

15th Congress of the RCMNS

Regional Committee on Mediterranean Neogene Stratigraphy

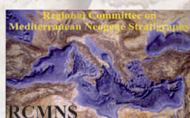
Exploring a “physical laboratory”: the Mediterranean Basin

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Book of Abstracts



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THE MASTERS OF ADAPTATION: THE EVOLUTION OF MEDITERRANEAN AND PARATETHYAN GOBY FISHES DURING MIOCENE AS RECONSTRUCTED FROM OTOLITHS

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Gobies are a diverse group of small fishes, which are highly adaptive and very abundant in shallow marine, brackish to freshwater environments of the world except for the high boreal latitudes. Throughout the Neogene, their otoliths are abundant in the Mediterranean and Paratethyan records. Recently, the increased knowledge of extant otoliths and the study of otoliths in situ in identifiable articulated skeletons have much enhanced our understanding of their evolution in the area. During early Middle Miocene (Langhian) an uninterrupted connectivity between Atlantic, Mediterranean and Paratethyan seas is documented in gobies by a rather uniform faunal composition with a certain degree of diversification that seems to be responsive mainly to climatic differences. With the onset of the Serravallian, the Paratethys became restricted and separated from the Mediterranean during most of the subsequent geological time. The Mediterranean and Paratethyan goby associations diverged from each other. The earlier and more uniform fauna persisted in the Mediterranean. The rapidly changing environment and water salinities that set in in the Paratethys with the Sarmatian (=Serravallian) apparently stimulated a rapid endemic evolution of gobies, which are particularly well adapted to such environments, and which are still richly represented in the present Ponto-Caspian fish fauna. The 'Lago Mare' event during the Messinian salinity crisis in the Mediterranean has revealed a rich otolith-based goby fauna in various Italian localities. Several of the identified taxa seem to be not consistent with the other Mediterranean gobies of the Tortonian before and the Pliocene after the 'Lago Mare' event. They apparently correlate with certain endemic lineages that emerged in the Paratethys during the Sarmatian and that are still present in the Recent Ponto Caspian region. These possibly migrated into the Mediterranean from the Paratethys.