



A reappraisal of the middle Eocene succession at the Contessa Highway section, Umbrian Apennines, Italy

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A high-resolution integrated paleomagnetic (magnetostratigraphy and environmental magnetism) and biostratigraphic study and of the middle Eocene Scaglia limestones of the Contessa Highway section, central Italy, has been recently carried out. The section extends about 160 m from the Cretaceous-Tertiary (K/T) boundary to the end of Scaglia Cinerea outcrops. The sampled section from the Scaglia Variegata Formation covers the interval from 95 m up to 150 m above the base of the section. We collected oriented samples every 10-20 cm (in this study, our samples have been referred to the black/white markers painted onto the section by Bill Lowrie and others about 25 years ago!). This study is constrained by new quantitative analyses of planktonic and benthonic foraminiferal assemblages mainly using cold acetolysate method that permits to obtain generally well identifiable foraminifera also from hard limestones offering the possibility to make a more accurate taxonomic determination and to obtain a more complete picture of the foraminiferal assemblages. Coupling of this technique with high-resolution sampling enables us to improve the biostratigraphic framework and the characterization of the paleoecological and paleoceanographic conditions that accompanied the deposition of the Contessa Highway succession. The distribution of bathymetric index forms within the benthic foraminiferal assemblages restricts the paleodepth estimation to the lower part of the middle bathyal setting. The analyses of the planktonic foraminiferal assemblages allowed as to recognize several biostratigraphic events from the most of Zone P11 to the lower part of Zone P15 of Berggren et al. (1995), resulting in a further refinement of the magnetobiostratigraphy of the Contessa Highway section (Lowrie et al., 1982). The primary goal of this study was to (1)

provide a calibration of the biostratigraphic datums in the late middle Eocene interval and to (2) test whether a signature associated with the late middle Eocene warming event (41.5 Ma, MECO event) was present in this record (Bohaty and Zachos, 2003).

Berggren, W.A., et al., (1995). SEPM Special Publication, 54, 129-212.

Bohaty, S.M., and Zachos, J.C., (2003). *Geology*, 31, 1017-1020.

Lowrie, W., et al., (1982). *Geological Society of America Bulletin*, 93, 414-432