

# NCAR



## Information Release

1974-6

March 14, 1974  
For Immediate Release

### GATE Aircraft Workshop Held at NCAR

Boulder, Colorado---During the past week, more than 50 people from seven countries--Bulgaria, France, the Federal Republic of Germany, Senegal, the Soviet Union, the United Kingdom, and the United States--have been planning and "flying" simulated research aircraft missions in the meeting rooms of the National Center for Atmospheric Research (NCAR) here.

They are atmospheric scientists, flight crews, aircraft operations specialists, and others who will be planning and flying real missions over the tropical Atlantic Ocean next summer from their field headquarters at Dakar, capital of the West African nation of Senegal. The missions will be part of the Global Atmospheric Research Program (GARP), an international effort aimed at gaining an improved understanding of the global behavior of the atmosphere, with the ultimate goal of extending the range of large-scale weather prediction to as much as two weeks. GARP is a joint undertaking of the World Meteorological Organization (WMO) and the International Council of Scientific Unions (ICSU).

Next summer's project, known as the GARP Atlantic Tropical Experiment (GATE), is the first major international field experiment of GARP. Its primary goal is to gain new knowledge of tropical atmospheric processes that affect the global circulation of the atmosphere and thus influence our weather in the temperate zones and other parts of the world. In addition to contributing to the larger goal of improved global prediction, GATE should also lead to improvements in weather forecasting for tropical countries.

The experiment is designed to study tropical cloud clusters--weather systems about 300 to 800 kilometers (200 to 500 miles) in diameter, with typical lifetimes of one to two days, that occur frequently in the tropics. The researchers will study the internal structure of the cloud clusters; the transport of heat, moisture, and momentum within the systems; and their relation to larger-scale motions of the atmosphere.

-more-

## GATE Aircraft Workshop/2

From June 15 to September 30, the GATE scientists will use more than three dozen ships and a dozen aircraft, as well as satellites, instrumented buoys, and land-based weather stations, to make intensive observations in an experimental area in the tropical Atlantic west of Dakar. Less detailed observations will be made over a huge region extending from east Africa across Central and South America.

The aircraft workshop at NCAR was designed to provide the scientists, flight crews, and other specialists who will participate in GATE with experience in working together, and to identify some of the problems that may develop during the actual experiment. The workshop was chaired by Dr. Joachim Kuettner, director of the GATE International Scientific and Management Group (ISMG). It was organized and coordinated by Dr. Daniel Rex of NCAR and Onial Thomas of the National Oceanic and Atmospheric Administration (NOAA), the lead agency for U.S. participation in GATE. A number of other Federal agencies, including the National Science Foundation, the National Aeronautics and Space Administration, the Coast Guard, the Federal Aviation Agency, and the Department of Defense, will also participate in GATE.

During 2½ actual days of the workshop, the participants simulated a week of GATE operations. Each simulated day began with a briefing on the status of eleven research aircraft--one each from Brazil, France, and the United Kingdom; two from the Soviet Union; and six from the United States. This was followed by a review of mission accomplishments thus far in the experiment, which was assumed to be about midway through its field work. Next came a weather briefing, using actual satellite photographs, weather balloon soundings, and other data from the GATE area.

With all the pertinent information in hand, the GATE Mission Selection Team, chaired by Dr. Kuettner, chose a research mission and alternate missions for the day and designated the aircraft and scientists that would conduct them. The mission scientists, airborne mission scientists, aircraft crews, and operations people then "flew" the missions, using different meeting rooms for simulated

-more-

aircraft and control centers, and telephones for simulated two-way radio communications. During some of the missions, the aircraft were notified of problems that had developed--for example, "all of the hydraulic systems on your aircraft have just gone out," or "a commercial aircraft has crashed on the runway at Dakar, and you will not be able to land for at least 10 hours." The mission scientists were also presented with sudden weather changes and other crises. Finding solutions to these problems, similar to ones that may occur during some of the real GATE missions, was an important element of the workshop.

At the conclusion of the workshop, Dr. Kuettner said: "It has gone very well. We have identified many problems that we otherwise would not have discovered until we got into the field, and have saved ourselves a lot of time and money. The design of the workshop was excellent, and it is one of the most successful international meetings that we've had."

NCAR's cosponsorship of the aircraft workshop is only one of many ways in which the Center is participating in GATE. Working with scientists in the United States and other countries, Dr. Edward Zipser and several of his colleagues at NCAR recently prepared the "GATE Scientific Aircraft Plan." Four NCAR scientists--Dr. Robert Grossman, Dr. Margaret LeMone, Dr. William Pennell, and Zipser--will fly on research missions from Dakar, and Zipser will also serve as a member of the GATE Mission Selection Team. With special support from its Federal sponsor, the National Science Foundation, NCAR has developed an aircraft data management plan for the experiment, and has established a team, headed by Alan Miller, that will handle all data from U.S. aircraft and play a major role in data management for aircraft from other nations. Three NCAR research aircraft--a Lockheed Electra, a North American Sabreliner, and a Beech Queen Air--will fly research missions from Dakar during GATE.

The National Science Foundation is also supporting GATE research projects to be conducted by scientists from a number of the member universities of the University Corporation for Atmospheric Research (UCAR), the nonprofit consortium of 44 universities that operates NCAR under NSF sponsorship.

-end-

Henry Lansford  
Information Officer  
National Center for Atmospheric Research  
Box 3000  
Boulder, Colorado 80303

(303) 494-5151, extension 261