THE SURFACE CIRCULATION OF THE BALEARIC SEA

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ABSTRACT

Until recently, the surface circulation of the Balearic Sea has been described as largely cyclonic with a fairly quiescent central dome. However, recent studies involving ship data, tracked drifters, current meter moorings, and satellite imagery indicate that this sea has strong mesoscale variability and a more complex general circulation. These studies (Font et al., 1988, Wang et al., 1988, Tintoré et al., 1989), together with an examination of registered satellite infrared imagery collected during the Western Mediterranean Circulation Experiment indicate the surface circulation is strong year-round, and characterized by two permanent density fronts located on the continental shelf slope (the Catalan front) and the Balearic Islands shelf slope (the Balearic front). The Catalan front is highly unstable, continuously spawning energetic instabilities such as eddies or filaments that appear to be associated with a plume of cold northern water deflected by the regional submarine canyons.