

Satellite Observations of Upwelling in the Gulf of Salerno

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The northern Tyrrhenian Sea is characterized by rather strong dynamics: the steady presence of a large eddy in correspondence of the Strait of Bonifacio is at present under investigation (see Moen, 1984; Böhm et al., 1990). On the contrary, the dynamics of the southern Tyrrhenian Sea are rather weak, and only small scale phenomena are interesting from a physical oceanography viewpoint, such as the tidally generated internal waves in the Strait of Messina (Alpers and Salusti, 1983).

Here we describe a study performed on an area of the Southern Tyrrhenian sea, the Gulf of Salerno.

We analyzed the onset and the evolution of upwelling events by means of satellite-derived Sea Surface Temperatures of the Gulf. It appears as though the upwelling front observed in the SST fields present typical patterns of frontal instabilities, presumably due to the strong shear associated with the wind-induced flow. This hypothesis seems to be confirmed by the observed patterns generated by the intrusion of wind driven waters into a relatively calm hydrographic situation -- see for instance the mushroom-shaped features which can be frequently seen in this zone.

Therefore, the time evolution of the upwelling is studied in relationship with the meteorological forcing: particular attention is devoted to the role of orography in determining the prevalent wind direction.

We also show how bottom topography strongly affects the shape of the cold water patches.

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