This manuscript investigated chemical environment for surface O3 for six major industrial regions across China in summer 2016. Detailed chemistry-climate model simulations were employed to diagnose ozone sensitivity to precursors and contrast the effectiveness of different measures to reduce surface O3 concentrations. This manuscript is helpful to understand ozone pollution mechanism in Chinese cities, and within the scope of ACP. I think it is publishable in ACP after my following concerns are addressed.

Line 215: The gross rate of production \( P(\text{O}_3) \) actually represents the production rate of \( \text{O}_3 (\text{O}_3 + \text{NO}_2) \) through the reaction \( \text{HO}_2 (\text{RO}_2) + \text{NO} \). Therefore, the net ozone production rate should include the loss term \( \text{NO}_2 + \text{OH} \) (Wang et al., 2019. doi.org/10.5194/acp-19-9413-2019). In addition to \( \text{OH} + \text{NO}_2 \) and \( \text{RO}_2 + \text{NO}_2 \), the loss of \( \text{NO}_x \) should also include \( \text{RO}_2 + \text{NO} \) and \( \text{OH} + \text{HONO} \). When calculating OPE, please give specific quantification even though these reactions play a minor role in the loss of \( \text{NO}_x \).

Figure 4 shows significant underestimation for \( \text{NO}_2 \) in daytime, but overestimation for \( \text{NO}_2 \) at nighttime. The overestimation of \( \text{NO}_2 \) at night maybe related to underestimated nighttime chemistry such as the removal of \( \text{NO}_3 \) and \( \text{N}_2\text{O}_5 \) through heterogenous uptake (Li et al., 2018; Li et al., 2019). A short discuss should be performed. Additionally, how do these underestimation and overestimation for \( \text{NO}_2 \) influence your diagnosis of ozone sensitivity? For example, the underestimation of \( \text{NO}_2 \) in Chongqing will lead to more \( \text{NO}_x \)-limited, which likely misleads the actual situation.

Figure 8. shows ozone increased from 70 ppb to over 80 ppb during 2013-2019. However, observed ozone concentrations in Beijing didn’t significantly during the period or decreased after 2015 in spite that ozone increased over North China Plain (Lu et al., 2018. DOI: 10.1021/acs.estlett.8b00366; Tang et al., 2020. doi.org/10.1016/j.atmosres.2020.105333). This needs further explanations.


Line 145: There are only 450 measurement stations in 2013, growing to 1,500 stations in 2017 and 1670 stations in 2019.

Line 300: “summer-mean ozone” should be “daily mean ozone”.

References