National Aeronautics and Space Administration

Education Product	
Educators	Grades 5-8

1998-1999

NASA...On the Cutting Edge

Educational Live Shows

Explorations in Science, Mathematics, and Technology for Pre-College Education

OUR WATER PLANET FROM SPACE

Program 1: Oceans in Motion!

Live Broadcast: October 21, 1998

2:00 - 2:30 p.m. EST

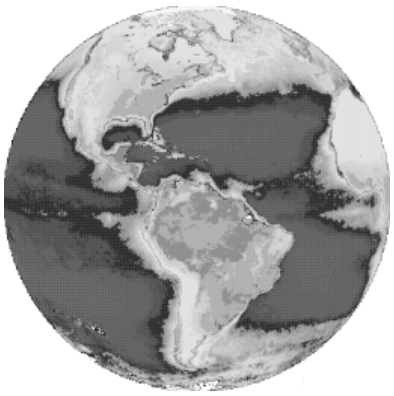
Program 2: The Color of Oceans

Live Broadcast: October 22, 1998

2:00 - 2:30 p.m. EST

EV-1998-09-016-HQ

OUR WATER PLANET FROM SPACE

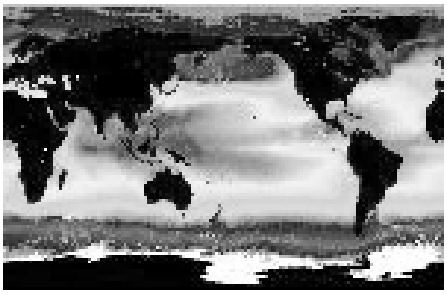


Oceans in Motion!

October 21, 1998
2-2:30 p.m. EST

Ocean circulation - the movement of water carrying heat and matter - not only affects life in the oceans but also weather and climate around the world. Because the oceans are so expansive, covering two-thirds of Earth, the only way to study them on a broad scale is by observing them from space. NASA and its partners use this unique vantage point to measure ocean height, winds, and temperature. Come learn about these ocean features, how ocean circulation works, and the important role it plays in our lives.

The Color of Oceans



October 22, 1998
2-2:30 p.m. EST

How blue is the deep, blue sea? Oceans are actually many shades of blue, green and even red. This spectrum of color tells us a lot about the health of our oceans, which affects life on Earth. NASA's ocean-color observations from space give us the big picture of oceans and help to understand the role oceans play in global change. Discover the excitement and importance of viewing from high above Earth this ever-changing portrait of ocean productivity, ecosystems, and human impacts.

For more information about this and future NASA... On the Cutting Edge programs, please visit the homepage at:
http://www.okstate.edu/aesp/VC.html

NASA... On the Cutting Edge is produced for NASA's Education Division by the Teaching From Space Program through Oklahoma State University (OSU) in cooperation with OSU's Educational Television Services, NASA Television, collaborating distance learning networks, and educational television providers.

FEATURED NASA SCIENTISTS

DR. BILL PATZERT
JET PROPULSION LABORATORY

Dr. Bill Patzert, sometimes called "Dr. El Niño," has been a research oceanographer at the Jet Propulsion Laboratory (JPL) in Pasadena, California since 1983. Before joining JPL, Dr. Patzert was a faculty member at the Scripps Institution of Oceanography in LaJolla, California for eleven years. His research began at sea studying the influence of the oceans on global climate variability. Recently he has focused on the application of NASA satellite data to better our understanding of important environmental problems ranging from improving El Niño predictions to monitoring coral reefs. Dr. Patzert works with high school, undergraduate and graduate students from around the world and appears frequently on national TV representing NASA and JPL.

DR. GENE FELDMAN
GODDARD SPACE FLIGHT CENTER

Dr. Gene Feldman is an oceanographer at the NASA Goddard Space Flight Center (GSFC) in Greenbelt, Maryland where he has been involved with observing the oceans from space since 1985. Gene's other experiences have included serving as a Peace Corps Volunteer in Western Samoa, and as a fisheries biologist in Seattle, Alaska and San Diego. At GSFC, Gene works with the SeaWiFS (Sea-viewing Wide Field-of-view Sensor) mission. There is no question that the Earth is changing, and SeaWiFS enables us for the first time to monitor the biological consequences of that change - on land and in the oceans - to see how the things we do, and how natural variability, affect the Earth's ability to support life. Gene is very active in the education community and has worked with groups such as the Smithsonian Institution, the National Geographic Society and the JASON Foundation for Education.

NASA... On the Cutting Edge would not be possible without the support and participation of educators, students, and members of the community.

THE NASA EARTH SCIENCE ENTERPRISE

Since its creation in 1958, the National Aeronautics and Space Administration (NASA) has been studying the Earth and its changing environment by observing the atmosphere, oceans, land, ice, and snow, and their influence on climate and weather. We now realize that the key to gaining a better understanding of the global environment is exploring how the Earth's systems of air, land, water, and life interact with each other. This approach -- called Earth System Science -- blends together fields like meteorology, oceanography, biology, and atmospheric science.

The Earth Science Enterprise (ESE) is a leader in the discipline of Earth system science. NASA is working in concert with other U.S. and international organizations, using satellites and other tools to intensively study the Earth in order to substantially improve our understanding of how natural processes affect us and how we might be affecting them. Such studies will yield improved weather forecasts, tools for managing agriculture and forests, information for fisherman and local planners, and the ability to predict how climate will change in the future.

ESE has three main components: a series of Earth-observing satellites, an advanced data system, and teams of scientists who are studying the data.

Key areas of study are:

- Land-Cover/Land-Use Change Research
- Seasonal-to-Interannual Climate Variability and Prediction
- Natural Hazards Research and Applications
- Long-Term Climate: Natural Variability and Change Research
- Atmospheric Ozone Research

Today's program is laying the foundation for long-term environmental and climate monitoring and prediction. Potentially, this will provide the understanding needed in the future to support difficult decisions regarding the Earth's environment.

To find out more about NASA's Earth Science Enterprise, please visit:
http://www.hq.nasa.gov/office/ese/whatis/index.html

NASA Field Center Roles and Missions in Earth Science

Goddard Space Flight Center

Scientific Research/Earth System Science
ESE Flight and Ground Systems/ESE Technology Development
Comprehensive Earth Science and Interdisciplinary Earth System Science
Mission Management/Technology Development (Instruments, Spacecraft, Ground Systems)/Airborne Science Operations (Wallops Flight Facility)

Jet Propulsion Laboratory

Instrument Technology
New Millenium Earth Observing Systems
Oceanography, Solid Earth Sciences, and Atmospheric Chemistry
Instrument Development

Langley Research Center

Atmospheric Science
Atmospheric Aerosols and Chemistry, Earth Radiation Budget
Atmospheric Science-related Technologies, Engineering, and Instrument Development

Stennis Space Center

Commercial Remote Sensing
Coastal Research

Dryden Flight Research Center

Atmospheric Flight Operations
Airborne Science Operations

Ames Research Center

Information Technology/Astrobiology
Terrestrial Ecology and Atmospheric Assessments
Information Systems and Technology/Airborne Instrument Development

Marshall Space Flight Center

Hydrometeorology/Hydroclimatology, including Passive Microwave Data Analysis and Atmospheric Electricity/Land Processses/Regional Applications
Instrument Development

EDUCATIONAL RESOURCES

The **SeaWiFS Project Homepage** provides information about the project, has plenty of images to download, and has a teacher's guide about ocean color:

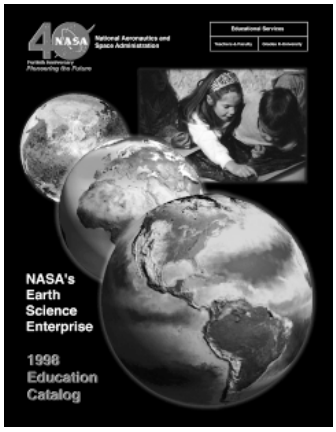
http://seawifs.gsfc.nasa.gov/SEAWiFS.html

The **TOPEX/Poseidon** website provides information about the mission, science information and data, educational resources, and related web links:

http://topex-www.jpl.nasa.gov

The NASA Earth Science Enterprise 1998 Education Catalog provides information about Agency-wide Earth science education programs and resources (lithographs, teachers' guides with classroom activities, posters, Internet sites, videotapes, CD-ROMs, and slide sets with scripts) for elementary through university levels. Visit Spacelink or the Earth Science Enterprise homepage to find the catalog:

http://www.hq.nasa.gov/office/ese/education/



The **GSFC Distributed Active Archive Center (DAAC)** provides data and related services for global change research and education:

http://daac.gsfc.nasa.gov

The **Physical Oceanography Distributed Active Archive Center (PODAAC) at JPL** archives and distributes data related to the physical state of the oceans, serving the oceanographic and geophysical sciences research communities and providing data in support of interdisciplinary research:

http://podaac-www.jpl.nasa.gov/

NASA ON-LINE RESOURCES

NASA's LEARNING TECHNOLOGIES PROJECT

To ensure wide student participation in NASA... On the Cutting Edge programs, NASA scientists will be available to chat via the Internet with students through Quest, an on-line service connecting K-12 classrooms to NASA people. For the upcoming NASA... On the Cutting Edge programs, Quest (**http://quest.arc.nasa.gov**) will support interactions between viewers and NASA guests before, during, and after the television programs, including both live chats and e-mail question answering. In addition, the program will be simulcast live on the web on the NASA Learning Technologies Channel (**http://quest.arc.nasa.gov/ltc/**), and sneak previews will be available on-line. Both Quest and the Learning Technologies Channel are part of NASA's Learning Technologies Project. **To learn more about the Learning Technologies Project, visit the following address: http://learn.ivv.nasa.gov**

NASA EDUCATION HOME PAGE

NASA's Education Home Page serves as the cyber-gateway to information regarding educational programs and services offered by NASA for educators and students across the United States. This high-level directory of information provides specific details and points of contact for all of NASA's educational efforts, Field Center Offices, and other resources. NASA's on-line resources specifically designed for the educational community are highlighted, as well as home pages offered by NASA's four areas of research and development (including the Aeronautics and Space Transportation Technology, Earth Science, Human Exploration and Development of Space, and Space Science Enterprises). **Visit this resource at the following address: http://www.nasa.gov/education/**

NASA SPACELINK

NASA Spacelink is one of NASA's electronic resources specifically developed for the educational community. Spacelink is a "virtual library" in which local files and hundreds of NASA World Wide Web links are arranged in a manner familiar to educators. Spacelink is the official home to electronic versions of NASA's Educational Products. NASA educator guides, educational briefs, lithographs, and other materials are cross-referenced throughout Spacelink with related topics and events. Spacelink is also host to the NASA Television Education File schedule. NASA Educational Products can be accessed at the following address: http://spacelink.nasa.gov/products

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NASA...On The Cutting Edge
Our Water Planet From Space

EDUCATOR REPLY CARD
Video Resource Guide

To achieve America's goals in Educational Excellence, it is NASA's mission to develop supplementary instructional materials and curricula in science, mathematics, geography, and technology. NASA seeks to involve the educational community in the development and improvement of these materials. Your evaluation and suggestions are vital to continually improving NASA educational materials.

Please take a moment to respond to the statements and questions below. You can submit your response through the Internet or by mail. Send your reply to the following Internet address:

http://ehb2.gsfc.nasa.gov/edcats/cutting_edge.html

You will then be asked to enter your data at the appropriate prompt.

Otherwise, please return the reply card by mail. Thank you.

1. With what grades did you use the video and video resource guide?

Number of Teachers/Faculty:

_____ K-4 _____ Community College

_____ 5-8 _____ College/University - Undergraduate

_____ 9-12 _____ College/University - Graduate

Number of Students:

_____ K-4 _____ Community College

_____ 5-8 _____ College/University - Undergraduate

_____ 9-12 _____ College/University - Graduate

Number of Others:

_____ Administrators/Staff _____ Professional Groups

_____ Parents _____ Civic Groups

_____ General Public _____ Other

2. What is your home 5- or 9-digit zip code? __ __ __ __ __ — __ __ __ __

3. How was the quality of this video and video resource guide?

☐ Excellent ☐ Good ☐ Average ☐ Poor ☐ Very Poor

Fold along line and tape closed.

4. How did you use this video and video resource guide?

☐ Background Information
☐ Critical Thinking Tasks
☐ Demonstrate NASA Materials
☐ Demonstration
☐ Group Discussions
☐ Hands-On Activities
☐ Integration Into Existing Curricula
☐ Interdisciplinary Activity
☐ Lecture
☐ Science and Mathematics Standards Integration
☐ Team Activities
☐ Other: Please specify: _____

5. Where did you learn about this video and video resource guide?

☐ NASA Educator Resource Center
☐ NASA Central Operation of Resources for Educators (CORE)
☐ Institution/School System
☐ Fellow Educator
☐ Workshop/Conference
☐ Other: Please specify: _____

6. What features of this video and video resource guide did you find particularly helpful?

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7. How can we make this video and video resource guide more effective for you?

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8. Additional comments:

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