**Report on the different thermohaline features recorded in the outer part of the Gulf of Trieste (Northern Adriatic) in July 1990 and 1991**

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In the frame of the Alpe Adria Project the thermohaline and density structure were recorded in the outer part of the Gulf of Trieste (TR. 3 and TR. 4) in July 1990 and 1991 (Fig. 1). Measurements were carried out using a CTD Idronaut mod. 401 multiparameter probe.

An analysis of the data leads to the identification of two welldistinct thermohaline situations. In the spring and at the beginning of summer 1990 the volume of freshwater injected in the basin by the Tagliamento and Isonzo Rivers was lower than in the previous years, contributing to the absence of a light surface layer with low salinity and high buoyancy and of a thermohaline discontinuity. This condition led to radiative heating of the whole water column, including the deep higher-density nucleus formed in winter. The absence of freshwater inflows caused the drifting of high-salinity water masses from the Middle Adriatic and their spreading over the Gulf up to the surface layers, thanks to the absence of thermohaline stratification and to the presence of comparable density water. This water advected from the south showed the following values: a) in the outer part of the Gulf: temperature 21.70 ± .03°C, salinity 37.54 ± .01 PSU and $\gamma t$ 26.27 ± .01 kg m ; b) in the inner part: temperature 22.51 ± .05°C, salinity 37.44 ± .01 PSU and $\gamma t$ 25.95 ± .02 kg m . (1)

In 1991 fluvial inputs created a situation that was the opposite of the 1990'one. The presence of a surface layer with low salinity and high buoyancy, separated from the dense waters of the bottom layer by a well-defined pycnocline which was extended over most of the water column (3-12 m). This situation limited radiative heating to the surface mass, maintaining a deep low-temperature nucleus. These thermohaline conditions greatly reduced the influence of advection waters coming from the Middle Adriatic. In July 1991, in fact, such inflows scarcely affected the Gulf of Trieste (Fig. 2).

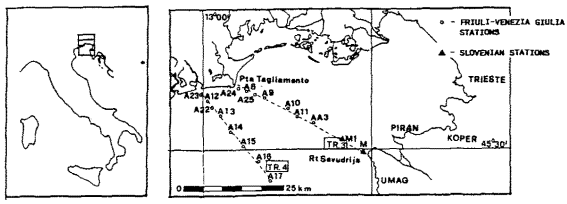


Fig. 1.- Distribution of the sampling sites

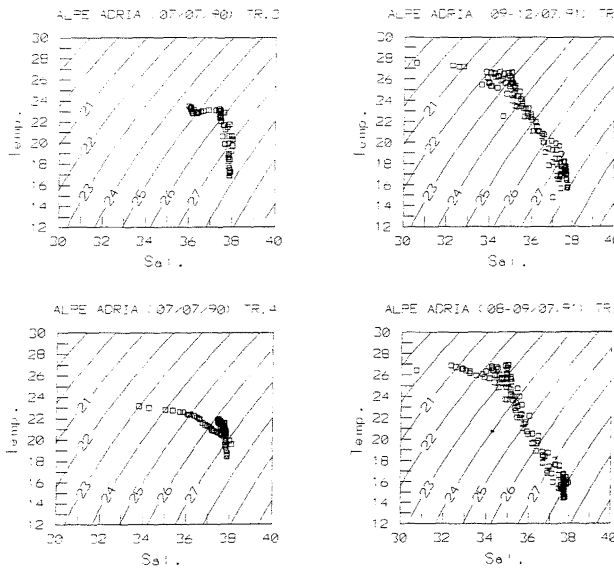


Fig. 2.- Temperature and salinity distribution in july 1990-1991 measurement carried out using a CTD multiparamenter probe.

(1) The confidence limits of the means are obtained from the standart error

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