

**GEOS-Chem Steering Committee Telecon  
January 25, 2011 14:30 GMT**

**Attending: Daniel Jacob, Bob Yantosca, Dylan Jones, Dylan Millet, Mat Evans, Paul Palmer, Randall Martin, Lyatt Jaegle, Colette Heald, Prasad Kasibhatla, Daven Henze, Yuxuan Wang, Steven Pawson, Kevin Bowman**

**Absent: Rokjin Park, Max Suarez**

**1. General news (Daniel)**

- Have not have a new release since last telecon, v9.01.01 coming soon (see next bullet).
- Claire Carouge will be leaving Harvard Support Team at the end of February.
- Daniel has hired Michael Long as support scientist, just finished PhD, mostly worked with CAM. Will start at the beginning of June.
- Matthew Cooper working with Randall will join GEOS-Chem support team. Completed MS with Randall. Will contribute 50% time to GC support and 50% time to support Randall's research efforts @ Dalhousie.
- Daniel has the resources to hire someone else – pass on recommendations to Daniel.

**2. Code Updates (Bob)**

- V9.01.01 in the pipeline, delayed by bugs (picked up by benchmark), waiting on fix for cloud top height calculation in GEOS-5 that affects LNOx
  - This will be the first version that can use MERRA, some fixes for volcanic SO<sub>2</sub> & volcanic emissions
  - includes objective improvement in scavenging (separation in washout and rainout – brings down aerosol levels by 20% – suggest keep as option). Colette will check out benchmark
  - expected release: next week after benchmarking and updating of manual
- v9.01.01 benchmarks: 1 year 4x5 for (1) GEOS-5 pre-lightning fix, (2) GEOS-5 with lightning fix and (3) GEOS-MERRA with lightning fix
- after release of v9.01.01, in the pipeline: GFED3, APM, RETRO emissions, strat chem from GMI-combo, bromine chemistry, aircraft emissions from FAA from MIT, fixes for drydep and NH<sub>3</sub> seasonality
- Prasad has sent GFED3 code to Bob, will make it available as a patch file for the community before integration in standard code. Has verified GFED3 with full chemistry, but not easily adapted in methane code (Daniel will follow-up with Kevin Wecht)
- Prasad: will update tagged CO simulation capabilities
- GFED3 will be extended through 2010 in the next couple of months – need some climatic data to run CASA. For 2010 Moscow fires –peat loadings not great in GFED, so may need to increase emissions.

### 3. **GCSC structure and elections (Daniel)**

- Re-cap of GCSC email discussion about structure: important to have document outlining the functioning of GCSC (structure without being bureaucratic), otherwise we are in agreement with composition of the committee (removed position of secretary as unnecessary), general recommendation for 4 year appointments, renew about half of the committee in May, fine for the working groups to have co-chairs, for single chairs they will not be up for election this round (Lyatt, Mat, Colette, Kevin), for groups with co-chairs currently: one agrees to stay and one agrees to go up for re-election or stand-down. This can be decided after the telecon. Model scientist / deputy model scientist, one should step down. Adjoint model scientist: ask Daven to stay for 2 more years, and will open position for deputy adjoint model scientist.
- Elections: good to do this at the business meeting. Circulate paper statements at the time. Not excessively formal. Important to do this in the spirit of collegiality.
- Mechanism for WG evolution: charge of steering committee to assess itself (with input from community), history of POPs/Hg working group evolution is a good example of how to add a WG (brought forward from users)

### 4. **Travel funds for IGC5 (Daniel/Mat/Randall)**

- Mat, Paul and Randall have sought funding from UK & Canada for the meeting. Yuxuan also attempted with Chinese NSF, but not successful thus far. Important for international recognition of the meeting.
- Mat got \$\$ from NCAS, very positive message from Ally Lewis (head of composition for NCAS)
- Randall and Dylan Jones applied for \$\$ from CSA– looks very positive, not clear on #'s yet, but as recognition for interpretation of satellite remote sensing.
- Agencies are recognizing that GEOS-Chem is an important tool for data analysis
- US funding looking pretty good related to travel requests (for oral presenters only)

### 5. **Planning of IGC5 (Daniel)**

- Randall will put together the meeting agenda.
- Have ~100 registrants, with large fraction of oral presenters. Need titles for talks, email should be sent out from Brenda to registered folks. Any future registrants need to include title. Feb 15 deadline for providing titles.
- Poster titles also should be requested, but no deadline at this point.
- No poster session: EPA will not provide support for a meeting where alcohol is being consumed during a formal session. Label the evening session as “social in the poster hall” to get around this.
- Some push back from people that it’s a long meeting. Sympathetic to travel requirements, but this is a meeting only every 2 years. Does not appear to be a problem for anyone on the GCSC to attend the Thursday afternoon, so keep as is.

- Organization of scientific presentations: aligned by WGs? Or randomization suggested by Steven Pawson to keep dynamism in play. The issue is the length of the meeting – so skipping sessions that are not of interest is not necessarily a bad thing (a good time to discuss with colleagues). Or possibly organize by themes that cross-cut WGs. Randall will organize – initially thought would plan across scientific themes, not tools. Welcomes suggestions and will circulate a draft of themes/schedule to GCSC
- Model clinic: still preliminary planning, some possibilities: version control, how to run the model. May not be able to attend model clinics (Bob, Daven, etc.) and participate in the GCSC. Resolution: do a catered lunch for GCSC on Thursday and eliminate the overlap with the model clinic. We need an additional question for registrants on whether they want to sign up for adjoint model clinic. Will run model clinic and adjoint model clinic in parallel (likely that individuals with interest in adjoint are already users of GC).

## 6. WG news (all)

- Randall raised Chinese emissions on behalf of Qiang Zhang @ Tsinghua – develop temporal (seasonal & diurnal) and stack height information for emissions in China.
- Prasad raised an issue with KPP: was able to run one year with GFED2 but not with GFED3. Is KPP robust? Or is this an issue with Prasad's set-up (running ifort 10.1)? KPP is in the standard code to maintain compatibility with adjoint. Offline discussion with GC support team necessary.
- Soil NOx: Rynda testing a working version of it, testing consistency with obs.
- Adjoint working group: working as part of Carbon Monitoring project (using GC adjoint for CO2), as a component of this activity bringing in additional inventories for ocean/land emissions (several models: MIT, JPL, CASA)
- Adjoint working group: some previous versions of TPCORE have done better advecting positive and negative values, GEOS-5 appears to be poorer at this (diffusion), would like to discuss more with GMAO, interest in using Prather scheme (Daniel will discuss with Lee Murray).
- Steven & Daniel funded by MAP to continue the development of the 1D model and incorporate in GEOS GCM for data assimilation. Will ensure re-configuration of GC around the 1D model. Bob's development efforts on this have been on the back-burner during MERRA adaptation, but will focus on this following on release of v9-01-01. SMVGEAR, wet deposition, dry deposition and FAST-J were columnized for v8-01-04. Bob has worked with an ESMF test bed and the preliminary testing looked good. Bob also wrote the v9-01-01 code for convection with MERRA as a piece of columnized code. So will need to adapt code one piece at time and update.
- Kevin raised a point of discussion: GC community is evolving towards chemistry-climate questions. Once the column code goes into GEOS-5, is there a mechanism for that model to be used by the GC community?
  - Steven: There are no public versions of GEOS-5 (some older versions available for download online). There is no support infrastructure for code support and public release at GMAO. Previous code base sharing/interaction has been based in the past on joint funding.

- Kevin: support should be explored, even if for an older version (as long as it includes the column model). NASA should consider the value of adding a large user base working on problems related to NASA objectives (satellite).
- Steven: discussion to be pursued, requires broader participation of GMAO and possibly coordination with GMI
- Kevin and Steven will follow up.

#### 7. **GMAO news (Steven)**

- New release of official GEOS-5 product soon (0.25x0.33) with some improved physics. Various versions have been run in parallel to official products.
  - for clarification: current GEOS-5 (v5.2.0) is the same version of model with MERRA
  - Daniel will follow up with Yuxuan (and the regional AQ WG) in development of 0.25 degree nested grid simulation
- GEOS-6 (cube-sphere grid) potential to go to higher resolution (has been run at 7 km global resolution! Obviously not with chemistry and huge I/O burden, but...). Release date likely to be beyond 2011. Discussion of output file grids (lat/lon for established users?) to come in the next year.
- MERRA: put out 1x1 product rather than 0.5x0.5 product. Getting the feeling from the users that would have preferred 0.5x0.5 – feedback would be good to get for future product releases. Previous feedback from community was that couldn't deal with data volume. But things have changed now – likely folks would prefer the highest resolution possible. Bob mentioned that an issue was that different fields were at different resolutions – not optimal.
- Warning: If doing very long simulations with MERRA( pre-2000s) see some large changes in transport related to data observing system.
  - Bob has downloaded 1979-2010 @ 4x5. Finer resolution (2x2.5) when data storage allows.

#### 8. **Nighttime PBL in GEOS-5 (Randall)**

- Nighttime PBL depths in GEOS-5 are about half of those in GEOS-4. Nighttime build-up of concentrations (1.5-2x obs). Issue for diurnal variation in the surface, or anything with non-linear chemistry. Struggling with how to proceed.
- Steven: conventional wisdom is that GEOS-4 was too coarse with PBL too deep. So feeling is that GEOS-5 is better. Q: is this an error in PBL depths or something we don't understand well?
- Randall: no good PBL depth validation datasets, concentrations are suggestive of this.
- Randall has seen this in North America, Paul in Southeast Asia. Steven will follow up with them.

