

OVERVIEW OF THE WEATHER MODIFICATION RESEARCH
IN INDIA

Bh. V. Ramana Murty, Director
Indian Institute of Tropical Meteorology
Poona 411005, India

A Rain and Cloud Physics Research (RCPR) Centre was set up in 1955 at the National Physical Laboratory, New Delhi for undertaking scientific studies on Cloud Physics and Rainmaking. The RCPR Centre conducted a long series of ground based salt seeding experiments in north India during the southwest monsoon seasons (June-Sept.) of 1957-1966. The results of these experiments showed on the average, an increase of about 20 percent in rainfall on seeded days.

The Institute of Tropical Meteorology (ITM) was established at Poona on 17 November 1962 as a part of the India Meteorological Department. The RCPR Centre at New Delhi was transferred to the ITM on 1 March 1967. The ITM was converted on 1 April 1971 into an autonomous organization and was renamed as the Indian Institute of Tropical Meteorology (IITM) attached to the Ministry of Tourism and Civil Aviation, Government of India. As a National Centre for basic and applied research in Tropical Meteorology, the primary functions of IITM are to promote, guide and conduct research in the field of meteorology in all its aspects, including weather modification, with special reference to tropics and sub-tropics. The research work in the Institute is organized under five research divisions:

1. Forecasting Research
2. Climatology and Hydrometeorology
3. Physical and Aerology
4. Instrument and Observational Techniques
5. Theoretical Studies

A sixth division, Library, Information and Publication, renders necessary facilities. Computer, workshop and laboratories provide research support.

In 1973, the IITM initiated a warm cloud seeding experiment using aircraft in a 3200 sq. km area located 40 km to the east of Poona, in Maharashtra State. The experiment was conducted during 5 southwest monsoon seasons, June-September of 1973, 1974, 1976, 1979, and 1980. Extensive cloud physical studies were undertaken using the in-cloud electrical and microphysical data obtained during this experiment.

A new technique for the computer simulation of cloud seeding experiments was developed at the Institute. The simulation of experiments undertaken using the historic rainfall data of the Poona region suggested that the aircraft salt seeding experiment should continue for a minimum period of 7 years for detecting a 15 percent increase in rainfall due to seeding.

The IITM also conducted a long series of cold cloud seeding experiments at New Delhi using ground-based silver iodide generators during seven winter seasons (1968-1975). The result was evaluated using the rainfall and radar data. It is not statistically significant.

The Institute carried out, in collaboration with the India Meteorological Department, aircraft salt seeding experiment over the catchment area of Rihand ($24^{\circ} 12'N$, $83^{\circ} 03'E$, 310 m MSL) in the State of Uttar Pradesh. The rainfall analysis based on the limited number of raingauges in and around the catchment suggested an increase in rainfall by 17 to 28 percent which is statistically not significant.

The IITM also conducted (i) ground based salt seeding experiments in Madras ($13^{\circ} 00'N$, $80^{\circ} 11'E$, 16 m ASL) region, Tamil Nadu State, South India, in 1973-77, (ii) aircraft salt seeding experiment over Linganamakki catchment ($14^{\circ} 12'N$, $74^{\circ} 50'E$, 704.3 m ASL), in Karnataka State, in 1975 and (iii) aircraft salt seeding experiment over the Arabian Sea 20-40 km off the coast at Bombay ($18^{\circ} 15'N$, $72^{\circ} 49'E$, 11 m ASL) in Maharashtra State, in 1973, 1974 and 1979. The locations of the experiments in the States of Maharashtra, Karnataka and Tamil Nadu are shown in the following Figure 1.

The four papers which follow provide summaries of work accomplished as part of the overall experiments conducted under the Institute of Tropical Meteorology.

FIGURE 1.

MAP OF INDIA

(Dark areas indicate locations of cloud seeding projects)

