

NON-CORRELATION OF NANNOFLORAL COMPOSITION WITH ISOTOPIC VARIATION IN CENOMANIAN CHALK-MARL RHYTHMS, SOUTH-EASTERN ENGLAND

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INTRODUCTION

Ditchfield & Marshall (1989) noted a difference in O-isotope composition between chalks and marls in Cenomanian chalk-marl rhythmic bedding of the Kent coast, south-eastern England. The chalks gave consistently lighter values of $\delta^{18}\text{O}$ than the marls. A survey of the nannofloras showed no systematic variation through the section (see below), this enabled the authors to deduce that ^{18}O composition was not affected by differences in biogenic fractionation of different coccolithophorid groups. They concluded that the ^{18}O signal recorded cyclical variations in the temperature of photic zone water (probably 23°C for marl deposition and 25°C for chalk deposition, with a maximum variation of 4.5°C), which was also recorded as cyclical nannofloral productivity. Due to the lack of consistent variation the nannofossil data was not included in the original paper, but as a matter of general interest to other workers in this field, I felt it would be worthwhile to publish it here.

NANNOFLORAL RESULTS

Simple counts of approximately 500 specimens per smear-slide were made, the samples being taken from 10cm intervals over a 1.2m section of rhythmically-bedded chalks and marls cropping out between Folkestone and Dover. These were entered onto the Checklist II range-chart database and a chart of relative abundances was produced (Figure 1). The section falls into NF Subzones CC9C/10A (as defined in Perch-Nielsen 1985), between the FO of *Corollithion kennedyi* and the LO of *Microstaurus chiastius*. Fifty-six species were identified. Diversity fluctuated between 38 and 44 species per sample, the more consistently higher diversities occurring in the lower 0.5m of the section. The nannofloras are dominated by *Biscutum ellipticum* and *Watznaueria barnesae* throughout the section, with *Discorhabdus ignotus*, *Eiffellithus turriseiffelii*, *Prediscosphaera cretacea*, *Tranolithus orionatus* and *Zeughrabdotos erectus* being consistently represented, although not in great numbers. No systematic floral change was observed in relation to the lithology to account for the regular change in $\delta^{18}\text{O}$ composition.

ACKNOWLEDGEMENTS

Thanks to Dr. Katharina von Salis Perch-Nielsen for prompting me to publish the nannofloral data and to Dr. Alan Lord for passing his critical eye over the manuscript. The work was carried out under the funding of the Natural Environmental Research Council Research Grant No. GR3/6767.

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Figure 1: Nannofossil counts and stratigraphical distribution, Cenomanian chalk-marl rhythms, Kent.

RANGE CHART OF GRAPHIC ABUNDANCES BY LOWEST APPEARANCE

Key to Symbols

- / = Very Rare (0- 2 Percent)
- X = Rare (3- 5 Percent)
- = Few (6- 15 Percent)
- = Common (16- 25 Percent)
- = Abundant (26- 100 Percent)
- ? = Questionably Present
- . = Not Present

