

Master project suggestion
University of Vienna
Department of Palaeontology



Thesis title: Changes in foraminifera biomass in the Eastern Mediterranean across the Early–Middle Pleistocene Transition

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This thesis will be implemented in the framework of the PALEOWEB project “Deep-time climate change impact on marine food webs”, which is funded by the Austrian Science Fund (Lise Meitner project M 2894; <https://sites.google.com/view/kagiadi/projects/paleoweb>). The aim of the PALEOWEB project is to develop a quantitative model that can predict how the structure and functioning of marine food webs were affected by changes in sea surface temperature, using paleontological and paleoclimatic data. Present-day marine ecosystems, especially the eastern Mediterranean marine ecosystem (EMME), are affected by multiple stressors, such as climate change, biological invasions, and anthropogenic impacts. In contrast, the Pleistocene EMME was only affected by severe climatic oscillations, including warming periods that can be used as analogues of current and forecasted climate warming. Therefore, modeling the Pleistocene EMME food web will allow us to isolate the effect of climate warming on marine ecosystems. This study focuses on the MIS32–30 and MIS22–18 intervals using marine sediments from two sections on Rhodes Island (Greece). The material is already available for this study.

In this context, the student will estimate the foraminifer biomass based on their sizes and abundances. In practical terms, the student will conduct measurements of foraminifera under the microscope; apply already available functions for estimating the biomass; interpret the results in conjunction with available sea surface temperature estimates, as well as paleontological, sedimentological and geochemical data; and write and defend the Master thesis.

Activity	Month					
	Jan2022	Feb2022	Mar2022	Apr2022	May2022	Jun2022
Foraminifera counts						
Biomass estimation						
Interpretation						
Thesis writing						
Thesis defense						