

MARINE ENVIRONMENTAL DATA BASE OF THE ADRIATIC SEA (MAIN RESULTS FROM TIME SERIES ANALYSIS)

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A hydrographic material collected from the Adriatic (ZORE-ARMANDA *et al.*, 1991) by different institutes between 1911 and 1993 is presented. It is stored in MEDAS (Marine Environmental Database of Adriatic Sea) in Institute of Oceanography and Fisheries. Database has designed as relational using ORACLE RDBMS, and consists data of climatology, physical oceanography, chemistry, biology, fisheries and pollutants. Data related to air temperature, evaporation, sea temperature and salinity were statistically processed and analysed. Constant fluctuation trends (increase and decrease) for most of the parameters indicate human impact on the sea water properties both in the coastal area and in the open sea. Output data are presented in GIS (Geographical information System) form.

The description of hydrographic properties is primarily based on the data from permanent station at the Split-Gargano transect located along the Palagruza pit and in this region the impacts of both the northern and southern Adriatic waters are felt. Data of air temperature, pressure, and precipitation from some permanent meteorological station (station Trieste, Split and Dubrovnik) were used to interpret the long-term fluctuations of sea temperature, salinity and evaporations both in the coastal area and in the open sea. Main trend analyses are presented in Fig. 1. Long-term variations show the linear trend of air temperature of $+0.14\text{ }^{\circ}\text{C}/100\text{ year}$, trend of daily amount of precipitation of $-0.30\text{ mm}/100\text{ year}$. Curve of long-term salinity variation at Split-Gargano transect shows the increasing trend. This trend is evident also at the Kastela Bay coastal station.

Using some statistical method like Principal Component Analysis (PCA), time series of air temperature, sea temperature, pressure, precipitation and salinity were compared for coastal and open sea separately. Analysis allowed determination of main component important for variability of analysed climatic-oceanographic filed on secular time scale.

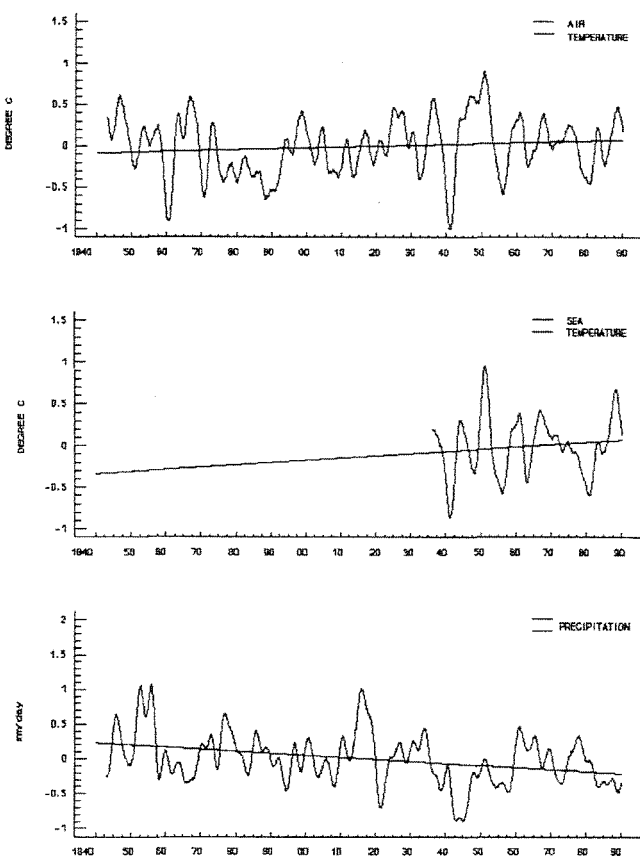


Figure 1. Monthly mean time series filtered by 24M214 for station Trieste (northern Adriatic) for period 1840 - 1990

REFERENCES

ZORE-ARMANDA, M., M. BONE, V. DADIC, M. MOROVIC, D. RATKOVIC, L. STOJANOSKI and I. VUKADIN, 1991. Hydrographic properties of the Adriatic sea in the period from 1971 through 1983. *Acta Adriat.* Vol. 32, 1 : 1-547.