

## ***Interactive comment on “The role of elevated atmospheric CO<sub>2</sub> and increased fire in Arctic amplification of temperature during the Early to mid-Pliocene” by Tamara Fletcher et al.***

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1) The manuscript presents new information, methods and the concept (hypothesis) that fire may amplify temperature increases. Excellent These are important additions to our knowledge base and new ideas.

2) The new biogeochemical methods are quite exciting but as the authors admit, the methods and results are based on many assumptions. My knowledge of some of the methods is clearly limited but it is obvious that there will no doubt be refinements in the future. That is to be expected. As I have pointed out in my review the key hypothesis involving fire amplification is not really explored very well. Therefore, the paper is good.

C1

3) Field work at key sites requires detailed and clear descriptions so readers who can't visit the site understand what took place. If the site is to be revisited, new workers should know exactly what and where research took place during past field seasons. I don't believe the field descriptions are clearly presented. There is need for a figure diagraming the site, the units and where sampling was done for geochronology, chemistry, pollen, etc. Figures 5 and 6 are reversed. Of course there are some typos and closer editing is required. I'd give a fair rating.

I believe this manuscript should be accepted subject to recommended minor revisions. If the authors take my comments to heart as being constructive and complete them, I see no reason for me to review the manuscript again.

Respectfully your,

Charles Schweger, Prof. Emeritus

Please also note the supplement to this comment:

<https://www.clim-past-discuss.net/cp-2018-60/cp-2018-60-RC4-supplement.pdf>

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Interactive comment on Clim. Past Discuss., <https://doi.org/10.5194/cp-2018-60>, 2018.

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