

# U.S. Department of Energy ACRF Education and Outreach Resources

The U.S. Department of Energy's Atmospheric Radiation Measurement (ARM) Climate Research Facility (ACRF) supports education and outreach efforts in communities located near its research sites. The ACRF research sites are located in the Southern Great Plains, Tropical Western Pacific, and North Slope of Alaska. The mission of ACRF Education and Outreach is to promote science education and increase climate change awareness by focusing on three goals: student enrichment, teacher support, and community outreach.

## Student Enrichment and Teacher Support

ACRF Education and Outreach communicates with educators from each site's region to address local science education needs. In addition to providing lesson plans and other curriculum enrichment tools, ACRF Education and Outreach organizes teacher workshops to train teachers to use the materials. Teacher workshops include site tours, climate change presentations, and classroom activity demonstrations.



*Teachers take a tour of the Nuru site in the Tropical Western Pacific.*



*Children view the North Slope of Alaska kiosk.*

## Curriculum Modules

In collaboration with several agencies and universities from the Pacific, ACRF Education and Outreach published two curriculum enrichment books for Tropical Western Pacific teachers. A great resource for teachers everywhere, *Climate Change and Sea Level* addresses the physical and social science of climate change. The modules



North Slope of Alaska teachers attend an ACRF teacher workshop.

contain basic concepts and associated lessons on the atmosphere, ocean, weather, and climate.

## Community Outreach

ACRF Education and Outreach recognizes the value of traditional knowledge of the environment and climate change. An important vehicle for community outreach involves ACRF-sponsored workshops and community meetings. Other efforts include the design and installation of interactive kiosks, which serve as climate change educational tools.

### Kiosks

ACRF Education and Outreach has developed computer-based kiosks integrating ARM science with traditional ecological knowledge from site communities. Kiosks include interviews with ARM scientists to provide users with basic climate change information, as well as interviews with elders and community leaders to discuss the local impacts of climate change on all aspects of village life. The North Slope of

Alaska kiosk, titled *Climate Change: Science and Traditional Knowledge*, was installed at the Inuit Heritage Center in Barrow, Alaska. Similar kiosks are being installed at the Tropical Western Pacific sites at Papua New Guinea, Nauru, and Darwin, Australia.

## ACRF Education and Outreach Website

The ACRF Education and Outreach website (<http://education.arm.gov>) brings the three education and outreach goals together and makes learning and teaching about climate change easy and fun. The website is hosted by Professor Polar Bear, from the North Slope of Alaska; Teacher Turtle, from the Tropical Western Pacific; and PI Prairie Dog, from the Southern Great Plains. Specialized sections meet the needs of students and educators: Homeroom, Study Hall, and Teachers' Lounge.

**Homeroom** provides information about ACRF Education and Outreach, including links to newsletters and information about the kiosks.

Written for educators, the *Climate Education Update* newsletter is distributed three times a year. It is filled with articles about climate science. Each issue features at least one lesson or activity to use in conjunction with the topics found in the newsletter. Teachers can subscribe by writing to ACRF Education and Outreach.

**Study Hall** is a great place for students to get homework help. It features the Ask a Scientist center, climate change information, quizzes, and links to cool sites. The Just for Fun section offers games and the ACRF award-winning activity book, *Climate, Coloring, Crosswords...and Other Fun Stuff!*, which includes coloring pages, word searches, dot to dots, and other activities.

The Ask a Scientist center gives students an opportunity to submit a question about climate, science, or weather to an ARM scientist. Questions are answered regularly, and frequently asked questions are posted on the main "ask a scientist" page.

**Teachers' Lounge** provides lesson plans and background information to help teach the basics of climate science.

ACRF Education and Outreach has developed lessons that require students to investigate their own weather and climate. The lessons cover a wide variety of topics including cloud formation, water cycle, melting sea ice, and the greenhouse effect. Each lesson is accompanied by a hands-on activity, which includes a list of materials, a step-by-step procedure, and a summary of important concepts.

### For more information, contact:

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