



Randomized Convective Cloud Seeding Experiment for precipitation enhancement in Cuba. Experimental design and first results

D. Martinez-Castro (1), C. Pérez-Sánchez (2), F. Gamboa-Romero (1), B. Koloskov B (2), V. Petrov (2), V. Korneev (2)

(1) Instituto de Meteorología, Cuba, (2) Agency of Atmospheric Technologies. Russia.

(daniel.martinez@insmet.cu/ Phone: 5378813411)

Considering the positive results of previous experiments, in 2005 started the Cuban Rain Enhancement by Cloud Seeding Program. The main research project in this Program is the Randomized Convective Cloud Seeding Experiment in Extended Areas (EXPAREX), which is being carried out in the province of Camagüey as a joint effort of the Cuban Institute of Meteorology, and the Russian institutions Agency of Atmospheric Technologies and Central Aerological Observatory. Seeding is performed in the upper supercooled regions of developing convective clouds using silver iodide flares, which are ejected from an instrumented An-26 aircraft. The experimental unit is a floating target area with fixed dimensions inside which all convective cells with certain conditions are seeded (actually or simulated) following a randomization scheme. Control of the evolution of cell and experimental unit parameters is accomplished by a digitized MRL-5 radar. Basic cloud physics parameters are measured in situ by the instrumented aircraft. The seeding methodology applied in the experiment is basically the same which was applied in the confirmatory stage of the PCMAT project (1986-1990) Nevertheless, in 2005, the exploratory stage of the present experiment was accomplished, using a non-randomized scheme to adjust the basic PCMAT methodology to the new available technology, and in 2006, the randomization scheme was applied to the first experimental units. Experimental design, including experimental unit definition, and cloud physics and radar measured characteristics of experimental clouds are discussed in the present paper.