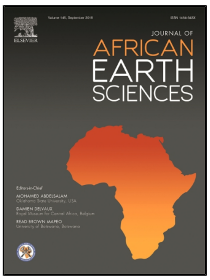
Accepted Manuscript



The Paleocene/Eocene (P/E) boundary along the eastern plateau of Kharga-Baris oases, Western Desert, Egypt

Amr A. Metwally, Kamel H. Mahfouz

PII:	S1464-343X(18)30209-7
DOI:	10.1016/j.jafrearsci.2018.07.013
Reference:	AES 3275
To appear in:	*Journal of African Earth Sciences*
Received Date:	08 February 2018
Accepted Date:	12 July 2018

Please cite this article as: Amr A. Metwally, Kamel H. Mahfouz, The Paleocene/Eocene (P/E) boundary along the eastern plateau of Kharga-Baris oases, Western Desert, Egypt, *Journal of African Earth Sciences* (2018), doi: 10.1016/j.jafrearsci.2018.07.013

The Paleocene/Eocene (P/E) boundary along the eastern plateau of Kharga-Baris oases, Western Desert, Egypt

Amr A. Metwally[1], Kamel H. Mahfouz[2]

1 Geology Department, Faculty of Science, Assiut University, Assiut 71516, Egypt

2 Geology Department, Faculty of Science, Al-Azhar University, Assiut Branch

Abstract

Integrated high resolution calcareous planktonic nannofossil and foraminiferal biostratigraphic studies are carried out on the Paleocene/Eocene (P/E) boundary at Gebel El Aguz and Darb Gaga on the eastern plateau of the Kharga-Baris oases, Western Desert, Egypt. The five beds of the Dababiya Quarry Member of the Esna Formation are represented partially on the study sections. At G. El Aguz beds nos. 1-4 are missing, whereas at Darb Gaga bed no. 1 is absent which indicates the occurrence of a hiatus with different magnitude. This hiatus is documented by the occurrence of irregular surface with pebbles at G. El Aguz and the occurrence of glauconitic layers at Gaga section. Biostratigraphically, the P/E boundary is defined at the NP9a/NP9b nannofossil zonal boundary which is equivalent to the *Morozovella velascoensis* (P5)/*Acarinina sibaiyaensis* (E1) at Gaga section and *A. soldadoensis*/*Globanomalina pseudomenardii* (P4c)/*A. sibaiyaensis* (E1) planktonic foraminiferal zonal boundaries at G. El Aguz with interzonal hiatus. This indicates that the sedimentary basin during the P/E interval at the study area was unstable and affected by a tectonic event may be due to the echo of the Syrian Arc Orogeny.

Keywords: Paleocene/Eocene boundary, planktonic foraminifera, nannofossil, Syrian Arc Orogeny, Kharga-Baris oases, Egypt.

1. Introduction

The most critical and intense warming event through the Cenozoic Earth history was at the P/E boundary. This warming episode is known as the Paleocene-Eocene Thermal Maximum (PETM; Zachos et al. 1993) at ~56 Ma (e.g. Charles et al. 2011; Wing and Currano 2013). Such dramatic event was a geologically short time interval of (~170-200 kyr) rising temperature all over geographic provinces worldwide (Röhl et al. 2007). During this time the sea surface temperature raised ~8-10° C in high latitudes (Zachos et al. 2003, 2005; Hollis et al. 2015) and ~4-5° C at low latitude (Thomas et al. 2006; Zachos et al. 2006). This drastic event can be defined and correlated worldwide utilizing a negative