

HTAP

The United Nations Economic Commission for Europe's (UNECE's) Convention on Long-range Transboundary Air Pollution's (LRTAP's) Task Force on **Hemispheric Transport of Air Pollution (HTAP)**.

One activity is an extensive (*i.e., long-winded*) model evaluation and intercomparison – intercontinental transport of pollution.

Unfortunately, **aerosol-full chemistry coupling is not done**, so we are doing simulations with both full chemistry and aerosol models!

STATUS

Aerosols: The exercise with the aerosol model is mostly done, thanks to Huisheng, Gary, & Jules.

CO-like Tracer: The TP1 simulation is done - Steve.
(We needed to implement a tagged CO simulation anyway.)

Full Chemistry: Gary and I have finished 1 simulation – 17 more to go! Boo-hoo.

TIME CONSUMED

1) AEROSOL RUNS:

- ⇒ Huisheng's time for experiment setup: **3 h/experiment**
- ⇒ Time to run HTAP aerosol experiments:
15 experiments x 13 runs (1.5 y/experiment) at 2 h runtime each: **390 h total runtime** (many are being run concurrently)
- ⇒ SIVO labor time to setup the aerosol experiments:
15 experiments x 25 min each: **6.25 h**
- ⇒ Post processing with CMOR:
Time spent to learn codes integrated with CMOR and to modify them: 120 h (**3 weeks**)
- ⇒ Huisheng verifying results: **3 h/experiment.**
- ⇒ Huisheng : off-line calculations – **4 h/experiment**

TIME CONSUMED

2) FULL CHEM RUNS:

- ⇒ Simulations different than for aerosol model – AEROCOM involvement.
- ⇒ Intercomparison = ~18 1.5 year sensitivity simulations – sensitivity to European, N. American, E. Asian, and S. Asian anthropogenic emissions of NO_x, VOCs, CO & aerosols.
- ⇒ Time to run one HTAP full_chem experiment: **32 h (wall clock)** + setup + babysitting + post-processing = lots of time!

However, post-processing scripts are mostly done & are much less labor-intensive than the aerosol post-processing.

Questions to the Steering Committee:

Should we continue with HTAP full chemistry runs? And HTAP has more exercises planned!

Yes! We recommend to just finish them for 1) GMI publicity, 2) connections with other modelers and community, 3) identify model bugs & deficiencies, and 4) hard part is already done.

Do we want to continue to participate in future intercomparisons?

Maybe GMI needs to be “selective”.

For example, HTAP is laborious by design! I pushed for GMI to be involved in full chemistry portion, ignoring Jose’s concerns on time commitment. Bryan = jughead.

Long-Range Transport Full Chemistry Experiments

1) Base : 2001 conditions

2) 80% CH₄

3-6) 80% anthropogenic NO_x for N. America, Europe, S. Asia,
E. Asia

7-10) 80% anthropogenic VOC for 4 regions

11-14) 80% anthropogenic CO for 4 regions

15-18) 80% anthropogenic NO_x, VOC, CO, & aerosols for 4
regions