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BOMEX Countdown Begins; Ships Outfitted at Gulfport

The USC&GS Ships OCEANOGRAPHER, DISCOVERER, MT MITCHELL, and RAINIER, and the Coast Guard Cutter ROCKAWAY, are now in Gulfport, Mississippi, for installation of special equipment to be used in the Barbados Oceanographic and Meteorological Experiment (BOMEX). These five vessels will comprise the array of fixed ships for BOMEX, with the OCEANOGRAPHER, DISCOVERER, RAINIER, and MT MITCHELL stationed at the four corners of the five-degree-square experimental area and the ROCKAWAY positioned in the center of the array. The equipment being installed at Gulfport includes signal conditioning and recording devices, sensors, meteorological booms, boundary layer instrument packages, and free-fall mooring systems.

The BOMEX study of the links between sea and air--to be conducted during May, June, and July--will be the most intensive scientific investigation ever made



USC&GS vessels at Gulfport

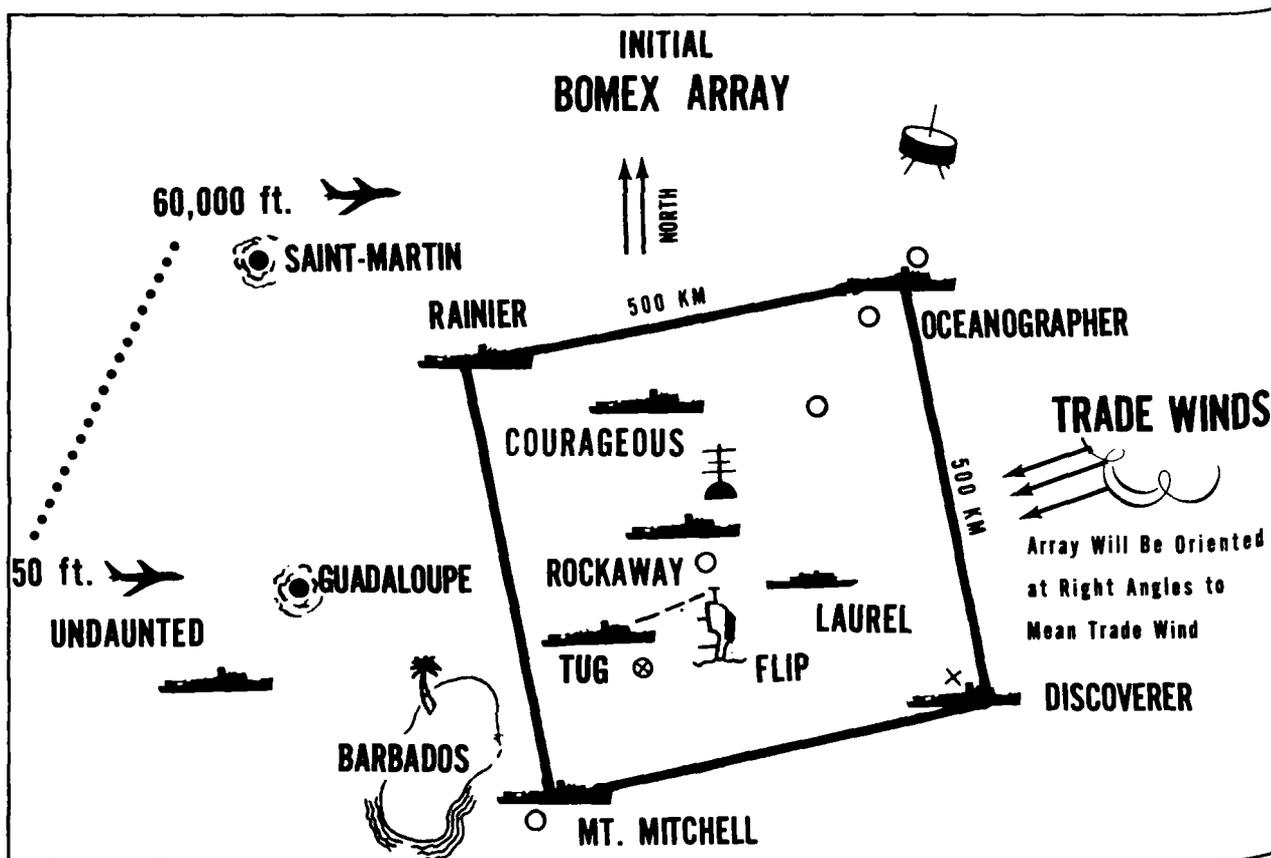
over a large ocean area.

During the three-month experimental period, 24 planes, 10 ships, several satellites, and a dozen buoys will gather data from a parcel of atmosphere and ocean covering 90,000 square miles of the Atlantic east of Barbados, and stretching vertically from an altitude of 100,000 feet to the sea floor at a depth of 18,000 feet. About 1500 people will be involved in gathering data for more than 80 separate scientific projects.

BOMEX is the first of a series of large-scale research projects planned by the nations of the world under the Global Atmospheric Research Program (GARP) and directed toward the development of the so-called World Weather Watch.

The experiment combines the efforts of the oceanographic and meteorological agencies, 19 universities, and seven industrial laboratories taking part. The U.S. Government participants are: Department of Commerce (ESSA); Department of Defense (U.S. Air Force, U.S. Navy, U.S. Army, and the National Guard Bureau); Department of the Interior (Bureau of Commercial Fisheries); Department of Transportation (U.S. Coast Guard); Atomic Energy Commission; National Aeronautics and Space Administration; and the National Science Foundation. Universities and independent research laboratories in the United States, Canada, and Barbados are involved.

A large number of platforms and observing systems will support the overall objectives of BOMEX. Data from five ESSA satellites, two Nimbus satellites, and ATS-III will provide photographs of cloud cover in the experimental area. Participating ships, in addition to those in



the fixed array, are the Coast Guard Cutters LAUREL and COURAGEOUS, the U.S. Navy Ship GILLISS, the Bureau of Commercial Fisheries Research Vessel UNDAUNTED, and the Cape Fear Technical Institute's SS ADVANCE II. A unique stable platform, called FLIP (Floating Laboratory Instrument Platform), is being made available for BOMEX by the Navy and Scripps Institution of Oceanography. This platform will be towed in horizontal position to its location in the array, where its ballast tanks will be flooded to flip it to the vertical position.

Aircraft participating in the experiment include the ESSA Research Flight Facility DC-6, DC-4, and B-57; U.S. Air Force Air Weather Service C-130, B-47, RB-57F, and possibly the WC-135; the U.S. Navy WC-121 and EC-121; the National Aeronautics and Space Administration Convair-990 and Lockheed-P3A; a C-54 from the Woods Hole Oceanographic Institution; an Aero-Commander from the Colorado State University; a DC-3 from the University of California; and a Buffalo and a Queen Air-80 from the National Center for Atmospheric Research. Communications, as

well as the Search and Rescue function, will be handled by the U.S. Coast Guard.

The BOMEX Project Office in ESSA's Office of World Weather Systems is responsible for scientific and logistic planning and coordination. Dr. J. P. Kuettner, BOMEX Director, establishes objectives and provides overall scientific direction, with scientific guidance from the BOMEX Advisory Panel of the U.S. GARP (Global Atmospheric Research Program) Committee and policy coordination by the Federal Committee for Meteorological Services and Supporting Research. Dr. Joshua Holland of the Atomic Energy Commission is Chief Scientist for the Air-Sea Interaction Program, and Dr. Jule G. Charney of the Massachusetts Institute of Technology is Scientific Director for a July study of Tropical Convection Systems. William S. Barney, Project Manager for BOMEX, is responsible for planning, procurement, operations, training, safety, and administration necessary to support the approved experiments and for the execution of the program in the field. Dr. Arnold Glaser is coordinator of the scientific program.

NESC Assumes ESSA 9 Control

NESC assumed control of ESSA 9 on Mar. 24. The spacecraft was launched for ESSA by the National Aeronautics and Space Administration from the Eastern Test Range, Cape Kennedy, Fla., on Feb. 26. All systems are functioning properly.

Four Weather Stations To Be Retained

Following further review by the Department of Commerce, additional personnel authorizations were made available to ESSA to enable retention of the following weather stations: Stockton, Calif.; Houghton Lake, Mich.; LaCrosse, Wisc.; and Mansfield, Ohio.

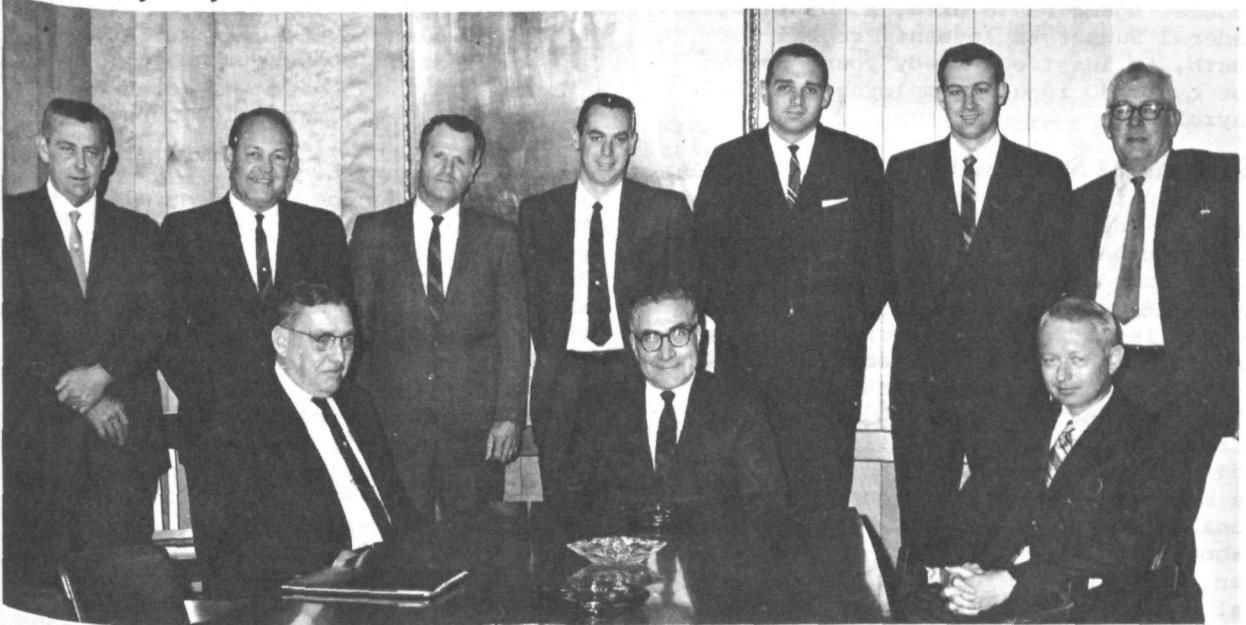
Satellite Photos Reveal Dust Storms

NESC's Applications Group is assisting Professor H. T. U. Smith of the Department of Geology, University of Massachusetts, in a study of the appearance of sand and dust storms in ESSA photographs. This information will be used in the interpretation of dust storms in photographs of Mars.

Planetary Waves Investigated

The Coast and Geodetic Survey and the Massachusetts Institute of Technology are conducting an extensive investigation in the Pacific of ocean waves which are thought to be about 1,000 miles in length and take two weeks to a month to complete one cycle. The "planetary waves" are believed to be caused by the gravitational attraction of the sun and moon on the earth and are therefore special tides. Once initiated, the waves are apparently largely governed by the depth of the water and by the effect of the earth's rotation on its axis. The waves will be recorded by 15 tide gages on islands of the Caroline and Marshall groups on an east-west line stretching 2500 miles across the Pacific about 500 miles north of the Equator. Data regarding the waves will be gathered by the gages for four years and then subjected to analyses by high-speed computers at ESSA and MIT. The investigation will be conducted by two MIT physical oceanographers, and Steacy Hicks of the Coast Survey.

Coast Survey Party Chiefs Meet



Geodesy Division Field Party Chiefs met at Coast Survey headquarters Mar. 10-17 to discuss field methods and field problems, standardization of field procedures, and also to review geodetic equipment needs and specific areas of automation to increase production. Seated, left to right: Clarence Symms, Jr., G-36; Rear Admiral Don A. Jones, Coast Survey Director; Cdr. Ronald M. Buffington, G-23. Standing, left to right: James L. Cook, G-19; L. Gilbert Burdine, G-21; Robert R. Gerrish, G-37; Lt. Cdr. Jeffrey C. Carlen, G-38; Lt. George R. Knecht, G-20; Lt. John B. Jones, III, G-18; and Woodrow M. Johnson, G-22.

NAS/NAE Panel Reviews Weather Services

Gerald L. Shak, Eastern Region User Services Representative, and Paul S. Jacoby, meteorologist in charge at Pittsburgh, met with members of the National Academy of Sciences/National Academy of Engineering Advisory to ESSA - Panel on Weather and River Services, on March 26, at Pittsburgh, to make an in-depth study of the operational programs of the weather and river services; review the training and education programs and their adequacy for both professionals and technicians; and to appraise the total R&D programs. Panel members were: William B. Ackermann, chairman; Robert D. Elliott, Gen. Joseph J. George, Dr. Bruce Gilchrist, Prof. Homer W. Hiser, Dean Charles L. Hosler, Wesley V. Hurley, Dr. Richard J. Reed, Prof. Ernest T. Smerdon, Dr. Verner Suomi, and Dr. Jack Van Lopik. The panel is to report its findings to Dr. Robert M. White, ESSA Administrator, and Dr. George P. Cressman, Weather Bureau Director, during May.

Jobs for Young Needy Asked

President Nixon has asked the heads of Federal agencies to hire, as part of the Federal Summer Employment Program for Youth, at least one needy young person for every 40 regular employees on their payrolls.

IEEE Sponsors Symposium

The Institute of Electrical and Electronics Engineers, Inc., will hold its first Annual International Geoscience Electronics Symposium in Washington, D.C., April 16-18. The purpose of the symposium is to review the current status and future potential of techniques, sensors, and equipment applicable to the exploration and exploitation of land, sea, air, and space. ESSA participants will be: M. E. Ringenbach, Dean Parry, Christos Harmantas, Donald T. Acheson, and Ronald L. Ruth (Equipment Development Laboratory, WBH); Dr. Karl R. Johannesen, WB Associate Director, Meteorological Operations; Dr. Clifford A. Spohn, Director, Office of Operations, NESC; and Edward W. Bisone, Engineering Division, WBH.

1969 Agricultural Weather Services Planned



WB Southeastern Advisory Agricultural Meteorologists recently met at the Coastal Plains Experiment Station, Tifton, Ga., to make final adjustments in the service programs for agriculture. Left to right: D. A. Downey, Fayetteville, Ark.; J. E. Hughes, Tifton, Ga.; D. R. Davis, Quincy, Fla.; P. A. Mott, Auburn, Ala.; Dr. Frank P. King, Director of the Coastal Experiment Station; J. A. Riley, SRH; T. L. Noffsinger, WBH; F. Crosby, Experiment, Ga.; and B. Quattlebaum, Tifton, Ga.

Service Awards

WB Southern Region employees eligible to receive length-of-service awards during April are: 40 years - David W. Miller, Atlanta, Ga. 25 years - Charles D. Gouldie, Austin, Tex.; Marion A. Crosby, New Orleans; and Juanita W. Lester, Rome, Ga. 20 years - Henry L. Jones, Lubbock, Tex.

WB Central Region employees eligible to receive awards this month are: 30 years - Clyde H. Downes, Ft. Wayne, Ind. 25 years - George W. Polensky, Chicago; and Paul E. Stry, Waterloo, Iowa. 20 years - Edward T. Sjoberg, Chicago; Clark D. Hartwig, Lansing, Mich.; and Mary M. Ortgessen, Chicago.

Mid-Continent Field Area (C&GS) employees receiving awards are: 20 years - Floyd K. Stuart, Operations Division, Kansas City, Mo.; and Hubert Sulfridge, Triangulation Party G-18, Kansas City, Mo.

C&GS Technician Dies

Carl F. Odgers, supervisory survey technician in the Coast Survey's Reconnaissance Party G-33, Mid-Continent Field Area, died March 21.

National Oceanic and Atmospheric Administration

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