

Summary for the Global Modeling Initiative Core Activities at GSFC
October 27, 2003

Personnel

We have been assembling our core team over the summer and now we are fully staffed. Tom Clune is the manager on the computing side of GMI. Tom has two full-time staff members in the Science Computing Branch (Jae-Hoon Kim and Bigyani Das) who have been learning how to run the model. Additional computational support personnel, such as software engineers and web site designers, are available as needed. For assistance with your NCCS account, contact tag@nccs.gsfc.nasa.gov.

The science side of the GMI core team is managed by Susan Strahan (Atmospheric Chemistry and Dynamics Branch). The science side has added 2 people over the summer. Steve Steenrod, who has extensive experience with the Goddard CTM, will become an expert in understanding and modifying the GMI codes. Chris Readinger, who is fresh out of school with a MS from Ohio State, will be writing IDL codes for reading, post-processing, and diagnostic evaluation of model output. GMI team members can contact the core modeling team at Strahan@code916.gsfc.nasa.gov.

Delivery of GMI models from LLNL

The tropospheric chemistry model was delivered in June, and the aerosol and stratospheric chemistry versions of the model were received in July. The first order of business for the new core team was to learn how to run each version of the model. Outputs needed to be compared with previous LLNL runs to verify we were running correctly. Dan Bergmann has been an active member of the GMI transition to GSFC, providing frequent help throughout the summer. Dan visited GSFC for 2 days in September to speed up our learning process.

Status of the Tropospheric Model

We are able to run the model with all diagnostics turned on and with all 3 sets of met fields. An error was found in the wet deposition scheme, and a cloud water parameter was changed. The new radionuclide runs do not compare as well with observations as the old runs did, but they shouldn't because old runs had an error. (We can produce agreement with the old run by reintroducing the error.) These runs are available on the GSFC GMI ftp site for examination. New full chemistry runs with the modified wet deposition and additional station outputs will be available later this week.

We are also working on a 'synthetic tracers' run to support the interpretation of the full chemistry runs. The synthetic tracers are Biomass Burning CO, Fossil Fuel CO, and CH3I. We have struggled with getting the input emission files into the netCDF file format required by the model, but think we will have successful runs by the end of October.

Status of the Aerosol Model

We are able to run the aerosol model. Output using the DAO met fields and the U. Michigan constituent inputs is now available for examination by U. Mich. Once Michigan verifies that our results look right, we will run 1 year simulations with the CCM3 and GISS wind fields.

Status of the Stratospheric Model

The model has been successfully run at GSFC and reproduces results that Peter Connell got with the version of the code that he delivered in July. We discovered that we get very slightly different results depending on how many processors we use. (32 vs. 44 was tested.) These are scientifically insignificant. We will soon run a few years of the WMO scenario with the same FVGCM winds but at 2x2.5 (higher) resolution. We need to see how resolution affects the behavior of the vortex edge before we begin another multi-decadal simulation (the 'hindcast').