

DISSOLVED OXYGEN, NITROGEN AND TOTAL INORGANIC CARBON IN THE ALBORAN SEA SURFACE WATER.

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ABSTRACT

During the R/V GARCIA DEL CID cruise in the Alboran Sea (September 1982), a new automatic, sequential analytical method for N_2 , O_2 and total Inorganic Carbon (TIC) in sea water was performed. Analytical protocol and results are presented and discussed.

RESUME

On a analysé la teneur en O_2 , N_2 et CIT (Carbone Inorganique Total, soit $CO_2 + CO_3H^- + CO_3^{=}$) des eaux de surface en Mer d'Alboran pendant la croisière du R/V GARCIA DEL CID (September 1982). On présente et discute la méthodologie et quelques résultats de l'étude qui a été menée.

The R/V GARCIA DEL CID Alboran Sea cruise (September 1982) provided information on surface distribution of dissolved O_2 , N_2 and TIC ($CO_2 + CO_3H^- + CO_3^{=}$) in two tracks: one from Almeria to Ceuta and the second from Motril to Cartagena (fig. 1).

The analytical protocol was based on a gas-chromatography technique as described in a preliminary work (NAVARRO, BALLESTER and CALMET, 1978). In the cruise the analysis was performed under oceanic field conditions instead of under the laboratory conditions studied in the preliminary work. The new method can be used in oceanographic vessel laboratories in all weather conditions that are usually acceptable for oceanographical work.

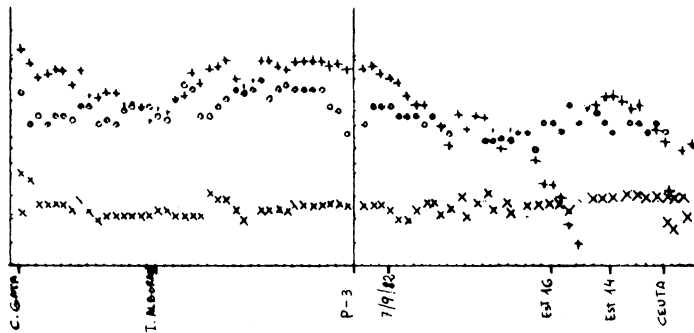
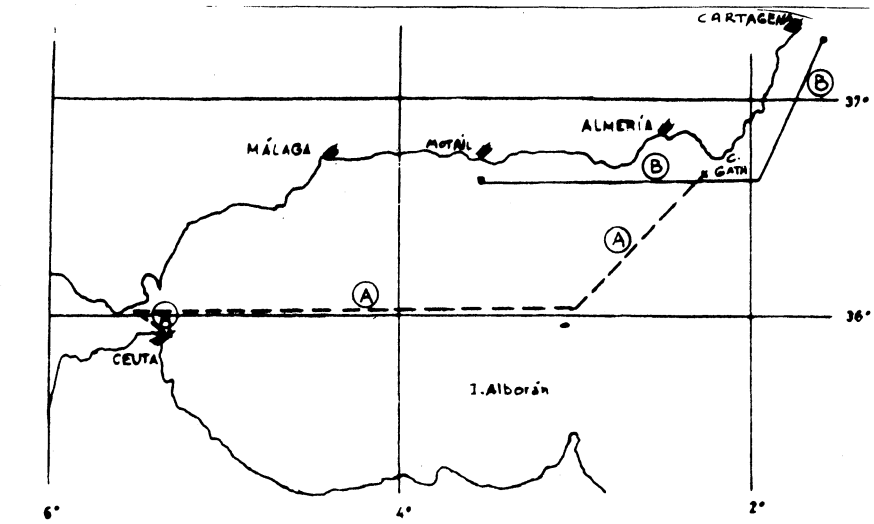
The TIC range was found to be from 20 to 30 ppm of C and to depend strongly on temperature, salinity and, as expected, on the rate of inorganic Carbon assimilation (primary productivity). The range of O_2 was from 3.0 to 6.5 ml/l and its distribution has almost the same pattern as TIC. (fig. 2 and 3).

The rapid improvement in remote sensing of temperature and chlorophyll allows the synoptic observations of some important oceanographical phenomena like the influence of vertical mixing the evolution of chlorophyll, Oxygen and TIC distributions. The N_2 content of the water depends primarily on physical conditions because of its very low biological activity. Thus, N_2 can be used as a reference value to obtain corrected data of O_2 and TIC independent of the physical conditions of the sea.

Our aim is to report some improvement in the capability for automatic and sequential analysis, the knowledge of sea-truth and synoptic observations.

BIBLIOGRAPHIE

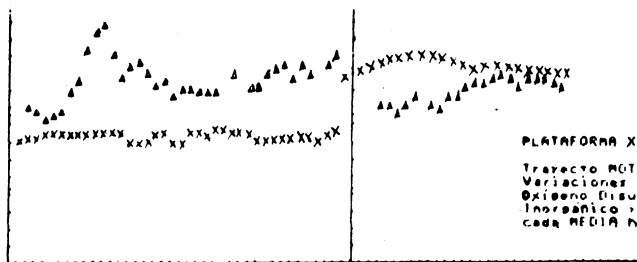
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PLATAFORMA XIV
 Variaciones de Carbono Inorgánico, Temperatura y Salinidad cada MEDIA hora

REFERENCIAS
 LI = o
 T = +
 S₂ = x

ESCALAS
 C I max = 30 ppm
 LI min = 30 ppm
 Temp max = 26 °C
 min = 18 °C
 Sal max = 37 ‰
 min = 36 ‰



PLATAFORMA XIV
 Trayecto MOTRIL - CARTAGENA
 Variaciones de Salinidad Oxígeno Disuelto, Carbono Inorgánico y Temperatura cada MEDIA hora

ESCALAS
 + + + + +
 C I max = 30 ppm
 (o) min = 20 ppm
 Temp max = 27 °C
 (+) min = 21 °C
 Sal max = 37 ‰
 (x) min = 36 ‰
 O₂ max = 6.5 ml/l
 (a) min = 5.0 ml/l

Est 5 Est 5' Est 6 Est 7 ALMERIÑA ALMERIA Est 1 Est 2 Est 3 Est 4 C. GATA Est 24 Est 23 Est 22 Est 21 CARTAGENA

Ballester, A., Zavatti, J.

"Dissolved oxygen, nitrogen and total inorganic carbon in the Alboran Sea surface water"

Paper presented by A. Ballester (Spain)

Discussion

B. Coste: Avez-vous des valeurs d'azote moléculaire dissous et comment les utilisez-vous?

A. Ballester: Oui, mais on ne les présente ici parce-que nous les utilisons uniquement comme à valeur de référence pour corriger les valeur d'O₂ en tenant compte de l'influence de la Temperature et la Salinité et de la mélange "aire-mer" pour revenir aux variations de O₂ dues aux phénomènes biologiques.

