

## Running In Boston

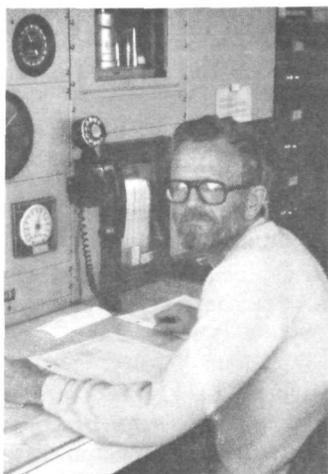


Joel MacDonald

It took about seven minutes for the last of the 7800 runners in the 83rd Boston Marathon to cross the starting line.

Many dropped out along the 26 mile-235 yard course through a cold and wet Boston. But not NOAA's Joel MacDonald and Harold E. McDonnell.

The 31 year old MacDonald, an attorney at the Northeast Region NMFS Office of the General Counsel,



Harold E. McDonnell

finished at two hours and 53 minutes. He runs 60 miles a week year round.

McDonnell, 53, a Weather Service specialist at the Forecast Office in Boston, beat his time for last year's marathon by about 30 minutes, finishing this year at three hours and 42 minutes. He began running two years ago and has claimed one victory — first in the over-50 age group in the Topsfield, Mass., 10 kilometer (6.2 miles) race last year.

## Fire-Retardant Chemicals May Come From The Sea

Use of chemical compounds from aquatic plants to help make children's clothing safer from fire is being studied by Sea Grant researchers at the University of Washington, in one of 49 projects being undertaken there under a \$1,925,400 grant from NOAA. The university is providing \$1,129,100 in non-Federal matching funds for the projects.

Scientists are analyzing the properties of an abundant Pacific Northwest alga which has enzymes that cause chemicals to bond fabrics, making them fire-resistant. They believe that the plant enzymes could be an economical and effective substi-

tute for fire-retardant chemicals that were removed from the market because of their possible contribution to the incidence of cancer.

The University of Washington has received NOAA funding since 1969. One of the largest Sea Grant Programs in the Nation, it was among the first four institutions in the United States to receive Sea Grant College status for demonstrating an integrated program of applied research, education, and advisory services.

## NOAA Continues Work On Reorganization

NOAA officials continue to work closely with the staff of the President's Reorganization Program (PRP) to develop details of the proposed move from the Department of Commerce to a natural resources department, although the reorganization plan has not yet been transmitted to Congress and the date for that transmittal is still uncertain.

The PRP staff has completed a working proposal for reorganization of natural resources. The document, known as the "Green Book," is intended to provide information and to stimulate discussion of the purposes and composition of the proposed Department of Natural Resources.

It explains that a "Depart-

## Tornado Data Show When Storms Hit

Last month's destructive tornadoes which killed more than 50 persons in Wichita Falls and Vernon, Texas, are tragic evidence of the accuracy of statistics, NOAA researchers point out.

Data on the 18,545 confirmed tornadoes that occurred in the United States from 1950 through 1977 indicate that more violent tornadoes happen during the month of April than any other time, and the area of greatest hazard for violent storms is in West Texas.

Ominously, the researchers also warn that the greatest number of tornadoes happen during May, with June running a close second.

Dr. Joseph T. Schaefer of the Technique Development Unit of NOAA's National Severe Storms  
*(Continued on p. 4)*

ment of Natural Resources (DNR) would bring together in a single, Cabinet-level department the necessary components for wise and balanced resource development and protection. To the existing programs of the Department of the Interior would be added the Forest Service from the U.S. Department of Agriculture and the National Oceanic and Atmos-  
*(Continued on p. 7)*

## Doppler May Be Radar Of The Future

Doppler radar, which monitors wind fields as well as precipitation patterns within severe storms, may be the operational weather radar of the future in the United States.

A recommendation to this effect has been made by a joint evaluation team including participants from NOAA's National Severe Storms Laboratory and National Weather Service, the Air Force Geophysics Laboratory and Air Weather Service, and the Federal Aviation Administration.

The recommendation follows two storm seasons of study at the National Severe Storms Laboratory in Norman, Okla., in which a powerful experimental Doppler radar showed impressive capability in providing timely warning of tornado-producing thunderstorms.

Specifically, the joint evaluation found that tornado warn-  
*(Continued on p. 7)*

## In The Next Issue:

*A welcoming ceremony for the Mt. Mitchell.*

# New Model May Improve Storm Surge Forecasting

A new technique has been developed for forecasting of storm surges on Lake Erie, according to David Schwab a researcher at NOAA's Great Lakes Environmental Research Laboratory in Ann Arbor, Mich.

He has devised a mathematical model which utilizes forecasted winds to predict storm surge on Lake Erie. Prior to this time most storm surge prediction techniques were based primarily on atmospheric pressure.

Storm surges are radical changes in water level, usually caused by a major storm passing over a body of water. In Lake Erie, because of its shallow depth and east-west orientation, a storm can cause the water to pile up at one end of the lake while dropping at the other. About once a year, Buffalo experiences a storm surge with water levels there rising more than 4.6 feet (1.4 meters), while the water level at Toledo — on the other end of the lake — may drop by the same amount.

Buffalo's steep shoreline usually protects it from flooding, but sometimes the wind blows

from east to west, and low-lying areas of Toledo may flood, especially if the mean lake level is already high.

To develop his model, he examined historical records on water levels, winds, and wind forecasts, and mathematically simulated storm surges. His simulations generally compared favorably with actual conditions that developed.

Schwab's experiments revealed several peculiarities in the storm surge process. Local variations in winds had as much effect in creating a storm surge as did large-scale wind patterns, and the difference between air and water temperatures greatly affected the wind's effect on the lake.

## NOAA Golf Team Wins 1978 Season

A NOAA/OA golf team won over seven other governmental agencies that competed in the League of Federal Recreation Associations 1978 golf season. Jim Anderson, Larry Berry, Cliff Dey, Gene Dunlap, Mike Gaidurgis, Lee Herman, Bob Kistler, Dave Olson, Norm Phillips, Sy Roman and Andy Timchalk received gold medals at a recent dinner.

# Visit To A Field Station

Something akin to a tornado watch was in effect in Massachusetts early in April: NOAA components in Gloucester and Boston — NMFS and NWS — were awaiting the arrival of NOAA Administrator Richard A. Frank.

Frank's field trips typically move at whirlwind speed, but without any of the devastating consequences. In fact, he tries to leave a lot of good feeling in his trail on those visits. Frank is planning more forays to various field offices, so many NOAA elements can expect to be touched by his travels.

The Gloucester-Boston trip was typical of a Frank sortie. After a one-hour early morning flight from Washington to Boston, he was whisked by car to Gloucester, one hour away. A quick glimpse of the town's picturesque seaside setting was all he got before plunging into a tour of a fish processing plant — Gorton's of Gloucester, a major producer of fish sticks and prepared fish portions. Later a business lunch with industry and NOAA officials.

Following lunch, Frank toured the NMFS regional offices — spread out in three locations of the city — speaking to staff, listening to their comments, and, in his words, "getting a

sense of the operations." He acknowledged later the importance he attaches to these sessions, looking to them to provide glimpses of the NOAA organization that escape him when he's office bound at headquarters.

The drive back to Boston was tight, racing to catch an hour-long editorial staff interview at the Boston Globe, then turning around and heading for the New England Aquarium in downtown Boston where he was to deliver an evening address to the International Council for the Exploration of the Seas.

The following morning, Anthony Trancroto, MIC, Boston Weather Service Forecast Office, picked up the Administrator at 7:30 for a tour of the weather station, including handshaking and banter with employees on duty, followed by an informal question-and-answer session with Frank fielding queries.

Since the weather station is at Logan Airport, it was only a five-minute ride to catch a 9:30 flight back to Washington, getting Frank to NOAA headquarters shortly after eleven, in time for the closing 15 minutes of his weekly staff meeting and an otherwise normal day of NOAA business.

# Savings Bond Drive Begins

The annual Savings Bond Campaign will be during May throughout the Department of Commerce agencies. Employees are encouraged to think seriously of the opportunity to buy U.S. Savings Bonds or to increase current allotment.

Interest rate is six percent when held to maturity. Federal income tax on the interest can be deferred and there are no State or local taxes.



New members of the NWS Alaska Region EEO Committee line up for a picture: (1 to r) Iris Harp, Personnel Division; Tim Renschler, River Forecast Center; Rich Crisci, Environmental Service Branch; Doris Brown, River Forecast Center; Judy Urbatsch, Engineering Division; Lorraine Stickel, WSFO; Ed Misiewicz, Data Acquisition Branch; Vonnie Horton, Budget; Jack Hansen, WSFO. The Hispanic Program Coordinator, Barbara Ogletree, Management Service Division, is not shown.

Jack W. Gehringer, Deputy Assistant Administrator for Fisheries, was selected as Honor Alumnus for 1979 by the Alumni Association of the College of Forestry and Natural Resources, Colorado State University, from which he graduated in 1950.

Dr. James E. Overland will head a Marine Meteorological Studies Group established at the Pacific Marine Environmental Laboratory. Using shipboard, ground-based, aircraft, and satellite-derived data to carry out process-oriented case studies, the group will study the ocean surface and marine planetary boundary layer under the influence of atmospheric processes. Emphasis is on processes that are of importance in providing improved warnings, fore-

casts, and information services by the operational elements of NOAA.

Dean A. Horn, director of the Massachusetts Institute of Technology Sea Grant College Program since 1976, has been awarded the David B. Stone



**Dean A. Horn**

medal by the New England Aquarium Board of Governors for his service to the community, especially in the field of education. Under his leadership, the Institute was designated the first private University to become a Sea Grant College.

Robert H. Menken is the new Official in Charge at WSO, Knoxville. He goes there from



Robert H. Menken the position of Supervising Meteorological Technician at WSFO, Memphis. Menken entered the Weather Service at Little Rock in 1959 after 4 years of duty in the U.S. Navy, where he was Aerographer's Mate, and transferred to Memphis in 1974. He completed all work for his B.B.A. degree at Memphis State College last year.

Gary Butler is the new Meteorologist in Charge at WSO, Savannah. Entering the Weather Service as a meteorological intern at Philadelphia in 1968, he later served as forecaster at WSFO's Raleigh, N.C. and Charleston, W.V. During the last



**Gary Butler**

4 years he served both as general forecaster and disaster preparedness meteorologist at WSFO, Columbia, S.C. Butler received his B.S. degree in mathematics from Wake Forest University and subsequently a B.S. degree in meteorology from Florida State University.

**OBITUARIES**

**Walter A. Chipman**

Dr. Walter A. Chipman, retired research biologist, died April 14. He joined the U.S. Fish and Wildlife Service in 1930 and conducted research in Texas, Virginia, Maryland, and Connecticut. During World War II, he was the Area Coordinator for Fisheries in the Southeastern States. He retired from the Service in 1961 and joined the staff, International Atomic Energy Agency, Laboratory of Marine Radioactivity, Musée Océanographique, Monaco, until 1964. He is survived by his wife, Helene, 1512 Evans Street, Morehead City, N.C. 28557; a daughter, Joan, and two sons, Joseph and David.

**Vern Holmes**

Vern Holmes, retired NWS employee, died April 8. He began his career with the weather service at Chicago in 1938 and went on to serve at Atlanta, Ga., Billings, Mont., Great Falls, Mont., and Omaha, Neb., before his appointment as severe local storms aviation forecaster in Kansas City, Mo., in 1964 where he remained until retirement in 1969. He is survived by his wife, Helen, of 12502 E. 34th Terrace, Independence, MO. 64055.

**Florence Swigert**

Florence Swigert, retired NWS employee, died April 9. A secretary at the National Severe Storms Forecast Center since 1951, she retired in 1974. She is survived by her husband, Joseph, of 3344 Wyandotte, Kansas City, MO 64111.

**Lionel A. Walford**

Dr. Lionel A. Walford, former director and senior scientist of the Sandy Hook Laboratory, died April 9. Instrumental in starting the Laboratory, he was its director from 1960 to 1971 when the facility became part of NOAA's National Marine Fisheries Service. He became the senior scientist and held that position until 1974 when he was appointed executive director of the New Jersey Marine Sciences Consortium. In recent years he had been the consortium's senior scientist in charge of Federal sea grants for New Jersey. From 1936 to 1960, he had worked in various positions with the Fish and Wildlife Service. He graduated from Stanford University in California and earned his Ph.D. in biology at Harvard University. He is survived by three daughters.



Ens. David J. Kruth receives congratulations from Cdr. Joseph Dropp upon being sworn in to the NOAA Corps. Lt. Donald Rice (center) recruited Kruth who began his 10-week NOAA Corps training at Kings Point, N.Y. before being assigned to a vessel in July. Kruth, a scuba diver, received an A.A. degree in 1976 in science and math from Montgomery College in Rockville, and a B.S. in physical science from the University of Maryland in 1978.

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# Following Basic Safety Rules Could Save Lives

Basic safety rules which could save lives during a tornado emergency include:

### "Watch"

- If you hear a Weather Service tornado "watch," continue normal activity but keep a sharp watch on weather conditions. Be prepared to go to a safe place immediately if you spot a tornado, hear one is near, or experience large hail, high winds, power failure, or very frequent, intense lightning.

### "Warning"

- If you hear a Weather Service tornado "warning" for your area, go immediately to shelter.

### Homes & Small Buildings

- In homes and small buildings, stay away from windows, go to the basement or an inside part of the lowest level — closets, bathrooms, or interior

halls are best. Get under something sturdy, such as a workbench or other heavy furniture. A refuge under the basement stairs is recommended. If the storm strikes, cover your head, protect your face.

### Schools, Hospitals, Shops

- In schools, nursing homes, hospitals, factories, and shopping centers, go to pre-designated shelter areas. Interior hallways on the lowest floor are usually best.

### High-rise Buildings

- In high-rise buildings, go to interior small rooms or hallways.

### Mobile Homes

- Leave mobile homes or vehicles, and go to a substantial shelter. If there is no shelter nearby, lie flat in the nearest ditch, ravine, or culvert, with your hands shielding your head.

## Tornadoes

(From p. 1)

Forecast Center in Kansas City, Mo., said that violent tornadoes — wind speeds of from 207 to 318 miles an hour — represent only 2.3 percent of all tornadoes but cause 68 percent of the 111 deaths caused, on the average, each year by such storms.

Weak tornadoes — wind speeds of up to 112 miles an hour — account for 61.7 percent of the average 667 tornadoes annually, but only 2.5 percent of the deaths.

Recognizing that in meteorological terms the period from 1950 through 1977 is but a blink of the eye, Schaefer and his Commerce Department associates in Kansas City nonetheless are convinced that tornadoes not only exhibit an annual cycle, but also a bi-annual one.

Year after year for the period studied, the extent of tornado activity by month keeps repeating itself: the fewest number of tornadoes in January building quickly to a three-month frenzy of activity from April through June, the long-recognized annual cycle. The number of storms drops off by steps through

September, followed by a mild resurgence in late October or early November, the year's second cycle, and then declines almost to the January level during the last month of the year.

Most tornadoes hit in the afternoon, statistics show — about mid-afternoon during summer months but around sunset in winter — and the fewest just prior to sunrise. Early morning tornadoes are relatively rare, but occur most frequently over the southeastern U.S.

"Tornado Alley," extending from north central Texas through Oklahoma and Kansas into southern Nebraska, is thought of as the worst part of the Nation for tornadoes. Statistically, however, sections of the midwest and southeast have experienced a greater number of violent tornadoes. The midwest area of violence is in a box extending from central Ohio west to eastern Nebraska and Missouri, while the southeast area embraces Georgia, Alabama, Mississippi, and eastern Louisiana and Arkansas.

## Editorial Praises NWS

The following editorial entitled "Warning Saved Lives" appeared in the *Wichita Falls Record News*, Friday, April 13.

Action of forecasters in the Wichita Falls office of National Weather Service saved hundreds, perhaps even thousands, of lives in North Texas Tuesday when the killer tornado bore down on the city.

Sirens were sounded in plenty of time for persons at home to take cover. The tornado watch was timely and information announced early in the afternoon was complete.

In virtually every case where a Wichitan could take refuge in a central closet in his home, injuries were minimized and lives saved. These are standard procedures and have been well publicized in the past. They were repeated Tuesday afternoon. The toll was heaviest among persons trying to escape the storm by automobile and persons caught in the open fleeing for their automobiles when the tornado bore down on parking lots and crossed streets clogged with cars en route to their owners' homes.

Efforts of weather service forecasters to provide timely and accurate warnings should be heeded in every case. Forecasters are experts. They know weather and their predictions of potential tornadoes have been amazingly accurate.

Forecasters in Wichita Falls, as well as the weather service's National Storm Center at Kansas City have brought the art of weather forecasting to a science. Their efforts save lives with each storm, and citizens of North Texas and Southern Oklahoma should appreciate their efforts. It was a job done well, with dispatch and professionalism.

Keep those radar weather monitors whirling, please, and keep the warning system intact.

# Texas Tornado Hits Wichita Falls



A door frame and a small closet of the tornado's wrath.

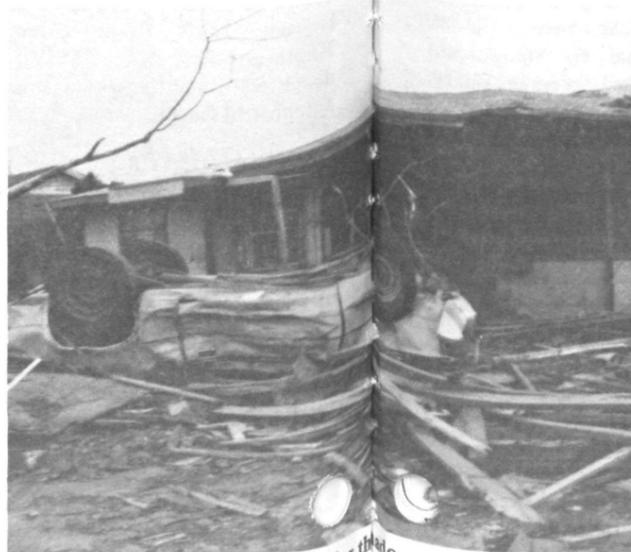


The tornado's path can be traced through this residential street.



Debris is all that remains of what was a mobile home park.

(Photos courtesy of James P. Bess.)



Cars in its path were no match for the tornado.



Outer walls and beams were not safe places to be near during the tornado.



Furniture collapsed through weakened upper floors.

## Sick Leave Can Become A Retirement Benefit

Sick leave can become a valuable fringe benefit if allowed to accumulate.

Each eight hours of unused sick leave counts as one day of credit toward total length of service. Days are converted to months and years on the basis of a 260-day work year.

The service of an employee who: (1) retires on immediate annuity; or (2) dies leaving a spouse entitled to a survivor annuity, is increased by the days

of unused sick leave to his or her credit.

The days of unused sick leave thus added are used in counting the number of years and months of service for annuity computation; they *cannot* be added in figuring the employee's high-3 average salary or for meeting the minimum length of service required for retirement eligibility.

To determine the length of service for annuity computation, all periods of creditable service

and the time represented by the unused sick leave are added and any fractional part of a month in the total is dropped.

For example, an employee with 31 years, 5 months and 20 days service who has 1,124 hours (140 days, or 6 months and 14 days) of unused sick leave to his or her credit at retirement, is credited with 32 years (60% percent times his or her high-3 average equals annuity).

Following are a few common questions asked by employees about sick leave credit toward retirement:

Q: How is unused sick leave credited upon retirement?

A: A retiring employee increases his or her annuity by adding the time represented by the unused sick leave to the retiring employee's actual service. Since the amount of annuity is partly determined by amount of creditable service, adding sick leave to actual service increases the amount of annuity.

Q: What credit is given?

A: Generally, each eight hours of unused sick leave equals one day of service. Days are converted to months and years on a 260-day work year basis. On this basis, approximately 22 days equals one month.

Q: I am able to retire with enough years of service only if I add my unused sick leave to my actual service. Is that permitted?

A: No, sick leave is credited only for computing the amount of annuity. It is not used for figuring the High-3 average salary or for counting toward the minimum length of service necessary to retire.

Q: Is deposit of contributions to the retirement fund required to obtain retirement credit for unused sick leave?

A: No.

Q: My personnel office told me that generally the maximum annuity I can receive is an amount equal to 80 percent of my High-3 average salary. Does this limitation apply to annuity based on unused sick leave?

A: No. Additional annuity resulting from sick leave credit is allowable, over and above the 80 percent

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(Continued on p. 7)

### NOAA Personnel Division Lists Current Vacancies

Announcement Number	Position Title	Grade	Organization	Location	Issue Date	Closing Date
WR-79-35(DD)	Supervisory Meteorologist (Chief, Data Acquisition Div.)	GS-13 or 14	NWS	Salt Lake City, Ut.	4/20	5/11
NWS-79-31VBY/FM	Supervisory Meteorologist (Designated SES)	GS-16	NWS	Kansas City, Mo.	4/20	5/11
ERL-70-82VP	Contracting Specialist	GS-11 (has potential to GS-12)	ERL	Boulder, Colo.	4/25	5/16
NOS-79-41(DB)	Supervisory Cartographer	GS-14	NOS	Silver Spring, Md.	4/23	5/14
OCZM-79-36JT	Estuarine Sanctuary Programs Manager	GS-13	OCZM	Washington, D.C.	4/23	5/14
OCZM-79-35JT	Civil Engineer	GS-13	OCZM	Washington, D.C.	4/23	5/14
SER-79-12	Operating Accountant	GS-9 (promotion potential to GS-11)	ADMIN	Miami, Fla.	4/17	6/1
ERL-79-3PD	Electronics Technician (Communications)	GS-10 (promotion potential to GS-11)	ERL	Boulder, Colo.	2/22	7/30
PR-79-1(DN)	Meteorological Technician (Observations Specialist S/U)	GS-8 (may be filled at GS-7 or 6)	WSO	Johnston Island	3/15	8/17
SER-79-12	Operating Accountant	GS-9 (promotion potential to GS-11)	ADMIN	Miami, Fla.	4/17	6/01
CR-79-50(MK/GL)	Meteorological Technician (Substation Network Specialist)	GS-10 (9, 8, 7)	NWS	Central Region	4/16	10/22
CR-79-49(MK/GL)	Meteorological Technician (Weather Radar Specialist)	GS-9(8, 7, 6, 5)	NWS	Central Region	4/16	10/22
CR-79-48(MK/GL)	Meteorological Technician (Weather Service Specialist)	GS-9 (8, 7, 6, 5)	NWS	Central Region	4/16	10/22
CR-79-47(MK/GL)	Meteorological technician (Weather Service Specialist)	GS-10 (9, 8, 7, 6, 5)	NWS	Central Region	4/16	10/22
CR-79-46(MK/GL)	Meteorological Technician (Weather Service & Radar Specialist)	GS-10 (9, 8, 7, 6, 5)	NWS	Central Region	4/16	10/22
CR-79-45(MK/GL)	Meteorological Technician (Weather Service Specialist)	GS-9 (8, 7, 6, 5)	NWS	Central Region	4/16	10/22
CR-79-44(MK/GL)	Meteorological Technician (Weather Service Specialist)	GS-10 (9, 8, 7, 6, 5)	NWS	Central Region	4/16	10/22
CR-79-43(MK/GL)	Meteorological Technician (Weather Service Specialist)	GS-10 (9, 8, 7, 6, 5)	NWS	Central Region	4/16	10/22
CR-79-42(MK/GL)	Meteorological Technician (Weather Service & Radar Specialist)	GS-10 (9, 8, 7, 6, 5)	NWS	Central Region	4/16	10/22
CR-79-41(MK/GL)	Meteorological Technician (Weather Service & Radar Specialist)	GS-11 (10, 9, 8)	NWS	Central Region	4/16	10/22

## NEW LEGISLATION HELPS HANDICAPPED

Severely handicapped and mentally retarded Federal employees currently serving in "excepted" positions will be able to acquire competitive status without competitive examination according to an executive order signed by President Carter.

The amendment to existing civil service regulations allows the conversion from "excepted" to career status after completing two years of satisfactory performance in the "excepted" appointment. Once in the career status position, employees would get full career benefits.

## Leave (From p. 6)

leave to actual service increases the amount of annuity.

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A: No.

Q: My personnel office told me that generally the maximum annuity I can receive is an amount equal to 80 percent of my High-3 average salary. Does this limitation apply to annuity based on unused sick leave?

A: No. Additional annuity resulting from sick leave credit is allowable, over and above the 80 percent limitation. Although sick leave cannot be used to meet minimum requirement for retirement, crediting sick leave

is not restricted by maximum allowable service limitations. Therefore, the more sick leave you as an employee are able to save, the more it will benefit you in retirement.

# NOAA Continues Work On Reorganization

*(From p. 1)*

spheric Administration from the Department of Commerce. The DNR would have a staff of 89,800 and a budget of approximately \$8.61 billion."

The book's discussion of NOAA in the proposed DNR follows:

The oceans represent a vast natural resource whose potential wealth poses a challenge for proper development and maintenance. Yet responsibilities related to both ocean and atmospheric resources are now split among the National Oceanic and Atmospheric Administration (NOAA) in the Commerce Department and several agencies within the Interior Department. Both Departments have research and regulatory responsibilities related to development and protection of ocean, coastal, and Outer Continental Shelf resources, and both conduct weather modification re-

## Doppler Radar

*(From p. 1)*

search and testing. ing based on Doppler radar added some 20 minutes of lead time, greatly increasing the margin needed to take shelter against these violent, fast-moving whirlwinds.

Doppler radar also reduced significantly the number of false tornado alarms as compared to present tornado-warning operations, which are based largely on a combination of conventional weather radar and eyewitness reports.

The advantage of Doppler radar is that it senses the change in frequency — the Doppler shift — caused by the motion of raindrops and other radar-reflecting targets. This permits scientists to monitor the wind fields as well as precipitation patterns, within a severe storm. Conventional weather radars see only the reflections of moisture in the storm.

The Doppler radar's unique ability to sense motion as well as echo intensity, or "reflectivity," should enhance meteorological services. For example, Doppler radar data can be used to infer

search and testing.

Combining these related activities within a single Administration would provide the Federal Government with an administrative structure appropriate to present day multiple-use needs. It would create a framework for effective management of those activities, such as deep sea mining, which will take on growing importance in the years ahead.

### Proposed Action

—The National Oceanic and Atmospheric Administration would be transferred to the DNR from the Commerce Department. Its activities would be expanded by the addition of OCS leasing responsibilities now held by the Bureau of Land Management, and by the OCS lease administration, regulation and evaluation responsibilities of the Conservation Division of the U.S. Geological Survey. The Marine Mammal Protection Program and anadromous

updraft speeds within thunderclouds, providing weathermen a means of identifying the strong updrafts that produce large, damaging hail.

Doppler radar also improves the precision of warnings. "Because the radar is seeing the circulation that produces the tornado, it can tell us where the tornado is likely to occur," NOAA team-member Donald Burgess of the Oklahoma laboratory explained. "This means we can issue a warning for a particular town, or other specific area that could be affected."

For "maxi-tornadoes," the large funnels responsible for most tornado-related deaths in the United States, the Doppler radar is in its element, according to Burgess. "With a maxi-tornado we can actually see the funnel itself on Doppler radar."

The evaluation team also noted the ability of Doppler radar to identify strong turbulence near thunderstorms, small-scale rotary motions in storms, and other hazards to aviation.

fisheries activities (except for hatchery management) in the U.S. Fish and Wildlife Service would be transferred to NOAA, as would the Bureau of Reclamation's Weather Modification Program. Reorganization will also provide enhanced stature within NOAA for marine fisheries and outer continental shelf management issues.

### Benefits

—By serving as the major center within the Federal Government for ocean resource matters, including international activities, NOAA would develop and administer policies and regulations for assuring the prudent economic development of the multiple resources of the oceans.

—Bringing together OCS leasing, currently split in the Interior Department, will remove the coordination problems which now exist and result in a more efficient program. Placing the OCS program in NOAA will result in quicker decisions on the use of ocean resources and the protection of the ocean environment.

—Duplicate and inconsistent marine mammal and endangered species regulatory procedures would be eliminated, and listing and permit processes would be simplified.

—Duplicative ecological assessments and environmental impact statement reviews would be eliminated, thus lowering costs and paperwork. Faster decisions can be anticipated on projects proposed by the private sector and State and local governments.

—The organizational proximity between meteorological and oceanographic sciences, widely regarded as mutually reinforcing, would be retained and strengthened. Scientists with complementary skills in geology and oceanography would share closer and more productive working relationships by placement in the same Department.

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OFFICIAL BUSINESS

**FROM THE GALLEY**



**FINE 'N FANCY OPEN-FACE FISH STICK  
 RAREBIT SANDWICHES**

- |  |                                       |
|--|---------------------------------------|
| 12 frozen breaded fish sticks<br>(3/4 to 1 ounce each)                         | Softened margarine                    |
| 1 package (10 ounces) frozen<br>rarebit (or 1-1/4 cups of<br>favorite rarebit) | 1 tablespoon sliced green<br>onion    |
| 4 Italian or Vienna bread<br>slices, cut 1 inch thick<br>and on the diagonal   | 8 small tomato slices,<br>cut in half |
|  | 8 cucumber slices,<br>cut in half     |

Heat fish sticks and rarebit as directed on package label. Toast bread slices on both sides. Spread one side of each bread slice with margarine; arrange on serving plates. Spoon 1/2 of the rarebit over the 4 toast slices. Sprinkle with 1/2 of sliced green onion. Alternate 4 half slices of tomato and cucumber and 3 fish sticks on top of each slice of toast. Spoon remaining sauce over fish sticks and tomato and cucumber slices. Sprinkle with remaining sliced green onion. Makes 4 services.

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**Norma V. Reyes, Editor**  
**Warren W. Buck, Jr., Art Director**

**Heaney Heads  
 NOAA's Energy  
 Saving Efforts**

Responding to President Carter's directive for Federal agencies to cut back in their fuel consumption, NOAA has instituted an energy conservation program to be headed by Don Heaney. Major Line Components will also have energy conservation coordinators who will work with Heaney to monitor and cut down the agency's energy use.

Among the first projects to be undertaken to conserve energy will be to air-condition NOAA facilities this summer to only 8°C cooler than the ambient temperature. Therefore, if the outside temperature is 35°C (95°F), air conditioning will be set for 27°C (80.2°F). It is suggested that employees wear cool, comfortable, loose-fitting clothing. Buildings can be made cooler by closing blinds or

**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 frozen breaded fish sticks and fresh ocean perch fillets along the Northeast Seaboard; fresh shad fillets and fresh whole croaker in the Middle Atlantic States, including the D.C. area; fresh whole King mackerel and fresh whole Spanish mackerel in the Southeast and along the Gulf Coast; frozen breaded fish sticks and frozen whiting fillets in the Midwest; fresh turbot fillets and canned chunk-light tuna in the Northwest; and fresh true cod fillets and fresh Pacific red snapper fillets in the Southwest.

drapes on sunny sides and by turning off any item that generates electricity when not in use, such as typewriters, lights, and coffee pots.



WMO Fellow, Teodolinda Atencio from Panama, receives a certificate of training in hydrological data processing, analysis and publication from Daniel B. Mitchell, Director of the National Climatic Center, EDIS. Two WMO Fellows from Colombia, Juan Manuel Ramirez and Edgar Galindo, also received certificates.

# **National Oceanic and Atmospheric Administration**

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