



# noaa week

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## DOMES Is Resumed

Scientists from NOAA and other organizations have embarked on the second of a series of major research cruises in the Pacific Ocean as part of NOAA's Deep Ocean Mining Environmental Study (DOMES).

The researchers will be conducting studies preliminary to investigating the extent of environmental impact that might be expected as a result of deep ocean mining.

Mining interests already are gearing up to retrieve deposits known as manganese nodules from the deep ocean floor. These deposits contain manganese, copper, nickel and cobalt in quantities which will greatly augment

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## Hurricane Waves Are Predicted By Simple Model

An Environmental Research Laboratories scientist has found unexpected order in the legendary chaos of hurricane seas and has applied this to developing a model that predicts a storm's worst waves.

The model, described by Oceanographer Duncan Ross at a recent American Meteorological Society meeting in Seattle, Wash., is a gift from three violent hurricanes: Ava, the 1974 eastern Pacific storm that is still the most intense on record; Camille, the destructive 1969 At-

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## Satellites Aid Searches For Missing Airplanes

### \$146,000 CZM Grant Awarded To Maine

The Maine State Planning Office has received a \$146,000 grant from the Office of Coastal Zone Management to assess the onshore impacts of offshore oil and gas development.

Under the grant, the State agency will conduct a variety of activities to ensure that Maine receives the total maximum benefit and least environmental damage from energy production on the Outer Continental Shelf.

State officials indicated the grant will be used to determine

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The amount of time Civil Air Patrol air search and rescue pilots spend finding downed aircraft in the rugged mountains of California has been substantially reduced through information provided by two environmental monitoring satellites operated by NOAA.

Lt. Col. James D. Bigelow, Director of Operations for the CAP's California Wing, said pictures from NOAA's spacecraft showing weather conditions in the areas where light planes have become lost have vastly improved search mission efficiency. In addition, he said, NOAA satellite information has made the search operations themselves considerably safer.

During the past year, when the California Wing flew some 58 search missions for lost aircraft, all but two were found within

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## Satellite Data May Help Control Locusts

Satellite data provided by NOAA is being used to help develop a method it is hoped will prevent a possible locust plague in southern Algeria this spring.

At the request of the United Nations, the National Environmental Satellite Service is providing the U.N. Food and Agricultural Organization (FAO) with pictures of Algeria taken from the NOAA-4 polar orbiting satellite on an every-other-day basis.

From pictures made as the satellite sweeps over Algeria, areas of probable rainfall are located. These are then examined in detail on LANDSAT images of these areas, enabling FAO personnel to locate any emergent vegetation, essential for desert locust development.

The coordinates of potential danger areas are then relayed to Algerian locust control teams in the desert who examine the areas and determine if insecticide spraying may be necessary to inhibit the development of migratory swarms.

David S. Johnson, Director of NESS, said locust control agencies know many of the weather factors which appear to govern locust regeneration and migration and the satellite imagery aids in predicting these in southern Algeria.

The success of the locust control program, he explained, thus depends upon the ability of the

FAO staff and the field teams to detect small areas of rainfall over a large section of southern Algeria where weather reports are sparse.

Interpretation of the satellite data permits more accurate determination of the locust-freeing rainfall and the spraying of insecticide at a time when it will be most effective.

First results of this application of satellite data to locust control

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## Wyoming Balloon Flights To Sample Nitrogen Oxides in Stratosphere

The Environmental Research Laboratories are beginning a new series of balloon-borne probes to sample fluorocarbons and nitrogen oxides in the stratosphere

over Wyoming.

The series, which involves about four flights a year, continues NOAA's program to assess the danger to stratospheric ozone posed by fluorocarbons-11 and -12 and nitrogen oxides, which have been identified as possible chemical destroyers of ozone. A stratospheric ozone layer shields the planet's surface from hazardous solar ultraviolet radiation.

The sampling packages were developed by scientists with ERL's Aeronomy Laboratory in Boulder, Colo., in a stratospheric study led by Dr. Arthur L. Schmeltekopf.

Probes in the Laramie series will be launched with NOAA support by the University of Wyoming's Department of Physics and Astronomy.

The sampling package consists of five stainless steel spherical flasks, each equipped with a valve controlled by a minicomputer in the package. The flasks are evacuated and immaculately cleaned so that the small quantities being measured—on the or-

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MEMBERS OF THE 53RD NOAA CORPS' OFFICER TRAINING CLASS were (front row, from left) Donald R. Rice, Barry E. Merritt, David M. Goodrich, Jeanmarie F. Bailey, George E. Leigh, George A. Baisley, James B. Davis, (middle row, from left) Gerald E. Wheaton, John C. Person, Duane C. Simpson, Barbara B. Larson, Charles E. Gross, Patrick J. Rutten, (back row, from left) William J. Harrigan, David K. Howard, Virginia E. Newell, William W. Pearson II, and Michael S. Sagalow.

## NOAA Personnel Hold Offices In National Weather Association

The National Weather Association, a new organization dedicated to the interests of operational meteorology and its supporting activities, has been formed and is open to both professionals and non-professionals. It is expected that the membership will be made up of persons employed in operational weather and related activities, research and development, interested users, and others just interested in weather.

The Association is intended to benefit the operational weather community as a whole by serving as a medium for interchange of ideas, procedures, methods and developments among members and organizations.

The officers of the organization from NOAA are: President, Jerrold A. La Rue, Meteorologist in Charge of the National Weather Service Forecast Office in Washington, D.C.; President-Elect, Anthony E. Tancreto, MIC of the WSFO in Boston, Mass.; Secretary, Joseph R. Vazzo, Official in Charge of the Youngstown, Ohio, Weather Service Office; and Chairman of the Parliamentarian Committee, Dr. John D. Stackpole, Chief of the Global Modeling Branch of the Development Division at the

NWS National Meteorological Center in Camp Springs, Md.

The Association's plans include:

- A monthly publication serving to exchange ideas and containing "down to earth" weather articles. Frances C. Parmenter, a Meteorologist in the Applications Group of the National Environmental Satellite Service in Camp Springs, has been selected to head the Editorial Committee.

- Authorization and encouragement of the formation of local chapters and possible establishment of a few this year; and

- National and regional meetings.

Further information and details on becoming a member of the Association are available from the Association, Box 243, Clinton, Md. 20735.

## Slide-Rule Simple Model of Hurricane Waves

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lantic hurricane considered a "worst case"; and Eloise, the hurricane which struck the Gulf coast of Florida last year.

Mr. Ross, with ERL's Atlantic Oceanographic and Meteorological Laboratories, says the model is one of the first to be based on actual observations taken in hurricanes. Although it is not as de-

## PMC Holds Chart Updating Seminar

The National Ocean Survey's Pacific Marine Center recently hosted a seminar on the NOS-USCG Auxiliary Chart Updating Program for Auxiliary members living in the Pacific Northwest. Over 120 persons attended, coming from as far away as Portland and The Dalles, Oreg., and Yakima and other Eastern Washington Cities.

Visitors received tours of the NOAA Ships Fairweather or Davidson and PMC Processing Division; had demonstration rides on survey launches; received hands-on training on the proper use of a sextant to locate chart revision items; and received explanations of program details including how corrections should be submitted.

The NOAA Ship Rainier supported the activities through the use of personnel and a survey launch.



Ens. Neal Millett trains USCG Auxiliary members in the proper use of the sextant for horizontal angles from the flying bridge of the Fairweather.

## Francis E. Thompson Dies

Francis E. Thompson, former Program Manager of the National Ocean Survey's Office of Aeronautical Charting and Cartography in Rockville, Md., died on March 17. He had retired last January, after almost 35 years of Federal service, most of it with the NOS and its predecessor, the Coast and Geodetic Survey. Before becoming Program Manager he had been Administrative Officer of AC&C, and had received

a Commerce Bronze Medal in 1972.

He is survived by his wife, Twyla, an Administrative Officer in the NOS Office of Marine Surveys and Maps; his mother, Helen S. Thompson; four children—Candice A. Wilson, M. Corinne Oberlin, Jay F. Thompson, and Brian E. Sherron; a sister, Helen E. Thomas; and four grandchildren.

## Satellites Shorten Searches for Lost Aircraft

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48 hours. The year before, when 46 missions were conducted, CAP pilots generally spent more than a week searching for the crash sites, according to Col. Bigelow.

Most search and rescue missions for missing aircraft in California involve planes which get into trouble because of bad weather en route to their destinations, he said.

"In the past," he explained, "we had only limited weather data because the State had such large rural areas and so many mountains where weather data coverage is poor. This makes it difficult to determine what kind of weather the missing pilot faced at the time of the emergency.

"As a result, we often searched areas which, in fact, had good flying conditions when the missing aircraft crashed, but

we had no way of knowing these were areas of low probability.

"With the NOAA satellite pictures," he continued, "we can generally determine if the weather was a factor. We can see if certain preferred mountainous routes were open or not. We can see the weather status within 30 minutes of the time the pilot was in distress. We can better determine the height of the top of the clouds to see if a pilot could fly over a storm system, or was faced with staying at lower altitudes and attempting to penetrate the system."

Information of this sort enables rescue mission pilots to concentrate their efforts in areas where the weather was bad at the time of the crash, and serves to shorten the length of time required to find the downed aircraft.

Also, according to Col. Bige-

low, satellite pictures showing weather conditions at the time of the search mission help reduce the number of accidents involving search aircraft, giving the pilots advance warning of dangerous weather in the areas they are searching.

Jack Bottoms, manager of the National Environmental Satellite Service office in San Francisco, said that upon CAP request he immediately provides satellite pictures of the general area where the missing plane is thought to be.

Personnel at the NESS station interpret the pictures (which come from the NOAA-4 polar-orbiting spacecraft, and SMS-2 geostationary satellite), for the general area where the missing aircraft was last reported, and recommend for search concentration areas in which the weather was bad at the time of the crash.

op the model also revised some conventional views of hurricane waves. For example, Mr. Ross notes, "People who've been through a storm talk about waves coming from all directions, even though the wind is from a single direction. That is true to a limited degree in fast-moving storms, but for storms with average or slower forward speeds, the waves move mostly in the direction of the wind."

The wave model should find applications among hurricane forecasters. For example, some scientists believe a large part of the flooding caused by hurricane Eloise came from wave set-up—the gradual buildup of water level as successive waves break over one another. To predict this effect, one must be able to predict the wave fields generated by hurricanes.

The model also has applications in designing offshore platforms and other structures subject to hurricane wave action.

Further tests of the model will come in the 1976 hurricane season, when Mr. Ross will fly a laser profilometer aboard NOAA's research aircraft.

## noaa week

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NOAA Week reserves the right to make corrections, changes or deletions in submitted copy in conformity with policies of the paper or the Administration.

Catherine S. Cawley, Editor  
Warren W. Buck, Jr., Art Director

## Recent Congressional Activity Of Interest to NOAA Personnel

Early in March, the House approved a major expansion of Federal aid to help coastal states cope with the effects of offshore oil and gas development. By a vote of 370-14, it passed a bill authorizing \$1.45 billion in new impact aid over a five-year period. The House provisions of the bill were substituted for those of a similar bill passed by the Senate in 1975.

On March 16, President Ford signed legislation that guarantees four percent interest for all persons who hold series E savings bonds at least two months. The change was part of a bill signed by Mr. Ford increasing the Government's temporary debt limit by \$32 billion.

The Senate in late March agreed to compromise legislation extending U.S. fisheries jurisdiction to 200 miles despite the possibility of confrontations with other nations. On March 30, the House approved the conference report on the 200-mile limit by a vote of 346-52.

President Ford's \$135 million plan for a nationwide inoculation program to prevent a swine flu epidemic was approved by the House Appropriations Subcommittee in late March and referred to the full committee for action on or about April 1. The Administration has reported that the project with vaccinations should begin no later than September 1 of this year.

The Senate, on March 15, passed by a voice vote and sent to the House a bill broadening the range of options available to participants in veteran's life insurance programs. The bill authorizes any veteran whose Servicemen's Group Life Insurance (SGLI) coverage has expired, and who has elected not to be insured under Veteran's Group Life Insurance (VGLI), to convert his SGLI benefits to an individual whole life or term life commercial insurance policy.

The House Commerce Committee by a 23-20 vote adopted a three-year freeze on current auto emission standards. The auto industry, supported by the White House, wanted a five-year delay in imposing the more stringent standards called for in the Clean Air Act.

Congress sent to the White House on February 9 a bill to amend the 1974 Fair Credit Billing Act. As law, it prevents merchants from imposing surcharges on purchases made with credit cards, and at the same time, permits discounts for cash payers.

Early in March, Congress passed a bill extending the Rehabilitation Act of 1973 for one year, through fiscal year 1977. The Act, as signed by the President, provides matching grants to

states to help operate vocational rehabilitation programs for the physically and mentally handicapped.

Late in March, the House voted 241-164 to approve a House-Senate conferees' report on legislation passed earlier by both bodies to liberalize the Hatch Act. The margin was 29 votes short of a two-thirds count necessary to override a Presidential veto. The measure went to the Senate for a vote on the conference report and was also approved. The Senate's vote was also insufficient for a two-thirds veto override. A bill was submitted to the President, and at this writing had not been acted upon.

## Maine CZM Grant

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specific OCS developments that could occur in Maine, analyze in detail positive and negative effects of this development, and identify the most suitable areas for energy facilities. In addition, the State will develop recommendations on how heavy industrial development can be guided into the suitable areas, inform the public and coastal communities about OCS development issues, develop data to protect coastal resources from oil pollution, and coordinate Maine's response to offshore oil and gas development with Federal and regional agencies.

Currently under development, Maine's coastal management program is designed to preserve coastal ecosystems, while achieving rational use of the 4,000-mile Maine coastline for recreation, housing, economic development, agriculture, transportation, mineral mining, commercial fishing, energy production, conservation, and other competing purposes.

To develop its program, Maine has received over \$700,000 from NOAA and has contributed an additional \$350,000 in State matching funds.

## Workshops Are Held for Fishermen

Humboldt State University's Marine Advisory Service in Arcata, Calif., held a series of six educational workshops for fishermen during March to explain the new Loran-C navigation system and the fishing vessel Capital Construction Fund Program.

The present Loran-A system (for Long Range Navigation) is gradually being phased out on the West Coast in favor of more reliable and accurate Loran-C transmissions, already in use on the East Coast.

The Capital Construction Fund Program, which is administered by the National Marine Fisheries Service, allows U.S. citi-

zens who own or lease documented fishing vessels to defer Federal income tax payments on all or a portion of the income earned by the vessels or gained from their sale. The amounts deferred are deposited in a savings institution for future construction, reconstruction, or acquisition of a new vessel.

The Sea Grant-sponsored workshops were held in Crescent City, Eureka, and Fort Bragg, Calif. They featured representatives from the 12th Coast Guard District (Electronics Engineering Branch) and Humboldt State's MAS who discussed the Loran-C change-over, and Lee F. Bowersox, Financial Assistance Specialist for the National Marine Fisheries Service in Washington, D.C., and Donald Lawson from the NMFS Southwest Regional Headquarters in Terminal Island, Calif., who explained how the Capital Construction Fund works.

## NMFS Publication Awards Announced

Robert W. Schoning, Director of the National Marine Fisheries Service, recently announced that the following publications had been awarded the NMFS Outstanding Publication Award as the best publications appearing in 1974 issues of the *Fishery Bulletin* and *Marine Fisheries Review*:

### Fishery Bulletin:

**Outstanding Publication:** "An examination of the yield per recruit basis for a minimum size regulation for Atlantic yellowfin tuna, *Thunnus albacares*," Vol. 72, No. 1, January 1974, authored by William H. Lenarz, William W. Fox, Jr., Gary T. Sakagawa, and Brian J. Rothschild.

### Honorable Mention Publication:

"The swimming crabs of the genus *Callinectes* (Decapoda: Portunidae)," Vol. 72, No. 3, July 1974, authored by Austin B. Williams.

### Marine Fisheries Review:

**Outstanding Publication:** "Salmon—Future harvest from the Antarctic Ocean?" Vol. 36, No. 5, May 1974, authored by Timothy Joyner, Conrad V. W. Mahnken, and Robert C. Clark, Jr.

### Honorable Mention Publication:

"New England Fisheries Development Program," Vol. 36, No. 11, November 1974, authored by Warren F. Rathjen.

## C&GS Tide Gages Being Phased Out

The Pacific Tide Party of the National Ocean Survey will be slowly phasing out the now obsolete Coast and Geodetic Survey standard tide gage, presently in use throughout the Pacific. The NOS reports that it is now almost impossible to maintain these gages due to the fact that new parts are unobtainable, specifically new clock-chart drive components.

The NOS has been maintaining these gages so as to provide the Tsunami Warning System with an analog trace of any tsunami which may occur in the Pacific Ocean. Presently, the NOS uses the ADR, analog to digital recorder, to obtain tidal data, and no longer requires the analog trace provided by the standard gage.

The Tsunami Warning System's remote recording tide unit, located at many Pacific station installations, will continue to operate and provide analog tidal data in the event that a tsunami occurs.



A NOAA UNIT CITATION was awarded to the Physical Science Services Branch of the Scientific Services Division in the National Ocean Survey's Office of Program Development and Management, in recognition of exceptional execution of the NOS Bicentennial Chart Program.

(From Left) R. Adm. Allen L. Powell, NOS Director, presented the Award to Thomas B. Jacobs; Rickey J. Spitzer; William A. Stanley, Branch Chief; James L. Moore; Grace G. Griesbauer; Terry L. Mauk; Pauline L. Coleman; Matthew R. Lilley, Jr.; Donna L. Amoroso; Laurence C. Patlen; Ann C. Hildebrand; Henry L. Carter; and Sherie L. Herwod. Robert L. Lewis was also honored, but was not present for the ceremony.

# notes about people



AN AWARD OF MERIT from Maryland's Governor's Committee to Promote Employment of the Handicapped was presented recently to Roger W. Brown, a Voucher and Accounting Technician in NOAA's Washington Field Finance Office, in Rockville, Md., in recognition of the outstanding courage and determination he has demonstrated in overcoming his handicap and preparing himself for a productive life.

A quadriplegic as a result of a diving accident following graduation from Rockville's Peary High School in 1971, he has undergone intensive physical and occupational therapy, including 18 months of career training in accounting and computer terminal operations. His positive mental attitude and constant striving for as much independence as possible have proved a source of motivation for other handicapped individuals in NOAA as well as his fellow workers, according to Constance E. Urbach, Chief of the Washington Field Finance Office.

The Award was presented by the Awards Committee Chairman, John F. Strahan, M.D.

## Hearing Set On Fishery Application

A public hearing to consider an application by Pan-Alaska Fisheries, Inc., to expand the operation of its vessel Royal Sea has been scheduled for April 13 in Washington, D.C., the National Marine Fisheries Service has announced.

The Royal Sea, formerly the Seafreeze Pacific, was built with the aid of a Fishing Vessel Construction-Differential Subsidy, and accordingly is restricted as to areas where it may operate. It presently is authorized to operate for bottomfish, hake and herring, and to freeze and transport salmon in the North Pacific Ocean; and, to catch, process, and transport Tanner crab in the Bering Sea.

Additionally, the vessel may conduct certain fishing operations limited to the South Pacific, Atlantic, and Indian Oceans.

The hearing, scheduled for 9:30 a.m. at 2001 Wisconsin Ave., N.W., will deal with the company's request that the ship be permitted to process and transport all species of crustaceans and mollusks found in the North Pacific and Bering Sea.

## Employees Association Offers Business Cards

NOAA Directive Manual 68-18 dated 7-21-72, outlines the purpose, authority, format and procurement of business cards for use in an official capacity by NOAA employees. The cards, which must be purchased at the employee's expense, may be ordered from the NOAA Employees Association. Prices are: \$3.75 per hundred plus \$1.25 for each additional 100 cards requested with the initial order. (100 - \$3.75; 200 - \$5.00; 300 - \$6.25, etc.) Checks should be made payable to NOAA Employees Association and sent to Michael J. DiLeo, NOAA-NWS W331, World Weather Building, Room 410, Washington, D.C. 20233.

The printer has requested that all information submitted be either typed or printed.

Patrick Hughes, Chief of the Environmental Data Service's Publications and Media Staff, recently gave an invited Bicentennial talk on the history of American weather service organizations to the Atmospheric Sciences Section of the New York Academy of Sciences in New York City. He is the author of *A Century of Weather Service*, written to commemorate the Weather Services Centennial in 1970. His New York presentation traced the development of American weather service organizations from the weather diaries of Washington and Jefferson, through organization beginnings in the early 19th Century, up to the present meteorological mix of satellite, computer, and multi-



Mr. Hughes

## Balloon Flights

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der of a few parts fluorocarbons to ten billion parts air—are not polluted by other materials.

Two balloons—about 30 feet (10 meters) in diameter when they reach their maximum altitude—carry the 36-pound (16-kilogram) package as high as 90,000 feet (27 kilometers). When one balloon bursts, sensors command the surviving balloon to destroy itself and the package parachutes earthward.

As the probe descends through the stratosphere, the minicomputer directs the sampling valves to open at different altitudes, and gas samples are obtained. Scientists can calculate how fluorocarbon and nitrogen-oxide concentrations change with altitude, an important element in determining their effects on the ozone layer.

Aircraft tracking a radio beacon signal from the instrument guide ground personnel to the spot where the device comes down.

Thus far, the NOAA sampling program has obtained measurements over Wyoming, northwestern Canada, Antarctica, and Panama. Launches from Arctic locations are planned in addition to the current Laramie series.

## next week's best fish buys

According to the NMFS National Fishery Education Center in Chicago, the best fish buys for the next week or so are likely to be pollock and sea trout along the Northeast Seaboard; fresh flounder and croaker in the Middle Atlantic States, including the D.C. area; King mackerel and frozen cooked shrimp in the Southeast and along the Gulf Coast; dressed whiting and fresh whitefish in the Midwest; Dungeness crab and rainbow trout in the Northwest; and fresh butterfish and Dungeness crab in the Southwest.

national environmental program such as the World Weather Watch and experiments of the Global Atmospheric Research Program.

The Biological Society of Washington recently elected as its President National Marine Fisheries Service zoologist Dr. Bruce B. Collette. The Society, founded in 1880 in Washington, D.C., once included Theodore Roosevelt on its roster of naturalist members.

Dr. Collette, a staff member of the NMFS Systematics Laboratory in the National Museum of Natural History, is an expert on the classification of epipelagic fishes, particularly the tunas and mackerels. He also serves as Editor of NMFS scientific publications.

Dr. Austin B. Williams, also a scientist with the Systematics Laboratory and a specialist on the classification of crabs and other crustaceans, is Editor of the Proceedings of the Society, now in its 89th volume.

## DOMES Is Resumed

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the U.S. domestic supply from traditional land sources.

The present cruise aboard NOAA's Oceanographer will take more than a score of scientists to an area 2,500 miles (4,000 kilometers) southeast of Hawaii where manganese nodules are believed to exist in commercial quantities. The scientists, from NOAA, the Geological Survey, Texas A&M University, and the Universities of Hawaii and Washington, will be at sea for three months.

The objectives of the DOMES program are to develop comprehensive sets of physical, chemical, sedimentological, and biological baselines for the entire volume of the water column and seafloor in the areas under study. These baselines will become a backdrop against which any ecological changes would be visible once mining began in earnest.

The DOMES effort is directed by scientists from the Environmental Research Laboratories Pacific Marine Environmental Laboratory in Seattle, Wash., and is one of the projects under ERL's Marine Ecosystems Analysis program office.

Cdr. George H. Poor of PMEL is chief scientist on the voyage, which ends in May, while the research ship is under the command of Capt. Kelly E. Taggart.

## Locusts (Continued from page 1)

are considered promising. The technique may eventually be applied to the entire desert locust zone, covering some 10 million square miles from Dacca in Senegal to Dacca in Bangladesh.



# **National Oceanic and Atmospheric Administration**

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