

ACTION ITEMS

- 1. Make sure that our J(O1D) problem has been resolved.**
- 2. Stratosphere –**
 - a. Replay for Arctic**
 - b. JNO**
- 3. Quality check for a complete set of AURA4 and MERRA runs**
- 4. WHAT SIMULATIONS FOR LOGAN'S WORK???**
 - a. "Existing" ones? – What are the differences?**
 - b. Fix lightning?**
 - c.**
- 5. Where do we go with tracers?**
 - a. Make corrections (get rid of washout, fix Rn, check fCO2)**
 - b. All fields do the same tracers?**
 - c. Additional tracers:**
 - i. Separate Be7, 10 sources**
 - ii. Different synoz source distribution**
 - iii. Linoz?**
- 6. AM3 issues (online, vs. offline issues)**
- 7. Quality check for coupled aerosol/gas phase, nitrate**
 - a. Understand behavior of gas-phase response**
- 8. Continue aircraft simulations**

- a. Put results on PNAS diagram
- b. Sensitivity calculations, different met. Fields.
- c. "Long-lived" ozone.

9. Finish implementing FastJx

10. Chemistry?

11. Washout?

12. LIGHTNING

- 1. Current parameterization causes problems with interannual variability.**
- 2. LIS interannual variability small.**

SIMPLE-MINDED SOLUTION: MAINTAIN GLOBAL LNOX CONSTANT, BUT CHANGE DISTRIBUTION FROM YEAR TO YEAR ACCORDING TO CONVECTION?

NEED TO SETTLE THIS SOON, EVEN IF NOT PERFECT. (REPEAT MERRA RUNS... HINDCAST).

- 1. Do as quickly as possible.**
- 2. Keep base met. Set 2000-2009**
- 3. Global scaling to 5 TgN/yr**
- 4. Test offline before running.**

HINDCAST

- 1. Emissions.**
 - a. Fix methane. HISTORICAL**
- 2. Need to resolve lightning.**
- 3. Use coupled aerosol/gas phase?**
- 4. Minimum requirements for “frozen” model.**
 - a. Updated kinetics, FastJ?**
 - b. Updated chemical mechanism?**
 - c. We need to start asap!!!**
- 5. Which data for comparison?**
- 6. Start in 1990?**
- 7. What are we after?**

- a. LOOK AT DIAGNOSTICS OF MET. FIELDS TO UNDERSTAND DISCONTINUITIES, ETC.**

PRECIP. FIELDS, TEMPERATURES, CLOUD OPTICAL DEPTH, WATER VAPOR, CONVECTIVE MASS FLUX THROUGH 600 MB. (STEVEN).

- b. EMISSIONS:**
 - i. First run determined by what ACC activity will decide (Lamarque et al.)**

- ii. **Need to examine differences in regional inventories and above.**
- iii. **Biomass burning: Input to Hess? Use GFEDv3, and prior to 1997 scale with aerosol index.**
- iv. **SET UP A WORKING GROUP: Strode, Logan, Duncan.**

THE MINUTE CRUCIAL UPDATES ARE READY:

START WITH 1990, WITH CONSTANT FOSSIL FUEL EMISSIONS (2000)

GFED3 AFTER 1997

MEAN GFED BEFORE (SPIN=UP)

NMVOC – ACCMIP

SECOND: WHATEVER ACC-HINDCAST DECIDES

AFTER: MORE SCIENTIFICALLY BASED SCENARIOS (SCALING GFED WITH AEROSOL INDEX, ETC.).

WHAT IS CRITICAL:

A. DO A SIMPLE TRACER RUN (STEENROD)

**B. UPDATE FAST JX, AND KINETICS (BIAN,
KOUATCHOU)- BUG FIX OF O1d**

**C. UPDATE MECHANISM, ISOPRENE? (DUNCAN,
RODRIGUEZ, LOGAN)**

1. USE GOCART HINDCAST.

FIRST RUNS:

**A. FOLLOW CCM: CONSTANT EMISSIONS, CHANGE
STRATOSPHERE, CHANGE METHANE, DIAGNOSE
METHANE IMPACT.**

B. PUT IN EMISSIONS.

FUTURE OF GMI – PROPOSALS

2. DIRECT RELATIONSHIP TO CCM “INFRASTRUCTURE”, TESTING - MAP

a. IS IT EASIER TO TEST NEW ALGORITHMS IN GMI?

- i. Fast J**
- ii. New chemistry (note Harvard effort; direct transfer of new chemistry).**
- iii. New aerosols, SOA.**
- iv. STRESS AVAILABLE DIAGNOSTICS IN GMI (Jennifer’s analysis).**

b. REPLAY???

- i. Continue “separate” code or try to understand better the differences?**

3. GMI AND ACMAP.

a. What should ACMAP go after?

b. COMBINE MODELS AND MEASUREMENTS TO UNDERSTAND PROCESSES AND THEIR INTERACTIONS

c. USE AVAILABLE DATA TO TEST/IMPROVE MODEL REPRESENTATION OF PROCESSES AND THEIR PREDICTIVE CAPABILITY.

- i. HOW MUCH TESTING WITH DATA IS BEST DONE WITH CTM? RELATIONSHIP TO CCM?**

d. USE CTM TO QUANTIFY UNCERTAINTIES.

MOTHERHOOD GOAL:

IMPROVE PREDICTABILITY

WHICH IMPLIES:

FOCUS ON GREENHOUSE GASES, AEROSOLS, ODS, AND AIR QUALITY.

WHAT PROCESSES ARE IMPORTANT FOR PREDICTIONS AND UNCERTAINTIES IN THESE?

EXAMPLE: WHAT CONTROLS METHANE LIFETIME?

UNCERTAINTIES IN EMISSIONS?

N₂O LIFETIME?

WHAT ARE THE UNCERTAINTIES IN THESE PROCESSES AND HOW THEY AFFECT PREDICTIONS?

HOW CAN WE USE DATA COMBINED WITH MODELS TO CONSTRAIN THESE PROCESSES AND IMPROVE PREDICTABILITY?

ISSUE: INVERSE MODELING? MODEL UNCERTAINTIES?

SCIENTIFIC IDEAS FOR FUTURE PROPOSALS? (EXAMPLES)

**WE WILL HAVE ANALYZED MET. FIELDS SIMILAR TO GEOS?
(ERA INTERIM?).**

AVAILABLE RUNS FROM CCM AND GMI FOR ANALYSIS.

(NOTE: RANDOM OVERLAP OF CLOUDS – UCI)