

# NOAA REPORT



AUG 7 1992

N.O.A.A.  
U.S. Dept. of Commerce

Vol. I, No. 4

August 1992

## NCDC Breaks Ground for World's Largest Weather Data Storehouse:

The world's largest active archive of weather data, NOAA's National Climatic Data Center, will operate from a new state-of-the-art facility in 1994, soon to be under construction at Asheville, NC. Groundbreaking for the data center, its first new home since comprehensive record keeping was required under the Federal Records Act of 1950, took place at a special ceremony June 29. Construction is expected to take two years.

The center stores more than 100 years of data with 55 gigabytes (billion bytes) of new information added each day, equivalent to 18-million pages a day.

## NEWS BRIEFS

The climate center collects information from the National Weather Service, Federal Aviation Administration, Coast Guard, and the Department of Defense. Volunteer cooperative weather observers also contribute to the massive data base.

**NOAA Names New NAPAP Director:** Derek Winstanley, an environmental scientist with 20 years research and management experience, has been named director of NOAA's National Acid Precipitation Assessment Program. Prior to joining NOAA, Winstanley led an international team of scientists in an investigation of how swarms of desert locusts migrate and accumulate across the desert.

**Methane Accumulation in Atmosphere Slowing:** NOAA scientists have discovered that methane, one of the greenhouse gases associated with possible global warming, is continuing to accumulate in the atmosphere, but at a much

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NOAA Corps ship *Mt. Mitchell* arrived at its homeport, the Atlantic Marine Center in Norfolk, Va., last month after a six-month research cruise to the Persian Gulf. The Arabic sign on the ship reads "No problem."

## Mt. Mitchell Home from Gulf After Innovative Mission

The NOAA Corps ship *Mt. Mitchell* arrived back in Norfolk, Va. last month after a six-month oceanographic and environmental survey of the Persian Gulf, which focused on the damage created by Iraq's deliberate release of six to eight million barrels of oil into the nearshore waters of Kuwait and Saudi Arabia during the 1991 Gulf war.

NOAA Gulf Program Office director John Robinson, who coordinated the NOAA effort in the Gulf, said that preliminary findings of the research vessel "reveal both good news and bad news. The good news is that the seafloor just off the coast appears to have been virtually untouched by the oil, and seagrass and other shallow-water life shows vigorous growth.

"The bad news is that the oil's impact on the beaches between high and low tide has been profound, with oil penetrating to as much as 25 inches deep in some areas." This intertidal zone is normally populated by large numbers of crabs, worms, grasses and other life which in turn support a broad range of birds and

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# Did Pinatubo Drop Global Temperatures?

**A**tmospheric particles from last year's eruption of Mt. Pinatubo are causing global cooling, according to evidence based on the direct observations of a NOAA scientist.

Ellsworth Dutton of NOAA's Climate Monitoring and Diagnostics Laboratory in Boulder, Colo., said a layer of sulfuric acid droplets in the atmosphere has caused a decrease in the total amount of solar energy—or heat—reaching the earth's surface since the Philippine Island volcano's eruption on June 16, 1991. As a result, the global average temperature had decreased about one degree Fahrenheit by May 1992, he said.

For the northern hemisphere, the decrease was about 1.5 degrees, Dutton said, adding that some areas of the earth are warmer than usual

but most of the globe has cooled.

The layer is about 12 to 14 miles above the Earth's surface in the lower levels of the stratosphere, NOAA laser-radar shows, and envelops the planet. Dutton used data from three types of instruments—two ground-based and one on a NOAA satellite—in his analysis.

## Droplets Scatter Sunlight

Data from the ground-based instruments at NOAA observatories in Alaska, Hawaii, American Samoa and Antarctica show that the sulfuric acid droplets are scattering incoming sunlight and reflecting some of it back

into space, Dutton said.

The sulfuric acid was created when sulfur dioxide emitted into the atmosphere by the volcanic eruption interacted with water vapor. It does not pose any threat to animal or plant life, and is expected to fall out of the atmosphere over the next two to three years.

Pyrheliometers at the observatories, which measure only the radiation coming directly from the sun and filter out the scattered radiation, show the amount of direct solar radiation reaching the ground has decreased by about 20 to 30 percent since the Pinatubo eruption.

Another instrument—a pyranometer which measures total solar radiation including that scattered by the sulfuric acid particles—shows a loss of 3 to 4 percent total radiation at NOAA's Mauna Loa Observatory in Hawaii.

Data entered into computer global circulation models run by other researchers showed an eventual but temporary decrease of 2 or more degrees F. in the Earth's surface air, Dutton said.

## Satellite Data Checks Out

Readings from a NOAA polar-orbiting satellite are consistent with the models' calculations. The satellite acquires air temperature measurements with an on-board microwave radiometer at 8,000 feet altitude uniformly over the globe. Since the eruption of Pinatubo, Dutton said, the satellite readings show an average global temperature decrease of one degree F. as of this May, and falling.

The cooling effect should bottom out in about two years and disappear completely in four to five years if the earth's temperature responds similarly to what it did following the 1982 eruption of El Chichon, a Mexican volcano. □

## Final Bluefin Tuna Rule Aims to Curb Catch, Preserve Livelihoods

NMFS's final rule for the 1992 and 1993 Atlantic bluefin tuna fishery includes a 10 percent reduction in the U.S. quota, a 75 percent reduction in the opportunity to land fish less than 45 inches, and a prohibition on the sale of smaller bluefin tunas.

The rule, published last month, implements the conservation recommendations of the International Commission for the Conservation of Atlantic Tunas (ICCAT).

NMFS Assistant Administrator William W. Fox said the rule bases allocations of the U.S. quota among fishing categories on 10 percent across the board reductions in catch from 1983-1991 average landings in the respective categories, with an adjustment to improve scientific monitoring of the species. The rule was also adjusted to maintain historic commercial catches, less the 10 percent conservation contribu-

tion, in an attempt to minimize the social and economic impact on businesses and communities dependent upon the bluefin tuna fishery.

The fishery's potential catch available for sale under the final rule is 1,029 metric tons. The average annual catch sold between 1983 and 1991 was 1,128 metric tons.

"ICCAT found that the steady decline in bluefin tuna populations demanded additional action to help this important food and sport fish comeback," said Fox. "These regulations will meet the ICCAT recommendations."

Some additional measures in the final rule prohibit the sale of bluefin less than 178 cm (70 inches); prohibit the retention of young school bluefin less than 66 cm (26 inches); and implement area subquotas and differential bag limits in the Angling category for bluefin less than 115 cm (45 inches). □

## Hailed as 'Pioneering Study'

# Mt. Mitchell Returns from Gulf After Six-Month Mission

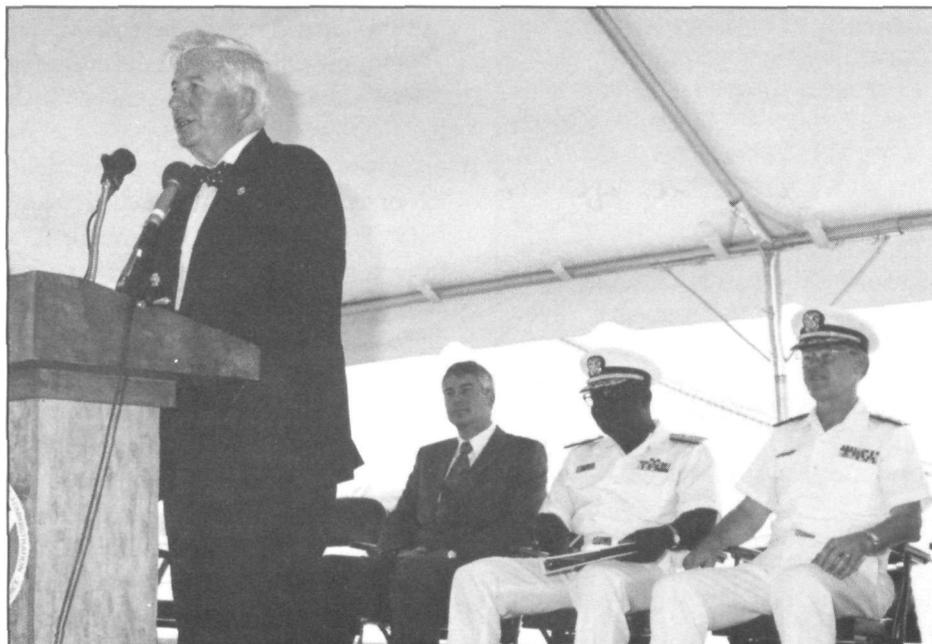
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other animals, Robinson said.

### 'Pioneering Study'

In a statement, Commerce Secretary Barbara Franklin hailed the *Mt. Mitchell's* mission as "a pioneering study of one of history's worst-ever environmental disasters—the unprecedented and intentional spill of 250 to 350 million gallons of oil." NOAA Administrator Dr. John Knauss also addressed members of the NOAA Corps, the nation's smallest uniformed service, at their Atlantic fleet headquarters, in welcoming ceremonies, and toured the ship.

An international team of 130 scientists spent time aboard the 231-foot *Mt. Mitchell* while it cruised the Persian Gulf from mid-February through the end of May. The cruise was designed to determine how such a massive oil spill would affect the marine environment in a relatively enclosed body of water. U.S. scientists hope knowledge gained from the cruise will prove valuable in respond-



NOAA Administrator Dr. John Knauss welcomes the *Mt. Mitchell* back to its homeport at the Atlantic Marine Center, Norfolk, Va. Seated behind him are (l. to r.) F. Rainer Engelhardt, president of Marine Spill Response Corp.; RADM Freddie Jeffries, chief of the Atlantic Marine Center; and RADM Sig Petersen, head of the NOAA Corps.

ing to potential future spills in the marine environment.

### Organized by UN

Organized under the auspices of

the United Nations, the cruise represents the first major oceanographic survey of the Persian Gulf since 1977, and by far the most comprehensive. It also provided an unprecedented opportunity for scientists throughout the Gulf region to work closely together, and with their counterparts in Europe and the U.S., on a problem of mutual interest and concern. The cruise has provided an immense amount of information on the physical, chemical and biological characteristics of the Gulf, and a critically important baseline against which future changes in water quality can be assessed.

The officers and crew of the *Mt. Mitchell* were informed of their assignment only a few weeks before the ship departed for the six-month mission. The relatively small research vessel, ideally suited for work in the shallow reaches of the Gulf, made an arduous voyage across the Atlantic in winter and began work immediately in a dangerous and complex environment. □



NOAA Gulf Program Office director John Robinson (left) and *Mt. Mitchell* Capt. Richard Permenter also spoke at the ceremony.

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slower rate than previously believed. NOAA researchers, in cooperation with University of Colorado scientists, examined data from approximately 10,000 air samples collected at 28 fixed sites and 17 shipboard locations between May 1983 and December 1990. They found that while methane concentrations had been increasing globally at the rate of 13.3 ppbv (parts per billion by volume) per year in 1983, the rate of increase had slowed to about 9.5 ppbv per year in 1990. If this deceleration were to continue steadily, the methane levels in the atmosphere would reach a maximum and then begin declining in about 15 years, the scientists reported in the current issue of *Nature* magazine. **1991 Report on Fisheries of the U.S. Out:** NOAA's annual report of statistics on U.S. commercial and recreational fisheries, as well as foreign catches in

## NEWS BRIEFS

the U.S. Exclusive Economic Zone, for 1991 is now available by ordering stock number 003-020-00162-9 and sending check or money order for \$7.50 to Superintendent of Documents, U.S. Government Printing Office (GPO), Washington, D.C. 20402.

**Andreasen to Head International Hydrographic Bureau:** Rear Adm. Christian Andreasen, NOAA Corps deputy director has been elected president of the International Hydrographic Bureau. Headquartered in Monaco, the bureau is made up of 58 member countries and coordinates worldwide standards for nautical charting, bathymetric mapping and the exchange of hydrographic data and technology.

**Permit Issued for Shipwreck Exploration in Florida Keys:** The Shipwreck Museum and Research Institute, a Florida-based museum specializing in historic shipwrecks has received a NOAA permit to explore a site within the Key Largo portion of the Florida Keys National Marine Sanctuary—the first exploration permit issued since treasure hunting was halted there in May. □

# Discoverer Investigates Deep Ocean Hot Springs in Northeast Pacific

Scientists from the United States and Canada returned to Seattle last month, marking the end to a highly successful cruise investigating deep ocean hot springs called "hydrothermal vents" on the ocean floor off the Pacific Northwest coast.

Using a state-of-the-art Canadian remotely operated subsea vehicle (ROV), samples of fluid were taken from vents as small as two inches across at depths of more than a mile and a half on the ocean floor off the coast of Oregon.

The officers and crew of the NOAA research vessel *Oceanographer*, under the command of Captain Robert Smart, were able, with the aid of the latest satellite technology, to maintain the ships position on station within 300 feet during most of the weather conditions encountered during the 25-day cruise.

In addition, photographs and video footage were taken and a variety of biological and geological samples brought to the surface.

The vehicle was able to plug into recorders left in holes drilled into the ocean floor and to collect data recorded over the last 10 months. **'A New Phase'**

"This success marks the beginning of a new phase in the ongoing eight-year scientific cooperation between government and university scientists in the United States and Canada focused on determining the chemical and thermal effects of hydrothermal venting on the global environment," said Dr. Steve Hammond, program manager of the VENTS Program at the Pacific Marine Environmental Laboratory.

"This was a very complex scientific venture. This ROV had never been tested at these depths and no ROV had ever been used over the rugged terrain found in this area," said Dr. John Garrett, Institute of Ocean Sciences, Canadian Department of Fisheries and Oceans. "There

were some who had doubts as to how successful the cruise would be and this helps to make us extremely pleased with this achievement."

The seagoing team of 25 people, led by Dr. Robert Embley, NOAA, included leading scientists and technicians from NOAA's Pacific Marine Environmental Laboratory, Oregon State University, the University of California, the Canadian Department of Fisheries and Oceans Institute of Ocean Sciences, the Canadian Department of Energy, Mines and Resources Geological Survey, the University of Victoria, the University of Quebec, the University of Toronto, and the Monterey Bay Aquarium Research Institute.

### Depths to 5000 Meters

The ROV, or Remotely Operated Platform for Ocean Science (ROPOS), weighs 5000 pounds, and is capable of working to depths of 5000 meters, although the present system is limited to depths of 3500 by the amount of cable the largest available winch can hold. The ROV has two manipulator arms, a sample tray, several video cameras and a variety of optional measuring and sampling gear such as still cameras and coring devices.

—Hal Alabaster □

**NOAA Report** is a monthly publication for NOAA employees from the NOAA Office of Public Affairs, Washington.

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July 23, 2010