



Middle Jurassic Planktonic Foraminifer in Saudi Arabia – a new biostratigraphical marker for the J30 maximum flooding surface in the Middle East

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Planktonic foraminifera are found in marls of the lowermost portion of Unit D5 of the middle Dhurma Formation exposed west of Riyadh, Saudi Arabia. This lower part of this unit corresponds to the J30 Maximum Flooding Surface of Sharland et al., (2001) and has been correlated to the lower Bathonian *Clydocromphalus* ammonite zone by Énay et al. (2009) (= the *Procerites aurigerus* ammonite zone in the global scale). This lithological subunit can be correlated throughout the Middle East, from Saudi Arabia to Oman and Syria. Our discovery is the first report of planktonic foraminifera in the Middle Jurassic (lower Bathonian) of Saudi Arabia. Two genera are recognized: a low-spired species identified as *Globuligerina* sp., and a high-spired form assigned to *Conoglobigerina* sp.

The planktonic foraminifera comprise approximately 5–10% of the assemblage at the studied locality, and are found within a benthic foraminiferal assemblage consisting of a mixture of smaller agglutinated species (*Nautiloculina*, *Haplophragmoides*, *Ammomarginulina*, *Sculptobaculites*), and calcareous species (nodosariids, ophthalmidiids, epistominids, polymorphinids, and spirillinids) without any larger foraminifera. The assemblage is indicative of open-marine shelf conditions, and represents a typical Middle Jurassic benthic foraminiferal fauna from a marly carbonate substrate. The calcareous benthic foraminifera are of small dimensions, indicating that oligotrophic environmental conditions prevailed at the time of deposition of the unit. The discovery of planktonic foraminifera in the D5 Unit of the Dhurma Formation provides a new correlation tool for recognizing the J30 maximum flooding surface in the Middle East.

Sharland, P.R., Archer, R., Casey, D.M., Davies, R.B., Hall, S.H., Heward, A.P., Horbury, A.D. & Simmons, M.D. 2001. Arabian Plate Sequence Stratigraphy. *GeoArabia Special Publication*, 2, 371 pp.

Énay, R., Mangold, C., Alméras, Y. & Hughes, G.W. 2009. The Wadi ad Dawasir “delta”, central Saudi Arabia: A relative sea-level fall of Early Bathonian age. *GeoArabia*, 14 (1), 17-52.