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Exploring the drivers of the increased ozone production in Beijing in summertime during 2005–2016

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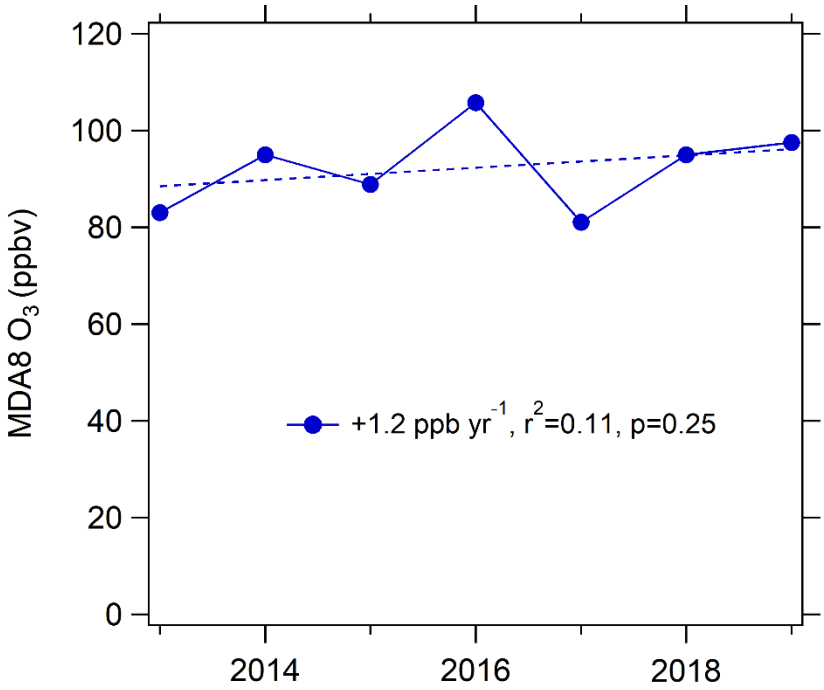

Figure S1. The trend of average MDA8 ozone in Changdao during 2013-2019. These data are acquired from "Blue book on prevention and control of atmospheric ozone pollution in China (in Chinese)" reported by Chinese Society of Environmental Sciences in 2020 (http://www.ep-serve.com/forepart/zxnr_index.do?oid=51478637&tid=26378242).

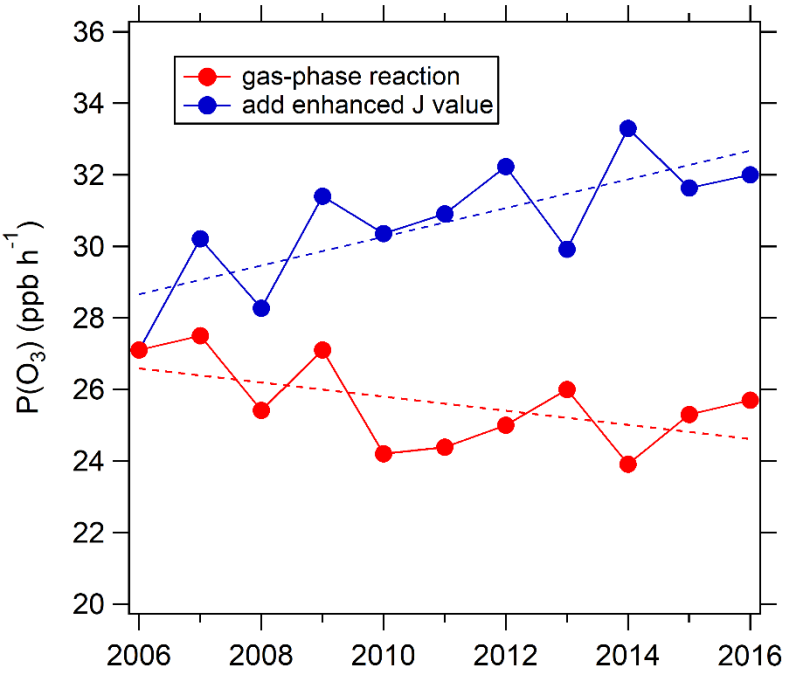

Figure S2. Trend of monthly afternoon (12:00-15:00) mean $P(O_3)$ simulated by the chemical box model. Red dots: Only the gas-phase reactions are considered in the box model constrained by observed photolysis frequencies from 2006 for all eleven years. Blue dots: the box model as above, but constrained by the photolysis frequencies derived for each year without the changing aerosol uptake of HO_2 considered.

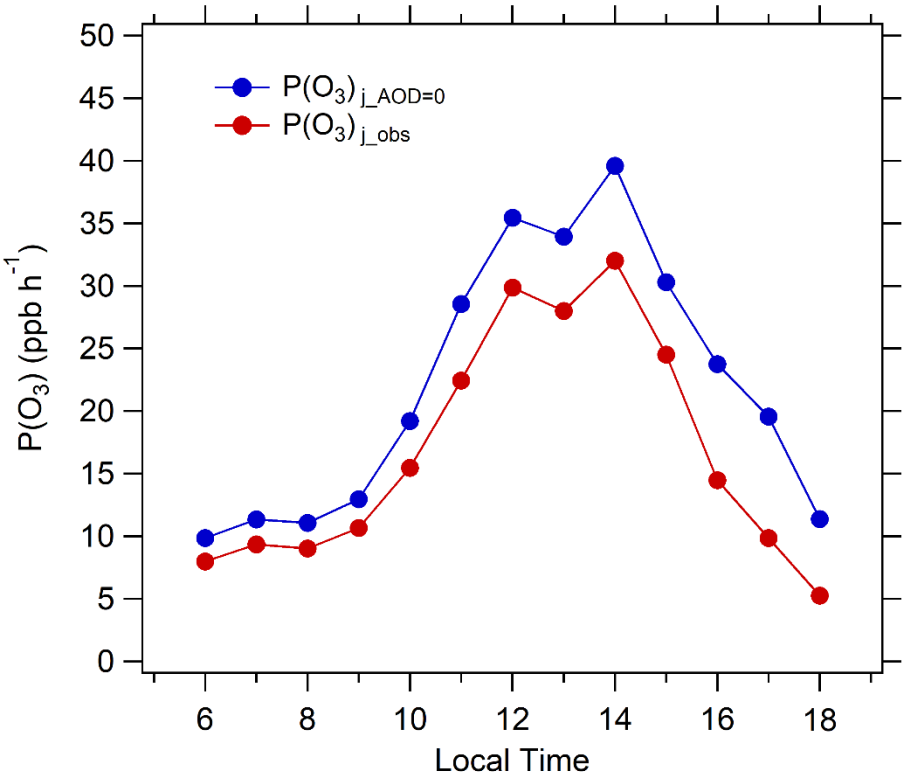

Figure S3. Diurnal variation of simulated $P(O_3)$ in Beijing in August during 2006-2016. $P(O_3)_{j\_obs}$ represents ozone production rate under observed photolysis frequencies; $P(O_3)_{j\_AOD=0}$ represents ozone production rate under calculated photolysis frequencies when AOD is equal to 0.