

## Chlorophyll distribution throughout the Levantine Basin

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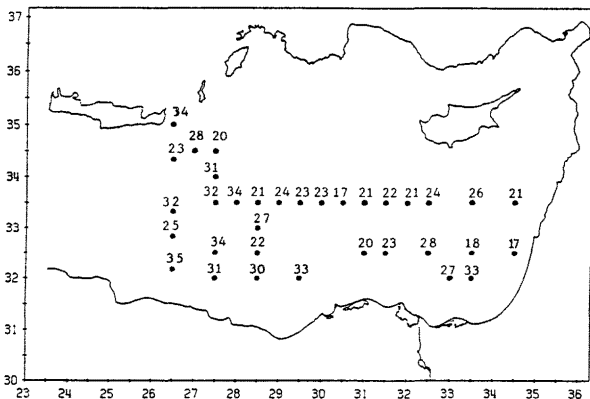
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The vertical distribution of chlorophyll *a* in the upper 200 m of the water column was recorded throughout the Levantine Basin of the Eastern Mediterranean (Fig. 1), as part of the autumn 1991 POEM Multinational Program. Chlorophyll *a* concentration (determined fluorometrically on duplicate extracts in the upper 200 m ranged from 9.2 to 423 ng l<sup>-1</sup>, with an overall mean of 126 ± 85.6 (SD) ng l<sup>-1</sup>. In 5 stations chlorophylls were determined on water samples from 300 m. The concentrations ranged from 3.3 to 18.8 ng l<sup>-1</sup>. These concentrations fall within previously reported (AZOV, 1986; BERMAN *et al.*, 1986; KIMOR *et al.*, 1987; SALIHOGLU *et al.*, 1990) ranges for the pelagic water of the Eastern Mediterranean. The vertical distribution of chlorophyll was close to uniform throughout the basin, with a prominent deep chlorophyll maximum (DCM) of about 250 ng l<sup>-1</sup> at 90-110 m, corresponding with the depth to which about 1% of the incident light penetrated. Exceptions were two stations, located approximately within the Marsa Matruh Gyre, in which a more even depth-distribution of chlorophyll was observed, with >100 ng l<sup>-1</sup> extending down to 200 m depth and no distinct DCM. Integrated water column (0-200 m) chlorophyll content ranged between 17-35 µg m<sup>-2</sup>, with higher values close to the African coast and in the western part of the Basin (Fig. 1). This pattern corresponded with Secchi transparencies that were generally shallower at the sites with higher chlorophyll content.

Water samples from 0, 50 and 100 m at the stations along latitude 33.30 N were fractionated on 2 µ and 10 µ polycellulose filters. More than 90% of the chlorophyll was confined to particles <10 µ and more than 50% was found in particles <2 µ. The proportion of chlorophyll in <2 µ particles increased with depth and exceeded 70% at 100 m depth. The pattern was similar at the different stations. Furthermore, in the upper 90 m of the water column acidified chlorophyll extract comprised about 60% of the native extracts, while at deeper depths this proportion gradually increased. This implies that pigments other than chlorophyll *a*, which contribute to the fluorescence of the acidified extract, became more abundant at the deeper depths. Such a pigment is chlorophyll *b*, which was found by HPLC analyses to be abundant in Eastern Mediterranean samples from DCM layers in September 1989 and October 1990 (YACOBI, unpublished data). The increase with depth in the contribution of small particles to chlorophyll concentrations, and the concomitant increasing proportion of acidified extract suggest that the chlorophyll *b* containing prochlorophytes dominate the DCM of the Levantine Basin, a hypothesis that needs confirmation.

Fig. 1. Station positions (circles) for IOLR POEM cruise (14 Oct-10 Nov 1991), and the distribution of depth-integrated (0-200 m) chlorophyll *a* concentration (µg m<sup>-2</sup>; values above circles).



### REFERENCES

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