MICROFACIES, BIOSTRATIGRAPHY, AND GEOCHEMISTRY OF THE HEMIPELAGIC BARREMIAN-APTIAN IN NORTH-CENTRAL TUNISIA: INFLUENCE OF THE OAE 1a ON THE SOUTHERN TETHYS MARGIN

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Marine sediments of the Late Barremian-early Late Aptian interval reflect significant changes of the Mesozoic ocean/climate system, which coincide with several major palaeoceanographic and palaeobiological events. An extraordinary high intraplate volcanism recorded in the Pacific Ocean for the Early Aptian probably led to an intensified greenhouse effect by outgassing high amounts of carbon dioxide into the atmosphere. Especially the late Early Aptian has been focussed by many authors in last and recent years, due to an episode of increased organic carbon burial (Oceanic Anoxic Event 1a). This 50 ka to 1 ma lasting event is commonly expressed by an occurrence of black shales in pelagic successions, associated with significant changes in marine flora and fauna and a global rise in sea-level. In addition, an episode of shallow-water carbonate-platform drowning, which coincides in the initial part with the OAE 1a but lasts up to 4 my is recorded especially from the northern and southwestern Tethyan margin and from circum-Atlantic regions.

In this study, Upper Barremian-lower Upper Aptian hemipelagic deposits of the Hamada Formation in the Djebel Serdj area, north-central Tunisia were investigated in detail on the base of microfacies, biostratigraphy, $\delta^{13}C$ stratigraphy, and geochemistry. Our data provide an insight into the palaeoenvironmental evolution and sea-level fluctuations of the Tunisian shelf. The successions consist of mud-, wacke-, and packstones which reflect mid- and outer-ramp depositional environments. The deposits exhibit an unusually high thickness in the studied area. Within them, the Oceanic Anoxic Event 1a and carbonate-platform-drowning time-equivalent deposits are recognised on the base of planktic foraminifer- and $\delta^{13}C$ stratigraphy. The OAE 1a is characterised by a transgressive facies with high abundances of radiolarians and planktic foraminifers, suggesting meso- to eutrophic nutritive values for the upper water column. Low diversity small benthic foraminifer assemblages suggest dysoxic conditions at the seafloor. Platform-drowning time-equivalent deposits, directly overlying the OAE1a are partly showing a pronounced drop in carbonate content. Based on our microfacies studies, we subdivide the studied sections into four genetic intervals: a pre-OAE 1a interval, an OAE 1a and platform-drowning-equivalent interval, and a post-platform-drowning interval. We present a 3rd order sea-level curve for the Tunisian shelf, derived from the results of our microfacies studies.