

Stratosphere working group

2023-01-18 GCSC update

Progress in GC's stratosphere

News

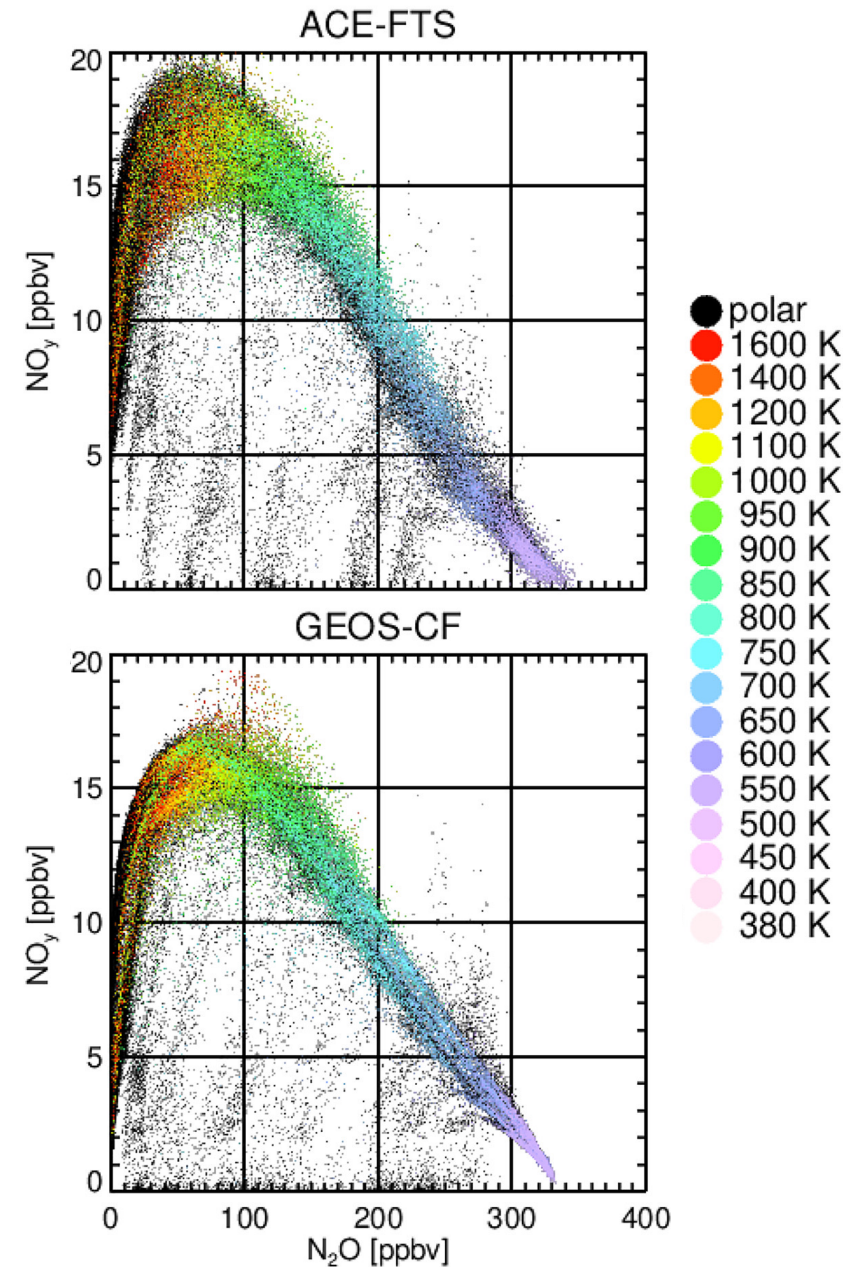
- New paper validating GC stratosphere in GEOS-CF (Knowland et al., 2022)
 - Performance of ozone hole forecasts is highlighted on GMAO webpage (https://gmao.gsfc.nasa.gov/research/science_snapshots/2023/stratospheric-ozone.php)

Upcoming items

- **6-12 months:** implement GMI update for NO_x source from galactic cosmic rays
- **Urgent but unresolved:** active mesosphere

Benchmarking

- 14.0.0 benchmark: better H₂O
no major new issues
- Some issues still difficult to diagnose:
need benchmarks which separate
chemistry and transport such as
 - Tracer-tracer comparisons
 - SF₆ observations
 - ACE-FTS Cl_y, NO_y
 - Stratospheric CO
- Propose additional benchmarks using existing
data from GEOS-CF comparison



Raising community awareness

Two proposed changes:

- Add **persistent/known issues** to the stratospheric WG page
- Cross-listing projects [*WG co-chair to-do*]

Concern regarding KPP autoreduce (default in 14.1.0):

- May not be appropriate for GC stratosphere (>10% error in SO₄ & NO₂ after 1 year)
- Lin et al. preprint mentions alternative form for more accurate stratosphere; included by default?