

## Accessing GEOS meteorological fields to drive GEOS-Chem

The Harvard group maintains an archive of GEOS meteorological data ([http://acmg.seas.harvard.edu/geos/geos\\_sim.html](http://acmg.seas.harvard.edu/geos/geos_sim.html)) available to the GEOS-Chem community for ftp download. It includes standard operational GEOS data at  $2^\circ \times 2.5^\circ$  and  $4^\circ \times 5^\circ$  resolution, plus some special and nested products. There is increasing demand in the GEOS-Chem community for custom data sets of native-resolution (presently  $0.5^\circ \times 0.667^\circ$ , and soon to be available at  $0.25^\circ \times 0.3125^\circ$ ) or special GEOS meteorological data. In the spirit of maintaining the successful grass-roots community approach of GEOS-Chem, users who do not find what they need in the Harvard archive should take it upon themselves to download and archive the GEOS data that they need, and then make these data available to the GEOS-Chem community.

Here is the protocol to follow:

(1) First determine if you have sufficient disk storage to store the raw and processed met data. The raw GEOS-5.2.0 met data requires approximately 2 GB storage per day of data. You will need enough storage to keep at least one month of raw data files on disk at a time. (A 2 TB scratch disk should be sufficient.) You will also need enough permanent data storage for the processed data files. For nested grids, the processed met data size will vary depending on the geographical region that you select. (For example, the China/SE Asia nested met fields require approximately 400 MB storage per day of data. This translates to ~145 GB per year of data.)

(2) Post the time period that you wish to extract on the “[Available Met Data for Nested Grid Simulations](#)” page on the GEOS-Chem wiki BEFORE you start obtaining data. This will help to transparently coordinate efforts between GEOS-Chem user groups.

(3) Obtain a GEOS-5 data subscription from the GES-DISC at NASA. Contact the GEOS-Chem Support Team ([geos-chem-support@as.harvard.edu](mailto:geos-chem-support@as.harvard.edu)), who will provide you with the name and email of the proper contact person at GES-DISC. When you contact the GES-DISC, state that you are part of the [GEOS-Chem community](#) and what data set you want (in most cases this will be the GEOS-5 operational data set). The type of subscription should be "ftp pull"; in other words, so that data is downloaded only when you request it.

(4) Download Bob Yantosca's code and scripts for processing the GEOS meteorological data. These can be downloaded via the Git version control software as follows:

```
git clone git://git.as.harvard.edu/bmy/GEOS_5
```

(5) You are responsible for modifying the data extraction and processing codes to meet your specific needs if different from those for the standard code. Modifications of general interest to the GEOS-Chem community should be fed back into the standard code for the broader benefit of the GEOS-Chem community.

(6) In the case of nested simulations for domains/periods not previously available, users are responsible for preparing the emissions and other input data sets that they need. IDL code for cutting these data sets will be made available through the GEOS-Chem web site. Once these data are generated, they should be publicized to the GEOS-Chem community to avoid duplication of effort.

(7) For the nested-grid simulation for regional domains other than China/SE Asia, there need to be a few minor modifications to the GC code, most of them involving changes in grid-related parameters. For more information, please contact Yuxuan Wang ([yxw@mail.tsinghua.edu.cn](mailto:yxw@mail.tsinghua.edu.cn)).

(8) GEOS meteorological fields downloaded by users for their own research needs should be made available to the GEOS-Chem community through the user's anonymous ftp site or by other means. In this manner, a distributed archive of GEOS data will eventually be generated, with a [wiki catalog](#) listing the data available from different institutions. Jack Yatteau (Harvard) is available to advise users on the best means to make their data accessible by the GEOS-Chem community.