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Discussions

Interactive comment on "Wind induced variability in the Northern Current (North-Western Mediterranean Sea) as depicted by a multi-platform observing system" *by* Maristella Berta et al.

Anonymous Referee #2

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This paper deals with surface current observation by HF radar in the framework of a coastal slope current (The Northern Current, front of Toulon, N-W Mediterranean Sea). The effect of a wind blowing in opposite direction is investigated. Thanks to a repeated cross-current glider line a geostrophic evaluation of the current is derived from the temperature/salinity transects. Authors propose an estimation of the wind induced surface current subtracting to a measured surface current an underlying geostrophic current.

This paper is well written and very concise; the authors prevent systematically objec-

tions, showing they are aware on the potential limitations or difficulties of this approach : - Inertial oscillation remain "weak" in winter (page 14) - The fetch is to short to take into account the Stokes drifts (page 8) but should be taken into account for future work (page 18). - Mesoscale structures are included in geostrophic part when sub-mesoscale features are put into a residual unresolved part of the current.

One of the interesting observation is the offshore spreading of the Atlantic Waters, flattening the isopycnals and decreasing the westwards zonal transport. To my mind, the generation of mesoscale structures south of the main vein of current (observed in geostrophic currents on figure 5/6/7) is underexploited and under-commented. Despite theses structures are out of the radar spot, it should be discussed. Then the paper title would be more in agreement with it contents.

The main weakness of this paper lies in the purely kinematic point of view of the demonstration regarding the velocity decomposition. We must agree with the authors. Despite the limited reach of the paper, data proposed are original and interesting. I suggest, this paper remains suitable for publication after minor modifications.

Detailed comments :

Page 6/7 chapter 3.3. The CTD's performed by the vessel survey, could be probably used to asses the level of no motion in the thermal wind approximation.

Page 9 line 2 : The reference to the "Beaufort scale" seems to be not relevant in this context.

Page 10 line 15 : The reference to the Guibout "Atlas" is not sufficient. Please describe shortly the "end of summer conditions" and interpret the observed salinity minimum (present but not commented in Guibout).

Page 10 line 20 : date(1995) or indices(a) are missing in the references for this two citations. (Alberola, Petrenko)

Page 32 figure 8 : really cross-shore ? : along shore , cross section or zonal transport

would be more appropriate.

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