Unidata Policy Committee

Tim Killeen
NCAR Director

February 27, 2003
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.
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
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)
Strategic Initiative Funding (Cont.)

Software Framework
Geographic Information Systems
Coronal Magnetic Field
Other Initiatives
Cyber-infrastructure
Education and Outreach
Wildland Fire
Impact Assessment
SCD Impact Assess. Computing*
Data Assimilation
Water Cycle
Biogeosciences

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

http://www.ucar.edu/educ_outreach/ulw/
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

Bluesky has tripled NCAR’s computing capacity and is the 10th largest system in the world.
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

The SN 677, the NSF-NCAR GV

Fully Funded as of January, 2003
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.
<table>
<thead>
<tr>
<th>Year</th>
<th>Event</th>
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<tbody>
<tr>
<td>1993</td>
<td>Development on CSM Begins</td>
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<tr>
<td>1996</td>
<td>First Coupled Simulation: No Flux Corrections Needed</td>
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<tr>
<td>2000</td>
<td>Formation of Working Groups</td>
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<td>2002</td>
<td>CSM Special Issue</td>
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<td>2003</td>
<td>Ocean Model MOM -&gt; POP</td>
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<td>2004</td>
<td>Land Model LSM -&gt; CLM</td>
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<tr>
<td>2005</td>
<td>CSM changes to CCSM</td>
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<tr>
<td>2006</td>
<td>CCSM2 Released to Community</td>
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</tbody>
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- Interactive Aerosols
- Coupled Carbon Cycle
- Coupled Chemistry
- Glacial Model
- IPCC FAR
CCSM on the Japanese Earth Simulator

Vertically Summed Water Mass from T341/L26 CCM3

TMQ 00Z 01 Jun 2009 KG/M²

90N 60N 30N 0N 30S 60S 90S
0 30E 60E 90E 120E 150E 180 150W 120W 90W 60W 30W 0

5 15 25 35 45 55 65

ccm3_movie.avi
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