Progress and Status of Education and Diversity (ED) February 2007

Feeding the Pipe

- By middle school, if students aren't interested in science, we've lost them …
- Strengthen Earth System Science education at all levels
  - Science isn't a body of knowledge, it's something you do!
  - Curiosity, inquiry, real research from "K-grave"
  - Teach new scientists how to teach
- Explain what we do to people who will decide what to do about it
- Draw from the diversity of the whole population not just a portion

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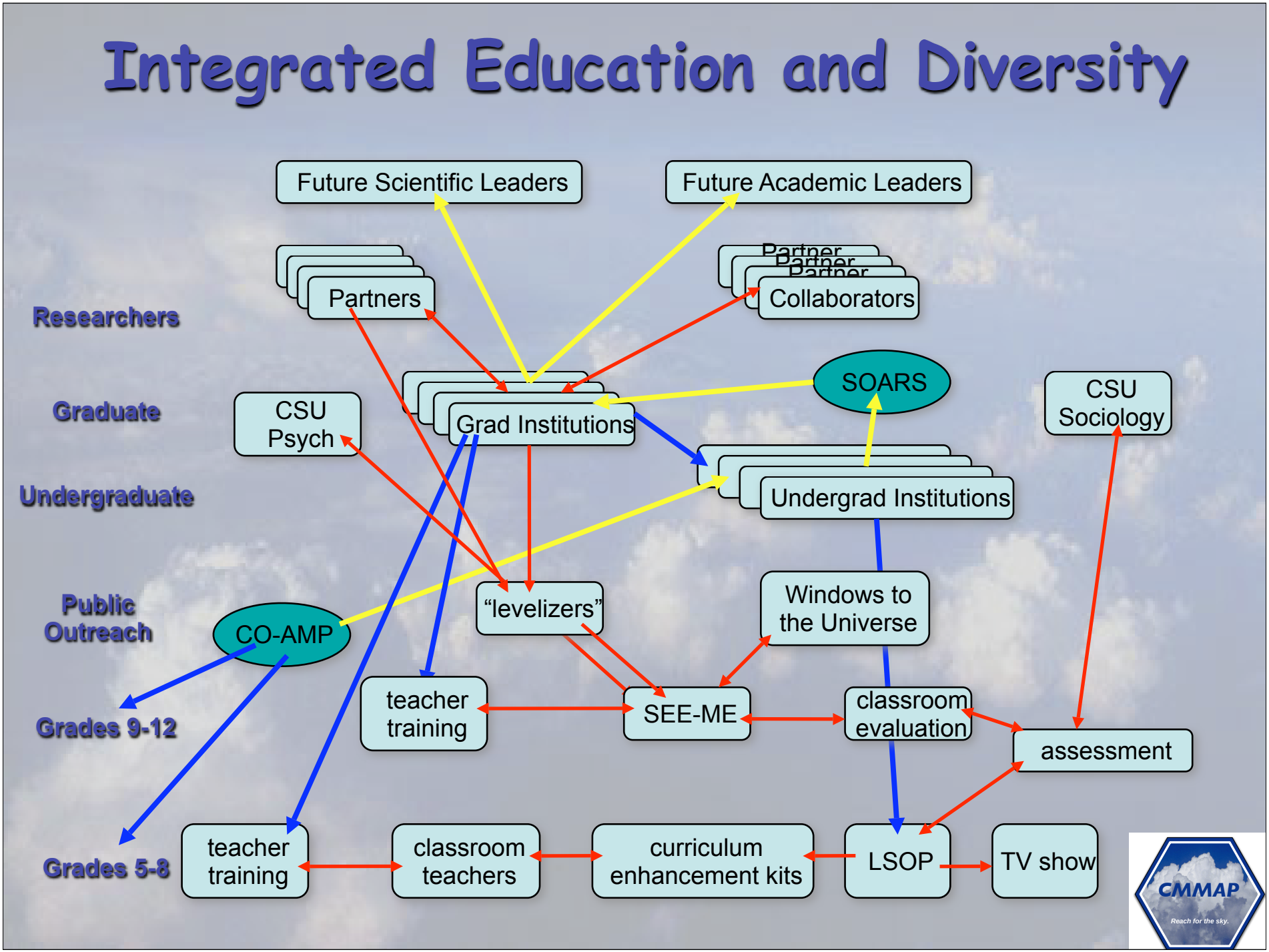
Integrated Education and Diversity



ED Accomplishments, Year 1

- Recruited and hired full-time ED Manager (Christine Aguilar) to guide day-to-day operations
- Organized interactions among K-12 activities in CMMAP, school districts, teachers, and partners
- Developed 12 new standards-based climate inquiry activities, and presented them to 20,000 K-12 students, through LSOP
- 2-credit climate course for 30 middle-school science teachers
- Colo Climate Conference for 300 high-school students
- Developed and organized climate science on UCAR web outreach site (over 1,000,000 unique users/month!)
- Undergrad-to-grad connections with Colo College
- Support for 19 CMMAP grad students at 6 Universities
- Public outreach based on IPCC Summary for Policymakers
- Opportunities in climate science for diverse students in elementary, high-school, undergrad, and grad school

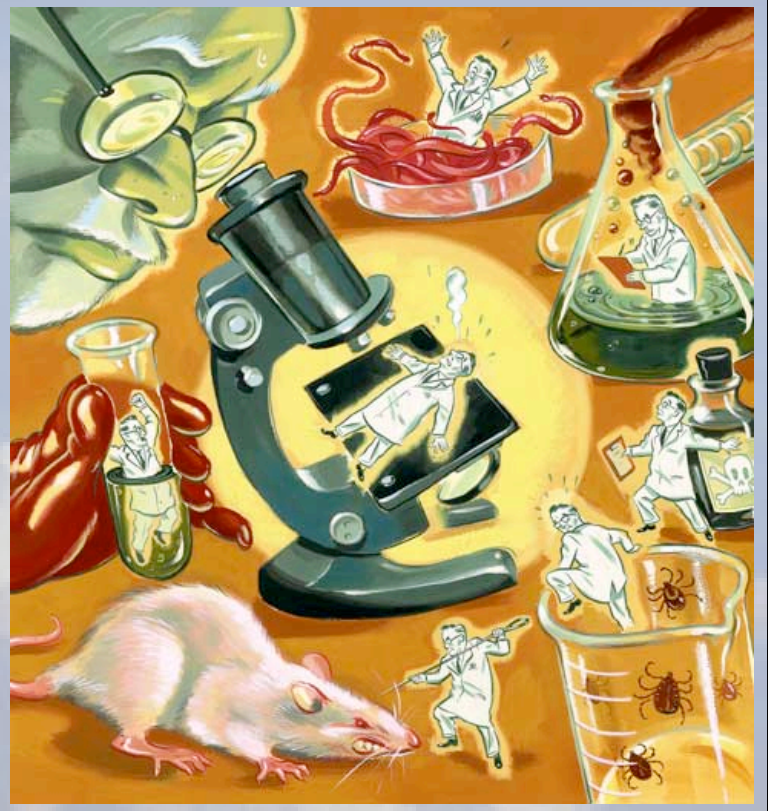
Introducing Christine Aguilar
CMMAP ED Manager

- Master's in Education Leadership
- Taught in public elementary, junior high, and high schools
- Managed federally-funded educational programs for PSD

- Day-to-day management of CMMAP ED work
- Coordinates progress reports from ED partners, organizes monthly telecons, and much of this meeting!
- christine@atmos.colostate.edu

Asking the Schools

"We're Scientists from the Government, and we're here to help you!"



Instead:

- Meetings ~monthly between CMMAP ED leads and School District Science leads
- Weekly after-school focus groups with classroom

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Little Shop of Physics

It's Up in the Air Tour!

- 12 new low-cost inquiry units with atmospheric focus
- Presentations to over 20,000 students this year

Teacher Training

- "Ten Things You Should Know About the Atmosphere"
- 300 K-12 teachers this year

TV, Video, Science Minutes

- *Everyday Science* PBS-TV & DVD
- *Air* in production, *Clouds* next
- *Science Minutes* in PSD Schools

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UCAR Web Outreach

Susan Foster, Randy Russell, tomorrow AM

- Guiding development of web content on climate, clouds, and modeling
  - beginner, intermediate, and advanced learners
  - both Spanish and English
- Providing key topics for K-12 standards-aligned development microworlds and virtual lab interactive educational tools
- Prototyped CMMAP public outreach web portal on Windows to the Universe
  - Your science content, "translated" by scientist-educators for learners of three levels in two languages!
- Developed online interfaces through which scientists can submit resources and information to web
- Outreach experts need input from you!!

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Principiante | Intermedio | Avanzado

Maestros:
¡Ayúdenos a ayudarlo!

Español
Inglés

Modelando el futuro del cambio de clima

Los enlaces en color anaranjado lo llevan a las páginas en Inglés, que aún no han sido traducidas al Español.

¡Las super computadores pueden realizar más de 80 millones de cálculos por hora!. ¿Cuán rapidamente

Para poder predecir el futuro de nuestro clima, los científicos necesitan herramientas para poder medir cómo responde la Tierra a los cambios. Algunas de estas herramientas son, modelos de clima global. Mediante el uso de estos modelos, los científicos pueden entender mejor cómo funciona la Tierra, y cómo reaccionará a los cambios futuros.

Los modelos de clima global usan matemáticas para describir cómo funciona la Tierra. Las super computadoras son necesarias para realizar amplios modelos de clima global. Algunas veces, estas veloces computadoras ¡pueden realizar más de 80 millones de problemas matemáticos en una hora!.

Generalmente, los modelos tratan de tener en cuenta

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Outreach to Public & Policymakers

Dr. Lyn Kathleen, tomorrow AM

- IPCC Summary for local & state officials (4-page glossy brochure)
  This is where climate policy is being determined!

- Future impacts briefs on energy, water resources, forest management, agriculture, tourism
- Climate impacts and policy process for CGCC

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Colorado Global Climate Conference

Dave Swartz, PSD, later today

- Day-long climate symposium April 13 @ Rocky Mtn High School (300 students)
- Keynote by Susan Solomon, followed by symposia and activities on climate system, modeling, energy, mitigation, policy, economics, and solutions
- Recruiting and career information
- Emphasis on underrepresented groups and underserved regions of CO

Undergrad-to-Grad Links

- Academic content in climate courses developed and tested at Colorado College (Prof. H. Drossman)
- Internships for CMMAP grad students to teach these courses
  - block structure: semester course in 3 weeks
  - CSU student Luke van Roekel taught 2007
- Undergrad research internships
  - Rebecca Simpson from CC in 2006 (now a CSU grad student!)

Diversity

- Climate content and recruiting to 400 ethnic minority high-school students in summer 2007 (CO-AMP)
- Residential internships for 3 undergrads in Boulder (SOARS)
- Full support for 2 minority grad students (SOARS), and half-time scholarships for two others (CSU)
- CMMAP participation in STC-wide "Broadening Participation" workshop & recruiting next month

Bridging A Cultural Divide

- Funding for Education and Diversity elements is about 1/3 of CMMAP
- "Scientists" and "Educators" sometimes seem to come from different planets!
  - Roll their eyes at each other
  - Sit at different tables at the bar
- "Teachers" sometimes hug each other! but "scientists" ahh … don't

"Back off, Man ... I'm a Scientist"

- My group of 22 is supported by 13 projects
- Over 60 pubs
- I'm a teacher
- Kids are in 4th and 8th grade
- How about you?

Science is fun, and I want to show people!

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What Our Reviewers Said

"The lack of significant direct connections between the scientists and the below-graduate-level components of the education and outreach agenda limit the potential benefits both to the students and the scientists."

What did they mean?

Potential benefits to the scientists?

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What to Do About This

- Educators are learning about climate!
- Scientists to "rotate through" the ED Committee (need your help)
- Exercise about your options to turn research into outreach!
  - UCAR E&O will do the heavy lifting for you, let you reach millions of people!
  - CIPP can help connect you to policy process
- Attend breakouts to find out how!

ED Breakout Sessions

- Today 3 to 5 PM
  K-12, Public Outreach, Policymakers

- Tomorrow after lunch
  Undergrad and Graduate Education
- Tomorrow evening:
  Training on UCAR web outreach tools

- Thursday 10:45 - 11:45

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Preview of Breakout Sessions

- What will be done for each objective
- Who will do what
- Specific plans for the next 6 months
- Milestones and metrics
- Research and ED integration