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NOAA WEEK

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

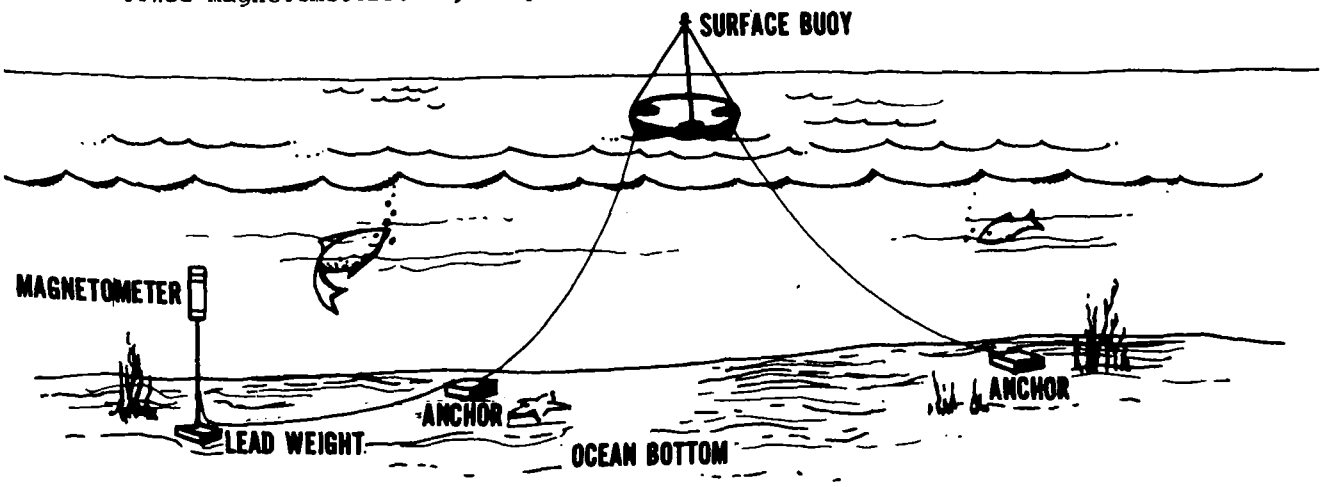
Ocean-Moored Magnetometer Tested Successfully

An unmanned, ocean-moored system for measuring and recording the earth's magnetic field has been successfully tested in the Bering Sea from the NOAA Ship RAINIER, commanded by Capt. Roger F. Lanier. The system, developed by the National Ocean Survey's Office of Systems Development, consists of a sensor (a magnetometer), suspended 30 feet above the bottom of the sea in the test, and a surface buoy containing electronics, batteries, and a recorder.

The ocean-moored magnetometer was designed to provide a more reliable method for measuring and recording variations in the intensity of the earth's magnetic field. Previous data for magnetic surveys have been obtained primarily by magnetometers towed behind a moving vessel, supplemented in a few instances by sensors on surrounding land or on the ocean floor.

Anthony J. Goodheart, chief of NOS's headquarters branch of the Engineering Development Laboratory, who supervised the month-long test in Norton Sound in the Bering Sea, said that data obtained from the ocean-moored system can be used to correct the less precise measurements of the towed magnetometers. By suspending the sensor in the ocean, the earth's magnetism can be recorded without interference from abnormally high magnetic variations associated with the sea floor or from man's normal environmental activity. According to Mr. Goodheart, the new system, which he termed the first of its kind, could be used by petroleum interests in furthering their oil exploration programs, especially in the oil-rich Arctic where accurate magnetic data are difficult to gather. It can also improve the reliability of magnetic charts, important in sea and air navigation.

The system's sensor is so sensitive that any magnetic material approaching nearby would affect the data adversely. To avoid this and to make certain that the magnetic surface buoy did not drift toward the sensor, the buoy was held in place by two opposing non-magnetic anchors and anchor lines. The sensor's data was transmitted to the instruments in the surface buoy over a non-magnetic insulated cable supported by one of the anchor lines. The buoy has a 90-day power supply and can record data for 30 to 90 days. Pending development of a telemetering system, the data are recovered periodically by ship.



Jean Named SDL Deputy Director

A. Glenn Jean has been appointed Deputy Director of ERL's Space Disturbances Laboratory, Boulder, Colo. Mr. Jean had served as the laboratory's Acting Director since December of 1968. A graduate of Vanderbilt University, Mr. Jean served in the Army during World War II and taught at Vanderbilt until he joined the Department of Commerce in 1948. Mr. Jean received the Department of Commerce Silver Medal for meritorious service in 1959.

Thom Interprets Climatic Data For Study of Fuel Shortages

Herbert Thom of the Environmental Data Service is providing climatological data interpretations to the Economic Advisor to the Executive Offices of the President. The Economic Advisor has been studying the causes, economic impact, and related problems associated with the potential fuel shortage in the Eastern and North Central regions of the United States. This information is needed to evaluate and define the situation and to plan programs to cope with it.

Hagemeyer Takes New Weather Service Post

Richard H. Hagemeyer, former chief of the National Weather Service's Plans and Requirements Coordination Staff, has been named chief, Resources Management Staff. This is a new position created to provide staff assistance to the Director, National Weather Service. Mr. Hagemeyer entered the Weather Service in 1950. He originally served in the Weather Bureau-Army-Navy Analysis Center and then spent six years at various weather stations in the Pacific before returning to Washington, D.C. Service at headquarters has included the Observation and Station Facilities and Data Acquisition Divisions and, for the last five years, the Office of Meteorological Operations. Mr. Hagemeyer holds a bachelor's degree from George Washington University and has done graduate work in governmental administration.

ITOS-A Satellite Launch Delayed Delta Vehicle Problems Cited

Launch of the ITOS-A weather satellite has been postponed for approximately one month. Originally scheduled for launch no earlier than November 4, the ITOS-A launch was delayed when anomalies occurred in the second stage of the Delta launch vehicle. The new launch date will be announced following checkout and revalidation of the new components installed in the second stage.

Rinehart To Address Groups in Germany

Captain Virgil W. Rinehart, Director of the National Data Buoy Project Office will address scientific groups in Dusseldorf and Hamburg, Germany, during the next two weeks. The subject of Dr. Rinehart's paper is "Oceanographic Instruments and Network Systems."

Annual Great Lakes Services Meeting Held

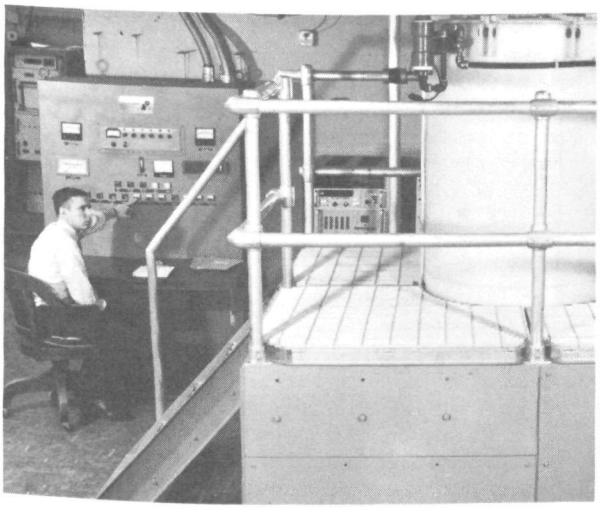
Improved weather services for recreational boating and a better prediction system for ice on the Great Lakes were the two topics highlighted at the annual Great Lakes Services meeting November 3 and 4 at the National Weather Service headquarters.

Attending were meteorologists in charge of Weather Service Forecast Offices in Chicago (Joe Fulks), Cleveland (Richard Fay), and Detroit (Charles Snider); operations chiefs of the Eastern and Central Regions (Charles Knudsen and Charles Woffinden), the Marine Specialist from the Eastern Region (William McKee), and a representative of the NOAA Lake Survey (Donald R. Rondy).

The meeting was chaired by Max Mull, Marine Weather Specialist at National Weather Service headquarters.

At the workshop, marine services of 1970 were reviewed and plans for 1971 were discussed. The conversations about improved service for recreational boating centered on increased use of radio. The added surveillance of ice conditions on the Great Lakes is part of a major effort by many agencies, public and private, to increase the length of the shipping season. Ultimate goal is year-round service.

NOIC Acquires New Testing Tank



The National Oceanographic Instrumentation Center has acquired a new test facility. This is the twelth in a series of unique oceanographic test facilities which have given NOIC a worldwide reputation for leadership in testing and evaluating oceanographic instruments and related equipment.

The new test tank allows instruments to be immersed and tested in either distilled water, tap water, artificial sea water, natural sea water or a solution of ethylene-glycol and tap water. Working fluids with salinity up to 60 parts per thousand can be used in the cylindrical tank without corrosive effect on the pumps or other components of the piping and heat exchange system. Jet circulators provide for uniform fluid flow by introducing circulating fluid either at the bottom or the top of the bath. The cylindrical bath provides an unobstructed interior work volume of approximately 17 cubic feet or a work area that is 2 feet in diameter and 5-1/2 feet high. An 18-inch-wide work platform surrounds the tank. The cylindrical axis is vertical and the total height of the cylinder is 6 feet. Temperature in the tank can be varied.

This new facility, as well as others at NOIC,are in continuous use to test and evaluate new instruments being developed by industry. These instruments are the tools that the oceanographic scientist and engineer uses at sea. The Center plays a significant part in monitoring and improving the quality of such instruments.

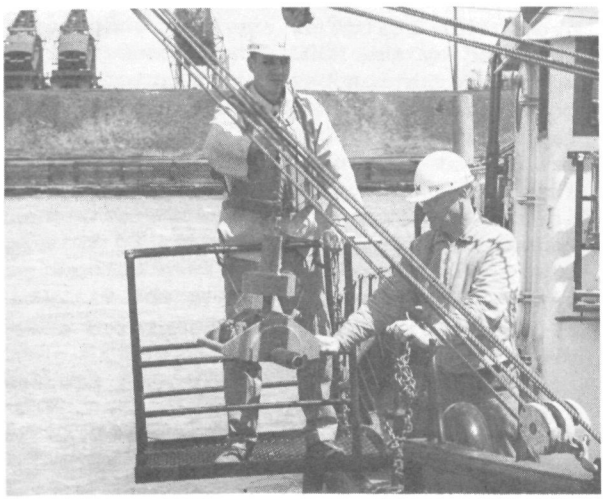
Work Starts on $3 Million Lab For NOAA Scientists Near Miami

Groundbreaking ceremonies for the Atlantic Oceanographic and Meteorological Laboratories $3 million building on Virginia Key, Miami, Fla., were held, Oct. 19. Some 100 state, county, and federal officials, and community leaders, attended. The five-laboratory building has been planned so that its lowest floor will be 13 feet above ground level since Virginia Key is vulnerable to hurricanes.

Chicago Weather Service Offices Consolidate

The National Weather Service Forecast Office and the Weather Service Office located in downtown Chicago were consolidated Oct. 15.

Lake Survey Scientists at Work



Lake Survey Center research scientists (above) study the Great Lakes. The Great Lakes system contains the earth's greatest concentration of fresh water. It has a drainage area (land and water) of almost 300,000 square miles, of which nearly 100,000 square miles are water surface--enough to cover all of New England plus about two-thirds of the State of New York. The Lake Survey Center charts these waters, makes engineering investigations, including the collection and dissemination of water level data, and conducts research studies.

Inventory Processing Speeded With GIPSY Retrieval Program

Several years ago, the National Oceanographic Data Center developed an inventory system which holds information concerning shipment of data (platform, institution, cruise and data period, originator's cruise number, type of data), This scheme, called the NODC Accessions Production Inventory (NAPIS), had been operated as a punched card system since October 1968. Due to its rapid growth, the decision was recently made to automate this inventory.

The General Information Processing System (GIPSY), developed by the University of Oklahoma, was tested with NAPIS information and proved successful. By using GIPSY, NAPIS could be automated to provide rapid retrieval without the expense in time and money of writing special retrieval programs. The GIPSY system, with the NAPIS information, now allows the NODC to computer-retrieve information concerning the content and production status of any data shipment received by the NODC since October 1968.

An information base was started by converting the NAPIS punched cards (approximately 50,000) to the GIPSY input format and loading this information into the NODC computer. Each month, information concerning the new data received by NODC is being added to this base. The system also uses a cathode ray tube terminal to update the status of those data which have completed the processing cycle.

By running the GIPSY retrieval program against the NAPIS information base, the following could be accomplished: Listing by institution of the number of serial stations and bathythermograph observations which were processed by NODC during Fiscal Year 1970; listing by country of all biological data acquired during Fiscal Year 1970; listing by parameter of all data acquired from Woods Hole Oceanographic Institution during calendar year 1969. The same retrieval program can be used to select a portion of the NAPIS information file and to create a new file containing only the selected part. This new file can be used as input to another program, to produce a statistical report reflecting the types and amounts of data processed during one month.

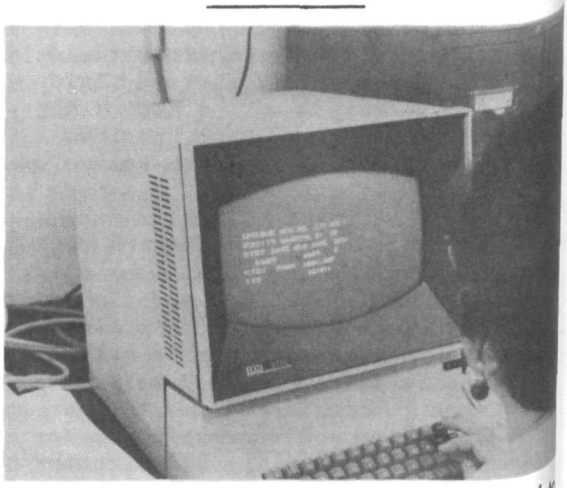
Lake Survey Field Teams Return to Office To Incorporate Data Gathered into Charts

Lake Survey Center field teams have completed their work for another year. Its various parties are now returning to the office to organize the material they have gathered for incorporation into new editions of charts. Three Sections---Control, Revisory,and Inshore---under the Engineering Division's Hydrographic Branch, gather the important data used to update the charts of the Great Lakes area.

This year, the Control Section, which establishes and maintains basic vertical and horizontal control (including precise level lines in the level network), surveyed along sections of the Niagara River, Lake Huron, the St. Clair River and Lake St. Clair. Part of the work is a coordinated effort with Canada to provide basic data for re-evaluation of International Great Lakes Datum (1955), a project started in 1967 and which will continue until 1973.

The Revisory Section checked harbors and other critical areas on Lakes Erie and Ontario, as well as along the Niagara and St. Lawrence Rivers.

The Inshore Section, which conducts sounding operations in coastal waters, this season made a complete hydrographic survey of a major portion of the St. Clair River under its regular program for updating basic data used to prepare charts and the Great Lakes Pilot.



Mrs. Nicolle operates Cathode Ray Tube Terminal to update NODC inventory data.

National Weather Service Forecaster Training Course Opens

The first of four Forecaster Training Courses began at National Weather Service headquarters, Silver Spring, Md., Nov. 3. Twenty-six forecasters from the six Weather Service regions, the National Meteorological Center, and the Air Weather Service are attending the three-week course. The objectives are to present background information on the operational analysis and production methods and models used in the prediction of facsimile charts; to provide instruction in the interpretation and use of facsimile guidance products to produce forecasts of the basic weather elements, and to present techniques designed to complement the use of facsimile guidance products in preparing forecasts for the 0 to 18 hour period.

Participating in the current sessions are: (Seated left to right) Loyal P. Stark, NMC; Charles F. Mertensotto, Denver, Colo.; Gordon C. Tait, Philadelphia, Pa.; Dr. Duane S. Cooley, NWSH; Roy P. Darrah, Topeka, Kans.; Gordon W. Wylie, Indianapolis, Ind.; Earl T. Riddiough, Bakersfield, Calif.; and John E. Rockey, Los Angeles, Calif.

(Standing left to right) George Blandino, Milwaukee, Wisc.; Reese E. Otts, Charleston, S.C.; Andrew K. T. Chun, San Francisco, Calif.; David M. Fehling, Seattle, Wash.; Charles E. Hardy, Lexington, Ky.; Robert G. Ritchie, Honolulu, Hawaii; Joseph R. Irwin, DAD, NMC, Bernard T. Schor, New York, N.Y.; Jesse A. Mathers, Jr., Columbia, S.C.; Gerald C. Conard, Birmingham, Ala.; Richard Augulis, Anchorage, Alaska,; Capt. Galen McCreary, Chanute AFB, Ill.; Leo E. Thurmond, Jr., San Juan, Puerto Rico; Jim Kawakami, Anchorage, Alaska; Herbert M. Roseman, Fort Worth, Tex.; Frank B. Johnston, Jr., NHC, Miami, Fla.; Asahel F. Burnham, Missoula, Mont.; Bob Derouin, NWSH, Kenneth B. Seal, Oklahoma City, Okla.; Robert J. Pannuto, Hartford, Conn.; Phil Calabrese, NWSH; Fred Ostby, NWSH; Jordan Fischler, NWSH; and Maurice Pautz, NWSH.

EDS Man Leads Hire the Handicapped Drive

William H. Haggard, Director of EDS' National Climatic Center, has been appointed chairman of the Asheville, N.C. Mayor's Committee on Employment of the Handicapped for 1970. NCC has a continuing program to hire the handicapped that has resulted in awards in previous years from the Mayor's Committee, the Governor of North Carolina, and the American Legion.

Lt. Cdr. Bradly Named Chief of Survey Party Conducting Earth Movement Studies in West

Lt. Cdr. Walter L. Bradly has been named Chief of National Ocean Survey's Geodetic Survey Party G-25. The party is now in Rosamond, Calif., conducting earth movement studies. Lt. Cdr. Bradly has been with the commissioned corps since 1966. Previous assignments have been with Parties G-19 and G-37 and aboard the NOAA Ship PATHFINDER.

ERL May Try to Create Electron Precipitation Event in Space

ERL's Space Disturbances Laboratory scientists, under the direction of Dr. Donald J. Williams, are planning to study space weather by squirting small blobs of electrically charged gas out of a high-flying earth satellite. The project, a short term space weather modification experiment, may produce visible auroral displays in the night sky. The proposed experiment, recently published by Dr. Neil Brice of the National Science Foundation at the 1970 Meeting of the Interagency Conference on Weather Modification at Virginia Beach, Oct. 29, is a means of studying the space environment by producing fleeting, harmless effects.

In trying to create an artificial electron precipitation event, the scientists will attempt to reproduce a natural occurrence by artificial means. Naturally occurring electron precipitation events are accompanied by many terrestrial effects including auroral displays, radio propagation disturbances, and intense, short-lived fluctuations of the earth's magnetic field.

In direct contrast to the Starfish high-altitude nuclear explosion of July 1962, which overwhelmed and virtually obliterated the natural environment in near-space for a number of years, the proposed NOAA research would be small-scale, carefully timed, and self-quenching. Once the artificially produced electrons find their way into the atmosphere and produce momentary effects for scientists to observe and study, their energy will be dissipated and the natural environment in the magnetosphere will be the same as it was before the NOAA experiment. Dr. Williams estimates that effects of the NOAA research will last no more than a few minutes.

Attempting to reproduce an electron precipitation event and study its terrestrial effects requires inserting extra plasma at a likely place. Dr. Williams explains that the ATS-5 (Applications Technology Satellite) showed a lack of cold plasma in the apex of the magnetosphere behind the earth. The apex is created by the solar wind, a low-energy, high-velocity plasma flowing through through space from the sun. On the earth's sunlit side, the wind interferes with the looping lines of magnetic force and actually foreshortens or terminates the field on that side. But, in the darkness behind the earth, the magnetic lines of force are free to flow deeper into space creating a comet-like tail with an internal apex region.

The NOAA experiment would begin by releasing small blobs of plasma from a satellite orbiting in the apex region. This blob, added to the naturally present plasma in the area, will scatter the higher energy, natural particles down the magnetic field line into the atmosphere. As these scattered particles encounter the more closely packed atmospheric atoms and molecules at atmospheric altitudes, auroral lights should begin to play in the high-altitude skies. The bombarded atoms and molecules of the atmosphere lose electrons and absorb extra energy, a process called ionization and excitation. The ions, in an excited state, get rid of their excess energy by emitting light. This light is the brilliant and colorful aurora. Dr. Williams, Dr. Brice, and the NOAA research team hope to learn a great deal about both the earth and the magnetosphere through the experiment.

The proposal is simply that, and it has not been approved for flight at this time.

Dr. Williams was one of five ERL speakers at the Virginia Beach conference. The other four were Dr. Joanne Simpson, Dr. Helmut K. Weickmann, Dr. R. Cecil Gentry and Dr. Joseph Smagorinsky.

Survey Reveals Scientific Study Patterns

According to a study conducted by Social Research, Inc., of Chicago, for the National Science Foundation, scientists and engineers must spend at least 10 hours a week in work-related reading and from 40 to 80 hours a year in other activities to maintain professional competence. The study also reports that, of nearly 400 scientists and engineers surveyed, 85 percent indicate that reading scientific and technical literature is the most important of all the activities regarded as means of continuing education. Ninety-eight percent of those surveyed read the professional literature to keep up to date. Professional meetings, university credit courses, and short intensive courses are cited as the primary supplements of reading professional literature.

This information appeared in the July August 1970 edition of the American Management Association's Magazine *Pers*

Oceanographic Data Computerized

To unravel the mysteries of the seas, scientists are using a computer, an IBM System 360, Model 40, located at the National Oceanographic Data Center (NODC) in the Washington Navy Yard. The Center's electronic files contain an estimated 85 percent of the world's known oceanographic station data and represent the largest collection of such information in the United States. It is regularly used by many people studying the sea, ranging from students seeking general information to scientists requesting highly technical and detailed data.

NODC's basic information comes from the navies of the world, various oceanographic vessels, scientists, government agencies, and private shipping and oil companies. Until recently, water samples were most commonly gathered in Nansen bottles. In the past few years, the amount of detailed marine data has increased through the use of sophisticated continuous recording devices installed on ships, buoys, and satellites. In addition, the growing number of computers placed aboard oceanographic vessels has increased the volume of information supplied to NODC in a form that can be readily processed by the Center's computer.

Weather Awards Banquet Held in Pittsburgh

An Awards Banquet was held in Pittsburgh, Pa., at which six outstanding contributors to area weather forecasting were honored. Centennial Bronze Medals were presented to Dr. William W. Marsteller, a cooperative observer stationed in Uniontown, Pa., who has served the National Weather Service for 55 years; William S. Brotzman (posthumous award), who worked as a river and weather forecaster for 30 years; Miss N. Dixie Wineman, a cooperative observer from Derry, Pa., for 30 years of service; Harry M. Gerber, who was in charge of the Allegheny County's Greater Pittsburgh Weather Service for 27 years; Miss Luella M. Maxwell, meteorological technician for the Weather Service for 27 years; and Vernon T. Houghton, Jr., who has reported on flood control and warning systems for 22 years. Also recognized for aid to the Weather Service in the area were Radio Station WWSW for 33 years of direct broadcasting and Buhl Planetarium, which has presented programs of weather exhibits for more than 30 years.

NMFS Men Represent U.S. At Conference in Bergen, Norway

Joseph Slavin, assistant director for Operations, and James Brooker, chief of the Division of Fishery Products Inspection, National Marine Fisheries Service, recently represented the United States at a meeting of the Codex Committee on Fish and Fishery Products in Bergen, Norway. Invited representatives of the United States fishing industry also attended. The objective of the committee is to develop international standards, based on content and minimum quality, for fish and fishery products. During the meeting, the committee completed work on standards for frozen fillets of cod and haddock, and frozen fillets of ocean perch. Progress was also made on standards for frozen fillets of plaice and flatfish, canned tuna and bonito, and frozen shrimps and prawns. The committee was informed that previously developed standards for canned shrimp and frozen Pacific salmon had been accepted for submission to member countries for adoption into legislation or regulations. Representatives from 25 countries and three international organizations attended the session.

NOAA Component Offices Colocated in N.Y.C.

The National Ocean Survey's New York Field Office and the National Weather Service's Office were recently colocated at Rockefeller Plaza in New York City. (Left to right) Capt. D. G. Rushford, East Coast Field Representative; Gloria Morales, secretary; and James B. Cummings, assistant to Capt. Rushford.

Iowa Weather Observer Honored

Oscar C. Lofgren, cooperative weather observer from Red Oak, Iowa, recently received the John Campanius Holm Award "in recognition of 32 years of outstanding weather observations at Wallin, Iowa," at a meeting of the Red Oak Rotary Club. Mr. Lofgren has been the only weather observer in the Wallin Community, having served in that capacity since October 1938. His records are permanently archived at EDS' National Climatic Center, Asheville, N.C. Congressman William J. Scherle, 7th District Congressman, made the presentation. Guest speaker for the occasion was Paul J. Waite, NOAA State Climatologist for Iowa. Shown, left to right, are: Paul Waite, Mr. Lofgren, Congressman William J. Scherle; and Keith Engquist, Program Chairman for the Red Oak Rotary Club.

STD Workshop Held in Miami

A workshop on salinity, temperature, and depth measurement technique operations was held at the Atlantic Oceanographic and Meteorological Laboratories, Miami, Oct. 14.

NOAA Corps Officer Will Serve in Antarctica

Ensign Ronald Gester, NOAA Corps officer, has volunteered to serve at Byrd Station next year to work in the seismic, geomagnetic, upper-air physics and meteorological disciplines. Ensign Gester received instruction in making surface observations at the NWS' training facility at Sterling, Va., earlier this month. He is scheduled to report to Byrd Station next January.

NMFS Publishes Medical Assistance Placards

The National Marine Fisheries Service' Division of Fishing Vessel Safety has released a series of medical assistance placards designed to aid commercial fis ing vessels in obtaining expert medical advice in the event of serious illness or injury to crew members while at sea. Cooperation of the U.S. Public Health Service and the U.S. Coast Guard has made this service available to all fishing vessels within radio communication of Coast Guard Radio Stations. A total of 10,000 cards is available for distribution to the fleet on a sectional basis covering all fishing areas of the United States. The cards may be obtaine from National Marine Fisheries offices at the following locations: North Atlantic and Middle Atlantic - 408 Atlantic Avenue, Boston, Mass. 02210; South Atlantic, Gulf States, Puerto Rico, and U.S. Virgin Islands - Federal Bldg., 144 First Avenue, S., St. Petersburg, Fla. 33701; California and Hawaii - Federal Bldg., 300 S. Ferry St. Terminal Island, Calif. 90731; Northwest Pacific and Alaska - 6116 Arcade Bldg., 1319 Second Ave., Seattle, Washington 98109.

California Survey Will Determine Elevations

The National Ocean Survey is conducti a two-month, 230-mile geodetic survey i California to determine ground elevatio between Santa Margarita and San Pedro. The $45,000 effort is part of an extens program to update the national network of elevations. The survey party, heade by Clarence Symms, Jr., will measure th elevation of more than 200 points along the route that extends from Santa Margarita through San Luis Obispo, Guadalupe, Arlight, Gaviota, Santa Barbara, Ventura, and Los Angeles to San Pedro.

Wiedemann, Former NWS Instrument Maker,

Edwin D. Wiedemann, former supervisor of the National Weather Service's Instr ment Shop in Washington, D. C., died No 4. Mr. Wiedemann, who retired in 1968 after 39 years of service, entered the weather service in 1929 as an Instrumen Maker. He assisted in the original instrument systems installed at Washingto National Airport and Atlantic City, N.J

Items to be considered for publication in NOAA WEEK should be submitted to: Office of Public Information, NOAA, Room 804, Bldg. 5, Rockville, Md. 20852. Phone (301) 496-8243.

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