Atmos. Chem. Phys. Discuss.,
https://doi.org/10.5194/acp-2017-1033-RC3, 2018

Atmospheric Chemistry and Physics Discussions

Interactive comment on "Extremal Dependence between Temperature and Ozone over the Continental U.S." *by* Pakawat Phalitnonkiat et al.

Anonymous Referee #2

Received and published: 5 January 2018

This paper presents an interesting study that examines the relationship between temperature and ozone extremes in measurements as compared 3 chemistry-climate model simulations. They develop a new metric to measure the joint extremal dependence of ozone and temperature by evaluating the spectral dependence of their extremes. The paper is thorough and well-written and contains interesting new results, thus I recommend publication following minor revision.

Page 2, lines 3-6: Make clear which regions are being referred to.

Page 2, line 15: temperature dependent emissions of both anthropogenic and biogenic in origin.

Page 3, line 5: Why were these sites selected? - their operational length?

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Discussion paper

Page 4, line 10: How does the choice of a (= 10) affect the robustness of the results?

Page 5, line 12: Appendix C

Page 7, line 7: Should this be “does not change . . .”?

Page 7, line 21: Is this due to biases in the 90th or mean?

Page 7, line 24: the 2nd “while” isn’t needed

Page 10, line 22: This sentence seems to be missing something. . . The greatest simulated differences?

Page 11, line 20: Could EPA AQS data be added to fill some of these gaps?

Page 10, lines 10-20: A discussion on comparing the performance of REFC1SD to GCM2000 would be useful here and elsewhere, where appropriate – namely, the effect of having nudged meteorology rather than a free running simulation that may not simulate the synoptic conditions conducive to ozone and/or temperature extremes.

Page 15, line 4: How are these sites chosen?

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