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Supplement of

Characteristics of intercontinental transport of tropospheric ozone from Africa to Asia

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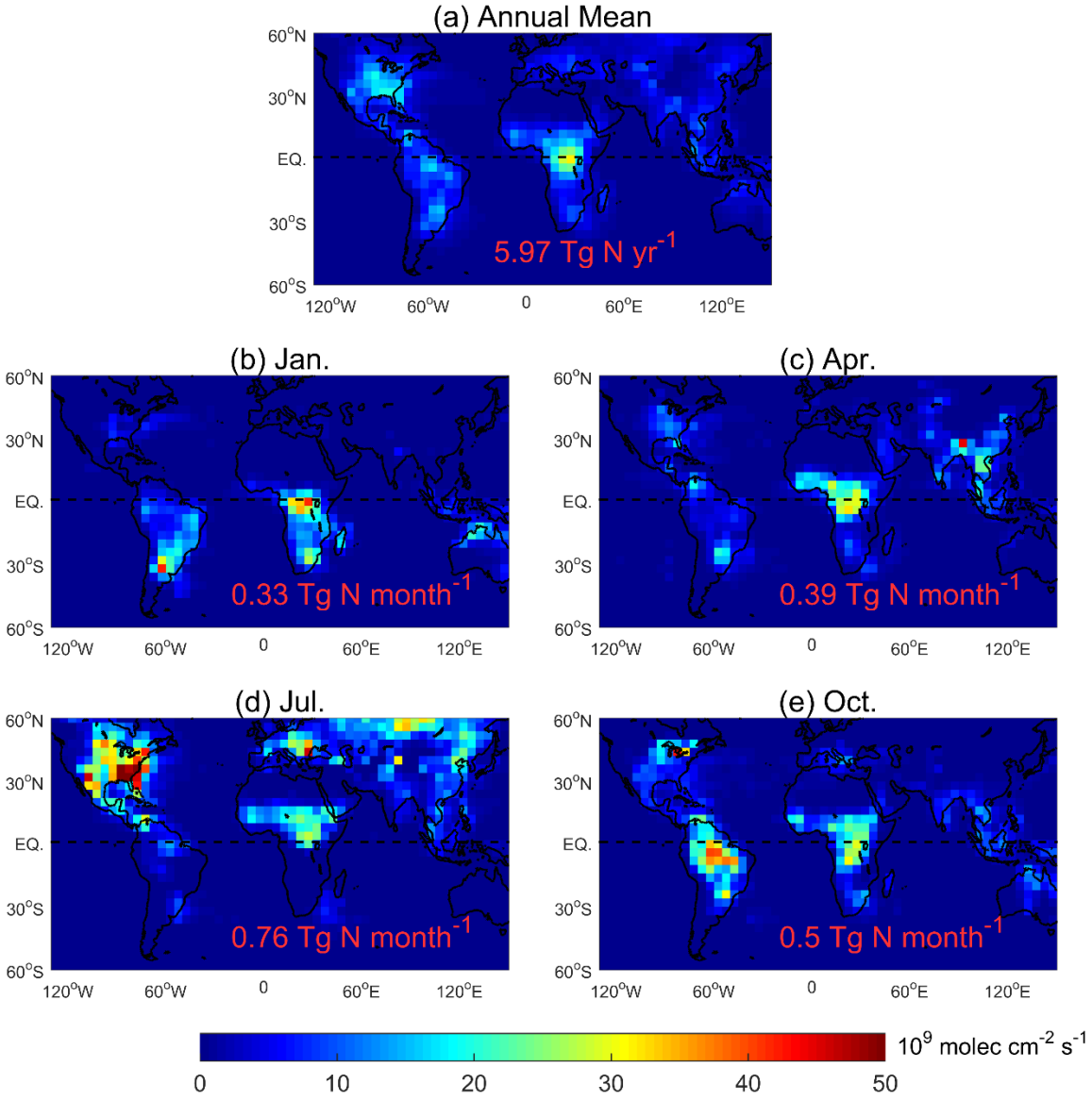

Figure S1. Lightning NOx emissions in GEOS-Chem for (a) annual mean, (b) January, (c) April, (d) July, and (e) October. The numbers indicate the yearly (Tg nitrogen (N) yr^{-1}) and monthly (Tg N $month^{-1}$) global lightning emissions.

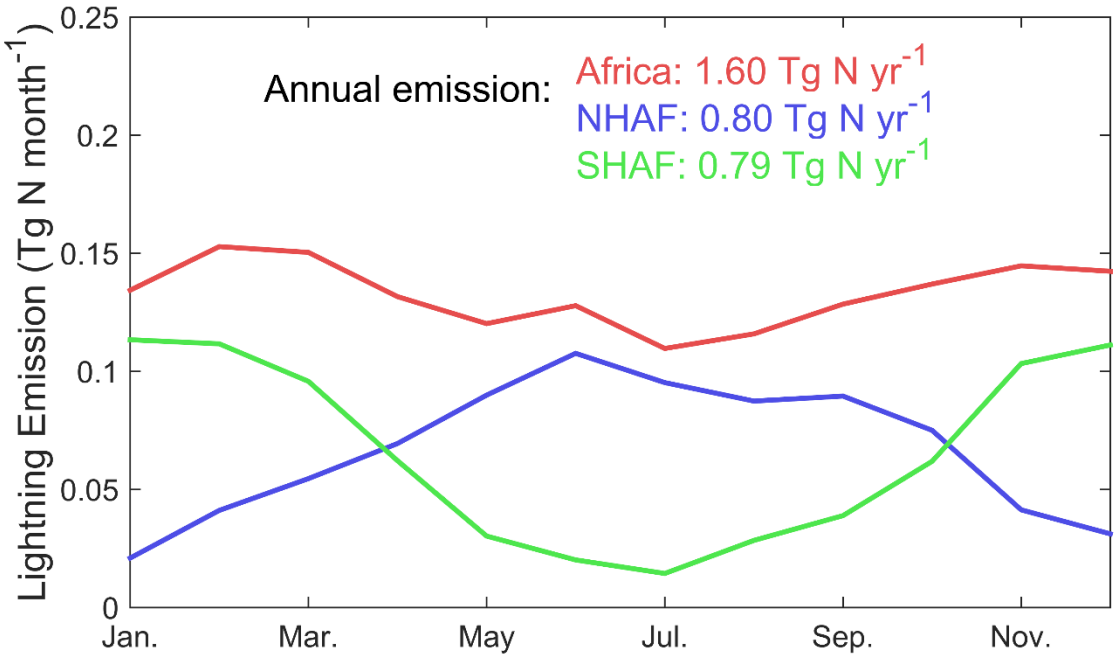

Figure S2. Seasonal variations of lightning NO_x emissions in Africa, NHAF, and SHAF in GEOS-Chem..

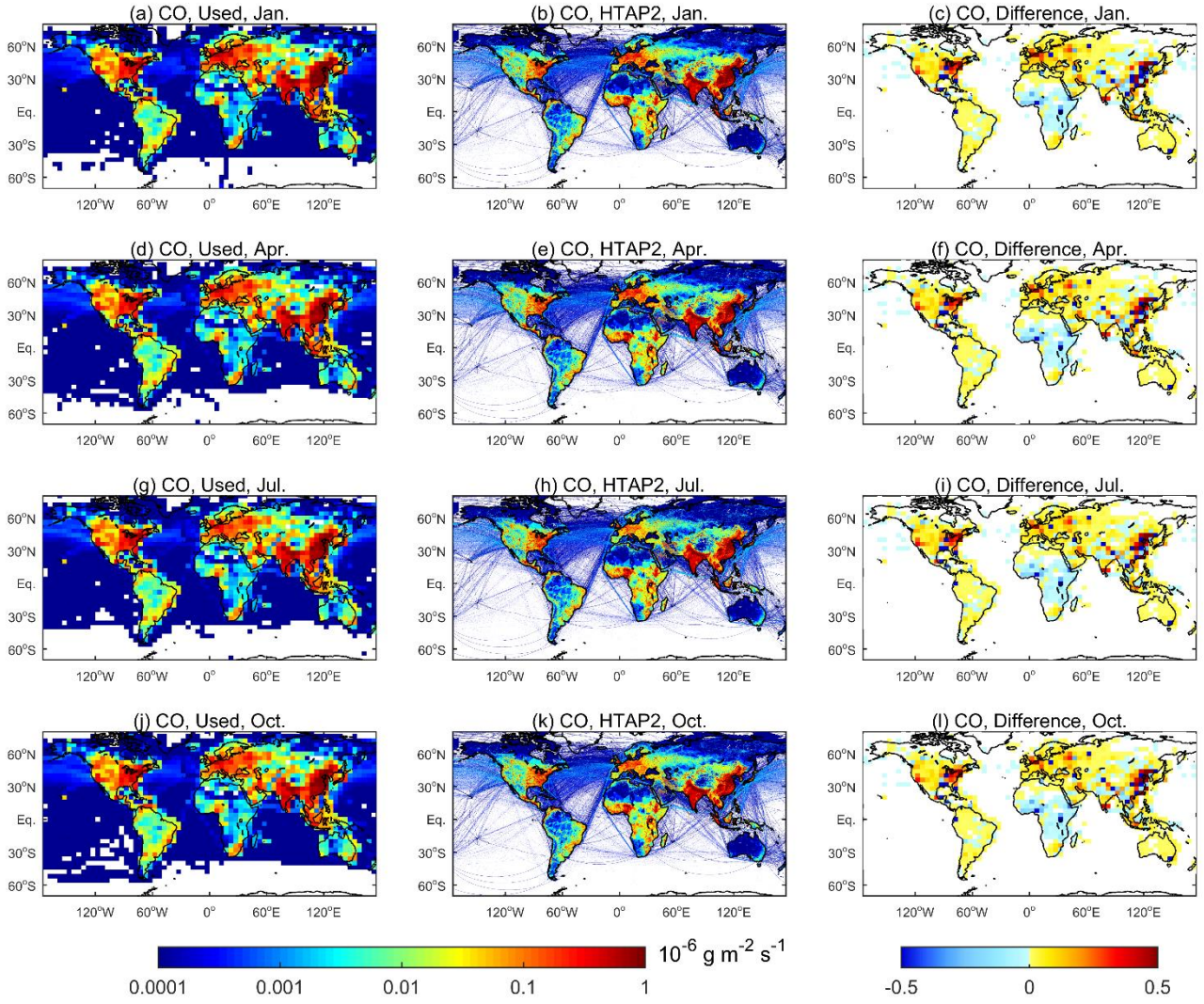

Figure S3. Anthropogenic CO emissions in the inventory used in GEOS-Chem for 2000 (1st col.), in the HTAP2 inventory for 2008 (2nd col.), and the difference between them (3rd col.) in January (1st row), April (2nd row), July (3rd row), and October (4th row).

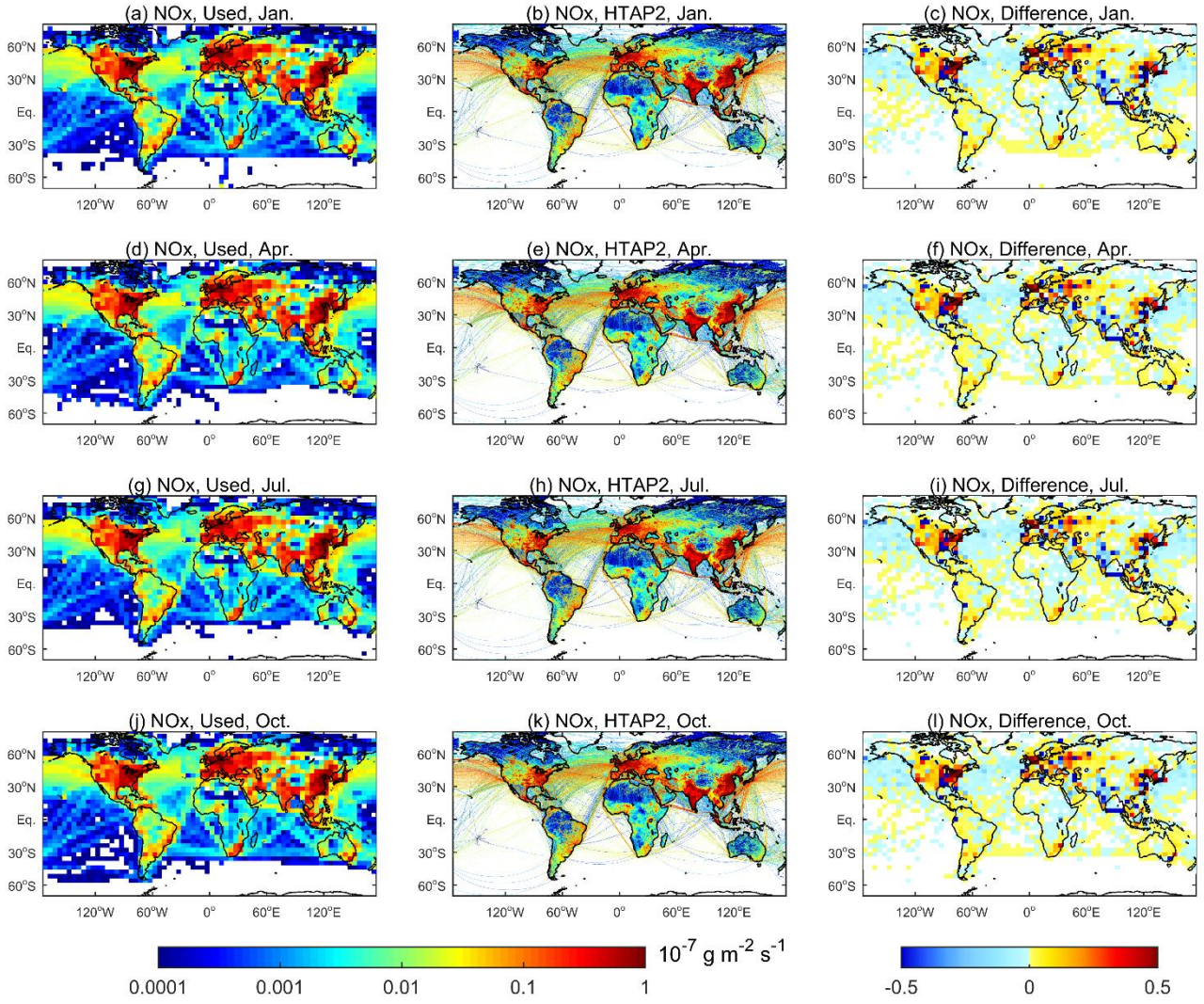

Figure S4. The same as Figure S3, but for NOx emissions.

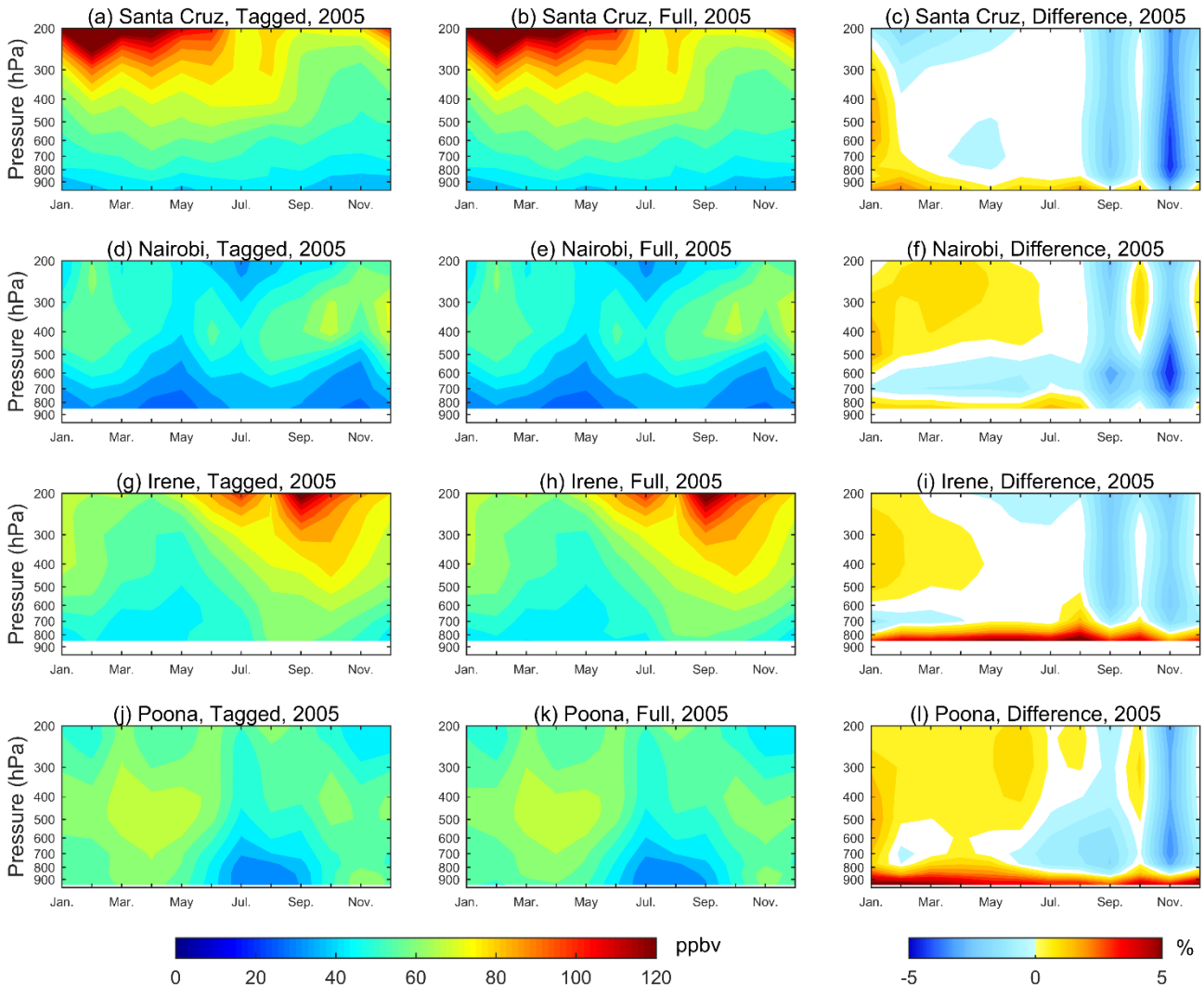

Figure S5. Ozone simulated by the tagged ozone mode (in ppbv, 1st col.), the full chemistry mode (in ppbv, 2nd col.), and the difference between the two modes (in %, 3rd col.) from GEOS-Chem v9-02 at Santa Cruz (1st row), Nairobi (2nd row), Irene (3rd row), and Poona (4th row), the four ozonesonde data sites used in the study.

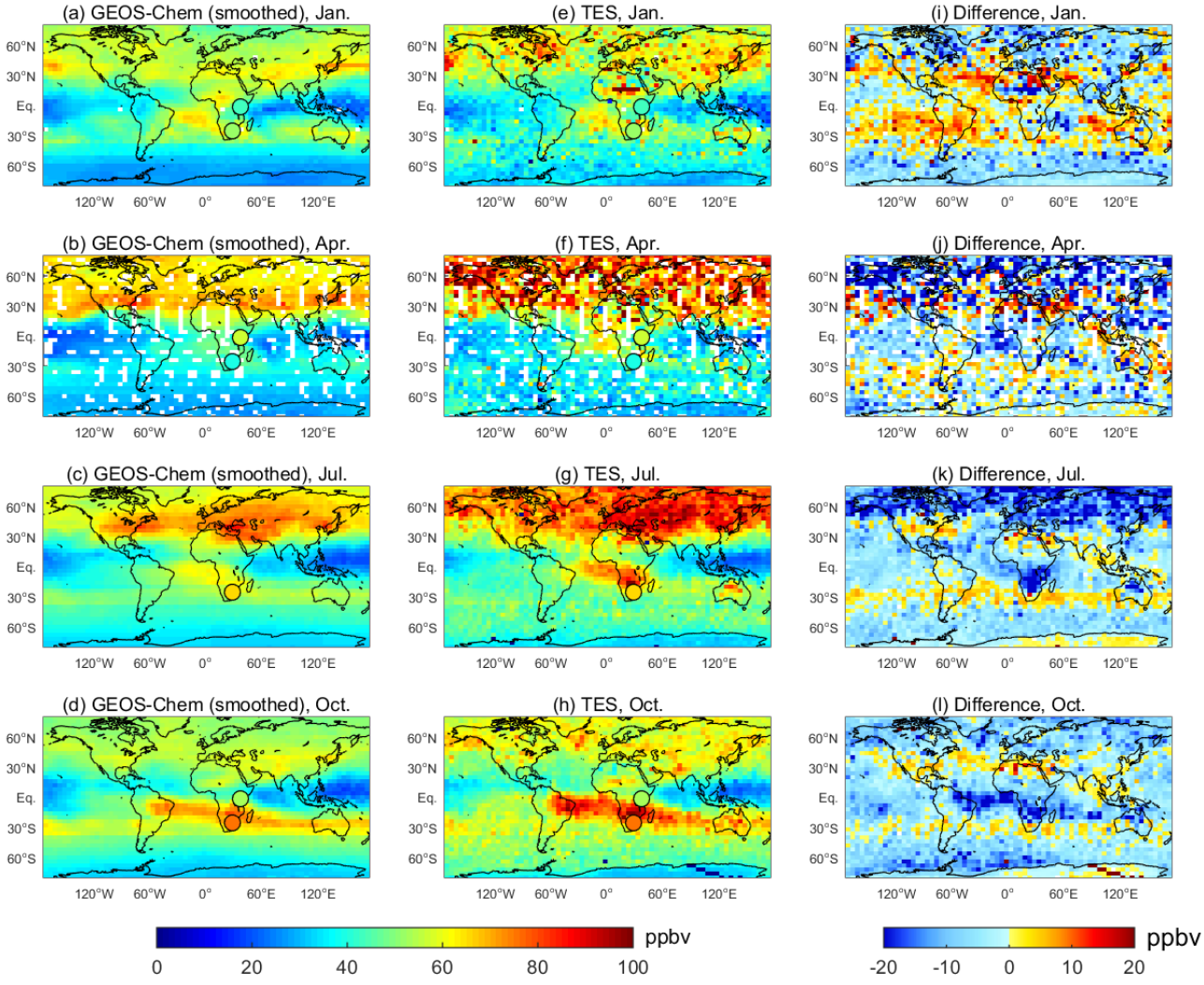

Figure S6. Middle tropospheric ozone (464 hPa) from GEOS-Chem simulations smoothed with the a priori and averaging kernels in TES (1st col.), TES (2nd col.), and the difference between the two datasets (3rd col.) in January (1st row), April (2nd row), July (3rd row), and October (4th row) in 2005. The dots overlaid over Africa show the ozone concentrations from the ozonesonde measurements.

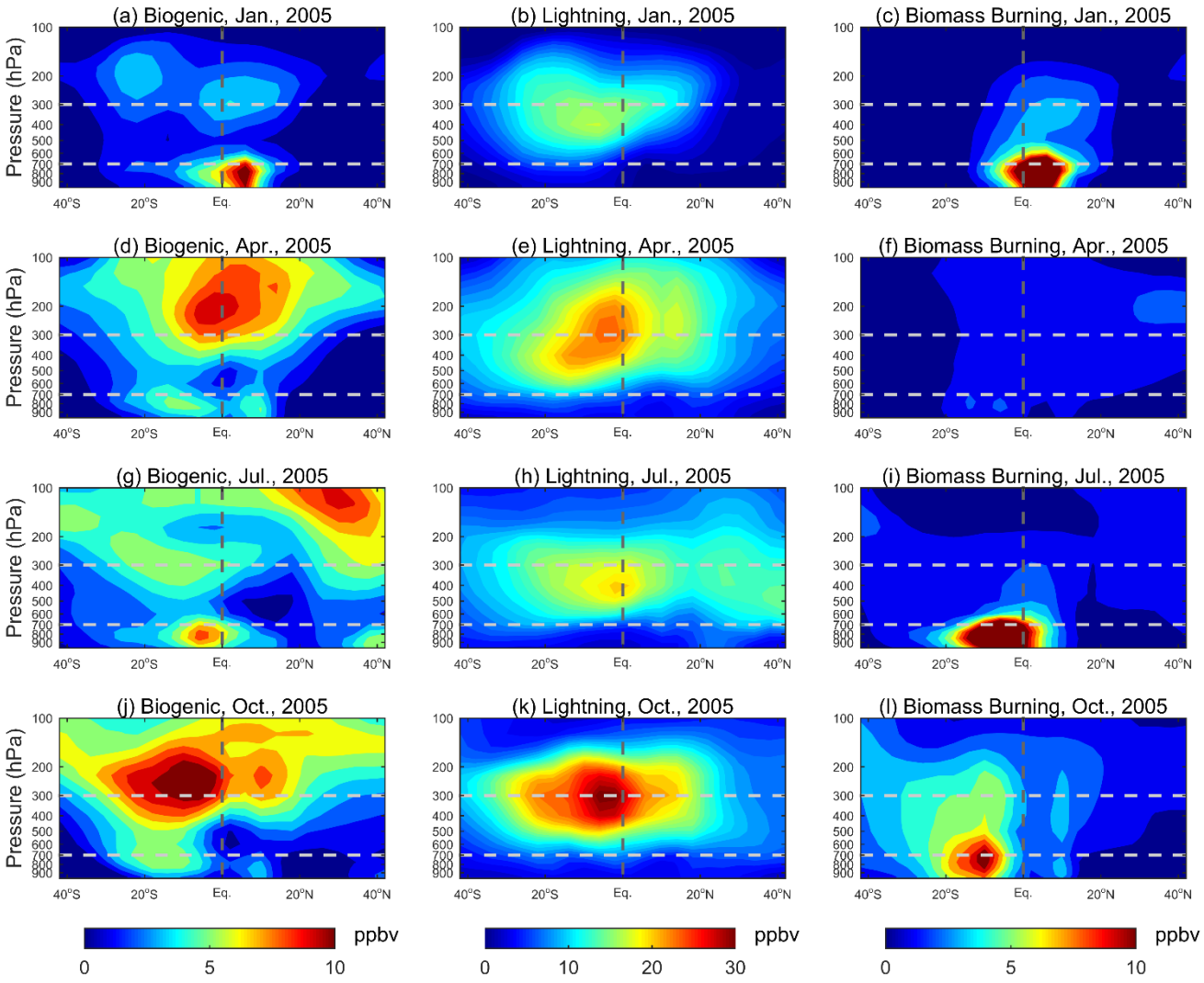

Figure S7. Latitude-altitude distributions of ozone produced by global biogenic (1st col.), lightning (2nd col.), and biomass burning (3rd col.) emissions in January (1st row), April (2nd row), July (3rd row), and October (4th row) averaged from 0-40°E. The grey dashed lines indicate the boundaries of the LT, MT, and UT.