

This is my second review of the manuscript “The Paleocene-Eocene Thermal Maximum at DSDP Site 277, Campbell Plateau, southern Pacific Ocean” submitted by Hollis et al. In summary, I think that the authors addressed most of my concerns and comments, and I see no major “show-stopper” in publishing the current version.

However, the largely uncoupled $\delta^{18}\text{O}$ and $\delta^{13}\text{C}$ records presented in this study are complex and difficult to interpret, and, as I mentioned in my first revision, I wish the authors would have taken more care in assessing the different stages of foraminiferal diagenesis within this core. The authors argue that foraminiferal shells from the PETM appear to be better preserved than samples from the latest Paleocene, presumably due to the higher clay content reported by the authors. The screening of laser ablation profiles for high Al/Ca ratios as well as high and low Sr/Ca ratios to assess silicate contamination and diagenesis, respectively, is a suitable approach to estimate foraminiferal preservation. However, the mechanisms of foraminiferal diagenesis are very complex, and the degree and type of diagenesis may change on cm-scales within the sediment core. Furthermore, the PETM was characterized by ocean acidification, causing potentially alternating events of partial dissolution (‘burn-down’) and reprecipitation. Detailed visual investigation by SEM, in concert with the geochemical data, could have provided a better understanding of the largely uncoupled $\delta^{18}\text{O}$ and $\delta^{13}\text{C}$ records, in particular the massive decrease in $\delta^{18}\text{O}$ after the PETM onset that cannot be solely explained by a temperature increase.

Therefore, I am still surprised that the authors did not acquire high-mag SEM images of the chamber walls and shell textures (e.g. similar to those shown in various studies by Pearson et al. or Sexton et al.) especially as the Paleocene-Eocene Section of DSDP Site 277 was already known to be significantly affected by diagenesis.

However, some of these concerns are now addressed by new figures and images in the supplementary material, showing at least some (low-mag) SEM images of whole-shells in various states of preservation as well as the corresponding laser ablation profiles (supplementary file, Fig. S1), and I fully understand that a more thorough investigation is beyond the scope of this study.

Some minor comments:

Line 159: It is very challenging to find information about the foraminiferal species “*S. roesnasensis*”. Therefore, the authors may consider to include a reference describing/characterizing this foraminiferal species.

line 152: it shall read praemundulus.

line 186 ArF laser

line 199-203: the two sentences are almost identical in their content. The authors may consider to merge them into a single sentence

line 352: if this **is** a primary feature

line 415: I think it shall read ‘whole-shell’, not wholesale

line 421: it think it shall read 'studied', not 'studies'. The whole sentence is somehow redundant (diagenetic impact was already mentioned in the previous paragraph).

line 479: here; P/E boundary, P-E boundary at other locations within the text

line 496: I am not sure if a manuscript 'under revision' is a suitable reference. 'under revision' does not guarantee that the manuscript will be published.

spelling: be consistent in capitalization (Paleocene-Eocene thermal maximum or Paleocene-Eocene Thermal Maximum).

Supplementary Material:

Figure S1: Please mention the core depths where the samples showing different degrees of diagenesis were taken.

File "Hollis&_Supplement.doc", caption S2: The scale on horizontal axes also changed for Ba/Ca