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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Aura OMI observations of regional SO_2 and NO_2 pollution changes from 2005 to 2014" *by* N. A. Krotkov et al.

Anonymous Referee #1

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Krotkov et al. reported on long-term observations of SO2 and NO2 pollution using OMI. The paper is well-written, interesting and scientifically justified. I recommend publication in Atmos. Chem. Phys. after minor changes:

1) Introduction, P 26559, L 25-30:

- a publication describing the GOME-2 instrument is missing.

- OMPS should be mentioned as SO2 results are presented in Supplementary material

- "..although with lower spatial resolution and sensitivity to PBL sources". The word 'sensitivity' is misleading as it might be interpreted in terms of lower AMFs (which I believe is not what you meant). Please reformulate.

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2) Section 2.1, P 26563, L 22-26:

The discussion on the detection limit is not easy to understand. For 100 cloud-free pixels, the detection limit on annual mean should be 0.5 DU /$\sqrt{}$100 -> $\sim$0.05 DU. Please clarify. The same applies to section 3.1, P26569, L25. In addition, a total error estimate on SO2 VCD should be given (as for NO2 in section 2.2)

3) Figure 3: it would be good to assess the possible impact of changes in SO2 profile shape on the trend analysis.

4) Conclusions, P26581,L15: 4km by 4 km is resolution at best. S4 UVN will not have such a small footprint.

Interactive comment on Atmos. Chem. Phys. Discuss., 15, 26555, 2015.