



## Long term changes of the thermohaline structure in the Southeastern Mediterranean

**I. Gertman** (1), A. Murashkovsky (1), G. Zodiatis (2)

(1) Israel Oceanographic and Limnological Research, Haifa, Israel, (2) Oceanography Centre, University of Cyprus, Nicosia, Cyprus

(isaac@ocean.org.il / Phone: + 972 4 8565277 / Fax: + 9724 8511911)

The analysis of the historical cruise data allows to make plain interannual tendencies in the Upper Mixed Layer (UML) and deep water in the Southeastern Mediterranean. The UML consists from the Levantine Surface Water mass (LSW), which is the warmest and saltiest water mass of the Mediterranean (27-28°C, 39.2-39.4 for summer and 17-18°C, 39.0-39.2 for winter). The LSW, while propagating cyclonically from the Southeastern Mediterranean to the North Levantine, and even entering the Aegean Sea, is losing its buoyancy and become a potential water source of the Levantine Intermediate Water (LIW) mass. The LSW long term salinity changes are affected by three major factors: evaporation, advection of the Atlantic Water (AW) and runoff. The climatological data analysis showed a significant salinity increase (about 0.8) of the LSW during summer periods from 1979 to 1990, before the appearance of the Eastern Mediterranean Transient (EMT). The major reason for this increase of the salinity apparently is the decrease of the regional runoff (diminishing of the Nile discharge). Additional cause for the salinity increase may be changes of the general circulation in the area. The latter changes led to the restriction of the AW penetration in the Southeastern Mediterranean. Within the last five years the salinity of the LSW during the summer periods stabilized around 39.4, while the typical salinity minimum, which defined by the AW advection is found permanently at the depth of 50-75 m. Significant long term salinity and temperature increase, respectively about 0.1 and 0.25°C was found at the depths deeper than 1500 m, during the period from 1991 to 2002. These thermohaline changes are caused by the propagation of the relatively young deep water, formed in the Aegean Sea during the EMT to the area of interest.