

Interactive  
Comment

***Interactive comment on “Diagnosing recent CO emissions and springtime O<sub>3</sub> evolution in East Asia using coordinated ground-based observations of O<sub>3</sub> and CO during the East Asian Regional Experiment (EAREX)2005 campaign” by H. Tanimoto et al.***

**Anonymous Referee #1**

Received and published: 4 June 2008

Above manuscript describes the pollution events over East Asia during spring using surface observations of ozone and CO at eight sites and a regional chemical transport model. Inverse model and MOPIIT data are used to study the changes in CO emissions over East Asia. This work makes a significant contribution in CO emissions estimates and in its changes. Discussions on pollution events may be improved a little. The manuscript is well written and in my opinion this manuscript is very much suitable for

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publication in ACP.

Some of the general comments are-

Page 3530, Last paragraph - It would also be better to add discussion/information of air-masses, which are influencing the observations at these 8 surface sites. Back air trajectory could be utilized for this purpose.

Page 3532 line 15-16: Very brief information may be provided about the range of correlation values among different ozone analyzers.

Page 3536, last paragraph "We examined ... Sawa et al. (2007)." This paragraph can be moved in section 6.1.

Page 3537, last paragraph - It might be more appropriate to add some discussions on observed versus modelled ozone and CO data at "individual" sites. It is appearing to me that CO comparison shows more scattered values at Gosan (GSN), Fukuejima (FKE), and Amami Oshima (AMA) and these three sites might have more/direct influence of East Asian outflow.

Figure 4 may be drawn using binned average value (e.g. 2 or 5 ppbv) to add more visibility in this figure.

Line 18 and 21 - Instead of good correlation, it might be more appropriate to say a positive correlation.

Page 3538, Line 3 "...at several sites...". It is better to provide numbers of sites.

Page 3540, Line 21 - It would be beneficial to reader to provide the information about the approach/method used to estimate the "enhancement in ozone and CO". Additionally, it is better to write "enhancement in O<sub>3</sub>" and "enhancement in CO", apart from writing "delta O<sub>3</sub>" and "delta CO" in caption of Figure 7.

Page 3542, Line 1-2 - I feel, transport of ozone rich and CO poor air, probably from higher altitude, could also lead to show increase in ratio of delta O<sub>3</sub> and delta CO.

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Section 6.2 and Figure 8 - I feel that there is a better positive correlation with lesser scatter at Cape Ochi-ishi (COI). Some lines may also be added on this.

Figure 3: It would be more appropriate to compare observed and modelled data both using 3 hourly data. This is also applicable for Figure 8.

Figure 8: If all eight figures are not on a single page, a label on X-axis (CO ppbv) may be added.

Table 1: Four values in "Inverse model" are mentioned in centre column (between Anthropogenic and Biomass). It is confusing. If they are total emissions, pl mention accordingly.

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Interactive comment on Atmos. Chem. Phys. Discuss., 8, 3525, 2008.

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