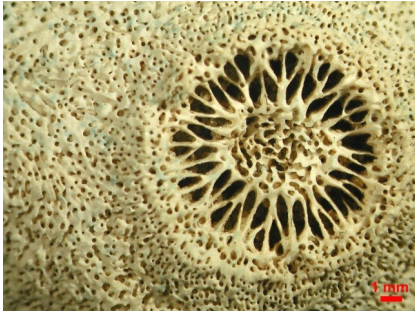


Paleontology and Paleoecology

Paleobiology and Paleoenvironments of Cenozoic Marine Tropical Ecosystems

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RESEARCH TOPICS

Our research targets evolution of tropical shallow-water marine calcifiers during the Cenozoic. We focus on biodiversity patterns and response of marine organisms to past major Earth System changes, and use ancient analogs aiming to contribute to the understanding of the future effects of global change on tropical marine ecosystems.

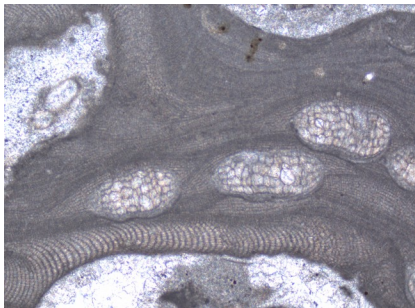
Evolution, biodiversity, paleoecology and biomineralization of scleractinian reef corals.

We investigate the response of scleractinian reef corals to major Cenozoic environmental perturbations following a multiscale approach that can be subdivided in 3 main research lines that strategically address the topic from the micro-scale (biomineralization) to the macro-scale (reef construction), passing through the characterization and evolution the coral fauna. This approach is based on the assumption that corals have recorded in their microstructure and mineralogical/chemical composition, diversity, constructional ability, and growth patterns, signals useful to reconstruct their response to global changes.



Evolution of carbonate systems through the Cenozoic

Shallow-water carbonates are the most sensitive depositional systems to environmental and climatic changes. We study Cenozoic carbonates of the Mediterranean area through an integrated approach, including biofacies analysis, stratigraphy and sedimentology, to trace the major steps of the palaeoenvironmental evolution at regional and global scale. Special attention is given to the reef-building biotic associations, including encrusting organisms like coralline algae and molluscs, as key-tools to reconstruct the palaeoenvironmental parameters.



Palaeoecology and biostratigraphy by means of Cenozoic Larger Foraminifera

The Cenozoic Larger Foraminifera (LF) are powerful tools both for reconstructing palaeoenvironments and for determining the age of the rocks. We work on LF from the Mediterranean area with the aim of obtaining a refinement of the current Shallow Benthic zonation and calibrating it with the current calcareous plankton zonations. The LF are studied both as isolated specimens and in thin sections. The analysis of the evolution of LF assemblages allows to have informations about the response of the biota to the palaeoclimatic changes and especially to the hyperthermal events of the Paleogene.

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