



Supplementary material

Timing of Contractional Tectonics in the Miocene Foreland Basin System of the Umbria Pre-Apennines (Italy): An Updated Overview

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This supplementary material consists of 6 figures

Supplementary Figures

MEDITERRANEAN NANNOFOSSILS BIOZONES Fornaciari & Rio, 1996 Mt Rentella Unit Litho-Bio stratigraphic synthesis Zone subzone events Castelvieto MNN4a FCO S.heteromorphus MNN3b LCO S.belemnos MNN3a S.belemnos M.Sperello MIOCENE MNN2b IL Molino H.ampliaperta I Molini MNN2a AE H.euphratis FCO H. carteri EARL MNN1d 2 S. disbelemnos MNN1c S. delphix sandstones MNN1b S. delphix marls and cherts MNN1a marls LCO D.bisectus MNP25b clayey siltites S. ciperoensis MNP25a

Figure S1. Stratigraphic correlation scheme of the REN sections studied by means of the recognized calcareous nannofossils bioevents.

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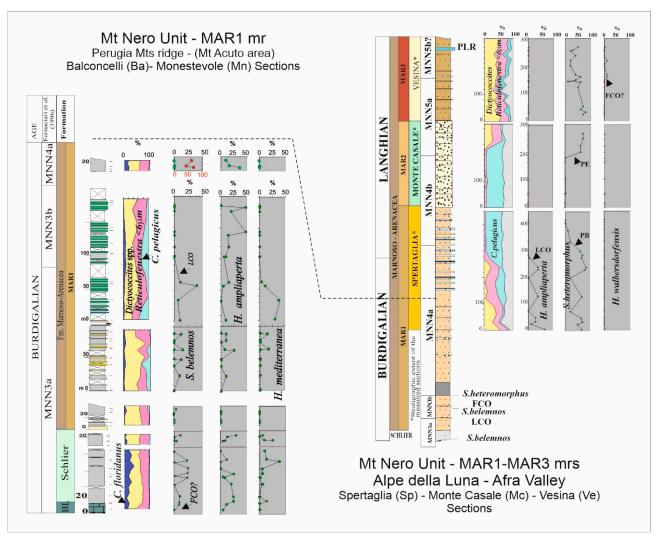


Figure S2. Stratigraphic correlation scheme of the reference sections of the Mt Nero Unit in the study area; left): composite log of the Mt Acuto succession in the Perugia Mts ridge (from integration of the sections Ba and Mn in the map of Fig. 1); right): composite log of the Alpe della Luna succession in the Spertaglia, Monte Casale and and Vesina sections (respectively Sp, Mc and Ve in Fig. 1). The distributions of the nannofossils marker species, resulting from the quantitative biostratigraphic analyses, are plotted in the diagrams drawn alongside the stratigraphic columns.

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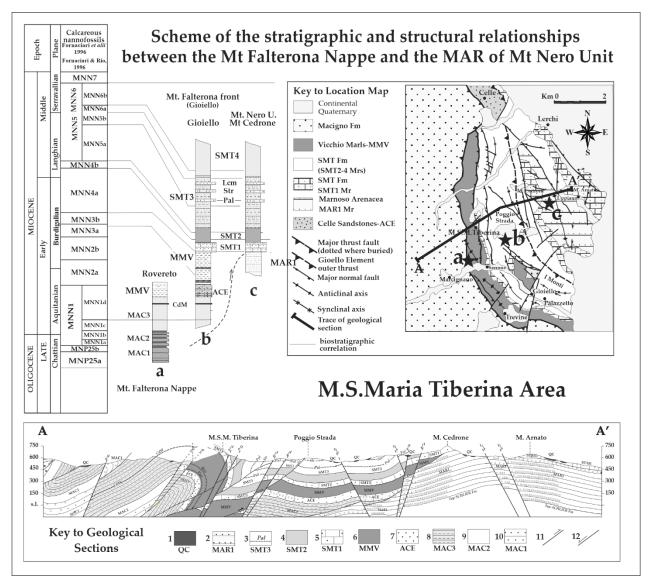


Figure S3. Summary of the main stratigraphic and structural features of the Monte Santa Maria Tiberina (MSMT) area.

Top-left: litho-bio-stratigraphy of the outer Falterona Nappe (section Rovereto-a and Gioiello-b) and Mt Nero Unit (sections c- Mt Cedrone and San Lorenzo, Sl in Fig. 1).

Top-right: structural sketch of the MSMT area with the trace of the section reported below; stars indicate the sectors characterized by the synthetic stratigraphy in the left.

Bottom: Interpretative geological cross-section of the MSMT area (lithological patterns are the same as in the sketch above).

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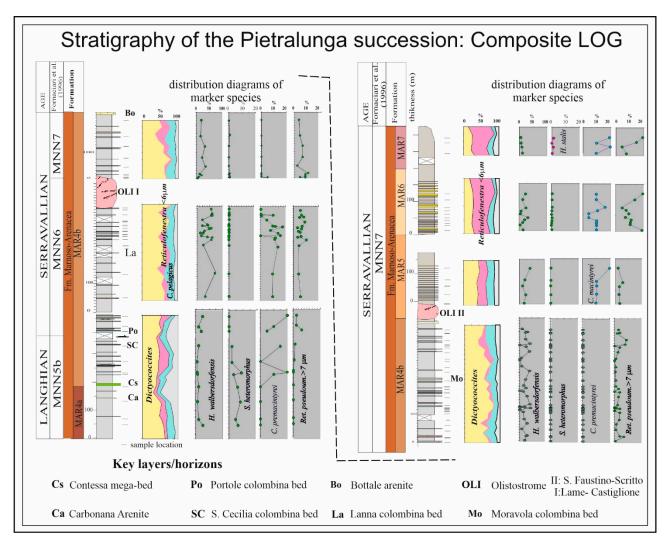


Figure S4. Composite Log of the MAR formation in the Pietralunga Unit resulting from the correlation of the 8 sections located in Fig. 1 (Vm, Sc, Po, Ss, Pi, Mo, Pz and Mf; full names in the main text); the position of the key-beds used for the lithostratigraphic correlation is shown by the acronyms explained below. The distributions of the nannofossils marker species, resulting from the quantitative biostratigraphic analyses, are plotted in the diagrams drawn alongside the stratigraphic columns.

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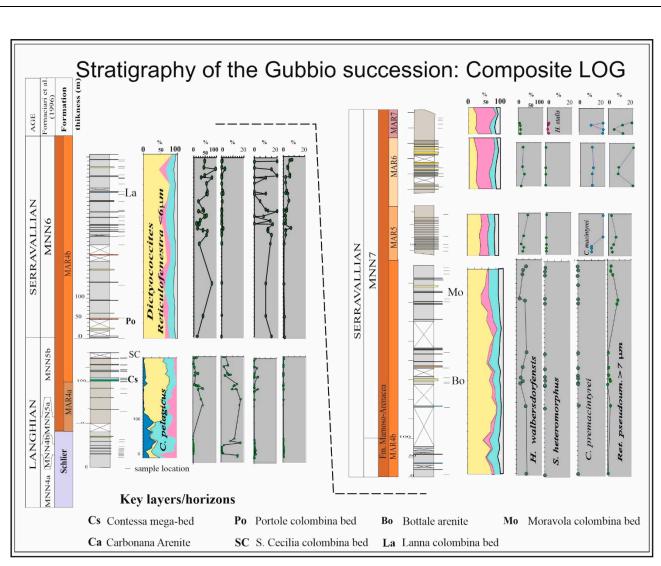


Figure S5. Composite Log of the MAR formation in the Gubbio Unit resulting from the correlation of the sections Contessa and Bevelle (Cs and Be respectively in Fig. 1); the position of the key-beds used for the lithostratigraphic correlation is shown by the acronyms explained below. The distributions of the nannofossils marker species, resulting from the quantitative biostratigraphic analyses, are plotted in the diagrams drawn alongside the stratigraphic columns.

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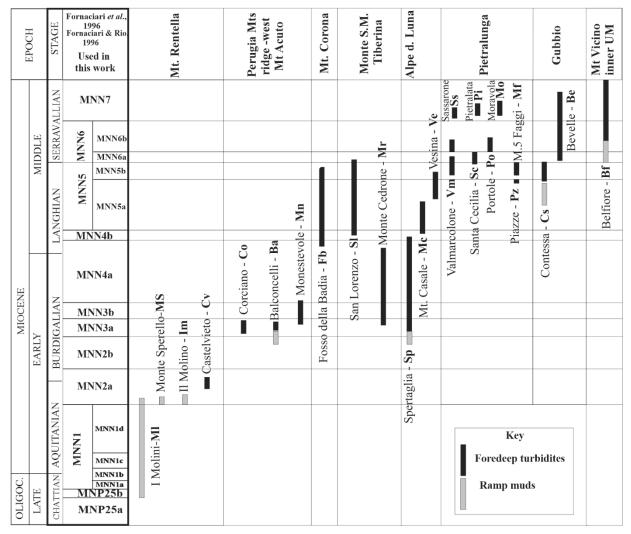


Figure S6. Resumptive table showing the chrono-bio-stratigraphic distribution of the 24 reference sections studied in the Umbria pre-Apennines, within the various tectono-stratigraphic Units (Unit Name on the top of each column).

The biostratigraphic scheme is the same of Fig. 2.

The sections location are shown in Fig. 1 where they are marked with the same abbreviations used here.

Differently colored bars are used to differentiate pre-turbidite ramp muds from the turbidite deposition characterizing the clastic wedge of the foredeep stage s.s.