Cretaceous planktonic foraminifera and tectonostratigraphy of the Adheres Mountain and Poros Island, Argolis Peninsula – Greece

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The present work consists on the geological and biochronological study of the Argolis Peninsula and Poros Island; geographically located in the eastern-most part of the Peloponnesus and geologically in the Pelagonian Isopic Zone of the Internal Hellenides.
During the Cretaceous, the Pelagonia microcontinent was between the Pindos basin (to the palaeo south) and the Vardar Ocean (in the palaeo north). A Cretaceous transgression let a serie of pelagic and hemipelagic limestones to set unconformably on top of the Migdhalitsa Ophiolitie Unit (a Jurassic nappe made of serpentinites, basalts and radiolarian cherts) in the northern margin. These limestones and a topping flysch form the Mesoautochtonous Series.
On the field, different units are found on top of the abovementioned series: the Akros Unit (made of neritic limestones followed by pelagic and hemipelagic limestones, a flysch and a wildflysch top the unit), the Kamara Unit (made of pelagic and hemipelagic limestones encompassed by a distal flysch), the Poros Wildflysch (made of distal flysch, some interlayered pelagic limestones and olistoliths), the Poros Unit (made of Sandy limestones) and the Adheres Complex (made of turbidity and conglomeratic quartzofeldspathic flysch, with interbedded pelagic limestones, a serie of arc deposits and other polymictic material).
During our _eldwork, 115 samples were collected from di_erent limestones and units (at least two specimens per sample) for the study of the planktonic foraminifera.
The ages yielded by the samples permited the construction of a chronostratigraphic chart for every Cretaceous to Palaeocene unit. The result is that all the pelagic and hemipelagic limestones are of Late Cretaceous age (except from a few of the Mesoautochtonous Series that reach the Palaeocene), showing an incompatibility with the actual tectonic models of the region.
In the latter, these Cretaceous units are formed in the Pelagonian northern passive margin and are obducted onto the microcontinent with the accretion/subduction complex (Adheres Complex) upon the closure of a remnant basin of the Vardar Ocean, during the Palaeocene{Eocene. However, it is not possible to form in the same environment and at the same time pelagic limestones (like those from the Akros Unit and the Mesoautochtonous Series), sandy limestones (like those from the Poros Unit) and pelagic limestones encompassed by a distal flysch (like those from the Kamara Unit).
We propose that the Mesoautochtonous Series and the Akros Unit were formed in the Pelagonian passive margin and that the Kamara Unit, the Poros Wildflysch, the Poros Unit and the Adheres Complex formed in the Rhodopian active margin. We also propose that the closure of the Vardar Ocean started during the Late Cretaceous, since the flysch's deposition (product of a closing basin) is Late Creatceous in age.