Geophysical Research Abstracts,
Vol. 10, EGU2008-A-03369, 2008
SRef-ID: 1607-7962/gra/EGU2008-A-03369
EGU General Assembly 2008

Biochemostratigraphy of Upper Barremian-Lower Albian shallow-water carbonates of southern Apennines (Italy): high-resolution dating and correlation with deep-water reference sections

M. Di Lucia and M. Parente

Dipartimento di Scienze della Terra, Universita' 'Federico II', Largo San Marcellino 10, 80138 Napoli, Italy (e-mail: matjam@libero.it; maparent@unina.it)

Studies of recent reefs and carbonate platforms show that they are very sensitive to environmental changes. A large share of information is certainly lost for ever during the transferral to the geological record but we can confidently expect that shallow water carbonate successions contain very rich archives of paleoclimatic, paleoceanographic and sea-level changes. However, our ability to fully exploit the relevant information contained in these archives is often hampered by the low stratigraphic resolution and poor correlation attained by the classical methods of biostratigraphy. This is certainly the case of the Lower Cretaceous platform carbonates of the southern Apennines (Italy). Biostratigraphic schemes, based on calcareous algae and benthic foraminifers, establish only three biozones over the nearly 30 My interval covered by the Barremian-Albian. Correlation of these biozones across different paleobiogeographic provinces is at best tentative and even worst is the correlation with coeval deep-water facies and with the standard biochronologic scale, based on ammonites and calcareous plankton/nannoplankton. Attempts to solve these problems have recently relied mainly on cyclostratigraphy. In this study we present our data on three sections of the southern Apenninic carbonate platform. We used a three-step biochemostratigraphic approach:

1. a high resolution carbon isotope curve is established for each studied section
2. biostratigraphic markers and strontium isotope dating of selected levels are used

to anchor the δ^{13}C curve and to facilitate its correlation with standard reference curves

3. carbon isotope stratigraphy is used to constrain the chronostratigraphic age of the biostratigraphic events of the carbonate platform and their correlation with ammonite and plankton biozones

This approach allowed us to calibrate the following shallow-water bioevents to the standard ammonite and calcareous plankton biozones: the FO of *Debarina hahounerensis*, the FO of *Praechrysalidina infracretacea*, the "Orbitolina level", the acme of *Salpingoporella dinarica*, the FO of *Archaeoalveolina reicheli* and the FO of *Peneroplis parvus.*

Stratigraphic resolution and correlation ability is dramatically increased by integrating these bioevents and the most prominent features of the carbon isotope curve. This opens up some previously hindered research avenues like looking at the shallow water record of Aptian anoxic events or unravelling the local vs. global component of sea-level changes recorded by the southern Apenninic carbonate platform.