NOAA REPORT

Vol. VI, No. 3 March 1997

Greenhouse More 'Effective' than Thought: The global climate system might be more sensitive to the greenhouse effect than many scientists think, according to a paleoclimatologist at the National Geophysical Data Center, who reports his findings in the February 20 issue of Nature magazine.

NOAA scientist Robert S. Webb and a team of scientists performed a series of global climate simulations. They found that incorporating near-modern ocean heat transports, reduced glacial atmospheric carbon dioxide levels, and large terrestrial ice sheets, together

News Briefs

with feedback mechanisms, are sufficient to lower annual average global surface temperature by 8 degrees Centigrade (14.4 degrees Fahrenheit) and tropical sea surface temperatures by 5.5 degrees Centigrade (9.9 degrees Fahrenheit) at the Last Glacial Maximum (LGM).

Changing Trout Stocks May Lower PCB Risk: The potential human heath risk posed by the toxic contaminant PCB in Lake Michigan fish could be significantly reduced by changing the mix of species stocked into the lake according to University of Wisconsin Sea Grant Researcher, Stephen Carpenter. Carpenter reports that if fisheries managers stocked steelhead instead of lake trout, anglers who catch and eat Lake Michigan trout would be exposed to far

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NOAA Administrator D. James Baker announced the goals of the U.S. Coral Reef Initiative and the International Year of the Reef at a Washington press conference last month.

NOAA Teams with Federal Agencies, Private Sector Associations

Major Public Outreach Planned for Year of the Reef

The U.S. framework for the International Year of the Coral Reef and the goals of the U.S. Coral Reef Initiative were unveiled last month at Washington's National Press Club by NOAA Administrator D. James Baker and Timothy Wirth, State Department Undersecretary for Global Affairs.

Along with unveiling its new initiatives, NOAA and its Federal and private sector partners, also unveiled a national public awareness campaign to focus national attention on the state of the Nation's reefs.

The U.S. was one of the first nations to develop a national Coral Reef Initiative. More than 75 of the 100 nations with coral reefs have since began coral reef initiatives.

NOAA is the primary U.S. Federal agency charged with the stewardship of our domestic coral reefs. In keeping with the call to action in the International Coral Reef Initiative, NOAA has developed an action plan to build on existing activities and help fill the gaps in the overall us effort to protect and wisely use us coral reefs. NOAA's contributions address three priority areas of the

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RECYCLED PAPER

21 AWIPS Systems to Be Installed Following Secretary's Approval

Production and installation of 21 interactive weather computer and communications systems, known as AWIPS, will begin this summer, following Commerce Secretary William Daley's approval of the plan last month.

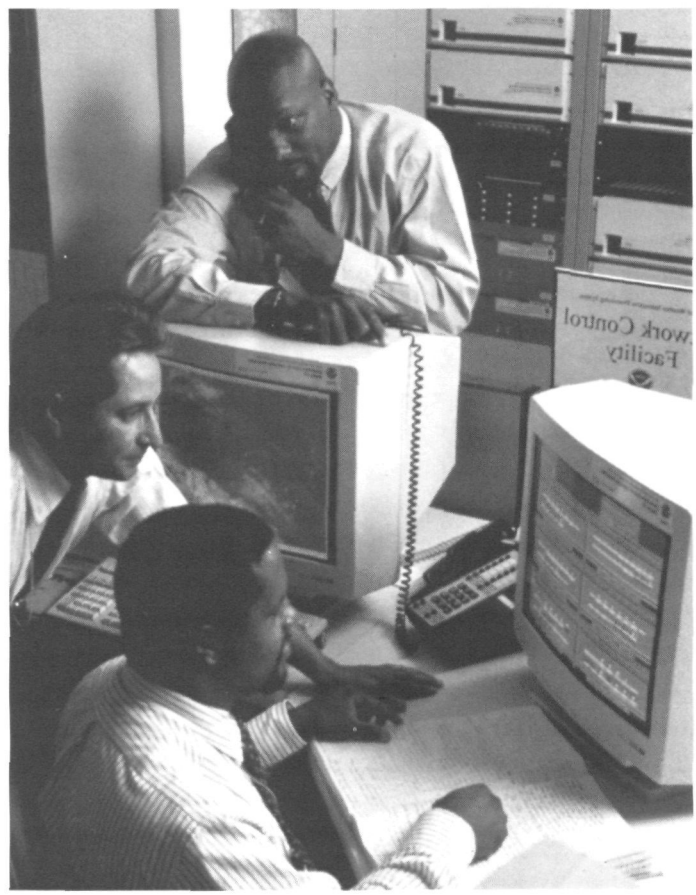
AWIPS—short for Advanced Weather Interactive Processing System—will help provide better weather- and flood-related services to protect life and property. The system will allow forecasters to display and analyze satellite imagery, radar data, automated weather observations and computer-generated numerical forecasts, all in one workstation.

"The National Weather Service has clearly demonstrated that AWIPS will help forecasters provide better weather and flood-related services to protect our citizens," said Commerce Secretary William Daley. "The system has already become an invaluable resource at 12 initial test sites."

Over the past year, early versions of the sophisticated workstation and communications network were installed at 12 sites around the country for operational testing and evaluation. The tests demonstrated AWIPS's capabilities, including communication of weather satellite imagery and weather forecast guidance via a satellite broadcast network; the state-of-art workstation's ability to display and manipulate radar, satellite, and other weather data; and the operations of a central monitoring and communications facility.

Twenty-one AWIPS systems will be installed:

- Eleven systems at modernized weather forecast offices: Oklahoma City, Okla.; Minneapolis and Duluth, Minn.; Bismarck, N.D.; Hastings, Neb.; Dallas/ Fort Worth, Texas; New Orleans/Baton Rouge, La; State College and Philadelphia, Pa.; New York City; Portland, Ore.
- Five systems at River Forecast Centers: Minneapolis; Fort Worth; New Orleans/ Baton Rouge; State College, Pa.; and Portland, Ore.
- Two systems at the National Weather Service Training Center in Kansas City, Mo.;
- Three systems at NWS regional headquarters: Central Region Headquarters, Kansas City, Mo.; Eastern Region Headquarters, Bohemia, N.Y.; and Western region Headquarters, Salt Lake City, Utah.



AWIPS installations like the one above will be going into 21 sites beginning this spring.

AWIPS is the integrating technology component of the NWS modernization effort, designed to provide the nation with improved weather services. To date, 114 of the 123 planned state-of-the-art NWS Doppler radars and 227 of the planned 306 NWS automated surface observing systems are operational nationwide. Two advanced geostationary weather satellites, GOES-8 and GOES-9, are keeping watch over the United States and well into the Pacific and Atlantic oceans. In addition, 13 River Forecast Centers and 111 of the planned 119 new weather forecast offices are serving the country. The NWS modernization is expected to be completed around the turn of the century.

A decision on installing the remaining sites is planned for December after completion of an operational test and evaluation of the third incremental software build. NWS is developing AWIPS in incremental stages to allow for continuous feedback that can be incorporated into ongoing development efforts. A total of 148 AWIPS systems will be installed.

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Peña Honors Corps for TWA Crash Efforts

NOAA was honored by former U. S. Secretary of Transportation Frederico Peña and Coast Guard Commandant Admiral Robert E. Kramek at a ceremony on Jan. 13 for the agency's fast response and critical contributions to search and recovery efforts after the July 1996 crash of TWA Flight 800.

Represented by NOAA Corps Cmdr. Samuel De Bow, commander of the NOAA ship *Rude,* and NOAA Corps Cmdr. Nicholas Perugini, who led NOAA's on-shore hydrographic charting efforts, NOAA was one of only 12 out of approximately 100 organizations involved during the tragedy's aftermath that received the Coast Guard's Public Service Commendation in recognition of notable services which have assisted greatly in furthering the aims and functions of the Coast Guard."

BOB CHARTUK

Energy Secretary Frederico Peña (center) honors the work of the NOAA Corps on the salvage of TWA Flight 800. Cmdr. Nick Perugini (left) and Cmdr. Sam DeBow (right) accepted for the Corps. Peña was Transportation Secretary during the salvage work.

"Sam and I had mixed feelings about returning to East Moriches," said Cmdr. Perugini, who accepted the award from Peña. "On the one hand, we were reminded of the immense tragedy of TWA Flight 800 and the loss of 230 lives. On the other hand, it was good to see our colleagues from the Coast Guard, Navy, and other government agencies who assisted in the relief effort. The ceremony reminded me of the unprecedented cooperation that took place among the agencies. Sam and I were personally approached by dozens of people who thanked us for the great job done by NOAA."

"Both Admiral Kramek and James Kallstrom [assistant director of the FBI] personally thanked me for our hard work, and Secretary Peña was a very personable and gracious individual who took about five minutes to talk with Nick and me about our involvement. The affair was very well done, and the Coast Guard made it clear to all present that NOAA played a significant role in the affair," Cmdr. De Bow said.

In a speech to those present, Peña, who was recently confimed as Secretary of Energy, said, "As horrible as this ordeal has been for all of you, it has reminded our Nation of two simple truths.

'We're reminded, first, that America always pulls together in times of need. Everyone out there was part of the team. It wasn't a 'small boat vs. a big boat,' as one of the petty officers said. Whatever problems arose…people stepped in to solve them—together. For that, the President and I are proud, and the Nation is grateful.

"Second, we're reminded that our nation's heroes are not just famous names. Our Nation's heroes are ordinary people, called on to do the extraordinary. As you searched the sea, making yourselves special to the families of the loved ones, you made yourselves special to America. You moved our spirit. Everyone in our country knows of your heroics. And they thank you."

Daley OKs AWIPS

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"We are pleased with the Secretary's decision to move forward with installation of the centerpiece of our agency's modernization," said NWS Director Elbert W. Friday Jr. "AWIPS will allow our forecasters to make the most of the new technologies that we've put in place with the modernization. Now they will be able to rapidly gather and assess the most meaningful information needed to issue critical forecasts and warnings for the protection of life and property."

More information about AWIPS is available on the Internet at: http://tgsv5.nws.noaa.gov/msm/awips/awipsmsm.htm.

Focus On...

Coral Reef Public Awareness

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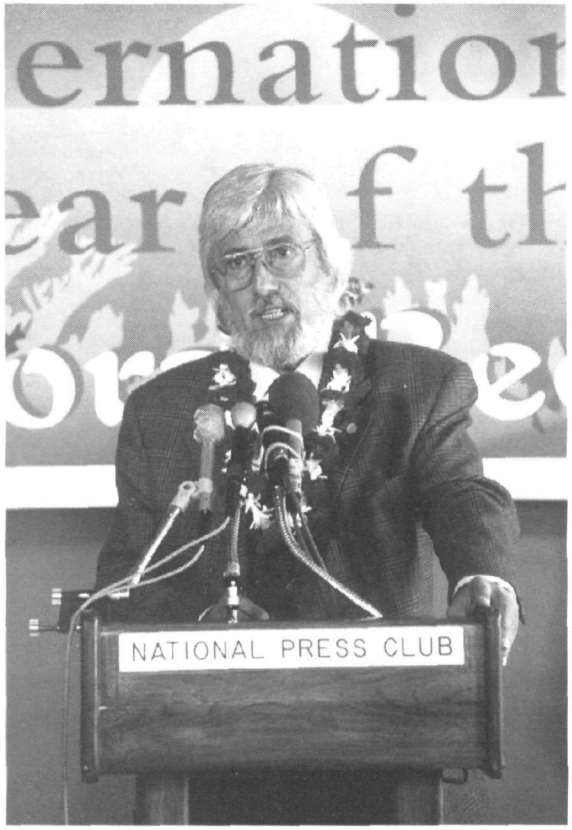
U.S. Coral Reef Initiative: Science for improved management, solutions for conservation and sustainable development, and improved information and outreach.

"We must seize of this window of opportunity and act to ensure there are coral reefs for the next generation to further explore and enjoy," said Baker. "We don't know everything there is to know about these unique communities, but we do know we must act now to ensure they survive. That is why in addition to its policy initiatives, NOAA, along with its partners is launching a national awareness campaign to educate the public on the state of the coral reefs and let them know there are things they can do."

This year-long campaign for reef awareness is entitled "Coral Reefs: the Rainforests of the Sea." Joining with the National Fish and Wildlife Foundation, the American Association of Zoos and Aquariums, the Earth Communications Office, noted oceanographer Jean-Michel Cousteau, the Professional Association of Dive Instructors, and the world-famous artist Robert Lyn Nelson, NOAA is launching this national effort to bring the reality of coral reef decline to the public.

The first aspect of the campaign is a poster featuring a composition by Nelson, "Planetary Choir." The poster will be available in aquarium and zoo gift shops and in participating dive shops around the country within the next several weeks.



World-famous oceanographer Jean-Michel Cousteau (above) help kick off the Coral Reef awareness campaign at Washington's National Press Club.

NOAA Administrator Baker (right) greets artist Robert Lyn Nelson (left), who produced the poster for the Coral Reefs awareness campaign behind them.

The awareness campaign will also include a series of public service announcements which will be unveiled later this year. A coral reef hotline will also be available to the public which will provide more information about how to protect reefs. The hotline, 1-888-Coral Reef, is sponsored by ECO, the Earth Communications Office and Cousteau, who joined Baker at the

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Ship Runs Aground in Keys, Injures Sanctuary Coral Beds

The Florida Keys National Marine Sanctuary, more than 3,600 square miles of pristine underwater beauty off the coast of southern Florida, was faced suddenly at 15 minutes before midnight on Sunday, February 2, with an emergency, in the form of a 600-foot container ship, the *Houston.*

The 600-foot container ship Houston (above) ran aground in the Florida Keys National Marine Sanctuary near midnight on February 2

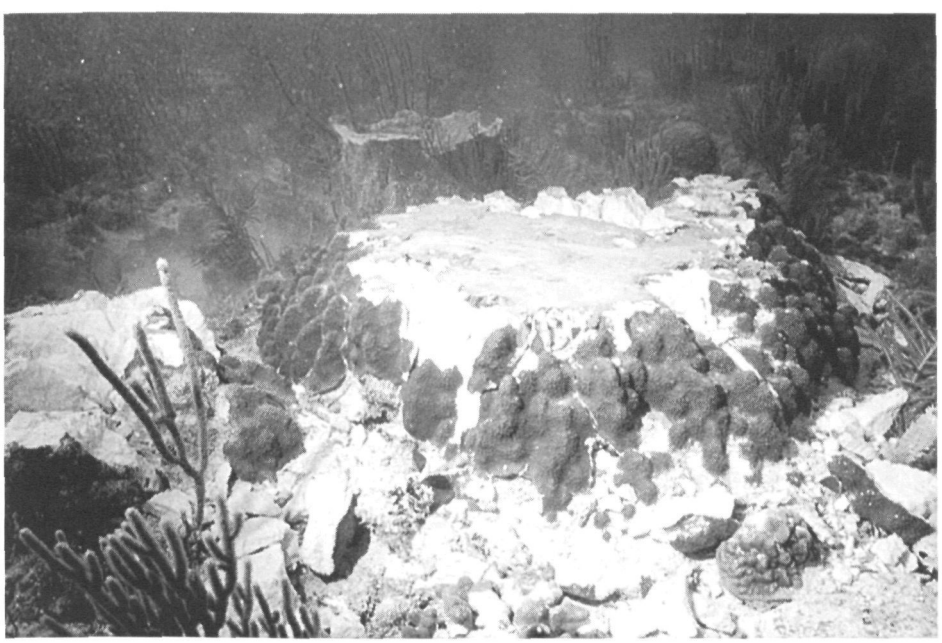
En route to the Spanish port of Valencia from New Orleans,the *Houston* ran aground in the sanctuary, on a bottom consisting of ancient spur-and-groove coral formations. It was carrying more than 1,100 containers of general cargo on deck and—more ominously—approximately 810,000 gallons of fuel oil.

The area of the grounding, between Maryland and American Shoals, teems with coral, and made it more than likely that extensive damage had occurred to the coral formations.

The grounding was reported to the U.S. Coast Guard Group in Key West early the next morning, and a Unified Command Center was established at the Coast Guard base consisting of Coast Guard personnel, sanctuary staff, and representatives of the responsible party.

The immediate consensus was mixed. The Coast Guard determined that none of the nearly million gallons of fuel oil had leaked into the sanctuary's waters, but aerial overflights established that the ship had injured coral resources. The Houston was then weighed down with sea water to assure it would not move and injure more sanctuary area that it already had. At that point, the ship's responsible party—Transportacion Maritima Mexicana—hired a salvage company to refloat the vessel.

The refloating plan involved deploying ocean boom around the vessel, bringing in a barge to contain offloaded fuel, and lightering of the vessel. Approximately 500,000



This coral bed is typical of the damage done by the grounding of the Houston in the Florida Keys National Marine Sanctuary.

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Coral Reef Plan Announced

State Department Undersecretary for Global Affairs Timothy Wirth (above) and NOAA Administrator D. James Baker unveiled the goals of the U.S. Coral Reef Initiative at a Washington press conference last month.

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press conference, and is the voice on the coral reef hotline.

"From recycling to wise purchasing practices, people can make a difference," said Baker. "We are implementing our policy initiatives, but are issuing a call to action to the American people."

—Matt Stout

NMFS employee Annette Kubinek (left) was honored by OSHA for her work for the fisheries service in safety and occupational health.

NMFS Employee Receives OSHA Award

Annette Kubinec (left), Safety and Occupational Health Specialist for the National Marine Fisheries Service, accepts an Occupational Safety and Health Administration Award of Notable Recognition for 1995 on behalf of the Southern New Jersey Federal Safety and Health Council, which she chairs. Brenda Judson (right). OSHA Assistant Regional Administrator for Program Planning and Support presented the award in a special ceremony held recently at OSHA's Region II office in New York City.

Kubinec is assigned to the NMFS Northeast Fisheries Science Center's James J. Howard Laboratory at Sandy Hook, New Jersey.

OSHA, part of the Department of Labor, presents awards annually to Federal Safety and Health Councils in each of its ten regions. The presentation had been delayed so that Kubinec could be present.

NWS Hydrologic Forecasting Improvements Making Waves

From predicting the potential for Spring flooding in the United States to introducing advanced hydrologic forecasting tools in places like Iowa and Egypt, NOAA's National Weather Service (NWS) is demonstrating the value of more informative forecasts for protecting lives and property and contributing to the Nation's economy.

Spring Hydrologic Outlook

Each March, NWS hydrologists prepare a Spring Flood Outlook, working with Federal, state and local agencies to gather streamflow data, soil moisture and river ice measurements. They combine that information with rain and snowfall records, and short- and long-term weather forecasts to determine the likelihood of flooding throughout the United States.

"While it's too early to be specific, in essence more of the country is at risk for flooding this year than in any year in the past decade," said Frank Richards, chief of the NWS Hydrologic Information Center in Silver

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Advanced Hydrologic Forecasting Helps Forecasters Predict Flood Potential

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Spring, Md. Richards oversees the preparation of the annual Spring Flood Outlook. "Large accumulations of snow are often the cause of springtime flooding," said Richards, Abut the degree of flooding depends not only on snow cover but also on how saturated the ground is already, ground frost, and how quickly or slowly frozen rivers thaw and accumulated snowpacks melt."

Why are hydrologic forecasting efforts important? As forecasts improve, people have more time to take appropriate actions to protect themselves and their property. Three-quarters of all Presidentially declared disasters are the result of flooding. In an average year more than 100 people are killed by flooding and flash flooding and damages exceed $2 billion.

Hydrology and the Modernized NWS

"With much of the modernized Weather Service technology now in place, we're starting to reap the benefits of more and higher quality weather and climate data," said John Ingram, program leader for the NWS Advanced Hydrologic Prediction System (AHPS). Currently, the NWS provides river stage forecasts out to one-, two- or three days. Ingram said AHPS represents a new process for preparing longer-range hydrologic forecasts. The system builds on elements of the modernized NWS, including 13 River Forecast Centers (RFC); the NWS River Forecast System, a very large software system used by RFC hydrologists to predict flow levels on the Nation's rivers at about 4,000 locations; and the Advanced Weather Interactive Processing System (AWIPS), interactive workstations that allow forecasters to integrate and display radar data, satellite imagery, automated surface observations and sophisticated models of the atmosphere.

—Barry Reichenbaugh

Container Ship Runs Aground in Florida Keys Sanctuary

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gallons of fuel was removed, and the seawater weighing down the Houston was removed from its hull. Tugs held the vessel steady as it was refloated.

At 8:37 on February 8 the ship was removed from the reef, and two tugs towed the it to an anchorage near the grounding site for an underwater hull survey. Coast Guard

determined that, although the ship's motor was not capable of running it to port, the hull was sound. The ship was towed to Miami the next day.

The Houston's owners signed a letter of undertaking in connection with any suit stemming from the February 2 grounding. The agreement, signed on February 7, 1997, guarantees payment of up to $6 million to satisfy any

settlement or judgment in favor of the United States or the State of Florida for damage claims arising out of the grounding. The signed agreement allowed the owners to proceed with removing the vessel while assuring authorities that any claims that may occur as a result of the grounding will be addressed.

Now, the clean up begins--sanctuary biologists have already begun a biological assessment to determine the amount of injury to sanctuary resources.

—Jerry Slaff, with reporting by Alyson Simmons

The container ship Houston *(above) ran aground in the Florida Keys National Marine Sanctuary in early February.*

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fewer PCBs. This is because steelhead, also known as rainbow trout, accumulate only about one-eighth of the PCBs in their flesh as do lake trout.

Although the manufacture of PCBs was banned in 1976, the contaminant breaks down slowly in the environment and can still be found in the Great Lakes. It is one in a group of chemical compounds suspected of causing reproductive health problems in humans. Carpenter's suggestion to change fish stocking practices would not hasten an overall PCB decline, but rather would target contaminant levels in fish, since fish consumption is one obvious way that humans come in contact with PCBs.

News Briefs

Natural Hazards Rock The Web: While avalanches, earthquakes, and tornadoes are rocking movie theaters, they are also rocking the world apart on a World Wide Web site of the National Geophysical Data Center in Boulder, Colo. To promote a better understanding of natural hazards, and to assist in natural hazards reduction, the data center maintains a Web site containing data on geological, meteorological, and other hazards. The site contains data and images of earthquakes, landslides, tsunamis, volcanoes, hurricanes, and a host of other hazards, including mud volcanoes in Romania. The site recently won top honors from the NetGuide on-line magazine. After visiting the site, NetGuide noted, "This whole site will rock your world. Our hearts are still pounding." Users can visit the site at *http://www.ngdc.noaa.gov/seg/hazard.*

Boulder Lab Director Named to National Academy of Engineering

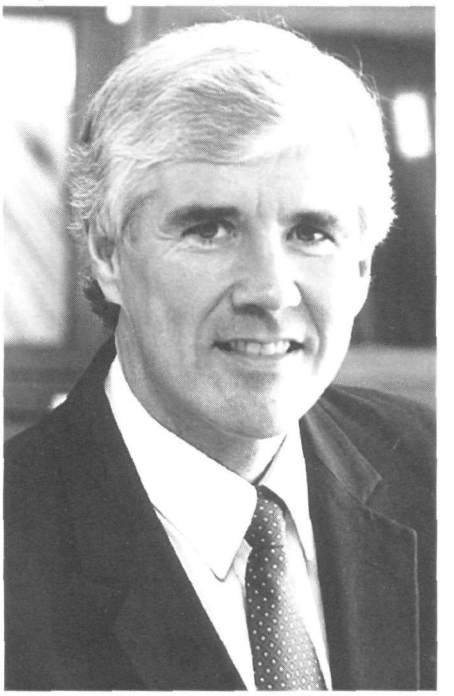
Dr. Steven F. Clifford, Director of NOAA's Environmental Technology Laboratory in Boulder, Colo., has been elected a member of the prestigious National Academy of Engineering. He was recognized for his contributions to the understanding of electromagnetic and acoustic propagation leading to the development of new sensing techniques.

Election to the National Academy of Engineering is the highest professional distinction accorded an engineer. Academy membership honors those who have made "important contributions to engineering theory and practice, including significant contributions to the literature of engineering theory and practice," and those who have demonstrated unusual accomplishment in the pioneering of new and developing fields of technology.

Clifford and the 85 other engineers and scientists elected as members, will be inducted into the Academy at the annual meeting in October.

Clifford was born in Boston, and received his B.S.E.E. degree from Northeastern University in Boston and his Ph.D in engineering science from Dartmouth College, Hanover, NH. He is also a graduate of Harvard's John F. Kennedy School of Government Program for Senior Managers in Government. He has been a research scientist at ETL (formerly the Wave Propagation Laboratory) since 1969.

ETL has a staff of 135 with more than 50 Ph.Ds conducting research in atmospheric and ocean sciences. Clifford has published many papers in atmospheric optics, acoustics, and electromagnetism with more than 120 titles to his credit. Five of these publications won the NOAA Outstanding Paper Award.



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