Integrated Analyses of the Messinian Post-Evaporitic Section of Maccarone (Northern Apennines, Italy): Insight into Palaeoclimate and Palaeoenvironments During the Messinian Salinity Crisis

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The Maccarone section consists mainly of marls with thin intercalations of sandstone and carbonate. A volcaniclastic layer and three organic-matter-rich horizons characterise the lower portion of the section (p-ev1). In the uppermost part, four carbonate-rich horizons (“colombacci”) define the stratigraphy of the upper post-evaporitic deposits (p-ev2), passing upwards to Lower Pliocene marine clays.

A 50 cm regular-spaced sampling has been performed on a total thickness of about 230 m, which, in the uppermost part, encompasses the Messinian/Zanclean boundary. On the 460 collected samples, palaeontological, CaCO3 content, rock magnetic, stable isotope analyses have been performed. Moreover, a field gamma-ray profile has been acquired. Palaeontological analyses point to the occurrence of an Early Pliocene marine environment overlying the oligomesohaline late Messinian deposits, which contain the well-known Lago-Mare biofacies (M/P boundary).

Micropaleontology, natural radioactivity, rock magnetic, oxygen and carbon isotope analyses allowed us to recognize the main palaeoenvironmental changes that affected the Mediterranean area at the end of the MSC.

Key words: Messinian salinity crisis, Lago-Mare biofacies, M/P boundary, Palaeoclimate, Mediterranean Basin.