

Interactive comment on “Temperature seasonality in the North American continental interior during the early Eocene climatic optimum” by Ethan G. Hyland et al.

Ethan G. Hyland et al.

ehyland@ncsu.edu

Received and published: 16 July 2018

1) This manuscript is a significant contribution to the field, combining multiple temperature proxies in an interdisciplinary fashion to reconstruct climatic ranges over the EECO. Bringing the focus onto detecting seasonality in the fossil record provides a more nuanced representation of past climates. Palaeobotanical temperature reconstructions are performed using the latest, statistically rigorous methodology, and an important synthesis on state-of-the-art is included. The presentation and quality of the work are excellent. The figures are well illustrated and comprehensive.

We would like to thank Dr. Barbolini for her time in reviewing our manuscript, and for

C1

the positive evaluation of our work and its importance within the context of paleoclimate reconstructions.

2) It is a pity that no CMMT (floral) data are available for the peak EECO. In order to represent this more realistically, I suggest modifying the straight line joining the two CMMT data points, separated by more than 2 Mya, in Figure 4. It could be represented either by a dotted line explained in the figure caption as an aliased signal, or omitted completely.

We agree that it is unfortunate that there are no known preserved floral assemblages in this region during the peak EECO. As suggested, we will modify Figure 4 before final publication to include a dashed line between the youngest two assemblages, and will update the figure caption to explain the possibility of an aliased signal during this extended period.

3) Other relevant points have already been raised by the other reviewer and resolved by the authors. The manuscript is publishable subject to this and the following technical corrections:

Line 89: "The GRB sequence is comprised of a series of terrestrial clastic...": Correct to either "sequence is composed of" or "sequence comprises".

We have updated the manuscript text to read "sequence is composed of" as per the reviewer.

Supplemental Table C.1: a) The heading "Floral group" should change to "Taxa"; b) when taxa are only identifiable to genus level, "sp." should be reformatted without italics (e.g. *Sabalites* sp.); c) taxa could be ordered alphabetically for easier future comparisons of floral lists.

We agree with points A and B of the suggested changes to this supplemental table, and will update Table C.1 before final publication. With regard to point C, we list taxa in Table C.1 in this order to maintain the format of the originally published floral lists from these

C2

sites (Wilf, 2000), as we believe this will minimize confusion in future comparisons which may include both works. This original format lists taxa in order of abundance at each locality, an observation that we will add to the descriptive text of the table before final publication.

Interactive comment on Clim. Past Discuss., <https://doi.org/10.5194/cp-2018-28>, 2018.