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Upper Danian – lower Selandian stratigraphy and paleoenvironment along a paleobathymetric transect in the Nile Basin (Eastern Desert, Egypt).

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We performed a benthic foraminiferal study on five sections in the Egyptian Nile Basin in order to quantify a prominent sea-level fluctuation within the Danian-Selandian transition. A sea-level change of $\sim$75 m is recorded at a level with a couple of conspicuous marker beds (the upper Danian event beds) in the homogeneous marl sequence of the Dakhla Fm. The sections studied are located in the Eastern Desert, along the Nile Valley (Gebel Aweina, Gebel Qreiya, Gebel Araas) and Red Sea coast (Gebel Duwi). Assemblages in the most northerly sections, Qreiya and Araas, are very similar, with an outer neritic – bathyal benthic foraminiferal assemblage (planktic foraminiferal Zone P2 and Subzone P3a). The shallower Aweina and Duwi sections contained less bathyal taxa. A shift towards a middle-outer neritic assemblage is observed several meters below the upper Danian event beds in the shallower settings, and immediately below those beds in the deeper sections of Qreiya and Araas. The upper Danian event beds, indicating transgressive conditions, interrupt this trend (P3a/P3b boundary). This transgressive phase is associated with severe anoxia and eutrophication leading to the absence of benthic life. A low diversity middle-neritic benthic assemblage, characterized by *Neoeponides duwi* returned when oxygenation had improved somewhat. Based on these and earlier observations on planktic foraminifera assemblages we infer that

pronounced nutrient-rich runoff into the basin led to higher primary productivity and stratification of the water column in the Nile Valley area. The Duwi area, on the other hand, was not influenced by this run-off system, as it was situated at a more eastern position. As sea level continued to rise and sea floor conditions improved, river discharge (in the Nile Valley) and upwelling (in the Duwi area) probably retreated further south and sea-floor oxygenation improved. Consequently, the normal bathymetrically arranged benthic assemblages reappeared in the studied region. The upper Danian event beds in Egypt correlate with anomalous glauconitic beds related to a sea-level history in the Tunisian Trough. Considering the differences of the depositional settings in the two basins areas, the local sea-level changes were part of a regionally significant sea-level cycle, which seems to have involved a distinct paleoclimatic/paleoceanographic perturbation as suggested by our isotopic records (see presentation by Bornemann et al. this volume). Furthermore, there are many similarities, in sedimentologic features, biotic patterns, isotopic and sea-level records in the Nile Basin, between the upper Danian event and the Paleocene-Eocene thermal maximum (PETM). This indicates that at least in this basin similar processes took place during these events. We propose that the upper Danian event may have been a precursor of the PETM, but oceanic records yet have to confirm this.