

CURRENT MEASUREMENTS
IN THE STRAITS OF OTRANTO, ADRIATIC SEA

by

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The straits of Otranto forms a 70 km wide and 750 m deep sill which connects the Adriatic and the Ionian Seas.

The knowledge of the currents in the Otranto straits is based on surface observations (British Admiralty, 1957) and on calculations on gradient currents (ZORE-ARMANDA, 1969 ; BULJAN & ZORE-ARMANDA, 1976 ; and LAVENIA & al., 1983).

The purpose of this paper is to present the data from 5 current-meter stations which were installed for a period of 1 month (20/9/78 to 23/10/78) across the straits from Otranto to Corfu. At each station there were 3 current-meters : at nearbed, mid-water and near-surface. The data presented in this paper was collected by Offshore Italia, on behalf of the National Energy Council of Greece.

A preliminary analysis of the data has shown that the Lagrangian residual current, which represents the long-term movement of an individual water particle from the point of observation, on the Italian side (shelf and slope) it was to the south, from the surface to the sea-bed with drift rates of 8.2 km/day on the surface and 5 km/day near the seabed respectively. In the central channel the residual current was to the northwest at near surface and mid-depths with a net drift of 0.8 km/day, whilst near the seabed the residual current was to the south with a net drift of 2 km/day. On the Greek side (slope), the residual current was to the northwest at near surface and mid-depht with a net drift of 10.2 km/day and 0.8 km/day respectively, whilst near the seabed the residual current was to the south with a net drift of 2.1 km/day. On the Greek shelf, the residual current near the surface was to the northwest with a net drift of 2.5 km/day.

An examination of the instantaneous observations has shown that the current direction was not steady at any station and that there were short periods of reversal.

The data presented above supports the two-layer water circulation through the Otranto straits as defined by ZORE-ARMANDA, 1969 ; BULJAN & ZORE-ARMANDA, 1976 , and LAVENIA & al., 1983. However, it shows that periodically other forcing mechanisms may influence the water circulation in the straits.

These forcing mechanisms may be caused by :

- a) a wind-induced stress in the sea surface, and
- b) a wind-induced setup in the mean sea level produced by the semi-enclosed nature the basin.

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