

Interactive comment on “The Effects of Younger Dryas Orbital Parameter and Atmospheric pCO₂ Changes on Radiative Forcing and African Monsoonal Circulation” by Taylor M. Hughlett et al.

Anonymous Referee #1

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Overall, the points of the manuscript are not clear. The title said they study the effects of Younger Dryas orbital parameter and atmospheric pCO₂ changes on Radiative forcing and African monsoonal circulation. It turns out their focus is AMOC and Younger Dryas climate with some discussion on Africa climate and rarely on radiative forcing. The title needs to be changed.

Page 1 line 25, it seems that neither orbital parameter nor pCO₂ is the dominant cause of Younger Dryas climate. They are at second or higher order. This needs to be clarified. Page 5. Line 5 where is Table 4-1? Page 5. Line 10. The experiment design is quite vague. My guess is that the initial condition of these experiments is taken from a

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1000-year simulation performed by NCAR. While the authors change the forcing fields of orbital forcing and GHGs. There are one control simulation and two sensitivity simulations in total. In table 2, I see several different descriptions, Preindustrial, PI, Modern Greenland and Antarctica, . . . , please clarify these items. Overall the experiment design parts need to be rewritten.

Page 5. 2.3 Oxygen Isotope Simulation. This part may be not needed.

Page 6. Add and compare the numbers from previously published freshwater experiments. Show AMOC time series of these experiments.

Overall, the results section is too descriptive and lack of physical explanation.

Page 9. Line 28, then what's new for this study?

The abstract also needs to be rewritten to clarify the points.

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