

Interactive comment on “Multiple wavelength retrieval of tropospheric aerosol optical properties from MAXDOAS measurements in Beijing” by K. Clémer et al.

Anonymous Referee #1

Received and published: 10 February 2010

Comments to the paper of Clemer et al.,

General

The paper is well written, presents a newly developed MAXDOAS, and is thus appropriate for AMT.

A weak point is that height profiles are shown, but comparisons with lidar profiles are missing. Please contact N. Sugimoto, MRI, Tsukuba, Japan, for Beijing lidar measurements. There is a web page. . .

Minor revisions are required.

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Details

Sec 2, Line 21: There are several universities in Beijing, please provide more information, not only Physics Institute.

Sec 2.1, Line 25: BIRA-IASB stands for? Please explain!

Sec 4, line 25: physicality? What's that?

Figure 1: Figures should be self-explaining, i.e., the figure caption and/or a small table in the plot to the right side should be used to explain A, B, C, J, I, H G, F, D.3, D.1, D.2, D. The explanation is only given in the main text. That is bad.

Figure 7: AOD values >3 or >4 are trustworthy?. A photometer would fail because the sun tracker would not be able to clearly see the sun disk because of rather large multiple scattering effects. So, a MAXDOAS can do a good job? Please comment on that!

Figure 8: Exponential function are shown. Why not using just a surface value and a scale height? The other way around provide the respective surface values and the scale heights that fit to these curves.

Figure 9: Are you sure that the color plots reflect the reality (when keeping the poor height resolution in Figure 8 in mind)? Are you sure that the aerosol is confined to the lowermost 500 to 1000m over the polluted megacity of Beijing. Please comment on that critically.

As mentioned above, there should be lidar measurements available. There is a Japanese lidar network in China, and one station is in Beijing. Please contact N. Sugimoto, MRI, Tsukuba, Japan. He is leading this network.

I would appreciate in general, if more lidar comparisons could be shown.