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**Planktonic Foraminifera biostratigraphy at the Jerissa area,
(CES section in north-western Tunisia), and the impact of the
Cenomanian-Turonian Oceanic Anoxic Event (OAE-2)
on their assemblages**

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During the late Cenomanian–early Turonian Oceanic Anoxic Event (OAE-2), organic-rich black shales were deposited worldwide. This event coincides with the strongest eustatic Uppermost Cenomanian transgressive period. Induced by this sea-level rise, the Oxygen Minimum Zone (OMZ) impinged onto the South Tethyan margin where the organic-rich Bahloul Formation indicates the record of OAE-2 in central Tunisia as well as north eastern Algeria.

At the CES section in the Jerissa area, a closer sampling along a 24m thick interval in this formation allows a high resolution biostratigraphic analysis based on planktonic Foraminifera. It shows that this event was extended throughout the upper part of the *Rotalipora cushmani* Zone and across the *Whiteinella archaeocretacea* Zone. There, five subzones are recognized which are correlated with those of the Pueblo global boundary stratotype section and point (GSSP). In the upper part of the *R. cushmani* Zone, the *Dicarinella algeriana* subzone coincides with the onset of the organic-rich deposits. The *W. archaeocretacea* Zone is divided into three subzones: the *Globigerinelloides bentonensis*, *D. hagni* and *Heterohelix moremani* subzones coincide with maximum TOC contents (up to 1.91%). At the top of the Bahloul Formation where the marls and limestones become impoverished in organic matter the *Helvetoglobotruncana helvetica* Zone starts.

Immediately below the Bahloul Formation in the upper part of the Fahdene Formation, samples have yielded diversified foraminiferal assemblages, containing more than 70% planktonic taxa. They are dominated by unkeeled surface dwellers such as of *Gl. bentonensis* associated with rare keeled deeper water dwellers (e.g. *Rotalipora cushmani*, *R. greenhornensis*, rare *R. montsalvensis*) and weakly-keeled lower photic zone dwellers (e.g. *Praeglobo-truncana stephani*, *P. gibba*, *P. delrioensis*) and primitive dicarinelids. This assemblage points to an outer shelf to bathyal and

oxygenated marine environment. Such an assemblage is preserved in organic-poor (0.2% TOC) light shales and marls with 30% CaCO₃ content. The first occurrence (FO) of the unkeeled surface dwellers of *W. archaeocretacea* is observed at this level. There, also the benthic foraminifera are diversified and dominated by bathyal species such as of *Cassidella*, *Gavelinella*, *Lenticulina*, *Fronicularia*, *Gaudryina*, *Buliminella* and *Textularia*.

From the upper part of the *R. cushmani* Zone (*D. algeriana* subzone), where the Bahloul Formation starts, the black shales are dominant and enriched in organic matter. There, an increase in the Planktonic/Benthic ratio is observed. It coincides with a major decline in the number of keeled *Rotalipora* species resulting from the disappearance of *R. montsalvensis* followed by the extinction of *R. cushmani* and *R. greenhornensis* (the LO of *R. cushmani* at -93.90 ± 0.2 Ma). This particular coincidence of events is correlated in both Tethyan and Boreal realms. Throughout the middle part of the Bahloul Formation, where the *Whiteinella archaeocretacea* zone is developed, a drastic change in the benthic assemblage is also observed. This bioevent coincides with a positive shift of heterohelicids (*Heterohelix moremani*, *H. reussi*, *H. aff. pulchra* and *H. navaroensis*), then guembeltriids (*Guembeltria cenomana*, *G. albertensis*). Especially, heterohelicids are considered as low oxygen tolerant surface dwellers. Throughout the *Gl. bentonensis* subzone, their frequencies increase is related to the OMZ setting. Later, across the *D. hagni* subzone, guembeltriids mark a positive shift. They are considered as eutrophic surface dwellers. Their thriving coincides with maximum TOC values (2% TOC) and CaCO₃ contents (up to 80%). It may be related to the OMZ expansion.

The FO of the keeled *Helvetoglobotruncana helvetica* (-93.29 ± 0.2 Ma) was noted at the top of the Bahloul Formation followed by *Marginotruncana* spp. above through the Kef Formation where the TOC values again decrease.