

comparable to those reported in previous studies (Lu et al., 2019b; Ni et al., 2018), despite the slight differences due to differences in season and sampling, proving the confidence of using GEOS-Chem to simulate ozone concentrations.

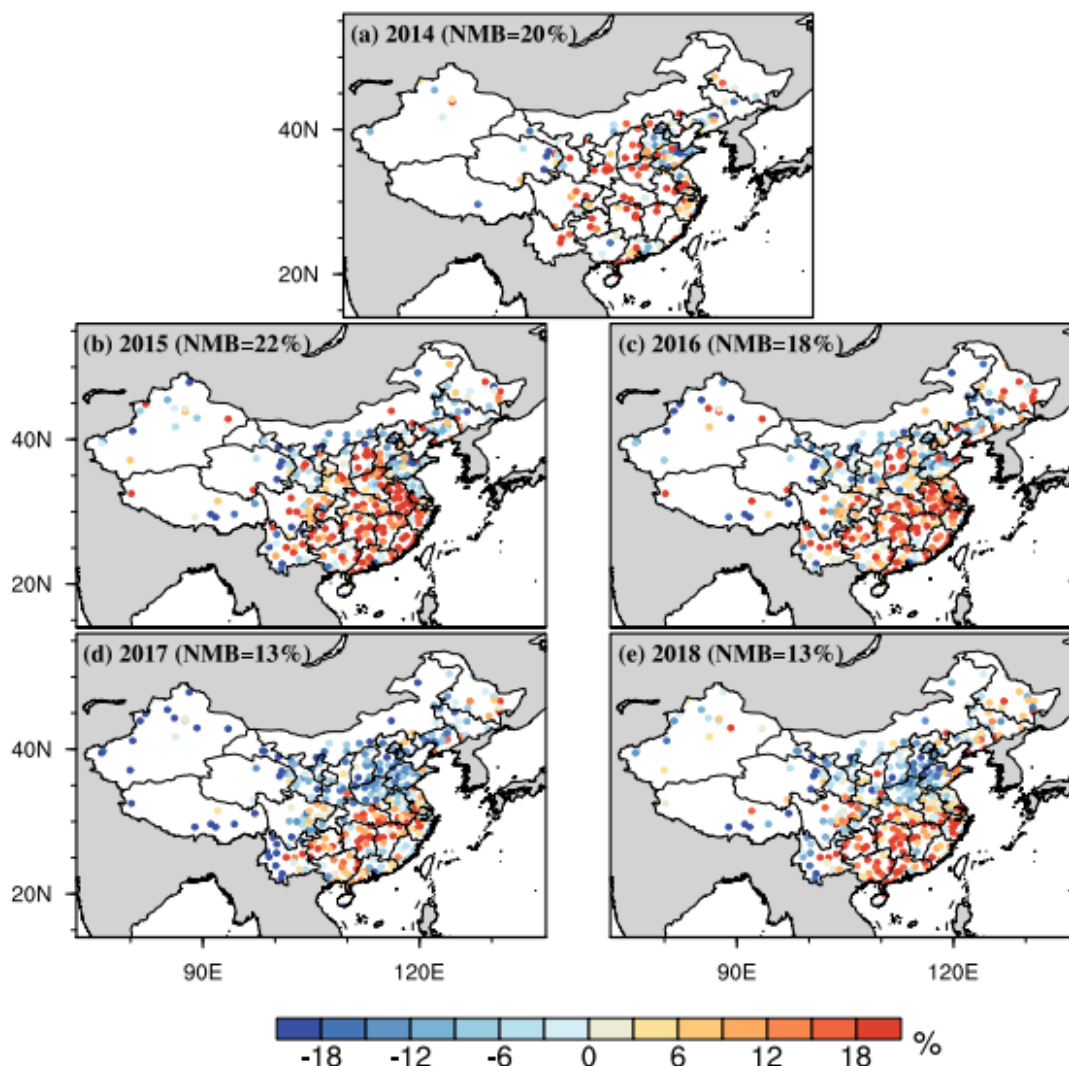


Figure S5. Normalized mean bias (%) between simulated and observed seasonal mean surface ozone MDA8 concentration (ppbv) over China for summer from 2014 to 2018 (a-e).

L. 310: How do the authors conclude about dilution and accumulation of ozone based on maps of wind anomalies only? This statement deserves more details and/or references.

Thanks for pointing this out. First, the budget change in Figure 4c and the maps of wind anomalies are mutually verified. We are not concluding about dilution and accumulation of ozone solely based on the maps of wind anomalies. Second, the correlation analysis with winds (shown below in the bottom row of Figure S3) also supports this conclusion. We added details in the main text to emphasize this point.

[Main text, Lines 377-383]:

For strong WPSH, the change of ozone budget due to transport exhibits an asymmetric pattern with decreases in most parts of Southern China and increases over Northern and Northeastern China (Figure 4c). As the correlation analysis shows that ozone responds to meridional wind positively in the north and negatively in the south (Figure S3i), the changes in transport budget are consistent with the WPSH-induced wind anomalies (Figure 3a), which tends to dilute surface ozone in the south and enhance it in the north.

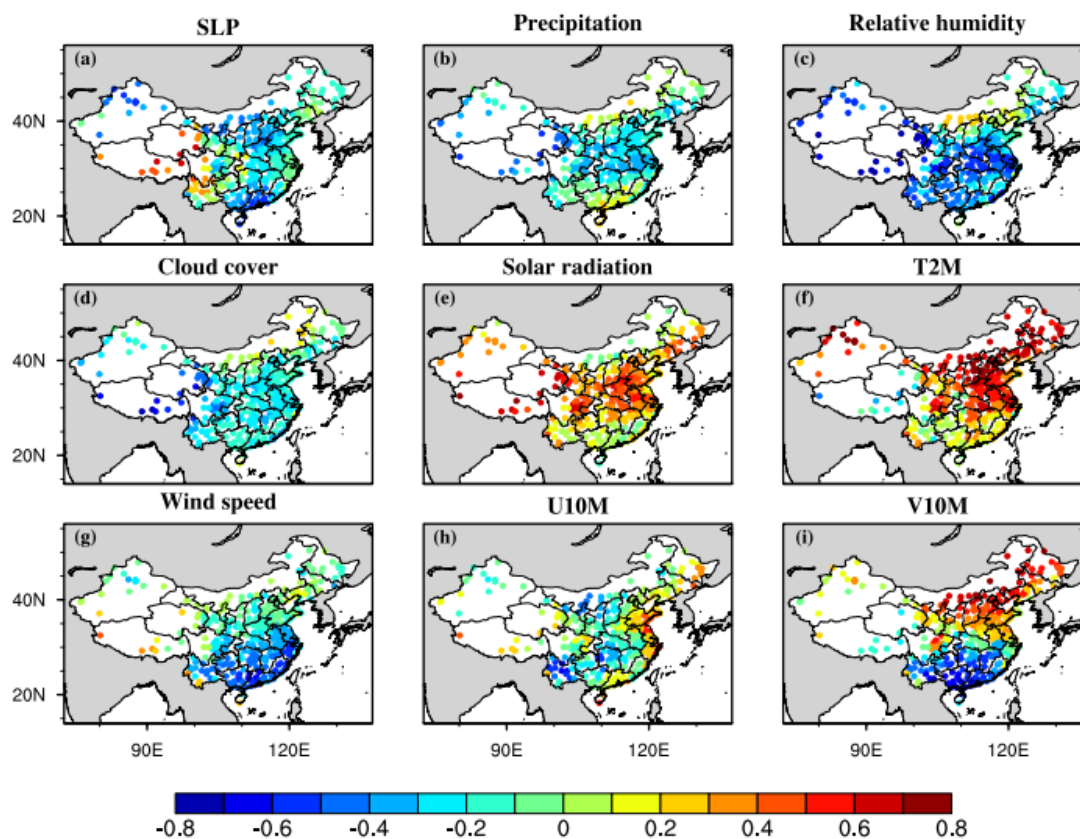


Figure S3. Correlation coefficients, between simulated daily MDA8 ozone concentrations and meteorological variables including SLP, precipitation, relative humidity, cloud cover, solar radiation, 2 m temperature, wind speed, 10 m U wind, and 10m V wind calculated for the summer periods from 2014 to 2018.

L.315: Did the authors mean "free troposphere"?

Revised as suggested. Thank you.

L. 356: Add "(see Section 3.3)" as it seems to refer to the findings above.

Revised as suggested. Thank you.