

The Dababiya Corehole, Upper Nile Valley, Egypt: Litho-bio-chemostratigraphy and geophysical logging

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The 140 m long Dababiya corehole, located ~200 m east of the DBH section (25° 30' 09.9" N, 32° 31' 27.1" E; GSSP of the Eocene) was spudded in the El Mahmaiya Member of the Esna Shale Formation (Zone E2), ~9.5 m above the Dababiya Quarry Member, and penetrated downward to a total depth of ~140.2 m in ammonite-baculitid-nuculid-bearing Maastrichtian phosphatic shales. The Dababiya Quarry Member (Zone E1) was encountered down to 11.75 m, the Hanadi Member (Subzone P4c and Zone P5) down to 21.15 m, the Tarawan Chalk Formation (Subzone P4a-b) down to 39 m, and the Dakhla Formation below (Zones Pa to P\$) down to ~80 m. The Paleocene/Eocene and Cretaceous/Paleocene (K/P) boundaries are located at 11.75 m, and ~80 m, respectively.

Benthic foraminiferal assemblages are dominated by taxa typical of the Midway-type fauna, and of outer shelf environments; diversity decreases and relative abundance of infaunal morphogroups increases from Cretaceous to Late Paleocene. Differences include assemblages characteristic of low-oxygen environments in the Cretaceous Dakhla Formation, dominance of Paleocene Midway type fauna in the Dakhla Shale and Tarawan Chalk Formations and latest Paleocene buliminids-dominated assemblages in the Hanadi Member.

Geophysical logs exhibit sharp peaks at the P/E and K/P boundaries, particularly the Natural Gamma Ray and Single Point Resistivity log, as well as magnetic susceptibility.

Geochemical analysis of the Dababiya Quarry Member indicates very high productivity during the PETM. Elevated nutrients may be due to upwelling or to an enhanced hydrological cycle.