GMI SCIENCE TEAM MEETING

NASA/GODDARD SPACE FLIGHT CENTER

MAY 11-12, 2009

GOALS FOR THIS MEETING

- **Report on model status, ongoing investigations**
  - **Note: Smaller team than before, but all GMI components are still covered.**
- **Report on newly funded investigations**
  - **Background/motivation**
  - **Proposed activities**
  - **Resources needed from “core” institution**
- **Discuss GMI activities as CTM, architecture, role**
  - **GEOS system and other systems**
  - **Assessment model/ testbed for algorithms/ comparison todata**
  - **Relation to coupled chemistry-climate effort**
- **Discuss available resources, priorities, timeline for activities**

REMINDER

- **ELECTRONIC COPIES OF PRESENTATIONS NEEDED FOR PROJECTION/PUTTING ON WEBSITE.**

STIMULUS PACKAGE ACTIVITIES

- **No exclusively GMI activities were either submitted or approved.**

- **Probable participation in two activities (FINAL GO-AHEAD HAS NOT BEEN RECEIVED).**

- **Constraints on activities:**
  - **No civil servant salaries**
  - **No “new” contracts**
  - **Money needs to be spent in 18 months**

ASSESSMENT OF AIRCRAFT IMPACTS

- **Use COMBO model (contains stratosphere AND troposphere)**

- **Impact of subsonic emissions on gas-phase composition**

- **Plan is to do “steady state” simulations for:**
  - **Past/present conditions (1990’s or 2000’s)**
  - **With/without aircraft (only baseline)**
  - **El Nino/La Nina years**
  - **Future conditions (2025?)**
  - **GEOS-4 vs. GEOS-5**
  - **Total of about 40 model-years with COMBO**
  - **Other activities, analysis by NASA/Langley**

- **Emission scenarios will probably come from FAA**

AEROSOL/FULL CHEMISTRY SIMULATIONS WITH GEOS –5 / MERRA

- **Aerosol simulations**
  - **EOS/AURA years at ½ degree**
  - **30 years at 1 degree**

- **Aerosol + combo chemistry**
  - **Periods to be determined, 2000's**
  - **2, 1 and ½ degree resolutions**
  - **High resolution to stress periods of aircraft campaigns**

- **Repeat above with coupled aerosol-gas phase chemistry**

- **DETAILS, INPUT STILL NEED TO BE WORKED OUT**

GMI “Core” Proposal

- **Original intention: support for Goddard personnel to carry out “core” model integration and maintenance, zeroth order quality control, comparison to observations.**

- **Separate from SIVO.**

- **Include some core support for chemistry-climate effort during last two years.**

- **Budget restrictions:**
  - **About 50% of requested budget**
  - **No core chemistry-climate support (this effort will be recompeted next year)**

ACTIVITIES/INVESTIGATORS

- **NOTE: THESE ACTIVITIES COULD CHANGE SOMEWHAT BASED ON TEAM DISCUSSIONS**
- **Steve Steenrod: GMI Scientific Programmer**
  - **Will work with specific investigators, SIVO to implement/test modifications, new modules.**
- **Susan Strahan: GMI Project Manager**
  - **Quality control**
  - **Data administration/ distribution**
- **Bryan Duncan**
  - **Modifications to gas-phase chemistry**
  - **Simplification of chemical mechanisms**
  - **Quality control**

ACTIVITIES/ INVESTIGATIONS (II)

- **Huisheng Bian**
  - **Aerosol / gas-phase coupling**
  - **Fast J w, x, y, z.**
  - **New aerosol capabilities (nitrates, others?)**

- **Peter Colarco**
  - **Aerosol microphysics in GMI, chemistry-climate model**

- **NOTE: MODEL ENHANCEMENTS, ANALYSIS SHOULD BE EASILY INCORPORATED INTO CHEMISTRY/CLIMATE MODEL**
  - **NEED TO DISCUSS THE BEST WAY TO ACCOMPLISH THIS.**