

## ***Interactive comment on “Influence of aerosols and surface reflectance on satellite NO<sub>2</sub> retrieval: seasonal and spatial characteristics and implications for NO<sub>x</sub> emission constraints” by J.-T. Lin et al.***

### **Anonymous Referee #1**

Received and published: 8 June 2015

I found this to be a very important and mostly clear paper that is a wonderfully complete case study on tropospheric NO<sub>2</sub> retrieval. It should be accepted with only a few minor changes in grammar and bookkeeping, none of particular substance. They are:

Read carefully to define abbreviations and acronyms on first use (AMFv6, OMLER, Case S\_A, CRF, ...)

12656.1 – Excluding days with high pollution is not clarified until Section 3.5. Please add a sentence to clarify here.

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12657.5-6 Please discuss in terms of moving from implicit to explicit, since this is the direction of improvement.

12659.25 I found Figure 2 to be unnecessary. It did not clarify the retrieval procedure. 12666.4-8 The wrong conclusion seems to be drawn here. If the heights are correlated would that more likely reduce errors than if they were not?

12667.20 and later discussion – The order of rows in Figure 5 and the order of subsequent discussion in the text should be made consistent.

12671.23 – “to space”

12672.7 What is the correlation for Castellanos et al?

12672.26 “Several representative regions of China are considered, including. ...”

12675.15 “...REF from DOM. These include. ...”

12676.12 “...TOA radiance is from the combination. ...”

12676.26 “situations” 12681.10 “...DOMINO v2. Our cloud. ...”

12684 – The conclusions here should certainly mention the upcoming GEMS mission and its hourly high spatial resolution measurements of China.

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Interactive comment on Atmos. Chem. Phys. Discuss., 15, 12653, 2015.

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