Dear Editor,

We appreciate your careful consideration of our manuscript. We have carefully responded to your comment point-by-point and revised the manuscript accordingly. These revisions are described in detail below.

Editor's comments

Thank you for the clarifications in the revised version of your manuscript. There is one point that I had overlooked and would like you to check. In the Supplement, you specify the accuracy of your j_{NO2} measurements as 1%. Such a good accuracy is hard to believe (other groups specify accuracies between 9% and 20%; e.g., Shetter et al., J. Geophys. Res. Vol. 108, D16, 8544, doi:10.1029/2002JD002932, 2003; Zou et al., Front. Environ. Sci. Eng. 2016, 10(6): 13). Please explain the accuracy of your j_{NO2} data and provide a corresponding reference.

Response: Thank you for your comment. We are sorry for making such a mistake about the accuracy of j_{NO2} measurements. We have wrongly reported the precision as the accuracy of our instrument. The accuracy should be 11% (Shetter et al., 2003). In the revised SI, we have corrected it and added a citation.

We calculated the precision of the J_{NO2} according to the instrument's standard operating manual, which states that J_{NO2} remains fairly constant with an accuracy of about 1% when the calibration factors of the two detectors do not change. The details are shown in Table R1.

Table R1. Some typical data of calibration check.

Data Acquisition	Serial numbers	1. Signal (V)	2. Signal (V)	3. Signal (V)	4. Signal (V)	Total J(NO2)
Step1 Original position	249/248	3.210/ 0.522	3.195/ 0.521	3.207/ 0.522	3.204/ 0.522	6.41×10^{-3}
Step 2 Inverted	248/249	0.463/ 3.620	0.461/ 3.625	0.460/ 3.622	0.461/ 3.622	6.33×10^{-3}
Step 3 Inverted cleaned	248/249	0.465/ 3.623	0.465/ 3.625	0.466/ 3.627	0.465/ 3.625	6.35×10^{-3}
Step 4 Original cleaned	249/248	3.230/ 0.527	3.238/ 0.527	3.225/ 0.522	3.231/ 0.525	6.36×10^{-3}

Note: 248 and 249 are the serial numbers of the two detectors. The photometer is mounted so that detector 249 faces up. Calibration Factor (249) = 1.72×10^{-6} s^{-1}/mV; Calibration Factor (248) = 1.53×10^{-6} s^{-1}/mV; Signal Ratio : (249)/(248) = 0.890.

References:

Shetter, R. E., Junkermann, W., Swartz, W. H., Frost, G. J., Crawford, J. H., Lefer, B. L., Barrick, J. D., Hall, S. R., Hofzumahaus, A., Bais, A., Calvert, J. G., Cantrell, C. A., Madronich, S., Müller, M., Kraus, A., Monks, P. S., Edwards, G. D., McKenzie, R., Johnston, P., Schmitt, R., Griffioen, E., Krol, M., Kylling, A., Dickerson, R. R., Lloyd, S. A., Martin, T., Gardiner, B., Mayer, B., Pfister, G., Röth, E. P., Koepke, P., Ruggaber, A., Schwander, H., and van Weele, M.: Photolysis frequency of NO2: Measurement and modeling during the International Photolysis Frequency Measurement and Modeling Intercomparison (IPMMI), Journal of Geophysical Research: Atmospheres, 108, 10.1029/2002jd002932, 2003.