Reconstruction of the interregional Late Cretaceous sea-level record using nannofossil biostratigraphy

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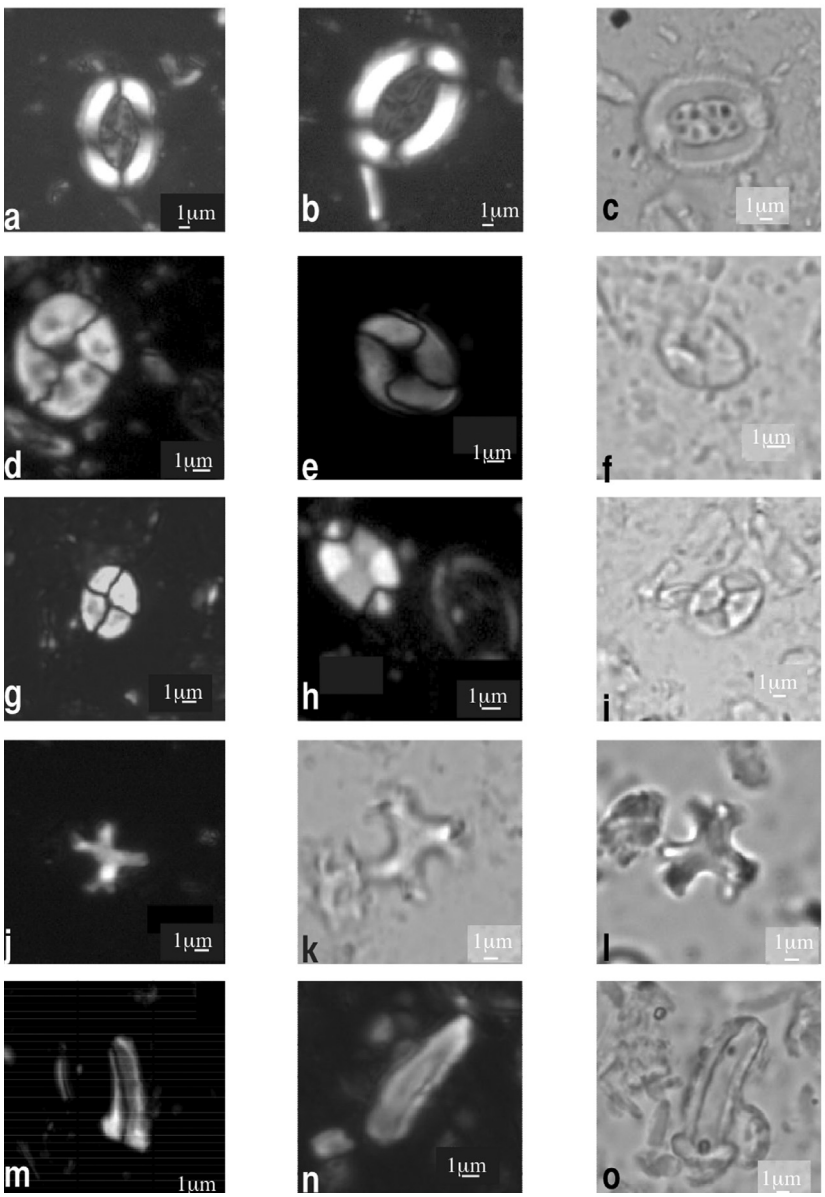
Biostratigraphy is a powerful tool in many different areas of stratigraphic reconstructions. Nannofossil biostratigraphy is an indispensable tool for a variety of stratigraphic work in many different regions. My studies have focused on the application of nannofossils biostratigraphy to Late Cretaceous sea-level reconstructions in the northern part of the Atlantic passive margin-New Jersey coastal plain. My approach has been to integrate sequence stratigraphy, paleobathymetry and biostratigraphy to derive a record of Late Cretaceous sea-level changes in the New Jersey coastal plain and establish firm biostratigraphy for interregional reconstructions. Use of calcareous nannoplankton biostratigraphy allows resolving the ages of the Santonian –Campanian sequences of New Jersey coastal plain. The ages are from 78.8 to 84.5 Ma and they correspond to CC16 (MeI sequence), CC17-18 (MeII sequence), CC18-19 (MeIII sequence) zone of calcareous nannoplankton biozonation of Sissingh (1977) and Perch-Nielsen (1985). The following markers are found on New Jersey coastal plain: the lowest occurrence (LO) of *Lucianorhabdus cayeuxii* identifies the base of Zone CC16, the LO of *Calculites obscurus* and the presence of *Calculites ovalis* identifies the base of Zone CC17, the LO of *Broinsonia parca parca* identifies the base of Zone CC18, and the highest occurrence (HO) of *Marthasterites furcatus* identifies the base of Zone CC19 (Fig 1).

This work provides a great potential for interregional sea-level reconstructions and evaluation of eustasy as a possible mechanism for New Jersey coastal plain sea-level changes. My future work is directed on interregional correlation of the Santonian–Campanian strata using nannofossils biostratigraphy.



All figured specimens are from the Millville, NJ corehole. Depths refer to the sample from which the figured specimen was taken. All species names follow Sissingh (1978) and Perch-Nielsen (1985). XPL = cross-polarized light, NL- normal light. **a-c**) *Broinsonia parca parca* (1228ft; 374.2m): **a**) XPL 0˚ rotated, **b**) XPL 45˚ rotated, **c**) NL. **d-f**) *Calculites ovalis* (1236ft; 376.7m): **d**) XPL 0˚ rotated, **e**) XPL 45˚ rotated, **f**) NL. **g-i**) *Calculites obscurus* (1251ft; 381.3m): **g**) XPL 0˚ rotated, **h**) XPL 45˚ rotated, **i**) NL; **j-l**) *Marthasterites furcatus* (1221ft; 372.1m): **j**) XPL 0˚ rotated, **k**) NL, **l**) NL; **m-o**) *Lucianorhabdus cayeuxii* (1251ft; 381.3m): **m**) XPL 0˚ rotated, **n**) XPL 45˚ rotated, **o**) NL

Reference

Perch-Nielsen, K. 1985. Mesozoic calcareous nannofossils. *In*: H.M. Bolli, K. Perch-Nielsen & J.B. Saunders (Eds). *Plankton stratigraphy*. Cambridge University Press, Cambridge: 427-554.

Sissingh, W. 1978. Biostratigraphy of Cretaceous calcareous nannoplankton. *Geologie en Mijnbouw*, **57**: 433-440.