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: (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 NOx 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 NOx: 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 Hava! 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.