

Scientists See Rise in Global CO₂

A small, persistent rise in global concentrations of carbon dioxide, observed by scientists from Environmental Research Laboratories and Scripps Institution of Oceanography at NOAA's Mauna Loa Observatory in Hawaii for the past two decades, may hold important implications for the world's future climate.

Dr. Kirby Hanson, who directs NOAA's Geophysical Monitoring for Climatic Change (GMCC) program, said the measurements contain very small, hard-to-explain fluctuations, however, that may hold an important key to what caused the rise and what future carbon dioxide concentrations may be.

The Mauna Loa observations are the longest, most nearly continuous record of measured atmospheric carbon dioxide in existence. The observations also are a major piece of evidence for scientific concern that a continued increase in carbon dioxide will lead to the so-called "greenhouse effect," warm the earth, and cause significant changes in global climate.

(Continued on p. 2)

"Artificial Upwelling" Nutrients for Aquaculture Sought by New Methods

A team of scientists, headed by Dr. Oswald A. Roels, at the University of Texas will complete a unique investigation of the potential uses of the cold, nutrient-rich waters from the deep ocean for rearing shellfish with the help of a \$314,800 NOAA Sea Grant.

The study, being conducted at a laboratory on St. Croix in the Virgin Islands, is testing the

Handicap Award Won by Hoffman



NWS's Herbert W. Hoffman receives the Outstanding Handicapped Federal Employee of the Year award from Civil Service Commissioner Erska H. Poston as First Lady Rosalynn Carter and Commerce Secretary Juanita M. Kreps assist.

Herbert W. Hoffman, a meteorological technician at the National Weather Service Forecast Office in Chicago, Ill., and a victim of cerebral palsy since birth, was one of ten winners nationwide selected by the Civil Service Commission to receive an Outstanding Handicapped Federal Employee of the Year Award.

The awards were presented in Washington, D.C., on October 6, by the First Lady, Rosalynn Carter.

Hoffman, 30, is a native of Chicago. In high school, he developed a special interest in science. By the time he was graduated, he had won four awards at Chicago science fairs.

One high school science project, "The Ionosphere and Effects of Thunderstorms," brought him in contact with the Commerce Department as early as 1965. Later, he worked for the Office of Telecommunications, in Boulder, Colo.

In 1973, Hoffman graduated with honors from Southern Illinois University, Carbondale, Ill., with a major in earth science. He shortly will receive a Master of Science degree from Northeastern Illinois University.

In his work at the Chicago WSFO, Hoffman prepares weekly, monthly, and yearly crop summaries which involve tabulating statistics from 18 WSO's and computing the Palmer Index for the climatological divisions within the State of Illinois.

He helps prepare the Severe Storm Summary by reading news clips, checking the Weather Wire, sending and receiving severe storm report forms, and keeping track of tornadoes when they occur.

Also, he has a special research project ongoing to extract monthly temperature information for Lake Michigan and Lake Superior, using satellite infrared

(Continued on p. 2)

EDS's Wind Data Needed For Nuclear Reactor Sites

In an attempt to minimize construction costs in siting nuclear reactors, the Tennessee Valley Authority has awarded two contracts to EDS's National Climatic Center in Asheville, N.C., to extract and analyze wind data.

The first contract is to extract daily maximum 30-minute and hourly wind speeds from each of eight directions (N, NE, E, SE, S, SW, W, and NW) for Knoxville, Tenn., for the period June-September 1948-74. Comparisons will be made of fre-

quency distributions for Knoxville for 1948-74 with the frequency distributions for Phipps Bend—a proposed nuclear reactor site—for a shorter period, 1973-75.

The results will enable TVA design engineers to derive more realistic probability estimates of extreme 30-min. and hourly wind speeds. The remainder of the first contract (nearing completion) will compare the remaining five directions (E, SE, S, SW and W) for Knoxville with those of Phipps Bend.

The second contract is to extract daily maximum 30-min. and hourly wind speeds for three additional stations within Tennessee—Chattonooga, Nashville, and Memphis. Extreme value analyses will be performed and regions of homogeneity will be examined.

The results will provide design engineers with more realistic probability estimates of extreme wind speeds for critical directions. The estimates may be used to reduce construction costs for other nuclear power plants within the Tennessee Valley.

(Continued on p. 2)

Reserve Unit Will Train Mapmakers

NOAA employees may be interested in a reserve military unit presently operating in the Washington, D.C., area. The weekend soldiers of the 955th Topographic Engineering Company comprise one of the few units in the U.S. Army that can handle entire mapping projects from the initial survey stage to final printing.

Equipped with 45 wheeled vehicles and a helicopter, the unit is completely mobile and is currently involved in mapping projects in Florida, Massachusetts, New Jersey, and southern Virginia.

Unit members hail from nearly every Federal agency, but the unit is currently understrength and recruiting veterans and non-veterans to be trained in specialties such as survey, cartography, offset printing, and electrical/mechanical equipment repair.

Anyone interested in joining the unit may call Stan Schneider, NESS, at 763-8142.

Carbon Dioxide (From p. 1)

The 18-year-long Mauna Loa record indicates that atmospheric carbon dioxide has increased from about 314 parts per million in 1958 to about 330 parts per million in 1976—an increase of about five percent.

It also suggests that the annual rate of increase is growing. From 1960 to 1965, for example, measured carbon dioxide at Mauna Loa increased from about 315 to about 318 parts per million, an increase of just under one percent. But between 1965 and 1970, Mauna Loa measured an increase of slightly more than one percent, and the increase was 1.2 percent between 1970 and 1975.

A number of studies, Hanson said, are using the 18-year observational record to try to determine what portion of the carbon dioxide released from fossil fuel burning over that period has remained in the atmosphere. But

Dr. Nancy Moffatt Awarded NOAA Research Fellowship

Dr. Nancy M. Moffatt was awarded a National Research Council/NOAA Post-Doctoral Research Fellowship, in September, to pursue her studies at the Southwest Fisheries Center in La Jolla, Calif.

Dr. Moffatt, who received her Ph.D. degree in May 1977, from the University of Arizona, is the second woman to be honored by award of the NRC/NOAA Fellowship at the Center since its inception in 1970.

She received her early education in San Diego and Escondido public schools and completed her first two years of college as a biology major at the University of California, San Diego. Her interest in marine biology and ichthyology led her to undertake graduate studies at the University of Arizona.

There, she enrolled in the marine sciences program that emphasizes studies in the northern Gulf of California. Her master's thesis was on the taxonomic status of grunions—small, silvery fish that spawn on beaches and incubate eggs in the sand.

At the Southwest Fisheries

natural fluctuations in carbon dioxide associated with the rise in ocean temperature changes are combined in the observational record with carbon dioxide from fossil fuel burning.

This uncertainty has a significant effect on assessing the observed increase in atmospheric carbon dioxide. One way to reduce the uncertainty is to have a longer record, according to Hanson, and this can only be obtained by continued monitoring at those observatories that already have a lengthy record.

"Twenty years is barely a tick on the climatic clock. We need to maintain continuity of measurements across generations of scientists, or we'll never be able to tell where we are, where we've been, or where we're going in terms of global climate and the factors that cause it to change," he said.

Center, Dr. Moffatt plans a series of feeding and rearing experiments to verify survival and growth rates of several larval fishes raised with very small amounts of food.



Dr. Nancy M. Moffatt

Her present experiment involves anchovy larvae, fed with the green algae, *Chlorella*, supplemented with wild plankton she nets each morning off the Scripps pier.

An expert scuba diver, tennis enthusiast, and amateur musician, Dr. Moffatt has as her career goal fisheries research and teaching at the undergraduate university level.

Glaciers of World To be Mapped for Satellite Atlas

The Environmental Sciences Group of NESS recently was asked by the U.S. Geological Survey to assist in the preparation of a *Satellite Atlas of Glaciers of the World*. Although the project is still in a formative stage, Dr. Richard S. Williams of the Geological Survey's EROS staff, who heads the project, named Donald R. Wiesnet, NESS Sr. Research Hydrologist, to coordinate the work on Greenland glaciers. Dr. E. Paul McClain, Director of the Environmental Sciences Group, will help to write the Chapter on Sea Ice. Wiesnet also will prepare a chapter on variation in global snow cover. Both NOAA and NASA satellite imagery will be used in this atlas.

Upwelling (From p. 1)

waters. In some coastal areas of the world, these nutrients come to the surface naturally, in a process known as upwelling, to produce some of the oceans' most productive fishing grounds.

The University of Texas project involves "artificial upwelling"—pumping enriched bottom water to the surface and discharging it into ponds as a nutrient source of algae. The algae in turn are fed to commercially valuable shellfish.

Because the water comes from such great depths it is remarkably pure.

Hoffman (From p. 1) pictures.

In addition, Hoffman has taken the NWS Hydrology Course and is working on a series of computer courses from the NWS Technical Training Center.

For the past year or so, he has handled climatological requests from the public. He is a keen observer and has made suggestions that resulted in improved operational procedures at the Chicago office.

All this is the more remarkable because Hoffman is confined to a wheelchair, without the use of his arms or legs. He has severely restricted speech and is rather frail.

But the use of the toes of his left foot enabled him to learn to type as a child, to learn to write with a pencil, and later to use calculators and copying machines. Now that he has a self-correcting typewriter, he prepares letters and reports in final form.

Ray Waldman, Meteorologist-in-Charge of the Chicago Weather Service Forecast Office, says: "He shows deep concern for his fellowman, rarely makes demands of others, and is eager to help with no thought of his plight."

In the whirlwind of activity that accompanied his Washington tour, Hoffman lost no opportunity to "lobby" on behalf of the handicapped—a personal crusade to which he is deeply dedicated.

Hoffman's parents and Waldman accompanied him to Washington to receive the award.



This year's officers of the D.C. Chapter of the American Meteorological Society (AMS) are (left to right): Dr. Celso Barrientos, NWS; Cynthia Hee, NWS; Maj. Robert Black, Air Weather Service; and Dr. Thomas Potter, EDS. (Photo: Ross LaPorte, NESS)

DC AMS Holds First Meeting

The D.C. Chapter of the American Meteorological Society held its first of the season's meetings as a joint meeting with the National Capital Area Chapter of the National Weather Association.

The program for the evening was Operational Weather Forecasting—How it's Done and Where it Goes From Here.

Dr. Harry Glahn, director of Technique Development Laboratory (TDL) of the National

NOS Supports Airport Open House

The National Ocean Survey's Office of Aeronautical Charting

Weather Service, discussed the goal and work of TDL.

Harry Brown, Chief, Basic Weather Branch, National Meteorological Center, represented the first line user of the TDL products. Brown commented on the man-machine mix, how it works and its future at the NMC.

G. C. Henrickson, lead forecaster in the Washington D.C. Weather Service Forecast Office, looked at WSFO responsibilities and the use of guidance products received from TDL and NMC.

and Cartography will be participating in an open house at College Park Airport on October 23 and 24. The event is sponsored by the Friends of College Park Airport to encourage public awareness of our aviation heritage and to celebrate the commemorative arrival of the Spirit of St. Louis replica.

On October 24, College Park Airport, the world's oldest, will host the "Spirit's" 98th stop in a 103-stop, 48-state tour commemorating the 50th anniversary of Lindbergh's solo Atlantic crossing. This event offers area residents one of two opportunities to see this historic replica in flight; it will stop at Dulles Airport on the 23rd.

Antique and classic aircraft will be on display at the open house along with other exhibits and demonstrations showing the history and maturation of American general aviation. The open house is free to the public.

Four from NOAA Honored With Awards at "Oceans '77"

Special Marine Technology Society citations will be awarded to four NOAA persons at MTS's annual conference—"Oceans '77"—held this month in Los Angeles, Calif.

Joseph Vadus, NOAA Office of Ocean Engineering, will be honored for long-time service and for managing the Society's 1976 annual conference.

Steven N. Anastasion, NOAA Office of Ocean Engineering, will be honored for long-term service and to marine technology in general on the Washington scene.

William Nicholson, of National Ocean Survey, will be honored for long-term service, particularly that associated with the Society's involvement with the Inter-Society Offshore Technology Conference.

Dr. Athelstan Spilhaus, NOAA Office of the Administrator, will receive the Fifteenth Anniversary Award of the Society. Dr. Spilhaus is honored for his brilliant innovations in marine technology and the application of marine science to social and economic problems for the past four decades. Among his innovations were the invention of the bathythermograph and the concept of the Sea Grant Program.

A former NOAA employee is the new executive director of the Marine Technology Society. Navy Cdr. George Gowans was the executive secretary of the Committee on Atmosphere & Oceans of the Federal Coordinating Council on Science, Engineering & Technology, and chief of staff to the naval advisor to NOAA.

Recycling Campaign Pays Off for NOAA Ship's Crew

Chief Electronic Technician Terry McKenney and other members of the NOAA Ship Rainier's crew—Jose Baletto, Jeff Seefried, and George Ellis—have been active in a five-month aluminum pop can recycling campaign that netted more than 165

pounds of aluminum. One cent for every pound of recycled aluminum is sent to the Jerry Lewis Muscular Dystrophy Fund. The remainder of the money earned will go to buy equipment for the ship's baseball team.



Lt. Cdr. Thomas W. Richards (right), NOAA Ship Rainier Executive Officer, congratulates Chief Electronic Technician Terry McKenney for his efforts in a successful aluminum can recycling campaign.

NOAA NEWS

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

Nancy Pridgeon, Editor
Warren W. Buck, Jr., Art Director

NOAA's Top Awards...

Five NOAA employees received NOAA Awards and two received NOAA EEO Awards on October 7, at the annual NOAA Awards Luncheon, held in Washington, D.C.

In addition, 28 NOAA units received Unit Citations as they continued the NOAA tradition of people helping people.

The top awards ranged from public service through scientific research and achievement, engineering and applications development, to program administration. Cited were:

Dr. Donald L. Gilman, National Weather Service Long Range Prediction Group, who received a Public Service Award for accurately predicting the severe winter of 1976-77. Gilman, who heads the LRPG, warned Congress as early as November of 1976 that the eastern half of the Nation would be colder than normal from December through February.

As last winter's cold weather crisis deepened, heavy demands were placed on Gilman's group by the media, the general public, agricultural and industrial interests, and high levels of Government. Gilman appeared on national television about 15 times to explain his predictions.

Dr. C. Gordon Little, who heads Environmental Research Laboratories' Wave Propagation Laboratory, received NOAA's Scientific Research and Achievement Award for his leadership in organizing the Laboratory in 1967 because he was convinced that advances in atmospheric science and improvements in weather service depend upon improving methods of observation.

Since that time, a variety of remote sensors have been developed to solve these problems, either as a result of Little's or his laboratory's work, or WPL-inspired research done at the Boulder Laboratory. Today, WPL is the only one of its kind in the world in the breadth of its remote sensor development—forerunners to the application of remote and on-site sensors to the problem of accurate short-term weather forecasting.

Dr. George H. Ludwig, Director of Operations for the National Environmental Satellite Service, received the NOAA Program Administration Award for his managerial and technical leadership in planning, organizing, and directing the NESS Office of Systems Integration, a unit he helped to set up in 1972.

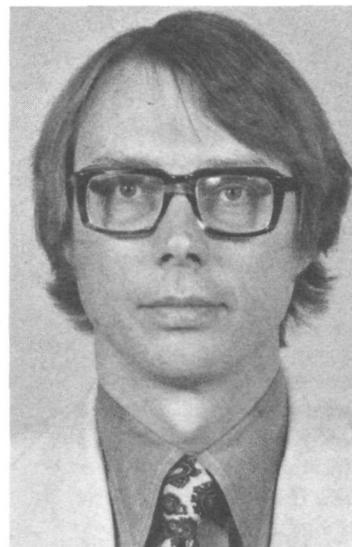
Working closely with NASA and system contractors, Dr. Ludwig's group follows the system they will one day manage—for example, the TIROS N, planned for the late 1970's—through design, development, testing, and production. After the satellite is launched, its operation is the responsibility of the Satellite Service.

Frank R. Niedermair, a computer specialist for National Ocean Survey's Aeronautical Charting and Cartography Division, received an Engineering and Applications Development Award for his work in the design and implementation of two major systems that have improved the FAA's Air Traffic Control System.

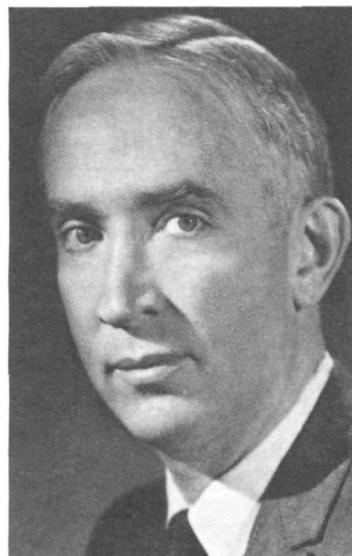
One system he designed—the Computational Oriented National Data Optimum Retrieval System (CONDOR)—is now the Government standard for computing geodetic positional information for aeronautical chart compilers using remote computer terminals. The second—the Radar Video Map System—aids the automated production of chart overlays for Air Traffic Control radar displays.

Dr. John B. Pearce, head of the National Marine Fisheries Service Sandy Hook Laboratory, received the NOAA Scientific Research and Achievement Award for leading a group of Federal experts in developing an effective, environmentally oriented, oversight of dredging and spoiling operations. Pearce, as Chairman of the Interagency Advisory Subcommittee on Ocean Dredging and Spoiling, monitors such operations to assure no environmental damage.

A recognized authority in marine ecosystems science, Pearce has published a nine-



Dr. Donald L. Gilman



Dr. C. Gordon Little



Dr. George H. Ludwig

...People Helping People



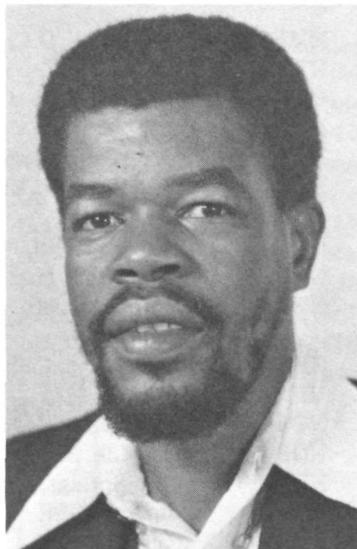
Frank R. Niedermair



Dr. John B. Pearce



Samuel S. Ross



Landry Williams

volume study on the biological effects of ocean dumping. He is the principal investigator for all biological aspects of NOAA's multiagency environmental study of the New York Bight.

Samuel S. Ross, an Equal Employment Opportunities Specialist, received the NOAA EEO Award for his outstanding work as an EEO Counselor. From 1972 to 1976, Ross served as a volunteer EEO Counselor for National Environmental Satellite Service while he worked as a physical science technician.

In 1976, he was selected as a full-time EEO Counselor for NOAA. During this time, he was able to settle more than 90 percent of the informal complaints on EEO matters brought to him. Only one of the 54 informal complaints he processed went on to become a formal complaint.

Landry Williams, a scientist with National Ocean Survey, received the NOAA EEO Award for his voluntary work, carried out in addition to his regular work, and his dedication to eliminating discriminatory practices in NOAA. From June 1976 to June 1977, Williams was Chairperson of the NOAA Equal Employment Opportunity Committee.

During this period, the committee, under William's leadership, successfully advanced EEO objectives in the establishment of NOAA's High School Cooperative Education Program; production of an in-depth assessment of NOAA's Upward Mobility and Cooperative Education Program, which uncovered several deficiencies; establishment of a formal written quarterly review of NOAA Affirmative Action Plans to promote EEO accountability; and establishment of NOAA's first agency-wide EEO Newsletter.

The Unit Citations recognize groups of employees who, through their individual and collective efforts, have made substantial contributions to NOAA programs or objectives. The 1977 NOAA Unit Citation for Special Achievement has been presented to:

National Ocean Survey:

- Area Team 2, Nautical Chart Branch
- Base Line Team G-10
- Nautical Chart Section
- NOAA Ship Rainier
- AMC Electronic Engineering Division
- PMC Electronic Engineering Division
- PMC Processing Division
- Electronic Systems Branch

National Weather Service:

- WSMO Guam
- Weather Service Meteorological Observatory, San Diego
- Forecast Staff, WSO, Meridian, Miss.
- Forecast Staff, WSO, Fort Smith, Ark.
- WSO Atlantic City
- NWS Technical Training Center, Kansas City, Mo.
- WSFO Albany
- WSFO Buffalo Forecast Unit
- WSFO Buffalo Observing Unit
- WSO Tampa Bay Area
- WSFO Pittsburgh
- Sacramento Federal-State River Forecast Center

National Environmental Satellite Service:

- Satellite Winds Section

Environmental Research Laboratories:

- Research Facility Center Crew N6541C
- Argo Merchant Oil Spill

National Marine Fisheries Service:

- Marketing Services Division Field Staff
- Investigations of Satellite Applications to Fishery Problems
- First International Saturation Study of Herring and Hydroacoustics

Environmental Data Service:

- Model Operations Division, CCEA
- Library and Information Services Division

Deadline for Leave Requests is November 1

As stated in the 6/10 NOAA News, leave cannot be restored if no schedule was filed. To minimize problems associated with requests for restoration of annual leave, supervisors are reminded that, under no circumstances, will favorable considera-

tion be given to such requests if the leave was not properly scheduled. Chapter 12 of the NOAA Personnel Handbook and Chapter 10 of the Vessel Personnel Handbook provide guidance on leave scheduling and leave restoration. Particular attention

must be given to employees on sick leave who have not scheduled annual leave.

Annual leave of the type below must be requested and scheduled, specifically and in writing, by November 1, 1977.

-Leave in excess of the employee's personal ceiling.

-Restored leave based on an exigency of the service which ended in 1975.

-Leave restored in 1975 because of either illness or administrative error.

Alcoholism Affects Others Besides the Drinker

Alcoholism or alcohol abuse is involved, one way or another, in 50 percent of all first admissions to mental hospitals, 50 percent of all arrests in the U.S., 50 percent of the Nation's highway deaths, and 40 percent of all problems before family courts. The estimated 375,000 addicts hooked on heroin are a small percentage compared to the 10 million to 18 million alcohol addicts in this country.

The American Medical Association classifies alcoholism as a medical disease. Alcoholics Anonymous calls it a physical, mental and spiritual disease. Whatever adjectives are used, the

general consensus is that alcoholism is a disease. An alcoholic is compelled to drink and needs alcohol to cope with life. Alcoholics are not social drinkers; they are addicted to alcohol. No prayers, scoldings, punishment, or rewards can stop that addiction. If alcoholics do not stop drinking, their physical or emotional condition worsens, ending in death or insanity unless the disease is arrested.

What many people do not realize is that alcoholism not only directly affects those millions of alcoholics, but also tens of millions of nonalcoholics as well. These people include the

wives and husbands, the neglected or battered children, and those who die each year on the highway because of alcoholic drivers. There also are supervisors and co-workers who must shoulder the load when the alcoholic does not report to work. Industry calls it the "billion dollar hangover."

But most of all, alcoholics hurt themselves and don't immediately realize it because it is an insidious disease. For many years, "booze" is the friend of alcoholics. However, the day comes when drinking is no longer pleasurable and there is only a desperate need for a drink to

survive. To an alcoholic, the only important thing becomes the next drink.

The symptoms of the disease can be recognized at an early stage and with appropriate treatment and help, the alcoholic can become a sober alcoholic and the disease can be arrested.

Further information on the services offered by NOAA's Employee Assistance Program may be obtained by calling (301) 443-8105 or writing Sue Balboa, Employee Assistance Program Coordinator, Employee Relations and Advisory Services Section, AD453, 6001 Executive Blvd., Rockville, Md. 20852.

NOAA Personnel Division Lists Current Vacancies

Announcement No.	Position Title	Grade	MLC	Location	Issue Date	Closing Date
1-78	Fishery Administrator	GS-13	NMFS	Gloucester, Mass.	10/3/77	10/18/77
2-78	Electronic Technician	GS-11	NWS	Suitland, Md.	10/3/77	10/18/77
4-78	Meteorological Technician	GS-10	NWS	Erie, Pa.	10/3/77	10/18/77
5-78	Meteorological Technician	GS-8	NWS	Pittsburgh, Pa.	10/3/77	10/18/77
7-78	Cartographer (Nautical)	GS-12	NOS	Rockville, Md.	10/3/77	10/18/77
8-78	Supervisory Cartographer	GS-14	NOS	Rockville, Md.	10/3/77	10/18/77
638-77	Fishery Biologist (Research Admin.)(Reissue)	GS-15	NMFS	La Jolla, Calif.	10/3/77	10/18/77
3-78	Fishery Administrator	GS-14	NMFS	Washington, D.C.	10/3/77	10/26/77
6-78	Public Information Officer	GS-14	HDQS	Rockville, Md.	10/3/77	10/26/77
9-78	Meteorologist	GS-15	ERL	Boulder, Colo.	10/3/77	10/26/77
10-78	Electronic Technician	GS-9	NWS	Boise, Idaho	10/11/77	10/26/77
11-78	Meteorological Technician	GS-8	NWS	Wake Island, Hawaii	10/11/77	10/26/77
12-78	Construction Representative	GS-5/6/ 7/8/9	NWS	Salt Lake City, Utah	10/11/77	10/26/77
15-78	Meteorologist	GS-12	NWS	Riverside, Calif.	10/11/77	10/26/77
16-78	Electronic Technician	GS-10/11	NWS	Kansas City, Mo.	10/11/77	10/26/77
17-78	Electronic Technician (Instruction)	GS-11	NWS	Kansas City, Mo.	10/11/77	10/26/77
18-78	Supervisory Meteorologist	GS-15	NWS	Los Angeles, Calif.	10/11/77	10/26/77
19-78	Research Chemist	GS-12	NMFS	Beaufort, N.C.	10/11/77	10/26/77
21-78	Supervisory Cartographer	GS-12	NOS	Silver Spring, Md.	10/11/77	10/26/77
22-78	Civil Engineer	GS-12	NOS	Rockville, Md.	10/11/77	10/26/77
13-78	Supervisory Physical Scientist	GS-14	NESS	Camp Springs, Md.	10/11/77	11/2/77
14-78	Program Analyst	GS-11	ERL	Boulder, Colo.	10/11/77	11/2/77
20-78	Industry Economist	GS-11	NMFS	Miami, Fla.	10/11/77	11/2/77
23-78	Computer Specialist (5 Vacancies)	GS-12	NOS	Rockville, Md.	10/11/77	11/2/77

CALENDAR OF EVENTS

October 17-19
Washington, D.C.
American Shore and Beach Preservation Association Annual Meeting. (Contact: Jay Combe, U.S. Army Corps of Engineers, Coastal Engineering Research Center, Kingman Bldg., Ft. Belvoir, Va. 22060 (202)325-7127.)

October 17-19
Los Angeles, Calif.
OCEANS 77, Bonaventure Hotel, Los Angeles, Calif. Third annual MTS/IEEE sponsored conference and exhibition. (Contact: Pat Messerly, OCEANS 77 Conference Coordinator, MTS Los Angeles Regional Section Office, 615 South Flower St., Suite 504, Los Angeles, Calif. 90017 (213)620-1703.)

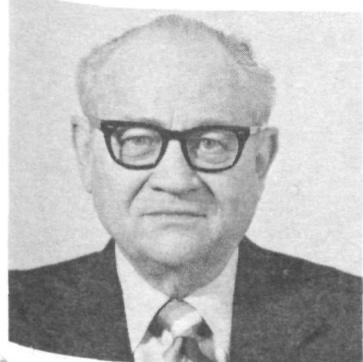
October 18-21
Omaha, Nebr.
Pacific Coasts Symposium and Third Annual Meeting of The Coastal Society, Washington Plaza Hotel. Seattle. (Contact: M.L. Schwartz, Dept. of Geology, Western Washington State College, Bellingham, Wash. 98225.)

November 3-5
Seattle, Wash.
4th Joint Conference on Sensing of Environmental Pollutants. (Contact: Dr. V.E. Derr, Program Chairperson, NOAA, Environmental Research Laboratories (R45x3), Boulder, Colo., 80302.)

November 6-11
New Orleans, La.
Chapman Conference on Applications of Kalman Filtering Theory and Technique to Hydrology, Hydraulics and Water Resources. Sponsored by AGU, call for papers is issued; deadline, Jan. 31, 1978. (Contact: Chao-Lin Chiu, Dept. of Civil Engineering, Univ. of Pittsburgh, Pa. 15261.)

May 22-24
Pittsburgh, Pa.
AMS Severe Local Storms Conference. Tenth Annual conference including two sessions devoted to cross-disciplinary approach to forecast, dissemination, preparedness and public response. (Contact: Co-Chairmen Herbert S. Lieb, NWS Disaster Preparedness Staff, Gramax Bldg., Silver Spring, Md. 20910 (301) 427-8090, or H. Michael Mogil, NWSH Public Services Branch, Gramax Bldg., Silver Spring, Md. 20910 (301) 427-7677.)

The government of Saudi Arabia has hired Max Mull, through the World Meteorological Organization, to act as a consultant in marine meteorology for a period of at least one year to provide advice on the establishment of marine meteorological services for the Arabian Gulf and Red Sea.



Max Mull
Mull retired September 15 from his post as chief of the National Weather Service's Marine Weather Services Branch. He assumes his new duties in

Saudi Arabia this month.

The principal focus will be on the provision of marine weather forecasts to help the safe navigation of oil tankers and other vessels operating adjacent to the Arabian Peninsula, as well as weather services for loading operations in port.

Jim Andrews, NWS National Meteorological Center focal point for all medium range forecasting, has been named chief of NMC's Medium Range Forecasting. He also is deputy chief of the Basic Weather Branch and the leading extended forecaster. His new role will stress the impending inauguration of a 6- to 10-day forecasting program based on numerical forecast guidance.

ERRATA

Dr. P. Krishna Rao's name inadvertently was misspelled in the 9/16 issue of *NOAA News*.

NOTES ABOUT PEOPLE

Two station chiefs have been appointed to manage facilities at opposite ends of the earth—in Alaska and Antarctica—for the Air Resources Laboratories' Global Monitoring for Climatic Change (GMCC) program, part of ERL.

Lt. Thomas DeFoor, a NOAA Corps officer who formerly was with ERL's Space Environment Laboratory in Boulder, Colo., has been appointed station chief of GMCC's Point Barrow, Alaska, facility. He replaces Lt. Cdr. Emerson Wood, also of the NOAA Corps, who has assumed new duties as the fourth officer aboard the NOAA Research Vessel Discoverer, based in Seattle, Wash.

Lt. (jg) John C. Osborn, Jr., of the NOAA Corps has been named station chief of GMCC's



Lt. (jg) John C. Osborn, Jr. South Pole facility in Antarctica. He replaces Brad Halter who will be returning to GMCC headquarters in Boulder.

Larry Smith, an electronic engineer, will assume the duties that were formerly carried out

by Gary Rosenberger in Antarctica. Rosenberger also will be returning to the Air Resources Laboratory facility in Boulder. Osborn and Smith left for Antarctica in late September after attending an orientation in Reston, Va.

Reed M. Lyons, Jr., is the new Official-in-Charge at NWS's Weather Service Office in Winnemucca, Nev. Lyons formerly was at the WSO in Pocatello, Ida.

Elizabeth J. Yeates, chief of EDS's Library and Information Services Division, Environmental Science Information Center, and Sanford R. Miller, Meteorologist-in-Charge of the National Weather Service's Sioux Falls, S.D., weather station, were two of seven Commerce employees awarded Certificates of Appreciation in a ceremony held at the Department of Commerce, August 26.

The seven were honored for their ideas on better ways to achieve Departmental goals. Their suggestions were submitted in response to a request for such suggestions issued to all DOC employees by Under Secretary of Commerce, Sidney Harman.

Ms. Yeates' suggestion outlined specific ways to improve NOAA's library and information services through computerization and resource sharing. Mr. Miller suggested changes in the programs of the National Weather Service.



(Left to right): Under Secretary of Commerce Sidney Harman; Elizabeth J. Yeates, Chief, Library and Information Services Division, EDS; and Mr. Richard A. Frank, NOAA Administrator.

FROM THE GALLEY



MAINE SARDINE SUBMARINE SANDWICH

3 cans (3- $\frac{3}{4}$ or 4 ounces each) Maine sardines	6 lettuce leaves
1 onion, thinly sliced	2 tomatoes, thinly sliced
2 tablespoons butter or margarine, softened	Salt
1- $\frac{1}{2}$ teaspoons prepared mustard	6 slices cheese
3 submarine rolls, 12 inches each	Mustard Sauce
	1/3 cup mayonnaise or salad dressing

Drain sardines. Separate onion slices into rings. Combine butter and mustard. Cut rolls in half lengthwise. Spread bottom half with mustard butter. Cover with lettuce, tomato slices, and onion rings. Sprinkle with salt. Cover with cheese and sardines. Pour Mustard Sauce over sardines. Spread top half of rolls with mayonnaise. Cover sandwiches and secure with toothpicks. Makes 6 servings.

Mustard Sauce

1/2 cup mayonnaise or salad dressing	2 teaspoons pickle juice
2 tablespoons prepared mustard	Dash liquid hot pepper sauce

Combine all ingredients. Makes approximately 2/3 cup sauce.

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 canned Maine Sardines and fresh pollock fillets along the Northeast Seaboard; fresh whole spot and gray seatrout in the Middle Atlantic States, including the D.C. area; fresh flounder and mullet fillets in the Southeast and along the Gulf Coast; frozen pan-ready whiting and frozen ocean perch fillets in the Midwest; fresh Pacific red snapper fillets and Greenland turbot fillets in the Northwest; and fresh butterfish fillets and frozen mahi mahi fillets in the Southwest.

Oil Field Scrutinized By NMFS Galveston Laboratory

The Galveston Laboratory of the Southeast Fisheries Center, NMFS, has begun the second year of a detailed environmental assessment research project of the Buccaneer Oil Field sponsored by the Environmental Protection Agency. The Buccaneer Field is 32 miles southeast of Galveston, Tex., and is isolated from other gas and oil fields. It includes two production platforms and 13 satellite platforms. The field has produced both oil and gas since 1963.

The Galveston Laboratory of the Southeast Fisheries Center, NMFS, manages the project under the direction of Laboratory Director Dr. Edward F. Klima, and Program Manager Dr. Charles W. Caillouet. Project Leaders are K. Neal Baxter and William B. Jackson. Participants in the study include NMFS personnel, Texas A&M University, Rice University, University of Houston, and a private research company, LGL, Inc. of Canada.

The objectives of the 1977-1978 project are to describe and predict fate and effects of discharges into the marine ecosystem; identify and document the extent and types of biological, chemical and physical alterations associated

with discharge elements; and determine specific pollutants, their quantity and effects on various parts of the marine ecosystem.

Studies presently underway include: fine sediments, nepheloid layer, heavy metal adsorption; toxicity bioassays with larval-adult shrimp; pelagic-demersal finfishes and macro-crustaceans; ichthyoplankton; bacteria; structure and discharge effects; current patterns and hydrography; bioaccumulation of selected metal and nonmetal pollutants; and ecological and hydrocarbon modeling.

The study is conducted from three primary vessels, smaller support craft, and from the production platforms. Modeling is being used as a tool for study and logistics integration. As part of the integration effort, a preliminary project workshop was held June 15-16.

JOGGERS' DAY

NOAA Field Units, this is your day, too.

The Washington, D.C., area event will take place rain or shine!

Time: 1:00 p.m., Oct. 29.

Place: Carderock Picnic Area.



Participants of the Southeast Fisheries Center Galveston Laboratory preliminary project workshop held June 15-16, in Galveston, Tex., were: (Seated, left to right) Dr. B. Middleditch, University of Houston; Dr. R. Sizemore, University of Houston; S. Holloway, University of Houston; P. Snodgrass, LGL; Z. Zein-Eldin, NMFS; J. Finucane, NMFS; W. Jackson, NMFS. (Standing, left to right) Dr. C. Caillouet, NMFS; R. Howard, LGL; K. Marvin, NMFS; J. Margraf, LGL; B. Gallaway, LGL; R. Armstrong, Atlantic Environmental Group; G. Bolland, LGL; Dr. R. Scharzer, Rice University; I. Workman, NMFS; L. Martin, LGL; R. Putt, LGL.

National Oceanic and Atmospheric Administration

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