

## RESULTS OF METEOR CRUISE M51/2 IN 2001

W. Roether<sup>1</sup>\*, B. Klein<sup>1</sup>, B. B. Manca<sup>2</sup>, N. Kress<sup>3</sup>

<sup>1</sup> Institut für Umweltphysik, Univ. Bremen, P.O. Box 330 440, D 29344 Bremen, Germany

\* wroether@physik.uni-bremen.de ; bklein@physik.uni-bremen.de

<sup>2</sup> OGS, Borgo Grotta Gigante 42/c, 34010 Sgonico, Italy - bmanca@ogs.trieste.it

<sup>3</sup> IOLR, P.O. Box 8030, Tel Shikmona, Haifa, 31080, Israel - nurit@ocean.org.il

### Abstract

Cruise M51/2, 2001, provided an Eastern Mediterranean hydrographic survey, as a follow-up to previous, similar surveys in 1987, 1995, and 1999. The aim was to provide an additional snapshot of the evolving Eastern Mediterranean Transient (EMT). The data presented will show that by 2001 the deep and intermediate waters had relaxed after the EMT peak, but that the hydrography and circulation of the waters were still very different from the pre-EMT situation.

*Keywords: Eastern Mediterranean Transient, deep waters, intermediate waters, hydrographic survey, tracer survey*

Cruise M51/2 of *METEOR*, 18 October-11 November 2001, carried out a modest-resolution hydrographic survey (including the measurement of oxygen/nutrients and of transient tracers) of the Eastern Mediterranean, providing another snapshot of the EMT of the deep and intermediate waters. An oxygen section along the Eastern Mediterranean for 2001 is shown in Fig. 1. In comparison with 1995, when the EMT, caused by a bottom-concentrated intrusion of Aegean waters of enhanced density, was fully developed [1], the deep waters have been gradually returning toward horizontal homogeneity, but the basic structure of the 2001 distribution is still far different from that of the pre-EMT situation: The oxygen minimum range in 2001 is rather more ventilated, vertically more restricted and shifted to shallower depth, and in the Levantine it is underlain by more oxygenated waters, while a signature of the Adriatic deep water source at the base of the western continental slope is missing. The findings confirm absence of recent bottom water formation [2, 3]. While prior to the EMT the near-bottom flow was essentially eastward, feeding upwelling over the entire basin, the 2001 property distributions indicate westward flow over the deep sills in the Cretan Passage to both sides of the Mid-Mediterranean Ridge. The reason is a decreasing near-bottom water density westward. The Cretan Sea (southern Aegean) still contains rather dense and well ventilated water, the upper boundary of which, however, allows outflow only southeastward through the deeper Kasos Strait but not westward through Antikithera Strait [see also 3]. The property distributions furthermore confirm a cyclonic deep recirculation of the Ionian Sea [2], probably driven both by the dense waters of Aegean origin and by more recent Adriatic outflow that settled at comparatively shallower depths. Furthermore, transfer time scales are obtained using the tracer data.

### References

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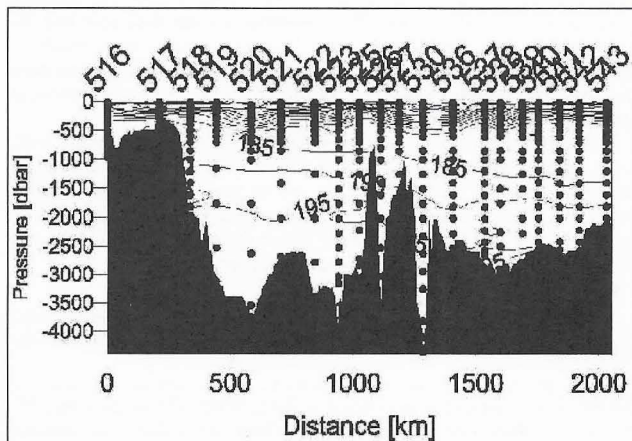


Fig. 1. Oxygen section (mmol/kg), cruise M51/2, 2001, from the Sicily channel (left) to off the Libanese coast (right).