given the substantial work needed to improve it, I recommend to reject it. Some detailed comments are listed here below. They might be useful for the authors to carry a better and more rigorous analysis of the float data. 1) The title is ambitious and appealing. But what does it mean? We cannot track the abyss! The measurements are above 2000 m whereas the abyssal sea/ocean is generally much deeper. The title does not represent the work described in the paper. 2) Introduction: it is too long and not enough

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focused on the deep currents in the NW Med. 3) Data and methods: More information on the MERMAIDS floats is needed. They are actually Apex floats equipped with seismic sensors. More details should be provided on how the parking velocities are computed. This problem has been addressed by Park et al. (2005) and Menna and Poulain (2010). The parking depth is essentially varying between 500 and 2000 m, you might want to exclude data above 1000 m to only consider the deep sea (e.g., exclude the Ibiza Channel). In addition, please address the fact that the float can touch the bottom. Please add the bathymetry in your Figure 2 (both versus time and in the maps) and discard points if the parking depth is close to the bathymetry. 4) Results: I don't believe that deep currents can reach 88 cm/s! Menna and Poulain (2010) in the same area have maximal currents near 350 m of 30-40 cm/s. Pseudo-Eulerian statistics with such small bins and so few data are rather useless.

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