# Title: Plio-Pleistocene ostracod assemblages and paleoenvironmental evolution in the Monte San Nicola and Montalbano Jonico successions

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# Proposal

The research involves the study of the ostracod assemblages of two southern Italian successions outcropping at Monte San Nicola (CL) and Montalbano Jonico (MT). Both sections are known for the relevance acquired following the assignment of the GSSP (Global Stratigraphic Section and Point) of the Pliocene-Pleistocene boundary, in the case of the Sicilian section, and the recognition as SABS (Standard Auxiliary Boundary Stratotype) for the Middle Pleistocene of the Lucanian one. Previous studies have shown the presence of very well-preserved ostracod assemblages that allowed an excellent, though not exhaustive, systematic definition. However, the paleoecological studies for which this systematic group is particularly indicated have been updated only in limited sections, in comparison with numerous and more recent detailed investigations considering biostratigraphy, paleoceanography and magnetostratigraphy. The quantitative analysis of ostracod assemblages, correlated with such recent studies, would allow the acquisition of new data and more precise interpretations of the chemical and physical conditions of the bottom waters, particularly the relationships between dissolved oxygen levels and sapropelitic deposition, a more accurate assessment of paleodepth, and distribution of taxa of paleoclimatic relevance (e.g., the North Atlantic species *Cytheropteron* *testudo*).

# Research Program

# Given the collaboration with the research group of the Department of Earth and Geoenvironmental Sciences of the University of Bari (Prof. M. Marino), priority will be given to the analysis of available samples previously studied for other investigations. Consequently, the sampling phase should not be one of the priority tasks of the research, although the opportunity to supplement the available material with on-site activities should not be ruled out.

# The conduct of the research includes sample processing necessary to obtain assemblages consisting of sufficient numbers of individuals to permit statistical analysis (≥300 valves), an activity that makes previous experience in the micropaleontology of loose sediments a prerequisite. This activity will engage the first and second years of the Ph.D. program, together with the study of problems inherent to the Plio-Pleistocene outer shelf and bathyal environments of the Mediterranean in connection with global events, and the use of ostracods in paleoenvironmental and paleoclimatic reconstructions.

# The second and third years will be devoted to learning and applying diagnostic and interpretive methodologies, including the study and identification at the specific level of the taxa, the processing of quantitative data and their interpretation, and the exposition and writing up of the results obtained.

# The period of activity abroad could take place at the University of Huelva (prof. Francisco Ruiz) with whom scientific collaborations on Plio-Pleistocene ostracod assemblages of Atlantic successions are active.

# Considering the proximity and accessibility of the geological sections under consideration, as well as the availability of the samplings previously performed for biostratigraphic analyses, and given the possibilities offered by the laboratories at DiSTAR, the research, making use of institutional resources, should not require external funding.