

# Tools for Teaching Climate Change Studies

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## Introduction

The Atmospheric Radiation Measurement Climate Research Facility (ACRF) develops public outreach materials and educational resources for schools. Studies prove that science education in rural and indigenous communities improves when educators integrate regional knowledge of climate and environmental issues into school curriculum and public outreach materials. In order to promote understanding of ACRF climate change studies, ACRF Education and Outreach has developed interactive kiosks about climate change for host communities close to the research sites. A kiosk for the North Slope of Alaska (NSA) community was installed at the Iñupiat Heritage Center in 2003, and a kiosk for the Tropical Western Pacific locales will be installed in 2005. The kiosks feature interviews with local community elders, regional agency officials, and Atmospheric Radiation Measurement (ARM) Program scientists, which highlight both research and local observations of some aspects of environmental and climatic change in the Arctic and Pacific. The kiosks offer viewers a unique opportunity to learn about the environmental concerns and knowledge of respected community elders, and to also understand state-of-the-art climate research. An archive of interviews from the communities will also be distributed with supplemental lessons and activities to encourage teachers and students to compare and contrast climate change studies and oral history observations from two distinct locations.

The U.S. Department of Energy's ACRF supports education and outreach efforts for communities and schools located near its sites. ACRF Education and Outreach has developed interactive kiosks at the request of the communities to provide an opportunity for the public to learn about climate change from both scientific and indigenous perspectives. Kiosks include interviews with ARM scientists and provide users with basic information about climate change studies as well as interviews with elders and community leaders discussing the impacts of climate change on land, sea, and other aspects of village life.



*Community leaders from Manus Island are pictured above discussing climate change impacts on Pacific islands. Adults and children from surrounding villages gather to listen.*

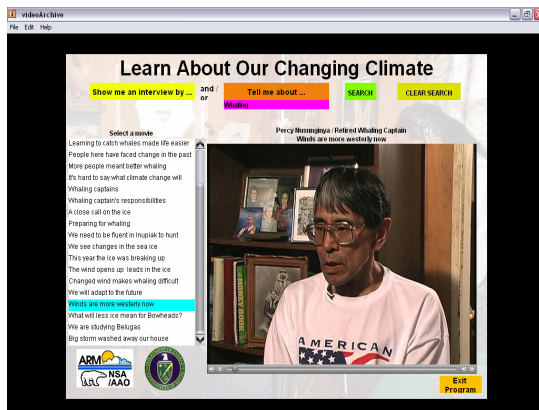
## Milestones

**NSA Kiosk:** Permanently on display at the Iñupiat Heritage Center in Barrow, Alaska, the kiosk is a public awareness tool about climate change science and impacts on the North Slope of Alaska.



*Students view NSA kiosk at the Iñupiat Heritage Center*

**NSA DVD Archive:** Designed to run on a personal computer, users can search through video clips by an interviewee's name or by a topic of interest. Footage from the filming process for the NSA kiosk has been integrated into an archive of 305 video clips from 28 interviewees.



*Percy Nusunginya, a retired whaling captain from Barrow, Alaska, talks about his observations of changing wind patterns on the North Slope.*

**TWP Kiosk:** Filmed in August 2003, the kiosk features interviews with community elders and government officials from Manus, Papua New Guinea; Republic of Nauru; and Darwin, Australia. The kiosk documents traditional knowledge of the environment and observations of climate change in the Pacific communities.



*Trade Wind Communications films for the TWP kiosk.*

## Kiosks Help Communities Connect With ARM Science

Impacts of climate change are always observed by indigenous people who have inhabited their regions for thousands of years. Indigenous knowledge of the environment is rooted in years of subsistence living, which requires keen awareness of the weather and climate. Even slight changes in temperature or precipitation patterns may affect hunting, fishing, or agricultural practices.

- Studies show that science education in rural communities improves when educators integrate regional knowledge of environmental issues into school curriculum and public outreach materials.
- ARM kiosks provide basic but important information about climate change and how it is studied.
- Kiosks and archive encourage students to utilize local knowledge and establish one-on-one communication with elders and scientists to learn about past and current climate.
- Communities benefit from kiosks as they serve as open forums to discuss environmental changes and the research being done to understand and address the impacts of those changes.
- Kiosks provide ARM scientists with an opportunity to explain their research and its importance to the global community.

*“There have been, in our oral traditions, indications of adaptation based on what is happening in the climate. I am sure that, as before, adaptations will be made to accommodate changes due to warming because we are always evolving.”*

*Jana Harchareck, Educator  
Barrow, Alaska*



## Community responses

Since October 2003 when the NSA kiosk was installed, 14, 642 people have visited the Iñupiat Heritage Center. Director Beverly Hugo reports that about twenty percent of visitors take time to view the kiosk. In addition, more than 200 copies of the NSA kiosk have been requested by teachers and interested persons from across the United States.

Tropical Western Pacific communities are looking forward to the installation of the ARM kiosks in Manus, Nauru, and Darwin. Many interviewees express concern about climate change as well as an urgency to educate themselves and the next generation about climate science and research.



*“I’m concerned...I would like the future generation to be looking at things more closely and really thinking it through. What they do to their island now, even though they think it isn’t going to do much...it might, and [Nauru] is just one small island...where are they going to go after that?”*

*Limay Uera  
Nauru Island*

## **Conclusion**

In addition to the current kiosk initiatives, ACRF Education and Outreach also provides additional resources to teachers and students, including newsletters, lesson plans, teacher workshops, and web-based tools. More information about ACRF Education and Outreach can be found on-line at [www.education.arm.gov](http://www.education.arm.gov).