

## SCS NATIONAL ENGINEERING HANDBOOK 1/

By

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The Soil Conservation Service is issuing "Snow Survey and Water Supply Forecasting" as Section 22 of the SCS National Engineering Handbook, available from the U. S. Government Printing Office.

Section 22 represents the culmination of efforts begun about 20 years ago by R. A. Work, former head of the SCS Water Supply Forecasting Section. For many years Mr. Work had recognized the need for a single publication that would provide detailed information on all aspects of snow surveys and water supply forecasting. Such a publication would be very useful not only to specialists in this field but also to scholars and students.

Through Mr. Work's efforts a first draft was prepared in 1955. This and succeeding drafts were used by SCS snow survey supervisors on an interim basis in coordinating and conducting the Snow Survey program.

Partly because of rapid changes in the development and use of remote sensing and telemetry equipment, official publication was delayed. Although Section 22 will need revision to keep up with steadily improving practices and equipment, this publication fills a definite need. More than 60 years have passed since Dr. J. E. Church began modern snow survey techniques at Mt. Rose, Nevada, during the period 1904 to 1910, yet this is the first official publication of its kind.

Section 22 is designed primarily to provide information for Soil Conservation Service employees who are conducting snow surveys, forecasting water supplies, or assisting in these or related activities. It includes all the procedures currently used by SCS in collecting basic data and in preparing and releasing data and water supply forecasts to water-using groups and the general public.

Since any kind of water supply forecast for streams in the West requires basic data on snow accumulation and depletion, rainfall, and related secondary factors, it is not surprising that four of the nine chapters deal with data collection and processing. One chapter discusses maintenance of installations and equipment. Remaining chapters deal with water supply forecasting procedures, reporting procedures, and administration of the program.

Chapter 2, "Data Collection for Water Supply Forecasting," discusses data site selection and required supplies and equipment along with installation, measurement and recording of snow courses, aerial markers, snow pressure pillows, precipitation gages, and soil moisture and temperature stacks. Measurement and recording of forest canopy cover, along with the use and measurement of evaporation parameters also are discussed.

The section dealing with snow pressure pillows includes data gained at the Mt. Hood, Oregon, test site.

Chapter 3 provides information on "Telemetry in Data Collection," and Chapter 4 discusses "Travel to Collect Data." The chapter on "Telemetry" may contain little for the present field snow surveyor, but the material presented on travel will always be important

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to the field man whether he is a snow surveyor or an electronics specialist. Recommendations on types and use of skis, snowshoes, footwear, and bindings for foot travel are given. Oversnow vehicles are described along with precautions to take in using them. Health, safety, and survival needs are discussed.

Chapter 5 on "Data Processing" deals with various aspects of records and record-keeping, from the field map and field notes to permanent storage of both manual and automatically collected data. It includes microfilming of records, special coding and punching data for computer programming and analysis, and storage of data on punch tape and magnetic tape.

Chapter 6, "Water Supply Forecasting," treats the topics of Theory, Procedure, Significance of Forecasting Variables, Types of Forecasts, and Development of Forecast Formula and Forecast Accuracy. Chapter 7 on "Reporting" will be of principal concern to SCS personnel, Chapter 8 on "Maintenance of Installations and Equipment" will often be referred to by all who are working in data collection at the field level.

Chapter 9, "Administration," deals with Workload and Scheduling, Radio Communication, Training of Snow Surveyors, Cooperative Relations, and Agreements and Program Evaluation.

In announcing this publication, we do so with the hope that others may benefit from its use.