Satellite-based constraints on NO\textsubscript{x} emissions from anthropogenic area sources

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Implementation of PARANOX into GEOS-Chem for power plants

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

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

\[ \beta = \frac{\Delta E}{E} / \left( \frac{\Delta \Omega(\text{gc})}{\Omega(\text{gc})} \right) \]

\[ r = \frac{\Delta \Omega(\text{omi})}{\Omega(\text{omi})} / \left( \frac{\Delta \Omega(\text{gc})}{\Omega(\text{gc})} \right) \]

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

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