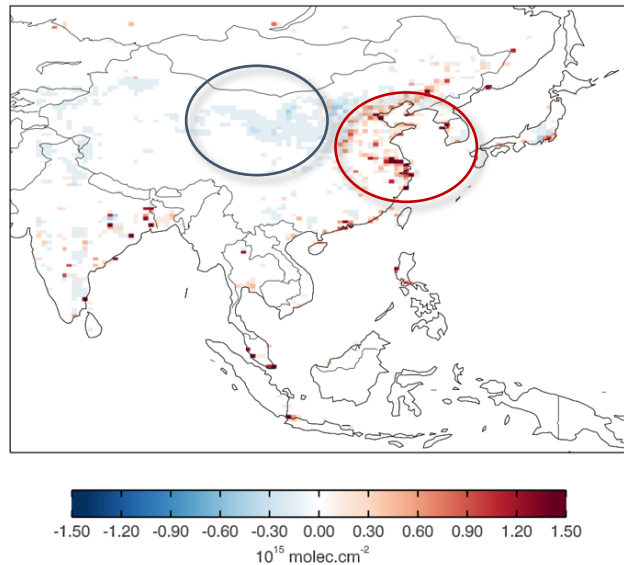


Satellite-based constraints on NO_x emissions from anthropogenic area sources

Meng Li, Qiang Zhang, Randall V. Martin, Geert C. M. Vinken and Kebin He

Implementation of PARANOX into GEOS-Chem for **power plants**



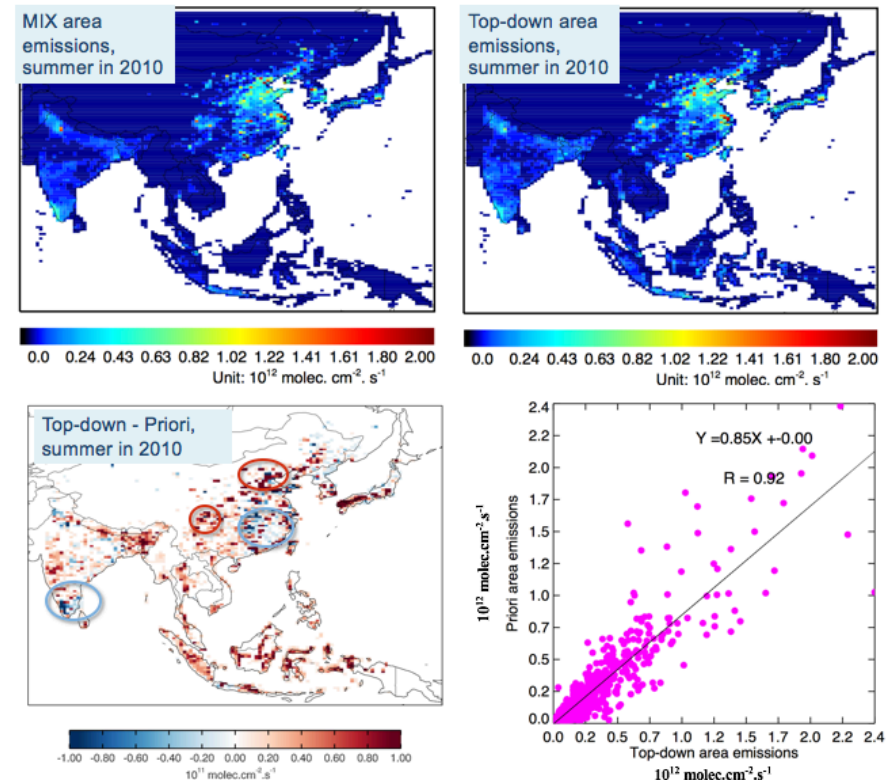
Mass-balanced methodology, taking non-linear effect into consideration

$$E(\text{top}) = E(\text{priori}) + [\Omega(\text{omi}) / \Omega(\text{gc}) - 1] \times \beta \times E(\text{priori}) + [\Omega(\text{omi}) / \Omega(\text{gc}) - 1] \times \beta \times E(\text{priori}) \times r$$

$$\beta = (\Delta E / E) / (\Delta \Omega(\text{gc}) / \Omega(\text{gc}))$$

$$r = (\Delta \Omega(\text{omi}) / \Omega(\text{omi})) / (\Delta \Omega(\text{gc}) / \Omega(\text{gc}))$$

Top-down **area** emission inventory based on OMI and GEOS-Chem



Well-correlated between top-down and the priori emissions, discrepancies on spatial pattern