

File - NHSE
Waltman

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Mr. Daniel Hunt, Jr., Head
Office of National Centers
and Facilities Operations
National Science Foundation
Washington, D. C. 20550

Dear Dan:

This is the seventh report on the National Hail Research Experiment.

1. Activities

a. Rocket Seeding. Tests of the 2.75 inch rocket are now underway at the White Sands Missile Range (WSMR), New Mexico. To date there have been four launches. All have been successful. The parachute system operated satisfactorily, lowering the rocket casing with a minimum impact. A series of 20 launches is planned for this, the Phase I test. If the results are satisfactory, we plan to expand the effort to include the development of a seeding head and a telemetry package. Phase II tests will take place shortly after January 1, 1971 and will consist of approximately 50 ground launches. The final two phases will test the complete system including the delivery aircraft. They will occur at two-month intervals following the completion of Phase II.

b. Controlled Firing Area. The FAA has agreed to proceed with the necessary steps for establishing a Controlled Firing Area (CFA). In our last meeting they requested additional information including an application for certificate of waiver and statement that NCAR will assume the responsibility for the separation of all participating aircraft, all nonparticipating VFR aircraft, and the safety of persons and property on the surface. Using this information they will prepare documentation to advise other airspace users of the request. A month will be allowed for comment. If adverse comments are received, a public hearing will be held. Submission of this information has been held pending the outcome of the Phase I rocket tests now underway at WSMR.

c. Data Acquisition and Display. Next summer we plan to have in operation a system of rather limited scope. This will consist of the telemetering and display of data from three aircraft, generating and displaying the tracks of selected aircraft, and contoured radar data. We estimate that it will cost about \$118,000 to purchase the equipment necessary to complete the above. Specifications are now being prepared and procurement will be initiated within the next month.

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d. Workshop on Hail Suppression Concepts. A workshop on hail suppression concepts will be held on 14 and 15 January at NCAR. The purpose of the workshop is twofold:

- (1) To review what has been learned over the past two years about hailstorm structure and dynamics and hailstone growth, and
- (2) To discuss and propose concepts of hail suppression and their execution in a research operation.

2. University Research Support

We have continued discussions concerning participation in the project with the University of Wyoming, Oklahoma State University, Illinois State Water Survey, the Desert Research Institute, and the South Dakota School of Mines and Technology. At the present time we intend to contract with the University of Wyoming for activities costing about \$150,000. The next sub-contract on which we will negotiate will be with South Dakota for the operation of the armored aircraft and the application of data to numerical cloud models. Action on the other proposals is not required at this particular time either because of the period of the contract or their direct application to the hail experiment.

3. Advisory Panel

Dr. Roscoe Braham, Dr. Lou Battan, Dr. Walter Hitschfeld, and Dr. Patrick Squires have accepted our invitation to serve on the NHRE Advisory Panel. The first meeting will be held at NCAR on 4 December 1970.

4. Personnel

There have been no changes since the previous report. However, over the next several months we plan to fill several positions including an additional engineer, a meteorologist, and an electronics technician.

5. Equipment

No procurements have been initiated. However, during November we expect to start the procurement of the equipment necessary to construct the Data Acquisition and Display System. This will include two small computers, four tapes with controls, a disk, and interface and display devices. The cost of this equipment is estimated at \$118,000. Also, we plan to initiate a request for bids on mobile field units for use at the remote field sites. These structures are 12' x 60' and will cost about \$5,400 for the basic structures. Air conditioning, partitions, etc., will be additional. We now plan to buy eight at an estimated cost of \$60,000.

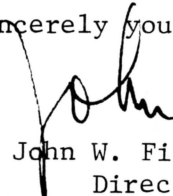
6. Budget

As requested by Dr. White, we have reworked our FY 1971 budget using \$1,848,000 as a guide (\$1,500,000 FY 1971 funds plus a carryover of \$348,000 from FY 1970). In order to accomplish this we plan the following changes:

- (1) Reduce the number of U.S. Army rawinsonde teams from three to two.
- (2) Reduce the funds planned for the development of the rocket seeding system.
- (3) Lease rather than purchase a scanning radiometer.
- (4) Delete the purchase of additional dropsondes. (We will repair and use those on hand.)
- (5) Reduce the number of surface weather stations.
- (6) Reduce the purchase of equipment for the Data Acquisition and Display System. (As indicated earlier, we plan a minimum system for next summer which will display data from three aircraft, a selected aircraft track, and contoured radar data.)
- (7) Reduce the purchase of mobile field units. (No living quarters will be provided this summer. We will provide only those units required to meet operating space needs.)
- (8) Funds for aircraft modification have been deleted.
- (9) Funds for NOAA support have been deleted.
- (10) We plan to be in the field next summer for only a two-month period.

These changes will allow conduct of most of the planned rehearsal during next summer's test program; however, as indicated, we are delaying the purchase or development of several items which must be ready for the start of the actual experiment in 1972.

Sincerely yours,


John W. Firor
Director

cc: Glenn Stout (4)
W. C. Swinbank (6)