Supplement of

New concepts for the comparison of tropospheric NO$_2$ column densities derived from car-MAX-DOAS observations, OMI satellite observations and the regional model CHIMERE during two MEGAPOLI campaigns in Paris 2009/10

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Fig. S1: Correlation analyses between CHIMERE and car-MAXDOAS observations (along large circles and inside large circles) for a) the original data sets, b), rotated CHIMERE data, and c) rotated CHIMERE data and smoothed car-MAXDOAS data.
Fig. S1: Correlation analyses between CHIMERE and car-MAXDOAS observations (along large circles) for a) the original data sets, b) rotated CHIMERE data, and c) rotated CHIMERE data and smoothed car-MAXDOAS data.
Fig. S2: Correlation analyses between CHIMERE and car-MAXDOAS observations (all measurements) for a) the original data sets, b) rotated CHIMERE data, and c) rotated CHIMERE data and smoothed car-MAXDOAS data.
Fig. S3: Correlation analyses between OMI observations (v2.0 for CF < 30%) and different versions of car-MAXDOAS observations (along large circles). a) original car-MAXDOAS; b) smoothed car-MAXDOAS; c) car-MAXDOAS corrected for spatial gradients within the satellite ground pixels (see text).
OMI v.2.0  
Modified OMI  
Modified OMI CF < 30 %  
Original CHIMERE  
Original car-MAXDOAS

Rotated CHIMERE at OMI resolution  
Rotated CHIMERE  
Smoothed car-MAXDOAS

Fig. S4: Comparison of different versions of the three data sets for individual days during the two Megapoli campaigns.
OMI v.2.0  
Modified OMI  
Modified OMI  
Original CHIMERE

Original car-MAXDOAS

2009.7.2 - 10:40-13:40

Original CHIMERE  
Rotated CHIMERE  
Rotated CHIMERE at  
OMI resolution

Rotated CHIMERE  
Smoothed car-MAXDOAS

0 10 20 30 40 50 60

NO₂ VCD, 10¹⁸ molec/cm²
OMI v.2.0  
_modified OMI

Modified OMI  
CF < 30 %

Original CHIMERE

Original car-MAXDOAS

Rotated CHIMERE at OMI resolution

Original car-MAXDOAS

Rotated CHIMERE

Smoothed car-MAXDOAS

NO$_2$ VCD, 10$^{15}$ molec/cm$^2$
OMI v.2.0  Modified OMI  Modified OMI  Original CHIMERE
CF < 30 %  Original car-MAXDOAS

Rotated CHIMERE at OMI resolution  Smoothed car-MAXDOAS
OMI v.2.0

Modified OMI

Modified OMI
CF < 30 %

Original CHIMERE

Original car-MAXDOAS

Rotated CHIMERE

Rotated car-MAXDOAS

Rotated CHIMERE at OMI resolution

Rotated CHIMERE

Smoothed car-MAXDOAS

2009.7.10 - 8:27-17:28

NO$_2$ VCD, 10$^{15}$ molec/cm$^2$
OMI v.2.0  Modified OMI  Modified OMI  CF < 30 %  Original CHIMERE  Original car-MAXDOAS

Original CHIMERE  Rotated CHIMERE  Rotated CHIMERE at OMI resolution  Rotated CHIMERE  Smoothed car-MAXDOAS

NO$_2$ VCD, 10$^{19}$ molec/cm$^2$
OMI v.2.0

Modified OMI

Modified OMI CF < 30%

Original CHIMERE

Original car-MAXDOAS

Rotated CHIMERE

Smoothed car-MAXDOAS

Rotated CHIMERE at OMI resolution

Rotated CHIMERE

2009.7.23 - 9:17:16:10

No2 VCD, 10^15 molecule/cm^2
OMI v.2.0
Modified OMI
Modified OMI CF < 30 %
Original CHIMERE
Original car-MAXDOAS

Rotated CHIMERE
Rotated CHIMERE at OMI resolution
Smoothed car-MAXDOAS

2010.1.16 - 9:30-13:09

Airport
Eiffel Tower
Palace of Versailles

NO₂ VCD, 10^15 molec/cm²
0 5 10 15 20 25 30
OMI v.2.0  Modified OMI  Modified OMI  CF < 30 %  Original CHIMERE

Original car-MAXDOAS  Rotated CHIMERE  Rotated CHIMERE at  OMI resolution  Rotated CHIMERE

Smoothed car-MAXDOAS

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NO\textsubscript{2} VCD, 10\textsuperscript{13} molec/cm\textsuperscript{2}
OMI v.2.0

Modified OMI

Modified OMI

Original CHIMERE

Original car-MAXDOAS

Rotated CHIMERE at OMI resolution

Rotated CHIMERE

Smoothed car-MAXDOAS

NO₂ VCD, 10¹³ molec/cm²