U.S. DEPARTMENT OF COMMERCE/National Oceanic and Atmospheric Administration

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Dust Devils Are Slowpokes, Not Dervishes

Dust devils, far from being the whirling dervishes they may appear when seen dancing across a prairie, are in fact relative slowpokes.

This is one finding of recent research on dust devils conducted by scientists from the Environmental Research Laboratories who are studying dust devils because their characteristics and behavior may be similar to their destructive cousins, tornadoes.

Using a beam of laser light from a novel wind sensor, the scientists have made what they believe are the first remote measurements of wind velocities in dust devils. They found dust devils whirl with a slow and stately bearing, and some carry miniscule whirlwinds within their main vortices.

The researchers traveled to desert sites with a portable wind sensor. The recently developed system—an infrared doppler lidar housed in a truck-mounted camp-

(Continued on page 3)

2-State Consortium Awarded 4th-Year Sea Grant Support

The Mississippi-Alabama Sea Grant Consortium will continue its activities in marine-related research, education, and advisory services under a $495,000 Sea Grant announced recently.

The grant will mark the Consortium's fourth year of Sea Grant support and will be augmented by nearly $364,000 in matching funds from State and other non-Federal sources.

The Consortium comprises Auburn University, Gulf Coast Research Laboratory, Mississippi State University, Tuskegee Institute, University of Alabama, University of Alabama in Birmingham, University of Alabama in Huntsville, University of Mississippi, University of South Alabama, and University of Southern Mississippi, and involves almost three dozen investigators. Researchers can draw on the combined strengths and facilities of the entire two-state association.

(Continued on page 2)

Satellite Data Helps Provide Advance Warnings of Floods

Riverbank communities in the center of the Nation, each spring threatened with flooding caused by melting snow upriver, this year will have a better chance to prepare for the effects of potentially disastrous high waters.

Two satellites operated by NOAA, orbiting 22,250 miles (38,500 kilometers) above the equator, will be keeping 24-hour watch on snowmelt conditions at the headwaters of, and along, rivers from the Rocky Mountains to the Appalachians.

Data from the satellites, analyzed by hydrologists from the National Environmental Satellite Service, will help the National Weather Service forecasters predict how much snowmelt runoff the country's mid-section rivers will have to handle.

While the NWS has been providing flood forecasts in the area for a number of years, this spring will be the first time that Weather Service Forecast Offices between the two major mountain ranges and the Canadian and Mexican borders will have up-to-the-minute satellite data with which to work.

Edward Ferguson, manager of

(Continued on page 3)

505 Foreign Fishing Vessels Sighted Off U.S. in February

A total of 505 foreign fishing and fisheries support vessels were sighted operating off the coasts of the U.S. during February by fisheries agents of the National Marine Fisheries Service and personnel of the U.S. Coast Guard, during joint fisheries enforcement patrols from Coast Guard cutters and aircraft. The ships included in the total were within 200 miles of the U.S. coast, and came from 12 foreign nations.

There were 420 foreign fishing vessels sighted the previous month and 523 sighted in February of 1975, NMFS figures show.

Of the 505 vessels, 280 were from the Soviet Union, which had 121 ships operating off Alaska, 104 off New England, and 55 off the mid-Atlantic states. Japan, with 82, had 70 off Alaska, 9 off the Mid-Atlantic, 2 off the Gulf Coast, and 1 off New England. Spain had 46 ships fishing off New England and 17 off the mid-Atlantic states, a total of 63.

Vessels from Poland, Bulgaria, Romania, the German Democratic Republic (East Germany), Italy, Ireland, Cuba, the Republic of Korea (South Korea), and the Republic of China (Taiwan), were also sighted.

Canadian fishing vessels were

(Continued on page 4)

Hearing Set On Oregon CZM Program EIS

Residents of Oregon will have an opportunity next month to react to Oregon's coastal management program and tell how it will affect the environment and their interests.

A public hearing on a draft environmental impact statement based upon the management program will be held by NOAA, with assistance from the State, on April 8 at 7:30 p.m. in the Marine Science Center Auditorium in Newport, Oreg.

At the hearing, Federal and State officials will discuss the environmental impacts of Oregon's coastal management program, and then invite citizens to state their views on whether the statement is adequate and whether it proposes a desired course of action.

(Continued on page 2)

MANNING A NEW NOAA EXHIBIT at the 41st North American Wildlife and Natural Resources Conference and Exposition, held this week in Washington, D.C., when this photo was taken were (from left) Linda Sadler, Policy Planner in the Office of Coastal Zone Management; Dave Dressel, Staff Specialist in the National Marine Fisheries Service; and Richard C. Kolf, Associate Program Director in the Office of Sea Grant.

Congressmen To Participate In OCEANS 76

U.S. Congressional leaders in oceanic affairs will participate in a post-dinner panel session, the main event of OCEANS 76 in Washington, D.C., September 13-15.

OCEANS 76 is the annual conference-exhibition of the Marine Technology Society (MTS) and the Council on Oceanic Engineering of the Institute of Electrical and Electronics Engineers (IEEE). It will be held at the Sheraton-Park Hotel.

It is expected that as many as 18 Senators and Congressmen will attend the banquet and participate in the informal panel discussions. In addition to wide representation from academic institutions, industry, research laboratories and local, state and Feder-

(Continued on page 4)

Grant for Pollution Research Awarded to Rutgers University

A $44,800 grant for research on sludge dumping effects on bacteria in waters off the New York-New Jersey coast has been given to Rutgers University, the State University of New Jersey at New Brunswick, by the Environmental Research Laboratories.

The award was made to Dr. Carol D. Litchfield of Rutgers' Marine Sciences Center.

The principal aim of the research is to determine how fast marine bacteria break down pollutants such as hydrocarbons and sewage sludge in the inner New York Bight and the Lower Bay area.

The research area is part of the New York Bight—a 15,000-square mile area extending seaward approximately 100 miles (160 kilometers) between Montauk Point, N.Y., and Cape May, N.J.—under special investigation by NOAA's Marine Ecosystems Analysis program.

Dr. Litchfield plans to establish several sampling stations within and around the dredge spoils dumping site. Sediment samples from the ocean floor and from the bottom meter of water will be examined at six to eight week intervals, and from these, bacterial distribution and changes in the microorganisms' ability to break down dumped pollutants will be determined.

Using pure and mixed cultures of sedimentary microorganisms, Dr. Litchfield will define the influence of cadmium and copper trace metal concentrations and typical hydrocarbon mixtures, present in dredge spoil and sewage sludge, on the growth and metabolic activities of the bacteria. She will also sample mud patches off Long Island three to four times a year for total bacterial population and incidence of potential human pathogenic microorganisms.

Dr. Joel S. O'Connor of the MESA New York Bight project office in Stony Brook, N.Y., is monitoring the research.

Oregon Hearing

(Continued from page 1)

The draft EIS spells out the effects of the Oregon coastal management program which is intended to protect the unique character of the Oregon coast by guiding public and private use of coastal resources, by balancing conflicting demands upon the coast for conservation and development, and by managing the coast's natural assets in a manner that encourages improvement and the widest possible involvement of government officials and private citizens.

Individuals desiring to testify should contact the Office of Coastal Zone Management, NOAA, 3300 Whitehaven Street, N.W., Washington, D.C. 20235. Written comments from persons unable to attend the hearing will be accepted by OCZM through April 19, 1976, for consideration in the final environmental impact statement.

Copies of the draft statement have been mailed to conservation groups, trade associations, State officials, and interested Federal agencies. Additional copies are available from OCZM.

A DEPARTMENT OF COMMERCE BRONZE MEDAL was presented recently to Edward L. Paquet (left), of the National Weather Service Forecast Office in West Columbia, S.C., "in recognition of outstanding performance over an extended period in the preparation of unusually timely and accurate forecasts and outstanding quality control of aviation services in South Carolina." Mr. Paquet, a Leading Forecaster, serves also as the Weather Service Evaluation Officer for South Carolina and as an Air Pollution program leader, and has made immeasurable contributions to improving weather forecasts to soaring pilots.

The award was presented by Allen D. Pearson, Director of the NWS National Severe Storms Forecast Center in Kansas City, Mo. (Photo by Howard H. Lindsay, Disaster Preparedness Agency, State of South Carolina.)

Sea Grant to Consortium

(Continued from page 1)

Under this year's grant, investigators from seven Consortium members will evaluate the use of old Liberty Ship hulls being sunk off the Gulf Coast as artificial reef structures. They will examine changes in fish populations and distribution and determine the economic value of the artificial reefs. Information resulting from the study will be used to make recommendations to Mississippi and Alabama State agencies on ideal reef design and the best locations for other Liberty Ship hulls.

At the Gulf Coast Research Laboratory, scientists are studying fish disease problems associated with the artificial rearing of fin- and shellfish. Last year the Sea Grant-supported team isolated and identified several parasites affecting cultured animals and successfully tested a drug that prevents a specific infection in crabs.

A major effort at the University of Mississippi's School of Pharmacy is directed toward devising a simple, dependable field test for ciguatoxin, a substance frequently found in food fish in tropical reef areas, which can cause poisoning in humans. The researchers have already isolated several components of ciguatoxin and established a facility on Cayman Brac in the Caribbean for collecting, screening, and freeze drying ciguatoxin-affected fish for later study.

Marine environmental research projects to be conducted this year include an assessment of Alabama's coastal marshes designed to aid coastal zone planners; three projects for making better use of seafood processing wastes; and an atlas of Mobile Bay and East Mississippi Sound.

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 fresh haddock and cod along the Northeast Seaboard; flounder and croaker in the Middle Atlantic States, including the D.C. area; speckled trout and breaded shrimp in the Southeast and along the Gulf Coast; smoked herring and fillets of whiting in the Midwest; fresh Dungeness crab and snapper fillets in the Northwest; and fillets of mahimahi and butterfish in the Southwest.

The National Marine Fisheries Service Fishery Products Inspection and Safety Division recently held a staff conference at the Division's Laboratory in Pascagoula, Miss. In attendance were personnel from California, Massachusetts, Florida, Mississippi, and Washington, D.C., and the featured guest speakers were from the University of Southern Mississippi.

Participants included (from left to right and front to rear) Phyllis Altrogge, Economist; Dr. Paul Toom and Dr. Peter Stocks, U. of Southern Mississippi; Jim Brooker, Staff Specialist; Brenda Minkler; Ophelia James; Dr. Irving Sackett, Director of Inspection Services; Phil McKay, Chief, Northeast Inspection Office; Dr. Ray Fields; Glenn Kiel, Acting Chief, Weatern Inspection Office; Dr. John Emerson, Staff Specialist; John Ryan, Research Food Technologist; Dr. Fred King, Research Chemist; Jack Dougherty, Chief, Southeast Inspection Office; and (not in photo) E. Spencer Garrett, Director of the host Laboratory, and several of his staff members.

noaa week

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

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

A NOAA UNIT CITATION has been awarded to four men in the National Environmental Satellite Service Geostationary Data Acquisition Section. John Herkert, Chief of the Section, and Howard Sparks, Oscar Stone, and Steve Talabac were cited for their exceptional effort in expanding the Geostationary Operational Environmental Satellite data acquisition system, originally designed for one spacecraft, to handle incoming data from three spacecraft.

(From Left) Mr. Sparks; Mr. Herkert; David S. Johnson, NESS Director, who presented the Citation; Mr. Stone; Mr. Talabac; and George Casely, Chief of the Geostationary Satellite Branch, who attended the presentation ceremony.

Satellites Aid Flood Warnings

(Continued from page 1)

the NESS Satellite Field Services Station in Kansas City, Mo., said a picture of the mid-continent is provided the weather offices every half hour, both day and night. During the daylight hours, visual images are made available, while during the nighttime the images are infrared.

Once each day an interpretation of the satellite imagery by NESS hydrologists is teletyped to all of the weather stations. In addition, an analysis incorporating snowmelt data transferred onto a gridded satellite picture is provided the NWS River Forecast Center in Kansas City.

From the daily NESS interpretation and the satellite pictures received every half hour, NWS forecasters are able to make water level predictions for their individual geographic areas.

The two spacecraft providing the pictures are in orbit at fixed points above the earth; one over the eastern Pacific Ocean and the other over South America, both above the equator.

The WSFO's receiving the satellite images from Kansas City are at Bismarck, N.Dak., Sioux Falls, S.Dak.; Minneapolis, Minn.; Omaha, Nebr.; Milwaukee, Wis.; Chicago, Ill.; Des Moines, Iowa, St. Louis, Mo.; Indianapolis, Ind.; Cheyenne, Wyo.; Denver, Colo.; Topeka, Kans.; Albuquerque, N. Mex.; Little Rock, Ark.; Memphis, Tenn.; Louisville, Ky.; Birmingham, Ala.; Jackson, Miss.; New Orleans, La.; Oklahoma City, Okla.; and Lubbock, San Antonio, and Ft. Worth, Tex.

Dust Devils Are Slowpokes

(Continued from page 1)

er shell—measures wind velocities by the change in frequency (or doppler shift) of a laser-generated beam of infrared radiation scattered from wind-borne particles—in this case, dust.

On the Gila Indian Reservation near Phoenix, Ariz., and the Energy Research and Development Administration's Nevada Test Site, Dr. Ronald L. Schwiesow and Richard E. Cupp probed passing dust devils with the laser radar. Simultaneously, they filmed with a movie camera to obtain visual images for comparison with the lidar readings. In all, they observed over 40 dust devils.

They found that the horizontal flow of winds in dust devils is fairly slow, *with the highest* velocity measured at 47 miles (79 kilometers) per hour. Certain vase-shaped dust devils had smaller and slower vortices within the main vortex.

Aiming the lidar beam through the Center of the vortex, Dr. Schiesow and Mr. Cupp found another peculiarity. The main flow of winds moves at right angles to the beam, and so all they should have picked up was turbulence. Instead, peak winds rose and fell in a regular fashion. Such measurements may reveal some secrets of that most violent of atmospheric vortices—the tornado. Though dust devils and tornadoes are generated by different processes, once underway their characteristics and behavior may be similar, and scientists hope that by studying the more numerous and accessible desert denizens they can learn more about tornadoes.

Last summer's dust devil observations were funded in part by the Environmental Protection Agency.

NOS, NWS Make First NOAA Automated Tide Gage Installation on Potomac

The National Ocean Survey and the National Weather Service have cooperated in the automation of the Washington, D.C., tide gage.

An NWS Device for Automatic Remote Data Collection (DARDC) was installed on the NOS control tide gage, and now, anyone with an eight-level data terminal connected to a telephone can obtain the tide height by dialing the phone number assigned to the tide gage site.

The DARDC Tide installation was made to test the dependability of the system for operational collection of tide level information. If successful, it will increase both NOS and NWS capability to monitor the tide gage network for data collection or data quality.

DARDC Tide units interrogated via a dedicated communication system (telephone, radio, or satellite) could bring a new demension to the collection and dissemination of tide information needed for both NOS and NWS ongoing programs, according to Robert W. Schoner, Marine Program Leader, NWS Data Systems Division.

ERL Grant Funds Cooperative Research On Severe Storms

Two grants totaling nearly $50,000 have been given by the Environmental Research Laboratories to the University of Chicago and the University of Illinois at Urbana–Champaign for a cooperative observational study of severe storms in the Norman, Okla., area.

The awards were made to Prof. R. C. Srivastava of Chicago's Department of Geophysical Sciences, and Dr. Eugene Mueller of the University of Illinois.

The principal purpose of the research is to monitor severe storm activity on a broad scale while simultaneously detecting hail and other precipitation within the storm system. To accomplish this, the scientists plan to use three Doppler radars in cooperation with the National Severe Storms Laboratory in Norman.

To carry out the research, the CHILL (University of Chicago-Illinois State Water Survey) two-wavelength Doppler radar will be teamed with NOAA's two single-wavelength Doppler radars in Norman for a two-month period during May and June of 1976 and 1977.

Results of the research will contribute to a better understanding of the physics of severe storms, and help answer questions concerning sources and atmospheric "sinks" of momentum, energy, rotation, and water within severe storms.

Dr. Peter Ray of the NSSL will monitor the project.

Instrument Contract Awarded to Raytheon

A $32,748 contract for manufacturing three instruments which illustrate turbulence patterns in the atmosphere has been awarded to the Raytheon Company's Ocean Systems Center in Portsmouth, R.I., by the Environmental Research Laboratories.

The instruments, slightly larger than bread boxes, produce two-dimensional facsimiles of the characteristic behavior of temperature inversion layers, gravity wave effects and thermal plumes, showing their intensity, and height as they occur in the atmosphere.

One of the instruments will be used to measure the temperature structure at Cloudcroft, N.Mex., as part of a laser communications experiment with satellites being conducted by the Air Force. A second instrument will be used to add acoustic echo sounding capability to the Air Force Cambridge Research Laboratories' Doppler wind sensing system. The third will be retained by ERL for research and development purposes.

A GROUP SPECIAL ACHIEVEMENT AWARD was presented recently to the members of the Distribution and Warehousing Group at the Central Logistics Supply Center in Kansas City, Mo., in recognition of their combined efforts as a group in maintaining over a long period of time the goal of a 24-hour turn-around on processing orders. In addition, they were cited for their efficiency in handling, storing, and shipping non-stock items such as special pieces of program equipment and special systems used by various NOAA components.

(From left) Roy A. Harmon, Chief, CLSC, presented the Award to Paul W. Rose; Thomas A. Martinak; Frederick T. Anthony; Maxwell L. Reynolds; James Bynum; Robert E. Newkirk; Roy R. McKee; Jesse L. Harrell; Ferdinand Piggee; Porter M. Thorne; and Floyd L. Miller. On the right is Theo Brunson, Supervisor of the Group, who assisted in the presentation.

notes about people

Dr. Edward R. Meyer has recently joined NOAA as an ecologist for the Environmental Data Service's Deep-water Ports Project Office. He was previously an environmental scientist for the National Commission on Water Quality in Washington, D.C., where he studied the biological effects of abatement of municipal and industrial pollution on freshwater and marine ecosystems.

Dr. Meyer

Dr. Meyer also has served as an Assistant Professor of biology at Virginia Commonwealth University in Richmond.

He received his A.B. degree from Indiana University, M.S. degree from the University of Louisville, and Ph.D. degree from Arizona State University.

Ms. Flagg

Mr. Ellis

Charles B. Ellis, former Technical Assistant to the Chief of the Marine Requirements Coordination Group of the National Ocean Survey's Office of Marine Surveys and Maps, has been appointed Assistant Chief of the NOS Physical Science Services Branch. With the NOS for 23 years, his previous service included more than 13 years aboard survey ships. He was Chief Survey Technician on the Discoverer and the Explorer, and earlier was Chief Quartermaster/Surveyor on the Pathfinder.

Janice K. Flagg has been named Chief of the new Editorial and Publications Section in the same NOS Branch. She was formerly a Technical Information Specialist in the Office of Public Affairs of the National Fire Prevention and Control Administration in the Department of Commerce. Earlier she was a Public Information Officer with the Interior Department's Bureau of Land Management, and also has served as Press Aide/Legislative Aide to several U.S. Congressmen.

A SPECIAL AWARD was presented recently to Harry L. Bahr (left) in recognition of his many contributions to the National Weather Service Agricultural and Aviation Service Programs during more than 45 years as a Weather Service Specialist at Fresno, Calif. The plaque was presented to Mr. Bahr, who has retired, by Rep. B. F. Sisk of California on behalf of NWS Director Dr.George P. Cressman. (A *Fresno Bee* Photo.)

Donald C. Gaby, Manager of the National Environmental Satellite Service Satellite Field Services Station in Miami, Fla., is the author of two manuscripts selected for inclusion in the Official Florida Bicentennial Commemorative Book, *Born of the Sun*. The book incorporates the history and folklore of the State, and all manuscripts selected were approved for publication by the acknowledged dean of Florida historians, Dr. Charlton W. Tebeau.

Mr. Gaby

Mr. Gaby, a long-time Florida history buff, wrote on "Charting New Lands and Waters," and "Satellites Discover Sea Secrets." Both deal with early nautical charts and man's fascination by the Gulf Stream and its influence on man. The second article contrasts Benjamin Franklin's early observations of the Gulf Stream and the difficulties he faced in making them with the superior observations now being made by NOAA satellites and the ease with which they are made. It also describes how the satellites are solving some of the Gulf Stream's mysteries, and the future plans for satellite coverage of the world.

SPECIAL ACHIEVEMENT AWARDS for work which contributed materially to the successful reactivation and initial oceanographic operations of the NOAA Ship Discoverer in Alaskan waters were presented recently by (from left) Capt. C. D. Upham, the Ship's Commanding Officer, to First Assistant Marine Engineer Michael A. Waller, of Virginia Beach, Va.; Chief Electronics Technician Kenneth A. Edwards of Dunnellon, Fla.; and (not in photo) Chief Boatswain Cecil C. Britt, of Orange Park, Fla., who is now serving with NOAA's Atlantic Coast Fleet.

Congressmen To Participate in OCEANS 76

(Continued from page 1)

al government, trade groups from foreign countries will attend.

Acting as moderators for the panel will be members of the marine committees of both houses. Serving as rapporteurs will be Dr. Thomas A. Clingan, Professor of Law, University of Miami, and delegate to the Law of the Sea Conference; and Dr. Don Walsh, Director, Institute for Marine and Coastal Studies, University of Southern California, and co-holder of the world's depth record of 35,800 feet set in the bathyscaph Trieste.

Overall chairman for OCEANS 76 is Joseph R. Vadus, Technology Manager in NOAA's Manned Undersea Science and Technology Office. Vice Chairman for non-technical affairs is Bud Burke, Director, Governmental Relations, Tracor Marine; and Vice Chairman for the technical program is William M. Nicholson, the National Ocean Survey's Associate Director for Marine Technology.

In addition to U.S. industry representation, a trade mission of 21 people from British companies engaged in ocean engineering and technology are planning to attend. Expected to be included is a joint venture of ten companies that will exhibit goods, products and services.

Technical and scientific papers in 27 different areas of interest will be presented by approximately 125 authors. Emphasis will be placed on coastal and international affairs, ocean energy sources, ocean engineering and ocean resources, including offshore facilities and activities.

Foreign Fishing Vessels

(Continued from page 1)

not counted because of the long history of cooperation between fishermen of Canada and the U.S., who have traditionally shared many fishing grounds off the coasts of both nations.

Some of the foreign fishing off U.S. coasts is of recent origin, NMFS officials point out. Ships from the Republic of Korea first began fishing off New England in the late summer of 1975, and Cuban ships first appeared there last fall. Republic of China (Taiwan) ships first began fishing off the west coast last December.

NMFS agents report that the East European nations were fishing off the New England and Atlantic coast primarily for hake and mackerel, the traditional February target species. The U.S.S.R. also fished extensively for squid, which it uses primarily for export. The Mediterranean and Oriental nations fished generally for squid, with the Spanish ships also fishing for cod. Squid fishing also involves a high incidental catch of creatures of the continental shelf, such as lobster, NMFS officials point out.

Off the west coast, the East Europeans fished largely for ground-fish such as hake and pollock, and the Oriental nations chiefly for black cod.

The two Japanese ships in the Gulf were tuna longliners.

During February one foreign fishing vessel, the South Korean Dong Won 709, was seized for violating the contiguous fisheries zone off Alaska. The U.S. District Court in Anchorage has levied a total of $530,000 in fines against the ship.

Edward W. Gill Dies

Edward W. Gill, former Electronics Program Officer at the National Weather Service Forecast Office in New York City (RCA), died on March 21. He had retired earlier this month, after almost 26 years' Federal service. With the NWS since 1956, he had served also at Kennedy Airport and at New York University.

He is survived by his wife, Helen, and five stepchildren.

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