

RESULTS OF THE OCEANOGRAPHICAL TRANSADRIATIC JANUARY 1980  
CRUISE OF THE R/V "ANDRIJA MOHOROVIČIĆ"

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Summary

The transadriatic oceanographical cruise, performed during January 1980, included investigations of the R/V "Andrija Mohorovičić" on 46 permanent offshore stations. Winter hydrometeorological, dynamical, physical and chemical parameters were taken into consideration. According to the observations made and the measurements performed strong influence of hydrometeorological conditions on thermohalinic relations and the distribution of chemical and biological parameters of the Adriatic basin was recognised.

Résumé

Au cours de la croisière océanographique transadriatique du B/R "Andrija Mohorovicic", en Janvier 1980, ont été observées les conditions hydrométéorologiques, dynamiques, physiques et chimiques. Dans 46 stations océanographiques ont été recherchés les paramètres suivants : conditions hydrométéorologiques, courants drift, températures, salinité, densité, alcalinité, sels nutritifs (phosphore, azote et silicium) et chlorophylles

végétales. L'analyse des résultats révèle le régime général des courants hivernaux, le caractère de l'eau de provenance Ionienne (Méditerranée), les processus de genèse de l'eau dense Adriatique, le degré de saturation de l'oxygène et la concentration des sels nutritifs.

### Abstract

The Adriatic as a distinctly inland sea, is exposed to mansided influences: A) the incoming air masses from different world regions. b) the abundant river outflow from the nearest hinterland, c) the incoming water masses from the adjacent Ionian (Mediterranean) Sea. Atmospheric influences in particular were causing heavy meteorological conditions (cyclones, stormy winds and waves).

Investigations included: drift cards experiments, hydro-meteorological observations, measurements of physical, chemical and biological parameters (T, Sal, pH, Alk., oxygen, nutrients of P, N, Si, and chlorophyle). The sampling was performed on board and specimens immediately analysed in the vessel's laboratory.

Winter dynamical aspect comprises of two different current system: a) longitudinal (ascendent-descendent) which prevails near both coasts in their southern, deeper part, and b) transversal, dominant in the middle and northern parts going on from the E direction towards W direction of the Adriatic coasts. Temperature and salinity relations are polarised too: a weakly longitudinal gradient in the southern and the middle part ( $1^{\circ}\text{C}$  and the isohaline of 38.5‰), while in the northern part of the Adriatic gradients are strongly expressed ( $6^{\circ}\text{C}$  and 3‰ Sal).

Thermohalinic relation points out to the formation of dense North Adriatic water ( $\sigma\text{-t}$  29.3). The whole basin is well aerated on a higher undersaturated level (90-95%). Some of supersaturation and lower undersaturation features are of local significance. Specific alkalinity values (predominantly 0.116) point out to a dominant maritime advection of the Adriatic from the Ionian Sea.

Nutrients are mainly represented by low concentrations uniformly distributed through the water column. Phosphates and nitrates as well as silica show a good correlation with the river outflow, but are also concentrated in the layers close to the sea bottom. Assimilation index varies from 2-8 with values of maxima distributions on the western part of the Adriatic coast.

Winter oceanographical characteristics of the Adriatic Sea are changeable, essentially dependent upon hydrometeorological condition, environmental factors as well as interactions between the continental and maritime influences.

Vučak, Z. and Škrivanić, A.

"Results of the oceanographical transadriatic january 1980  
cruise of the R/V "Andrija Mohorovičić"

Paper presented by A. Škrivanić (Yugoslavia)

#### Discussion

A. Ballester: The weather was, I suppose, heaviest in January.  
If so, what was the way to control the meteorological influences, on the results?

A. Škrivanić: Across the dynamics of current system and also  
by the structure of the water column and distribution of physical and chemical parameters.

J. Salat: What was your strategy in releasing the drift-cards?

A. Škrivanić: Take the knowledge about the general surface  
circulation.

M. Saad: Did you study the vertical distribution of  
nutrients in the whole water column in addition to  
surface and bottom investigations?

A. Škrivanić: Yes, we did.

M. Saad: What is the impact of man in discharging domestic  
sewage on concentrations of N and P in the  
Adriatic Sea?

A. Škrivanić: The above mentioned effect is prevalently pronounced on the nearshore region of the Adriatic littoral. The January transadriatic cruise

mainly covered the offshore Adriatic waters and this impact was pronounced mostly on the northernmost inland and shallow part of the Adriatic (the direct influence of abundant rivers' discharge).

- G. Cauwet: Have you any information on the POC, especially in correlation with dissolved oxygen values?
- A. Škrivanić: Unfortunately, we have not. Owing to unfavorable conditions on the sea, our program had to be reduced.
- A. Ballester: How many drift cards have you recovered during this operation?
- A. Škrivanić: We have recovered about 11% drift cards.
- A. Cruzado: A previous work by Zore-Armanda indicates that circulation patterns in the Northern and Southern Adriatic are uncoupled. Do you think that oxygen and nutrient distribution confirm such an assumption?
- A. Škrivanić: Our more recent investigations are not in concordance with the previous ones. Direct current measurements point out to an Adriatic dynamically separated. Also, the distribution of oxygen and nutrients partially confirms our assumption.

