



Hydrographical and dynamical reconstruction of the Warm Core Cyprus Eddy from gliders data

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In the 80s, the POEM (Physical Oceanography of the Eastern Mediterranean) cruises in the Levantine Basin first revealed the presence of a very pronounced dynamical structure off Cyprus: The Cyprus Warm Core Eddy. Since then, a large amount of data have been collected thanks to the use of autonomous oceanic gliders (+8000 profiles since 2009). Part of those profiles were carried out in the upper layers down to 200 m, and we take benefit of a novel approach named ITCOMP SOM that uses a statistical approach to extend them down to 1000 m (see [1] for more details). This dataset have a particularly good spatio-temporal coverage in 2009 for about a month, thanks to simultaneous deployments of several gliders (up to 6).

In this study, we present a set of 3D reconstruction of the dynamical and hydrographical characteristics of the Warm Core Cyprus Eddy between 2009 and 2015. Moreover, chlorophyll-a fluorescence data measured by the gliders give evidence to strong vertical velocities at the edge of the eddy. We discuss possible mechanisms (frontogenesis, symmetric instability) that could generate such signals and provide an assessment of the role of this peculiar circulation feature on the circulation and biogeochemistry of the Levantine basin.

Reference:

[1] Charantonis, A., P. Testor, L. Mortier, F. D'Ortenzio, S. Thiria (2015): Completion of a sparse GLIDER database using multi-iterative Self-Organizing Maps (ITCOMP SOM), *Procedia Computer Science*, 51(1):2198-2206. DOI: 10.1016/j.procs.2015.05.496