

Chemical parameters distribution in the Ionian Sea during POEM-06 Cruise (October 1991)

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In this paper the dissolved oxygen and nutrients distribution of the POEM grid for the Ionian Basin is reported (Fig. 1), data were collected in October 1991 during the Italian POEM 06 Cruise.

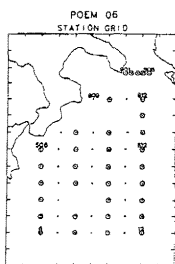


Fig. 1.
●: station with nutrients data

Distribution anomalies for all the investigated parameters were observed in the layer between 100 and 500 m. Fig. 3 shows both the location and the extension of these anomalies with respect to dissolved oxygen and nitrate, at 300 m.

In Fig. 4 dissolved oxygen profiles of four stations along the transect at 37°N are reported. An increase of concentration is observed going to the middle of the transect, in particular the stations at the ends of the transect (406 and 412) results to resemble each other much more than the central stations. Both this behaviour and the distribution anomalies shown in Fig. 3 could be attributed to the presence of gyres.

We can distinguish all over the basin :

- the surface layer (0-150 m) characterized by the maximum concentration of oxygen, with oversaturation values, and the minimum concentration of nutrients. This layer can be interested by the diffusion of Atlantic water into the Ionian Basin;
- the layer between 100 and 500 m characterized by the anomalies of the stations involved in cyclonic areas;
- the wide layer between 500 and 2.000 m with the minimum oxygen content and the highest nutrients content, whose extension is the widest at the depth of 1.000 m where the water body spreads over the eastern half of the basin;
- at last, the bottom layer influenced by the Adriatic waters and by the bottom circulation.

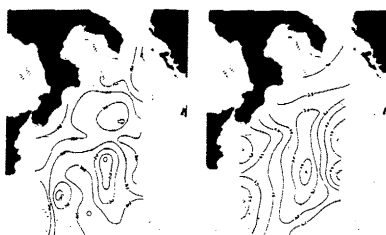


Fig. 3 : Dissolved oxygen (left) and nitrate (right) at 300 m.

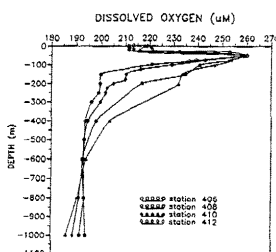


Fig. 4.

In conclusion, knowledge of the dissolved oxygen and nutrients distribution in the Ionian Basin has been considerably risen by the POEM Program results. In particular by the POEM 06 cruise, where a fine sampling was performed on the whole grid. From our results, peculiar chemical characteristics of Levantine Intermediate water (300-500 m) failed to point out. Whereas a water body (500-2.000 m) of Aegean origin is clearly recognizable below the LIW, however we don't have enough data to discuss its dynamic behaviour. In addition, the necessity of a finer sampling for the bottom water comes out from our work.