

## ***Interactive comment on “The pyrogeography of eastern boreal Canada from 1901 to 2012 simulated with the LPJ-LMfire model” by Emeline Chaste et al.***

### **Anonymous Referee #1**

Received and published: 30 October 2017

General comments: This paper addressed the ability of the dynamic global vegetation model LPJ-LMFire to accurately represent past fire activity in the boreal forests of eastern Canada. They found that increases in NPP due to increasing CO<sub>2</sub> concentration can be offset by increases in fire activity in more northern areas. I interpret their results and discussion to say that the increase in fire activity was due to both an increase in lightning frequency and drier climate. I recommend emphasizing this aspect of their results more clearly and explicitly. This paper provides both methodology and results that will be of interest to the community.

Specific Comments: 1. It appears that there were no additional modifications made to

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the fire routine in LPJ\_LMfire, such as changes to fuel limits on fire activity, beyond the new PFT parameterization. If true, I would encourage the authors to write a sentence confirming this.

1. Presenting the results of Figure 4 in a manner similar to Figure 2 would make it easier for the reader to see the spatial patterns of agreement and disagreement between model and observations.
2. Given the results shown in Figure 3, the interpretation that "heavy and intense rain events that occur later in the summer decrease the probability of starting fires, despite more lightning" does not seem well-founded.

Technical Errors: 1. There are multiple instances of incorrect grammar.

Interactive comment on Biogeosciences Discuss., <https://doi.org/10.5194/bg-2017-350>, 2017.

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