

Two oceanographic surveys were carried out at the Ibiza Channel (Balearic Island) during fall of 1990 and winter 1991. A grid of fifty four hydrographic stations placed five miles apart was established. In addition to these (surveys) a single mooring with six current meters was deployed in the center of the channel, during two consecutive periods covering from 15/11/90 to 24/7/91. Six different depths 100, 120, 170, 270, 470 and 720 meters were sampled.

Four water masses were found: Modified North Atlantic Water (MNAW) at the surface layer (0-200 m), Levantine Intermediate Water (LIW) between 250 and 700 m depth, West Mediterranean Deep Water (WMDW) around 700 m depth to the bottom, and a stational West Mediterranean Winter Intermediate Water (WMWIW) between surface layer and LIW was observed on March.

Hydrographic measurements and dynamic topographies showed two different situations in the superficial waters (Fig. 1, 2): During November 1990 a cyclonic gyre was originated by the superficial movement of a NAW inflow (northward) near Ibiza island and the outflow of MNAW (southward) on the Mainland shore. In march 1991, cyclonic and anticyclonic gyres appeared in the NE-SW axes of the work area. These seemed as an intermediate situation, two bodies of water struggling to flow in opposite directions. Below, these superficial layer, water principally flows southward.

Both North Atlantic and Levantine Waters play an important role in the water exchanges through the Ibiza Channel and both help to cause an upwelling of deep waters on the Ibiza slope. Water masses flow and their stational variability were studied and calculated.

Moreover, time series of different parameters from half hour current meter records are been analysed. Geostrophic velocity distributions across different sections agree with the average velocities recorded by the more superficial current meters (Fig. 3, 4).

Low frequency analysis of this series show a baroclinic situation preferently at the beginning of 1991 and the pass to barotropic conditions on April 1991. From March to May a net southward flow was observed, an important result is the finding of a northward flow in all the column of water from May to July, when the data series recording ended.

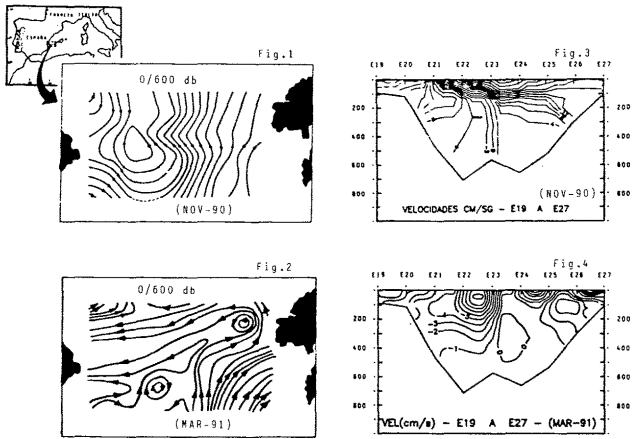


Fig. 1, 2.- Dynamic topographies (dyn cm) of the Odb surface relative to 600 db.
 Fig. 3, 4.- Geostrophic velocities in a section on the channel sill.

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