

# LAB - breakout group

*Lab Experiments (Rogers/Moehler) - Room 1003, FL 2*

## Charge:

1. Develop scientific plans for SOD
2. Identify contributors to SOD
3. What kind of lab/model/field programs are possible and most productive?
4. List likely participants and resources.
5. Draft Outline for each sub-group (lab/modeling/field)
6. Other (field locations, synergy with international programs, agencies, ..)?

*ICE INITIATION WORKSHOP, June 8, 2004*

# LAB - develop scientific plans for SOD

**Parallel studies** – find close analogs of clouds & lab experiments

- Well-defined initial conditions & history = *strength of lab studies*
- Develop formal hypotheses to focus the studies
- Encourage close collaboration:  
*Lab studies* ← *modeling* → *field studies*
- Sources with distinct properties: *biomass smoke, desert dust*
- Field studies need complementary *airborne* instrumentation  
(*VOC, aerosol, CCN, ..*)

• Ice formation

- Emphasize *mechanistic* studies
- Differentiate *hom-fz* vs *het-fz*
- Electrical charge effects on scavenging & nucleation
- Seeding experiment with mineral dust (*tracing challenge if not wave cloud*)

• Evolutionary studies

- Secondary ice production: *H-M & other*
- Deposition growth rates & habits of crystals
- Aggregation: *sticking efficiency*

# LAB - develop scientific plans for SOD

*(continued)*

- Role & effects of organic compounds
  - *ice formation, growth rates & habit, evaporation, ..*
- Testing of airborne instruments
- Ice Nuclei instrumentation
  - Encourage developing new IN methods  
*(contact-fz, CVI, PALMS, ..)*
  - Refine, test, compare existing methods *(workshop?)*

# LAB - identify contributors to SOD

Rogers, Cantrell, DeMott,  
Shaw, Prenni, Bailey,  
Moehler

--

Draft version ~mid-August  
circulate for review

## likely participants (and resources)

- NCAR
- U.S. universities
  - *CSU*
  - *DRI*
  - *Michigan Tech.*
  - *PennState*
  - *U. Washington*
  - *U. Colorado*
  - *U. Wyoming*
  - *Harvard*
- NOAA
  - *GFDL*
- International collaborations:
  - *Germany, Japan, UK, Canada*

# Lab - draft outline S.O.D.

*(follows structure of 1998 white paper)*

- Introduction
- Justification
- Fundamental problems of ice formation
- Timeliness of an initiative
- Major objectives
- Approaches
  - *Field, lab, modeling studies*
- Next steps

LAB - other (field locations, synergy with international programs, agencies, ..)?

*pre-AMMA* + other source regions  
dust sample testing, ..

*ICE INITIATION WORKSHOP, June 8, 2004*

# LAB - attendees

|          |            |
|----------|------------|
| Moehler  | Bailey     |
| Shaw     | Prenni     |
| Cantrell | Magee      |
| DeMott   | Tsemekhman |
| Murakami | Phillips   |
| Lamb     | Tinsley    |
| Rogers   |            |