



Isotope-stratigraphy in Turonian-Campanian shallow-water carbonates of southern Apennines (Italy)

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The low resolution obtained with the classical biostratigraphic methods is one of the most severe limitations in the study of shallow-water carbonates. This problem is particularly acute in the Upper Cretaceous carbonate platform deposits of southern Apennines.

In the most widely used biostratigraphic scheme (Chiocchini *et al.*, 1994) two biozones cover the Turonian-Senonian time-slice. Moreover the chronostratigraphic age of these biozones is poorly constrained because there are no data supporting their correlation with the standard biozonation based on ammonites, calcareous plankton and nannoplankton.

In this work we use Sr-isotope stratigraphy (SIS) and carbon isotope stratigraphy to improve the stratigraphic resolution in the Upper Cretaceous rudist carbonates of Southern Apennines and to solve the problem of the lack of correlation between these shallow-water successions and their deep-water equivalent.

The rigorous assessment of diagenetic evolution with petrography and geochemical analyses (trace elements and stable isotopes) suggests that the outer portion of radiolitic shells is the best candidate for SIS and that carefully microsampled micrite matrix allows to reproduce accurate $\delta^{13}\text{C}$ curves (Frijia, 2005).

The numerical ages obtained with SIS and the correlation between the $\delta^{13}\text{C}$ curves and the standard reference curve of Jarvis *et al.* (2006) allowed the high resolution chronostratigraphic dating of some important biostratigraphic events. These events are for the first time correlated precisely with the standard biozones of pelagic successions.

- The FO of *Moncharmontia apenninica* is dated lower Turonian but this species becomes abundant only from the middle Turonian.
- *Reticulinella kaeveri* has a very narrow range that can be correlated with the middle-upper Turonian boundary
- The FO of *Nummuloculina cf. irregularis* ranges from the middle-upper Turonian boundary to the Turonian-Coniacian boundary.
- The FO of *Scandonea samnitica* is in the upper part of the lower Coniacian, close to the lower-middle Coniacian boundary
- The FO of *Dicyclina schlumbergeri* is in the upper Turonian
- The FO of *Murgella lata* is dated lower Coniacian
- The FO of *Accordiella conica* is in the middle Coniacian.
- The FO of *Keramospherina tergestina* is Lower Campanian

References

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