



NOAA WEEK

U.S. DEPARTMENT OF COMMERCE National Oceanic and Atmospheric Administration

U.S., French Submersibles To Explore Mid-Atlantic Depths

Weather Prospect Is Good For Final Apollo Mission

Basing its statements on long-range climatological records, the National Weather Service said typical weather from years past indicates that conditions will be favorable for the December 6 launch of Apollo 17 from Florida and the splashdown 13 days later in the Pacific.

The report issued by the Weather Service's Spaceflight Meteorology Group offered these probabilities:

For the 9:53 p.m. launch December 6 from Cape Kennedy: Partly cloudy skies, light winds, and a temperature near 60.

For the December 19 splashdown in the Pacific southeast of American Samoa: Acceptable winds and seas, partly cloudy skies, and a temperature near 80.

This is not a long-range forecast but an outlook based on weather observations taken over many years in December. The first actual forecasts for the mission--based on computerized projections of observed weather conditions--will be made five days before the launch, on December 1. Thereafter there will be regular forecasts for all parts of the world to which the Apollo spacecraft might be diverted if there should be an early termination of the mission, as well as forecasts for the landing area.

Several manned spaceflights of the past have been postponed, and landing areas shifted, because of weather. Gemini 5 was brought down one revolution early to avoid Hurricane Betsy. Apollo 9 was extended one revolution and landed about 500 miles south of the planned area to avoid strong winds and rough seas. Apollo 11--the first lunar-landing flight--was shifted some 200 miles northward to avoid bad weather.

As in all previous forecasts for manned space missions, the meteorologists will rely heavily on guidance provided by giant high-speed computers at the National Meteorological Center in Suitland, Md., and on photographs of cloud conditions transmitted by satellites of NOAA and the National Aeronautics and Space Administration.

Deep diving research submersibles from France and the United States will plumb the depths of the mid-Atlantic Ocean for the first time, in a three-year international scientific program announced this week by NOAA and the Woods Hole Oceanographic Institution (WHOI).

The program, called FAMOUS (French-American Mid-Ocean Undersea Study), will make a detailed study of the Mid-Atlantic Ridge in an area some 200 miles south of the Azores. The giant undersea mountain range that extends from the Arctic Ocean the entire length of the North and South Atlantic, and continues around Africa into the Indian Ocean, has not yet been studied at close range. First-hand study of the ridge is expected to furnish direct knowledge of how the earth's continents and oceans were formed, information that bears directly on the formation of metallic ore deposits and oil accumulation.

The ridge is at an average depth of 7,200 feet, with a maximum depth of about 12,000 feet.

Until now, man's knowledge of the ocean floor has been obtained from indirect measurements from surface ships and deep-sea coring and dredging. By using submersibles, scientists will obtain samples direct from the rift valley in the center of the Atlantic ridge, much as the astronauts went to the moon to obtain samples of its surface.

The submersibles will also emplace instruments on the ocean floor to provide a continuous supply of precise data on the dynamics of seafloor spreading and the emergence of new crustal material.

FAMOUS is one of several scientific programs being undertaken as a result of a bilateral agreement between France and the United States. United States coordination in the field of oceanography is the responsibility of NOAA. Scientific coordination of FAMOUS is being handled by WHOI, with financial support from the National Science Foundation, the Office of Naval Research, and NOAA.

The scientific program follows a plan recommended by an international group of scientists convened by the National Academy of Sciences at Princeton in January 1972 under the sponsorship of the United States

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Federal and Texas Officials Meet To Discuss Land Sinking Problems

Federal and Texas officials met this week in Houston, Tex., to work out the final details for a survey to determine how far the land in the Houston-Galveston area has sunk in the past eight years. Cost of the project is estimated at approximately \$265,000.

The continued subsidence of land in Gulf coastal areas has brought increasing problems to home owners, business and industrial establishments, builders and engineers as water inundates land which was formerly high and dry. The sinking of land is believed due primarily to the rapid increase in the amount of water being pumped from the ground and the removal of oil and gas in some areas. Local officials estimate that about 600 million gallons of water are taken from the ground daily in the Houston area alone.

The survey, to be conducted by the National Geodetic Survey and carried out by two field parties, is expected to begin in early January and take about three months. A survey of the area was last conducted by the NGS in 1964.

The project is being funded by Federal and Texas agencies.

Included among those scheduled to attend the Houston meeting were representatives of the NGS, Federal Insurance Administration, Geological Survey, the Army Corps of Engineers, the Texas Highway Department, and the Houston-Galveston Area Council. Represented on the Council are 107 cities, including Galveston, Houston, Texas City, Bellaire, Pasadena and Baytown, where the subsidence problem has become acute; 13 counties, including Harris and Galveston; 50 school districts; and 10 soil conservation districts.

NWS Regional Hydrologists Meet At Silver Spring Headquarters

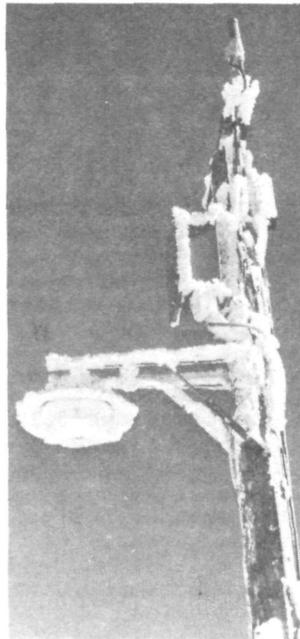


The annual meeting of National Weather Service Regional Hydrologists was held October 30 - November 3 at NWS Headquarters in Silver Spring, Md.

Participants were (front row, from left) John P. McCallister, Southern Region; R. L. Raetz, Western Region; Dr. George P. Cressman, Director, NWS; and Max A. Kohler, Associate Director for Hydrology. (Back row, from left) Glenn L. Audsley, Alaska Region; Elroy C. Balke, Central Region; John H. Thomas, Eastern Region; and D. T. Smith, Pacific Region.

Ion-Beam Anemometer Test Begins Atop Mammoth Mountain, California

On October 27, an experimental anemometer and a RAMOS temperature sensor and shelter were installed on the peak of Mammoth Mountain in California. The anemometer, built by Thermo Systems Inc. of Minneapolis, operates by letting the wind deflect a vertical ion beam and measuring the amount of deflection of the beam. The unit is cylindrical in shape, about 2 inches in diameter and 4 inches long. It has no moving parts (except the ion beam) and is outfitted with a 2000 watt thermostatically controlled heater. The temperature sensor is a linearized bead thermistor network buried in a cylinder of polyurethane foam which is enclosed in a self-aspirating radiation shelter. The output is a five-minute average of the ambient air temperature. The equipment was installed by John Harmening and Bud Bowden of the Forest Service and Donald Edmonds and Ensign Allan Kissam of the National Weather Service Equipment Development Laboratory.



Wind sensor (at top of pole) and temperature sensor (extended at left) installed at Mammoth Mountain, Calif.

Weather Service Equipment Development Laboratory.

Mammoth Mountain, located in the Sierra Nevada Mountains at the head of the San Joaquin Valley (about 40 miles north of Bishop, Calif.) was chosen as a test site because of frequent occurrences of heavy icing and heavy snowfall situations, and the excellent Forest Service facilities. While the sensors are located on a telephone pole on the peak, recordings of the temperature and the X,Y components of the wind are provided at a Forest Service office about one mile down from the peak where they can be monitored by Forest Service personnel.

Initiation of this test represents a major milestone in a cooperative project between the Forest Service, the National Weather Service and the Data Buoy Center, to develop a no-moving parts anemometer capable of functioning and surviving in severe operating environments at sea and on land. Thermo Systems Inc. will deliver two more units under their contract. One will undergo extensive laboratory tests at the NWS Equipment Development Laboratory; the other will be tested in an ocean environment on one of the Data Buoy Center's test

(Continued on page 3)

Margaret L. Anderson Receives Earl P. McFee Memorial Award

At the 17th Annual Atlantic Fisheries Technological Conference in Annapolis, Md., Margaret L. Anderson was presented the Earl P. McFee Memorial Award for her outstanding contributions to Fishery Technology. The award, named for the late internationally known fishery technologist, was presented to Miss Anderson (right) by Mrs. Mary Thompson, Executive Sec-



retary of the Conference. Miss Anderson, who recently retired from the National Marine Fisheries Service's Atlantic Fishery Products Technology Center in Gloucester, Mass., had earned a world-wide reputation for her basic research on fish flesh proteins and the changes occurring in the proteins during iced and frozen storage.

ERL's Library Services in Boulder Hosts Seminar on Information Methods

The seventh Scientists' Seminar on Information Methods, Resources, and Tools was held this week by the Environmental Research Laboratories Library Services, which serves all Commerce Department facilities in Boulder, Colo. The purpose of the seminar is to update the library skills of scientists. A highlight of the seminar was a demonstration of the Lockheed "Dialog" system. The Dialog System is linked to several data files through a computer in Palo Alto, Calif., and displays selected information on a cathode-ray tube as the human interrogator "converses" with the computer with a keyboard. Also covered were methods of abstracting and indexing, literature resources, and local, national, and international information sources.

Instructors included Joan Maier, Chief, and Shirley Alldredge, Vicki Fuller, Helen Stiles, Lindsay Murdock, and Clivia Opello, of Library Services.

Test of Ion-Beam (Continued from page 2)

platforms. The first unit was installed at Mammoth Mountain in advance of the winter weather to obtain a full winter's operation in one of the Nation's most severe ice accretion environments. On October 28, both the wind sensor and the temperature sensor functioned perfectly during a situation where 4 to 6 inches of ice accreted on the structures near the wind sensor.

Charles E. Archambault Awarded Commerce Bronze Medal



Charles E. Archambault (left), Aviation Quality Control Officer for New England, has received a Department of Commerce Bronze Medal for "major contributions to the development of the most effective aviation weather quality control services in the New England area for domestic and international aviation." The medal was presented by Anthony E. Tancreto (right), Meteorologist in Charge of the Weather Service Forecast Office in Boston, Mass., where Mr. Archambault has been stationed since 1969.

NMFS Center Directors Meet in Washington To Review Research and Technology Resumés

A meeting of the Directors of the National Marine Fisheries Service Offshore and Coastal Research Centers and staff members of the Office of Resource Research was held in Washington earlier this month.

During the two-day meeting a review was made of all research and technology resumé documents (Form 12-2). Each Center Director gave a brief review of the importance of the research and of the achievements and future plans of his installation. Each program was then evaluated as high, medium, or low priority, based on public interest, scientific merit, and effectiveness.

As the Nation Goes, So Goes Michigan

In the recent election, Michigan citizens voted to join most other states by adopting daylight saving time. During the summer months, Michigan has been one hour behind the east coast. This will not be the case next year. The Lake Survey Center, various National Weather Service offices, and other agencies and businesses in Michigan will be on the same time as east coast states the year round, instead of only during the late fall, winter, and early spring.

National Weather Service Headquarters EEO Committee



From left to right are: (Seated) Frank Burnett, NWS Deputy Director, and Dr. George P. Cressman, NWS Director. (Standing, first row) Dave Fordham, Robert Gaines, Lena Loman, Pat Broadwell, Doris Brown, Woodward Schafer, and Greg Richter. (Standing, second row) Don Reynolds, Tom Cavanagh, Joseph Schiesl, Ernest Mabrey, Dick Brintzenhofe, and John Stackpole.

This is the first in a series of Personnel Perspective articles which will pictorially identify the various Equal Employment Opportunity Committees throughout NOAA. Featured in this issue is the NWS Headquarters EEO Committee which serves National Weather Service employees in the Washington, D.C., metropolitan area. The committee is an advisory group to the NWS Director.

CSC Consumer-Oriented Health Insurance Pamphlet

The Civil Service Commission has prepared a new **consumer** oriented pamphlet to help Federal workers and annuitants make the best possible choice of health insurance coverage during the November 15-30 open season.

Copies of the pamphlet have been mailed directly to NOAA offices.

"Information to Consider in Choosing a Health Plan," (BRI 41-210), is not designed as a substitute for the specific information included in the official brochures of each Health Benefits Plan. Rather, it is prepared in such a way as to help the individual choose a plan or option to meet his or her anticipated needs.

The following questions and answers are based on the type of information contained in the pamphlet:

Q. What are the chances of my being hospitalized?

A. Chances are 1 in 7 that you will be hospitalized because of an accident or illness in the course of a year. For those who were, the average hospital stay in 1971 was 8 days. What the average does not show, however, is that a

tenth of those hospitalized were confined from 15 to 30 days, 3.2 percent from 31 to 69 days, .4 percent from 70 to 120 days, and .2 percent for 121 or more days.

Q. What should I consider before choosing a health benefits plan?

A. Your age, sex, employment situation, family situation, medical history, financial situation, and your personal preferences and individual needs at a minimum. For example, your age will help you determine whether you should be more interested in integration with Medicare or in maternity benefits; also, you are more likely to need long-term medical care as you grow older. If you have a condition which requires continual treatment with medication, extensive coverage for prescription drugs is likely to be of some value to you. You may also consider choosing a high option if your personal history has included repeated hospitalization and prolonged medical care.

Questions in reference to the new pamphlet should be directed to the personnel office.

Age Discrimination

The President recently addressed the following memorandum to all heads of departments and agencies in the Federal Government:

"For many years, the Federal Government has been fighting against discrimination in employment. On the basis of age, creed, ethnic origin, sex or skin color, discrimination is an intolerable wrong. As discrimination is an affront to our society, it cannot be condoned in our government. In my message to the Congress earlier this year transmitting this Administration's recommendations for action on behalf of older Americans, I stressed the importance of giving serious attention to the problems of our older citizens. One such problem is age discrimination. As the largest employer in the Nation, the Government has a special responsibility to take the lead in eradicating age discrimination from the world of employment. It is appropriate, at this time, to reaffirm our commitment to the long-standing policy of the Federal Government that age, by itself, shall be no bar to a Federal job which an individual is otherwise qualified to perform. In doing so, I want to emphasize that our older

Americans possess talents, experience, and skills which the Government needs and which our older citizens deserve the chance to contribute. I call upon each of you to review your agency's programs to make sure that the skills and experience of our older citizens are being effectively utilized. I also ask that you review your agency's employment practices and take immediate steps to eliminate any which may directly or indirectly stand as a barrier to equal opportunity for older persons. We must not tolerate any practice that denies older citizens fair and full consideration for employment and advancement in the Federal service."

The Civil Service Commission, in conjunction with this new emphasis on age discrimination, has requested all agencies to report on the steps they take to identify and eliminate any direct or indirect barriers to equal opportunity for older persons.

NOAA Personnel's Planning and Evaluation Branch will shortly initiate a substantive review program of all personnel policies and procedures looking for any indicators of age discrimination. All NOAA managers should evaluate their personnel activity to ensure that age is not inadvertently included as a barrier in the competitive evaluation and consideration process.

CSC Announces Health Plan Open Season and Premium Rate Decreases

The U.S. Civil Service Commission recently announced changes in benefits and premium rates for the 38 existing plans and two new plans that will be participating in the Federal Employees Health Benefits Program 1973. Premiums for both of the Government-wide plans will be reduced for the first time in the 12-year history of the program.

November 15-30, 1972, is an "open season" during which time eligible employees may newly enroll and employees and retirees already enrolled may change from one plan or option to another, or from self-only to family coverage.

Changes made by employees and annuitants during the open season will take effect the first pay period in January 1973, the same time that new premium rates and benefit changes become effective.

Premium rates for 32 existing plans will be increased by varying amounts in 1973 to pay for improved benefits, to enable a plan to meet its obligations to subscribers, or both. Four existing plans will hold 1973 rates to 1972

levels. Premiums for the two Government-wide plans, under which more than three-fourths of all employees and annuitants are covered, will be reduced in 1973.

Premium rates for the Government-wide Service Benefit Plan (Blue Cross-Blue Shield) will be reduced by 10 percent in the high option and 15 percent in the low option. Rates for the Government-wide Indemnity Benefit Plan (Aetna) will be reduced 5 percent for both high and low option.

The Commission said these reductions were made possible in part by price controls which went into effect in August 1971, resulting in favorable financial experience for both Government-wide plans in the last half of 1971 and in 1972.

NOAA employees will receive at least five brochures during the open season describing the various health programs available to them. Employees are requested to return unwanted brochures to their servicing Personnel offices for recycling.

NOAA Research Associateships Are Awarded to 18 Scientists

Eighteen scientists have been awarded Postdoctoral Research Associateships in NOAA for the 1972-1973 academic year. Each will work in his chosen field with a senior scientist on research sponsored by NOAA.

The Postdoctoral Research Program, administered by the National Academy of Sciences-National Research Program in cooperation with NOAA and 13 other Federal agencies, provides training of appointees and an opportunity for a mutually beneficial exchange of ideas between scientists.

The appointees, their areas of investigation, and NOAA assignments are:

At the Environmental Research Laboratories' Geophysical Fluid Dynamics Laboratory at Princeton University, David W. Behringer will work with Dr. W. R. Holland on "A Three-Dimensional Model of the California Current;" and Donald P. Delisi will work with Dr. I. Orlanski on "Density Stratified Flows."

Michael H. Chen will work with Dr. H. G. Loomis of ERL's Pacific Oceanographic Laboratory's Joint Tsunami Research Effort at the University of Hawaii in Honolulu on "Effect of Variable Cross-Section Entrance on Sea Waves in Ocean Harbors."

Peter S. Ray will work with Dr. S. L. Barnes of ERL's National Severe Storms Laboratory in Norman, Okla., on "Dual-Frequency Doppler Observation of Drop-Size Spectra and Updrafts."

Anas M. Abo-Zena will work with Dr. Chi-Yu King of ERL's Earth Sciences Laboratories in San Francisco, Calif., on "Numerical Techniques for Solving Problems of Crack Propagation."

William C. Thacker will work with Dr. D. V. Hansen of ERL's Atlantic Oceanographic and Meteorological Laboratories in Miami, Fla., on "Gulf Stream Meanders."

In Silver Spring, Md., Ralph M. Rotty will work with Dr. Lester Machta of ERL's Air Resources Laboratory on "Inadvertent Climatic Modification Resulting From Man's Energy Needs;" and Wilson A. Shaffer will

work with Dr. W. D. Bonner of the National Weather Service Techniques Development Laboratory on "Prediction of the Surface Temperature."

Douglas E. Conklin will work with Dr. Reuben Lasker of the National Marine Fisheries Service Southwest Fisheries Center in La Jolla, Calif., on "The Nutrition of Marine Fish Larvae Using Artificial Microparticles."

The rest of the Associates will work at ERL in Boulder, Colo., where at the Earth Sciences Laboratories, Alfonso Lopez-Arroyo of the Instituto Geografico in Madrid, Spain, will work with Dr. S. T. Algermissen on "Regionalization of Seismic Risk in Zones of Moderate Seismicity;" and Robert W. Taylor will work with L. M. Murphy on "Structure of the East Pacific Rise From Relative Event Analysis."

At the Aeronomy Laboratory, Kai Fong Lee will work with Dr. Robert Cohen on "Ionospheric Plasma Instabilities;" and Thomas D. Rognlien will work with Dr. J. Weinstock on "Plasma Physics of the Ionosphere (the Origins of Spread-F)."

At the Space Environment Laboratory, Bengt Karl Gustaf Hultqvist of the Kiruna, Sweden, Geophysical Observatory, will work with Dr. D. S. Evans on "Auroral Particles;" and Lawrence R. Lyons will work with Dr. H. H. Sauer on "Investigation of Source and Loss Processes for Particles of Earth's Radiation Belts."

At the Wave Propagation Laboratory, Timothy E. Keliher will work with Dr. Jessie Young on "Atmospheric Infrasound Generated in Mountainous Regions;" and Michael H. OrNSTein will work with Dr. V. E. Derr on "Resonant Enhancement of the Raman-Scattering Cross Section in Water Vapor Near the 694.38nm Absorption Resonance."

Martial L. Thieboux will work with Dr. E. W. Barrett of the Atmospheric Physics and Chemistry Laboratory on "Studies of Global Scale Turbulent Diffusion of Air-Borne Contaminants."

Nancy Barnhardt Wins Contest To Design National Climatic Center Holiday Greeting Card

Earlier this fall, the Environmental Data Service's National Climatic Center at Asheville, N.C., conducted a contest to develop a design for a card which could be used to extend NCC greetings for the holiday season to EDS associates and other NOAA offices. Nancy Barnhardt, of NCC's Graphics Section, was declared the winner by the Entry Evaluation Committee, and received a \$25.00 Savings Bond for her efforts. All entries were developed during off-duty hours, and the prize money was secured by donations from the NCC staff.

Printing will be done by a local commercial printing company, and costs will be underwritten by the NCC staff. The card will also be made available to NCC employees for their private use at nominal cost.



Nancy Barnhardt received her prize from Arnold Hull, EDS Associate Director for Climatology.

Technical and Advisory Services Furnished OAS Countries by NOIC

The National Ocean Survey's National Oceanographic Instrumentation Center is furnishing technical and advisory services to member countries of the Organization of American States under an AID grant to provide oceanographic instrumentation and related technical and advisory support. This includes counselling and recommendations in their procurement of instruments under the grant, and services such as inspection, adjustment, and calibration of the instruments upon delivery. NOIC is also providing highly specialized training for the engineers who will be using this equipment.

Engineers from Argentina and Mexico attended a recent seminar which reviewed the state of the art of oceanographic instrumentation, methods of testing and calibrating, and physical standards, specifications, and concepts peculiar to this field. The purpose of this training was to assist these engineers in establishing or improving instrument calibration and service centers in their home countries.

Francisco Rios and Ruben Ercoli, staff members of the Instituto Argentina de Oceanografia in Bahia Blanca, and Moises Castro and Marco Antonio Reyes, who are on the faculty of the Instituto Politecnico Nacional in Mexico City, also visited the National Bureau of Standards at Gaithersburg, Md., and Boulder, Colo., and the NOIC Gulf Coast Regional Calibration Center in Bay St. Louis, Miss.

Additional trainees are expected from Colombia for a similar course, and either an analytic chemist or chemical engineer from Mexico for specific training in water quality analysis.

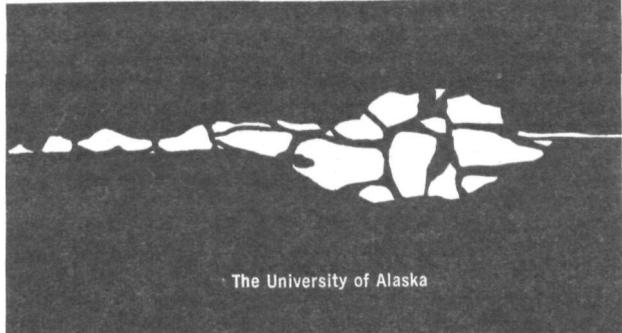


From left, with Knute Berstis, NOIC, Mr. Rios, Mr. Ercoli, Mr. Castro, and Mr. Reyes investigate the behavior of a sound velocimeter in a temperature-controlled bath.

Visitors Welcomed in New NMFS Quarters

About 150 persons visited the new quarters of the National Marine Fisheries Service in Page Building 2 on November 10. Visitors included representatives of various NOAA organizations, other government agencies, and national conservation and fisheries organizations and professional societies.

Logo for Alaska Sea Grant Program Designed by Eskimo Art Professor



With its sensitive and often novel view of nature, Eskimo art has become quite popular among collectors and is currently featured at a downtown Washington gallery. Recognizing the special view of Eskimos toward their environment, the Alaska Sea Grant program some time ago asked Professor Ronald W. Senungetuk, a professor of art at the University of Alaska, to design a logo for the program. As recounted by John P. Doyle, Head of Alaska's Marine Advisory Services:

"He took a quick look at an outline of the Sea Grant Program and returned in about a month with this particular design. It depicts the three aspects of sea ice during the late spring and early summer breakup period. If you will look at the design...you will see to the left hand side of the page the icebergs and ridges as they appear from the shore side. The center of the picture is a top view looking down as from an airplane. The extreme right hand side is shorefast ice.

"Professor Senungetuk's remark on handing it to me was that vast parts of Alaska's coast are entirely dominated by ice over a large portion of the year, and...said that was his first thought when thinking about the seas around Alaska."

Professor Senungetuk is an Eskimo born in the village of Shishmaref on the northwest coast of the Seward Peninsula. He has studied art in North America and Europe, and is widely known throughout the country for his interpretation and advancement of Alaskan native art.

Galveston Chamber of Commerce News Features NMFS Gulf Coastal Fisheries Center Open House

The Galveston, Tex., Chamber of Commerce News Bulletin for November 1972 devoted its front cover and almost two full pages with pictures to coverage of the Open House held at the National Marine Fisheries Service Gulf Coastal Fisheries Center in Galveston. Approximately 1,000 persons attended the Open House last month, and from the reaction, an even larger crowd is expected next year, according to Dr. Albert K. Sparks, Center Director.

Training Course Is Conducted for Supervisors in NMFS Alaska Region



Eighteen supervisors assigned to various programs in the National Marine Fisheries Service Alaska Region attended a course in Effective Supervision conducted recently in Juneau, Alaska, by Edmund D. V. Dickey, Training Officer with the Northwest Administrative Services Office in Seattle, Wash.

Participants were (front row, from left) Jack

Bailey, Arleen Jones, Walter Jones, Buel Hixson, Jr., and Dr. David Hoopes. (Standing, from left) Mr. Dickey, Mauri Pelto, Dr. Richard Myren, Dr. Stanley Rice, Robert Gray, John Furuness, Robert Reynolds, John Kelly, Jr., Fredrik Thorsteinson, Otto Whitfield, Robert Simon, Dr. William McNeil, and Dale Evans. Also in attendance, but not shown above, was Helen Fleischhauer.

Submersibles To Explore Mid-Atlantic Depths (Continued from page 1)

Office of the International Decade of Ocean Exploration. Focus of the study is exploration of the mid-ocean rift system, which comprises a network of cracks in the seafloor up to 10 miles wide and two miles deep, virtually girdling the globe. A major objective of the research is to obtain evidence of volcanic-like activity apparently causing seafloor spreading and the gradual drifting of North America and Europe away from each other.

Co-Scientific Leaders for U.S. participation in the mid-Atlantic study are Dr. George Keller, Director of the Marine Geology and Geophysics Laboratory at the Atlantic Oceanographic and Meteorological Laboratories, Miami, and Dr. James Heirtzler, Chairman of the Department of Geology and Geophysics at WHOI.

Following two years of site surveys and training, a fleet will assemble at the site selected, in the summer of 1974. The French bathyscaphe Archimede and French submersible SP-3000, the American submersible Alvin, and four surface ships will carry out the most extensive deep ocean manned submersible study ever undertaken. Some 40 dives will be made at that time, with special missions for each submersible. The submersibles will do detailed mapping of the area, collect special bottom samples, and place instruments on the seafloor.

Survey work of the region was carried out in August by the University of Rhode Island's research vessel Trident, and in September by the French oceanographic research vessel Jean Charcot. Further surveys will be undertaken in October by Woods Hole's Atlantis II; and later in the year by the U.S. Naval Ship Mizar. The surveys will include accurate measurements from surface and deeply-towed instruments and extensive sonar and bottom photographic mapping operations.

Next year, additional survey work will be done by naval research ships, Woods Hole's Knorr, and the British oceanographic research vessel Discovery, utilizing a huge long-range side-scan sonar system of the United Kingdom's National Institute of Oceanography. The French bathyscaphe Archimede also will make an initial reconnaissance dive in the area.

A special training program is already underway for the scientific divers. This includes practice dives in all three submersibles, field trips by divers and pilots to Iceland and Eastern Africa where similar terrain is located, and workshops for establishing priorities on the types of observations to be made during the various dives. Navigation and sampling instrumentation is being developed that will be interchangeable among the submersibles.

Items to be considered for publication in NOAA WEEK should be submitted to:
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National Oceanic and Atmospheric Administration

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