PALAEOENVIRONMENTAL CHANGES IN THE EASTERN MEDITERRANEAN BASIN (CRETE ISLAND, GREECE) DURING THE LATE MESSINIAN “LAGO-MARE”

D. Cosentino¹, P. Cipollari¹, R. Gennari², E. Gliozzi¹,³, F. Grossi¹, S. Iaccarino²

¹ Dipartimento Scienze Geologiche, Università degli Studi Roma Tre
² Dipartimento Scienze della Terra, Università degli Studi di Parma
³ IGAG, CNR-Roma

In this paper the results obtained from the biostratigraphical analysis of some sections sampled in the Messarà Plain (Crete Island, Greece) will be shown. Nearby Faneromeni and Ano Akria villages, the Miocene/Pliocene boundary is well exposed. There, gypsum-bearing clay, laminate microcrystalline gypsum and gypsum-rudites characterise the evaporitic deposits of the Messinian stage. In these areas, above the Messinian evaporite, post-evaporitic fine-laminated polychrome clays, with intercalations of sandstones and conglomerates, have been found. In both the Faneromeni and Ano Akria area, the Pliocene grey clays and conglomerates rest unconformably on the uppermost Messinian post-evaporitic deposits.

A 20 cm-spaced sampling has been performed in both the sections, for more than 100 samples collected. The results of the micropaleontological analysis performed on the Faneromeni and Ano Akria sections point to the occurrence of ostracod assemblages with Paratethyan affinity.

In the analysed samples, reworked planktonic foraminifers and other fully marine remains as well as well-preserved charophyte gyrogonites have been also found.

The ostracod assemblages found in the Messarà Plain belong to the *Loxocorniculina djafarovi* Zone (*sensu* Carbonnel, 1978), which characterises the uppermost Messinian deposits of the whole Mediterranean Basin. At that time, the well-known *Lago-Mare* biofacies was also widespread on the Crete Island. The presence of Paratethyan ostracods in the post-evaporitic Messinian deposits of both Faneromeni and Ano Akria sections suggests that in the latest Messinian Crete Island was affected by sedimentation processes in brackish water palaeoenvironments.

The ostracod assemblages collected in the Messarà Plain depict a rather unstable environment showing changes in depth and salinity. Two main ostracod assemblages have been found: a) *Cyprideis agrigentina*-dominated assemblage (shallow-mesohaline); b) well-diversified assemblage made by pointed candonids, Leptocytheridae and Loxoconchidae (deeper-oligohaline).

The instability of the Messarà Basin could be related to the tectonic activity that during the late Messinian Lago-Mare episode affected the Crete Island and the eastern Mediterranean Basin.