

We are grateful to the two anonymous reviewers for their careful and critical reading of the manuscript. Our point-by-point responses follow; the reviewers' original comments appear in black and our answers are given in blue and marked "Response".

Kind regards,
Claire Routledge and co-authors

Reply to RC2

The paper presents the response of calcareous nannofossils to extreme environmental changes in the Late Paleocene to early Miocene. High resolution sampling datapoints for nannofossils covering a relatively long record of critical paleoclimatic periods is a strength of the paper. These were correlated with previously published detailed oxygen and carbon isotope data from the same sites. This paper is complementary to /a continuation of the Alvarez et al. (2019) Nature paper. The study's conclusions on the stability of the reticulofenestrid complex through the extreme climate events during the period mimic present-day behavior of modern relatives in tropical marginal seas.

Specific Comments:

Page 3, Line 81 and Page 4, Line 110: 30-80kyr and 30-35kyr sampling resolution – Are these ranges referring to the same set of samples and to nannofossil sampling?

Response: Line 85 has been adjusted to clarify the samples and resolution. Line 119 emphasises the uniquely high resolution nature of the record

Page 4, Lines 100-104: Explain more and/or add references on why using the Pacific and Atlantic datasets together is justified.

Response: This has been addressed in the methods section and was also raised by RC1

Page 4, Line 121; Page 12, Line 314; Page 13, Line 359: use of varying terms for the nannofossil community behavior – stability vs. volatility; resilience and redundancy; resistance and resilience --- use less terms to describe the same behavior for consistency; may need to define what the chosen terms mean for clarity especially if there is a distinct difference in the use of the terms

Response: This has been addressed in the introduction and was also raised by RC1

Page 5, Figure 1d: Where did the nannofossil data come from? Is this from Alvarez et al. (2019) or from this study? Indicate this in Methods in the discussion on the sources of data and better if also indicated in the figure captions

Response: The information regarding where the nannofossil data is from is outlined in the Methods section (Line 101) and is also included in the figure caption

Page 9, Figure 3 caption: Legend for I in the image is not the same as in the caption Iso = Isochrysidales; Z in the image, not in the caption (maybe refers to *Zygrhablithus*, the dominant holococcolith?)

Response: We have updated the information in the figure caption