



Physical and biological water column observations during summer breeze winds

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Coupling between breeze and coastal circulation and the influence of wind-driven dynamics are relevant for understanding coastal Mediterranean ecosystems. For the Tyrrhenian Sea, available information on coastal dynamics is confined to large-scale general circulation with a focus on mesoscale pelagic dynamical processes. Hydrodynamic studies of Tyrrhenian coastal areas are very limited and focus on surface water circulation. For time scales associated with coastal water circulation, there is also limited knowledge on water column dynamics forced by local atmospheric circulations. This paper presents physical and biological data to document the effect of breeze circulation on current dynamics and water column structures in a Northern Tyrrhenian coastal site. The in situ data show that coastal current is mainly controlled by local wind and responds rapidly to changes in wind direction. Water column thermal structure analyses reveal significant changes with the morning rotation of breeze. A lifting of isotherms (cooling) was typically observed in deep layers during early morning, and significant fluctuations in isotherms were also observed.

Acquired data have been processed by NEMO SeaDataNet software and made available both via the LOSEM free data archive at http://www.oceaneers.it/?page_id=1028&lang=it and PANGAEA Data Archiving and Publication database at <https://doi.pangaea.de/10.1594/PANGAEA.859527>.