



# **Building Partnerships Between CMMAP Scientists and Educators for K-12 and Public Outreach**

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A sunset over the ocean with a palm tree silhouette in the foreground. The sky transitions from a deep blue at the top to a vibrant orange and red near the horizon, with the dark blue of the ocean at the bottom. The palm tree's fronds are silhouetted against the colorful sky.

# Overview

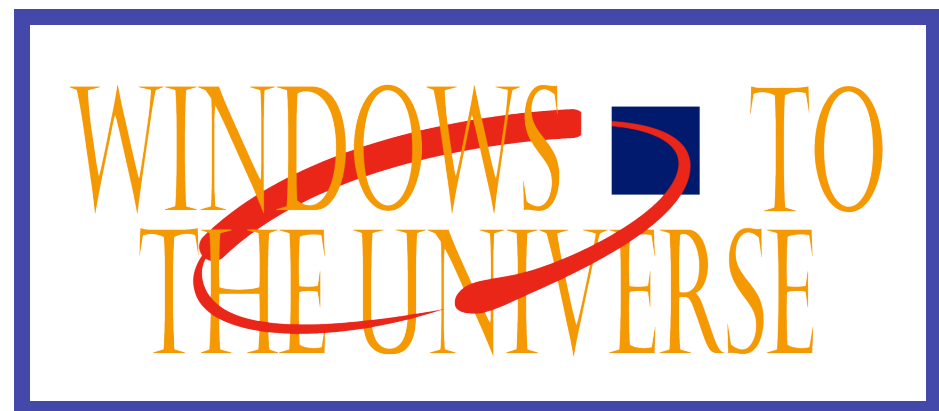
- Our objectives and accomplishments
- E and O roles for CMMAP scientists
- Things that we can do together now



# Our Strategic Objectives

Disseminate educational resources broadly to K-12 students/teachers and public

- Create Windows to the Universe web-based content and interfaces that are meaningful, interesting, and useful
- Develop online microworlds and virtual lab interactive learning tools as enrichment to K-12 curriculum (SEE-ME)



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# What have we accomplished?

- Outlined concepts of importance to K-12 educators about clouds, weather, climate, and modeling
  - Guiding development of web content for beginner, intermediate, and advanced learners (in Spanish and English)
  - Identifying key topics for creating K-12 standards-aligned interactive educational tools (SEE-ME)
- Prototyped a CMMAP public outreach web portal on Windows to the Universe Web site which will
  - Stream-lining access to CMMAP K-12 curriculum enhancement resources for teachers
  - Promoting general public science literacy about research through the CMMAP example
- Developed online interfaces through which scientists can submit resources and information to the web site



## Scientists are experts and career role models in science, technology, engineering, and mathematics...contributing to overall public science literacy



- Personalize research by telling your story
- Motivate students to strive for academic excellence
- Reveal and share excitement for cutting-edge technology, visualizations, and modeling
- Demystify and illustrate the process of research and its benefits to society





# Scientists enhance teachers' knowledge of science and the scientific endeavor

- Explain research and fundamental scientific principles behind it
  - Speak in professional development workshops
  - Answer questions in person, on web sites, by phone, or by mail
  - Provide tours of labs, field sites, facilities
- Help teachers to relate what they teach to current research and discoveries
  - Include them in “teacher-in-residence” lab and field experiences
  - Participate as an equal partner with them in learning

# Scientists visit K-12 classrooms and are advocates for improving STEM education locally, nationally, and internationally

## Familiar with K-12 classroom setting

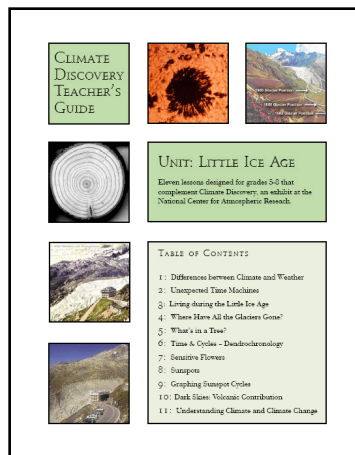
- Know what to expect when they get there
- Engage and relate well to students
- Align content appropriately for grade level

Informed about challenges – helping as we can!



# Scientists are technical advisors for content development in many different media

- **Inform and validate the accuracy of resources**
  - Draft or provide explanations about research that we can adapt for educational purposes
  - Serve as a point person for clarification of scientific concepts
- **Provide scientific expertise and feedback** to aid in development of educational kits, visualizations, modules, and interactive tools
- **Share ideas and suggestions** about potential resources for education







## How we can help you!

- Many helpful resources, and more on the way...
  - [www.windows.ucar.edu](http://www.windows.ucar.edu)
  - Collections of hands-on science education activities for K-12 classrooms
  - Tips from “Scientists in the Schools”
  - Easy-to-do and build science demonstrations
  - Weather, clouds, climate, and modeling CMMAP-related web-based information
- Support in reaching diverse audiences
- Sounding board for your ideas and questions



# How you can help us!

- CMMAP E & O Web Portal
- Postcards from the Field and Lab
- CMMAP microworlds