

# Unidata Policy Committee

Tim Killeen  
NCAR Director

February 27, 2003



NCAR

# Topics

- Brief update on some NCAR activities
- Opportunities for increased collaboration



# NCAR Deputy Director

Larry Winter

Larry comes to us from the Los Alamos National Laboratory (LANL), where he is an applied mathematician with extensive experience in computational geoscience, and a member of LANL's Center for Non-linear Studies.

Larry earned his Ph.D. in Applied Mathematics from the University of Arizona, and was Chief Scientist in the Advanced Computing Division at SAIC before coming to LANL. He has also served as the Science Advisor to the Governor of New Mexico.

Larry will assume his new role at NCAR in mid-April. Bob Gall, MMM Director, will remain as the Interim Deputy Director until Larry's arrival.



**NCAR**

# Major Activities

- NSF Panel Site Review and our response
- Coupled Human and Natural Systems Advisory Council (May 1 – 2, 2003)
- NCAR Advisory Council (March 4-5, 2003)
- Several Internal Committees convened to address recommendations: benchmarks, NCAR structures; software engineering; balance of facilities and science; 10-year strategic plan for community user facilities

# Major Activities

- Environmental Research and Education  
Cyberinfrastructure Workshop (October, 2002)
- Space Planning, program by program,  
including plans for new ACD lab complex
- GIS initiative (ESRI and OGC)

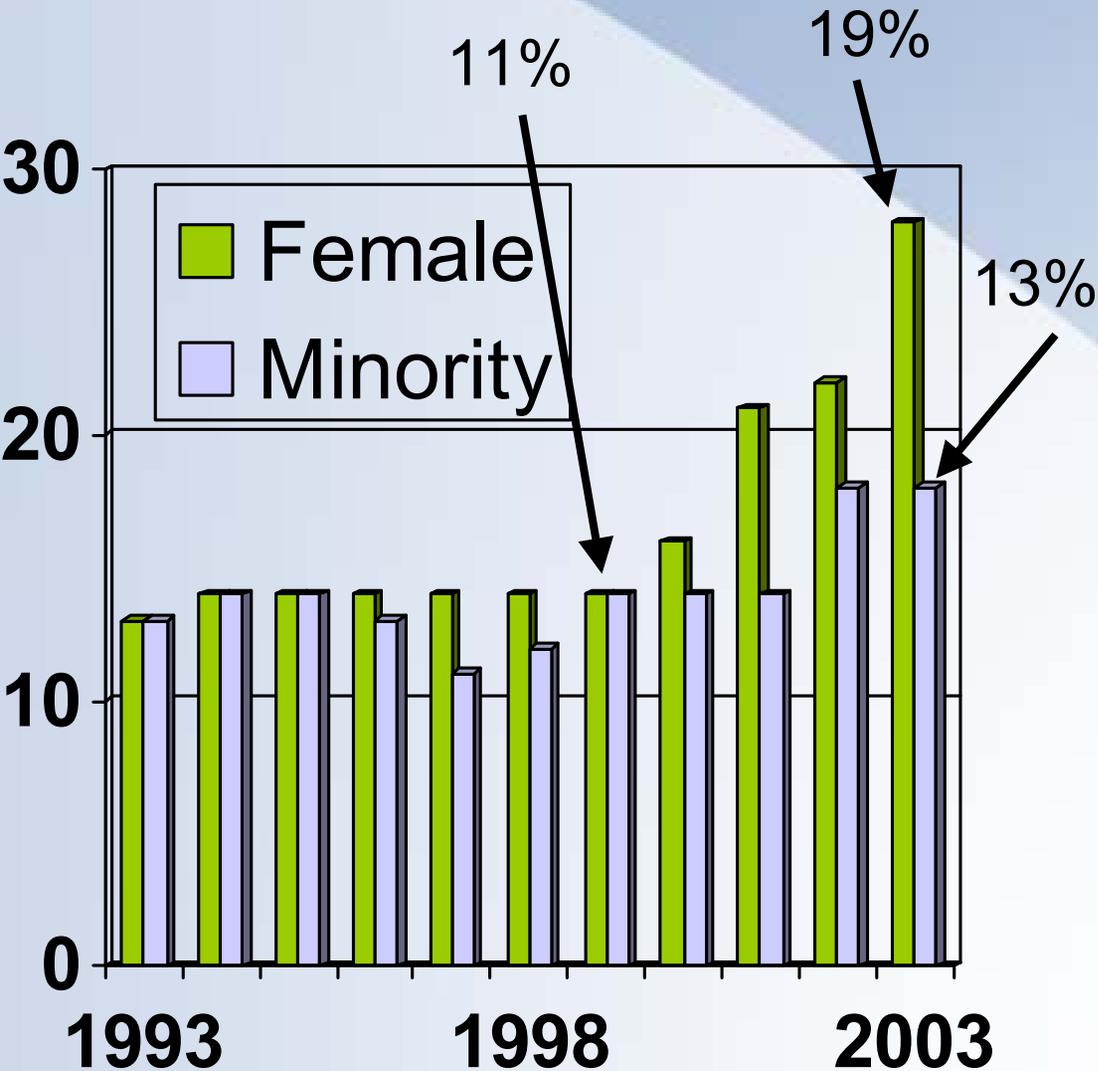


# NEW SCIENTIST I HIRES

- **Mausumi Dikpati, HAO**
- **Natasha Flyer, SCD**
- **Louisa Emmons, ACD**
- **Andrew Gettelman, CGD**
- **Shane Mayor, ATD**
- **Thomas Karl, ACD**
- **Joanie Kleypas, CGD**
- **Todd Lane, RAP**
- **Matthias Rempel, HAO**
- **Hector Socas-Navarro, HAO**
- **Michael Wiltberger, HAO**



# NCAR Internal Diversity Program



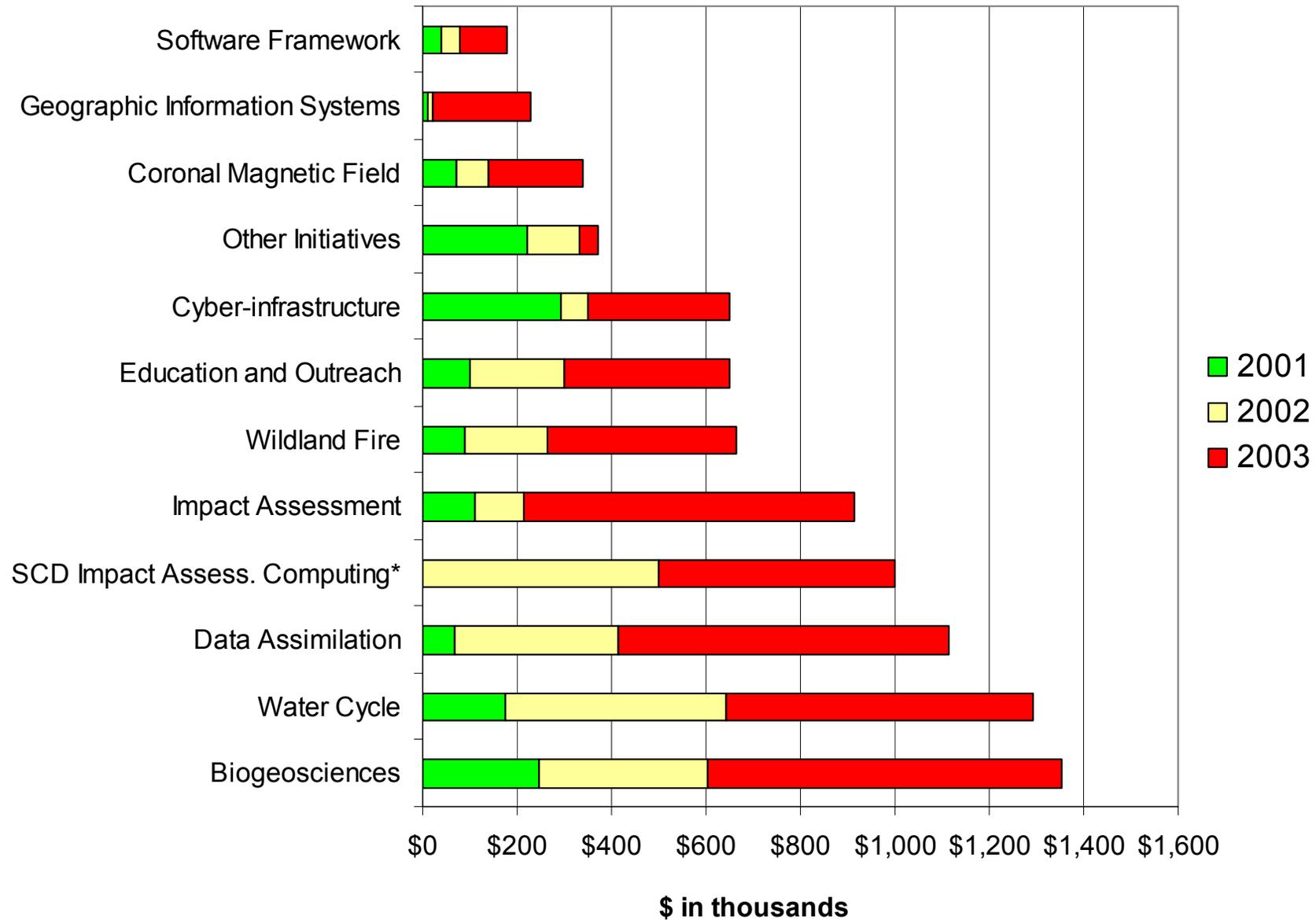
Women comprise 12.5% of geoscience faculty in U.S. Colleges and Universities and only 10% in Ph.D.-granting universities (*de Wet et al., GSA Today, 2002*)

African-American, Hispanic-Americans, and Native Americans earn 5% of doctoral degrees in the geosciences (*NSF/GEO Strategy for Diversity Program, 2001*)

Ladder Scientists at NCAR

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# Strategic Initiative Funding (Cont.)



\* SCD Impact Assess. Computing excl. \$500K DOE matching funds.

# Summer Undergraduate Leadership Workshop at NCAR

June 17-21, 2003

- Co-sponsored by NCAR and UCAR University community
- Goals
  - glimpse of state-of-the-art research underway at NCAR
  - introduce students to NCAR scientists and encourage interaction
  - consider concept of leadership in science
  - encourage promising students to graduate careers



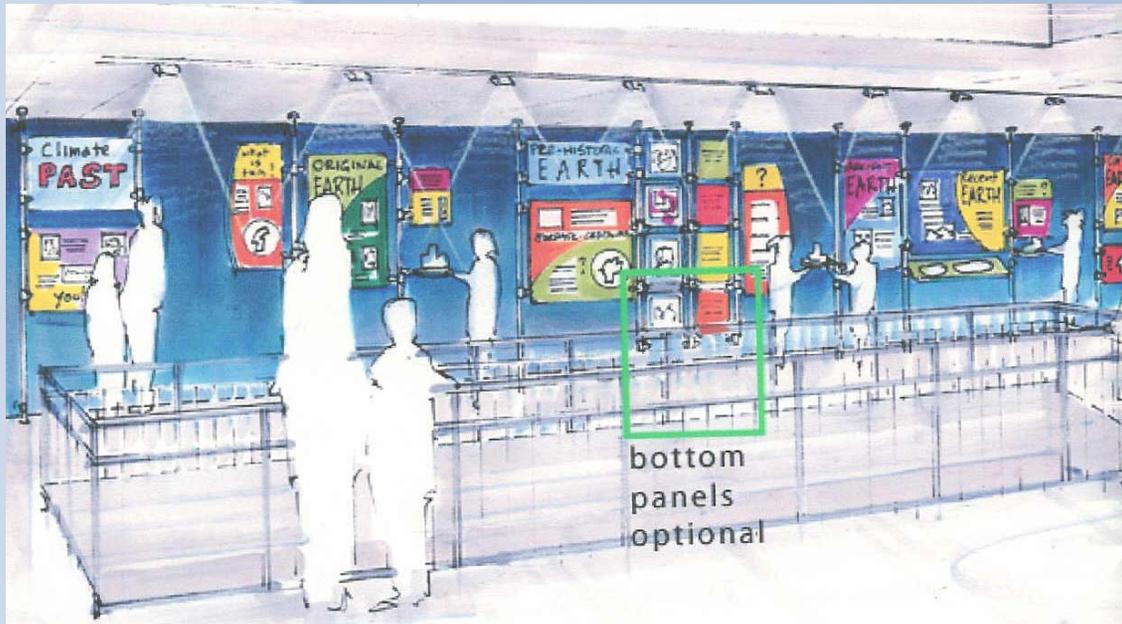
*16 students from 15 UCAR universities*

[http://www.ucar.edu/educ\\_outreach/ulw/](http://www.ucar.edu/educ_outreach/ulw/)



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# New Climate and Global Change Exhibit



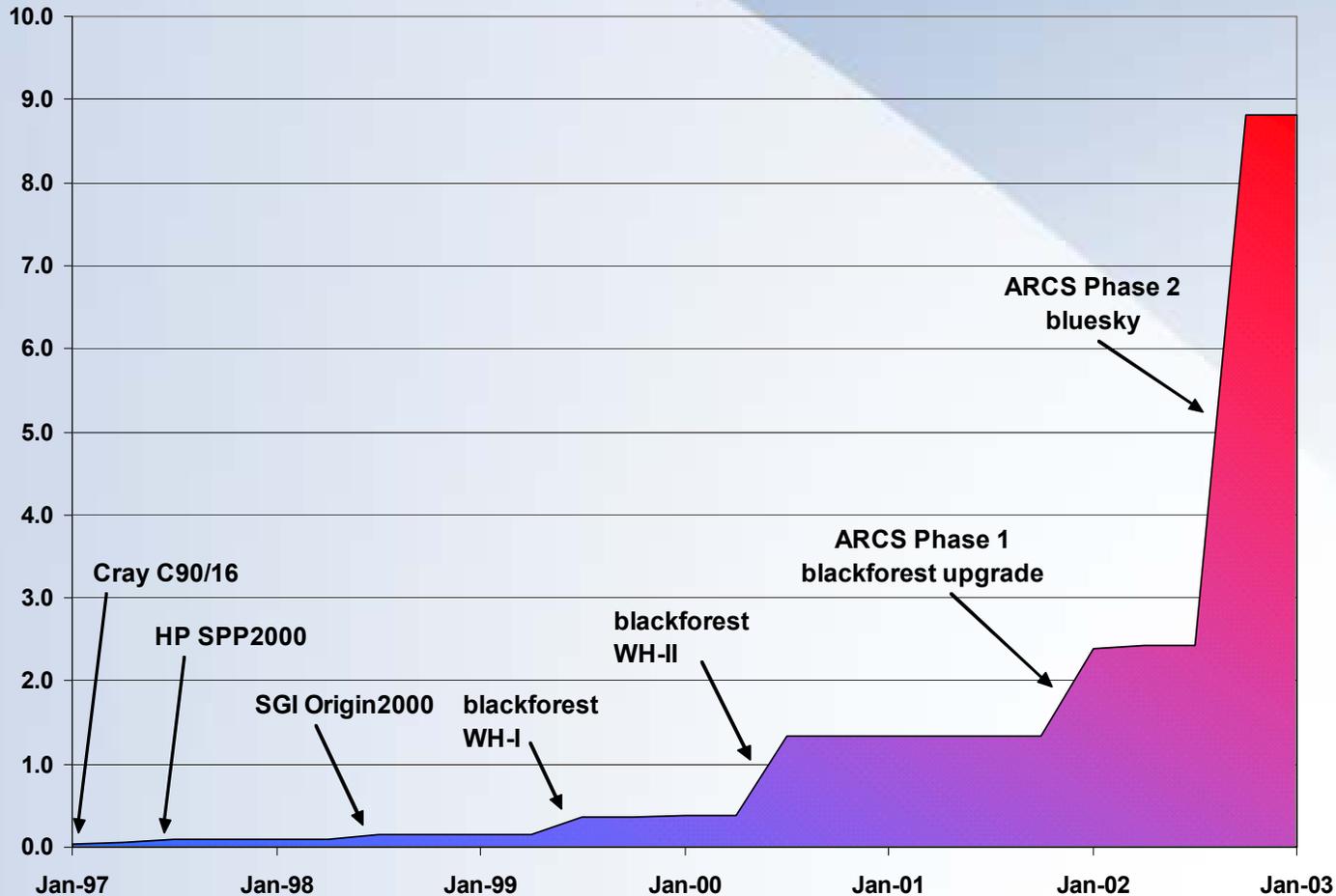
## *Artist's rendition of Climate timeline wall*

- Sun video wall (plasma display) with AMNH Earth Bulletin
- Climate and Global Change processes wall (50')
- Current topics in research and Earth video wall
- Layers of the atmosphere mural in stairwell
- Climate Timeline with artifacts (40')
- Capability for changing content
- Planned to open in late spring!



# Supercomputing Capacity

Peak TFLOPs at NCAR



**Bluesky** has tripled NCAR's computing capacity and is the 10<sup>th</sup> largest system in the world.



**NCAR**

# HIAPER Update

- NSF-led Instrumentation Workshop with over 200 participants at NCAR, November 4-6, 2002
- Favorable external review of HIAPER (called by NCAR Director), December 11-13, 2002
- Most recent Technical Interchange Meeting, December 11-13, 2002



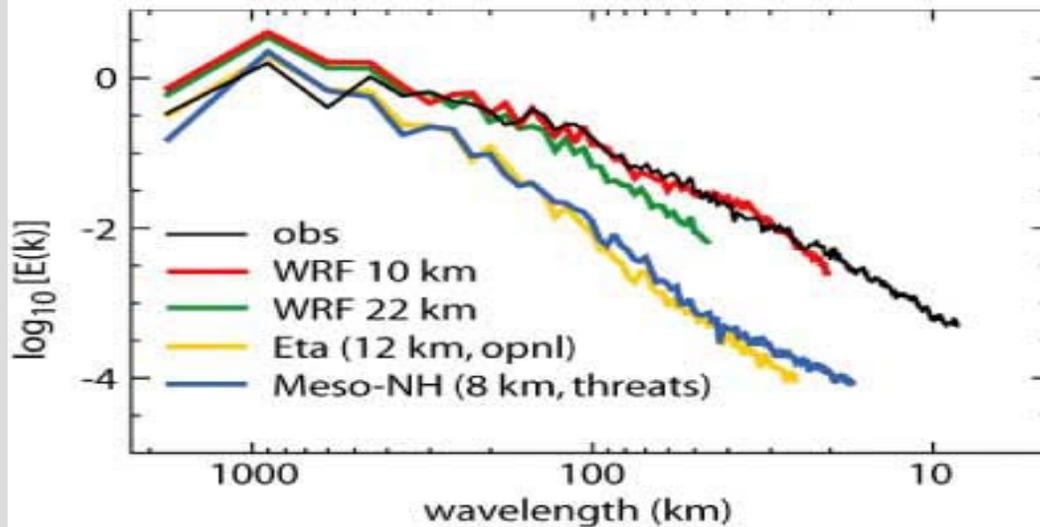
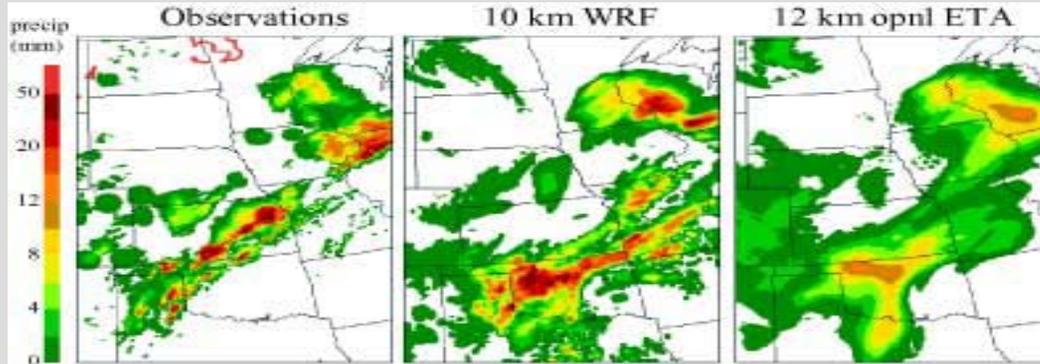
Fully Funded as of  
January, 2003



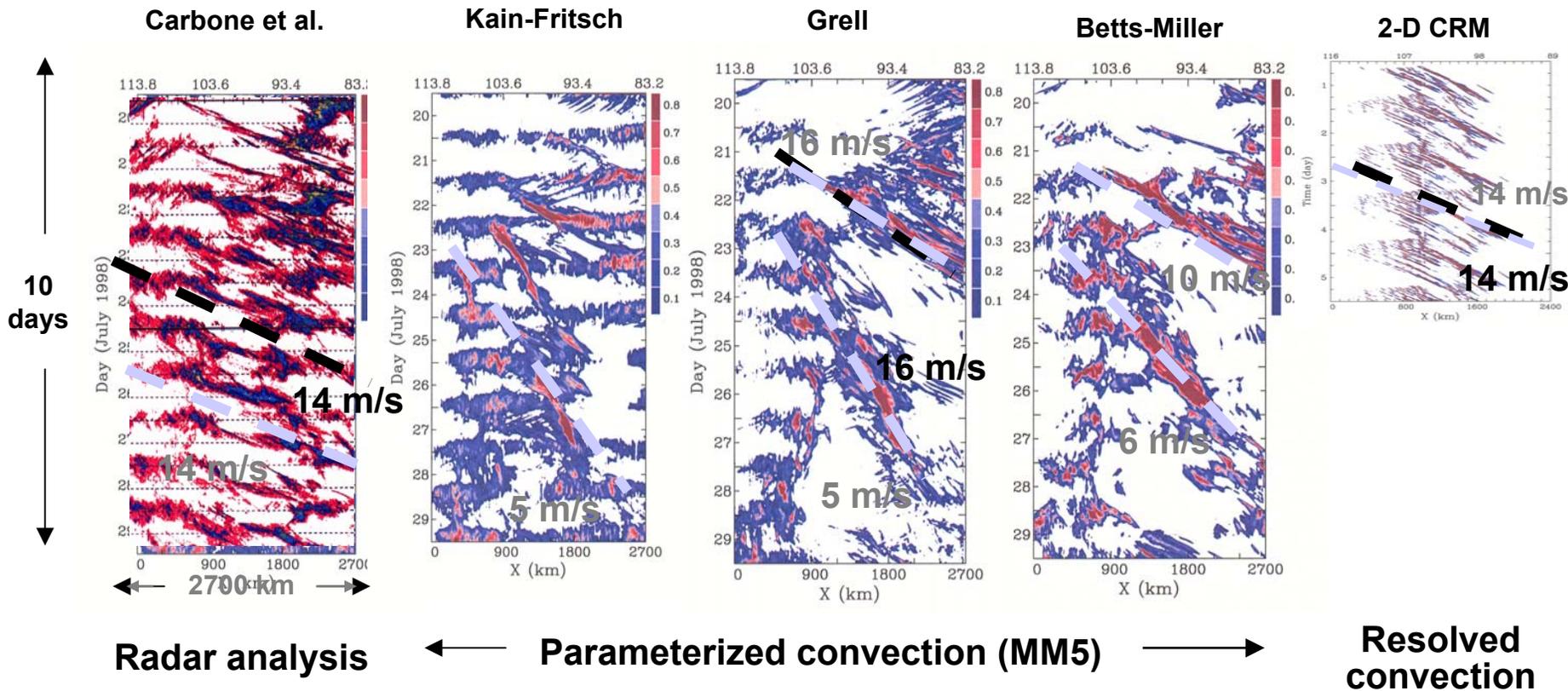
**NCAR**

# WRF Model Numerics:

**Goal:** *Improve forecast accuracy using high-order numerics*

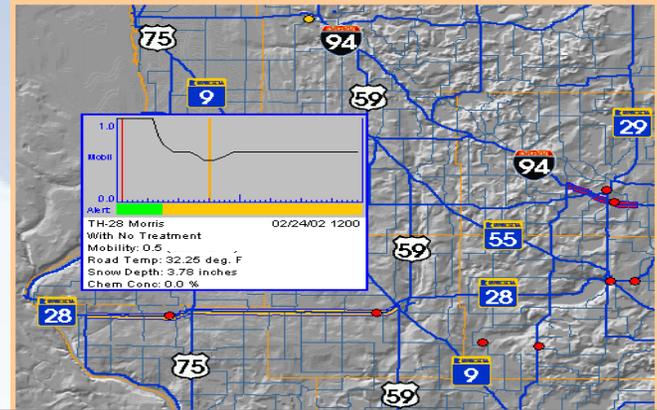


# “Breakthrough” in Warm Season Predictability for Convection - from Water Cycle Initiative



**Why? Organized convection is a product of coherent dynamical interactions among wind shear, latent heating and evaporative cooling. Parameterizations not designed to represent coherence.**

# RAP - Winter Road Maintenance Decision Support System



- A prototype tool for decision support to winter road maintenance managers.
- Iowa field demonstration February 3 through April 4, 2003.

**Treatment Selector**

### Treatment Selector for I-94 Alexandria

**Displayed Result:**

- Mobility
- Snow Depth on Road
- Road Surface Temp.
- Chemical Conc.
- Remaining NaCl Stock

**Snow Depth on Road**

**Treatments:**

Select **None**

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Select **Recommended**

(Re) Calculate **Treat and Plow NaCl 375.0 lbs/2-la-mi** [Shift 1] **Treat and Plow NaCl 350.0 lbs/2-la-mi** [Shift 2]

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Select **Alternative 1**

Delete Calculate **Treat and Plow NaCl 450.0 lbs/2-la-mi** [Shift 1] [Shift 2]

View Ops Database Add New Treatment Scenario Close

Java/Web Start Window

# The Community Climate System Model: Past, Present and Future

1993

1996

2000

2002

2003

2004

2005

2006

Development on CSM Begins

First Coupled Simulation: No Flux Corrections Needed

Formation of Working Groups

CSM Special Issue

Ocean Model MOM -> POP

Land Model LSM -> CLM

CSM changes to CCSM

CCSM2 Released to Community

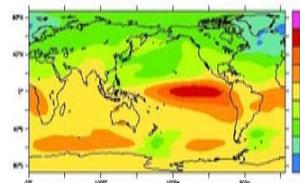
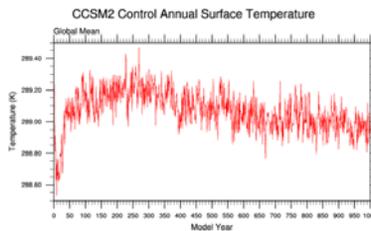
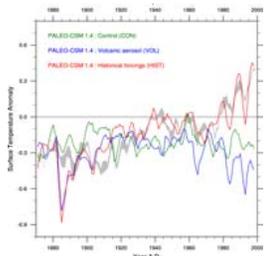
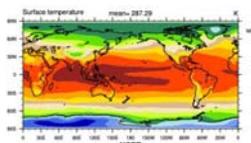
Interactive Aerosols

Coupled Carbon Cycle

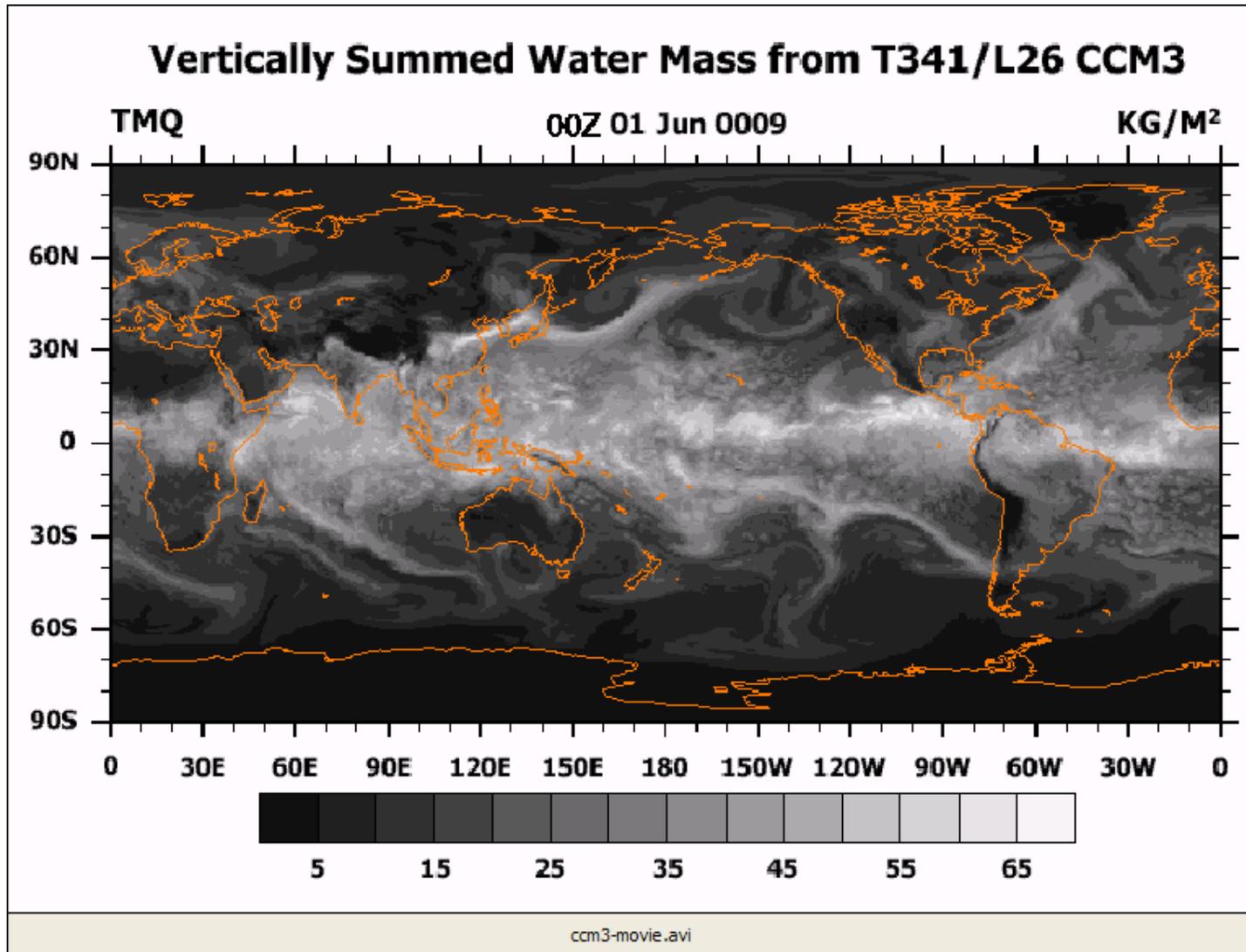
Coupled Chemistry

Glacial Model

IPCC FAR



# CCSM on the Japanese Earth Simulator



# Opportunity Space

- 1. Add value to Unidata network (access grid, data access, model intercomparisons, etc.)***
- 2. Unidata as a portal for large field campaigns***
- 3. Visualization, collaboratories, data mining applications***
- 4. Integrating research and education***

