

WHAT WE DO

PREPARING STUDENTS AND TEACHERS FOR THE 21ST CENTURY



Summer Institute Research Internships



We recruit students motivated by science learning and teachers interested in real world science problem solving to research teams at GISS. Each summer, 35-45 students in grades 9-16, primarily from underrepresented groups in science (women, Latinos, Hispanics, African-Americans, Native Americans and Pacific Islanders), and science teachers of grades 7-12 from the New York City metro area receive internships, often for 2 to 3 consecutive summers. During 5 to 8 weeks at GISS, teams tackle front-line climate research problems. Current ICP research topics are: Alternative Energy Scenarios for the 21st Century; Storms, Clouds and Climate Warming; Climate Impacts in New York City; Global Methane and Future Climate; Aerosols, Climate and Health; Modeling the World's

Oceans; Carbon Sequestration and Climate Change in New York; and Green Roofs. Working alongside leading researchers, students and teachers collect data and perform various analyses on climate, environmental and socio-economic variables to advance scientific understandings. By design, research team members represent various levels on the path to science and technology literacy and careers. Each week interns participate in research training and science writing workshops. They discuss the relevance of their research in Science and Society Seminars. The culminating event is a research conference.



Research Education Web Site ~ <http://icp.giss.nasa.gov>

This educational resource connects classrooms to the NASA research frontier by giving students roles in ongoing investigations. The web site offers learning modules and student research projects that address important climate change and environmental science questions and national science and mathematics standards. Topics include: 1) Aerosols, Climate and Health, 2) What Determines a



Planet's Climate? 3) Global Methane Inventory, 4) The Carbon Question and 5) Clouds, Storms and Climate Change. Each year, this powerful classroom resource gives teachers access to instructional materials to draw 500-600 students into authentic problem solving about the world we live in. Presented with a science problem, students seek answers and consensus by experimenting with physical and computer models, collecting and analyzing their own measurements, and conducting inter-comparisons with real world data from satellites and ground-based observations. Building from basic to in-depth knowledge, each module helps students understand science concepts such as the Carbon Cycle,

Greenhouse effect, energy, gas laws and atmospheric circulation. The overall aim is for students to develop a scientific view of our environment as a system of human and natural processes that result in changes over various space and time scales.

Research and Education Conference

At this daylong annual conference, more than 100 students, teachers and scientists on earth and space science research teams in New York City share their findings and discoveries. They discuss the relevance of their results to important issues of the day such as pollution, climate change, health, land-use and change, water resources, energy and coastal hazard vulnerability. The conference theme is **Linking Climate Research and Literacy to Environmental Decision-Making**. In attendance are more than 200 representatives from government, higher education, secondary schools, science and education agencies, aerospace businesses, and the media. The day begins with research briefings that reveal views of the earth from various vantage points. A Science and Society luncheon features the keynote address. Past speakers have included former NASA Administrator Daniel Goldin, NASA Astronaut Franklin Chang-Diaz, New York Hayden Planetarium Director Neil deGrasse Tyson and Earth Institute at Columbia University Director Jeffrey Sachs. Afternoon workshops introduce teachers to the research education modules.

