Interactive comment on “The early Eocene equable climate problem revisited” by M. Huber and R. Caballero

D.S. Abbot

abbot@uchicago.edu

Received and published: 15 March 2011

Matt and Rodrigo,

We read your paper as part of a journal discussion group at the U of C today and enjoyed it very much. We identified two issues that you might consider thinking about as you revise the paper.

(1) It seems like a more serious comparison with the tropical SST data (similar to your extratropical land comparison) would greatly improve the paper. It’s always been obvious that if you’re allowed to crank the tropical temperature up as high as you want you could easily solve the Equable Climate problem. Therefore it seems like it would be useful to do a point-wise comparison with tropical SST data as well, colored by
data-type. You might be able to say something like (I’m making this up): if the delta-
O-18 data are correct, then the model still can’t solve the Equable Climate problem
because it makes the tropics too hot compared to these data, but if the TEX-86 data
are correct, then the model seems to be qualitatively reasonable both in the tropics and
extratropics.

(2) You may want to "soften" the way you equate more doublings of CO2 in a less
sensitive model with fewer doublings of CO2 in a more sensitive model. The reason
is that highly sensitive and less sensitive models are likely to have somewhat different
spatial warming patterns, particularly since the difference in sensitivity results mainly
from differences in cloud simulation. Using a higher CO2 to account for unknown
increases in other GHGs is less likely to have this problem, but these unknown GHGs
are, of course, unknown!

Your amigo, Dorian