STUDY OF THE SEASONAL AND INTERANNUAL VARIABILITY OF THE WESTERN MEDITERRANEAN BY MEANS OF LONG TIME SERIES OF AVHRR DATA

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Until very recently, ocean studies using satellite data have concentrated on the instantaneous look provide by a single satellite pass. Recent studies of ocean basins using satellite data have used monthly and seasonal composite images of temperature at degraded spatial resolution (typically 10 NM) to show the more persistent events and changes that occur as results of basin-scale dynamics.

In this work a long time series of full resolution AVHRR images of the western Mediterranean sea are analysed together with a 10-year satellite data set of 18km/weekly scale to study the basin's seasonal and interannual variability both as indicator of the circulation variability and the long-term SST trends.

The analysis of one thousand of AVHRR images of the Western Mediterranean Sea, acquired in the period 1986-1992, has allowed to infer important conclusions on the main features and seasonal variability of the surface circulation of this basin and its sub-basins. The results have shown that the evolution of temperature in the western Mediterranean interacts strongly with regional surface circulation.

The low resolution data were used to study the SST seasonal and interannual variability. A spatial subdivision was carried out in order to distinguish sub-basins which are characterised by distinct dynamic as well as thermal pattern. Seven spatial areas were identified and for each of them time series of SST and main meteorological parameters were obtained and analysed together in order to investigate air-sea phenomena in the western Mediterranean Sea.

A comparison between the high and low resolution AVHRR data for the overlapping period have been done selecting nearly cloud free full resolution images representative of both summer and winter conditions for each sub-basin.