GEOS-Chem Newsletter
v11-01 Provisional Release
20 Dec 2016

Dear GEOS-Chem Users,

We are happy to announce that **Provisional Release of GEOS-Chem v11-01** is now ready for you to download and run! Please read below for some important news.

Provisional release of GEOS-Chem v11-01

We invite you to download and run GEOS-Chem on your system during **the v11-01 provisional release period, which will extend until 01 Feb 2017**.   For complete instructions on how to download, install, and run GEOS-Chem on your system, please see the [**GEOS-Chem Online User's Guide for v11-01**](#). We have also added much new information to the GEOS-Chem wiki (http://wiki.geos-chem.org) for v11-01.

The v11-01 provisional release (as of 20 Dec 2016) contains the following major updates:

- [**FlexChem**](#)
    - A new, clean implementation of the KPP chemistry solver.

- **Removal of legacy infrastructure**:
    - The old SMVGEAR solver has been removed from GEOS-Chem v11-01.
    - Several redundant data structures required by SMVGEAR (e.g. separate arrays for advected tracers and chemical species) have also been removed.

- [**Removal of the distinction between "tracers" and "species", including:**](#)

- o The "Species Database": a data structure that contains all of the relevant physical parameters for each GEOS-Chem species in a single location.
  - o Resolution of incorrect or duplicated definitions of species physical properties.
  - o A new, flexible, non-hardwired algorithm for obtaining the index of a species from its name.

- **Area-independent species units, Phase 1**:
  - o Dry mixing ratio (kg species/ kg dry air) is now the primary unit for species concentrations, with unit conversions remaining in some locations as necessary.

- **Air moisture fixes and updates:**
  - o Separation of dry and moist air pressure and density.
  - o Transport corrections to enable passive tracer mass conservation.
  - o Species unit conversion updates to consistently use dry air in mixing ratios.

- **Updated emissions and other inputs:**
  - o Update to HEMCO v2.0.003.
  - o GFED v4.1 biomass burning emissions.
  - o High-resolution Canadian emissions at 0.1^0 x 0.1^0 resolution.
  - o New data for specialty simulations.
  - o Corrected TOMS/SBUV data (for GEOS-5 simulations).
  - o Updated timezones and masks files.

- **Migration to netCDF file format, continued**
  - o All GEOS-Chem restart files have been migrated from bpch to netCDF file format.
  - o Selected diagnostics can be saved to netCDF file format (to be fully-implemented in v11-02).

- **MERRA-2 updates**
  - Compatibility with the [GMAO MERRA-2](#) assimilated meteorology reanalysis product.
  - Addition of MERRA-2 nested grids (0.5^0 x 0.625^0 resolution) for Asia, Europe, and North America.

- **GNU compatibility updates**
  - Compatibility with the [GNU Fortran compiler](#) (version 4.4.7 or 4.8.2).
  - Compatibility with the [GNU Profiler](#).

- **Other updates:**
  - [Fixes](#) for several bugs and technical issues.
  - For a complete list of what's new in v11-01, [follow this link](#).

Send us your GEOS-Chem 7-day timing test results

We encourage you to run one or more timing tests with the GEOS-Chem v11-01 provisional release code. This will help us to assess how well GEOS-Chem v11-01 is performing across many different systems. For instructions, please see [our *Timing tests done with GEOS-Chem v11-01* wiki page](#).

New interactive map of GEOS-Chem user groups

We have created a new interactive map of GEOS-Chem user groups on [our *GEOS-Chem People and Projects* web page](#). Clicking on a pin will display information about all of the GEOS-Chem user groups at a given institution.

If you are the leader of a GEOS-Chem user group, we invite you to take a moment to ensure that your group's entry on the *GEOS-Chem People and Projects* page is up-to-date. We will also be happy to add your group if it is not currently displayed on the map. Please send your edits to geos-chem-support@as.harvard.edu.

GEOS-Chem Support Team Holiday Schedule

Please note that we will be away from the office for Winter Holiday Break **from December 23, 2016 to January 3, 2017**. During the break we will be unable to reply to any support requests. We will respond to all requests once we return in 2017.

As always, thank you for your continued support of GEOS-Chem!

Happy Holidays!

The GEOS-Chem Support Team
Bob, Melissa, Lizzie, Junwei, and Yanko