Geophysical Research Abstracts
Vol. 15, EGU2013-776-2, 2013
EGU General Assembly 2013

Benthic faunal assemblages from the Holocene middle shelf of the South Evoikos Gulf, central Greece, and their palaeoenvironmental implications

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South Evoikos Gulf is an elongate, WNW – ESE trending basin, 60 km long and 15 km wide. Its floor slopes towards the south-east where the basin connects with the Aegean Sea across a 55 m deep sill. The hydrographic network of the area is characterized by Asopos river the small Lilas River and some other ephemeral streams.
A sedimentary record spanning the last 13000 calyr BP was recovered at N 38°12'23.1228" E 24°8'14.2404", water depth 70 m, in this gulf. A total of 52 samples from the lower half of the core were quantitatively analyzed for micropalaeontological (benthic foraminifera and ostracods) study in order to reconstruct palaeoenvironmental conditions. This work contributes to the evaluation of the modern environmental problems in South Evoikos Gulf (hypoxia, ecosystem changes, subaquatic vegetation die-off, metal pollution) within the context of the palaeoenvironmental record.
In the investigated core, the benthic microfaunal assemblages indicate a marine coastal environment with a gradual transition from a circalittoral to an infralittoral restricted environment.
The basal part of the record is characterized by *Haynesina depressula* Assemblage, which is composed of *Haynesina depressula*, *Textularia agglutinans* and *Bulimina aculeata*.The abundance of *Haynesina depressula* could be associated with normal marine conditions, but always with periodic brackish water influence. The species composed this assemblage, which are almost all typically infaunal, characterize sediments with a high or medium-high muddy fraction, rich in organic matter available for the organisms that live within the sediment, and low salinity bottom water.
Samples from the upper unit of the core indicate a nearshore, inner-shelf facies less than 50 m deep. Common inner-shelf species in these samples include *Ammonia beccarii* together with *Bulimina marginata* (Sgarrella & Moncharmont Zei, 1993). The highest abundance of *A. beccarii* is found between 15 and 20 m water-depth in samples with intermediate percentages of organic matter in which at least some sand fraction is present. A strict interpretation based on the known modern distribution of *A. beccarii* would confine the species to upper shoreface environments (Hayward et al. 2004). The relatively high frequency values of *B. marginata* indicate a correlation with organic matter enrichment, with seasonal low oxygen content. This hypothesis is testified also by the increase of the opportunistic species *V. bradyana*. The temporal presence of *V. bradyana* assemblage indicates a strong influence of Asopos River run-off, with interplay of increasing food availability and low oxygen concentration
Three main ostracod assemblages were distinguished from the bottom to the top of the sediment core:
At the lower part of the core ostracod assemblage consists mainly of *Costa edwardsii*, *Cytheridea neapolitana*, *Callistocythere* spp., *Pterygocythereis jonesii* and *Leptocythere* spp. At the middle part, *Costa edwardsii* is the dominant species with relative abundances up to 80% of the total ostracod fauna. At the upper part *Costa edwardsii* is the most abundant species (20-40% of the total fauna) accompanied mainly by *Loxoconcha* spp., *Xestoleberis* spp. and *Cyprideis torosa*. Ostracod abundance and diversity decrease towards the upper unit of the studied core.
These data, and AMS radiocarbon ages determined for foraminifera and ostracods, provide evidence of a change from oceanic influence to estuarine influence. This event is also contemporaneous with the period which is generally characterized by increased evaporation rate (initially at the tropic seas), retreat of glaciers and increased rainfalls (Fairbanks, 1989).

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This research has been co-financed by the European Union (European Social Fund – ESF) and Greek national funds through the Operational Program "Education and Lifelong Learning" of the National Strategic Reference Framework (NSRF) - Research Funding Program: THALIS –UOA-70/3/11669.