Atmos. Chem. Phys. Discuss., 14, C1380–C1382, 2014
www.atmos-chem-phys-discuss.net/14/C1380/2014/


Atmospheric Chemistry and Physics Discussions



# *Interactive comment on* "Impacts of the East Asian summer monsoon on interannual variations of summertime surface-layer ozone concentrations over China" *by* Y. Yang et al.

**Anonymous Referee #2**

Received and published: 13 April 2014

This manuscript presents several modeling simulations to understand the impact of Asian monsoon on the interannual variations on summertime ozone in China with a focus on the interannual variation. So far, very limited modeling works were conducted to understand ozone variation for such a long period. This topic of this paper is interesting, the modeling simulations were well-performed, and the main analysis and discussions were also well-organized. This referee would like to recommend the publication of this paper if the following points were addressed.

Major comments:

1) One of the main weaknesses of this paper is modeling evaluation. It's acceptable that the authors only evaluated the modeling results using measurements at two sites, i.e. Hok Tsui and Ryori, which are the only available sites for a long-term measurement in Asia. However, there are so many works of ozone measurements, especially summertime ozone, have been done in differences places in China, including western China, the northern China and eastern China. The main mechanisms controlling summertime ozone, including monsoon, stratosphere-troposphere exchange, photochemistry etc., have already be widely discussed for different areas. Although these previous works were not on an interannual scale, the authors should make a more complete literature review on these works and have these main findings appropriately discussed and compared.

2) There is a clear definition of monsoon and non-monsoon regions in the East Asia. The simulation results show that there is strong interannual variation of ozone in the western China (Fig. 3b) and over the Siberia, which are typically considered as non-monsoon regions. The authors should give some explains on this. Also, it will be better to explore the relationship between EASMI and ozone for monsoon and non-monsoon regions separately but not for the whole China.

Minor comments:

1) The "whole China": is it for a definition of box in latitude and longitude or exactly according to the territory of China?

2) For the Hok Tsui and Ryori site, it will be better to have the site location marked on a figure, for example on the Figure 2.

3) Page 3282, first paragraph of Sect 5.4: Figure 8 or Figure 8f should be change into Figure 7 and 7f.

4) For the data at Ryori, it looks that the result in 1992 was unusual. Please check the original data; also please pay attention to the data coverage for that year. If it's due



ACPD
14, C1380–C1382, 2014

to measurement problem, that data point can be removed and the correlation can be higher.

---

Interactive comment on Atmos. Chem. Phys. Discuss., 14, 3269, 2014.