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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Modeling the impact of chlorine emissions from coal combustion and prescribed waste incineration on tropospheric ozone formation in China" *by* Yiming Liu et al.

Anonymous Referee #2

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General comments The authors estimated chlorine emissions from coal combustion and prescribed waste incineration in China and used the CMAQ model to examine the impact of these chlorine emissions on ozone. Overall, the article is written clearly and merits publication. However, several issues need to be addressed before publication.

Specific comments

Page 2, line 16-17, equation 1-2 The authors may replace "Hγ" in both reactions with "hγ".

Page 6, line 19-21 Incomplete sentence

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Discussion paper

Page 7, line 19-29 How the chlorine emissions were temporally allocated?

Page 9, line 13-15 ACEIC has been defined before. It appears that ACEIC has been defined several times throughout the article. Please check and define it once.

Page 11, line 1-10 The authors reported that chlorine emissions/chemistry increased the conversion of NH3 into NH4+. What mechanism caused the increased conversion of NH3 into NH4+?

Page 12, line 9-21 The authors demonstrated the impact of chlorine emissions/chemistry on daily maximum 1-hr O3. Chlorine emissions/chemistry tends to increase ozone in the morning hours. Thus, it is likely to have a larger impact on 8-hr O3 on than on 1-hr O3. It will be important to present impact of chlorine emissions/chemistry on 8-hr O3 also.

Page 13, line 1-10 The authors reported that chlorine emissions/chemistry decreased NOx concentrations without providing any explanation? Why NOx concentration decreased?

Figure 1 Unit of chlorine emissions is written as Mg/grid; should it be written as Mg/grid/yr.

Figure 2 Figure title indicates that fractional changes are shown. Actually percent changes are shown.

Figure S2 It contains four captions: (a-d). However, (c) is written twice, one should be written as (d).

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