

EVOLUTION OF ENVIRONMENTAL CONDITIONS IN EASTERN MEDITERRANEAN ANOXIC BASINS*

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Sediment cores obtained from eastern Mediterranean Anoxic Basins are analyzed for major and trace elements and the evolution of the prevailing environmental conditions in the basins are deduced.

On the basis of the vertical variability of the element concentrations in a 60 cm core the following distinct geochemical units are recognized in Discovery Basin.

- i) The upper sedimentary layer with high concentrations of Fe, Cu, Ba and Cr and low concentrations of Mn, Ca and Mg.
- ii) The lower part of the core with lower concentrations of Fe, Cu, Ba and Cr and higher concentrations of Mn, Ca and Mg.
- iii) At 19-21 cm depth a distinct thin sediment horizon occurs which is characterized by Fe, Mn, Co, Ni Cr and Al enrichments.
- iv) At 23-24 cm depth there is a major Ca peak, which coincides with minima in Cu, Mn Ni, Li and Cr.

The HCl – soluble Mn tends to decrease from the deeper to the shallower sediments suggesting that the process leading to the anoxic conditions become more intense towards the present. However this process was interrupted by a number of important geochemical events (i.e. at 19-21 cm, 23-24 cm). Partition geochemical analysis and the application of statistical analysis are used to deduce the prevailing environmental conditions during these events. Particular emphasis is given here in the identification of the geochemical conditions supporting biological activity. The relative degree of biological activity in the various basins studied is determined.

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