

## Discovery of Capitanian-Wuchiapingian (Middle-Late Permian) Calcareous Algae and Foraminiferan assemblages from Chios Island (Greece). Paleogeographic implications

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The sedimentary and fossil record of Chios Island (eastern Aegean Sea) holds key evidence to understand the geodynamic and paleogeographic evolution of the Eastern Mediterranean area, as well as all the complex geological events that led to the closure of the Palaeotethys Ocean and subsequent opening of Neotethys in the south.

Two tectonostratigraphic units are distinguished since the synthesis of Besenecker et al. (1968) on the geology of the island. The Lower (relative autochthonous) Unit is made of siliciclastic turbidites, which contain olistolithes of various lithologies, ranging in age between the Silurian and the Carboniferous; they are overlain by a Mesozoic carbonate sequence. The Upper, allochthonous Unit is thrust over the Lower Unit and is only preserved in a number of isolated klippen. It is composed of Upper Carboniferous turbidites, Lower Permian sandy/marly limestones and Middle Permian shallow-water carbonates, which are overlain by red siltstones and Jurassic platform carbonates. According to Zanchi et al. (2003), the Upper Palaeozoic sequence of the Lower Unit is of Laurasian affinity, while Angiolini et al. (2005) suggested a Gondwanan affinity for the Upper Unit, based on the Brachiopods found in the Middle Permian limestones. We here provide for the first time evidence of the presence of Upper Permian shallow water carbonates within the Upper Unit, in which the identified foraminiferan record is also suggestive of North-Gondwanan affinity.

### Studied material

Three nearly 3m-thick sections of Permian limestones and marls of the Upper Unit were observed and sampled along the east coast of the Marmaro Bay, situated in the north-eastern part of the Chios island (Kardamyla, N 38°32'29.76", E 26° 7'5.67"). The access to the area is easy by car as a settlement has been developed. The total length of the outcrop is 283 m and it is interrupted by several small faults and landslides.

### Results

The three studied sections may be assigned to the latest Capitanian/earliest Wuchiapingian, latest substage of the Middle Permian (= Guadalupian) and/or oldest stage of the Late Permian (= Lopingian). Two of them are characterized by abundant gymnocodiacean algae, which are associated with some rare smaller foraminifers, miliolates, nankinellins and nodosariates. The well-characterized Capitanian/Wuchiapingian strata display interesting bioaccumulated perireefal microfacies with richthofeniid brachiopods and inozoan calcisponges. They are biostratigraphically characterized by an assemblage of *Reichelina* cf. *media*, *Dunbarula?* sp., *Altineria alpinotaurica*, *Labioglobivalvulina*, *Froncina* and *Robuloides*. Other perireefal microfacies show abundant elements of a new tubiphytid genus and species.

### Discussion and conclusions

The palaeogeographical distribution of *Altineria alpinotaurica* includes now Chios, the Taurus mountains in Turkey, the NW and central Iran, whereas primitive forms of the genus are also known from Tunisia and Armenia. All these areas were part of the Perigondwanan border during the Wuchiapingian, which would suggest that the opening of the Neotethys did not begin prior to the Changshingian (= latest Permian).

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### References

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