

MAX-DOAS measurements are highly influenced by clouds, therefore a simple method to identify cloud contaminated spectra based only on the measurement itself is very useful. This paper presents a novel simple method applicable to many measurements. Once the method is calibrated for a certain instrument, it is easy to add the cloud information automatically to the spectra. Thus it is suited very well for a publication in AMT.

The authors should address some minor changes/corrections as detailed below:

p. 5885 l. 11-12: "We focus on 90° elevation observations since simulations show these are the most sensitive to the sky conditions." Please give a reference/proof.

p. 5889 l. 6-8: For high SZA clear sky can appear in different colours than blue

p. 5889 l. 10: Please give a reason for averaging the intensity in this big window.

p. 5889 l. 13-22:

- Please mention that here are results from Xianghe are shown. Do the other stations look similar?

- The in the text mentioned letters a-d in Fig. 1 do not appear in Fig. 1

p. 5889 concerning DAK:

- What albedo is used?

- What is the height of the cloud? (Bottom height at 1km, but what is the top height?)

p. 5890 l. 1.3: I would prefer a short example.

p. 5890 l. 6: "... from spectra with low elevations angles shows a very narrow spread regarding different aerosol and cloud settings"

p. 5890 l. 11: eliminate → maybe better exclude

p. 5890 l. 19-23: Did any instrumental issues occur? If so, how could they be fixed?

p. 5892 l. 1: "arbitrarily" → Something led to this choice, please explain a little further.

p. 5892 l. 8: "meteorological" → better visibility

p. 5892 l. 14: Please define scattered clouds

p. 5892 l. 21: How were the different Cs determined?

p. 5894 l. 2: How was the threshold of 0.2 determined?

p. 5894 l. 1-3: I would appreciate a similar example as for the temporal variation of the CI (fig. 6).

p. 5894 l. 8: A new section should be started here, from here on the introduced flags are compared.

p. 5894 l. 15-19. This section is misleading, for Brussels and Jungfraujoch is another effect discussed than for Xianghe. Please separate this more clearly.

p. 5895 l. 22: Please introduce MS flag (best would be to do this in section 4.3, and BC flag in 4.2)

p. 5896 l. 14-19: It is not clear to me, if for Xianghe the "bad" condition is now used or not. A small sketch for the different conditions and how they are used for which dataset could help here.

p. 5900 l. 13: "screws" → colloquial English

Fig. 1:

- Is the fractional day in UTC?
- It could be useful for the further interpretation if the CI for the 90° measurements would be connected with a line (e.g. the scattered cloud effect would be better visible)
- It is not clear, if the boxes “Extreme aerosol load” in fig. 1b and the legend in fig. 1d are covering data. This may be checked.

Fig. 2:

- Printed the colours in the left legend box are not very good visible on the dark grey background.

Fig. 3:

- This figure is not shown properly. The left side is missing completely.

Fig. 5:

- This figure is not shown properly. The dots on the left side are missing on the 2nd and 3rd figure.

Fig. 7:

- Please draw the black line thicker.