



noaa week

National Climatic Center

Volume 7 Number 16 April 16, 1976

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President Signs 200-Mile Fisheries Measure

Pollutants Escape From Powerplants On Flyash Particles

Such pollutants as sulphur, chlorine, and some metals may escape from coal-fed powerplants on microscopically small particles of flyash, according to an Environmental Research Laboratories scientist.

These pollutant-bearing particles are as breathable as cigarette smoke, and so small that most anti-pollution smokestack devices let them through, reports Dr. Rudolf F. Pueschel, who leads the nucleation work at ERL's Atmospheric Physics and Chemistry Laboratory.

The particles are also efficient condensation nuclei—the solids and which drops form in clouds—and light and stable enough to float in the atmosphere for weeks, according to Dr. Pueschel.

"Because they are produced in great quantities," he explained, "these small particles carry proportionately large amounts of pollutants into the atmosphere, and many miles downwind of the powerplant source. They appear to be linked to the persistent haze we see in such areas, and may affect downwind rainfall patterns. Because they are coated with sulfates and chlorides, they may affect the acidity of the rain they help produce."

Their small size, combined with their cargo of pollutants, could also pose a health hazard, according to Dr. Pueschel. "They are of a size some researchers

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After March 1, 1977, foreign ships such as this Japanese crab factory ship and smaller catch vessel alongside will have to have permits to fish within 200 miles of U.S.

With President Ford's signature of the Marine Fisheries Conservation Act into law on April 13, NOAA and the National Marine Fisheries Service have been given significant new responsibilities for conservation and management of marine fisheries.

Known as the "extended jurisdiction" or "200-mile fisheries limit" bill, the new law—which goes into effect March 1, 1977—establishes a fishery conservation zone outside the three-mile territorial sea to a distance of 200 nautical miles from the coasts of the United States.

The act stipulates that the United States shall exercise exclusive fishery management authority over all fish within the zone, as well as over all anadromous species throughout their migratory range (except when they are within a foreign nation's territorial sea or fishery conserva-

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\$375,000 CZM Grant Awarded To Oregon

A partial third-year planning grant for \$375,000 has been awarded to the State of Oregon by NOAA to allow it to complete its coastal management program.

The grant gives Oregon additional time to finish developing a program to alleviate conflicts over use of the coast for recreation, housing, economic development, agriculture, transportation, mineral mining, commercial fishing, conservation, energy pro-

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New Automatic Tide Monitoring Station Opened on Chesapeake Bay Bridge Tunnel

An automatic tide recording station, installed on the Chesapeake Bay Bridge Tunnel to serve as a research and development facility for improving technology involved in the measurement of tides and water levels, is now operational, the National Ocean Survey has announced.

The station, on one of the most important Atlantic Coast waterways, is the result of three years effort by the NOS, the National Weather Service, the U.S. Army Corps of Engineers, and the Chesapeake Bay Bridge Tunnel Commission. It will be maintained by the Survey's Atlantic Marine Center in Norfolk, Va.

NOS Director R. Adm. Allen L. Powell said the Bay Bridge Tunnel station can operate up to 10 different types of tide gaging or scientific equipment simultaneously, providing the Survey with an "invaluable aid in the evaluation, testing, and improvement of techniques of various equipment essential to obtaining more and better knowledge of our oceanic environment."

Such tide measurements, he said, "serve the needs of the mariner, the engineer, the scientist, and the general public."

The station's tide recorder will

automatically telemeter water levels to the NWS at the Norfolk, (Va.) Airport, providing information to aid in warning the public of rising water levels from winds or heavy rains not only in the immediate area but also the Upper Bay areas where flood waters are a chronic threat to residents of low lying sections.

Information transmitted to the U.S. Army Corps of Engineers in Norfolk will assist in the design of construction projects as well as allow additional time to establish precautionary measures during flood periods.

In addition to satisfying nautical charting requirements of the NOS, tide measurements also determine mean sea level and other tidal datums for surveying and engineering purposes and to establish a system of tidal benchmarks to which these datums can

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Satellites Monitor Snowcover In Western U.S. River Basins

Geostationary satellites operated by NOAA can play a major role in monitoring snowcover in a number of western U.S. river basins, with numerous resulting benefits to mankind, according to National Environmental Satellite Service Scientist Dr. R. Schneider.

Mr. Schneider came to these conclusions in a report on an analysis of NOAA's satellites,

conducted with David G. Forsyth, also of NESS. The geostationary satellites, their analysis showed, are preferable in some respects to polar orbiting satellites used for snowmelt monitoring since 1973.

In a paper delivered this week at the spring annual meeting of the American Geophysical Union in Washington, D.C., Mr.

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National Secretaries Week April 18-24

NOAA joins the Nation in extending appreciation to all secretaries for the vital role they play in business, industry, education, government and the professions.

personnel perspective

Current Vacancies in NOAA

To insure that NOAA employees are aware of job possibilities throughout the agency, a list of current NOAA-wide vacancies is published below. Employees interested in any of the listed vacancies

should contact their servicing personnel office for information on where to apply.

Announcement Number	Position Title	Grade	MLC	Location	Issue Date	Closing Date
487-76	Supervisory General Supply Specialist	GS-13	NOS	Norfolk, Va.	4-3-76	4-16-76
524-76	Supervisory Meteorologist	GS-13	NWS	Jackson, Miss.	4-5-76	4-19-76
528-76	Computer Specialist (Systems Programmer)	GS-12	HDQS	Suitland, Md.	4-5-76	4-19-76
529-76	Meteorologist (Forecaster)	GS-12	NWS	Detroit, Mich.	4-5-76	4-19-76
530-76	Meteorological Technician	GS-10	NWS	Norfolk, Nebr.	4-5-76	2-21-76
531-76	Supervisory Photographer	GS-12	HDQS	Rockville, Md.	4-7-76	4-21-76
532-76	Meteorologist	GS-12	NWS	Fairbanks, Alaska	4-7-76	4-21-76
533-76	Supervisory Meteorologist	GS-14	NWS	Phoenix, Ariz.	4-7-76	4-21-76
537-76	Physical Scientist (Part-time)	GS-9	ERL	Oak Ridge, Tenn.	4-7-76	4-22-76
539-76	Supervisory Meteorologist	GS-14	NWS	Anchorage, Alaska	4-8-76	4-23-76
544-76	Supervisory Meteorologist	GS-13	ERL	Boulder, Colo.	4-9-76	4-23-76
545-76	Meteorological Technician (WSS)	GS-10	NWS	Youngstown, Ohio	4-9-76	4-26-76
410-76	Electronics Engineer	GS-11	NOS	Rockville, Md.	4-5-76	4-26-76
525-76	Supervisory Meteorologist	GS-14	ERL	Coral Gables, Fla.	4-5-76	4-26-76
526-76	Supervisory Meteorologist	GS-14	ERL	Coral Gables, Fla.	4-5-76	4-26-76
527-76	Supervisory Physical Scientist	GS-14	ERL	Miami, Fla.	4-5-76	4-26-76
546-76	Supervisory Electronics Technician	GS-12	NWS	Jackson, Miss.	4-12-76	4-26-76
534-76	Meteorologist (Part-time)	GS-7	ERL	Idaho Falls, Idaho	4-7-76	4-28-76
535-76	Meteorologist (Part-time)	GS-11	ERL	Research Triangle Park, N.C.	4-7-76	4-28-76
536-76	Meteorologist	GS-12	ERL	Boulder, Colo.	4-7-76	4-28-76
538-76	Meteorologist (Part-time)	GS-11	ERL	Research Triangle Park, N.C.	4-7-76	4-28-76

Performance Awards

In a recent Personnel Perspective column we discussed the Performance Rating system. A logical follow-up to that topic is a discussion of Performance Awards—not only because Outstanding Performance Ratings oftentimes support Cash Awards and Quality Increases but because supervisors tend to concentrate more heavily on the submission of award recommendations at the time performance in general is undergoing a review.

Two types of Performance Awards may be granted: a Quality Increase or a lump-sum Cash Award for sustained superior performance of regularly assigned duties. When deciding whether to recognize employee achievements through awarding either of these, a manager should carefully consider the difference in criteria for each award.

The Quality Increase may be granted an individual employee paid under the General Schedule for high quality performance (above that normally found in the type of position concerned) which has been sustained over a period of at least six months in the same position and grade, provided: (1) all of the most important job elements have been performed in a manner substantially exceeding normal requirements; and (2) performance of other job elements has exceeded normal requirements; and (3) the employee has not received a Quality Increase during the past 52 weeks; and (4) the employee is not in step 10 of his grade; and (5) the employee is not about to be promoted or has not recently received a promotion which recognized the same performance the Quality Increase would recognize; and (6) performance gives promise of continuing at the same high level in the same position (i.e. award is based on BOTH PAST AND PROJECTED performance in the job); and (7) the employee is not on detail to another position. Supervisors should recommend Quality Increases for employees by submitting NOAA form 53-5, Recommendation for Quality Increases, through supervisory channels to the appropriate Incentive Awards Program Officer.

The lump-sum Cash Award for sustained superior service may be granted an individual for individual performance which exceeded normal requirements and was sustained over a period of at least six months, provided: (1) one or more of the most important job elements has been performed in a manner substantially exceeding normal requirements; and (2) the employee's total performance is of a level higher than that required to merit a regular periodic within-grade increase. A Cash Award recommendation is submitted in memorandum form and must contain employee's name, position title, grade or salary, organizational location, and a detailed but concise statement of facts in justification of the award. Recommendations should also contain the employee number, organization code and a project number against which the award is to be charged.

A Cash Award for individual sustained superior performance must be in an amount consistent with the following scale:

GS Grade	Average Range
1 - 4	\$130 - 195
5 - 8	195 - 260
9 - 11	260 - 325
12 - 13	325 - 390
14 - 18	390 - 455

Application of the scale to a non-GS position may be made by comparing the entrance pay rates for the grades. Awards for employees whose current service is less than one year must be reduced proportionately. Also, no exceptions to this scale can be approved and the scale does not apply to group recommendations.

An Outstanding Performance Rating, although not a prerequisite, otherwise proper, may support either a Cash Award for sustained superior performance or a Quality Increase if it covers a period of at least six months since the last position change or change in supervision.

There is another broad category of Cash Awards—those granted on the basis of special acts or services. Performance in these cases may or may not be directly related to official job responsibilities and there is no requirement that it must have covered a minimum time period. Instead, there must be something unique about the performance, itself, or the work situation, such as resultant tangible savings working under unusually difficult conditions, accomplishing an extraordinary workload in a shorter than average or expected time period, etc. The Cash Award for special acts or services may be granted to groups of employees as well as individuals (unlike the Cash Awards based on sustained superior performance of regularly assigned duties which may be granted to individuals only). The cash amount for special acts or services Cash Awards is based on the tangible or intangible value of the contribution or achievement and determined through application of the Tangible and Intangible Benefits Awards Scales, Exhibits A and B, Chapter 10, NOAA Personnel Handbook. In addition to the aforementioned information required in a Cash Award recommendation, recommendations for awards in this category should include a statement of the dollar amount saved by the contribution of achievement if the savings can be calculated. Where benefits are determined to be intangible, include a description of the non-monetary benefits and the adjectives from Exhibit B which most nearly describe the Value of Benefit and Extent of Application of the achievement. These adjectives provide the monetary award range within which a supervisor can recognize an employee. The total amount of the award justified for a special act or service is the sum whether given to one individual or divided by a number of group members. However, where individual shares of such a group Cash Award appear inappropriate, the approving authority may deviate from the amount ordinarily authorized, but the case must be documented accordingly.

GOVERNOR ROBERT D. RAY OF IOWA is watched as he signs a bill requiring tornado drills in schools by (from left) Roy Jensen and Gary Olney of the Department of Public Instruction; Larry Krudwig, Community Preparedness Specialist at the National Weather Service Forecast Office in Des Moines; Don Hinman, Director of Iowa Civil Defense; and Warren Caldwell, Meteorologist in Charge of WSFO Des Moines. The Governor also issued a proclamation designating the first



two weeks in April as **TORNADO PREPAREDNESS WEEKS**. WSFO Des Moines played a major role in initiating and promoting the drill legislation, and also wrote the proclamation.

Film Showings Are Scheduled

Two new NOAA films are scheduled to be shown at noon on Tuesday, April 20, in Room 926 of Building 5 in Rockville, and at noon on Wednesday, April 21, in Room 1011 of Building 1.

"Neosho," which depicts the excellent tornado preparedness system used by Neosho, Mo., runs 14 minutes, and "It's Your Coast," which encourages citizen participation in coastal planning, is 28 minutes long.

All NOAA personnel are welcome, and if attendance exceeds capacity, repeat performances will be arranged.

Showings at other NOAA locations will be announced later.

Snowcover Monitoring

Schneider pointed out that the melting snowpack is critical to irrigation planning, hydro-electric power generation, reservoir regulation, river stage forecasts, and flood warnings.

For the past three years, NOAA polar orbiting satellites have been used to monitor snowmelt, providing visual images once a day for a given area, from an altitude of 900 miles (1440 kilometers). The geostationary spacecraft, at 22,250 miles (35,800 kilometers) altitude, provides images every half hour. The

Pollutants Escape on Flyash

have identified as being easily inhaled and retained by the human respiratory system."

And, he added, the existence of these particles could explain how volcanoes and human activities contribute to a layer of sulfates in the stratosphere.

Dr. Poeschel reported on these particles and the newly developed ability to identify them by their size, shape, and chemistry at the recent American Geophysical Union meeting in Washington, D.C.

Dr. Poeschel and his colleagues at APCL observed the pollutant-bearing flyash particles in airborne samples taken in the smokestack plume downwind of

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increased frequency of images is valuable in the monitoring effort, Mr. Schneider said, because it increases the chances of obtaining a cloudfree view of the earth's surface.

Also, the geostationary satellite imagery was found superior in bringing out small bodies of water, such as lakes and reservoirs that might not be discernible on the other types of satellite imagery. Identification of such landmarks is necessary in order to register satellite images on base maps.

Mr. Scheider said that in spite of an oblique viewing angle caused by the positioning of the geostationary satellite over the equator, the imagery could be used to make accurate snow maps for river basins in North America as small as 1500 square miles and as far north as 52 degrees N. Above that latitude, the image distortion was found too great for effective use.

The first geostationary prototype environmental satellite, SMS-1, was launched by NASA in May 1974. SMS-2, used by Mr. Schneider and Mr. Forsyth in their study, was launched in February of last year; and GOES-1, the first NOAA operational geostationary satellite in the series, was launched last October.

Safety Training Films Available

The NOAA Safety Engineering Staff has obtained safety training films entitled, "You and Office Safety," and "How To Save A Choking Victim: The Heimlich Maneuver." (See item on page 1 of January 30, 1976, NOAA WEEK.)

Requests for use of the films should be addressed to: Safety Engineering Staff, AD1x3, WSC-5, Room 100, 6010 Executive Blvd., Rockville, Md. 20852.

The films will be available on a first-come, first-served basis, and must be returned immediately after use.

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the Four Corners powerplant complex near Farmington, N.Mex. The two-week experiment was conducted in February by NOAA for the U.S. Environmental Protection Agency's Environmental Monitoring and Support Laboratory in Las Vegas, Nev.

The isolated Farmington powerplant operation, according to Dr. Poeschel, presents a unique opportunity to trace the environmental and meteorological effects of such a facility. "It is a nearly ideal natural laboratory," he said.

Future work in this "natural laboratory" will include more flights with instrumented light aircraft to determine the full extent of the Four Corners exhaust plume. The NOAA scientists also will measure how the flyash aerosols are distributed vertically in the vigorously mixed summer atmosphere over New Mexico, and attempt to trace the fate of pollutants once they escape on their minuscule platforms.

Oregon Awarded CZM Grant

(Continued from page 1)

duction, and other competing purposes. A leader in coastal planning, Oregon has already submitted a draft program for Federal review. The State has indicated it will use the third-year grant to conduct an environmental assessment of the management program; develop coastal goals; assist local governments in preparing comprehensive land use plans and provide planning assistance grants; and coordinate goals of the program with Federal and State agencies. Also, Oregon planners will ensure that State and national interests are reflected in the management program, and initiate the third phase of a study to utilize and conserve natural resources in the Lower Columbia River Estuary.

An important feature of the Oregon program is a land use demonstration project, funded jointly by the Office of Coastal

Standardization Of Data Collection Systems Discussed

Representatives from several foreign nations and the World Meteorological Organization met last week at the National Environmental Satellite Service in Suitland, Md., to discuss standardization of data collection systems on forthcoming geostationary satellites.

Membership of the Coordination of Geostationary Meteorological Satellites Group includes representatives from USSR, Japan, the WMO, the United States, and the European Space Agency.

Japan, USSR and the European Space Agency are expected to launch satellites similar to NOAA's GOES-1 in preparation for the First GARP Global Experiment project.

At last week's meeting, discussion centered on standardization of frequency, format and scheduling of the international channels of the data collection system.

Tunnel

(Continued from page 1)

be referred; provide data for tide predictions and publication of this data in annual tide prediction tables; investigate fluctuations of sea level and crustal movements of the earth; supply information concerning tidal conditions for engineering projects; provide pertinent data for special estuarine studies; and determine marine boundaries, both state and Federal, for coastal zone planning and in some cases, litigation, as well as various other maritime interests.

The Bay Bridge Tunnel station, constructed on the fishing pier, replaces the Virginia Beach station which was destroyed by storms or strong winds five times in ten years.

Zone Management and the U.S. Department of Housing and Urban Development, to provide planning and assistance to local communities which have a direct and significant impact on Oregon coastal waters.

NWS Golf Tourney

The deadline for entering the National Weather Service Golf Tournament is April 25. It will be held at the Howard Johnson Ocean Resort in Myrtle Beach, S.C. (double room, \$18; single, \$10), May 18-20. Play will be on Bay Tree Golf Course (Green fee, \$7.00; cart, \$5), where PGA will qualify in June. A one-day tournament has been planned for ladies, also.

Mail reservation request and entry fee of \$12.50 before April 25. Checks should be made payable to Bob Carpenter, WSFO, Municipal Airport, West Columbia, S.C. 29169.

noaa week

Published weekly at Rockville, Md., by the Office of Public Affairs for the information of employees of the Commerce Department's National Oceanic and Atmospheric Administration.

Articles to be considered for publication should be submitted at least a week in advance to NOAA Week, Room 221, WSC 5, Office of Public Affairs, National Oceanic and Atmospheric Administration, Rockville, Md. 20852.

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

200-Mile Fisheries Measure Signed

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tion zone), and over all continental shelf fishery resources beyond the fishery conservation zone.

This puts under United States control about 10% of the world's fishery resources—the largest fishery resource of any nation in the world, encompassing 2.2 million additional square miles of ocean.

Anticipating the enactment of such a law, NOAA Administrator Dr. Robert M. White established an Extended Jurisdiction Planning Office more than a year ago, to plan NOAA's role when the bill became law and to provide technical assistance to the Congress in drawing up the legislation. Dr. William Royce headed the office until his retirement late last year, when he was replaced by Dr. Brian Rothschild. Present staff members are Dale Sortland and Stetson Tinkham.

NOAA staff members from other components who are working closely with the office are Gary Smith and Bruce Norman from NMFS, Edward Klima from Marine Resources, Herbert Blatt from the Office of General Counsel, and Richard Grigg from Sea Grant.

At the heart of the new management regime is a system of Regional Councils, which must be established within 120 days after the President has signed the bill into law. Composed primarily of state and constituency representatives, the eight councils are: New England Council; Mid-

Atlantic Council; South Atlantic Council; Caribbean Council; Gulf Council; Pacific Council; North Pacific Council; and Western Pacific Council. The number of voting members of each council varies from seven to 19, depending upon the number of states and territories in each region.

Voting members of each council consist of the principal state official with marine fishery management responsibility in each state, designated by the Governor; the regional director of the National Marine Fisheries Service; and additional members designated by the Secretary of Commerce from lists submitted by the state governors.

The major task of each council is to prepare a fisheries management plan for each fish stock found within the waters of the region. Thus the states have the primary responsibility for taking part in the development of these management plans, and seeing that they are implemented.

In addition to its resource assessment and research responsibilities, the Department of Commerce will now have the authority to review and approve management plans developed by the councils, to ensure that they conform to national standards and other intents of the legislation. The Secretary of Commerce also has the authority to promulgate other regulations required to implement the management plans, and to develop



PARTICIPANTS IN A RECENT NOAA MANAGERS' SEMINAR on the National Productivity program, held in Rockville, Md., included (from left) Charles Enright, Assistant Director, Applied Systems Division, Department of Interior; Patrick Cunningham, Management Analyst, U.S. Geological Survey, Department of Interior; Francis J. Balint, Acting Deputy Director, Office of Management and Computer Systems (OMCS), NOAA; Donald Kull, Executive Director, Joint Financial Management Improvement Program, General Accounting Office; Theodore P. Gleiter, NOAA's Assistant Administrator for Administration; and Raymond Whitney, Management Analyst, OMCS, NOAA.

About 50 managers in NOAA, primarily from the D.C. area, participated in the seminar.

additional regulations in certain circumstances.

NOAA's Extended Jurisdiction Planning Office has worked with the Coast Guard as it carries out its Congressionally-mandated study to determine the kind of enforcement and surveillance systems that will be needed.

NOAA has also begun to work with the State Department on some of the difficult questions concerning the continuation of the bilateral and multilateral arrangements with other nations, once decisions are made on the basis for providing foreign nations with access to our fishery resources. Foreign fishing will be permitted under circumstances consistent with the provisions of the act. Foreign vessels fishing in the zone—or for anadromous species or continental shelf fishery resources beyond the zone—will, after Feb. 28, 1977, have to have a valid permit for such fishing.

NMFS reported in March that during February 1976, a total of 505 foreign fishing vessels and support ships from 12 nations were sighted operating within 200 miles of the U.S. coast. The largest numbers were 280 from the Soviet Union, 82 from Japan, and 63 from Spain.

Additional effort and resources will be required within NOAA to put the fisheries management regime into effect. Funding for ships, enforcement, research, staff work, and council operations will need to be increased. It is presently estimated that when the new regime becomes fully operative it will cost an additional \$35 million annually, exclusive of enforcement costs that may be required by the Coast Guard.

Supplementing the NOAA in-house planning for extended jurisdiction have been planning and information efforts developed by the Sea Grant network. The bulk of these have been economic studies, with Bruce

Rettig at Oregon State University and Virgil Norton at the University of Rhode Island analyzing the expected economic impacts of extended jurisdiction on, respectively, the west and east coasts. A recent report by J.W. Devaney III of the Massachusetts Institute of Technology Sea Grant program dealt with factors affecting the income of fishermen and fish consumers as a result of the 200-mile fisheries limit. And on April 29-30, a symposium on "Economic Impacts of Extended Fisheries Jurisdiction" will be held at the University of Delaware, jointly sponsored by the Delaware Sea Grant program and NMFS.

calendar of events

May 22
Berkeley, Calif.

Astronomy Education: THE STATE OF ART, a symposium sponsored by the Astronomical Society of the Pacific and the Lawrence Hall of Science, University of California, Berkeley. Deadline for receipt of paper titles and 100-word abstracts is April 23. (Andrew Fraknoi, Astronomy and Physics, Canada College, 4200 Farm Hill Blvd., Redwood City, Calif. 94061. 415-364-1212.)

June 7-18, 1976
Boulder, Colo.

International Symposium on Solar-Terrestrial Physics. Sponsored by American Geophysical Union, Committee on Space Research, International Union of Geodesy and Geophysics/International Association of Geomagnetism and Aeronomy, and the Special Committee on Solar Terrestrial Physics, and Co-Hosted by the University of Colorado, University of Denver, National Center for Atmospheric Research and NOAA. (Dr. Donald J. Williams, Director, Space Environment Laboratory, NOAA, Environmental Research Laboratories, Boulder, Colo. 80302. Commercial-303-499-1000, Ext. 3311, or FTS-323-3311.)

June 26-30
Cambridge, Mass.

"Legal Aspects of Ocean Resources Management" course at Massachusetts Institute of Technology sponsored by M.I.T. Sea Grant Program and M.I.T.'s Summer Session Office. (Director of the Summer Session, Room E19-356, M.I.T., Cambridge, Mass. 02139. 617-253-2101.)

July 12-16
Cambridge, Mass.

"Coastal Wave Hydrodynamics - Theory and Engineering Applications" course at Massachusetts Institute of Technology sponsored by M.I.T. Sea Grant Program and M.I.T.'s Summer Session Office. (Director of the Summer Session, Room E19-356, M.I.T., Cambridge, Mass. 02139. 617-253-2101.)

September 10-14
Southwestern Oregon

Chapman Conference on Partial Melting in the Earth's Upper Mantle, cosponsored by the American Geophysical Union and the Oregon Department of Geology and Mineral Industries. Deadline for preliminary applications and abstracts is June 7. (Cynthia Beadling, AGU, 1909 K St., N.W., Washington D.C. 20006. 202-331-0370)

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obituaries

Edna M. Davis

Edna M. Davis, former employee of the National Marine Fisheries Service Atlantic Estuarine Fisheries Center in Beaufort, N.C., died in Beaufort on April 2. She had completed over fourteen years of service prior to her retirement in December 1973.

She served as a Biological Technician in a number of the major programs of the Center.

She is survived by her husband, Ray A. Davis of Beaufort.

Michael L. Joseph

Michael L. Joseph, Weather Radar Specialist at the National Weather Service Meteorological Observatory in Chatham, Mass., died on April 7. He joined the NWS in 1955 and served with the Atlantic Weather Project in Boston, Mass., until being reassigned to Chatham in 1973.

He is survived by his wife, Shirley, and three children—Michael, Gregory, and Tracey.



National Oceanic and Atmospheric Administration

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