Combo Model Working Group Summary

GMI Science Team Meeting, 10/13/06

HIGH PRIORITY: Provide Support for Aura scientific community:

- Need GEOS4-DAS model output for Aura time period
  - On what resolution?
- Needs to be easily accessible:
  - Perhaps on AVDC? (Talk to Bojan Bojkov)
  - GMI web site?
  - Easily understood directory structure at a minimum.
- Needs to be easy to read.
  - Construct IDL reader to read data sets.
- Needs to be appropriate data
  - Daily output of Aura variables - special MLS, HIRDLS, TES, and OMI subsets – ACE?
  - Needs to include ancillary data - T, Potential Temp, Theta, PV - anything else?
- Needs to be advertised.
- Needs to be done soon.
- Personnel - Douglass, Joiner, Strahan, Schoeberl input from Logan, others

Combo Model Near-Term Development Goals

Goal	Description	Personnel
Water	Develop transported water field for stratosphere; modify PSC parameterization to utilize.	Considine, (Douglass, Stolarski)
Emissions	Revise emissions inventories; check LWI index in GEOS4-DAS; fix soil NOx problem in GEOS4-DAS 2x2.5 model.	Logan, Duncan
Rn transport	Understand differences between Rn transport in GMI vs GEOS-CHEM	Hongyu Liu
Lightning	Update lightning parameterization in Combo model	Pickering
CO bias	Fix/understand tropospheric CO bias - see tropospheric working group discussion	Duncan, Logan
Met fields -1	Continue GEOS4-DAS met field processing to facilitate Aura data analysis.	Steenrod, core team
Met fields - 2	Get GEOS-4 forecast met fields generated - test runs	Duncan
H2	Set H2 field to a constant 0.5 ppmv throughout model to fix its currently unconstrained treatment (very easy fix).	Considine, core team
JPL-06	Implement JPL-06 reaction-rates (put in KMG database and regenerate setkin files - do not hand-code this in!!)	Steenrod, Duncan

Combo Model Longer-term Development Goals

Goal	Description	Personnel
Met Fields - 3	Obtain and process other met fields (ECMWF?)	Steenrod, Prather, Stolarski, Newman, Nash (Eric)
Chemical Efficiency	Streamline chemistry - turn off species in stratosphere, etc. (Need to check to make sure no adverse impact).	Rodriguez?
Resolution issues	Convergence test for double resolution - 1x1.25?	Strahan, Prather
Kernels	Implement averaging kernels and sampling techniques to facilitate satellite data analysis.	??????
Larccombo	Add LaRC combined chemical mechanism as a standard option - incorporate into revision control system	Considine, core team
Fastj-x	Update ???	???
Aerosols	Interactive aerosols in combo model	Michigan, Goddard
Wet scavenging	Solutions for low Pb-210 concentrations in GEOS4-GCM simulations	Liu, Considine
Tagged CO	Separate CO tracers for each emissions source	Duncan

PUBLICATIONS

- PRETTY SOLID –
  - EVALUATION OF TRACER TRANSPORT ERROR
  - COMPARISON OF OZONE NEAR TROPOPAUSE (SONDES) – Considine
    - Maybe need 5-Year 4X5 94-98 daily O3 and T
    - Within 6 months.
  - COMPARISON OF CHEMICAL MECHANISMS - Considine
    - Some additional sensitivity runs needed
    - Within 9 months.
  - EVALUATION OF FVGCM UT/LS – Strahan
    - Within 3 months
  - BIOMASS BURNING IMPACT ON UT/LS - Duncan
    - Within 3 months.

- NOT AS MUCH …
  - AURA-RELATED PAPERS
    - Not in -VALIDATION issue ANNE, RICH, JENNIFER
      - STUFF SHOWN BY RICH
      - COMPARISONS BY JENNIFER (RESOLUTION, …)
    - VALIDATION ISSUE?
      - HRDLS VS. MLS (ANNE)
      - TROPOSPHERIC OZONE COLUMN (MARK)
      - NO2 COMPARISONS – BRING SATELLITE AND AIRCRAFT, REPRESENTATIVENESS
    - N2O BLOB