



Geofizički odsjek,
Prirodoslovno-matematički fakultet,
Sveučilište u Zagrebu,
Horvatovac 95, 10000 Zagreb
Tel. (+385 1) 46 05 900, fax: (+385 1) 46 80 331

Zagreb, 21. 11. 2019.

OBAVIJEST

Dana **11.12.2019.** u **13:15 sati** održat će se na Geofizičkom odsjeku PMF-a
sljedeće izlaganje:

Miro Gačić and CRoPEX Group

***Interactions between the Adriatic and Ionian Seas – Process simulations at the
Coriolis rotating platform of the University of Grenoble***

SAŽETAK: Ionian Sea together with the two adjacent basins, Adriatic and Aegean Seas, a Central Mediterranean, represents the key area for both the Eastern and Western Mediterranean. It is a crossroad of the main Mediterranean water masses (Levantine Intermediate Water – LIW, Atlantic Water – AW and it involves the site of the Eastern Mediterranean Dense Water – EMDW formation, which takes place mainly in the Adriatic Sea. Only occasionally dense water is formed in the Aegean Sea as it happened in the early 1990's during the Eastern Mediterranean transient. Ionian Sea is the deepest basin of the Mediterranean being in some parts 5000 m deep. Analysis of the long-term altimetric data revealed that the sea surface circulation in the Ionian shows peculiar characteristics; it varies at decadal time scales between cyclonic basin-wide gyre occupying the entire northern area, and the anticyclonic meander. The circulation pattern determines then the thermohaline properties of both the interior of the Ionian Sea, Adriatic Sea as well as of the Levantine basin. Ionian and Adriatic Seas during the cyclonic circulation mode, are invaded by a highly saline Levantine water. On the other hand, during the anticyclonic circulation the two basins are affected by the low-salinity waters of the Atlantic and the Western Mediterranean origin. There has been a long discussion about the mechanism generating such inversions and some scientists suggest, mainly based on the numerical modelling studies, that the phenomenon is linked to the wind stress curl. Other studies, however, showed that the wind curl variations are not strong enough to generate such changes; these studies sustain that the inversions are due to the interplay between the source of the dense water (Adriatic or Aegean) and the Ionian horizontal circulation. The long-term variations of the density of the bottom water formed associated with the salinity variations in the dense water formation site induce reversals of the horizontal pressure gradient in the Ionian Sea and the circulation pattern. The mechanism was named Adriatic-Ionian Bimodal Oscillating System (BiOS). In order to demonstrate that the wind-stress forcing is not important in the generation of the Ionian horizontal circulation we set up a series of the experiments at the 13-m large Coriolis rotating platform at the University of Grenoble. In the series of our experiments, attention is addressed to the problem of the residual basin-wide deep-sea circulation as affected by the dense water plume at the neighboring slope area. The dense water outflow from marginal seas quite often is time-limited phenomenon with the duration of several months after the winter convection, therefore part of our experiments was designed so that they mimic this kind of situations. More specifically, we will be discussing the response time of the residual flow in the upper layer at the open sea to the discharge of the dense water in the slope area. We will also address the effect of the density variations of the injected water flow on the surface circulation at the open-sea area attempting to simulate the circulation inversions. These phenomena will be discussed comparing the potential vorticity evolution in the slope area and in the central deep portion of the basin as related to the dense water flow. Comparison between the rotating tank and the circulation evolution in the real situation of the interaction between the Ionian and Adriatic Seas will also be undertaken.

Pozivaju se studenti, apsolvenci i svi zainteresirani da prisustvuju predavanju, koje će se održati u **predavaoni P2** Geofizičkog odsjeka PMF-a, Horvatovac 95, Zagreb.