

## GEOS-Chem Steering Committee Telecon

March 9, 2009 15:30 GMT

**Attending: Daniel Jacob, Bob Yantosca, Steven Pawson, Randall Martin (w/Aaron van Donkelaar), Colette Heald, Dylan Jones, Dylan Millet, Daven Henze, Mat Evans, Kevin Bowman, Rokjin Park, Yuxuan Wang**

**Absent: Prasad Kasibhatla, Max Suarez**

### 1. General news (Daniel)

- 8-02-04 released, (topics listed)
- 8-02-05 almost ready, will include global 1x1.25, TOMAS, ISORROPIA II, updated aerosol optics, updated isoprene chemistry, aromatic SOA, nested grids for NA and Europe. Full-chem is 25% slower than 8-02-04, likely because of ISORROPIA II.
- Future – Mercury, updated CO<sub>2</sub> (awaiting files), GFED3 (awaiting data from Prasad), updated stratospheric chemistry

### 2. Regional air quality WG report (Rokjin/Yuxuan)

- Updated aerosol emissions for Asia, INTEX-B (Streets) emissions, Streets ammonia emissions
- Recently updated wiki for nested grid, included nested for NA and Europe
- Checked column mass conservation for CO – nested code is fine.
- Tao Zeng has produced an updated CMAQ-GC interface – we'll make it available through the GC webpage
- Detailed emissions for China are available from Yuxuan (point sources), may offer advantages over Streets

### 3. Adjoint and data assimilation WG report (Daven/Kevin)

- Distinction between GC v7 and v8 adjoint
- V7 has 3d-var mode, faster than 4d-var mode; V7 nearly complete
- V8 Daven is working to keep up with updates to forward model, Lin Zhang tagged Ox adjoint recently incorporated, discussed restart capabilities but low priority; discussed building up CO<sub>2</sub> adjoint at low and high resolution. Trying to coordinate methane adjoint development between Purdue and Harvard.
- Adjoint of nested model is on wish list, no action yet.
- V8 updates for bug fixes, but not features (i.e. new BL mixing scheme is not yet in adjoint)

### 4. Carbon gases WG report (Dylan/Dylan)

- Finished standardizing CO<sub>2</sub> simulation. Working to produce long-time series runs.
- Updates for ocean fluxes and anthropogenic emissions. Biomass burning uses GFED2

- Shipping, aircraft emissions, and CO<sub>2</sub> chemical source (from full-chem simulation) took more time
- Link to MODIS LAI product for emissions
- Havalala Pye has been using sesquiterpene emissions from the updated MEGAN for SOA production, still in research stage.
- Nothing new on anthropogenic VOC front
- Any interest in N<sub>2</sub>O? - none yet.
- Kevin Wecht has developed a SF<sub>6</sub> simulation for GC, will put it in next standard version (8-02-06)

#### **5. Emissions WG report (Randall)**

- Aaron provided EMEP emissions for 2006 & 2007 and EMEP seasonal variation. In 8-02-05
- Aaron extended global emissions scalars to 2006 (previously was 2005). In 8-02-05.
- Discussion about jump in GC Chinese emissions from 2005-2006. Jump arose from end of statistics in 2005, and insufficient trend in emissions scalars (scalars are not a new inventory). Aaron addressed by using new 2006 statistics, and scaling backward from 2006. Jump remains an issue, but shifted to 2000-2001. In 8-02-05.
- Seasonal variation in GC for NEI2005 comes from NEI99.
- NEI08 coming out this summer. Plan to work with Alice to get a gridded product. Daven offers to help coordinate.
- Soil NO<sub>x</sub> development from Rynda ongoing.
- Prasad says that final version of GFED3 will soon be ready and that he will then work on integrating it in GC and testing.
- Agreed on need for flexible regridding algorithm.

#### **6. Aerosols WG report (Colette)**

- Updated optics based on Drury and Jaeglé's work for GC (CSU and Dal)
- Higher resolution optics (Dal)
- TOMAS in 8-02-05. Tracking user base. Request for groups to sign up on wiki.
- Let's include aromatic SOA as part of the standard SOA simulation.
- Ongoing work at Harvard uses GEOS-5 cloud fraction and LWC for SO<sub>2</sub> cloud chemistry, also updates to scavenging from cold clouds, not yet mature.
- APM aerosol microphysics from SUNY-A are planned for inclusion in 8-02-06.
- Updates to aerosol evaluation for benchmarking

#### **7. Chemistry (Mat)**

- New Caltech isoprene scheme. Good but still expect issues at low NO<sub>x</sub>.
- Script has been written to convert GEOS-Chem globchem.dat into Mat's box model, plan to make it available on GC site together with link to box model.

- Would be a good idea to be able to drive the box model with output from GC.

## **8. GMAO report (Steven)**

- GEOS-5 continuing to be produced in NRT. GEOS5 → GEOS5.5 at 0.25° resolution. Change from 72 to 91 layers. This is planned to take place later this year.
- MERRA is now running in NRT. Talk to GMAO if we plan on using it.
- Plans for GEOS6? → 0.125° simulation. Not sure about target date.

## **9. Column code report, software issues, new URL (Bob)**

- Column code has been sent to GMAO for technical checks in the implementation with GEOS-5.
- Added ISORROPIA and FAST-JX changes to column code
- Added new wiki pages for different applications (TOMAS, APM...)
- Plan to replace CVS repository software with GIT, and to make source code available through GIT so that changes to the code are more trackable.
- Agreed to create new URL for GC. Should promote recognition of GC as an international model. The new URL would be robust to any future restructuring of Harvard websites. Plan to use godaddy.com, which provides a mask so that users accessing geoschem.org will end up on the current Harvard-maintained pages without knowing it.

## **10. Review of Code Development Priorities (Daniel/all)**

- We are moving fast through the list of code development priorities decided at the users' meeting. Current plan is for 8-02-06 to include APM, updated Hg, updated CO<sub>2</sub>, SF<sub>6</sub>, anything else? Some priority updates (soil NO<sub>x</sub>, interannual lightning...) are not mature yet. Once we're done with 8-02-05 we'll confer with the Steering committee about what should be included in 8-02-06. Due to the extent of changes in 8-02-05 it is important that the benchmarking process be carefully done.

## **11. Updates to credits (Daniel/all)**

- Daniel will contact GC list to request GC publications and alert them to credit page
- GMAO is satisfied with credit it gets from GC but would like to see the publications maintained as record of usage of GEOS fields.

## **12. Other business (Daniel/all)**

- 5<sup>th</sup> GC users' meeting next year will be held on May 2- May 5. No conflict with EGU.
- GEOS data archive at Dal getting lots of use. Expanded number of simultaneous users allowed.
- Harvard is presently generating dynamic boundary conditions for CMAQ, expect increased use of GC as outer nest for regional AQ simulations.