Clim. Past Discuss.,
https://doi.org/10.5194/cp-2018-28-RC1, 2018

Climate of the Past Discussions
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EGU

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

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Received and published: 10 April 2018

This is an excellent paper comparing seasonality changes in paleoclimate through the Paleocene-Eocene thermal maximum, and finding that the greenhouse spike did not have an equable climate compared with before and afterward, as some have predicted. This is an important qualification for understanding climatic change in a higher CO2 world, in emphasizing seasonality of temperatures rather than averages. This paper is excellent and publishable with minor revision. I am familiar with most of the methods deployed and consider them skillfully applied to the problem. The authors have a high level of technical competence and understanding of limitations of each method. My

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Discussion paper

main reservation is that I do not agree that the difference (ca 4oC) in temperature seasonailty of the greenhouse spike compared with the times before and afterward is significant, given standard errors on the various proxies. I consider the temperature seasonality before, during, and afterward statistically indistinguishable. This is not quite the same as the interpretation given, but does make their point that greenhouse spike temperatures were far from equable. A minor quibble, is that my understanding of nearest living neighbor and other paleobotanical estimates of paleoclimates rely on an adequate number of species in the assemblage (usually at least 30 species). The number of taxa in each assemblage should be reported, perhaps most conveniently in the figure.

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