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Hurricane Season Is Here Again, NWS Warns



The National Weather Service is again reminding U.S. coastal residents that hurricane season is here.

The season officially lasts from June through November, although a few hurricanes have occurred in other months of the year. Most of the giant pinwheel-shaped storms strike U.S. coasts in August, September, and October, with September the peak month. Chiefly affected are the States bordering the Gulf of Mexico and the Atlantic. Hurricanes are rare on the West Coast.

NMFS To Collect Fishing Lore

Marine anglers of the Atlantic coast soon will be asked to record details of fishing adventures—not only about fish caught but also about the ones that got away.

Beginning this summer, several thousand marine recreational fishermen will be asked—by mail and telephone—to assist NOAA

The NWS coordinates the world's most sophisticated network of hurricane spotters, trackers, and forecasters. The hub for this activity is the National Hurricane Center in Miami, Fla., under the direction of Dr. Neil L. Frank.

Dr. Frank and his col-
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One of the first .9 kilometer (one-half mile) resolution pictures received May 26, 1974, from the first Synchronous Meteorological Satellite (SMS-1), a new tool in hurricane surveillance. (See related story on page 3.)

Scientists Link Aerosols And Global Temperatures

If mankind continues to inject aerosols—fine airborne particulate matter—into the atmosphere at the present ever-increasing rate, the amount of manmade aerosols in the atmosphere may equal natural aerosols within 23 years.

This is one of the conclusions two Environmental Research Laboratories scientists reached after drawing together and analyzing data collected by other investigators on the aerosol emissions from various sources and the effects of different concentrations on worldwide climate.

that man's current efforts at pollution abatement can bring the situation under control before 23 years pass.

Ash from volcanic eruptions, salt from the oceans, dust blown up from the soil, all add aerosols to the atmosphere. Nature's aerosols have long influenced the weather and the worldwide climate. Now, however, man with his factories and vehicles is supplementing nature's supply of aerosols, with potential effects on local weather and world climate. Aerosols are already affecting weather on a local scale, the two note, adding

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Area Vice Presidents of NOAA Voluntary Action, Inc. met this week to plan the NOVAC membership drive in the Washington metropolitan area June 10-21. Seated, from left, are Senior Vice President Donald Denion and Vice Presidents Evelyn Bickford, Riverdale; Sharon Bucholz, Gramax; LeRoy Marshall, Page Building; Robert DeMaris, FOB 4; and Robert Carnahan, Rockville. Not present were Robert Hirano, World Weather Building; and Keith Johnson, At Large. The Area Vice Presidents have recruited over 80 volunteers who will be contacting their fellow employees during the next two weeks to join NOAA's self-help financial assistance organization. NOVAC made loans and grants to over 50 NOAA employees in the past year and expects to be able to broaden its services in the coming year.

The two believe, however,

NWS Issues Reminder That Hurricane Season Is Here Again

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leagues at the Hurricane Center have recently completed a study of population growth and hurricane history from Texas to Maine which shows that 60 percent—21 million out of 35 million—of Gulf and Atlantic coast residents have never experienced even a moderately strong hurricane.

"This fact," he said, "makes it imperative that NWS officials educate the public to the enormous potential for death and destruction in a powerful hurricane. Even Miami hasn't felt the full brunt of a strong hurricane since 1950, yet the average Miamian feels he's a veteran of tropical storms."

The average yearly toll from North Atlantic tropical cyclones during the past half century has been about 100 lives lost and 150 million dollars in property damage. But hurricanes, like most weather disasters, have an erratic record. Forecasters emphasize that planners should keep in mind the extremes—such as the Galveston hurricane which drowned 6,000 people in 1900—when gearing up for safety.

The surveillance system for tropical storms consists of satellites, long-range aircraft, and radar. With these, and computer-assisted forecasts of hurricane path and strength, meteorologists strive to give at least 12 daylight hours' warning before a coastal area is hit.

If all goes well, a newcomer in the galaxy of weather satellites this year will be SMS-1, the Synchronous Meteorological Satellite launched May 17.

As storms move closer to land, reconnaissance aircraft are added to the surveillance. Flying into the heart of hurricanes they make precise measurements of wind, pressure, and temperature—key factors for determining destructive power. A fleet of Air Force WC-130 Hercules planes and four Navy WP-3A Orions from Jacksonville will be used this year.

The next zone of defense is a "picket line" of 20 Weather Service radars which will pick up tropical cyclones within 250 miles (400 kilometers) of the coast. These are positioned from southern Texas to Maine. Many of them have a rotating capability so a single forecaster can call up a series of different radar images in his office as a storm progresses along the coast.

Then, to deal with the real killer of hurricanes—the tide of wind-driven water known as the storm surge—the Weather Service employs computerized pre-

vide sufficient warning time to evacuate coastal populations. Said Dr. Frank:

"While we're constantly striving for technological improvements in our ability to predict the point of hurricane landfall, and making some progress, I don't foresee any dramatic breakthroughs in years just ahead. Our best hope is that one of our experimental numerical models will provide such an advancement, but I wouldn't count on it. I believe we've reached a plateau that we must live with for a few years.

"For this reason I believe

TROPICAL STORMS AND HURRICANES OCCURRING DURING 1974 in the Atlantic, Caribbean, and Gulf of Mexico will be identified by the following names:			
Alma	Fifi	Kathy	Pearl
Becky	Gertrude	Linda	Roxanne
Carmen	Hester	Marsha	Sabrina
Dolly	Ivy	Nelly	Thelma
Elaine	Justine	Olga	Wilma

dictions of a storm-surge height. This portion of the forecast is based on numerical models by Dr. Chester Jelesnianski of the Weather Service's Techniques Development Laboratory. Accurate forecasts of this effect are a relatively recent and vital element. It is estimated that nine out of 10 hurricane deaths in the past have been drownings of people who were unaware of the rapid rise of water and battering waves that a hurricane produces.

When a coastal strip is predicted to be in the path of a killer hurricane, there is available a growing number of storm-evacuation maps prepared by NOAA's National Ocean Survey by which residents can be directed to the safest and best routes to move inland, out of danger.

In spite of the fact that U.S. hurricane forecasting is a model for the world, there is growing concern among storm forecasters that mushrooming population in hurricane-prone areas is outpacing their ability to pro-

vide sufficient warning time to evacuate coastal populations. Said Dr. Frank:

"While we're constantly striving for technological improvements in our ability to predict the point of hurricane landfall, and making some progress, I don't foresee any dramatic breakthroughs in years just ahead. Our best hope is that one of our experimental numerical models will provide such an advancement, but I wouldn't count on it. I believe we've reached a plateau that we must live with for a few years.

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the big payoff in this period will come from increased efforts to educate people on how to cope with the hurricane threat, improvements in our watches and warnings so people know exactly what we mean, and formulation of intelligent alternatives to horizontal evacuation where escape routes in low-lying areas are becoming inadequate to handle a growing population. In the last category, one such alternative is the vertical-evacuation proposal here in Dade County, Fla., where high-rise structures could become refuges to which evacuees could walk within a reasonable time."

Dr. Frank said the past two years have been characterized by a minimum in both the number and intensity of North Atlantic tropical cyclones. "There is no way to tell whether this trend will continue. But calm periods like this always make us uneasy because they lessen public awareness of the threat."

He added: "The East Coast hasn't

had a moderately strong hurricane since Donna in 1963 while, before that, the decade of the 50's was characterized by a parade of destructive hurricanes—Carla, Edna, and Hazel in 1954; Connie and Diane in 1955; Helene in 1958, Grace in 1959. Nothing like these storms has happened since. And the population on the Eastern Seaboard has grown enormously. On Long Beach, for example, it has doubled.

"The decade of the 60's was characterized by a series of storms in the Gulf of Mexico—Carla in 1961, Betsy in 1964, Betsy in 1965, Beulah in 1967, and Charley in 1969. Celia continues that trend into 1970."

To gear up for safety, the NWS has been conducting a series of special workshops in which Dr. Frank has been establishing rapport and exchanging views with meteorologists in Charge of coastal Weather Service Forecast Offices. The goal of each case is the same: to stress that this may be the year for another Diane—Carla—or Camille—all of which called for the evacuation of thousands of people. Local Weather Service officials, in turn, have been stressing the same point with Civil Defense, police, fire, and other local officials, explaining to newcomers how the hurricane-warning system works and refreshing the system in the minds of old timers.

Dr. Frank said one of the most acute anxieties in the thousands of mobile homes on the Florida Keys—accessible to the mainland by a two-lane highway and a series of bridges only a few feet above sea level.

A growing number of other low-lying coastal areas with limited escape routes are revealing a similar potential for disaster. Weather Service Director Dr. George P. Cressman has said "Unless something is done to curb overbuilding in such areas, Nature is likely to impose its own solution."

Ocean Platform In Gulf To Test Buoy Equipment

NOAA is planning to use an ocean platform for testing buoy equipment and sensors. The platform is scheduled to be deployed in July about 25 miles (40 kilometers) southeast of Gulfport, Miss., in water 45 feet (13.7 meters) deep.

The platform is being prepared by the NOAA Data Buoy Office, which is in charge of the NOAA data buoy program, at its headquarters in the NASA Mississippi Test Facility near Bay St. Louis. It will meet a long-standing need to supplement laboratory testing of buoy components and subsystems in an ocean environment.

James W. Winchester, NOAA Data Buoy Office director, said the platform will be made available for tests by other government agencies, such as NASA and the Navy, and by academic and industrial organizations involved in ocean systems development and testing.

The platform is being built on a 40-foot (12.15-meter)-diameter buoy hull, designed for maximum reliability and flexibility. A data acquisition and transmission system will accommodate up to 200 channels to transmit data to shore. Data will be acquired by radio frequency messages after radio interrogation and by visits to the platform.

Communication tests will be made using newly-developed equipment compatible with the NIMBUS F and GOES satellite systems. Power equipment to be tested includes solar cells, seawater batteries, diesel fuel, liquid-fuel thermoelectric generators and storage batteries.

The deterioration of cables and connectors exposed to the ocean environment will be studied.

"Weather Watching" Experiment Planned; NESS, NWS Seek Help

On May 17, 1974, a new geostationary meteorological satellite called SMS-1 (Synchronous Meteorological Satellite) was launched. SMS-1 will provide a continuous view of the weather over the United States 24 hours a day by sensing both visible and infrared radiation.

With this new data available, the National Environmental Satellite Service will join with the National Weather Service in conducting a "Weather Watching" experiment for the Chesapeake Bay area during July and August of this year.

"Weather Watching" will mesh existing weather observations, radar data, SMS satellite imagery and hourly surface weather reports and special reports from cooperating observers along the Chesapeake Bay. The goal of this program is to provide current weather information and a short-term forecast (0-three hours) for the Bay during the daylight hours, seven days a week. The

short-term experimental forecasts will be broadcast to all marine interests over the continuous NOAA Radio Weather (162.40 MHz) channel operated by the NWS Office at Baltimore.

The cooperating stations will include Coast Guard, marinas, state parks, military installations and a number of both commercial and private boats. They will report current weather, temperature, wind direction and speed. The instrumentation, communications and training of observers will be furnished by NESS.

During the month of June, NESS will be contacting marinas to ask their help in providing observations around the Bay. All NOAA employees who have boats at marinas around the Bay who can help in contacting the marinas are asked to call Vincent Oliver or Carl Weiss at the World Weather Building on 301-763-8282 to get more details of the program.

Estelle Heads WXAP Emergency Warnings Branch



Earl W. Estelle

Earl W. Estelle has taken over as Chief of the Emergency Warnings Branch of the National Weather Service's Weather Analysis and Prediction Division in Silver Spring, Md. He replaced Samuel O. Grimm, Jr., who is now Chief of the NWS Manpower Utilization Staff.

Mr. Estelle previously served as Chief of the Quantitative Precipitation Forecast Branch and Deputy Chief of the Forecast Division at the NWS National Meteorological Center in Suitland. Before going to NMC in 1970, his posts included that of Executive Assistant to the Associate Director for Meteorological Operations. Earlier he served as an Air Force Weather Officer.

He holds degrees from Fairleigh Dickinson University, Pennsylvania State University, and George Washington University.

Coastal Zone Management Grant Is Awarded to State of Ohio

NOAA has awarded a \$200,000 grant to the State of Ohio for the development of a coastal zone management program for the Lake Erie shore.

The grant was made under the Coastal Zone Management Act of 1972, which is designed to ensure national and regional cooperation in achieving a balance of resource use and conservation along America's sea coasts and Great Lakes' shores. Such grants carry a matching-fund provision in which the state is required to furnish at least one-third of the funds for the program.

Governor John J. Gilligan has designated the Ohio Department of Natural Resources to administer the grant.

The first year of work on the program will include an area resource analysis which will inventory the resources of the Ohio shore zone and assess the economic, social, and environmental implications of uses of these resources; an analysis of the legal and administrative arrangements underlying state, regional, and local planning programs currently in effect in Ohio, and the development of recommendations regarding legislative and administrative changes which will be required to imple-

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ment the Ohio Lake Erie Shore Zone Management Program; and a citizen involvement program in which, through workshops and public hearings, groups and individuals will be informed of coastal management programs and ideas will be exchanged on how best to serve the public need through environmentally sound programs.

Fishing Adventures of Anglers To Be Recorded by NMFS

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statisticians toward the compilation of uniform and complete records of the annual harvest of marine fish and shellfish.

NOAA is set to begin an extensive survey of sport fishing in Maine, New Hampshire, Vermont, Connecticut, New York, Rhode Island, Massachusetts, Pennsylvania, New Jersey, Delaware, Maryland, Washington, D.C., Virginia, and West Virginia. The work will be done by a private data collecting firm under contract to the National Marine Fisheries Service. In due time, the study will be expanded to include all national marine fishing regions. State and private sport-fishing organizations have helped NMFS fisheries experts prepare a list of survey questions. After receipt of answers, NMFS will analyze and publish the findings.

In the first phase of the Marine Sport Fish Statistics Program, 27,000 households will be briefly questioned by telephone to establish a valid mailing list of active salt-water fishing households. Next a more detailed questionnaire will be mailed to a selected sample of several thousand households, querying them on a confidential basis about: how often and how many anglers of what age and sex fished when, where, and how; what kinds of fish and shellfish were caught in what quan-

tity; how the catch was used; and how much time and money were spent on sport-fishing activities. Expert surveyors say that, as a general rule, only about 30 percent of any given mailing list of contacts responds to such questionnaires; therefore, the surveyors will complete another round of telephone calls to nonresponders after a specific period of time has elapsed. Thereafter, a mail-and-telephone-call sequence will be repeated every two months to collect the desired data over a full calendar year.

Plans call for a continuation of the data-collecting activity on the same general basis through 1976, after which geographic coverage will alternate between the eastern and western halves of the United States from one year to the next.

Accurate and current statistics on the effort made to catch amounts of fish are prerequisites for the production of assessments of all kinds of fish populations. Such assessments, in turn, are vital to fisheries biologists and conservationists as they work toward sound management of marine resources.

The Marine Sport Fish Statistics Program is preceded by other less extensive surveys of national sport fishing habits, conducted at five-year intervals since 1955 by the Bureau of the Census. The NMFS program was

designed to allow for complete, up-to-date information on the national harvest of fish products heretofore routinely collected for the commercial catch, but available only on an incomplete, non-timely basis for the sport catch. The new survey method, among other things, will permit NMFS fisheries statisticians to add the annual sport catch to the yearly commercial catch to reach an aggregate—and thus more accurate—annual total.

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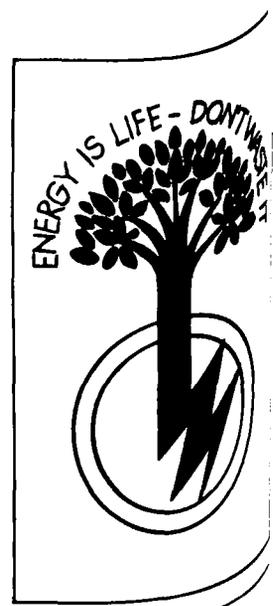
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Catherine S. Cawley, Editor
Anna V. Felter, Art Director

Hydroplot System New to Great Lakes Is Used by Laidly

The NOAA Ship operated by the National Ocean Survey's Lake Survey Center, is conducting graphic surveys on Lake Erie this season. She has equipped with a system called "Hydroplot," which was developed by the NOAA. The system eliminates the manual recording of position and depth, as well as the preparation of field sheets which are used to make navigational charts.

A sophisticated electronic system, including an on-board computer, automatically produces a field sheet which is ready for the chart compiler and routine checking and publication.



obituaries

Walter C. Williamson

Walter C. Williamson, retired Principal Assistant at the National Weather Service Office in Madison, Wis., died on June 1.

His assignments during nearly four decades with the NWS included service at Wichita, Kans., Port Arthur,

Tex., Columbia, S.C., and Fort Wayne, Ind., and 27 years at Madison. In 1935 he was a member of the first Weather Service team of experts on hurricanes while stationed in Texas and South Carolina.

He is survived by his wife, Ernestine, of 720 North Fair Oaks Avenue, Madison, Wis.

53714; two sons, Brian and Neil; and five grandchildren.

Russell Mozeney

Russell Mozeney, former Meteorologist in Charge of the National Weather Service Office in Corpus Christi, Tex., died on June 1. He had headed the Corpus

Christi Office for 25 years before his retirement in 1972.

He served earlier at St. Louis, Mo., Charleston, S.C., and Abilene, Tex.

He is survived by his wife, Mary, and daughter, Beverly Naismith, both of Corpus Christi, and four grandchildren.

New Geodetic Control Standards Announced

NOAA has announced the publication of new standards for geodetic control for use by surveyors and engineers, the first in 17 years.

The modernized standards were prepared by the Federal Geodetic Control Committee, composed of representatives of the Department of Agriculture, Commerce, Defense, Housing and Urban Development, Interior and Transportation, and the National Aeronautics and Space Administration and Tennessee Valley Authority. Collaborating with the committee were the American Congress on Surveying and Mapping, the American Society of Civil Engineers

and the American Geophysical Union, among others.

The new standards are designed to meet the needs for the next 50 years of the national networks of distances and elevations maintained by the NOS.

The new publication replaces that of March 1, 1957. Included are a redefinition of horizontal (distance) control, new requirements for vertical (elevation) control, and basic specifications to enable surveyors and engineers to ascertain the quality of their work. The publication also defines the methodology and qualitative standards of con-

trol that will permit work by other agencies to be incorporated into the national networks. Captain John O. Phillips, Chairman of the Federal Geodetic Control Committee, emphasized the importance of having all control and precise engineering surveys adhere to the new standards, as well as being referenced to the national networks.

The new 12-page publication "Classification, Standards of Accuracy, and General Specifications of Geodetic Controls Surveys," is available from the National Geodetic Survey Information Center (C18), Rockville, Md. 20852.

Dr. Schwarz Named Scientific Advisor For Datum Program



Dr. Charles R. Schwarz

Dr. Charles Reed Schwarz of Bethesda, Md., has been appointed scientific advisor to the Project Manager for the North American Datum program. The program is designed to modernize the geodetic network which provides the basis for all accurate horizontal surveying on the North American continent. Commander John D. Bossler, Project Manager, is coordinating the efforts of the U.S., Canadian and Mexican governments.

Dr. Schwarz, who will assist Commander Bossler, has been employed by the Defense Mapping Agency, primarily in the field of satellite geodesy, and is the author of numerous papers on Doppler satellite tracking, geocenter positioning and other geodetic subjects. He received his BA in mathematics from Dartmouth College in 1962 and his Ph.D. in geodetic science from Ohio State University in 1967.

questions, the two researchers will be able to use the data already collected by Explorer 45. "It's just a matter of looking at it in a different way," Dr. Williams observes.

When the events of magnetic storms have been chronicled on the scale of electrons and protons, it may eventually be possible to predict such storms.

Scientists Map Out Recovery Phase of a Magnetic Storm

During a magnetic storm, a river of immensely hot charged particles forms and flows around the earth, a mammoth ring of electric current encircling the equator, high above the surface of the planet. The ring of current generates a magnetic field that temporarily cancels the earth's field.

But the ring soon fades. The main phase of a magnetic storm, when the plummets of the earth's field strength, lasts only a few hours. Then, over the next few days, magnetic conditions return to normal in the recovery phase. Drs. Donald J. Williams and L.R. Lyons of the Environmental Research Laboratories' Space Environment Laboratory have mapped out the layered structure of the ring current by using satellite observations to spy on the protons in the ring current and learn some of the "why" of its demise.

The ring current fizzles as its charged particles escape into space, and the scientists have uncovered one of the escape routes. The ionized (electrically charged) gases in the ring current are extremely hot, with tempera-

tures in the millions of degrees. When it forms, the ring current takes up residence right next door to a population of cooler ionized gases, or plasma, that are permanent residents of a zone of the magnetic field called the plasmasphere. The gases of the plasmasphere, which is actually an extension of the ionosphere (the electrically charged upper atmosphere), are a mere several thousand degrees in temperature. The protons of the ring current, say Drs. Williams and Lyons, slip away in the confusion that ensues when the high-temperature intruders meet the cooler natives.

The National Aeronautics and Space Administration's Explorer 45 satellite travels around the earth in an elliptical orbit nearly matching the equatorial plane, and so provides a good view of the ring current. Instruments on the satellite measured the distribution of protons in the ring current before, during, and after a major magnetic storm that occurred on December 17, 1971.

A surge in the solar wind seems to be what sets off a magnetic storm and causes

the ring current to form. As the initial force of the solar surge dies, explains Dr. Williams, SEL Director, a large stable residue is left behind and persists in the ring current. This residue eventually dissipates, and magnetic conditions return to normal. The question was, how?

From the Explorer 45 observations, the NOAA scientists found that different processes are occurring in different parts of the ring. In the inner reaches of the ring, closest to earth, the hot plasma interacts with the cold plasma of the plasmasphere. The interaction creates instability, and protons are diffused and escape from the magnetic field.

The next steps, says Dr. Williams, will be the more difficult tasks of discovering what happens during the beginning and main phases. What sets off a magnetic storm in the first place? How does the ring current form? The first phase of the study focused on the protons of the ring current. Drs. Williams and Lyons want to see what the electrons are doing. To answer these



BAKED COD WITH CREAMY VEGETABLE SAUCE

- 2 pounds cod or other fish fillets, fresh or frozen
- 2 tablespoons butter or margarine, melted
- 1 tablespoon lemon juice
- 3/4 teaspoon salt
- 1/2 teaspoon paprika
- 1 can (10-1/2 ounce) condensed cream of celery soup
- 1/3 cup milk
- 1/2 teaspoon dry mustard
- 1 package (10 ounce) frozen mixed vegetables, cooked and drained
- 1/4 cup sliced ripe olives
- 2 hard-cooked eggs, chopped

Thaw frozen fish. Cut into 6 equal portions. Place in greased baking pan, 13 by 9 by 2 inches. Combine butter or margarine and lemon juice; drizzle over fish. Sprinkle with salt and paprika. Bake in moderate oven, 350° F., for 25 to 30 minutes or until fish flakes easily when tested with a fork. Baste with pan juices several times during baking. While fish is baking prepare the sauce. Combine and mix soup, milk, and mustard; heat, stirring often. Stir in vegetables, olives, and eggs; heat. To serve, spoon sauce over fish. Makes 6 servings.

next week's best fish buys

According to the NMFS National Consumer Educational Services Office in Chicago, the best buys for the next week or so are likely to be cod and ocean perch along the Northeast Seaboard; shrimp and sea

trout in the Southeast and along the Gulf Coast; turbot and ocean perch in the Midwest; West Coast red snapper and Petrale sole in the Northwest; and whiting and mahi-mahi in the Southwest.

Scientists Link Aerosols And Global Temperatures

(Continued from page 1)

that "inadvertent weather modification on a scale large enough to affect man's well-being might soon become a reality."

Drs. Helmut K. Weickmann and Rudolf F. Pueschel, atmospheric scientists with the Atmospheric Physics and Chemistry Laboratory in Boulder, Colo., have calculated the amount of time different aerosols remain in the atmosphere and what their effects might be, and conclude that manmade aerosols account for only a small proportion of the total now in the atmosphere and so far have had little effect on worldwide temperatures.

The effect a given aerosol will have on climate, explain Drs. Weickmann, who is Director of the APCL, and Pueschel, depends in large part on how long it remains in the atmosphere. Some aerosols, such as lead from car exhaust, are rapidly removed by precipitation. Others may remain in the stratosphere for months or years.

Scientists at Stanford University estimate that natural processes produce about 2,312 million tons (2,097 million metric tons) of aerosols a year, which amounts to about 88.5 percent of the total. Man and his activities add another 296 million tons (269 million metric tons), the remaining 11.5 percent.

But aerosols from natural sources are distributed fairly evenly across the planet. Man, in contrast, contributes high concentrations, mostly from industrial centers. Because of the lopsided distribution of the world's industrial centers, say the researchers "we find that the 296 million tons of manmade aerosols are produced every year on only about 2.5 percent of the surface of the globe." Within these limited areas, manmade aerosols account for nearly 84 percent

of the total.

These aerosols already have noticeable effects on local weather. Particulate matter in the air serves as nuclei around which water droplets in clouds can condense or freeze to produce rain or snow.

To define the effects on climate of these aerosols under conditions, Drs. Weickmann and Pueschel calculated the amounts of different aerosols that are retained by the atmosphere.

They found that lead remains in the atmosphere the shortest time—often a matter of hours.

At the other extreme are the stable, mostly organic particles, such as pesticides, which remain in the air for a month or more.

Though short-term aerosols such as lead may affect weather on a local scale, it is the aerosols that remain and accumulate in the atmosphere that will have long-term effects on climate.

These scientists calculate that the total amount of aerosols of all kinds makes the earth at most 1.3 degrees Celsius cooler than it would be if the air were free of aerosols. Man's share of the effect amounts to only about 0.13 degree.

But, human consumption of energy is steadily increasing. During 1969 alone there was an increase in power requirements of more than ten percent. If the increase levels off at 10 percent annually, in about 20 years the aerosol production would match the amount of natural production.

Also, Drs. Weickmann and Pueschel conclude that the problem can be solved within 23 years, and it is likely that man's activities will cause significant cooling of the planet. But they urge that scientists begin immediately to look at how pollutants from urban centers may be influencing local weather.

Hundreds of Comments on Standardizing Fish Names Received

A total of 525 comments was received in response to an invitation to the public to comment on the need for clarification of the names of certain species of fish that are known by various names in different parts of the country. Thousands of species are known throughout the world by scientifically accurate names, but the differing common names used in labeling some species cause problems in marketing and market development, and could disrupt any attempts to write uniform labeling regulations.

According to the National Marine Fisheries Service, there is increasing interest in using fish and shellfish which have not previously been marketed generally, and for

which no common names exist that are familiar to U.S. consumers. A spokesman said that new food processing techniques now present opportunities to develop new fishery products which have no recognized names.

Individual consumers, including housewives, students, and fishermen, accounted for 471 responses, which generally made specific suggestions for different names for a certain few species that now have what are considered undesirable names. Most of these responses favored the proposal for improving the market names of some species.

The suggestions included petfish, roverfish, and streaker for dogfish; and zodiak, july, and smoking

crab for cancer crab.

The fifty-four comments from fish processing, marketing and consulting firms, trade associations, and Federal and State agencies and commissions varied, but nearly 70 percent agreed a need exists for such a program, and most indicated that NMFS is the appropriate Federal agency to perform the function. Consumer needs were recognized as important in many responses because aesthetic and truthful labeling is necessary, as well as proper and accurate product representation.

James R. Brooker, of the NMFS Fishery Products Inspection and Safety Program, has been named coordinator of the nomenclature pro-

gram. He said NMFS will request proposals from expert sources as to the most appropriate and systematic way of approaching the overall problem. A contractor will be selected to conduct certain functions to implement the plans and design a format for presenting product names in an organized manner, and NMFS will consult with appropriate organizations in the public and private sector relative to plans and procedures. Mr. Brooker said the program requires a lengthy procedure requiring coordination with regulatory groups such as the Food and Drug Administration and with the American Fisheries Society, consumer groups, and the fishing industry.

notes about people

Three members of the NOAA staff participated in the Second Annual Forecast Research Symposium of the Canadian Atmospheric Environment Service held in Toronto, Canada, May 27-28. The theme of the Symposium, "Scientific Aspects of Forecast System Design," presented an opportunity for an overview of current R&D programs for present and future systems and forecast research.

Gerald A. Petersen, Director of Meteorological and Hydrological Services in the Office of Associate Administrator for Environmental Monitoring and Prediction, spoke on "AFOS-Automation of Field Operations and Services."

Dr. William H. Klein, Director of the Techniques Development Laboratory in the National Weather Service Systems Development Office, spoke on "Weather Forecasting From Model Output Statistics (MOS)," and

Dr. John A. Brown, Jr., Chief of the Development Division at the NWS National Meteorological Center, spoke on "Research and De-

velopment At The National Meteorological Center."

Richard Maxey, of Morehead, Ky., is the new Chief of geodetic survey party G-48. He has been with the Federal government since 1949. The party is conducting surveys in Florida.

Dr. Kirk Bryan, a research oceanographer with the Environmental Research Laboratories' Geophysical Fluid Dynamics Laboratory in Princeton, N.J., was recently voted president-elect of the

Section on Oceanography of the American Geophysical Union. His principal field of current research is developing numerical models of the ocean circulation, and studies of the large-scale interaction of the ocean and atmosphere.

Feenan Jennings of the National Science Foundation was the guest speaker at the Environmental Data Service's quarterly luncheon held May 23 in Washington, D.C. Mr. Jennings described the International Decade of Ocean

Exploration (IDOE), which is a long-term international cooperative program to improve the use of the ocean and its resources for the benefit of mankind.

John W. Padan, who has been directing marine mining environmental study activities from Boston, Mass., for the past year, has been assigned to the Environmental Research Laboratories' Pacific Marine Environmental Laboratory in Seattle, Wash., where he will direct ERL's Deep Ocean Mining Environmental Studies.



This photo was taken when an orientation was held recently by the National Marine Fisheries Service in Washington, D.C., for trainees selected to participate in the Scientific Upward Mobility Training Program. In the front row, from left, are Gale Lewis, Joan Weamer, Deloris Belle, Cheryl Jordan, Gloria Shelton, and Evelyn J. Los; and in the back row, from left are Ernest Premetz, Special Assistant in the NMFS Office of Resource Utilization; SUMTP Counselor Alex Johnson; John Guinan, NMFS Public Affairs Officer; Lynn West; Stephen D. Williams; Harold Graves; Michael Hodges; Bill Cherry; and Benson Drucker, Acting Aquaculture Coordinator in the NMFS Office of Resource Research.

Weather-By-Phone Service For Atlanta Area Dedicated



Participating in pre-dedication ceremonies of the new Weather-by-Phone service for the Atlanta, Ga., metropolitan area are, from left to right: Bill Maner, Sales Manager, Southern Bell; Harold Scott, National Weather Service Headquarters; Herb Johnson, Sales Development, AT&T, New York; W.D. Hosford, President, DeKalb Federal Savings & Loan Association; Bill Harms, Meteorologist in Charge, National Weather Service Forecast Office, Atlanta; and Dr. Walter P. Walker, President, Audichron Company, Atlanta, manufacturers of the equipment.

The new system, which will provide to the Atlanta calling area Weather-by-Phone service on a free-calling basis updated by the NWS, is the largest free-calling weather-by-phone service in the nation.

EDS in Boulder Holds Seminars For Employees

Personnel of the Solar-Terrestrial Data Services Division of the Environmental Data Service's National Geophysical and Solar-Terrestrial Data Center in Boulder, Colo., recently completed a series of 11 seminars designed to acquaint them with the major categories of data handled by the Division. Experts in each major discipline conducted the briefings. Subjects covered were The Sun, Solar Activity, Solar X-Ray and UV Emissions, Interplanetary Medium, Solar Radio Wave Emissions, Earth's Atmosphere, Earth's Magnetosphere, Aurora, Earth's Magnetic Field, Airglow, and Cosmic Rays.

NOAA Participates In 8 Boat Shows In 1973-74 Season

NOAA participated during the 1973-74 season in boat shows in Los Angeles, Calif.; New Orleans, La.; Houston, Tex.; New York City, N.Y.; Norfolk, Va.; Baltimore, Md.; Washington, D.C.; and Miami, Fla. The exhibits were manned by personnel from Headquarters and field installations of the National Ocean Survey, the National Weather Service, and the National Marine Fisheries Service.

In addition to slide presentations and illustrated panels, local nautical charts, marine weather services, bathymetric maps, prototype Loran C charts and other related products were displayed at the booths. Approximately 55,000 nautical chart catalogs and an equal number of Safe Navigation brochures were made available to marine interests during the shows.

NMFS Warns Against Taking Marine Mammals

The taking of a marine mammal, dead or alive, without a permit is an illegal act that can subject the taker or processor to a fine, an arrest, or both, the National Marine Fisheries Service warned last week because of the recent increase in numbers of marine mammals salvaged for their skins by people who found them on U.S. beaches, obviously soon after death occurred. The correct procedure is to leave the carcass where it is and inform State or local enforcement authorities or the local conservation department of the situation.

The protected species are porpoises, seals, sea lions, whales, polar bears, sea otters, manatees, and walrus. Under the provisions of the Marine Mammal Protection Act of 1972 and related regulations, none can be taken without a scientific research permit or a public display permit.

NMFS administers and enforces the Act as it applies to sea lions, seals, porpoises, and whales. The other marine mammals are the responsibility of the Department of the Interior.

Seals and sea lions are the most commonly found species. In each instance the finder, even though unaware of wrongdoing, is guilty of a violation of the law if in possession of a marine mammal.

The ban against retention does not apply to bones, teeth, or ivory of marine

mammals found on certain shorelands, provided items are registered with agents of either the NMFS or the Bureau of Sport Fisheries and Wildlife within 30 days of collection.

To date, but only as a temporary measure, a very small number of law violators have been punished only to the extent of being forced to relinquish marine mammal pelts when State authorities found them to be in illegal possession. NMFS authorities said, however, that from now on a stricter application of the law will prevail in such situations. A violator, according to the legal provisions covering such offenses, can be fined as much as \$10,000 per violation.

By a Letter of Agreement dated April 10, 1974, arrangements were completed between the NMFS and the Smithsonian Institution, authorizing the Institution to collect and utilize for scientific research dead marine mammals found on U.S. beaches. A system for a full record of each collection transaction is provided in the agreement. The rights and responsibilities of the States as set forth in marine mammal legislation are not affected in any way under the new arrangement. The agreement pertains to those species under NMFS responsibility and does not include marine mammals listed as endangered or threatened under the Endangered Species Act of 1973.

Great Lakes 1973 Water Level Data Available

The latest in the Lake Survey Center's series of water levels books, "Great Lakes Water Levels - 1973," is now ready for sale at \$2.50 from its office in Detroit.

The soft-bound, 118-page statistical book includes a map and a geographical index of the station number and location of the 54 permanent gages the Lake Survey maintains around the

lakes. It contains tabular records of daily and monthly average levels for each gage in the network for the calendar year, as well as a table of the highest and lowest daily average for each month. In addition, a frequency distribution table of daily average levels shows the number of times each month the recorded levels were above a specific elevation.



National Oceanic and Atmospheric Administration

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