

SATELLITE OBSERVATIONS OF SEA SURFACE TEMPERATURE FRONTS OFF SICILY DURING SUMMER 1992

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Satellite Advanced Very High Resolution Radiometer (AVHRR) data were used to analyze the sea surface temperature patterns off Sicily during summer 1992. About 60 day-time images were analyzed showing a cold front emerging from the Sicilian coast. Satellite images were navigated (i.e. corrected for receiving systems timing errors, satellite altitude, tilting and twisting errors), corrected for Limb darkening, for atmospheric attenuation and, finally, remapped on common cartographic projection. Since most of the available NOAA data were day-time passes the selection of the best images was seriously limited by the occurrence of several diurnal warming events. Temperature differences inside-outside the upwelled front have been estimated to be about 5 degrees. The upwelling front forms between June 25th and June 28th. The cold front was rich of filaments, meanders and mushroom-like structures; the main filament was observed off Trapani elongating towards Lampedusa island for about 100 km and its off-shore motion appears to be strongly related with bathymetry. The windy nature of this filament is presently under investigation: it is believed that the Sicilian orography may partially screen a North blowing wind inducing an asymmetrical wind profile beyond Sicily able to communicate to the sea the relative vorticity required to form the filament. Therefore, this filament is supposed to be an important feature of the whole upwelling front. Indeed, the filament formation is a necessary condition for the upwelling front formation. Moreover these observations rise an important question on the different time scales on which the wind supply relative vorticity to the sea and forms upwelling structures in the Channel of Sicily. Wind data are currently under study, as station data do not possess the synoptic characteristics such to evaluate the wind curl beyond Sicily, data from ERS-1 scatterometer is currently being analyzed in order to supply a qualitative synoptic view of the wind regime in the Channel of Sicily.