

Comments on "Planned and Inadvertent Weather Modification," a policy statement of the American Meteorological Society

The policy statement on "Planned and Inadvertent Weather Modification" (*Bull. Amer. Meteor. Soc.*, **73**, 331) should be revised to prevent misconceptions concerning the early history of scientific weather modification. As written, it wrongly criticizes the scientific foundations of field operations conducted 40 or more years ago in the light of today's knowledge.

The operational (as opposed to research or experimental) cloud seeding programs, such as those conducted in the Sierra Nevada Mountains beginning in the late 1940s and early 1950s by California electric power companies and water conservation and storage districts, must be considered to have been soundly based scientifically. These programs were carefully planned with the aid of many of those scientists who were conducting the research programs in weather modification.

The scientific credentials of the pioneers in weather modification, such as Irving Langmuir, Vincent Schaefer, Bernard Vonnegut, Roscoe Braham, Patrick Squires, and E. J. Smith, should not be in question. Their field programs were conducted using the best of sound scientific knowledge available *when those programs were conducted*.

Similarly, the decisions to employ statistical analyses of the precipitation data from early randomized field operations were surely scientifically sound. To say otherwise is to impugn the scientific reputations of all those who proposed the use of statistical analysis and those who accepted their proposals. Finding out at some later date that this approach did not always produce the anticipated results does not imply that the

original decisions to employ statistical analysis were wrong. The more recent randomized cloud seeding programs conducted in Israel and Tasmania employed statistical methods of analysis to good effect in demonstrating substantial increases in precipitation by cloud seeding.

The authors of the AMS policy statement should consider that current techniques and instrumentation for weather modification studies, such as modeling, microwave radiometry, multiparameter radars, and chemical tracers, while certainly different or more sophisticated than those techniques and instrumentation employed 40 years ago, may also not lead to definitive conclusions about the precipitation enhancement potential of cloud seeding field operations. *Different* and *more sophisticated* do not necessarily mean *better*. The authors run the risk of having their own weather modification research or operational program results characterized as "without sound scientific foundation" in 50 years (or less) if science progresses in a different direction than the one currently envisioned as the correct way to conduct and evaluate weather modification field programs, or if they fail to arrive at the correct solution to the problem of quantifying precipitation increases from cloud seeding operations.

The AMS policy statement on planned and inadvertent weather modification appears to reflect the opinions of only a few members of the Society. Perhaps drafts of each policy statement should be circulated to all members who are interested in that area, so that differences of opinion that exist among members might be properly framed and deficiencies might be corrected before adoption.

WILLIAM G. FINNEGAN AND RICHARD L. PITTER
DESERT RESEARCH INSTITUTE
RENO, NEVADA

©1993 American Meteorological Society

