Geophysical Research Abstracts
Vol. 18, EGU2016-16044, 2016
EGU General Assembly 2016

Calcareous nannofossils of the Toarcian-Aalenian transition in the São Gião section (Lusitanian Basin, Portugal): preliminary results

André Cortesão and Maria Helena Henriques

Department of Earth Sciences and Geosciences Centre, Faculty of Sciences and Technology, University of Coimbra (Polo II), Rua Sílvio Lima, 3030-790 Coimbra, Portugal

This work presents preliminary results regarding the composition of the calcareous nannofossils assemblages' recorded in the Lower-Middle Jurassic transition of the São Gião section, located in the northern Lusitanian Basin (Central Portugal). The section is a 45 m-thick monotonous alternation of marl and marly limestone (the Póvoa da Lomba Formation) ranging from the Upper Toarcian to the Lower Aalenian, and it corresponds to an expanded section showing exceptional exposure conditions. The continuous record of ammonites has enabled the recognition of the Aalensis Zone (Mactra and Aalensis subzones) and the Opalinum Zone (Opalinum and Comptum subzones). The abundant and very diverse benthic foraminiferal record accurately calibrated with the ammonite record has allowed the recognition of the Astacolus dorbignyi Zone.

For the study of the calcareous nannofossil record, four samples were collected (one for each ammonite subzone) and processed; the smear slides were analyzed in a Leica DM750P polarizing microscope, using a 1000 X magnification.

The nannfossil assemblages of the São Gião section are dominated by representatives of the genera Lotharingius and Discorhabdus, whereas Carinolithus and Schizosphaerella are subordinated. Other genera also represented in the analysed assemblages include Crepidolithus and Thoracosphaera.

As noticed for the ammonite and for the benthic foraminiferal record, throughout the Upper Toarcian - Lower Aalenian record for the São Gião section no drastic changes in the number of originations and extinctions of nannofossil genera between ammonite biozones was detected. The main faunal change is the increase in the relative abundance of the genera Carinolithus in the Comptum Subzone, and the concomitant reduction of the relative abundance of Discorhabdus, but Lotharingius representatives remain dominant during the whole Upper Toarcian - Lower Aalenian transition.

Further developments on this study will contribute to elaborate an alternative biostratigraphic scale based on calcareous nannofossils accurately calibrated with the ammonite-based biostratigraphical zonation; it will also support the apparently constant rate of faunal turnover among the calcareous nannofossil record, thus calling into question the global character of the "Comptum cooling event".