November 21, 2018.

To: Yun Qian, (yun.qian@pnnl.gov )
Editor, Atmos. Chem. Phys., http:// editor.copernicus.org/
From: Dr. Mayra I. Oyola
Corresponding author for acp-2018-284

Dear Yun,

We are appreciative that you have considered reviewing our article: "Quantifying the Direct Radiative Effect of Absorbing Aerosols for Numerical Weather Prediction." for publication in the Journal of Atmospheric Chemistry and Physics. We would also like to thank the reviewers for their time and effort to make of this a much stronger manuscript. The technical changes required have been addressed below and are also reflected in the manuscript.

Please do not hesitate to contact us with further questions.

Respectfully,

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Technical corrections:
1. Section 3.4: Some recent work (e.g. Allen et al. 2012; Shen and Ming 2018) on the effect of aerosol absorption on the large-scale circulation, as well as its height dependence, might be helpful.

Thanks for suggesting these excellent reads. Not only they make the paper stronger, they were delightful to read.

At the beginning of Section 3.5, now reads: "Aerosol impacts large-scale circulation by virtue of its absorption and vertical distribution. For example, Allen et al. (2012) suggested that the tropical belt expansion may not be driven not only by stratospheric cooling, but also by mid-latitude heating sources due aerosol distribution. Additionally, Shen and Ming (2018), examined how aerosol absorption affects the extratropical circulation by analyzing the response to a globally uniform increase in black carbon, and suggested absorbing aerosols are capable of altering synoptic-scale weather patterns. These studies, among many others, show these impacts are dependent on the aerosol height, stressing the necessity of better constraining model-simulated aerosol vertical distributions with satellite and field measurements"

2. Figure 2: Why does the figure start from 900 hPa? I wonder if the aerosol concentration is actually very small below 900 hPa (as suggested in Section 3.2) or if there is no data?

No data below that level due to elevation (that is the surface level in that region).

3. Figure 3: It might be helpful to add "(BRF = 0.166678)" in the caption.

BRF = 0.166678 has been included as part of the caption.

References:
Allen, R. J., S. C. Sherwood, J. R. Norris, and C. S. Zender (2012): The equilibrium response to idealized thermal forcings in a comprehensive GCM: implications for recent tropical expansion. Atmospheric Chemistry and Physics, 12 (10), 4795–4816, doi:10.5194/acp-12-4795-2012.
Shen, Z., and Y. Ming (2018), The Influence of Aerosol Absorption on the Extratropical Circulation, Journal of Climate, 31 (15), 5961–5975, doi:10.1175/JCLI-D-17-0839.1.

References have been added. Thank you very much!!!