



Role of wind events in the generation of (sub)mesoscale structures and their implications on the biological activity of the North West Mediterranean Sea

E. Casella (1,2), P. Tepsich (1,2), X. Couvelard (3), and R. Caldeira (4)

(1) CIMA Research Foundation, Savona, Italy, (2) University of Genoa, Italy, (3) CCM – University of Madeira, Funchal, Portugal, (4) CIIMAR – Interdisciplinary Centre of Marine and Environmental Research, Porto, Portugal

We study the mesoscale dynamics in the Ligurian Basin (NW Mediterranean Sea), combining the use of numerical models with satellite and in situ data. To this end, we use the Regional Ocean Modeling System (ROMS) configured at a resolution of 3 Km for a domain covering the West Mediterranean Sea.

The model is forced with daily-mean boundary (oceanic) conditions extracted from MERCATOR, and with three-hourly winds, extracted from COSMO-7, models. Analysis showed the formation of intense EKE, including mesoscale eddy structures, in association with strong wind episodes. Strong eddy activities have an impact on the dynamics of the MLD, thus conditioning higher productivity episodes with periods of intense vertical mixing. Wind-induced mesoscale oceanic dynamics has also implications on the transport of pollutants and/or of suspended matter across the Basin, with impacts for the risk assessment of adjacent coastal regions.