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Planktonic Foraminiferal Biostratigraphy and Palaeoecology through the Campanian-Maastrichtian transition interval in Northern and central Tunisia

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The Campanian/Maastrichtian (C/M) boundary had been for long time used to be placed at the Globotruncanita calcarata Last Appearance Datum (LAD). This use is no longer valid as the boundary emplacement was formally ratified at the "Second International Symposium on Cretaceous Stage Boundaries" (Brussels, 1995). The boundary is instead placed at the First Appearance Datum (FAD) of Rugoglobigerina scotti, coinciding with the FAD of the Ammonite species Pachydiscus neubergicus, as observed at the Tercis-Les-Bains section (the GSSP for the C/M boundary in Landes, SW France).

This work attempts to apply this new biosratigraphic criterion to specify accurately the C/M boundary in Wadi El Melah and Wadi Necham sections, located respectively in the Hédil region (northern Tunisia) and the Kalat Senan region (central Tunisia). It also aims to characterise quantitatively and palaeoecologically the planktonic foraminiferal assemblages across the boundary.

Apart the Rg. Scotti FAD, that of Contusotruncana contusa was used by several authors to point the C/M boundary. In fact, the latter is subsequent to that of Rg. scotti in several localities all over the world, especially at the Wadi Necham section. In Wadi El Melah, it co-occurs with the same bioevent as documented in other localities. This diachronism leads to consider that the Contusotruncana contusa FAD couldn't be suitable to mark the boundary, however, that of Rg. scotti constitutes the most appropriate foraminiferal bioevent to indicate it. Consequently, the newly defined C/M boundary could henceforth be placed in the lowermost part of the El Haria Formation, at $\sim$ 25 m above the Abiod Formation top in the studied sections.

The detailed biostratigraphic analysis applied herein and the high specific diversity allowed establishing two types of subzonation within the Gansserina gansseri Zone. The first type is based on Rugoglobigerina species stratigraphic distribution; the second is based on that of multiserial heterohelicids. Therefore, two Rugoglobigerina and four heterohelicids successive Subzones are proposed (Rugoglobigerina rotundata Subzone, Rugoglobigerina scotti Subzone / Gublerina acuta Subzone, Gublerina cuvillieri Subzone, Planoglobulina acervulinoides Subzone and Racemiguembelina fructicosa Subzone).

The quantitative analysis carried in this work revealed that the assemblages are prevailed by small biserial heterohelicids and globotruncanids reaching almost 50% in relative abundance. They are associated to less abundant but much diversified individuals of large heterohelicids and other families. P/B ratio calculations range between 80 and 90% suggesting deep marine deposition in an upper to middle bathyal environment inhabited chiefly by surface and subsurface sea water dwellers.