NOAA NEWS 4/29

VOLUME 2 NUMBER 9 APRIL 29, 1977

Gas Seep May Point to Rich Deposit

Nature is giving scientists with NOAA and the U.S. Geological Survey an advance look at the possible environmental effects of tapping Alaska offshore oil deposits through what is believed to be a gas seep on the floor of Norton Sound—in effect a natural source of petroleum hydrocarbons.

Dr. Joel Cline of NOAA's Pacific Marine Environmental Laboratory has found an area in the Sound with unusually high concentrations of natural gas components. He and Dr. Mark L. Holmes of the Geological Survey, who contributed the background information on the geology of the area necessary to interpret Cline's results, believe the gas seeps upward from a deposit of petroleum beneath the floor of the Sound.

Such a seep would be more than a confirmation of the richness of the area's resources,

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Get ready—it's coming. NOAA Jogger's Day, Saturday, June 11 (time and place to be announced).

Taking a level beside the tide station at Boston's Fort Point Channel, a NOS inspection team that included Mim Dixon (left) and Jill Meldon (right) of the NOS Tide and Water Levels Branch, assess winter damage. The team found that 28% of the 50 stations inspected from North Carolina to Maine were extensively damaged or destroyed by the vertical and horizontal movement of ice.

Pacific Fishery Plan Approved

Regulations for the management of salmon fisheries off the Northwest coast, designed to produce the optimum yield for commercial and recreational domestic fishermen, are being instituted as an emergency action, Secretary of Commerce Juanita M. Kreps has announced.

The regulations, effective Tuesday, April 26, are expected to reduce the catch of commercial fishermen trolling for salmon off the Washington coast and the mouth of the Columbia River, and off the Oregon coast north of Tillamook Head, by shortening the chinook season in those waters.

Regulations for both commercial and recreational salmon fishermen off the coast of Oregon south of Tillamook Head, and off the coast of California, will be similar to those of last year.

Secretary Kreps, in issuing the regulations, approved a fisheries management plan for the Northwest developed by the Pacific Fishery Management Council under terms of the Fishery Conservation and Management Act of 1976.

The plan calls for a ban on commercial troll chinook fishing north of Tillamook Head during the month of June, which is expected to reduce the catch by 23 percent from the approximate 353,000 fish caught in that area in 1974.

While approving the plan, Secretary Kreps suggested to the Council it consider amending the plan to shorten the closed season on chinook, so the economic impact on trollers would be lessened. She suggested the Council consider other possible steps, such as increasing minimum allowable size for commercial catch from 26 inches to 28 inches.

Secretary Kreps also expressed concern whether the plan fully honors treaty rights of Indian tribes. Under earlier agreements, these tribes are

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Bob Ferry (left), Meteorologist-in-Charge of the Birmingham Weather Service Forecast Office, and Max White, dissemination meteorologist, NWS Southern Region Headquarters, and part of the NOAA Survey Team, inspect damage to homes in the tornado's path. (Photo by James B. Elliott, Birmingham WSFO Met Tech.)

Timely Warning Given For Birmingham Killer Tornado

As forecasters fed them the latest information, two National Weather Service meteorological technicians—met techs—of the Birmingham, Ala., Forecast Office, James B. Elliott and Jay Shelley, simultaneously sent out teletype and taped NOAA Weather Radio messages to warn the people of Birmingham and the surrounding area of a non-visible tornado hidden in an immense thunderstorm headed their way on April 4.

For some people in harm's way, no refuge could be reached in time so 23 people died, 30 were hospitalized, and about 300 suffered minor injuries. The Civil Defense office in Birmingham estimated that more than 200 homes were destroyed—mostly middle-class homes of brick and block construction—and more than 700 people left homeless. The damage was estimated at between $8 and $10 million.

The tornado struck Birmingham almost exactly three years after the "superoutbreak" of tornadoes on April 3-4, 1974, that devastated Xenia, Ohio, and many other cities. It was equal in its power to the worst in that superoutbreak.

(Story begins on p. 4)

The National Safety Council's "National Disaster Survival Test" will be carried by NBC Television on Sunday, May 1 at 8:00 p.m. EDT. The program will dramatize information on how to survive a disaster.

CALENDAR OF EVENTS

May 4-6
Gaithersburg, Md.
Fifth Federal Map and Chart Printing Symposium, sponsored by National Ocean Survey. Theme: "Today and Tomorrow," will include the future of laser platemaking, computers in graphic arts, plant maintenance, training, and effects of OSHA. (Contact: Mr. Ugo V. Gervasio, NOS Reproduction Div., (202) 377-3676.)

May 10-13
20th Conference on Great Lakes Research, sponsored by the International Association for Great Lakes Research; co-hosts: Great Lakes Environmental Research Laboratory of NOAA and the University of Michigan. (Contact: Dr. Andrew Robertson, Coordinator, Great Lakes Environmental Research Laboratory, NOAA, 2300 Washtenaw Ave., Ann Arbor, Mich. 48104.)

May 11
Washington, D.C.
American University Conference on Enforcement of the Fishery Conservation and Management Act. (Contact: Brian E. Foss, Conference Coordinator, College of Public Affairs, Ward Circle 222A, American University, Washington, D.C. 20016.)

May 30-June 3
Washington, D.C.
Spring Meeting of the American Geophysical Union. Abstracts due by March 4. (Contact: AGU, 1909 K St., N.W., Washington, D.C., 20006.)

Oct. 2-6
Mount Airy, Pa.
Estuarine Research Federation Fourth Bicentennial International Conference. Theme: "Estuarine Processes." (Contact: Jerome Williams, Oceanography Department, U.S. Naval Academy, Annapolis, Md., 21402.)

Nov. 6-11
New Orleans, La.
4th Joint Conference on Sensing of Environmental Pollutants. Abstracts due by May 15. (Contact: Dr. V. E. Derr, Program Chairperson, NOAA, Environmental Research Laboratories (R45x3), Boulder, Colo., 80302.)

Gas Seep

(Continued from page 1)

according to Cline: it would allow scientists to measure the effects of petroleum introduced into Alaskan waters before offshore oil drilling and transportation actually begin there.

The possible seep was found about 24 miles (40 kilometers) south of Nome, in an area where Cline had been making a survey of the abundance of hydrocarbons—chemical components of oil and natural gas. His study is part of a major project NOAA is conducting for the Interior Department's Bureau of Land Management. The purpose of the project, managed by NOAA's Outer Continental Shelf Environmental Assessment program office (part of Environmental Research Laboratories), is to provide environmental data that managers can use to predict the impact of oil leasing on the Alaskan continental shelf.

Cline came upon the possible seep while collecting water samples last September from the NOAA ship Discoverer. The samples, taken from different depths in the water column, were routinely analyzed with a gas chromatograph for various hydrocarbons.

With these measurements, he and Holmes mapped out the concentrations of hydrocarbons as they vary throughout the waters of the Sound, and discovered an area unusually rich in these chemicals. The concentration of ethane, for example, is 20 times higher there than in waters to the south and east.

The hydrocarbons seem to emanate from a point on the sea floor and drift northward toward the coast, say the scientists.

Chemically, the natural gas in the waters of Norton Sound appears to be similar to the kind used in stoves and furnaces, says Cline. He and Holmes believe that after percolating upward through the sediments, the gas rises to the surface of the water in bubbles.

Hydrocarbons in the water could originate in a number of ways. Methane, or marsh gas, for example, is produced biologically, by microbes. But both chemical and geological evidence lead Cline and Holmes to the conclusion that the hydrocarbons in Norton Sound may be associated with a deep-seated liquid petroleum deposit.

Dr. James R. Wait Honored

Dr. James R. Wait, a senior scientist with the Environmental Research Laboratories in Boulder, Colorado, has been elected a member of the National Academy of Engineering for his "contributions to electromagnetic propagation engineering as it affects communication and geophysical exploration."

Dr. James R. Wait

Election to the Academy is the highest professional distinction that can be conferred on an engineer and honors those who have made important contributions to engineering theory and practice or who have demonstrated unusual accomplishments in the pioneering of new and developing fields of technology.

Since joining the Commerce Department in 1955, Wait has concentrated his research on the theoretical aspects of radio propagation. During the past 20 years he has published three books and authored or co-authored more than 500 scientific papers on subjects ranging from electromagnetics to geophysics.

Wait, who has been elected a fellow of the American Association for the Advancement of Science, and the Institute of Electrical and Electronics Engineers, is also an adjoint professor of electrical engineering at the University of Colorado and a permanent fellow of the Cooperative Institute for Research in the Environmental Sciences (CIRES).

He is currently serving as a Secretary of the U.S. National Committee of the International Scientific Radio Union, and is also very active in planning cooperative scientific programs with developing countries.

Among other honors, Wait has received a Commerce Department Gold Medal, NOAA's Scientific Research and Achievement Award, and the Harry Diamond Award from the Institute of Electrical and Electronics Engineers.

NOAA Distributes New Radio Tapes

A new radio public service program, touching upon such varied subjects as hurricane hunting, tornado warning, atmospheric pollution and other environmental activities, is being offered radio stations by NOAA.

An audition tape for the 14½-minute "The Sea and The Air" has been mailed to about 500 stations across the country, said John A. Guinan, Chief of Radio Services at NOAA.

This tape, Guinan said, features an interview with Allen D. Pearson, one of the nation's leading experts on tornadoes and director of the National Severe Storms Forecast Center in Kansas City.

NOAA plans distribution of a new tape every month. In production are interviews with leaders in the areas of hurricanes, scuba diving, satellite environmental monitoring and a number of other topics of wide general interest.

NOAA Research Ship is Sold by GSA

Instrumental in the rescue and prevention of the sinking of a 30-foot pleasure craft off the coast of Miami last July, a 75-foot NOAA fisheries research vessel has been sold by the General Services Administration.

Built in 1955 in Tampa, Fla., the 125-ton George M. Bowers carried a permanent crew of four, and from three to six scientific personnel. She worked from Cape Hatteras to Texas with much of her work being in Florida waters and in the vicinity of the Mississippi River Delta.

While operating in Florida waters last July, the Bowers was first on the scene of a sinking cabin cruiser. A 'sling' was immediately placed around the craft, holding it up until help came.

Marine Mammals Quota Lower

Tuna Permit Challenged

A general permit issued April 15 to the American Tunaboat Association enabling tuna fishermen to take marine mammals incidental to yellowfin tuna fishing operations had been challenged in two court suits as *NOAA News* went to press.

One, by the Association, asked that the permit be declared invalid, while the other, by the Committee for Humane Legislation, sought to have both the permit and accompanying regulations declared invalid.

The general permit was issued by National Marine Fisheries Service under previously established regulations on encircling gear used during yellowfin tuna purse seining operations in the Eastern Tropical Pacific. It is valid until December 31, 1977, unless amended, suspended, or revoked by the NMFS director.

Under the permit, no more than 59,000 porpoises may be killed in 1977, a 24 percent reduction from the 1976 quota of 78,000.

Regulations and the permit forbid U.S. fishermen conduction yellowfin tuna purse seine fishing operations from setting nets around mixed schools containing eastern spinner (considered depleted), and coastal spotted and Costa Rican spinner dolphins. Sets are also prohibited on "purse" schools (schools of one species only) except offshore spotted and common porpoise.

Commerce Inspects Fish Products for Armed Forces

The inspection of certain fish products for the Armed Forces has been transferred from the Department of Defense to the Department of Commerce, Commerce Secretary Juanita M. Kreps has announced.

Inspectors from National Marine Fisheries Service will assume the responsibility from the Defense Logistics Agency. The Fisheries Service currently inspects over 800 million pounds of fisheries products annually under its voluntary, fee-for-service program.

"Under our contract inspection service, special attention is given to plant sanitation, product safety and wholesomeness, quality, species identification, and proper labeling for either fresh or processed fish products," Thomas J. Billy, Chief of NMFS's Seafood Quality and Inspection Division, said.

Scholarship Fund to Honor Slain Reporter

Contributions to the WHUR Maurice Williams Broadcast Scholarship Fund will be solicited during May by concerned employees of the National Ocean Survey.

Maurice Williams, son of veteran NOS cartographer Otto Williams, was slain March 9 when the Hanafi terrorists occupied the fifth floor of the District Building in Washington, D.C. Maurice was a reporter for the Howard University radio station WHUR.

Landry Williams, Jr., chairperson for the NOS EEO Committee, said the fund, which has received more than $20,000 dollars in contributions, will provide scholarships to students majoring in journalism at Howard University.

"A contribution to the fund," said Williams, "is a tangible method to demonstrate our condolences as well as to help those who have the desire to communicate truth in the Washington area as Maurice did."

The contribution, which is tax deductible, may be in cash or check. Checks should be made out to the Maurice Williams Broadcast Scholarship Fund. Contributions will be accepted at: Main Commerce: Carole Torrence (C43), Rm. 1800, 377-5780; Rockwall: Elizabeth (Libby) Wade (C1315), Rm. 430, 443-8520; Riverdale: Robert (Smitty) Smith (C447), Rm. 107, 436-6950; and WSC-1&2: Steve Martof (C3217), WSC 2, Rm. 127, 443-8517.

Mr. Williams said that a presentation to Howard University of the total amount collected from NOAA employees will be made in June.

Fairweather Conducts Major Charting Survey

A major charting survey of the Los Angeles San Pedro Bay was conducted by the officers and crew of the NOAA Ship Fairweather during a 14-week period extending from mid-January to the end of April.

The program, which includes a survey of all navigable waters in Los Angeles and Long Beach Harbors, will provide a new data base for nautical chart revisions and will be available for ecological, engineering and other scientific studies associated with the prediction and development of the ocean environment of the Continental Shelf.

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Nancy Pridgeon, Editor
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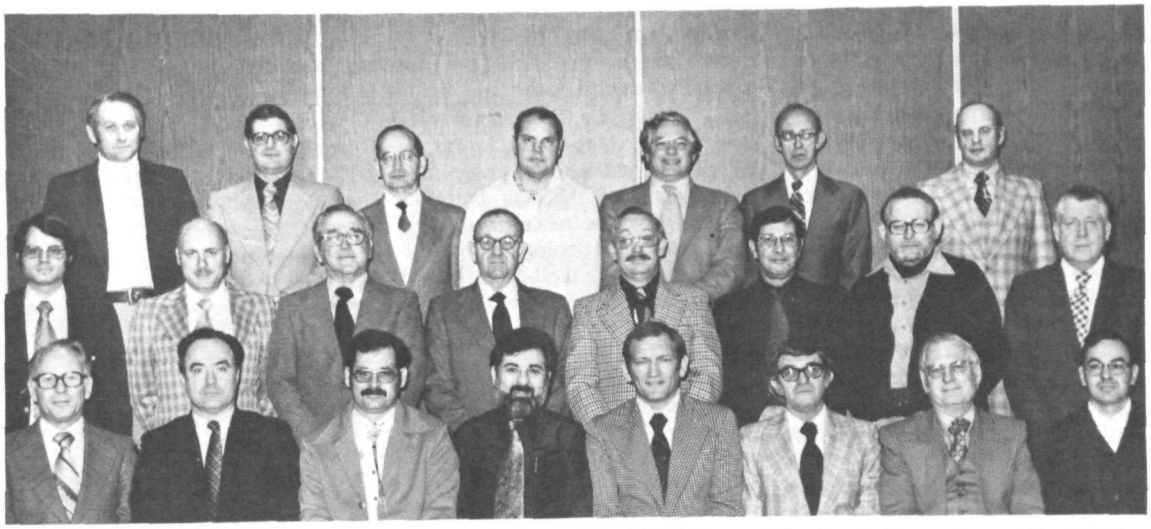

A Regional Radar Coordination meeting was hosted by NWS Central Region in December at Louisville, Ky. Attendees from left to right: First Row - Laurence Shaffer, Asst. Chief, MSD, CR; Bob Nolan, Asst. Chief, MSD, ER; James Henderson, RRM, CR; Roland Loffredo, MIC, Evansville; Dave Reeves, PA, Louisville; John Lee, MIC Louisville; Harold McCrabb, Asst. Chief, MSD, SR; Joe Haynes, MIC, WSMO Nashville. Second Row - Les Lemon, TDU/NSSFC Kansas City; Bob Hamilton, MIC, St. Louis; Wash Martin, MIC, WSMO Memphis; Bud Roche, OIC, Huntington; Carl Phipps, RRM, SR; Larry Burns, Dep. Dir., NWSTTC, Kansas City; Joel Wertman, NWSTTC; Max Cagle, MIC, Bristol. Third Row - Oscar J. Meece, PA, Bristol; John Robinson, MIC, Cincinnati; Doyle Cook, MIC, Charleston; Russ Durham, Louisville; Norm Prosser, MIC, WSFO Memphis; Hubert Fedrick, OIC, Lexington; Cecil Palmer, MIC, WSO, Nashville.

April 4 in Birmingham...

Typical F-5 damage to a brick veneer home on a slab. With this kind of impact, there is no place left to hide.

The National Weather Service Forecast Office in Birmingham, Ala., knew it was coming. For the past 48 hours, the city had been under a flash flood watch because of thunderstorms in the area, but now there was another threat looming on the horizon. In an area where severe thunderstorms were expected, tornadoes were now considered likely.

Early Sunday afternoon, April 3, 1977, the national weather summary from the NWS National Severe Storms Forecast Center (NSSFC) in Kansas City passed the word to NWS field units that southern states—Mississippi, Alabama, and Georgia—were the states where tornadoes probably would occur.

On Monday morning, April 4, the outlook from Kansas City was still serious. (Watches issued by NSSFC during the day were for areas where 17 of the 20 tornadoes struck that day, and nine of the 13 severe thunderstorms.) By noon, summaries of weather conditions were pouring out of the Jackson and Meridian, Miss., Centreville and Birmingham weather offices.

At 1:50 p.m., a strongly worded severe weather statement was issued by the Birmingham office, and sent out on the NOAA Weather Wire:

"Very heavy thunderstorms are now moving into the Greater Birmingham area. A Severe Thunderstorm Warning remains in effect. This may have to be upgraded to a Tornado Warning at any minute. Radar indicates that the strongest thunderstorm in the line will apparently hit the Birmingham area. The greatest intensity will reach the city shortly after 2 p.m. They are visible on radar as far away as Mobile. Intense rainfall will cause flash flooding in the next few minutes to an hour."

As Jay Shelley, supervisory met tech, put the message on the NOAA Weather Wire teletypewriter, Met Tech James B. Elliott taped the message for broadcast on NOAA Weather Radio. For the next few hours, the two meteorological technicians acted as a well-coordinated team, with Shelley updating the summaries every few minutes while Elliott updated the NOAA Weather Radio tapes with the latest information.

With the line of thunderstorms fast approaching, time became more critical. City, county and civil defense officials were alerted to be ready to react. The warning alarm was sounded, to be received by every NOAA Weather Radio with a built-in warning alarm. Meteorologist-in-Charge Robert Ferry, Lead Forecaster Bill Herrmann, Forecaster Paul Mott, and other meteorologists were in the office keeping pace with the radar reports and messages flooding in, tracing the path of the killer storm as it moved toward Birmingham.

By 2:44 p.m., a tornado warning was issued for the whole of the county, based on radar information. With minutes to go, Elliott began live transmissions over the NOAA Weather Radio. There was no time for lengthy consultations. Elliott and Shelley worked together, making split-second decisions on their own—getting the message out to warn the people in the tornado's inexorable path.

Meanwhile, radio and TV stations were doing their part: interrupting their programs to give the alarm. Each station, alerted by the Weather Wire buzzer or the NOAA Weather Radio, broadcast the warning to their listeners. In at least one case, WAPI-TV, the voice announcement was followed by a visual "crawl"—letters spelling out the message, played across the bottom of ongoing programs—accompanied by a loud, persistent beep-beep to attract attention to the message. No one got pictures of the onrushing calamity—the sky was too dark.

The basement of this home provided some shelter, but the house is virtually beyond repair and the car is totaled.

Like so many southern tornadoes, the killer advancing on Birmingham at about a mile a minute was embedded in a wall of advancing thunderstorms—a big, boiling, churning "cloud on the ground," as one observer described it.

The tornado struck—someone's clock stopped at seven minutes to three in one of the first houses hit—along the northern edge of the city, beginning just west of the Birmingham city limits in the suburb of Edgewater. It moved east-northeast, mostly through city streets, for 15 miles—its average width was one-fourth of a mile, but in some places, as much as three-fourths of a mile.

The Fujita-Pearson scale of intensity for tornadoes ranks the massive storms on a scale of 1 to 5, with 5 the most intense. The Birmingham tornado ranked on that scale as an F-5 over at least part of its life. The wind reached incredible speeds of more than 250 miles an hour. The tornado hugged the ground almost continuously, not jumping gullies as tornadoes sometimes do, but at times its intensity fell as low as F-2 or F-3.

Said Harold McCrabb, Meteorological Services Division of NWS's Southern Region Headquarters in Fort Worth, Tex., who was the head of the NOAA survey team to come into the area following the damage, "An F-5 negates the rules, like getting into ravines."

He was referring to one particular case where a woman and

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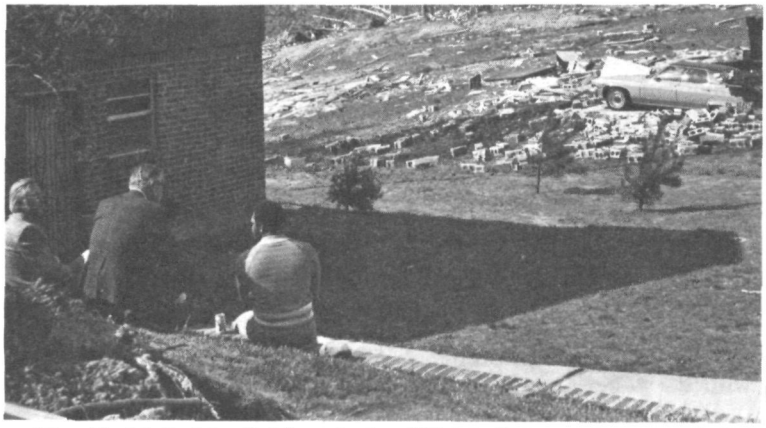


Harold McCrabb (left), of the NOAA Survey Team, and Bob Ferry, Birmingham MIC (center), talk about the seriousness of the disaster with Eugene Bennett, a Birmingham realtor.

A Deadly "Cloud on the Ground"

her two young children were lifted bodily from their home and deposited in a ravine behind it under a 10-foot tangle of debris. The mother was fatally injured, one of the children was killed and the second was taken to the hospital in serious condition.

Nothing was left of their home that would have provided a refuge. So savage was this tornado that in many instances, unfortunately, no protective measures would have been sufficient to avoid certain death.

One man was in the path of the irresistible force in his pickup truck. He was bounced and bruised as the truck rolled over and over, turned around in a complete circle and finally came to rest right side up. Every inch of the truck was dented.

One woman hunched down in one corner of her house just before it blew away from around her. Another dove under the piano with her husband – the whole house was blown away, except for the piano and the couple under it.

The sky was so dark that most people didn't see the tornado or hear the noise until it was about 300 yards away. Then they had little more than 10 seconds to take cover.

Hilliard and Maxine Dowdell heard the warning on Radio WYDE, and sought refuge in a homemade tornado shelter close by their house.

Maxine Dowdell later said, "I saw the tornado and it was moving very fast. It was very dark, but the tornado looked to me like a pillar of fire."

As she scrambled into the shelter after her husband, she had the sensation that something was tugging at her. She could barely breathe. There was a roar and the ground vibrated, showering the earth around her for 20 to 30 seconds before it stopped.

When they got back outside, the Dowdells discovered their pony was gone. According to Maxine Dowdell, she was found some distance away, wandering feebly, her sight gone. Despite her ordeal, she successfully delivered her foal – which was promptly named "Tornado 77."

The tornado, striking as it did in mid-afternoon, found many of Birmingham's children still in school or just ready to start home. Birmingham Civil Defense director, Sadie Morgado, said warnings were tone-alerted into 265 schools in Birmingham and Jefferson County. Some schools put tornado drills into immediate effect. Some kept students at school rather than sticking to the bus schedules that would have sent them home.

One school in the direct path of the tornado was the Daniel Payne College, a church school with about 300 students. Dorms and school buildings were so badly damaged that the school will remain closed until repairs can be made. Still, there were a minimum number of casualties – three students were pinned down by cinder blocks and afterwards hospitalized, but there were no fatalities.

Dr. Paul Beals, director of student teachers and professor of education, was standing inside the school doorway looking through the glass when he saw the immense black cloud approaching "with all kinds of swirling vertical motions."

"I didn't think of it as a tornado," he said. "I saw it approaching very rapidly. I realized it was a dangerous cloud so I backed away around the corner, away from the glass. The next thing, the doors flew open. Then the tornado hit and smashed the windows."

One portion of the roof of the science building in which Dr. Beals was standing collapsed. But Dr. Beals said that even though he was away from the falling roof and not near glass, he combed particles of glass from his head afterward.

As the tornado savagely raked the northern edge of Birmingham, Dr. Theodore Fujita, whose tireless research into the phenomenon of tornadoes led, among other things, to the scale of intensity that bears his name and Allen Pearson's, was flying over the storm in a Learjet. At 45,000 feet, he was close to the cloud tops, making observations and taking photographs at precise points. Next day, he and his students overflew the area again in a light aircraft, taking damage pictures, and still later, they made an on-the-scene visual inspection.

Satellite pictures of the cloud tops were also being taken, at three-minute intervals. They are to be compared later with the Fujita photographs and with ground observations.

The NOAA Survey Team arrived, including Harold McCrabb, Max White, dissemination meteorologist from the Southern Region Headquarters, and Edwin P. Weigel, NWS Public Affairs Officer, to assess how well the warning system had worked.

"NSSFC did a fine job," said McCrabb, "and Jackson, Mississippi, put out advance radar reports and verbal response providing upstream information. So Birmingham could read on the wire and see the system coming–described by the Jackson forecast office to Birmingham long before it arrived as a powerful one."

Testimonials to the excellent job of warning done by the Birmingham Weather Service Forecast Office appeared in the newspapers, and in radio and TV commentaries. One such comment appears in the box on this page.

The NOAA Weather Radio, only installed in the Birmingham area this past December, had proved to be so popular an item that local retails outlets were having trouble keeping enough receivers on hand. And that was before the tornado.

The NWR messages are broadcast from the Birmingham WSFO, located well south of the city, about six miles away from the tornado's path.

"We put a summary out the day before," said Allen Pearson, director of the NSSFC in Kansas City. "We made mention Sunday afternoon in the national summary that tornadoes were likely to occur. We were aware of the potential about 30 hours before the tornadoes hit.

"You also might be interested to know," he said, "that it was the 12th tornado to hit that county since 1916. That's the highest for any county in the country."

Maxine Dowdell sits amidst the wreckage of her home. In the foreground is the homemade shelter where she and her husband escaped the tornado's wrath.

WBRC-TV (Channel 6) in Birmingham, Alabama, made this "super comment" on one of its news broadcasts on April 6, two days after the massive tornado hit the Birmingham area:

"Tragedies like the one that struck our area Monday are always difficult to comprehend. There are always the questions...Why here? Why me? Our deepest sympathy to those who lost loved ones and property in the storm. It could have been much worse...Had it not been for the staff at Birmingham's National Weather Service. They're the ones who get the information to the television and radio stations so word can be passed on to you. They stick by the radar and teletype so they can get the information out as quickly as possible...Where tornadoes are concerned, speed is the name of the game. People are always joking about weather forecasts being wrong. Monday, tragically, the forecast was right. Come to think of it, they are most of the time."

(Photos shown here were taken by James B. Elliott, Met Tech, Birmingham WSFO.)

The Fringe Benefit...Added Value to Earnings

If the value of fringe benefits were added to the salary of a GS-4 step 5 employee with 6½ years of service, the individual's salary would increase by nearly a third, from $9,424 to about $12,000 a year.

Other things being equal, the proportion of the salary represented by fringe benefits, of course, is greater the lower the grade. But the Government's dollar-for-dollar matching contribution to the retirement fund increases along with the employee's, as salaries go up. Thus, the absolute value of benefits generally increases at higher grad

For the hypothetical GS- step 5, item by item the various benefits are worth:

Annual leave	160 hours @$4.53/hour	=$ 725.
Sick Leave	104 hours @$4.53/hour	=$ 471.
Retirement	7% matching contribution	=$ 660.
Life insurance	$12,000 (Government contribution 17¢/1000	=$ 53.
Health insurance	Blue-Cross-Blue-Shield, High Option, Self & Family (Government contributes $24.59 per pay period	=$ 639.
Holidays	9 paid	=$ 326.
		$2,874.

In addition to the tangible benefits which can be measured, employees also can receive:
Worker's Compensation for injuries
Emergency health treatment
Suggestion awards (cash)
Performance awards (cash)
Pay while on jury duty

Job-Related Training Guidelines Are Explained.

What is "job-related training"? This traditionally has been a subject of some controversy. Simply stated, any training which is taken to improve an employee's performance in his or her current position is considered to be job-related. This includes training not only in the employee's specific area of concentration (such as building "*finance clerk skills*" for a finance clerk), but training in related areas as well (such as basic computer training or personnel exposure for finance clerks involved with these areas.) In short, job-related training should focus on the whole environment in which an employee works. The more exposure the employee has to related areas, the more effective he or she should be.

The Government Employees Training Act also allows career-related training for persons seeking to change career fields. Given the following conditions, *such training may be approved:*

1. If training requested is not directly related to the current job, it must be career-related, identified as such in a written Career Development Plan (such as a CD-257) prepared by the employee and his or her supervisor.

2. The Career Development Plan must be directed toward a type of job which actually exists within NOAA (though not necessarily available currently).

3. Upon completion of all training and activities included in the Plan, the employee should be qualified to assume the position (or a similar position) for which he or she has been developed.

Supervisors and employees, especially employees in lower graded or "deadend" positions, are encouraged to work with their Servicing Personnel Management Specialists to prepare Career Development Plans. Managers, however, have the final decision in approving training requests based on organizational needs and fiscal limitations. They are encouraged to seek assistance from the Career Development Branch in providing necessary job-related training in the most economical manne possible, so as to permit th inclusion of some career-related training in Division training plans and budgets.

NOAA Personnel Division Lists Current Vacancies

Announcement Number	Position Title	Grade	MLC	Location	Issue Date	Closing Date
428-77	Supervisory Budget Analyst	GS-560-14	HDQS	Rockville, Md.	4-21-77	5-12-77
429-77	Geodesist	GS-1372-11	NOS	Rockville, Md.	4-21-77	5-5-77
430-77	Oceanographer	GS-1360-12	NOS	Rockville, Md.	4-21-77	5-5-77
431-77	Geodesist	GS-1372-12	NOS	Rockville, Md.	4-21-77	5-5-77
432-77	Supervisory Meteorologist	GS-1240-14	NWS	Salt Lake City, Ut.	4-21-77	5-5-77
434-77	Meteorological Technician	GS-1341-10	NWS	Berkley, West Va.	4-21-77	5-5-77
435-77	Contract Specialist	GS-1102-12	NASO	Seattle, Wash.	4-21-77	5-12-77
436-77	Industry Economist	GS-110-12	NMFS	Galveston, Texas	4-21-77	5-12-77
437-77	Fishery Biologist (Research)	GS-482-12	NMFS	Miami, Fla.	4-21-77	5-5-77
438-77	Survey Statistician	GS-1530-12	NMFS	Miami, Fla.	4-21-77	5-12-77
439-77	Physical Scientist	GS-1301-16	HDQS	Rockville, Md.	4-25-77	5-16-77
440-77	Grants & Loans Mgt. Officer	GS-1101-13	HDQS	Washington, D.C.	4-25-77	5-9-77
441-77	Fishery Biologist	GS-482-12/13	NMFS	Washington, D.C.	4-25-77	5-9-77
442-77	Endangered Species Program Manager	G82-12/13	NMFS	Washington, D.C.	4-25-77	5-16-77
443-77	Supv. Meteorologist (2 positions)	GS-1340-14	NWS	Camp Springs, Md.	4-25-77	5-16-77
444-77	Meteorologist	GS-1340-12	NWS	Camp Springs, Md.	4-25-77	5-9-77
445-77	Supv. Meteorologist	GS-1340-16	NWS	Camp Springs, Md.	4-26-77	5-17-77
446-77	Meteorologist	GS-1340-13	NWS	Sterling, Va.	4-26-77	5-10-77
447-77	Supervisory Meteorological Tech.	GS-1341-11	NWS	Swan Islands, Honduras	4-26-77	5-10-77
448-77	Budget Analyst	GS-560-11	NWS	Silver Spring, Md.	4-26-77	5-10-77
449-77	Electronics Engineer	GS-855-12 or 13	NWS	Silver Spring, Md.	4-26-77	5-17-77
450-77	Electronics Engineer	GS-855-12	NWS	Silver Spring, Md.	4-26-77	5-10-77
451-77	Supervisory Electronics Engineer	GS-855-15	NWS	Silver Spring, Md.	4-26-77	5-17-77
452-77	Program Analyst	GS-345-13	NMFS	Terminal Island, Calif.	4-26-77	5-10-77
77-09 (amended)	Voucher & Accounting Operations Supervisor	GS-501-7	NASO	Seattle, Wash.	4-4-77	5-5-77

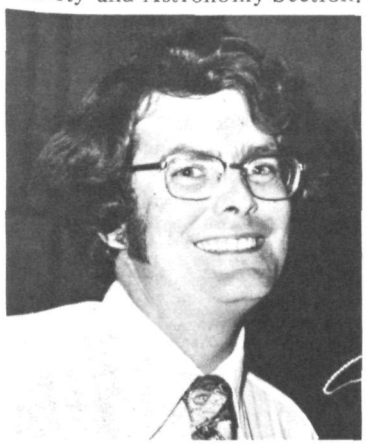
NOTES ABOUT PEOPLE

Bill R. Rice has been named Executive Officer to the Associate Director, Office of Meteorology and Oceanography at NWS Headquarters, Silver Spring, Md. He also serves as Chief of the Planning and Requirements Staff. Mr. Rice entered the Weather Bureau in 1958. His most recent assignment was as a meteorologist in the Quantitative Precipitation Branch at the National Meteorological Center.

He succeeds Charles Sprinkle who is now Chief of the Aviation Branch in NWS Headquarters.

Michael A. Brooks is now Meteorologist-in-Charge of WSO, Springfield, Ill., succeeding Jake Morgan who recently retired. Mike began his career with NWS as a student trainee at Evansville in 1963. He later transferred to Milwaukee, Chicago and back to Milwaukee before his assignment to Des Moines in 1974 as a forecaster.

Among 68 semi-finalists in the "National Volunteer Activist Awards" competition is Michael D. Abell, a geodesist with National Geodetic Survey's Gravity and Astronomy Section.



Michael D. Abell

Abell, who is the Social Action Chairperson of the Mental Health Association of Montgomery County (Md.), received a citation for his outstanding contributions in the area of mental health legislative concerns. He has been a key figure in such efforts as the county-wide study of alternative housing for the physically and emotionally handicapped; the current investigation of County Court commitments to Springfield State Mental Hospital; and proposals for state-wide licensing of sex therapists.

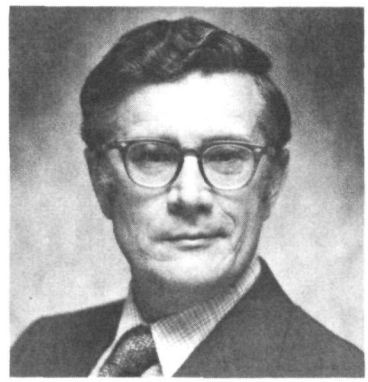
Dr. Juliani Gatzoulis of NOAA's Office of Marine Technology in the National Ocean Survey, recently received the John C. Nidermair Award for writing and presenting the best paper of the year at the 14th Annual Technical Symposium of the Association of Scientists and Engineers (ASE) in Washington, D.C.

Dr. Juliani Gatzoulis

Dr. Gatzoulis, who is an engineer in the Systems Analysis Division, is the first woman to receive the award from ASE, an organization of the Department of Defense that includes scientists, architects, and mechanical engineers. Prior to her move to NOS in February, she was a project engineer in charge of the ship design concepts of surface ships for the Navy's Naval Ship Engineering Center (NAVSEC).

Dr. Gatzoulis paper, "Upgrading Mission Capability and Performance Efectiveness of Naval Ships by Use of Active Fin Stabilizers," is based on her work at NAVSEC.

A new price list for NOAA official business cards has been established. NOAA Directive Manual 6818 dated 4-6-76, outlines the purpose, authority, format, and procurement of business cards for use in an official capacity by NOAA employees. The cards which must be purchased at the employees expense, may be ordered from the NOAA Employees Association. Prices are: $4.50 per hundred plus $1.50 for each additional 100 cards requested with the initial order. Checks should be made payable to NOAA Employees Association and sent to Michael J. DiLeo, NOAA-NWS W331, World Weather Building, Room 410, Washington, D.C., 20233.



Donald C. Winner

Donald C. Winner, Chief, Planning and Coordination Group, NESS, for the last three years, has been named Chief of the Field Services Division. Formerly an Air Force meteorologist, Winner joined NOAA in 1971. He previously was with George Washington University.

Dr. Russell C. Schnell, a postdoctoral fellow with the Environmental Research Laboratories' Atmospheric Physics and Chemistry Laboratory in Boulder, Colorado, has been elected a member of the National Academy of Science's Committee on Aerobiology. Schnell, presently on assignment from the World Meteorological Organization, is organizing aerosol research in Kenya, Africa.

Alex Koscielski has been named Meteorologist-in-Charge of the new network radar WSMO at Alliance, Neb. Alex first joined NWS as a forecaster at Detroit in 1960 after a few years in weather modification work. In 1963, he transferred to Kansas City and soon became an Assistant SELS forecaster. In 1966 he left the Federal service for a position with the South Dakota School of Mines as a field director of the School's weather "mod" projects primarily emphasizing forecasting and radar.

Arthur Valdemar is the new Official-in-Charge of WSO, Springfield, Mo., succeeding Ray Nelson who recently retired. He first entered the National Weather Service (NWS) in 1963 at Huron as a Meteorological Technician. In 1966 he entered private industry for a couple of years before returning to the Weather Service at Goodland, Kan., in 1968. He was transferred to Grand Island, Neb., in 1971 and promoted to Official-in-Charge at Scottsbluff, Neb., in 1975.

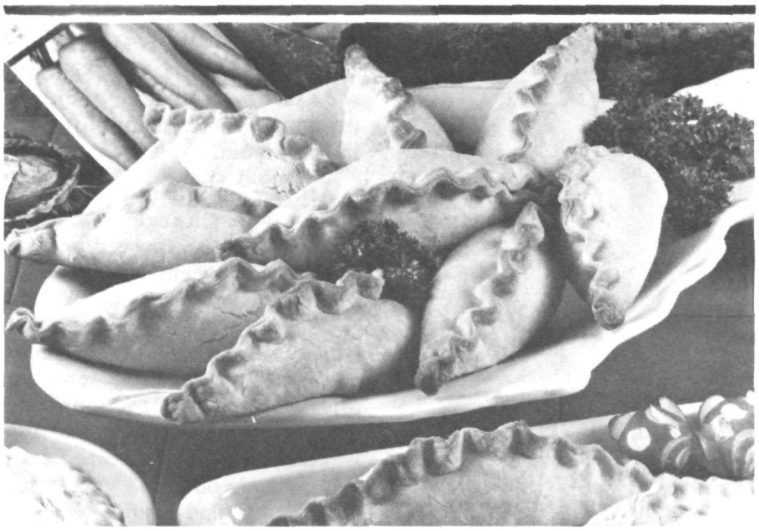
Dr. Douglas Wolfe, a marine pollution ecologist and specialist on trace elements in marine shellfish, has been appointed deputy director for NOAA's Outer Continental Shelf Environmental Assessment Program (OCSEAP).

Previously, Wolfe was Division of Ecology Director for NOAA's Atlantic Estuarine Fisheries Center on Pivers Island, N.C., and an adjunct associate professor of zoology at North Carolina State University in Raleigh.

He joined the Commerce Department in 1964 after completing work for his Ph.D. in physiological chemistry at Ohio State University, where he also received a B.S. in zoology and an M.S. in physiological chemistry.

R. Adm. Harold J. Seaborg (Ret.) recently presented a model of the original C&GSS Discoverer to Pacific Marine Center. The model is now on display in the building lobby. Seaborg was Director of PMC upon his retirement from the Coast and Geodetic Survey in 1967.

FROM THE GALLEY



TUNA PASTRIES

2 cans (6-1/2 or 7 ounces each) tuna
1 can (11 ounces) condensed cheddar cheese soup
1-1/2 cups finely chopped celery
1/2 cup finely chopped onion
2 tablespoons lemon juice
2 packages (11 ounces each) pie crust mix
Tartar Sauce (recipe follows)

Drain and flake tuna. Combine soup, celery, onion and lemon juice; mix well. Stir in tuna. Refrigerate until ready to use. Prepare each package of pie crust mix as directed on label. Roll each on lightly floured board into a 15-inch square. Cut into 5-inch squares. Spoon an equal amount of tuna filling (scant 1/4 cup) diagonally down center of each square. Moisten edges of pastry with water. Fold opposite corners of pastry up over filling forming a triangle and press edges together to seal. Trim off center point of crust. Flute edges. Place on ungreased baking sheet. Bake in hot oven, 425°F., 18 to 20 minutes or until pastry is done and lightly browned.

For busy day meals prepare pastries ahead of time. Freeze; wrap and store pastries in freezer for later use. To bake frozen pastries, unwrap, arrange on baking sheet and bake in hot oven, 425°F., about 25 minutes or until done. Serve hot or cold with sauce. Makes 18 pastries, 6 servings - 3 pastries each.

TARTAR SAUCE

1 cup salad dressing or mayonnaise
1/4 cup sweet pickle relish
1 tablespoon lemon juice

Combine ingredients; mix well. Serve with pastries. Makes about 1-1/4 cups 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 frozen haddock and turbot fillets along the Northeast Seaboard; fresh croaker and shad in the Middle Atlantic States, including the D.C. area; fresh grouper and frozen Spanish mackerel fillets in the Southeast and along the Gulf Coast; fresh whole and pan dressed smelt and frozen whiting in the Midwest; fresh Dungeness crab and rockfish in the Northwest; and frozen catfish steaks and canned tuna in the Southwest.

"Seagranti" - - A New Word In Taxonomy

The Office of Sea Grant may not go on forever, but unless disaster overcomes marine life off Guam, its name appears destined for immortality.

The reason is that Sea Grant scientists at the University of Guam have discovered two new species of stone crabs. Because their work had been carried out under the auspices of the NOAA agency, they showed their appreciation by naming one of the species P. Seagranti.

Reaction from the crabs upon learning of that distinction has not been reported.

It's rained in some areas, but . . .

Drought Outlook Remains Grim for Western States

The drought outlook in the western United States remains grim, according to National Weather Service hydrologists and the Agriculture Department's Soil Conservation Service.

In the April issue of "Water Supply Outlook, 1976-77, for the Western United States," Weather Service hydrologists said there had been little improvement over most of the area during March.

Precipitation during the month varied widely, ranging from well below normal in California and most of the Colorado and Great Basins to as much as five times normal over some headwater areas of the Missouri River. However, except for these areas of the Missouri Basin, March precipitation was not sufficient to bring anticipated snowmelt runoff for the water-year ending Sept. 30, 1977, to near normal, and the outlook for large areas remains critical.

Although a major winter storm moved through the Colorado and New Mexico Rockies early in March, seasonal precipitation totals remain below normal. The streamflow outlook is generally poor, with less than 50 percent of the average runoff expected in the Arkansas and Rio Grande Basins. Forecasts on the Pecos River are for 70 to 85 percent of the 15-year-average runoff a[illegible] for 65 percent of average on the Canadian River.

The streamflow outlook improved significantly during March in the upper Missouri Basin, as precipitation ranged from 150 to 500 percent of normal over the Missouri River Basin above Fort Peck, Mont., and over the Yellowstone and Milk River Basins. Forecasts of runoff are for about 85 percent of average in the Milk River Basin and 50 to 70 percent of average on the Missouri River above Fort Peck. In the Yellowstone Basin, the Tongue and Powder River drainages are expected to have 110 to 115 percent of average, while the rest of the basin will have about 60 percent of average. No improvement is expected in the Platte Basin, where runoff is forecast to be 45 to 55 percent of average.

Pacific Fishery

(Continued from page 1)

guaranteed the opportunity to take certain percentages of th[illegible] salmon catch.

Recreational catch of chinook and coho north of Tillamook Head is not expected to change from the numbers of fish caught last year, the first season when recreational fishing was under similar regulations.

Members of NOAA's Oil Spill Team received cash awards totaling $3,000 from Dr. Wilmot N. Hess, NOAA Acting Associate Administrator, in a ceremony held April 6. Through their work, they have improved NOAA's ability to assess current oil spills quickly and to predict the consequences of future spills. Shown, left to right: Dr. Thomas S. Austin, Director of NOAA's Environmental Data Service; Dr. James E. Mattson, chief scientist; Elaine I. Chan, marine ecologist; Dr. Hess; and Dr. Peter L. Grose, physical scientist.

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National Oceanic and Atmospheric Administration

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