

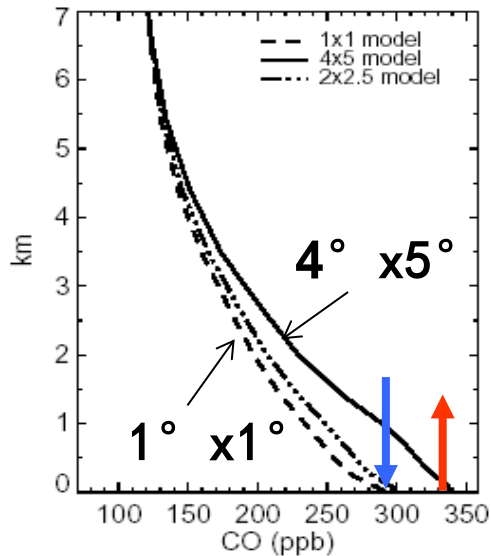
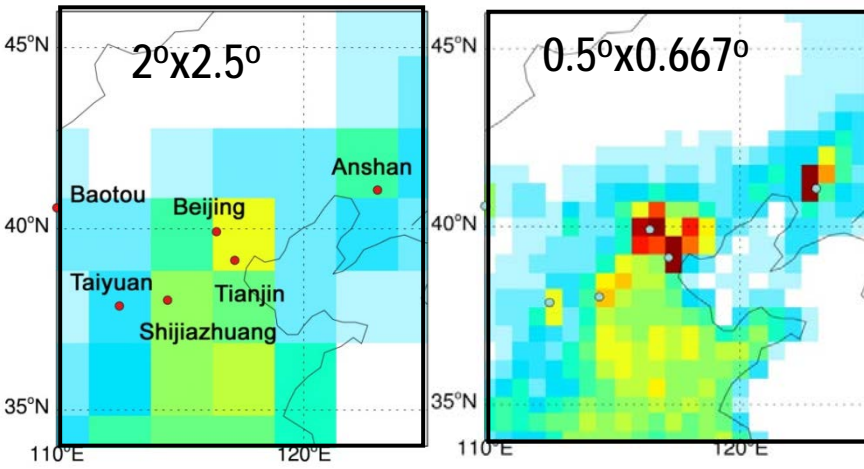
Introduction to the Nested Model Working Group

Yuxuan Wang (Tsinghua U)

Jun Wang (U. Nebraska)

Higher resolution captures heterogeneity

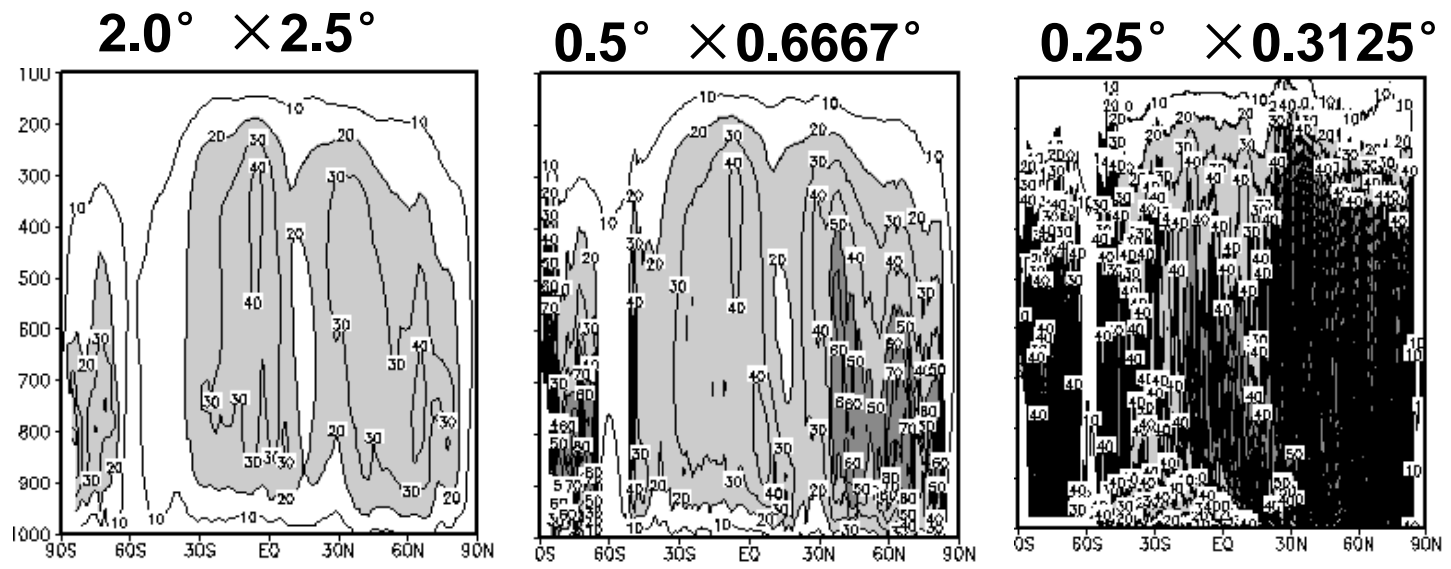
CO emissions over North China



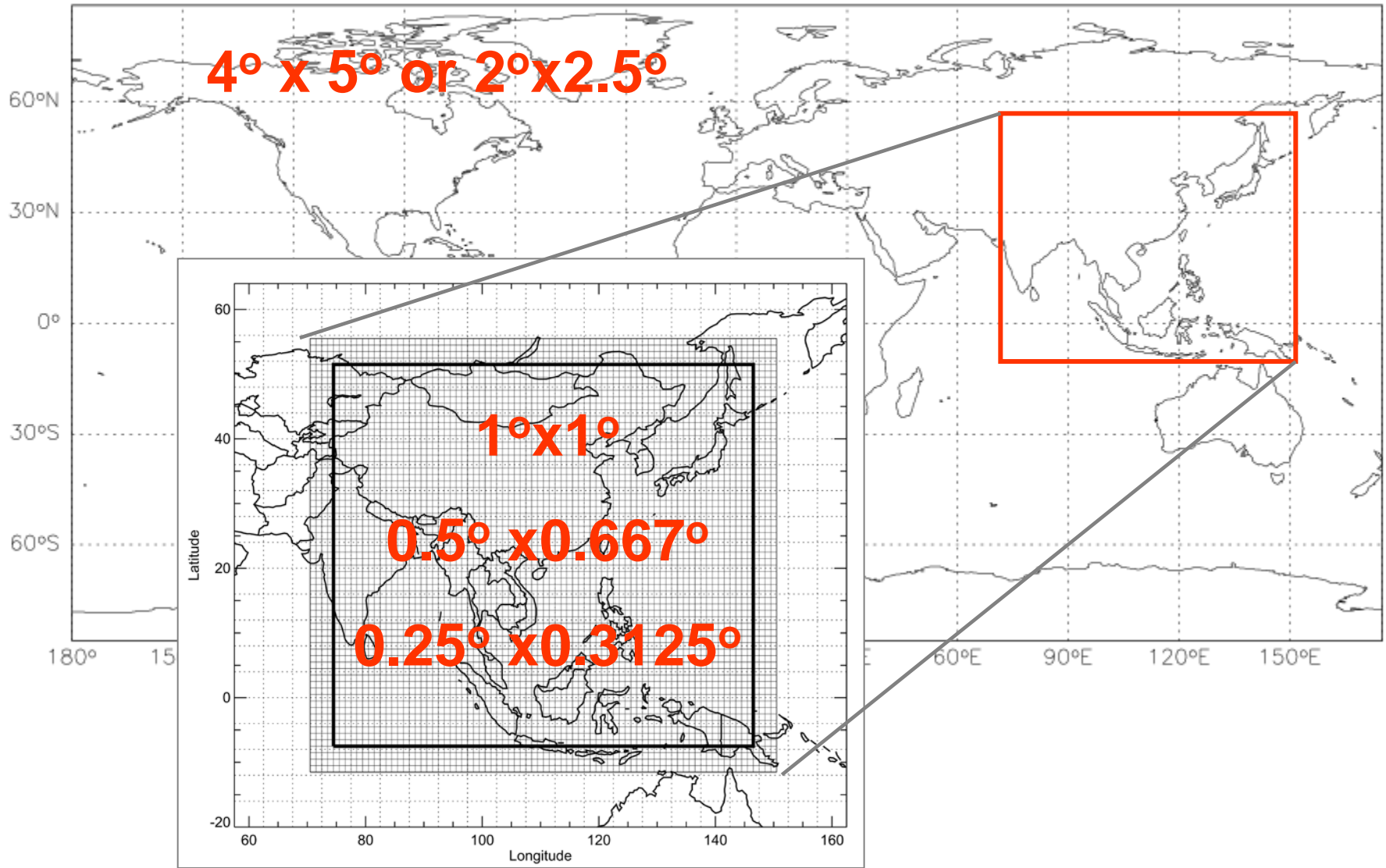
Wang et al., JGR, 2004

Vertical winds in GEOS-5

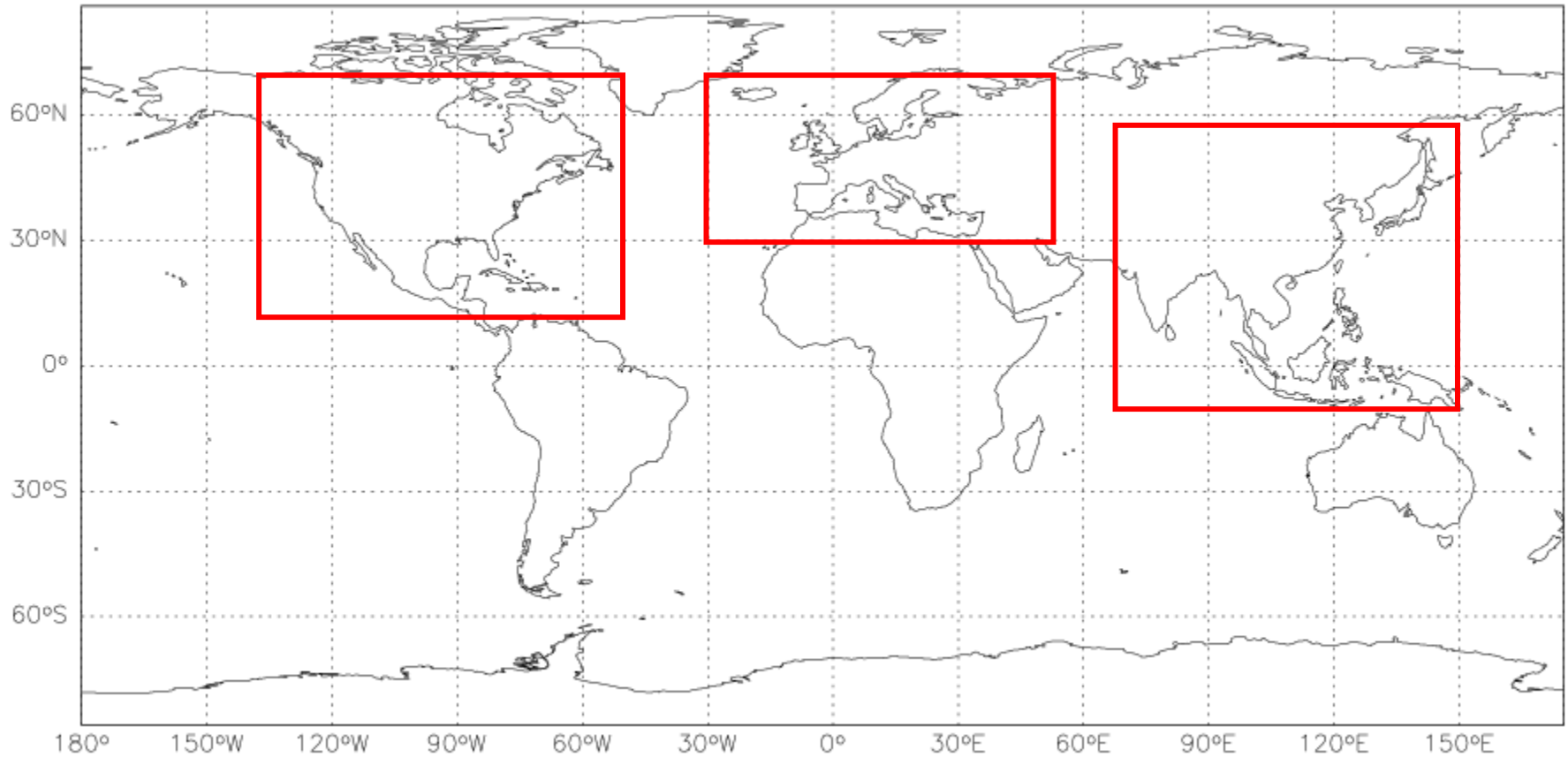
Adopted from Steven Pawson



Nested-grid GEOS-Chem



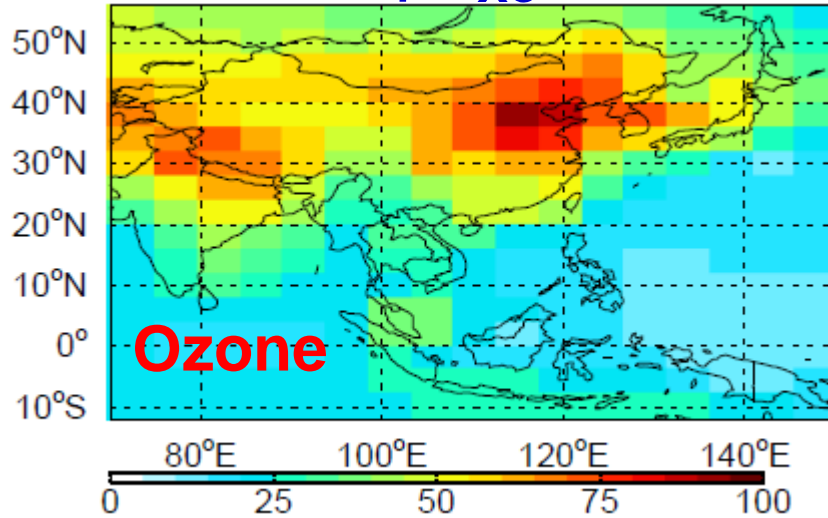
Nested-grid GEOS-Chem



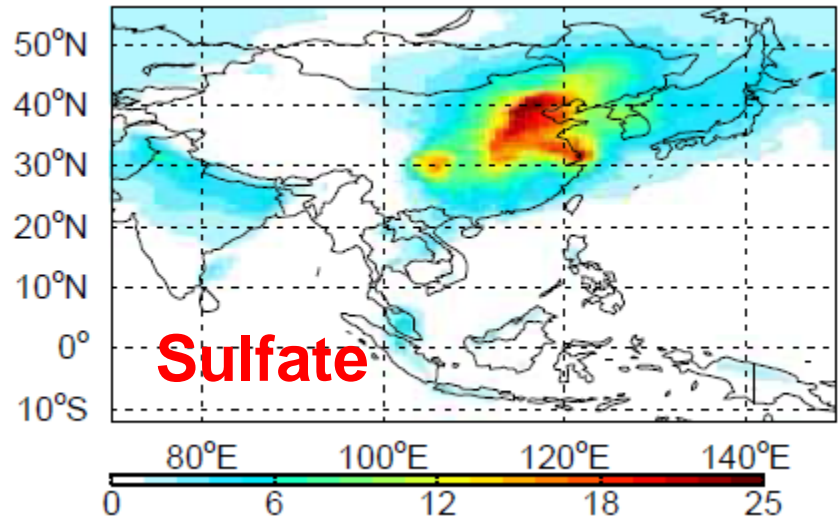
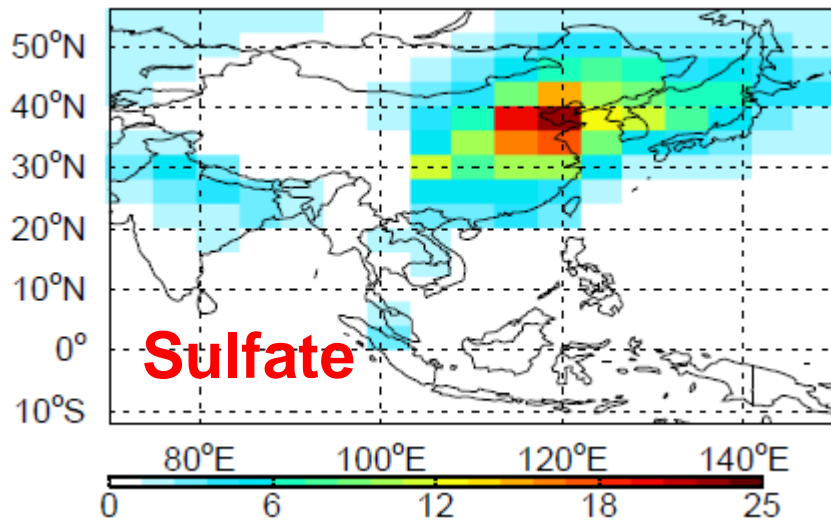
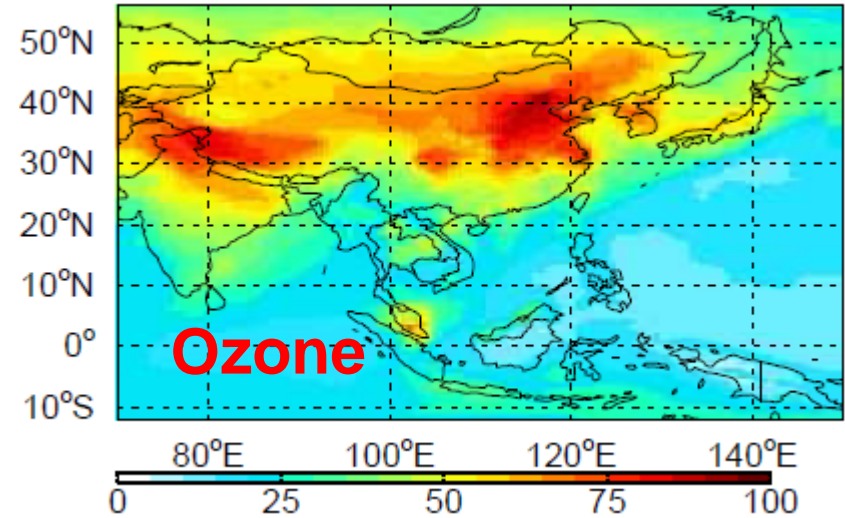
- Standard nested-grid domains in GC: East Asia, North America, Europe
- Other user-defined domains: North Atlantic, Amazon, etc

Spatial Distributions: Ozone and Sulfate

$4^\circ \times 5^\circ$



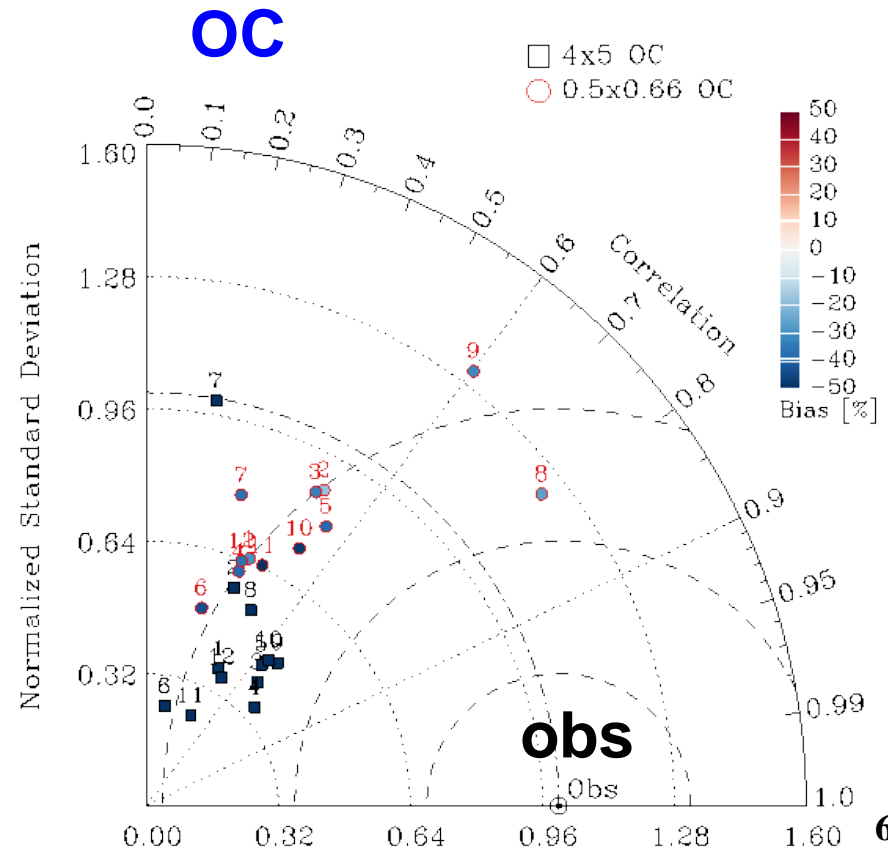
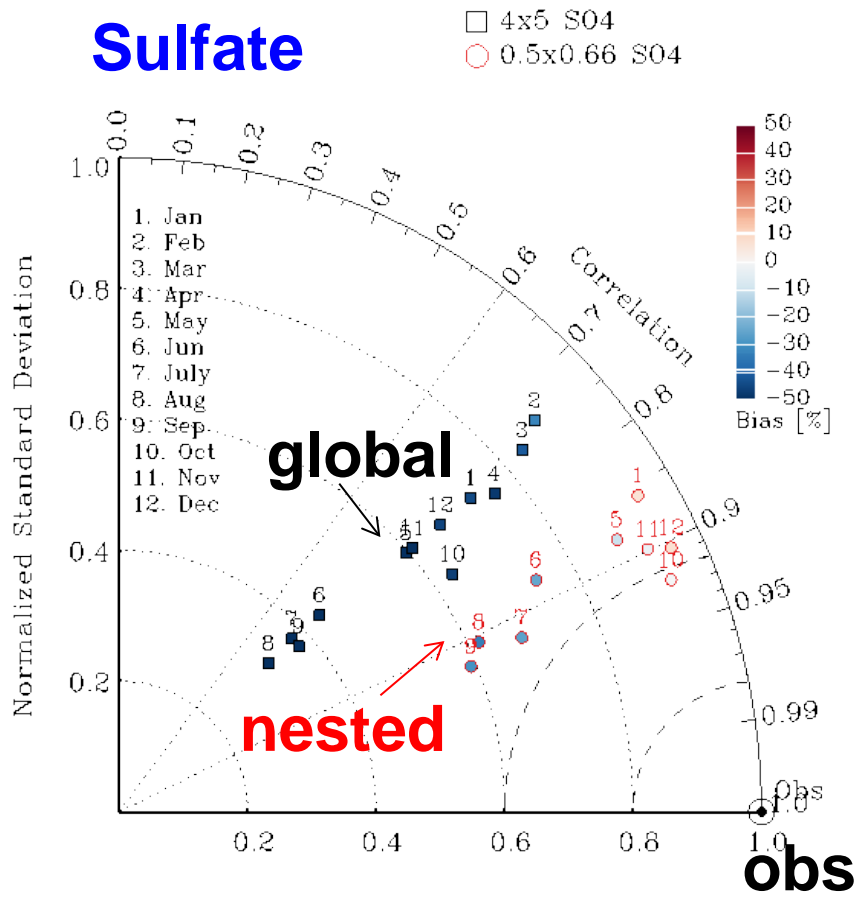
$0.5^\circ \times 0.667^\circ$



ug/m³

Benchmark of the NA nested-grid

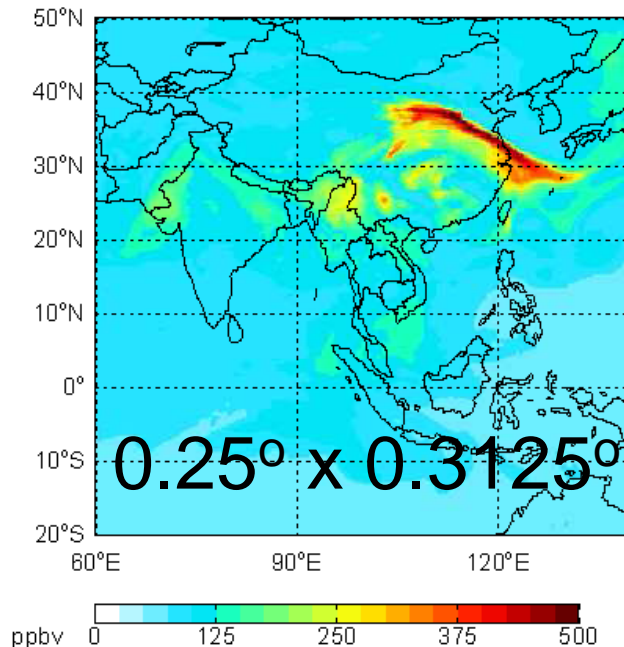
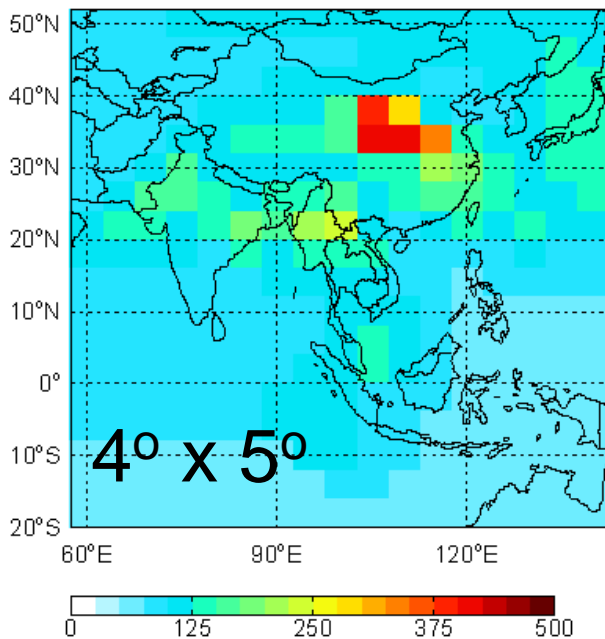
- Led by U. Nebraska, in collaboration with Harvard, Dalhousie, and Tsinghua team
- GEOS-Chem v9-01-03, nested-grid at 0.5x0.667, global 4x5



0.25 x 0.3125 nested-grid development (ongoing)







- Joint development by Harvard, Dalhousie, and Tsinghua
- In support of the SEAC4RS campaign; GEOS-5.7.2
- Three nested-grid domains:
 - ✓ SEAC4RS = 75E - 130E, 10S - 30N
 - ✓ China = 70E - 140E, 15N - 55N
 - ✓ North America = 130W - 60W, 25N - 60N

CO,
transport
only



Wiki page and Current Users

- ~ 20 user groups
- Two-way nesting development by users (Peking U)
- Not only full-chem, but also offline simulations (CO₂, CH₄, Hg)

Tsinghua	Nested-grid GEOS-Chem model development; Regional air quality over East Asia and interactions with the globe	N/A	Yuxuan Wang 
SNU	Regional PM simulations over East Asia	Ministry of Environment in Korea	Rokjin Park 
US EPA		N/A	Rob Pinder 
U. Tennessee		N/A	Joshua Fu 
Nat'l Obs. Athens		N/A	Anna Protonotariou 
U. L'Aquila	Buondary conditions to CHIMERE model over Europe, focus on Saharan dust transport.	ASI (Italian Space Agency)	Gabriele Curci 
Georgia		N/A	Too Zeng 