

Dr. Dieter Korn, Berlin

The role of hyperthermia in the end-Permian mass extinction (PT-evo)

Our aim is to understand the role of hyperthermia in the end-Permian mass extinction, the largest biotic catastrophe in the geological record. Despite its crucial importance for the evolution of life, the triggering mechanism for this event is still highly controversial. This extinction represents the most dramatic ancient example of a climate-driven biotic catastrophe because of its association with global warming. It may thus serve as a partial analogue for the long-term response of biodiversity to future anthropogenic climate change. Here we propose a research project, in which the consequences of warming-induced stresses during the end-Permian mass extinction and Early Triassic recovery will be investigated. We will use ostracods as model organisms and simultaneously investigate their evolutionary history and response to climate change, in particular the temperature increase seen at the Permian-Triassic boundary interval. The field sites in our investigation are in NW Iran (Julfa region), Central Iran (Abadeh region) and the Zagros Mountains (Esfahan region); these areas cover sections from open shelf and shallow-water settings. Our study will include isotope geochemistry on ostracod shells using SIMS technology and assemblage analyses (changes in taxonomic diversity, morphological disparity, degree of endemism, changes in size and shape etc.).