

Changes across the Jurassic/Cretaceous boundary: preliminary data from M.te Southern Alps (Italy)

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Calcareous boundary (Tithonian/Berriasian boundary; Nannofossil Subzone NJKc; 989) is characterized by a significant increase of carbonate-rich sediments (Maiolica) and the simultaneous appearance of highly-calcified nannofossil groups (*Conusphaera*, *Polycostella*, *Faviconus*).

Absolute abundances of calcareous nannofossils have been obtained using thin sections, 7-8 mm thick. 1 mm² (= 50 microscope fields of view) have been counted to reconstruct nannofossil abundances.

Relative abundances of Tithonian *C. mexicana minor*, *C. mexicana mexicana*, and *P. nitida* increase significantly, and subsequently decrease across the Tithonian/Berriasian boundary. *Conusphaera* and *Polycostella* appear and rapidly develop reaching high abundances in the lowermost Berriasian. Nannofossil abundance and composition are consistent with previous works on relative and absolute abundances in the central Atlantic (Bornemann et al., 2003; Tremolada et al., 2006). In this section, changes in micrite composition and carbonate productions are quantified as directly correlated to calpionellid biostratigraphy. The rise in nannoconid abundance and the appearance of calcitic calpionellids, indicating the onset of paleoenvironmental changes, are attributable to calcification.

The appearance of highly-calcified genera may be triggered by many factors: low pCO₂ levels (Weissert & Bralower, 2006); a cooling phase during the Tithonian (Price, 1999); increasing transfer rate of nutrients from continents to oceans, possibly inducing variation of surficial marine water pH (Weissert & Bralower, 2006).

The increase and proliferation of nannoconids and nannolith *Conusphaera* interpreted as a deepening of the lower photic zone, like (Erba, 1994, 2004; Herrle, 2003) might indicate the presence of a thermocline/nutricline in the deep photic zone. The diversification of high-calcified nannofossils, carbonate production and the global carbon cycle at short and long time scales.

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