Quantifying pollution inflow and outflow over East Asia through coupling regional and global models

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Supplementary Figures

Atmospheric Chemistry and Physics Discussion

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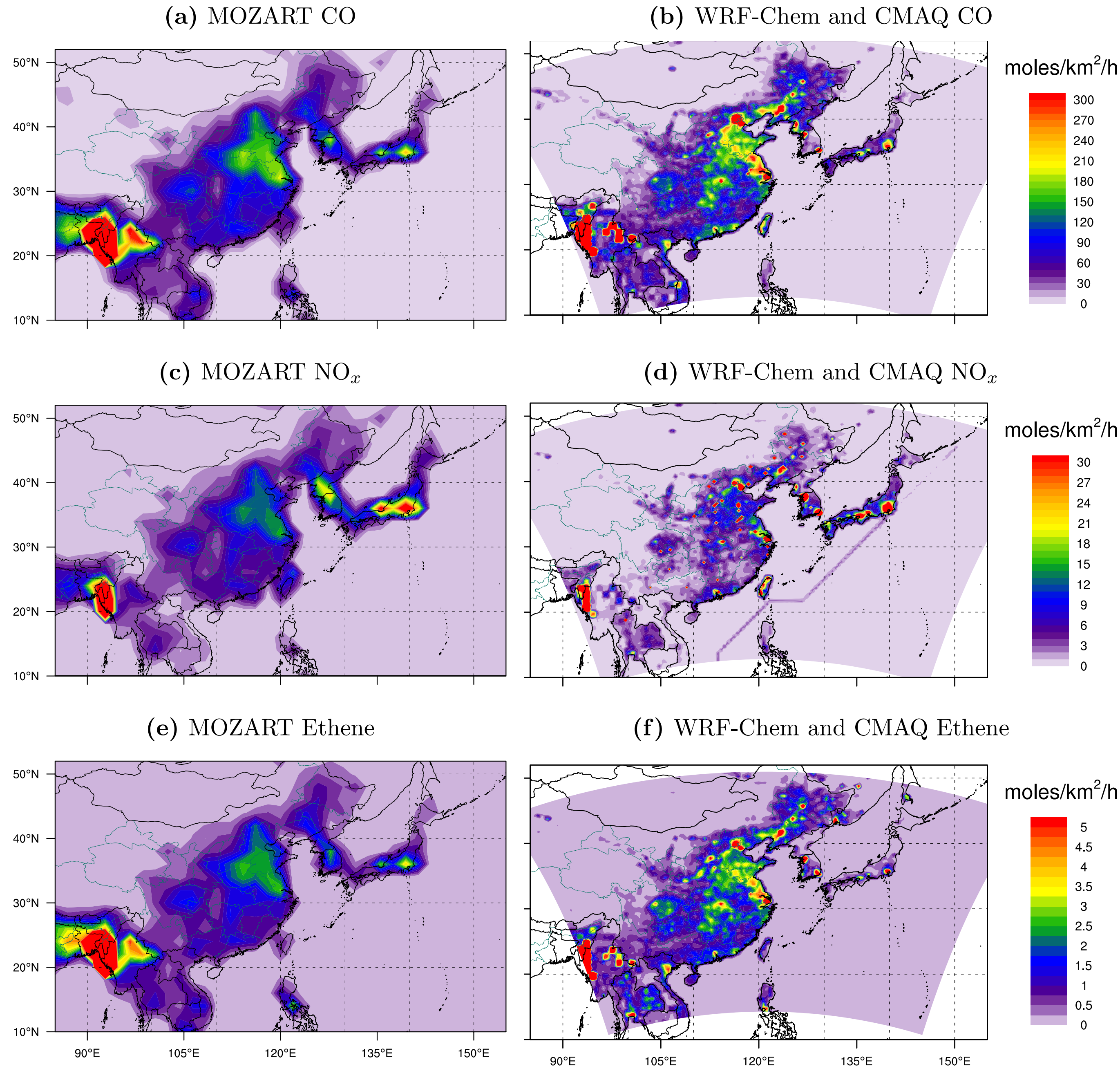


Figure S1. Comparison of MOZART, WRF-Chem and CMAQ anthropogenic (including biomass burning) emissions of CO, NO_x and ethene during March, in units of moles/km^2/h. WRF-Chem and CMAQ emissions are provided on a grid with resolution of 36 km x 36 km; MOZART emissions are provided on a grid with resolution $1.9° \times 1.9°$.

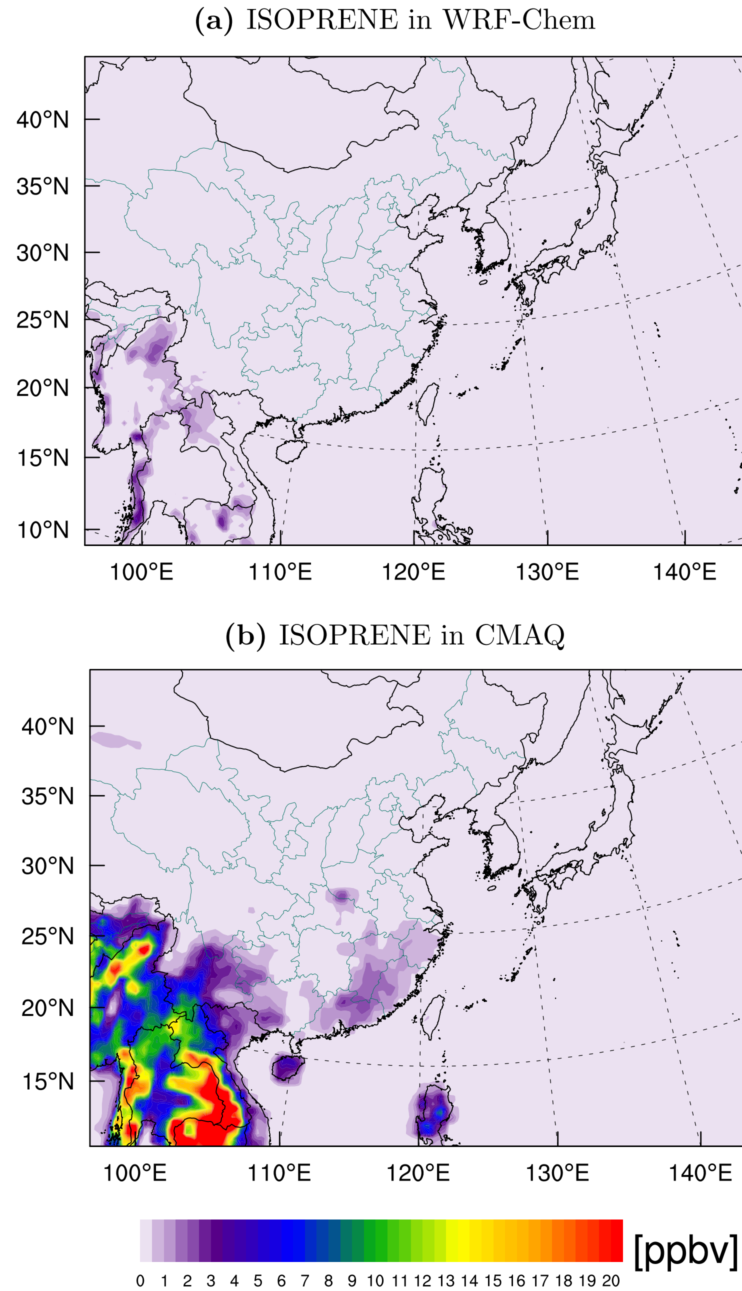
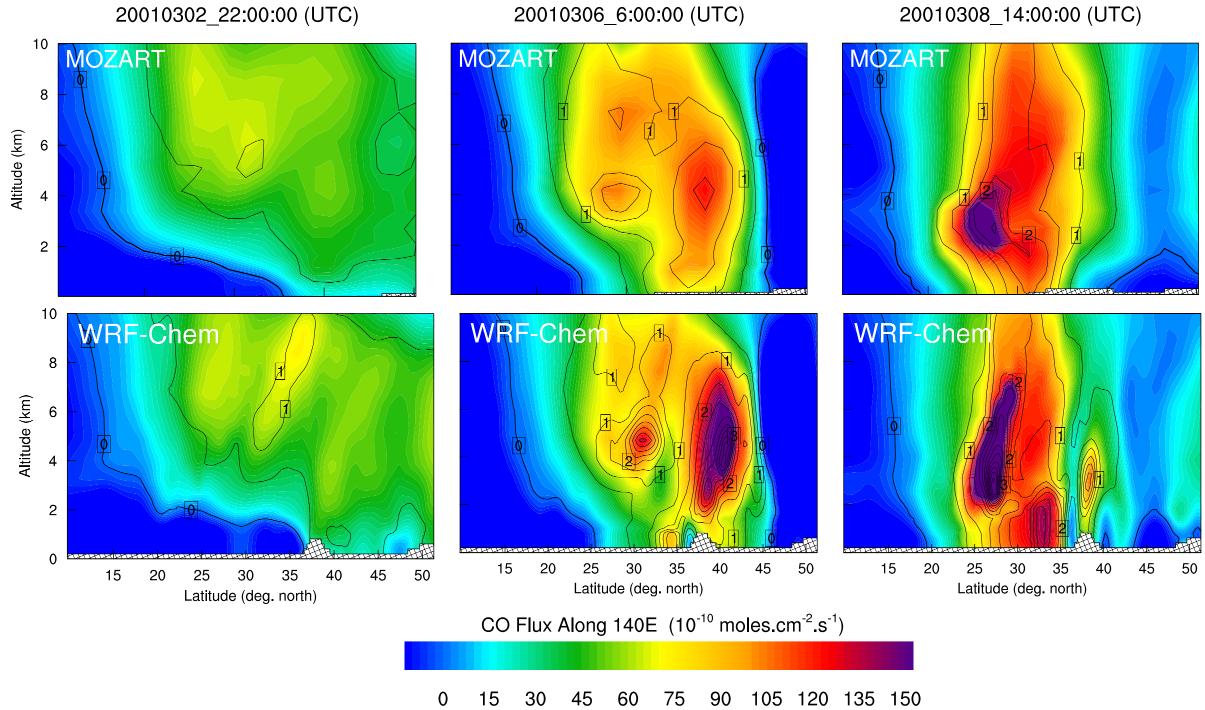
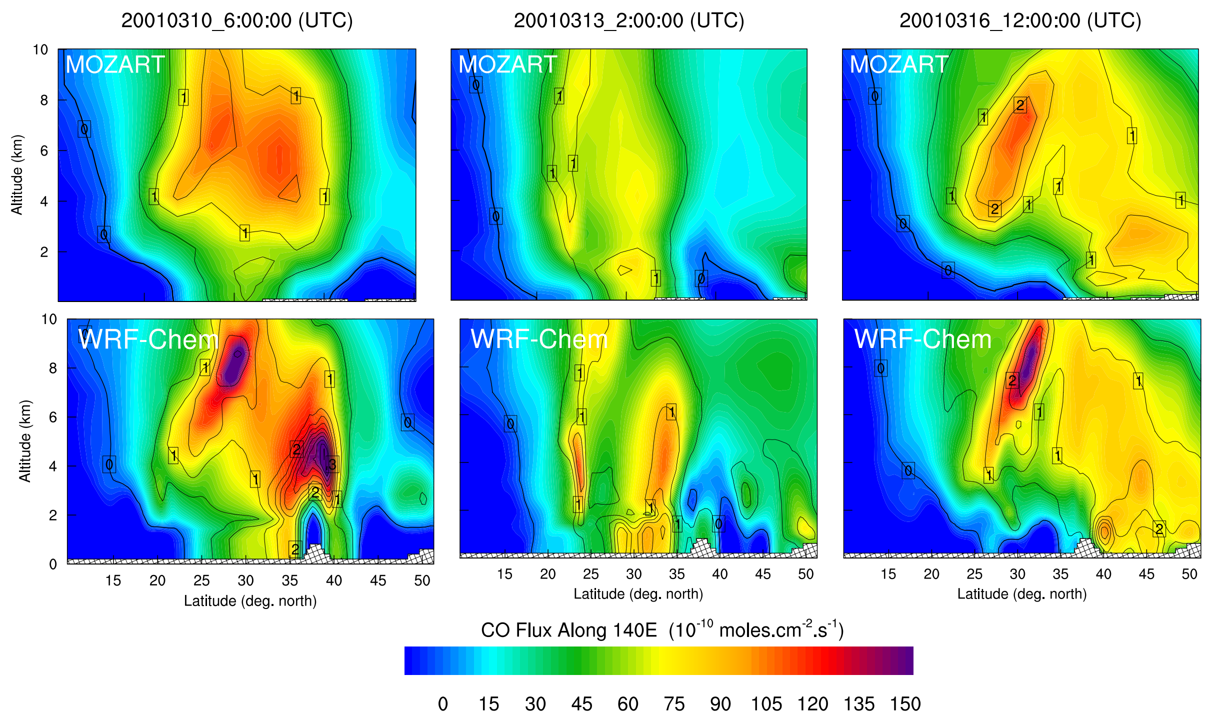


Figure S2. Monthly mean isoprene concentrations in CMAQ and WRF-Chem for March 2001.



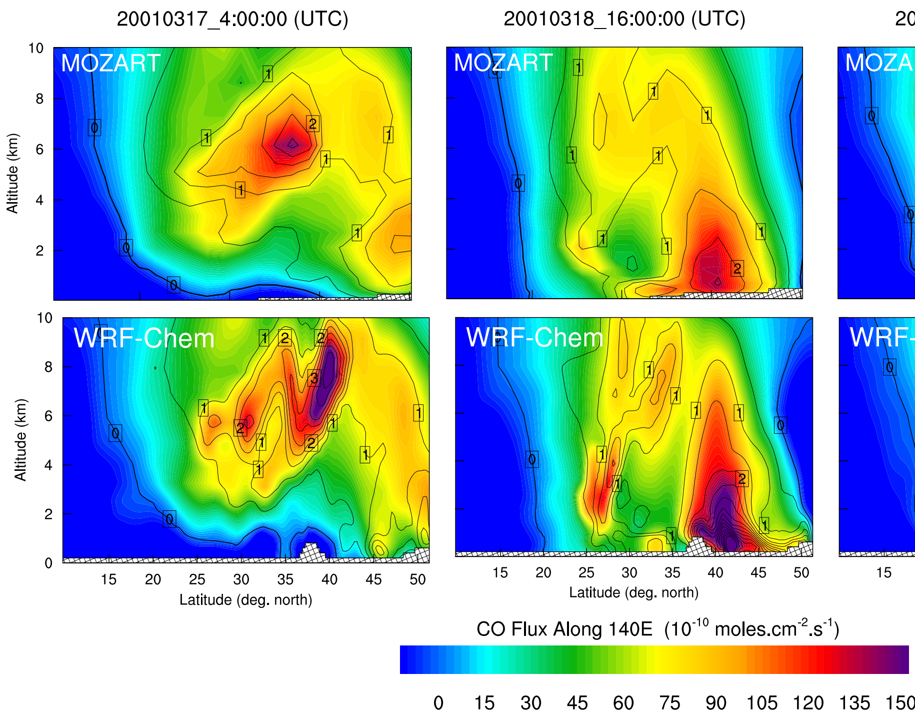
(a)

Figure S3. Comparison of MOZART and WRF-Chem simulated vertical profiles of CO and PAN zonal flux along 140°E. PAN flux is shown as contours from 0.0 to 7.5 by $0.5\text{x}10^{-9}$ moles cm^{-2} s^{-1}.



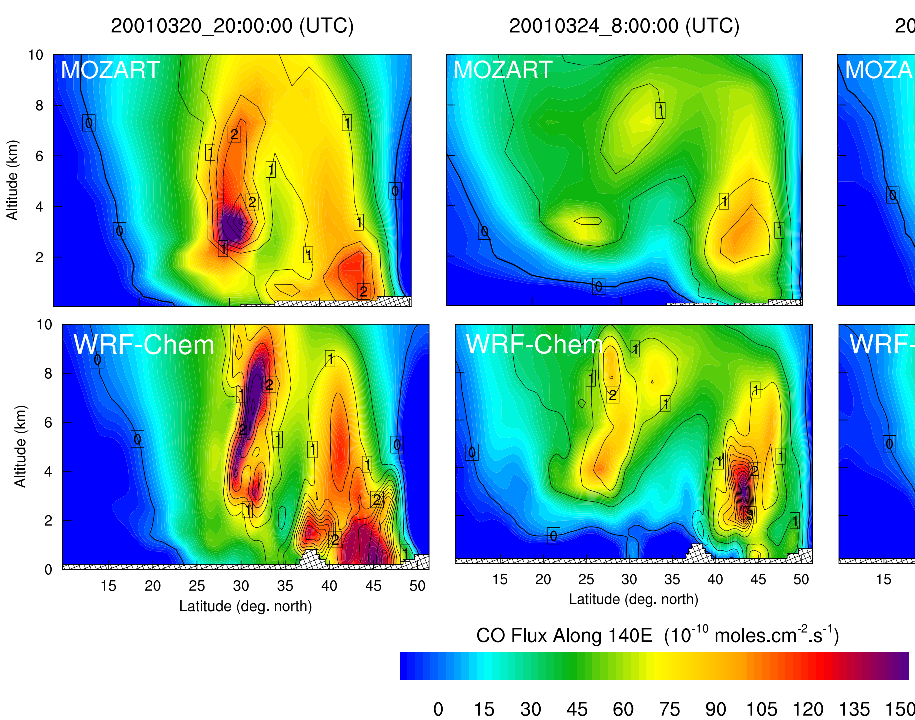
(b)

Figure S3.



(c)

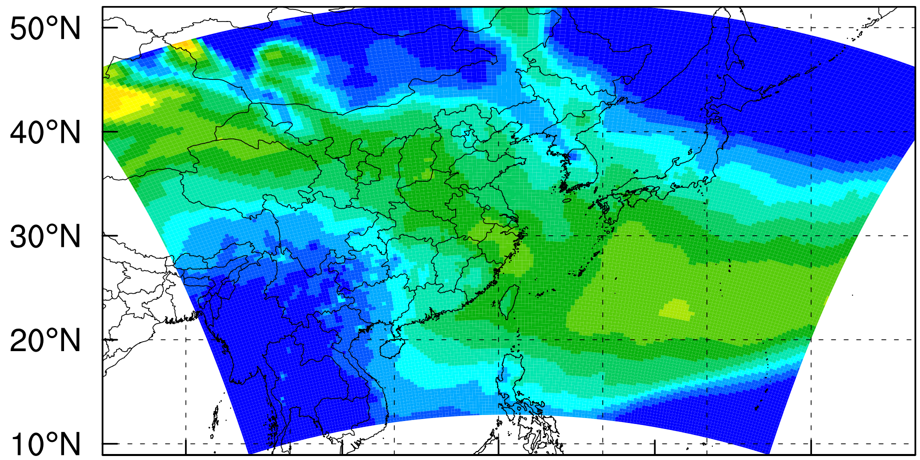
Figure S3.



(d)

Figure S3.

(a) WRF-Chem with CBM-Z chemistry (mean=1.08ppbv)



(b) WRF-Chem with RACM chemistry (mean=1.58ppbv)

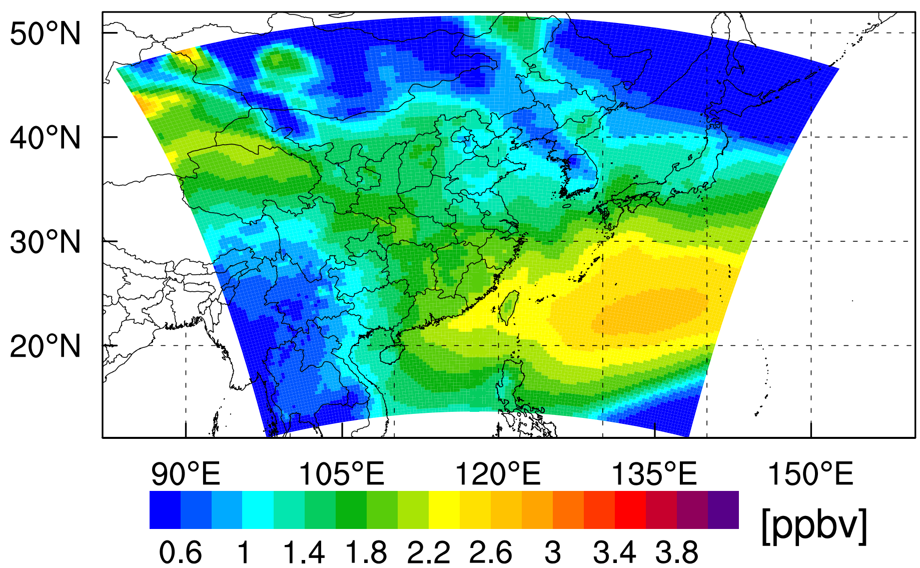


Figure S4. WRF-Chem calculated European enhancement on surface ozone in East Asia averaged over 1-15 March.

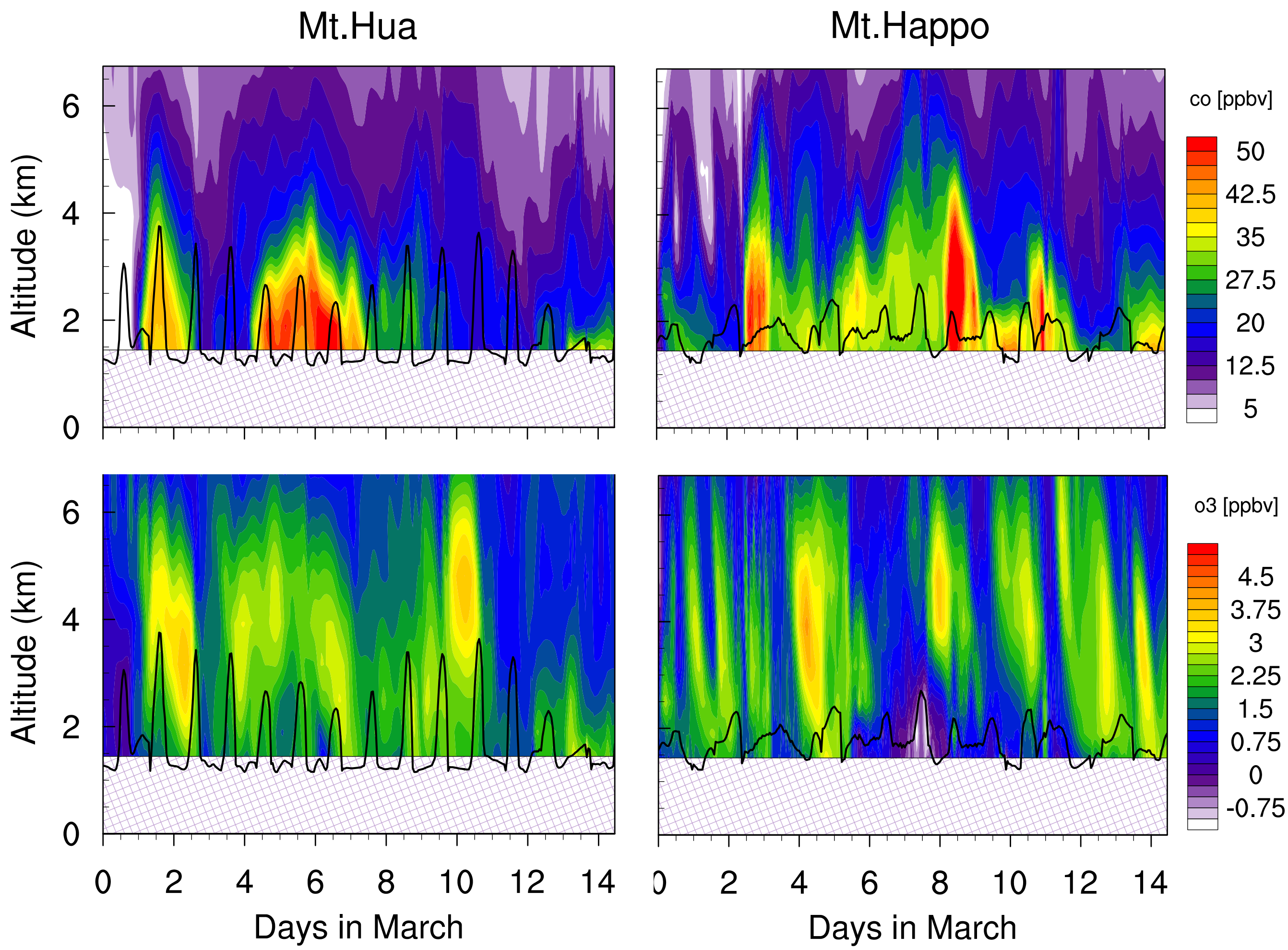


Figure S5. WRF-Chem calculated vertical profiles of European CO (upper panel), NO_2 (middle panel) and O_3 (lower panel) over China (Mt. Hua) and Japan (Mt. Happo) during 1-14 March. The black line shows the boundary layer depth. The hatched area indicates local terrain height.