

*Supplement of*

**Impacts of meteorology and emissions on surface ozone increases  
over Central Eastern China between 2003 and 2015**

Lei Sun<sup>1,2</sup>, Likun Xue<sup>1\*</sup>, Yuhang Wang<sup>2\*</sup>, Longlei Li<sup>2</sup>, Jintai Lin<sup>3</sup>, Ruijing Ni<sup>3</sup>, Yingying Yan<sup>3,4</sup>, Lulu Chen<sup>3</sup>, Juan Li<sup>1</sup>, Qingzhu Zhang<sup>1</sup>, Wenxing Wang<sup>1</sup>

<sup>1</sup>Environment Research Institute, Shandong University, Ji'nan, Shandong, China

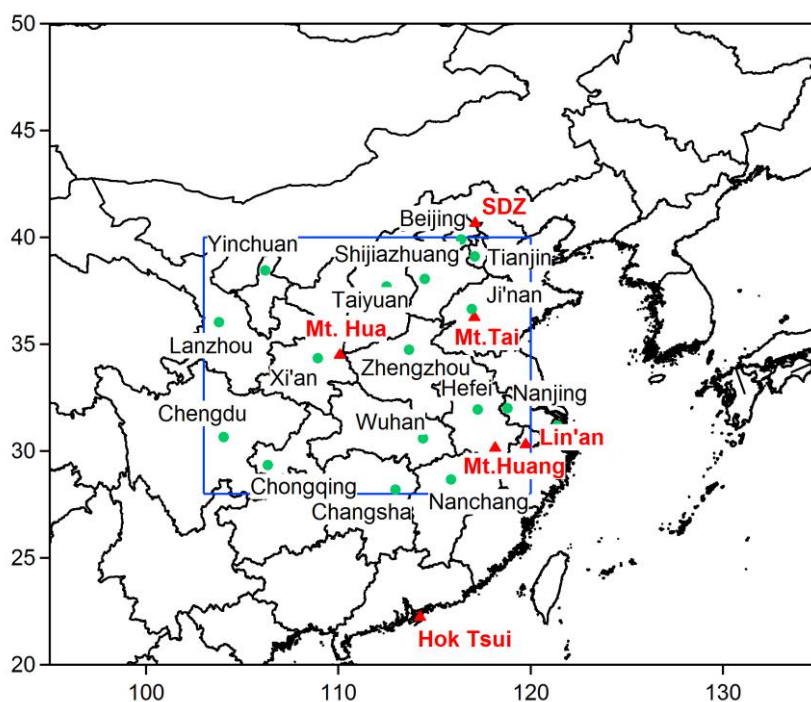
<sup>2</sup>School of Earth and Atmospheric Sciences, Georgia Institute of Technology, Atlanta, GA, USA

<sup>3</sup>Laboratory for Climate and Ocean-Atmosphere Studies, Department of Atmospheric and Oceanic Sciences, School of Physics, Peking University, Beijing, China

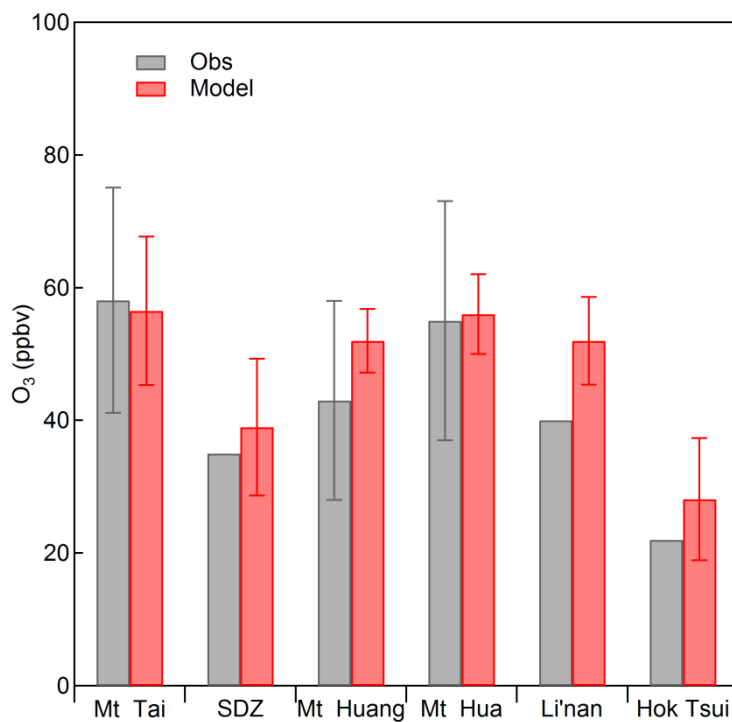
<sup>4</sup>Department of Atmospheric Sciences, School of Environmental Studies, China University of Geosciences (Wuhan), 430074, Wuhan, China

Correspondence to:

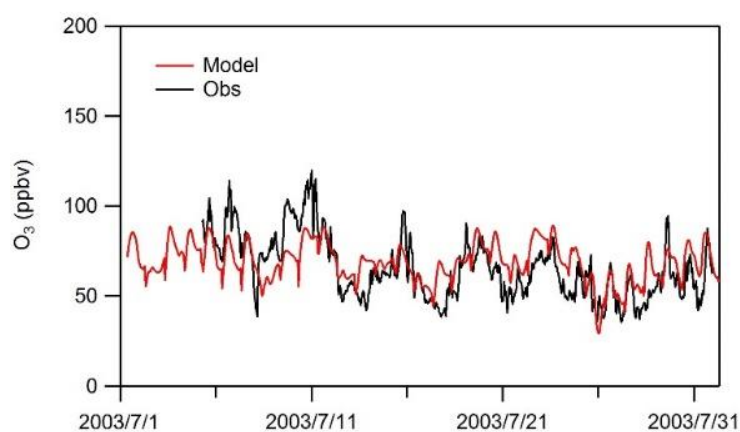
Likun Xue ([xuelikun@sdu.edu.cn](mailto:xuelikun@sdu.edu.cn)) and Yuhang Wang ([yuhang.wang@eas.gatech.edu](mailto:yuhang.wang@eas.gatech.edu))



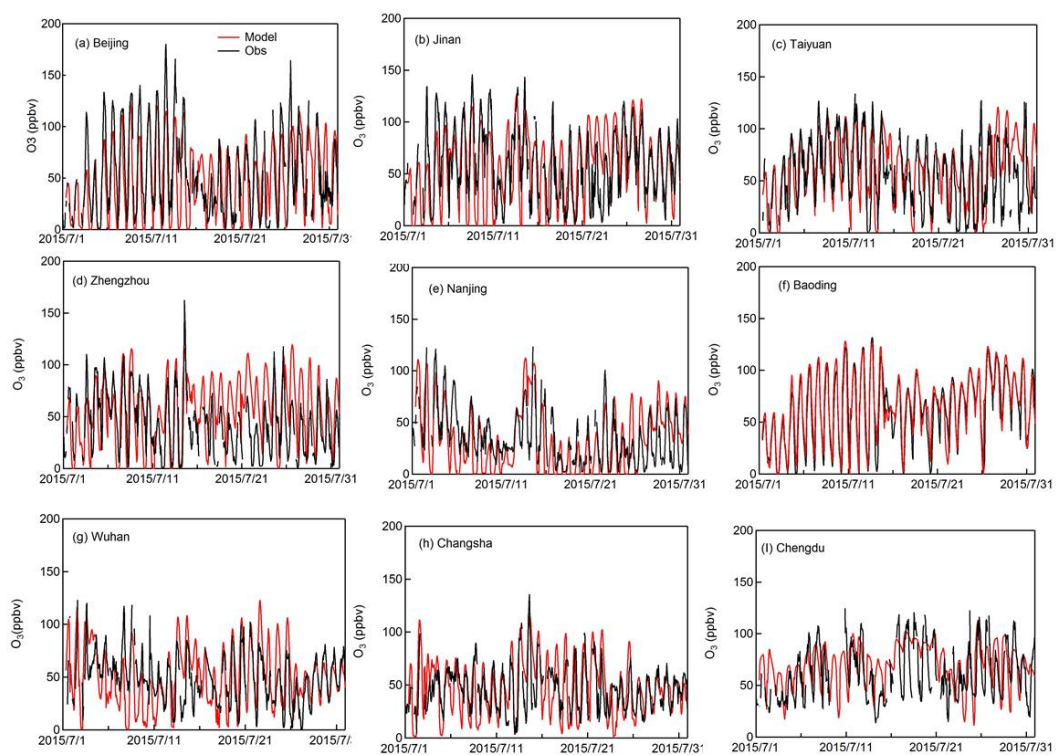
**Figure S1.** Locations of rural/regional background sites (red triangle) and the capital of each province in Central Eastern China (green dot). The blue rectangle represents the Central Eastern China region.



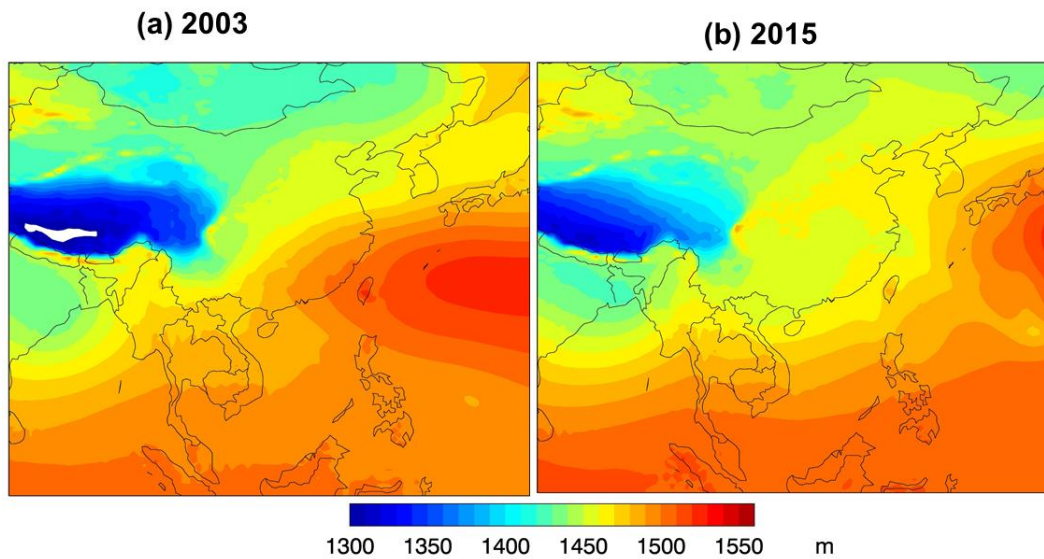
**Figure S2.** Comparison of observed and simulated monthly-mean concentrations of surface  $O_3$  at the six rural/regional background sites in July 2004.



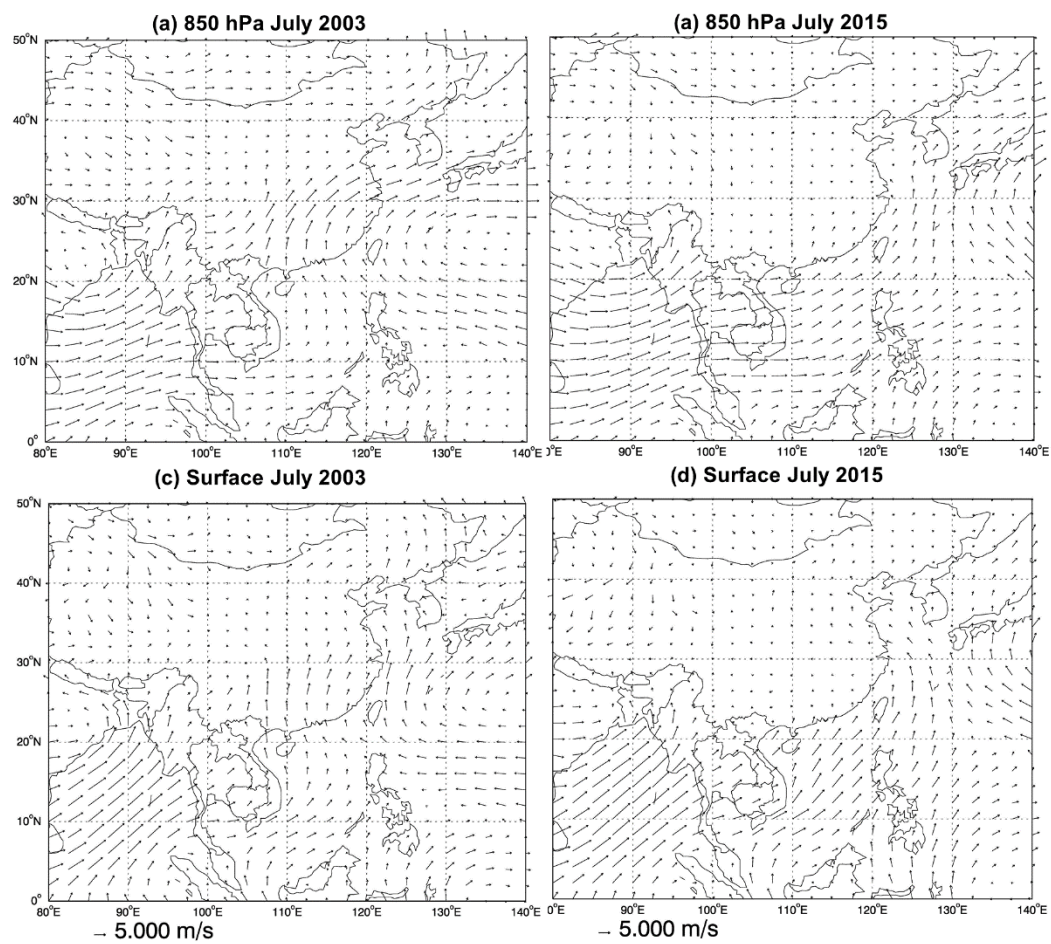
**Figure S3.** Time series of observed and simulated O<sub>3</sub> concentrations at Mt Tai in July 2003.



**Figure S4.** Time series of observed and simulated O<sub>3</sub> concentrations in July 2015 at nine representative surface stations.

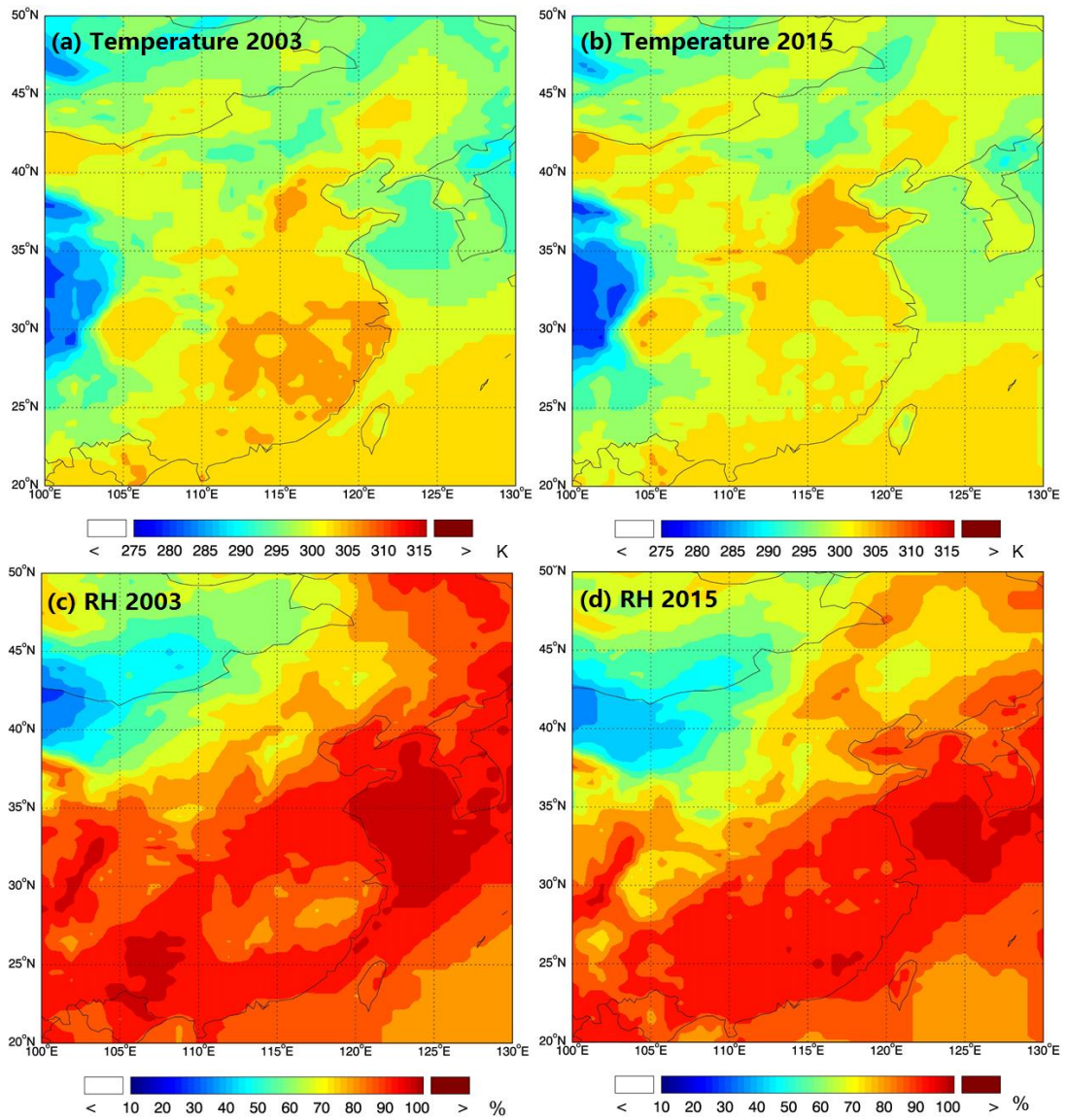


**Figure S5.** Monthly-mean geopotential heights at 850 hPa in July of 2003 and 2015 from MERRA-2 meteorological field.



**Figure S6.** The mean wind fields at 850 hPa and surface in July of 2003 and 2015 based on the GEOS-Chem results.





**Figure S7.** The mean temperature and relative humidity on surface layer in July of 2003 and 2015 based on the GEOS-Chem results.