

A COLLECTION OF OBSERVATIONAL DATA

Introduction

The several scientifically conducted cloud seeding experiments reported in this volume indicate that the effect of cloud seeding is substantially more complex than originally anticipated. In fact, it appears that, rather than speaking of *the effect* of cloud seeding, one should speak of *effects* of seeding that occasionally increase the precipitation and occasionally decrease it. The reports suggest several factors which are likely to determine or to influence the character of the effect of cloud seeding: type of clouds and their temperature, winds aloft, possible aftereffects of earlier seeding, and so forth. The understanding of the interplay of these and other similar factors, indeed, the firm establishment of the existence of the various suspected effects, will require new and extensive experimentation. In most favorable conditions, this may take some five or more years and a very considerable expense. In these circumstances it is natural to investigate whether a tentative hypothesis suggested by one particular experiment is consistent with the results of other already completed experiments.

Because of the proverbial variability of weather characteristics, any attempt at a tentative verification of a new hypothesis using the results of a completed experiment must mean an empirical statistical study based on observations collected in the course of that experiment. Usually, the work would need raw data and some observations not available in the published reports. Thus, for example, in order to investigate whether, as a rule, the seeding of cumuliform clouds increases precipitation if the tops of the clouds are -10°C or colder, and decreases the precipitation otherwise (E. J. Smith), it is essential to have information both on types of clouds and on their temperature. Also, it is necessary to be able to sort the data accordingly. While observations on clouds and on their temperatures are frequently made in the course of cloud seeding experiments, the results of such observations are published only in very exceptional cases. This, then, creates a problem of accessibility of observations already made that, in principle, are available.

As indicated in informal conferences after the Symposium with the active participation of Messrs. J. Bernier, K. R. Gabriel, M. Neiburger, E. J. Smith, and F. Yates, there is an additional problem, or a subproblem. Currently, not only are there difficulties in obtaining access to observations that are known to have been made, but also in many cases it is not clear what kind of observations have been performed in what experiment, where the records are kept (if at all) and whether it is easy or difficult to extract the necessary data from the various files.