

**GEOS-Chem Steering Committee Telecon
September 21, 2010 14:30 GMT**

Attending: Daniel Jacob, Bob Yantosca, Rokjin Park, Colette Heald, Lyatt Jaegle, Dylan Jones, Daven Henze, Randall Martin, Kevin Bowman, Prasad Kasibhatla, Steven Pawson

Absent: Mat Evans, Dylan Millet, Yuxuan Wang, Max Suarez

General News (D. Jacob)

- Release of v8-03-02: new CO₂ (Toronto), new terrestrial Hg (Harvard), improvement sulfate GEOS-5 LWC (Harvard)
- Development credits to be updated
- Existing co-author credits lists looks up-to-date – nothing to be removed to “development history”
- While both lightning local distribution and nested model capability are perhaps “aging”, haven’t been widely cited in literature, so will remain in credit list
- GMI meeting: J(O1D) 20-30% difference between GMI & GEOS-Chem – action item to figure this out (Jose Rodriguez to contact Daniel). Suspicion: clouds (because quantum yields, cross-sections are same), possibly cloud overlap, dust SSA @ short wavelengths. Also initial replay simulations (chemistry online) looks reasonably good – need better comparisons.

GEOS-MERRA Report (R. Yantosca)

- 30-year re-analysis with same GCM as GEOS-5(GEOS-5.2.0) but some differences in output stream – very similar met fields (ease of transition), same horizontal/vertical resolution, but products are at different grids
- Helen Amos & Bess Corbitt (Harvard) developed a new algorithm for wet deposition to take advantage of vertical distribution of precipitation (was previously parameterized)
- First users: Hg (Harvard), BC (Qinbin Li)
- Full chemistry not quite ready – need to re-tune lightning
- Dust emissions will also need to be re-tuned
- Currently processing MERRA data: have 2005, 2008, will eventually have all 1979-2009 at Harvard. Currently also only pulling 4x5 – when storage increases will start to pull 2x2.5. If there is a need for data, then can prioritize processing according to user needs.
- Will not be able to run nested model for MERRA – not all the fields available at this fine resolution – finest is 1.25x1
- Hourly output for surface fields, 3D fields are 3 hours (instead of 3h and 6h as previously)
- Lyatt interested in using vertically resolved precip for GEOS-5 – was not available then in that product, possibly could use MERRA field for this.
- Next release likely public: 9.01.01 to denote switch to MERRA

Regional AQ WG Report (Y. Wang)

- Fangqun Yu has put aerosol microphysics (APM) into nested grid – 1 yr run in East Asia, and will attempt to do a simulation in EU
- Fix to transport (Lin Zhang, Claire Carouge)

Adjoint & Assimilation WG report (D. Henze, K. Bowman)

- Recent implementations in standard v8 adjoint: CO₂ simulation, online radiative flux calculation with LIDORT
- Also working on: nested grid, lightning NO_x emissions, methane emissions, 3D var (independent of versioning), development of observational operators, CO/CO₂ together, porting non-diagonal co-variance matrices from v7 to v8

Carbon Gases & Organics WG Report (D. Millet, D. Jones)

- Bug in globchem.dat found by Fabien Paulot (double counting of isoprene nitrates) – fix sent to GC community
- U. Minn working on implementing RETRO VOC emissions
- U Toronto working on developing joint CO/CO₂ simulation with JPL
- Standard version of CO₂ annual anthropogenic emission inventory sent to Harvard, hope to send Harvard monthly emissions once permission to release
- Issue with CASA fluxes accounting for both respiration and BB – currently going to use CASA fluxes of solely respiration from Randy Kawa (currently being used in Paul Palmer's group)

Emissions WG Report (R. Martin)

- Development priorities from last GC meeting mostly all addressed
- Soil NO_x: Rynda Hudman testing a version working in GEOS-Chem
- GFED3: Prasad preliminary comparison same implementation with GFED2 –annual mean OH change very small (few percent). Will next test with GFED3 approach of EF depending on vegetation. Will send plots with results in next month.
- Aircraft emissions: update Steven Barrett (MIT) – FAA doesn't want to release

Aerosol WG report (C. Heald)

- Modifications to sea salt emissions & deposition from Lyatt and Becky Alexander to be submitted to Harvard this Fall
- Modification to dust sub-micron size distribution for optics to be submitted shortly from CSU
- APM microphysics integration still in the pipeline – Fangqun Yu's group has integrated APM in v8-03-01 and plans to work on sending this version to Harvard.
- Spoke to Duncan Fairlie about getting a simplified description of uptake of SO₂, nitric acid & sulfuric acid on mineral dust into the model (possibly with just 3 tracers). Currently not a priority, but would be interested in hearing if others see a priority need for this.
- Expansion of SOA simulation (cf Havala Pye's work at Caltech) has led to questions about what options should be available in standard code. Developing an SOA strategy with the WG.

- GEOS-Chem represented in AEROCOM – May Fu coordinating this exercise. Fangqun Yu planning on submitting runs with microphysics (APM).

Chemistry & Oxidants WG Report (M. Evans by D. Jacob)

- Isoprene nitrates
- Mature bromine simulation (developed by Justin Parella) – available for integration in standard model. Propose to keep as an option. Improve pre-industrial ozone (reduce O₃), but also reduce present-day ozone, so more research needed on this.
- Effort starting at MIT (Steven Barrett) – full stratospheric chemistry in GEOS-Chem.
- Capability to do RF calculations with O₃/CH₄ would be nice

Hg and POPs WG Report (L. Jaeglé)

- New working group: now 7 individual groups working on Hg
- Previous developments: terrestrial Hg & deep ocean
- On-going: nested-grid Hg over NA (UW), nested-grid Hg over AS (Yuxuan Wang) – currently both being tested to be submitted soon.
- Upcoming updates: Hg gas partitioning scheme, wet dep MERRA (Harvard), scheme for Hg₂ reduction in power plant plumes in the US (UW), expanded tagged-Hg simulations (Bess Corbitt)
- Noelle Selin working on developing POPs code – first PAHs and then PCBs next

GMAO Developments (S. Pawson)

- GEOS-5.6.1 in development, 0.25x0.25 resolution, to be operational eventually, but not yet in discussion with user groups.
- GEOS-6 in 2011, cube-sphere grid (will get lat-long gridded fields)
- Future discussion: need to run GEOS-Chem @ cube-sphere? only if high resolution, or running column model with TPCore offline

Planning for 5th GEOS-Chem Meeting (D. Jacob)

- May 2-5, 2011
- Reserved the same room as previous meetings – cap on attendees. Last meeting 160 attendees.
- Thoughts on the SC: Rotation? Appointments? Elections at the meeting? To be discussed at next telecon. To be viewed as an open body. Co-chairs in the future?
- Future discussion: format last year worked well (10 m)

Modifications to Emissions WG (R. Martin)

- Suggestion: change name & content of WG to “Sources & Sinks”, inviting Paul Palmer to be co-chair of that group
- Better encompassing issue of fluxes to/from atmosphere
- Currently not comprehensively addressing deposition
- Disadvantage: increase in overlap with other WG

- Some concern previously about emissions WG overlapping – is it useful to have cross-cutting WG? Currently positive for documentation, but a quiet WG, not much discussion of science. Has been useful and expanding to deposition could expand scientific discussion.
- General agreement that it would be positive to entrain Paul Palmer into WG – Randall & Daniel will contact him about co-chairing the group.