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Climate of the Past Discussions

Interactive comment on "Effects of atmospheric CO_2 variability of the past 800 ka on the biomes of Southeast Africa" *by* Lydie M. Dupont et al.

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Dupont et al. Climates of the Past The manuscript by Dupont et al. uses pollen assemblages and other multi-indicator data from a marine sediment core in order to look at vegetation and climate change in southeastern Africa over multiple glacial-interglacial cycles. They extend a previously published dataset to 800k and also include analysis of older mid and early Pleistocene sections in order to disentangle the effects of temperature, precipitation, and pCO2 on vegetation. I find this paper to present a very well done and important dataset from a data-sparse region of the tropics. I am really happy to see the pollen analyses extended to older sections of the core and appreciate the data-rich multi-indicator approach. I also support the end-member analysis conducted by the authors, which seems to be able to be used to tease apart assem-

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blages through time. I also really appreciate the comparison of the carbon isotope data with pollen data, which I find enhances the interpretations from both datasets. I do however have a few concerns about the paper, these are mostly minor. In particular, I find that the main conclusions about pCO2 and its impact on vegetation over time is a bit thinly supported. No further data analysis supports this argument and in fact I find that the section which describes the patterns attributed to CO2 is very brief given the prominence of this driver in the abstract of the paper. My most pressing suggestion for improvement of this paper then is to further develop this section of the paper and perhaps include a plot showing major vegetation types under differing CO2 thresholds discussed. The wiggle plots which represent the bulk of this argument in Figures 4 and 5 are not sufficient for really teasing apart the impact of CO2 or illustrating the authors' interpretation.

See specific and minor comments in the attached file.

Please also note the supplement to this comment:
https://www.clim-past-discuss.net/cp-2019-18/cp-2019-18-SC1-supplement.pdf

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