- SOME RESULTS OF DRIFT CARD EXPERIMENTS IN MIDDLE AND SOUTH ADRIATIC

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Summary:

In the period from 10th to 19th of February 1977. drift card experiments were carried out on 21 station. From 840 drift cards used for the experiments 91 were found on the different locations. Data obtained from drift cards were analysed and results compared with the available temperature, salinity and current - meter data.

Preliminary results show the importance and usefulness of such experiments in pollution studies.

Résumé

Dans la période entre le 10 et le 19 février 1977. les expérimentations avec les "cartes flotteur" ont été exécutées sur 21 stations. Des 840 "cartes flotteur" employées pour les expérimentations, 91 en ont été trouvées sur des différentes locations. Les données obtenues par les "cartes flotteur" ont été analysées et les résultats en ont été comparés avec les données disponibles sur la température, salinité et courant obtenues par les méthods directes.

Les résultats préliminaires montrentl `importance et l`utilité de telles expérimentations dans les études de la pollution.

Surface current investigations started in the Adriatic in 1887 by WOLF and LUKCH. They studied surface currents using dynamic method. In the period 1915-1920 the same problem was studied by MAZZELLE and FERUGLIO using this time drifter´s data.

Recent surface current investigations in the Adriatic (M.BULJAN, 1953/54; M.ZORÈ-ARMANDA,1956/63/66/69; Z.VUČAK, 1965) made further steps toward completion of our knowledge of this problem. Results of these mostly qualitative studies gave characteristics of surface currents and showed strong seasonal signal in the surface current spectrum.

In this paper some results of drift card experiments in the Middle and South Adriatic are shown. From obtained data map of streamlines was constructed. Comparison with direct current measurements and density distribution was also done. Drift card experiments took place in the period 10-19 february 1977 on 21 stations on 3 profiles. Profiles and stations were following (Fig.1):

- profile I (O.ŽIRJE-ORTONA) - stations 1,2,3,4,5,6 and 7;
- profile II (O.VIS-rt MONTE GARGANO) - stations 8,9,10,11 and 12;
- profile III (DUBROVNIK-BARI) - stations 13,14,15,16,17, 18,19,20 and 21.

On each station 40 cards were used or altogather 840 cards. 92 cards or 10.9% were recovered. Percentage of recovered cards is relatively high taking into account that experiments were carried out in winter. Using these data and surface density data, map of surface streamlines was constructed.

CONCLUSIONS

In constructing the surface streamlines map special attention was paid to the place and time of card finding and to its path.

From the analysis of available current meter data and map of streamlines broad region of the Mediterranean water inflow along the eastern Adriatic coast could be seen. Narrower region of the Adriatic sea water outflow along the Italian coast can also be seen. From data in the middle of profiles II and III it can be concluded about the existence of weak transversal currents toward the western Adriatic coast. These conclusion are in good agreement with previous results of current investigations in the Adriatic (M.ZORÊ-ARMANDA,1966; Z.VUČAK,1965) (fig.2a). Even though these results should be considered only as preliminary they are valuable contribution to the knowledge of surface cu-

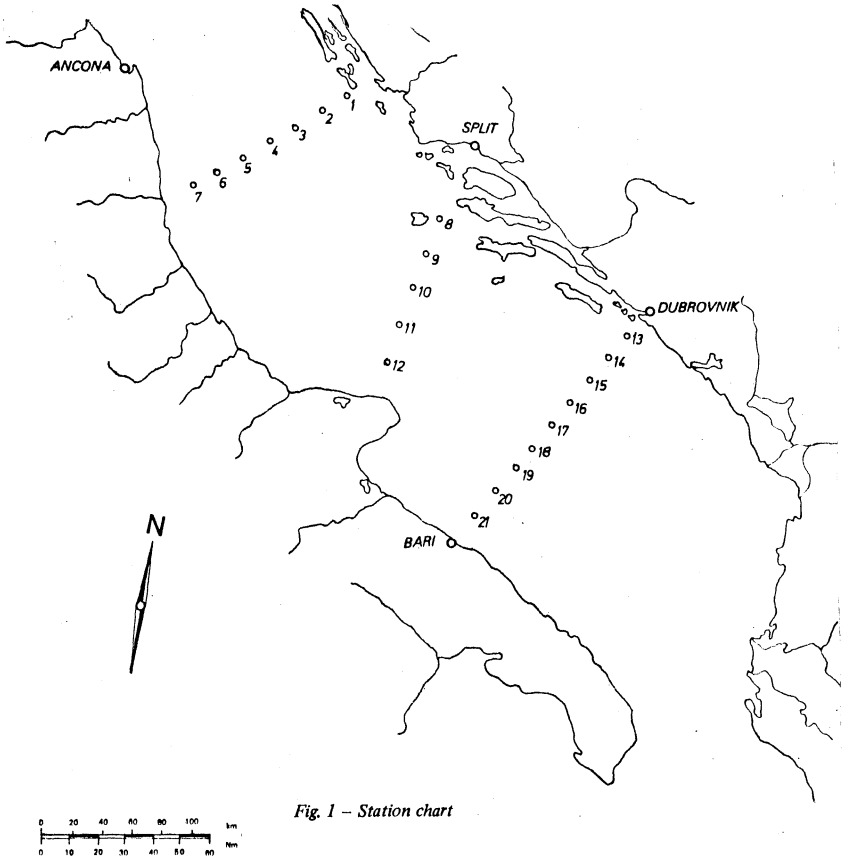

Fig. 1 – Station chart

rrents in the Adriatic and also good experience in organizing future drift card experiments. In future experiments our plan is to covert whole Adriatic sea.

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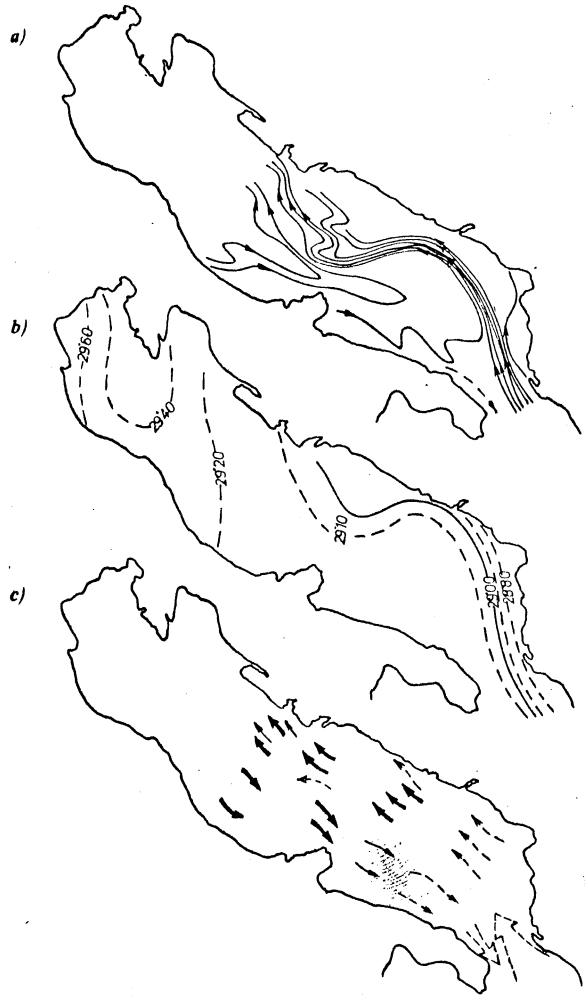

Fig. 2 – a) Surface geostrophic currents in winter time (M. Zore – Armanda, 1966.)
b) Distribution of surface σ_t values for february 1977.
c) Surface streamlines based on drif card experiments february 1977.

and reproduce the late fall-winter conditions in the Adriatic Sea (Hendershott-Rizzoli, 1976). Nevertheless, capitalizing upon the observed vertical homogeneity of the hydrological quantities (temperature, salinity, density), the model can-