

Interactive comment on “Effects of lightning and other meteorological factors on fire activity in the North American boreal forest: implications for fire weather forecasting” by D. Peterson et al.

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Received and published: 21 June 2010

We would like to thank the reviewer for the insightful and helpful comments. Several changes were made to the manuscript in accordance with the reviewer's suggestions.

The primary concern of the reviewer was section 4 (large-scale analysis). After much thought, we have decided to shorten the section by removing many of the tiny details of correlations and put more of a general focus on the main factors. Many of the statements on low population densities in regions A and B have also been dropped from the manuscript. These sentences represented our original thoughts before going deeper into research and did not belong in the manuscript. We thank the reviewer for

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pointing out the errors. We have not completely removed section 4, but rather use a shortened version of it as a starting point for the fine scale analysis, because it does create the path for all analysis that follows regardless of the population densities. The large-regions were meant to provide a general synoptic perspective on Canada and Alaska before moving to the details within the actual boreal forest.

We thank the reviewer for pointing us in the direction of the lightning-caused fire model literature. We have referenced several of these articles in the appropriate locations within the manuscript. It is amazing to see that modeling efforts can begin to capture lightning-ignited fires. While this study takes place on much larger spatiotemporal scales, the modeling studies are definitely relevant to us.

The reviewer was also concerned about the lack of discussion on lightning polarity. We had considered adding analysis on peak current and polarity. However, in the end, we decided that the current manuscript was getting lengthy and this analysis could stand alone as a follow-up paper in the same geographic locations.

Interactive comment on Atmos. Chem. Phys. Discuss., 10, 8297, 2010.

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