



noaa week

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NOAA Weather Radio Chosen for Home Warnings

A radio system operated by NOAA has been chosen by the White House Office of Telecommunications Policy as the chief means of getting warnings of natural disaster or nuclear attack directly into the homes of the public.

The directive designated the NOAA Weather Radio System—which is operated by the National Weather Service—as the sole Government-operated radio system for communicating such warnings. This means that other systems under consideration or experimentation by the Federal Government “should no longer be considered candidates for this function,” said John M. Eger, Acting Director of the Office of Telecommunications Policy.

The announcement is an outgrowth of a November 1971

White House policy decision calling for development of a home warning system in which acquisition and use of home warning receivers is a completely voluntary decision on the part of each citizen.

Said Mr. Eger, “Studies conducted since 1971 now have led OTP to update and reaffirm that policy.” He added that the public interest will be served best by a single Government-operated system for warning citizens in their homes and that the NOAA Weather Radio System, which is already operational at some locations, can be easily adjusted to include attack warnings. The NOAA System incorporates a special tone alert signal permitting home radio receivers to be activated automatically if desired by the owner.

Mr. Eger said, “Under no circumstances should the Government require or legislate a warning receiver into the private home.”

In the event of a threatened nuclear attack, the NOAA Weather Radio will provide a supplementary service to the existing Emergency Broadcasting System which involves warnings aired by commercial radio and television stations.

NGS To Begin Survey of Part of Alaskan Oil Pipeline Route

The National Geodetic Survey scheduled to begin on April 1 a geodetic survey along a 5-mile segment of the Alaskan pipeline which will enable engineers to detect subsequently results of seismic activity.

Under the cooperative agreement signed with the Alyeska Pipeline Company, the consortium of petroleum firms building the pipeline, the two parties will share equally the estimated survey cost of approximately \$70,000.

In accomplishing the survey, which is expected to be completed in about 4 1/2 months, the NGS will establish a line of bench markers (bench marks) along the pipeline route from Prudhoe Bay on the Arctic to the North Slope. The markers will indicate elevations along the route which will enable engineers to monitor seismic activity by comparing elevations of the bench marks before and after suspected movements of the earth.

The bench marks, many of which are copper coated steel rods, will be sunk to as much as 10 feet into the Alaskan permafrost—the permanently frozen layer of soil—and will thus not

be affected by surface or subsurface frost-heaving of the earth.

The ability to measure the earth's crustal movements along the pipeline also will provide the first precise measurements of the difference in elevation between the Arctic and Pacific Oceans. This will aid oceanographers in the study of ocean currents and provide more information on the shape of the earth's surface.

Scientists Measure Winds With Remote Optical Sensor

An optical wind sensor that works like an eye and looks like a telescope may someday be used by urban planners to measure the drainage winds that carry air pollutants away from a city, tell pilots the velocity of crosswinds sweeping an airport runway, or gauge flame-fanning breezes for fire fighters.

Two scientists with the Environmental Research Laboratories, working with a colleague at the University of Colorado, are perfecting a technique for measuring wind speeds miles

away by clocking wind-blown distortions in the image of a distant scene. With a prototype optical sensor that detects and tracks eddies in the atmosphere, Dr. Steven F. Clifford and Gerard R. Ochs of ERL's Wave Propagation Laboratory and Dr. Ting-i Wang of CU's Cooperative Institute for Research in Environmental Sciences, can gauge wind velocities as far away as the eye—and the instrument—can see. Their work is part of the Wave Propagation Laboratory's Optical

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Sea Grant Scientists Find Los Angeles, Long Beach Harbor Sediments Polluted

Most of the surface sediments in the Los Angeles-Long Beach harbor area and in San Pedro basin contain pollutants in varying concentrations, according to an 18-month study of the San Pedro Bay by Sea Grant scientists from the University of Southern California.

The purpose of the study was to provide baseline information on the environmental effect of alternatives for disposing of dredge spoil, such as land fill or open water dumping. The scientists concluded that carefully planned, restricted dredging of certain areas of the San Pedro harbor complex would probably be beneficial, provided that the dredge spoil is properly disposed of. If dumping sites are carefully chosen, they said, minimum damage will occur.

The possibility of dredging part of the Los Angeles Harbor to create a deepwater port has been under consideration for several years by the Los Angeles Harbor Department—which contracted with USC Sea Grant Harbor Projects for the study—and the U.S. Army Corps of Engineers. The Sea Grant Program at USC provided the interdisciplinary team to undertake the analysis, and additional funding was provided by the Allan Hancock Foundation, the Corps of Engineers, and NOAA's Office of Sea Grant.

Headed by Dr. Dorothy Soule and Mikihiro Oguri, who directed field sampling, and Dr. Kenneth Y. Chen and James C.S. Lu of USC's Environmental Engineering Programs, who performed the chemical analyses,

the team included scientists from Immaculate Heart College, Occidental College, and California State University at Long Beach.

The contaminants found in hundreds of samples of harbor bottom sediments from throughout the 22-square-mile area and adjacent waters to Catalina Island included heavy metals such as lead, mercury, and cadmium; organic pesticides such as DDT and aldrin; a class of toxic chemicals known as PCB's (polychlorinated biphenyls); organic materials, and nitrates and phosphates from industrial and domestic sewage.

Dr. Chen likened the harbor bottom to a vast chemical laboratory whose workings are not known. “The silts and muds may act as a sort of storehouse or

‘sink’ for some pollutants,” he said, “trapping them chemically and preventing their release into the environment. Under some special environmental conditions, the sediments may have the opposite effect, actually forming new compounds and thereby acting as a new source of pollution.”

Because the relationships between sediment and pollutants and between pollutants and the environment are not yet well understood, Dr. Chen warns: “There are very few remedies available to undo the pollution of the past since the selective removal of pollutants from sediments is almost impossible. Emphasis must be placed on preventing these types of irreversible processes from occurring in the first place.”

calendar of events

February 10-13 Washington, D.C. **Third Symposium on Meteorological Observations and Instrumentation**, sponsored by the American Meteorological Society, with cooperation of the World Meteorological Organization, the American Geophysical Union, NOAA, and the Department of Defense. Theme: "Observations and Instruments for Mesoscale Phenomena." James Giraytys, Program Chairman, National Weather Service, W141, 8060 13th St., Silver Spring, Md. 20910 (301-427-7767). An instrument show and exhibit will be held during the Symposium. Prospective exhibitors should contact David George, Exhibit Director, NWS, W142x1, 8060 13th St., Silver Spring, Md. 20910 (301-427-7792).

February 14-19 Washington, D.C. **WMO Technical Conference on Automated Systems**. Sponsored by the Commission for Instruments and Methods of Observation, WMO, in conjunction with the American Meteorological Society. Topics will include automatic and semiautomatic weather stations for land, marine, and aerodrome usage; development of higher reliability sensor for use with automated systems; operational experience with automated systems; and automated systems used for satellite data acquisition. Mr. Giraytys (see address in item above) is the contact for this conference.

March 9-14 Washington, D.C. **Annual Convention of American Society of Photogrammetry and American Congress on Surveying and Mapping**. Meeting theme: "In Search of a New Independence." Technical Program will include remote sensing and interpretation, photogrammetric surveys, control surveys, land surveys, photography, cartography. (Franklin S. Baxter, Publicity Chairman, 4630 N. 21st St., Arlington, Va. 22207. 703-860-6751.) Exhibits will include latest developments in mapping, surveying, and instrumentation. (Roy A. Smith, Deputy Director for Exhibits, 5402 Southampton Dr., Springfield, Va. 22151. (202-227-2768 or 703-978-8169)

March 24-25 Colorado Springs, Colo. **Zmuda Memorial Conference on Geomagnetic Field Models**, sponsored by the American Geophysical Union, National Aeronautics and Space Administration, Society of Exploration Geophysicists, and U.S. Geological Survey. In September 1975 a new revision to the International Geomagnetic Reference Field (IGRF) is planned by the International Association of Geomagnetism and Aeronomy during meetings of International Union of Geodesy and Geophysics to be held in Grenoble, France. This conference is planned to discuss the generation and use of field models and prepare inputs for the IGRF session in Grenoble. (Cynthia Beadling, AGU, 1909 K St., N.W., Washington, D.C. 20006. 202-331-0370.)

May 6-8 Southern California **Topical Conference on Quantitative Magnetospheric Models**, sponsored by the

American Geophysical Union. Topics: quantitative models of magnetospheric magnetic fields and their associated current systems; magnetospheric electric field models; use of quantitative models to organize and interpret charged particle data; use of observational data sets in the development of quantitative magnetospheric models; and technical problems of simultaneous use of two or more models, coordinate transformation, minimization of machine time, recommendations on 'stand models'. Preliminary registration form and abstract title must be received by January 31. (Cynthia Beadling, AGU, 1909 K St., Washington, D.C. 20006. 202-331-0370.)

May 12-16 Columbus, Ohio **First International Symposium on Precipitation and the Forest Ecosystem**. Sponsored by U.S. Forest Service Atmospheric Sciences Program, Ohio State University. Discussion will include atmospheric transport and chemistry, forest vegetation, soil environment, and water resources and hydrology. (Dr. Leo Dochinger, U.S. Forest Service Laboratories, P.O. Box 365, Delaware, Ohio 43015.)

June 26-28 Davis, Calif. **National Symposium on Precipitation Analysis for Hydrologic Modeling**, Sponsored by Precipitation Committee of the Section of Hydrology. Papers invited in following areas: Collection and automatic processing; Urban (networks and modeling); Analysis of major storms (meso and macroscales); and Modeling of mountainous areas. Papers are due at AGU by April 1. (Dr. Eugene L. Peck, Chairman, AGU Committee on Precipitation, Hydrological Research Laboratory (W23), NOAA, National Weather Service, Silver Spring, Md. 20910. 301-427-7619.)

November 10-13 Las Vegas, Nev. **Third Joint Conference on Sensing Environmental Pollutants**. Theme: A Review on Applications of Science and Technology to the Effective Assessment of Pressing Environmental Problems. Sponsored by the Institute of Electrical and Electronic Engineers (IEEE), American Chemical Society, American Institute of Aeronautics and Astronautics, American Meteorological Society, Environmental Protection Agency, Instrument Society of America, National Aeronautics and Space Administration, NOAA, and Department of Transportation. Technical session will be structured on air, land, water and biology; panel discussions will focus on interdisciplinary problem areas such as climate change, energy, health and sources and pathways of marine pollution. See NOAA WEEK, January 3 for further information and call for papers. (Abstracts by April 30.) Dr. C.E. Jensen, Deputy Associate Administrator, Environmental Monitoring and Prediction, represents NOAA on conference Steering Committee; Dr. V.E. Derr, Deputy Director, the Environmental Research Laboratories' Wave Propagation Laboratory, represents NOAA on the Program Committee; and R. Ringenbach, Chief of the National Ocean Survey's Engineering Development Laboratory, represents the IEEE on the Program Committee. (Dr. C.E. Jensen, EM, NOAA, Room 825, W5 Rockville, Md. 20852. 301-496-8646.)

Scientists Monitor Winds With Remote Optical Sensor

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Propagation Program, headed by Robert S. Lawrence.

The anemometer is often too specific; it measures wind velocity at a fixed—and very small—locale, for only an instant in time. The optical sensor measures average winds over a distance, a quantity that is more useful in many circumstances. The average winds are what determine the drift of pollutants down a valley. An airline pilot coming in for a landing needs to know the average strength of winds blowing across the runway, not the reading of a single anemometer along the runway. The velocity of drainage winds that help purge urban areas of pollutants may even be too small to measure with an anemometer.

What the optical sensor actually sees are the distortions

in a scene caused by temperature fluctuations in the atmosphere. The phenomenon is familiar to nearly everyone as the twinkle of a star or the "heat waves" rising from hot pavement. The wind sensor, which contains two light detectors spaced a few inches apart, is aimed at a light source, such as a sunlit hillside, beyond the area where wind measurements are needed.

Different materials on the ground absorb and radiate heat at different rates, producing irregularities in the temperature structure of the air above. These irregularities are then carried along by the prevailing wind. Each individual disturbance in the air will distort the image of the target scene in a distinctive way, producing a uniquely distorted picture. The time it takes a particular disturbance to travel from the line of sight of one detector to the next gives its rate of speed and thus the

velocity of the wind.

The instrument does not pay equal attention to the entire length of the path between it and the light source, but concentrates on a particular portion of the path. When pointed at a random scene, the instrument may concentrate on a region about two-thirds of the way from the light source to the receiver. The region of concentration is different for different target scenes.

By looking at many different targets and comparing wind measurements made by the optical sensor with those from conventional wind-measurements, such as anemometers, the researchers hope to discover the relationship between the characteristics of the light source and the region along the path where the sensor is concentrating. Ultimately, they believe, the instrument may be tuned to look at winds at any desired distance.

Taxes Changed

Employees who are subject to state tax withholdings for the State of New Mexico and may notice a minor change in their state tax for the checks dated on or after January 15, 1975.

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

Brouillard Named Fisheries Attache in Tokyo, Japan

Keith D. Brouillard has been named to be the new Regional Fisheries Attache in Tokyo, Japan. He has been employed by the National Marine Fisheries Service and its predecessor agencies for 17 years, during which he served as a fisheries economist and as a foreign affairs officer in charge of the divisions responsible for negotiation of international agreements, developmental assistance programs, and foreign fisheries analysis.

Mr. Brouillard has served on various delegations in negotiations involving a broad range of fisheries and fisheries related activities. In addition, he has conducted program reviews of fishery development projects funded by the Agency for International Development and has served as the leader of parties conducting surveys to establish developmental projects.

He has authored several reports and articles related to fishery economics and detailed reports on fishery development projects and proposals. The most recent reports have dealt with development of the fisheries in Vietnam.

Earlier, Mr. Brouillard was employed in a bank and served in the U.S. Air Force for four years.

He received his degree in business administration and foreign trade from the University of the Americas in Mexico City and has done graduate studies in economics at the American University.

NGS Team To Assist Guam in Establishing Modern Survey Network

A National Geodetic Survey team is going to assist the government of Guam in establishing a modern survey network.

Raymond Tomlinson, technical advisor to the NGS Chief Operations, will head the team which is scheduled to arrive next month in Guam to work with Guamanian surveyors in a six-month cooperative program to provide the island with a modern survey control network and to train local surveyors to conduct future surveys.

The mid-Pacific island territory of the United States has experienced rapid growth in recent years, especially in tourism. The resultant increase in land reclamation has required that the Government of Guam conduct its surveys more accurately than before.

New Weather Radar Station To Be Built Near Longview

The National Weather Service expects to begin operation of a permanent weather radar station near Longview, Tex., about next November. A contract has been awarded to John Waddell Construction Company of Longview for \$179,679 to construct the required buildings and erect the radar tower. The radar set is being built by an Alabama firm and will be delivered by next fall.

The installation will be part of a national network of radar stations operated by the NWS to detect and track the movement of storms, particularly those that may produce damaging winds and tornadoes. The radar surveillance area will extend 250 miles in all directions, to include all of

East Texas, and parts of Oklahoma, Louisiana, and Arkansas.

An additional function of the weather observatory will be to take readings of temperatures, humidities and winds at various levels to 100,000 feet altitude. Such data are essential to weather forecasting.

When fully operational, the new facility will be manned by a staff of 10 weather radar observers and other specialists on a 24-hour-a-day basis. The new site, about 11 miles south-southeast of Longview, was picked because it is about equidistant from existing network weather radars located at Galveston, Tex., Jackson, Miss., Little Rock, Ark., and Stephenville, Tex.

NOS Completes Most Comprehensive Survey Ever Made of Potomac River

The most comprehensive nautical charting survey ever made of the Potomac River from Washington to the point where the river enters Chesapeake Bay 97 miles away has been completed.

Two National Ocean Survey hydrographic parties completed surveying the last segments of the river in a program which began in 1959. The hydrographic data are being used to modernize the NOS nautical charts of the river and in support of environmental studies of the waterway.

The program was halted in 1962 due to reductions in funds and the need to carry out higher priority items. It was resumed in 1972 and continued uninterrupted until its completion last month. In 1973, surveys of the Anacostia River to Benning Bridge and the Potomac River between Mattawoman Creek and Marshall Hall were completed.

In concluding the program, a six-man party headed by Lieutenant (junior grade) William George, surveyed a 10-mile stretch of the river south of Woodrow Wilson Bridge to the vicinity of Marshall Hall. Included were many bays, coves, creeks and other waterways along the river, including Gunston Cove, near Fort Belvoir, Va.; and Doque Creek (near Woodlawn) and Hunting Creek in Virginia and Piscataway and Broad creeks in Maryland.

A similar party under Lieutenant (junior grade) Robin Wells surveyed a 10-mile stretch of the river north of Wilson Bridge to the Chain Bridge, including Four-mile Run (south of the Washington National Airport) and the Washington Channel from Potomac Park to the Tidal Basin, but not the basin. Surveys

were also made of the Alexandria and Georgetown waterfronts.

The first official surveys of the Potomac River basin were along the Washington waterfront and date back to 1837. Geodetic control surveying along the lower Potomac was conducted in 1849, but it was not until 1859 that complete surveys for charting the river from its entrance to the head of tidewaters were fully underway.

In 1862, the agency, then known as the U.S. Coast Survey, issued its first comprehensive series of nautical charts covering the lower reaches of the river—four large scale charts extending from Chesapeake Bay to Georgetown Harbor. Charts of the Potomac River and Chesapeake Bay have continued on issue uninterrupted since then.

John T. Sun Is Appointed To OCZM Post



John T. Sun has been appointed by the Office of Coastal Zone Management as regional coordinator for Northeastern States. He will work directly with state government officials in Maine, New Hampshire, Rhode Island, Massachusetts, Connecticut, New York, New Jersey, Delaware, Maryland, and Virginia in developing a program for protecting the coastal zone. He will also work with Federal agencies in the states to ensure that their activities along the coast are consistent with state plans.

Mr. Sun brings to the job considerable experience in state and local planning and land use research. He joined NOAA from North Carolina's Office of State Planning, where he prepared grant applications for the new town of Soul City and for the state's coastal zone management program. He also has worked for the Roanoke city planning department.

Mr. Sun graduated in 1967 from Virginia Polytechnic Institute with a master's degree in urban and regional planning. He is a member of Tau Sigma Delta and the American Institute of Planners. He was born in China.



Participants in the second Scientific Technician Program held at the National Weather Service Technical Training Center in Kansas City, Mo., from October 7-December 20, 1974, were (front row, from left) Connie Coche; Brenda J. Page; Rita M. Griffin; Myra C. Ramsey; Beulah L. Taylor; Sallie Moore; (back row, from left) Bill Winkert, Instructor; Herman McAlister; Geary Central Wills; Beatrice M. Latzy; Juanita M. Moore; Lorraine B. McKinney; Enoch J. Smith, Jr.; Robert G. Turner; Mike Coffin, Instructor; and Maurice Ward, Instructor.

NESS Gives WMO Course on Satellite Techniques for Snow Hydrology

A World Meteorological Organization training course entitled "Satellite Techniques for Snow Hydrology", given last week by the National Environmental Satellite Service's Environmental Sciences Group (ESG), attracted participants from throughout the United States, Canada, and Japan.

Remote sensing of snow parameters by satellite is beginning to be recognized as an important new source of hydrologic information. Participants were briefed on current research being conducted by ESG in such areas as snow extent mapping, depth-brightness relationships, thermal infrared analyses of snow, and computer generated products from NOAA's operational satellite system.

In addition, the immediate potential of satellite data application was illustrated in a series of laboratory sessions during which data collected over geographic

areas familiar to the participants were analyzed.

Primary instructors for the course were Donald R. Wiesnet, Dr. David F. McGinnis, and Lieutenant (junior grade) Michael C. McMillan of the Environmental Sciences Group and Stanley R. Schneider of the Environmental Products Groups, NESS.

Attendees included Howard L. Ferguson, Chief, Hydrometeorology and Environmental Impact Research Division, Atmospheric Environment Service; Canada; John Power, Regulation Engineer, Water Resources Branch, Environment Canada; Kiyoshi Arai, Meteorological Satellite Planning Division, Japan Meteorological Agency; Robert Mairs, Washington, D.C., Satellite Field Services Station (SFSS); Robert Craig, Kansas City SFSS; and Larry Breaker, San Francisco SFSS.



(From left) Mr. Craig; Lt. (j.g.) McMillan; Mr. Breaker; Mr. Ferguson; Mr. Arai; David Forsyth, NESS Environmental Sciences Group; Mr. Schneider; Mr. Wiesnet; Dr. McGinnis; Dr. E. Paul McClain, Director NESS Environmental Sciences Group; and Mr. Power.

notes about people

Myra R. Wells, Chief of the National Marine Fisheries Service, Environmental Data Service, National Environmental Satellite Service Personnel Section of NOAA Personnel Division, recently was appointed to represent NMFS as a United States



Myra R. Wells member of the International Fisheries Commissions Pension Society (IFCPS). She replaces

John M. Patton, Jr., who resigned his appointment on July 30, 1974.

The IFCPS consists of three members from the U.S. and three from Canada. It was established in 1957, following an agreement between Canada and the U.S., in order to study, recommend and contract for pension and related insurance benefits for employees of the six International Fisheries Commissions with headquarters in the U.S. and Canada. The Society rotates its annual meetings among the sites of the six Commissions, meeting in Canada and the U.S. in alternate years.

Frank A. Blust and **Donald R. Rondy** of the Lake Survey Center attended the meeting of the Coordinating Committee on Great Lakes Basic Hydraulic and Hydrologic Data held recently in Toronto, Canada. Mr. Blust is one of the three United States members of the Committee, and Mr. Rondy has replaced **Carl B. Feldscher**, who retired recently, on the Vertical Control-Water

Preparedness Pays Off In Mississippi

A huge severe weather system brought tornadoes, blizzards, severe local storms and flooding to more than 20 states from January 10-13.

One of the worst hit areas was McComb, Miss., where a tornado hit a shopping center, a residential section, and several schools in and near the city shortly after classes started on January 10.

In the small town of Summit, Miss., north of McComb, James Hutto, Principal of North Pike Elementary School, aware of the National Weather Service's tornado watch issued at 7:10 a.m., notified all teachers in the school. Mr. Hutto saw the tornado funnel coming and called for action. More than 300 children in grades one through four took refuge in interior corridors. The tornado slammed into the school at 8:23 and caused extensive damage to the school and the school buses. Injuries were relatively minor.

The State of Mississippi has made it mandatory to conduct tornado drills routinely in all schools in the State.

Next Week's Best Fish Buys

According to the NMFS National Consumer Educational Services Office in Chicago, the best fish buys for the next week or so are likely to be fish sticks and portions and pollock fillets along the Northeast Seaboard; fluke fillets and bluefish in the Middle Atlantic States, including the D.C. area; red snapper and mullet in the Southeast and along the Gulf Coast; fresh whitefish and smelt in the Midwest; canned tuna and Pacific snapper in the Northwest; and frozen squid and turbot fillets in the Southwest.

Levels Subcommittee. This Subcommittee deals with such projects as International Great Lakes Datum, first-order levels, crustal movement, water levels, water level gages, water level gage histories, and water level forecasting.

Dr. Peter A. Rona of the Environmental Research Laboratories' Atlantic Oceanographic and Meteorological Laboratories recently visited United Nations Headquarters to prepare a report on mineral resources of the Pacific in conjunction with Dr. Lawrence Neuman of the U.N. Office for Ocean Economics and Technology. Dr. Rona also

IOC Session Agenda Is Developed In Meeting at E

The Provisional Agenda related documents for the Session of the Intergovernmental Oceanographic Commission (IOC), UNESCO, Working Committee for International Oceanographic Data Exchange (IODE) were recently developed in meeting in Environmental Service Headquarters. The Session is scheduled to be held May 12-16, 1975, at the United Nations Organization and Agriculture Organization in Rome, Italy.

Participating in the meeting were Dr. Albert Tolkachev, Assistant Secretary for Science, IOC; Dr. Thomas S. Austin, Director and Chairman of Working Committee for International Oceanographic Data Exchange (IODE); and Dr. Clarence Cross, Chairman of the Task Team for the IODE.

The Agenda includes proposals from world and regional centers, international organizations, and IODE subcommittees. To be discussed are: physical, satellite, air/sea action, GATE, marine pollution and wave data; Declared National Programs; IGOSS data archiving and exchange; format development; a guide for establishing National Oceanographic Center; the manual on national Oceanographic Exchange; cooperative arrangements; interdisciplinary and information management and retrieval; coordination of marine environmental information services; strengthening modernizing international oceanographic data exchange; and new terms of reference Working Committee.

Desmond Scott, Secretary of the IOC, also met with Dr. Austin and Tolkachev to discuss the agenda items for the meeting.

briefed U.N. technical members on recent advances in knowledge of seabed mineral resources, including the discovery of TAG Hydrothermal Field, TAG Hydrothermal Field, first hydrothermal mineral to be discovered on an oceanic ridge, was found by NOAA Trans-Atlantic Geoscience (TAG) project which Dr. Rona directs at AOML's Marine Geology and Geophysics Laboratory. Dr. Rona is a research physicist whose fields of interest include the structure and tectonics of continental margins, ocean basins, and resources of the sea floor.

National Oceanic and Atmospheric Administration

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