Geophysical Research Abstracts
Vol. 16, EGU2014-12109, 2014
EGU General Assembly 2014

Paleoenvironmental & Paleomorphological interpretations, through foraminiferal assemblages in an active tectonic environment

Aggelos Pallikarakis (1), Ioannis Papanikolaou (1), Maria Triantaphyllou (2), and Klaus Reicherter (3)

(1) Agricultural University of Athens, Department of Science, Athens Greece , (2) University of Athens, Department of Historical Geology and Palaeontology, Athens Greece , (3) Rheinisch-Westfälische Technische Hochschule Aachen, Institute of Neotectonics and Natural Hazards, Aachen Germany

Active faults have an important role in forming the morphology of a region, either by uplifting or subsiding an area. We studied the impact of active tectonics to the paleoenvironment and the paleomorphology of the eastern part of Corinth gulf. Our study area lies between significant fault traces such as Loutraki, Kechries and Agios Vasilios faults, but is also affected by important structures as South Alkyonides fault system and Xylokastro fault. Moreover, the area is affected by sea level fluctuations and regional uplift as well. The complicated tectonic regime in addition to the sea level changes, has increased the complexity the paleoenvironmental and paleomorphological patterns.

We took samples from several borehole cores drilled in our study area and we analyzed them for their micropaleontological content. We picked, counted and classified foraminiferal assemblages under a Leica APO S8 stereoscope. In each borehole lithological alterations of clay, sand and conglomerate have been recognized and described as well. The analyses showed paleoenvironmental alterations within the cores from shallow marine to terrestrial. Little correlation could be done even to neighboring boreholes, indicating major lateral variations and a complicated sedimentation pattern.

If we associate marine sediments with glacioeustatic sea level highstands and fluvial-terrestrial sediments with lowstands, we suggest that we have successions of highstand and lowstand deposits within the cores. Correlating the uplift rate of the area, as it was estimated by several researchers, with the global glacioeustatic sea level curve, we can suggest a relative age for the sediments. We identified at least three transgressive cycles within the deepest boreholes, while the age of these sediments could be approximately at 200 to 250 ka. Furthermore, the presence of fluvial-terrestrial sediments in succession with marine sediments that were found in several boreholes, indicate the existence of paleovalleys located at the immediate hangingwall of Kalamaki and Kechries fault. Finally, lacustrine sediments indicate the presence of an ephemeral lake.