

Manuscript prepared for Atmos. Chem. Phys.
with version 3.0 of the L^AT_EX class copernicus.cls.
Date: 15 February 2013

Supplementary Material: MAX-DOAS measurements of NO₂, HCHO and CHOCHO at a rural site in southern China

X. Li^{1,2}, T. Brauers², A. Hofzumahaus², K. Lu^{1,2}, Y. P. Li^{1,2}, M. Shao¹, T. Wagner³,
and A. Wahner²

¹College of Environmental Sciences and Engineering, Peking University, Beijing, China

²Institute for Energy- and Climate Research (IEK-8), Forschungszentrum Jülich, Jülich, Germany

³Max-Planck-Institut für Chemie, Mainz, Germany

Correspondence to: T. Brauers (th.brauers@fz-juelich.de)

Table S1. Parameter settings of the DOAS fit for retrieving HCHO, NO₂, and CHOCHO DSCDs. FRS refers to the Fraunhofer reference spectrum.

Target species	Fitting window (nm)	Species fitted
HCHO	335 – 358	FRS, HCHO, BrO, NO ₂ , O ₃ , O ₄ , Ring, 3rd polynomial, 2nd offset
NO ₂ , CHOCHO	416 – 441	FRS, NO ₂ , CHOCHO, H ₂ O, O ₃ , O ₄ , Ring, 3rd polynomial, 2nd offset

Fig. S1. Time series of NO₂, HCHO, and CHOCHO DSCDs measured at different elevation angles in the 9 cloud-free days during PRIDE-PRD2006 campaign.

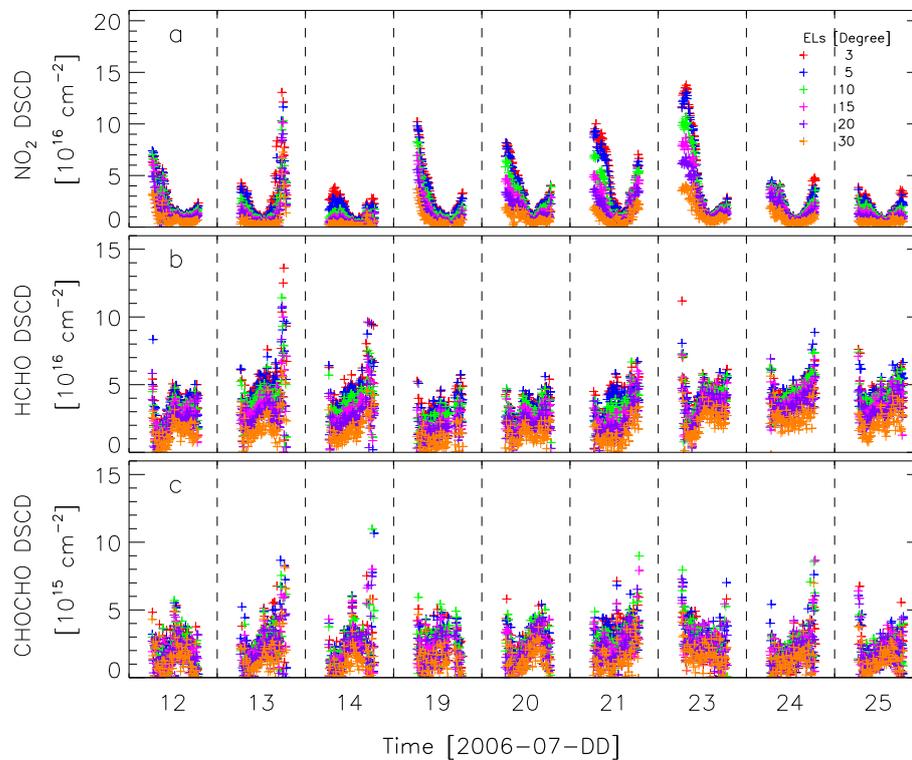


Fig. S2. Intercomparison of tropospheric NO₂ VCDs derived from geometric approach and from the NO₂ vertical distribution retrieval. The regression line was forced through the origin.

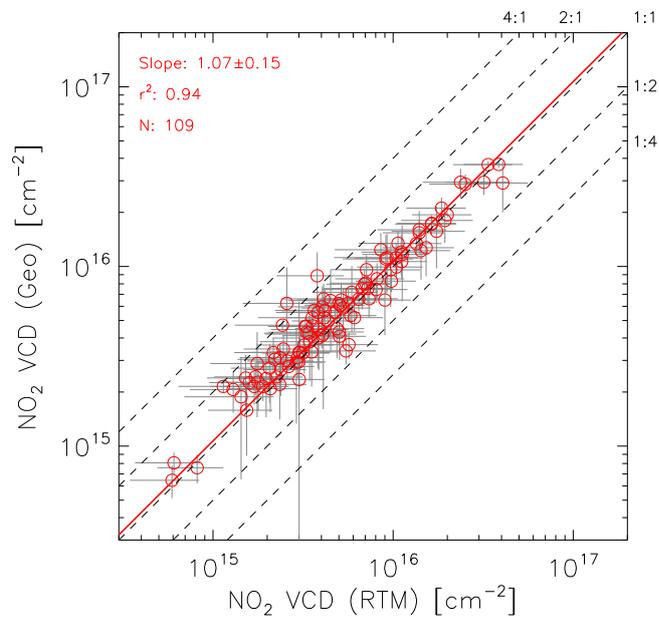


Fig. S3. Intercomparison of tropospheric HCHO VCDs derived from geometric approach and from the HCHO vertical distribution retrieval. The regression line was forced through the origin.

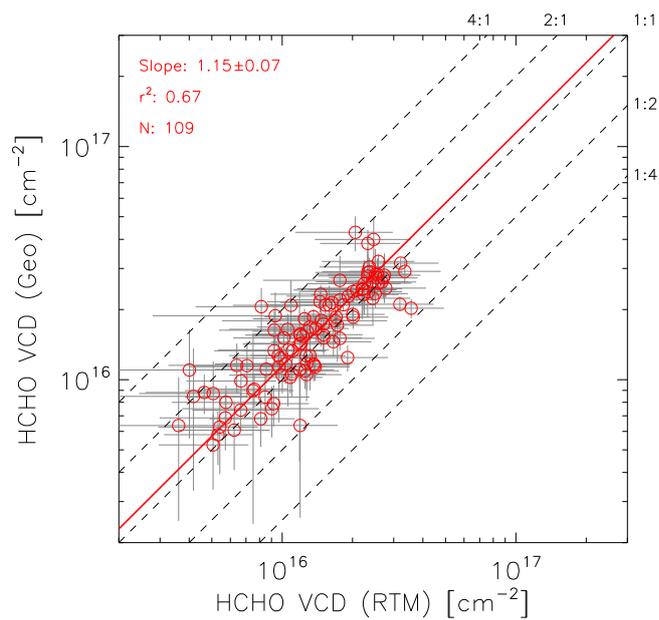


Fig. S4. Intercomparison of tropospheric CHOCHO VCDs derived from the geometric approach and from the CHOCHO vertical distribution retrieval. The regression line was forced through the origin.

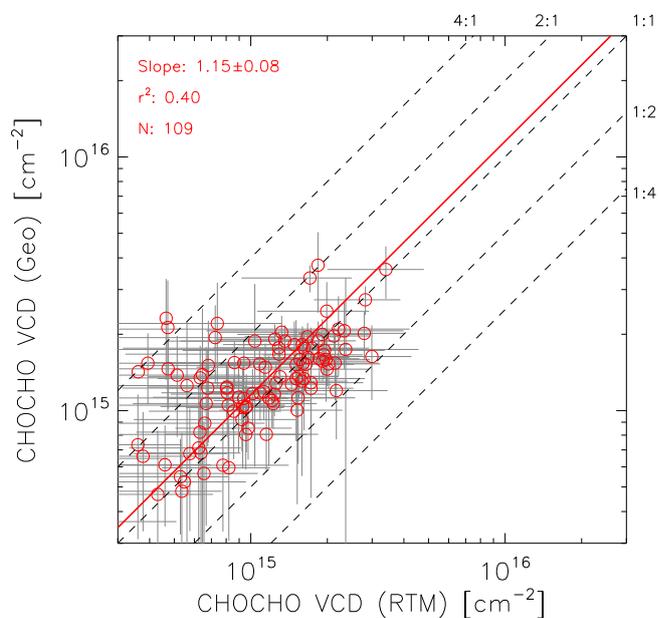


Fig. S5. Time series of tropospheric NO₂ VCDs derived from the MAX-DOAS and OMI observations during the PRIDE-PRD2006 campaign in July 2006. The grey circles represent values calculated by the geometric approach for the entire campaign, the red diamonds refer to values derived from the NO₂ vertical distribution retrieval for the 9 cloud-free days using the RTM, and the triangles are values observed by OMI from space. The triangles are color coded by the cloud fraction derived from the OMI observations.

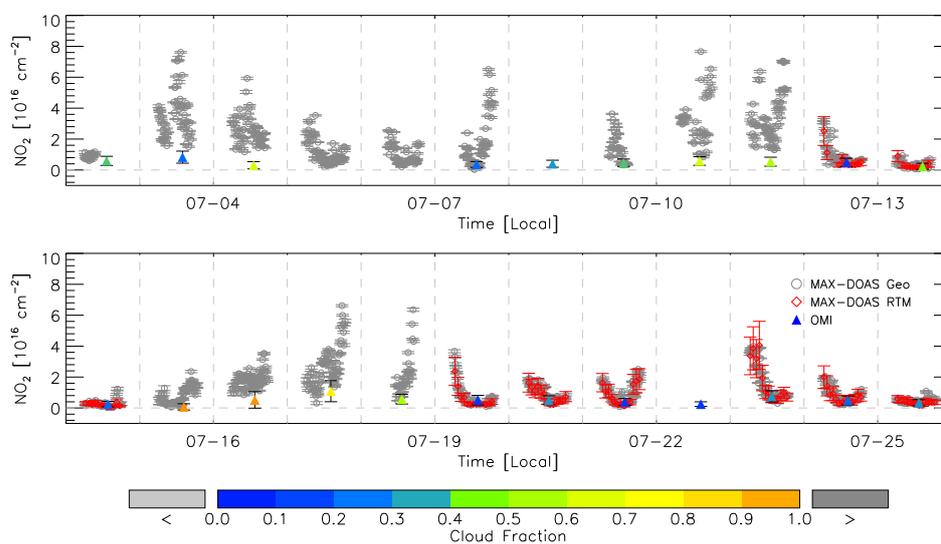


Fig. S6. Time series of wind speed in the 9 cloud-free days during the PRIDE-PRD2006 campaign. The red circles represent simulated values in the surface layer (i.e. 0 – 18 m a.g.l.) by the CMAQ model, the blue “+” refer to measured values by an Ultrasonic Anemometer (USA) at the BG site.

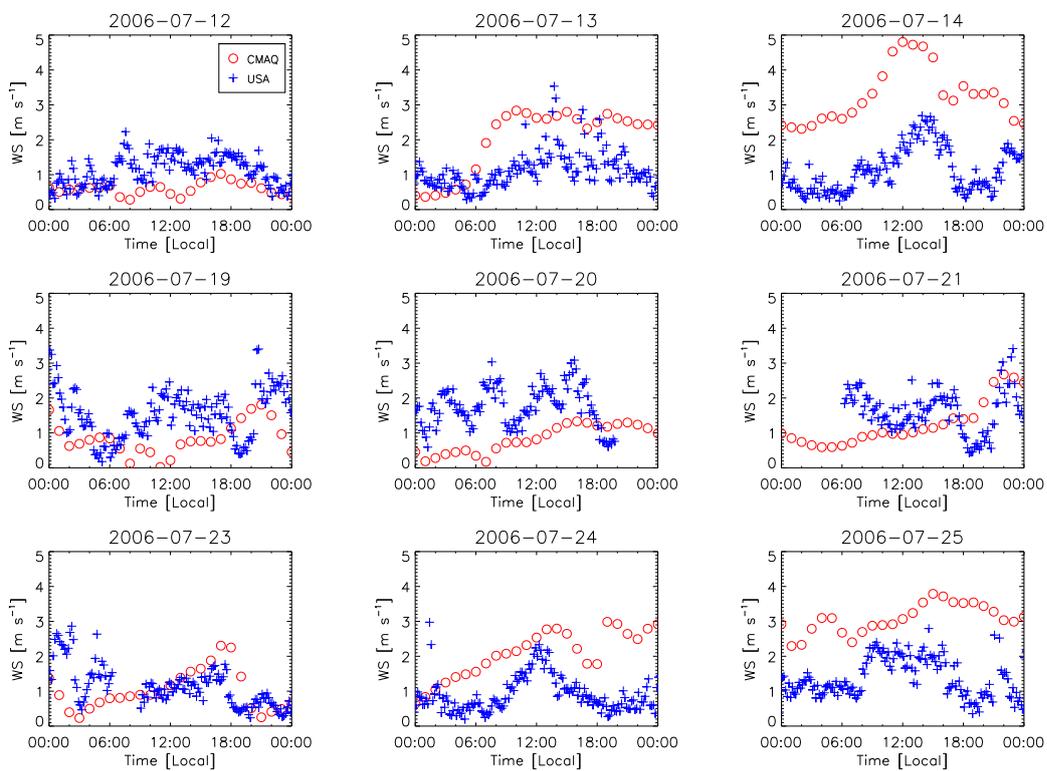


Fig. S7. Vertical profiles of aromatics (black), alkenes (red), and isoprene (green) generated by CMAQ model for 20-JUL-2006 at BG site.

