



## Upper Paleocene-Lowermost Eocene Planktonic Foraminiferal Biostratigraphy and Record of the Paleocene-Eocene Thermal Maximum in the Haymana Basin (Ankara, Turkey)

Gamze Tanık and Sevinç Özkan-Altın

Middle East Technical University, Graduate School of Natural and Applied Sciences, Department of Geological Engineering, Turkey (gamzetanik@gmail.com)

The Paleocene-Eocene Thermal Maximum, the global warming event affected the oceans and lands of the globe, has long been recognized around the world. The biotic response to the warming was found to be differing among different taxa; a short-ranged assemblage was prominent for the warming period in planktonic foraminifera, called planktonic foraminifera excursion taxa (PFET). This study, conducted in the Haymana Basin, aims to investigate the record of the PETM in Central Anatolia in terms of planktonic foraminiferal response. For this purpose 41 samples on a 33 m stratigraphic section were collected from a deep marine shale succession of late Paleocene – early Eocene age, called Eskipolatlı Formation. The sampling spacing changes from 1 m to 12.5 cm, finer around the boundary interval.

Planktonic foraminifera were used for biostratigraphic framework, resulting in four biozones namely: *Globanomalina pseudomenardii* Zone, *Morozovella subbotinae* Zone, *Acarinina sibiyaensis* Zone, and *Pseudohastigerina wilcoxensis* Zone, corresponding to Zones P4c, P5, E1, and E2 of Berggren and Pearson (2005). *G. pseudomenardii*/*M. subbotinae* zonal boundary is placed with the highest occurrence of *G. pseudomenardii*, which is also reinforced by other stratigraphically close bioevents: HO of *Igorina albeari*, HO of *G. imitata*, and LO of *M. subbotinae*. *M. subbotinae*/*A. sibiyaensis* zonal boundary corresponds to the lowest occurrence of *A. sibiyaensis*, also stands for the P/E boundary. Lowest occurrence of *P. wilcoxensis* marks the *A. sibiyaensis*/*P. wilcoxensis* zonal boundary. *M. velascoensis*, a prominent marker of the zones P5, E1 and E2 (an interval stated as P5 in Berggren et al., 1995) was not found throughout the measured section, which may be related to its geographic distribution, or the preservational conditions. In the absence of *M. velascoensis* E2/E3 boundary could not be established.

*Acarinina sibiyaensis*, a member of the PFET, was identified in a 3 m thick interval, for the first time in Turkey. With the identification of this taxon, positions of the P/E boundary and the PETM were recognized. With the LO of *A. sibiyaensis*, P/E boundary is marked in a 12.5 cm interval.

26 of the samples were analyzed quantitatively in terms of planktonic foraminiferal genera for understanding the general trends and assemblage of the basin. As is in similar latitude sites such as Kazakhstan and northern Italy, the section withholds a dominance of *Acarinina*, accompanied by *Subbotina* and *Morozovella* genera, in average 40%, 25%, and 12% respectively. A drop in the abundance of *Subbotina*, at the same time an increase in abundance of *Acarinina* is recorded at the boundary, reflecting the assemblage change with the warming event.

Keywords: Paleocene/Eocene boundary, Paleocene-Eocene Thermal Maximum, planktonic foraminifera, biostratigraphy, Haymana Basin