

***Interactive comment on* “Characteristics of trace gaseous pollutants at a regional background station in Northern China” by Z. Y. Meng et al.**

Anonymous Referee #1

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General comments:

Global chemical transport models have been suffered from lacking observational data set from Asia, especially from China to evaluate the performance of various models. Long term and trends of both gaseous and aerosol species in China are even more limited. This paper presents a good data set for one of the Chinese observation stations for the period of 2003 to 2006. Besides, the paper also presents the diurnal variations of various gas species, which are valuable for model evaluations. Therefore, I found this paper having a value to provide the modeling community the background concentrations of various gases in China and their trends and seasonal variations. However, there are a number of issues that need to be addressed before its final publication in ACP.

Specifically:

(1) The authors presented the trends and seasonal variations in the paper and used very speculative ways to explain the reasons. For example, in page 8, the reasons listed in the paragraphs can be applied to any situations. If any of those reasons was true for the SDZ station, why used observed meteorological data to support them.

(2) The paper compared extensively the ozone and other gas measurements with other locations around the globe. Except to state the highs and lows, there are no scientific messages from the comparisons. What does the paper try to convey?

(3) The diurnal variations of gas pollutants were discussed in the paper. However, the discussion was mixed with seasonal variations. Again, the explanations were all speculative. For example, when the SO₂ diurnal variation was discussed, it was found that the SO₂ concentration remained almost steady from 1800 to 2400 in the winter. The paper then attributed this to the higher energy demand for heating. The heating demand may be one of the reasons but not the only one. If a statement was made in a paper, scientific evidence should be provided. There are quite a number of places where similar statements were made without any proofs.

(4) The paper is not well organized to present the results and sometimes it is very difficult to understand. This is a rather lengthy paper but the message from it is rather confused. I suggest a major over-hall of the paper structure and polish the English usage.

Interactive comment on Atmos. Chem. Phys. Discuss., 8, 9405, 2008.

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Interactive Discussion

Discussion Paper

