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

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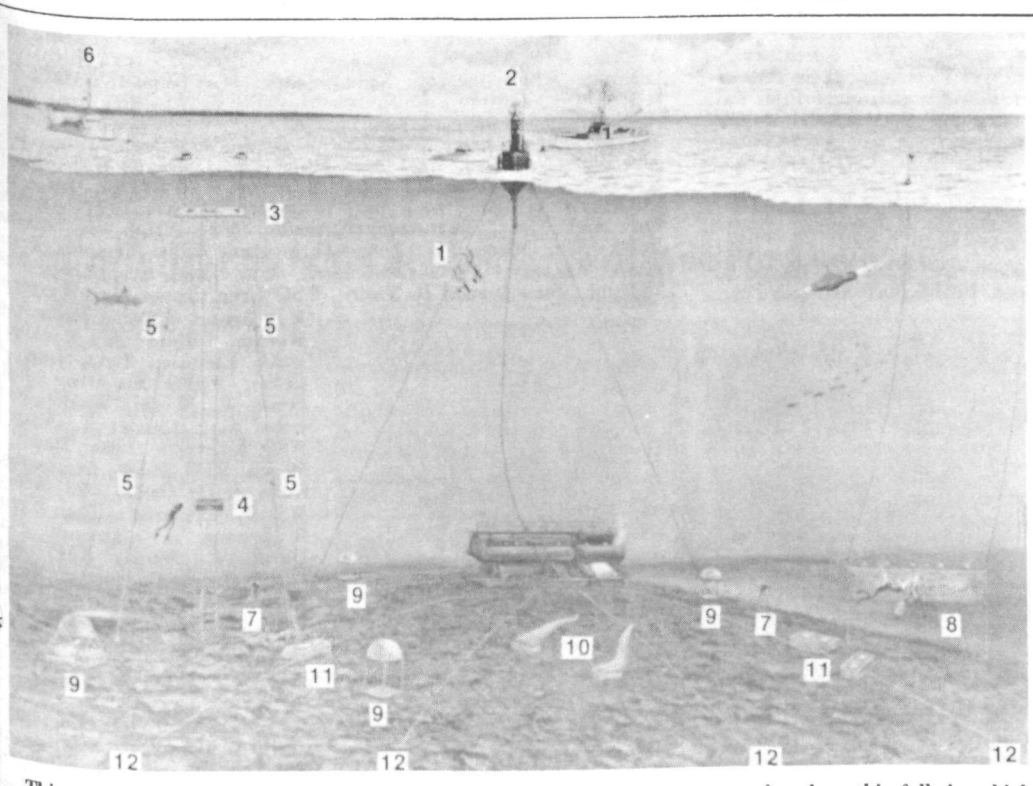

This is the artist's conception of the international fisheries project to take place this fall, in which, working from the 100-ton, two-room West German Under Water Laboratory (UWL) Helgoland, emplaced at a depth of 110 feet on a small rise in the ocean floor 8½ miles off Rockport, Mass., NOAA and university scientists will seek to learn of the environmental effects on herring spawning and improve sonic techniques for estimating major commercial fish populations. (Story in NOAA WEEK dated May 23, 1975.)

Scientist-divers (1) work near the Helgoland, while others observe from small submersible. Life support buoy (2) provides scientists in UWL with air, communications, and power. Acoustic (sonic) array includes transducers on support platform just below surface (3), which beam sound signals down to fish trap (4) monitored by diver scientist. Sonic echoes from fish are picked up by underwater microphones (5) on cables, and sent back up to a computer on the surface ship (6) for analysis. A low light level TV camera (7) on the bottom, monitored in UWL, records activities of fish in the trap.

Facilities on sea bottom include gill nets (8) from which divers take fish for transporting to hydro-acoustic array; plastic-domed safety stations (9) containing supplies of air and communications to Helgoland; nets (10) and traps (11) for obtaining specimens of herring larvae; and highly visible lines (12) radiating from habitat for diver orientation.

NOAA Diving Manual Will Aid Divers in Scientific Research

NOAA has published a diving manual designed to guide divers in shallow water work—down to 300 feet—and provide them with the knowledge needed both for safe and efficient diving, and for carrying out useful scientific research.

The "NOAA Diving Manual: Diving for Science and Technology", was prepared primarily for NOAA's nearly 300 divers; however, it contains basic up-to-date information on the diving technology required to carry out scientific investigations and other working diver tasks, and is expected to be of use to scientific and working divers throughout the world.

Prepared by the Manned Undersea Science and Technology group, the manual was extensively reviewed and includes contributions by 58 experienced scientific and operational divers from universities, Federal and state agencies, and private organizations throughout the United States. Much of the information in the manual has never before been published.

One section devoted to scientific diving procedures covers a wide variety of operations ranging from underwater surveying and photogrammetry to biological surveys and sampling, shellfish capture, geology, microphysical oceanography, and archaeological diving. Capture techniques, including the use of anaesthetics in obtaining marine specimens, are treated in detail.

Basic diving physics and physiology, diver training, equipment, breathing media and procedures, diving under varied conditions—such as under ice and in rivers and lakes—air diving and saturation diving, and marine animals

(Continued on page 2)

Sun May Affect Ozone Shield, Scientists Say

Three Environmental Research Laboratories researchers have suggested that the sun be added to the list of agents that may be responsible for observed variations in the earth's ozone shield—the worldwide and regional ups and downs in ozone measurements of as much as two or three percent in less than a decade that have been blamed on a wide spectrum of influences from nuclear testing to supersonic transports.

During solar flares, the sun ejects streams of energetic protons that set off a variety of reactions in the earth's atmosphere, some of them causing production of nitric oxide.

Drs. Paul J. Crutzen, Ivar S. A. Isaksen, and George C. Reid, of ERL's Aeronomy Laboratory, who calculated the production of nitric oxide during three solar proton events found that such events constitute a highly underrated cause of ozone variations.

Life on earth is shielded from possible harmful ultraviolet radiation by a tenuous layer of ozone

(Continued on page 2)

Karo Award Goes To Oceanographer And Researcher

The officers and the crews of the NOAA Ships RESEARCHER and OCEANOGRAPHER recently received the Karo Award of the Society of American Military Engineers for their role in the Global Atmospheric Research Program's Atlantic Tropical Experiment (GATE) during the summer of 1974.

The Karo Award is given in special recognition of superior performance in field operations by field units of the National Ocean Survey and is named for Rear Admiral H. Arnold Karo, former Director of the U.S. Coast and Geodetic Survey who later, as Vice Admiral, was Deputy Administrator of NOAA's

(Continued on page 3)

PARTICIPANTS IN TWO SUPERVISION AND GROUP PERFORMANCE COURSES conducted in the Dallas-Fort Worth, Tex., area recently by personnel of the Employee Development Section of the NOAA Headquarters Personnel Division for personnel from the National Weather Service Southern Region and the National Marine Fisheries Service Southeast Region were:

ABOVE (back row, from left) Thomas A. Rush, WSO Tallahassee, Fla.; Paul J. Hooker, NMFS, St. Petersburg, Fla.; Ben P. Barker, Jr., WSO Tulsa, Okla.; Roger W. Cales, ADMAN, SRH, NWS; James N. Marchbanks, WSFO Lubbock, Tex.; Donald L. Blevins, Engn-Facilities, SRH; Aubert D. Eubanks, WSO Montgomery, Ala.; Kenneth T. Gish, WSO Midland, Tex.; (middle row, from left) Harold S. McCrabb, MSD SRH; Connie R. Arnold, NMFS Port Aransas, Tex.; John W. Moon, NMFS, Galveston, Tex.; James W. Gilreath, RFC Atlanta, Ga.; Allen J. Jacoby, WSO Galveston, Tex.; Richard L. Coleman, WSFO Jackson, Tenn.; Charles W. Caillouet, NMFS, Galveston, Tex.; Antonio A. Dreumont, WSO Brownsville, Tex.; (front row, from left) Margaret Barnes, Instructor, Rockville, Md.; Randall M. Fuller, Hydrology, SRH; Paul E. Pettit, WSO Port Arthur, Tex.; Albert H. Norwood, WSO Alexandria, La.; James R. Hadsock, Jr., WSFO San Juan, P.R.; and Robert B. Orton, WSO El Paso, Tex.

BELOW (standing, from left) Efton R. Mahaffey, WSO Augusta, Ga.; Earl Laws, Instructor, Rockville, Md.; Ralph H. Sevelius, WSMO/NHC, Miami, Fla.; Robert H. Menken, WSFO Memphis, Tenn.; Frank Makosky, WSFO Little Rock, Ark.; James E. Lunney, WSO Midland, Tex.; Donald B. Munro, WSO Lake Charles, La.; Raymond W. Agee, WSMO Dallas/Fort Worth; Wilfred J. Montagne, WSO Victoria, Tex.; Jose A. Colon, WSFO San Juan, P.R.; James E. Skyrm, WSMO Waycross, Ga.; Charles T. Watson, WSO Knoxville, Tenn.; David G. Morris, RFC Slidell, La.; (seated, from left) Daniel N. Sellers, WSMO Stephenville, Tex.; Wayne R. Browm, WSO Orlando, Fla.; David T. Smith, RFC Fort Worth; Lewis C. Norton, WSFO Lubbock, Tex.; John J. Drost, NHC, Miami, Fla.; and Charles F. [illegible] Ridge, RSMB, SRH.

obituaries

Dr. Eldon V. Jetton

Dr. Eldon V. Jetton, Meteorologist in Charge of the National Weather Service Forecast Office in New Orleans, La., since last March, died on July 24. He entered the NWS in 1942 at Cleveland, Ohio, and subsequently served at Anchorage, Summit, and Fairbanks, Alaska; Washington National Airport; Cleveland; and El Paso, Tex., where he was MIC from 1969 until he became the first MIC at WSFO Little Rock, Ark., in 1971.

He is survived by his wife, Margaret, a daughter, of Pittsburgh, Pa., and two sons, of Odessa, Tex. The family may be addressed at 318 Margon Court, Slidell, La. 70458.

Capt. M.E. Wennermark

Capt. Maurice E. Wennermark, who served with the Coast and Geodetic Survey (predecessor of the National Ocean Survey) for more than 35 years, died in Seattle, Wash., on July 22. He served aboard 15 ships during his career, and was in charge of the agency's Seattle office for three years before he retired in 1964.

He is survived by his wife, Grace, of 4331 Northeast 42nd St., Seattle, Wash. 98105, and a son, Charles.

ERL Scientists Say Sun May Affect Earth's Ozone Shield

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in the stratosphere. The density of the ozone layer is crucial—while it does undergo small, ill-understood variations, significantly greater or smaller quantities could have many biological and meteorological effects.

Among the chief limiters of ozone in the atmosphere are nitrogen oxides, such as nitric oxide, which catalyze the destruction of ozone. The main source of nitric oxide is the conversion of nitrous oxide, produced by bacteria in the soil and ocean waters and released into the atmosphere.

At high latitudes, galactic cosmic rays (a flow of charged particles from outside the solar system) also contribute to the production of nitric oxide. Energetic protons—the principal component of galactic cosmic rays—invade the earth's atmosphere, colliding with air molecules. Stray electrons shoot off from the collisions, in turn colliding with, and breaking up, nitrogen gas molecules. Through a series of reactions, electrically charged fragments of nitrogen combine with oxygen and ozone to form nitric oxide.

The sun also produces energetic protons, spitting them out during solar flares. The protons reach the earth by a roundabout route and penetrate the atmosphere. Such solar proton events are accompanied by intense absorption of radio waves in the auroral zones, the regions around the polar caps where aurora tend to occur, and so are also known as polar cap absorption events.

Drs. Crutzen (also with the National Center for Atmospheric Research, which is supported by the National Science Foundation), Isaksen, and Reid examined the polar cap absorption events of November 12-16, 1960; September 2-5, 1966; and August 2-10, 1972, and calculated the total amount of nitric oxide produced at high latitudes in the stratosphere during the three polar cap absorption events.

They found the amount of nitric oxide formed in the stratosphere during each event was comparable to the total amount produced in an entire year by galactic cosmic rays, and the event of 1972 may even have approached the amount produced, annually, at latitudes below 60 degrees, by the oxidation of nitrous oxide.

The researchers conclude, writing in the current issue of *Science*, that solar proton events are significant mass-producers of nitric oxide, and may help explain some of the puzzling variations in the ozone layer.

Diving Manual

(Continued from page 1)

hazardous to divers are covered.

The 500-page work is illustrated with diagrams, sketches, and photographs designed to help the user understand the techniques and procedures discussed. Warnings regarding safe diver procedures are highlighted in red throughout the book.

The NOAA Diving Manual is for sale by the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, for $8.55. The Stock Number is 003-017-00283.

noaa week

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

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

NOAA Week reserves the right to make corrections, changes or deletions in submitted copy in conformity with the policies of the paper or the Administration.

Catherine S. Cawley, Editor
Warren W. Buck, Jr., Art Director

Raymond H. Niblock, (left) Executive Officer of the National Marine Fisheries Service Gulf Coastal Fisheries Center in Galveston, Tex., recently received a Department of Commerce Bronze Medal "in recognition of many significant contributions to the successful operation of the Galveston Laboratory and the Gulf Coastal Fisheries Center, NMFS." He has been with NMFS in Galveston for 13 of his 33 years of Federal service.

The award was presented by Dr. Joseph W. Angelovic, Director of the Center.

EDS Develops Weather Guides For Bicentennial Visitors

The Environmental Data Service has developed a set of *Bicentennial Guides to Climates of the United States* for visitors, domestic, as well as those among the 30 million foreign visitors expected to help celebrate America's 200th birthday who will be touring various parts of the country next year.

There are individual guides for the South Central, Northeastern, Midwestern, Mid-Atlantic, Southern Mountain, Southeastern, North Central, Rocky Mountain, Northwestern, and Southwestern regions and for the Hawaiian Islands. Each describes the region's climatic character and gives monthly temperature and precipitation data for about six representative cities in the area—selected on the basis of their potential attraction to visitors.

The Bicentennial Guides should be available for distribution by the end of the year. However, copies should not be requested until the announcement and ordering instructions appear in a future issue of NOAA Week.

Unpublished Science, Engineering Papers Of 1974 Available

The National Ocean Survey's Office of the Chief Scientist, headed by Dr. Hyman Orlin, has compiled unpublished papers of 1974 in the fields of science and engineering. Included in the volume, "Collected Reprints 1974," are papers not available from other sources and speeches presented at national and international conferences which fall in the R & D category. The volume also includes abstracts and appropriate references for articles which have been published in professional journals or as NOAA Technical Publications, as well as references to scientific and engineering studies prepared in-house which have little general interest, but which may be valuable for researchers in the field.

U.S., Canadian Great Lakes Data Committee Meets

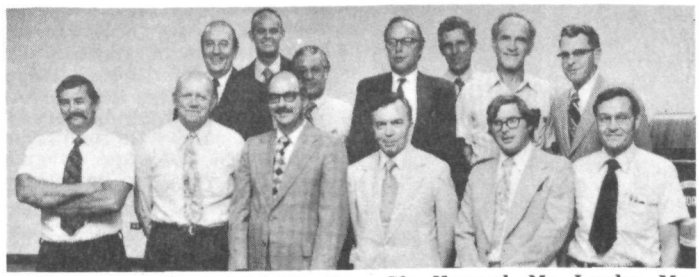
The Lake Survey Center recently hosted a meeting of the Coordinating Committee on Great Lakes Basic Hydraulic and Hydrologic Data. Participants included U.S. Representatives Frank Blust of the LSC and Donald Leonard of the Corps of Engineers, Chicago District; Canadian Representative David Witherspoon of Environment Canada; the Committee's Secretaries, Ben DeCooke of the Corps of Engineers, Detroit District, and Peter P. Yee of Environment Canada; and members of the River Flow Subcommittee, Physical Data Subcommittee, and Vertical Control-Water Level Subcommittee.

Discussion topics included terms of reference for the various subcommittees, vertical movement studies, international coordination of Great Lakes levels forecasts, and the coordination of the St. Clair and Detroit River flows.

Environmental Data Center Directors Meet in Boulder

The National Geophysical and Solar-Terrestrial Data Center in Boulder, Colo, recently hosted a meeting of directors of the Environmental Data Service's six environmental data centers to consider plans for responding to a variety of growing national needs for environmental information. The group explored the need for disseminating information in the problem areas of energy, food, the environment, climate change, mineral resources, and disaster mitigation.

In addition to Director Alan Fox-Shapley and Deputy Director James F. Lander of the NGSDC, participants were (from NOAA Headquarters, Rockville, Md.) Norman L. Canfield, Physical Scientist in the Office of the Associate Administrator for Environmental Monitoring and Prediction; (from EDS Headquarters, Washington, D.C.) Arnold R. Hull, Deputy Director, EDS; Patrick E. Hughes, Chief, Publications and Media Staff; M. Peter de Regt, Data Base Administrator; A. Newton Page, Chief, Systems Integration and Planning; and Dr. Dail W. Brown, Director, Deepwater Ports Project Office; (from the Center for Experiment Design and Data Analysis, Washington, D.C.) Dr. Joshua Z. Holland, Director; (from the Center for Climatic and Environmental Assessment, Columbia, Mo.) Dr. Norton D. Strommen, Supervisory Meteorologist; (from the National Climatic Center, Asheville, N.C.) William H. Haggard, Director; (from the National Oceanographic Data Center, Washington, D.C.) Robert Ochinero, Director; and (from the Environmental Science Information Center, Washington, D.C.) Dr. Joseph F. Caponio. Director.



(Front row, from left) Mr. Page, Mr. Haggard, Mr. Lander, Mr. Canfield, Dr. Brown, Mr. Ochinero, (second row, from left) Mr. Hull, Dr. Caponio, Mr. Shapley, Dr. Holland, Dr. Strommen, (third row, from left) Mr. Hughes, and Mr. de Regt.

Oceanographer, Researcher Given Karo Award

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predecessor agency, the Environmental Science Services Administration.

Officers and crews of the two ships were cited for their "...highly professional attitude and the spirit of enthusiastic cooperation... a significant factor in the very successful completion of GATE. The wholehearted friendship shown to other participants as well as visitors during the experiment reflected great credit to NOAA, the Department of Commerce, and the United States."

Captain William D. Barbee commanded the OCEANOGRAPHER and Captain Lavon L. Posey the RESEARCHER during GATE.

Dr. Harris B. Stewart, Jr. (center), Director of the Environmental Research Laboratories' Atlantic Oceanographic and Meteorological Laboratories in Miami, Fla., presents the Karo Award to the RESEARCHER's Executive Officer, Cdr. Donald J. Florwick (right), who was aboard the ship throughout the GATE project. Capt. John O. Boyer, the new Commanding Officer of the RESEARCHER, is at left.

best fish buys

According to the NMFS National Fishery Education Center in Chicago, the best fish buys for the next week or so are likely to be fresh pollock fillets and canned tuna along the Northeast Seaboard; croakers and spot in the Middle Atlantic States, including the D.C. area; fresh mullet and flounder fillets in the Southeast and along the Gulf Coast; whiting fillets and fresh whitefish in the Midwest; fresh red snapper and fillets of sole in the Northwest; and fresh blackcod fillets and rainbow trout in the Southwest.

notes about people

Alfred A. Litz (left), Chief Boatswain of the NOAA Ship Peirce, has received a Department of Commerce Bronze Medal "in recognition of superior performance, professionalism, and knowledge of art of seamanship aboard NOAA research vessels for almost three decades." Chief Litz, who received his award from R. Adm. Alfred C. Holmes, Director of the Atlantic Marine Center in Norfolk, Va., served aboard the first Oceanographer, and the Lydonia, Cowie, Wainwright, Parker, Bowen, Stirni, and Gilbert before going to the Peirce. His Federal service totals about 40 years.

Lt. Michael F. Kolesar has been named Commanding Officer of the NOAA Ship George M. Bowers. He is the first NOAA Corps Officer to command the 73-foot, 125-ton fisheries research vessel, which is based in Miami, Fla., and now operating out of Pascagoula, Miss.

Lt. Kolesar graduated from the University of Virginia in 1970 and served with the Marine Corps before joining the NOAA corps in 1971. He has served aboard the NOAA Ship Mt Mitchell, and in the Marine Engineering Division at the Atlantic Marine Center, Norfolk, Va.

Dr. James D. McQuigg, Director of the Environmental Data Service's Center for Climatic and Environmental Assessment in Columbia, Mo., has been invited to serve on the National Research Council's Committee on Changing Climatic and Weather Patterns and their Effects on Agricultural and Renewable Resources Productivity. The Committee functions as a part of the NRC's Board on Agriculture and Renewable Resources.

Robert J. Coe, who has been assigned at Des Moines, Iowa, since September 1974, has been named Meteorologist in Charge of the National Weather Service Meteorological Office at Marseilles, Ill. He served at Aberdeen, S. Dak., the previous year, and earlier in the Southern Region, at Memphis, Tenn.; Centreville, Ala.; and Lubbock, Tex.

He replaced Warren E. Sunkel, who has transferred to Topeka, Kans.

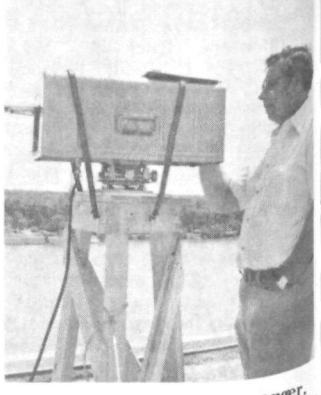
John P. Wise, of the National Marine Fisheries Service MARMAP Program, has been detailed to serve for three months as a consultant to the Food and Agriculture Organization of the United Nations in the preparatory phases of the UN Development Program Fishery Development Project for the Western Central Atlantic, which covers the Caribbean, Central America, and the northern countries of South America. He will compile and analyze statistics and biological data on shrimp and lobster resources and on their fisheries, and prepare a research program on crustacean resources to be implemented during the main phase of the Development Project.

He has been with NMFS and its predecessors since 1953, except for service with FAO in South America and North Africa, from 1960-1965. He is an honors graduate in Biology from Suffolk University, and has a Master's degree in Zoology from the University of New Hampshire.

Ignacio C. Rodriguez, who has been assigned at Grand Junction, Colo., since March 1974, has been named Official in Charge of the National Weather Service Office at Pueblo, Colo. He served previously in Albuquerque, N. Mex., and Washington, D.C., after entering the NWS in 1971, upon his retirement from the Air Force with over 22 years' service. He replaced Donald A. Kluckman, who has transferred to Neenah, Wis.

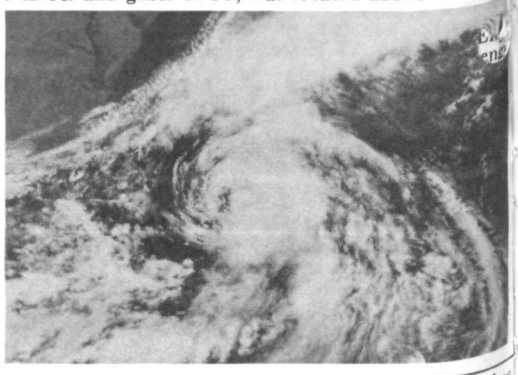
Robert E. Stachon of the Lake Survey Center's Horizontal Control Section has been chosen as this year's representative in the National Ocean Survey–Canadian Hydrographic Service Technical Exchange Program.

The program, started in 1972, involves the exchange of personnel for the purpose of providing and receiving on-the-job training in the field and office operations of the other country's charting agency. There is also a correlated exchange of information on technical skills, methods of operation, field procedures, and instrumentation systems employed in support of the varied survey and data acquisition operations of each agency.

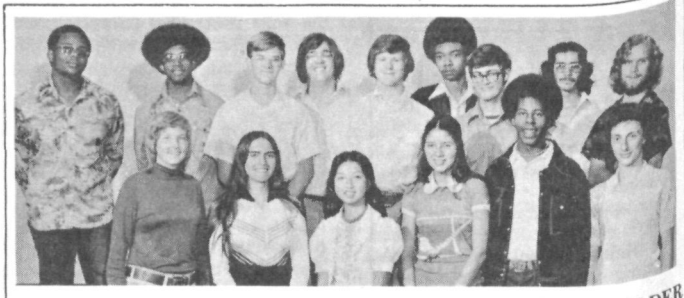


Mr. Stachon with a laser-ranger.

A special NOAA photograph from the Synchronous Meteorological Satellite (SMS-1) of tropical storm Blanche taken July 26. Blanche, with winds of 40 knots and gusts of 50, was located about 350 miles southeast of Washington, D.C., and at 12 noon on July 27 was upgraded to a hurricane. Blanche moved inland over Western Nova Scotia on July 28, and lost all tropical characteristics as she moved into the Gulf of St. Lawrence.



Participants in the Weather Radar Course # 25 held recently at the National Weather Service's Technical Training Center in Kansas City, Mo., were (front row, from left) Joseph P. Kelley, NSSFC Kansas City; Danny Labaya, WSO Kahului, Hawaii; Robert C. Head, WSO Victoria, Tex.; Sam Balandran, WSMO Stephenville, Tex.; Rudy Villarreal, WSMO Hondo, Tex.; John Richardson, Jr., WSO Binghamton, N.Y. (back row, from left) Joel R. Wertman, Instructor; Harold Cochran, WSO Evansville, Ind.; Edwin D. House, WSO Medford, Oreg.; Lola Bundy, NMC, Suitland, Md.; Thomas H. Shaffer, ECWP, Norfolk, Va.; Roy A. LaRue, WSO Atlantic City, N.J.; Douglas L. Davis, WSO Huntsville, Ala.; and Ralph T. Tice, Instructor.



PARTICIPANTS IN THE COMMERCE DEPARTMENT BOULDER LABORATORIES FEDERAL JUNIOR FELLOWSHIP PROGRAM THIS SUMMER are (front row, from left) Julie Hass, Deborah Freund, Karen Umemoto, Mary Kawasaki, Curtis Moore, Ga LaBriola, (back row, from left) Alan Duncan, John Conway, Burtlar Loupee, James Sicola, William Baumgartner, Juan Northcross, Martin Neubert, James Gonzales, and David Snelling.

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National Oceanic and Atmospheric Administration

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