

We have responded to the very minor remaining suggestions of the reviewers as follows:

Note: their line #s do not align with the submitted version, but we found mentioned sections as best we could from other clues in each comment.

- Figure 1: it was not obvious that panel C is a zoom of B without reading the caption.
 - **Lines added to show the zoom in.**
- Line 361: define what a good replicate is. The explanations come too late in the text.
 - **Moved up key sentences.**
- Line 425: Is the acid fractionation for oxygen or for the clumped? According with InterCarb recommendations, no acid fractionation factor is required for clumped.
 - **Added sentence: Although use of ETH standards does not require an acid fractionation factor when applied to an entire dataset, to combine data from gas-based and carbonate-based reference frames requires normalization to the same acid digestion temperature.**
- Lines 433-440: it is not clear; can you rephrase a bit, please. For example, line 434, what are “these 3 standards”? And line 438: your table is in supplementary material; it would be good to remember which are the 3 instruments.
 - **“Three” was a carry over from a previous version. Now says “for in-house carbonate standards”. Added “on the same Kiel IV + MAT253 used for bulk sample $\delta^{13}\text{C}$ and $\delta^{18}\text{O}$ ”**
- Line 448: move the sentence about Anderson et al., 2021 before starting to discuss d18Osw.
 - **Done**
- Line 472: repetition of long-term SD/reproducibility, already written earlier.
 - **Not repetitive. We are describing something different here, although similar.**
- Line 472: what is the SEM preservation rate? Do you have a reference?
 - **Defined here, in later paragraphs. Added “see below”.**
- Lines 530-538: repetitions
The rest of the paragraph is more methodology, I would suggest moving it in methodology part.
 - **Done.**
- Figure 3: the thresholds for trace element concentration as diagenesis proxy are not clearly explained in the text.
 - **Many citations are given.**
- Lines 541-542 may be moved to methodology also and a ref is missing.
 - **Reorganized this section.**
- Line 708: only differed by 0.1-0.2 per mill compared to?
 - **Compared to kiel-derived values. Added text.**
- Line 713: Fig. S1- I couldn’t see the outliers, can you highlight them please? Can you also remember why you exclude them?

- **Label of “outlier” here does not mean a bad point, just one that deviates clearly from the rest of the group. We removed this terminology and instead calculated section average using all points which only changed things by 0.1 permil.**
- Line 713-715: It may be more accurate to present the data as a range like you did for the bulk data.
Same comment for the d13C and Figure S2.
 - **Same as above**
- Line 735: add the SD after “within the error of each other”.
 - **Can’t do this because different errors on different samples based on reproducibility. We refer the reader to the error bars on the figure.**
- Regarding the discussion of the vital effect. I am still not convinced by the error bar argument. Your uncertainties are quite large at 1 SD, and the difference in absolute values can be up to 5 deg.C (for the sample at around 66.5 Ma). I advise being more nuanced by explaining that your data tends to support past observations on the absence of vital effects, since the values are within error bars. However, more replicates are needed to reduce the error bars in order to be able to confirm the absence of vital effects.
I really appreciate the end of the discussion about seasonality and age of living biases. I would suggest to also extend this discussion to the sample at 66.1 Ma.
 - **Added: although further replication to reduce error bar size would be necessary to rule out small vital effects**
 - **Extended the argument as suggested.**
- Figure 6: I would suggest being more specific when writing "see text", by mentioning the section you are referring to.
 - **We meant section 3.3, now added.**
- Line 855: please check the text to capitalize SD (idem line 898 for example)
 - **Done.**
- Line 906: add 1SD
 - **Done**
- Line 975: What is the uncertainty about your age model? Can it be used as an additional argument for the good agreement between the beginning of the eruptions and the warmer T-D47?
 - **Uncertainties are already stated in the preceding paragraph. We have added them to Figure 7 to highlight the overlap between the onset of Deccan volcanism and warming temperatures in our record.**