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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Tropospheric NO_2 vertical column densities over Beijing: results of the first three-years of ground-based MAX-DOAS measurements (2008–2011) and satellite validation" *by* J. Z. Ma et al.

Anonymous Referee #1

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This paper reports on the measurements of tropospheric columns of NO2 over Beijing during a period of three years using MAXDOAS instrumentation and on the validation of such measurements and satellite data. Satellite data used for validation are data from SCIAMACHY and three different sets of data from OMI. My opinion is that it is well suited for publication in ACPD and particularly in the special issue "Atmospheric impacts of Eastern Asia megacities" after taking into account some comments. I find the English should be improved; the text is very descriptive and difficult to understand in some parts.

Comments:

Section 2.2 Spectral retrieval. Dark current. A more detailed explanation about the removal of dark current is necessary as dark current depends not only on Temperature but on exposure time. Page 6 L21. Figure 2. I miss error fit and NO2 SCD for both cases. Page 7 L20 Figure 3. Why are those particular days selected? Indicate what days are cloudless or cloudy would be useful in the following discussion.

Section 2.4. Satellite data I find this section too descriptive with no new information included, it is OK to describe the sets of data that have been used in this work but from page 10 L10 to page 11 L3 I find this information unnecessary. The same from page 11 L11 to L21.

Section 3.5 Cloud Effects The use of C320/C434 index would be very interesting if it would be used to predict what days are cloudy, but in this section I don't see the point to introduce this concept without any conclusion. Please clarify the objective of this part or remove it.

Interactive comment on Atmos. Chem. Phys. Discuss., 12, 26719, 2012.