

1983

EASTERN SNOW CONFERENCE

REPORT OF THE SNOW SURVEY SCHEDULE COMMITTEE

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INTRODUCTION:

The Snow Survey Schedule Committee has been established under the Eastern Snow Conference in order to:

1. Formulate and distribute an annual schedule for the field collection of snow-depth and water equivalent data.
2. Maintain liaison with all agencies that collect, analyse, archive or publish and use snow survey information. This includes promoting (a) the concept of uniform scheduling or snow data observations, (b) the value of systematically collected and distributed snow data, (c) the benefits of data exchange and operations in SI units and (d) the use of standard formats and procedures in data generation and handling. The purposes of such liaison and promotion being improvement in the data base and in water resource management for hydro-power, water supply, flood protection, recreation, wildlife and other uses.
3. Promote the development of basin or region wide mapping, analysis and publication of snow survey data products on a timely basis.
4. Encourage evaluation and optimization of snow data measurement sites and total network design.
5. Evaluate and update appropriate snow survey operational rules.
6. Encourage technology development related to snow surveys such as (a) real-time data acquisition and dissemination and (b) remote sensing.

The proposed dates for the snow surveys are generally based on the end of month routine during January and February and on the mid-month and end of month routines during March through May. Measurements of the snowpack are carried out in the Monday to Wednesday period of the week with as many sites as possible being surveyed on Monday. Field surveyed data are then reported to the regional centres on or before Thursday of the week. The logic behind this scheduling system is mainly to ensure the uniformity of survey across Eastern Canada and Northeastern United States in order to

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improve the accuracy in analyzing snow data.

The Snow Survey Schedule for the winter season 1982-83 was prepared by the Committee Members in September 1982 and was mailed to the collecting agencies and interested members of the Eastern Snow Conference on November 9, 1982. The mailing list consisted of 156 names. A copy of the schedule is presented in Appendix I.

SNOW SURVEYS WITHIN THE SAINT JOHN RIVER BASIN

The Saint John River Basin has a unique interprovincial and international geographical location. The basin lies in a broad arc across southeastern Quebec, Northern Maine, and western New Brunswick. The total drainage area is approximately 55,000 square kilometers of which 51 percent or 28,000 square kilometers lie in New Brunswick, 13 percent or 7,000 square kilometers in Quebec and the remaining 36 percent or 20,000 square kilometers in northern Maine.

Cooperative snow surveys are carried out at approximately 100 snow courses within and around the Saint John River Basin. The various agencies collecting snow cover data (snow depth and water equivalent) at these courses are listed below:

New Brunswick Department of the Environment
New Brunswick Department of Tourism
New Brunswick Electric Power Commission
Ministère de l'Environnement de Québec
Environment Canada
Agriculture Canada
Great Northern Paper Company
Maine Public Service Company
U.S. Geological Survey
U.S. National Weather Service

Snow cover data within the Saint John River Basin are collected, as much as possible, in accordance with the Eastern Snow Conference Snow Survey Schedule. The collected data are transmitted by telephone to the Regional Reporting Centre in New Brunswick. As soon as snow cover data for all snow courses for a particular snow survey date are received by the Centre, statistical analyses are performed to relate the snow cover data to their long term average values. Maps depicting the isolines of snow water equivalent, in millimeters and in percent of normal, are also produced. The results of each snow survey analysis are then distributed to interested agencies and individuals.

Snow cover conditions within the Saint John River Basin during the winter season 1982-83 were much below normal as indicated by the results of the snow survey analysis. The basin average snowpack water equivalent varied from 35.2 millimeters on January 31 to 104.1 millimeters on March 15, in comparison with the long term averages of 102.8 and 179.6 millimeters on the respective dates. The water equivalent for the 1983 data as well as the long term averages are plotted versus the survey dates as shown in Figure 1. It can be seen from this figure that the 1983 snowpack water equivalent within the Saint John River Basin varied from 29 to 58 percent of normal.

RECOMMENDATIONS

The recommendations of the Snow Survey Schedule Committee are summarized in the following points:

1. An effort should be made to encourage and maintain the publication of the collected snow data on a regular basis.
2. A publicity program should be formulated and implemented in an aim to raise

the profile of snow data collection programs among various agencies.

3. Some modifications to the present scheduling system seem to be necessary due to the following reasons:
 - i. the present system does not ensure that the same snow survey dates are used year after year which would be useful in performing statistical analysis of the data;
 - ii. various agencies indicated that using the 1st and the 15th of the month as the basis for the schedule would be more appropriate; however, weekends pose a problem in this type of arrangement; and
 - iii. some agencies indicated their desire to start the snow surveys earlier than the usual end of January date, preferably soon after the first snowfall. This is particularly important in areas where mid-winter thaws are experienced.
4. A standardization of snow survey measuring equipment should be encouraged; particularly at this time when various agencies are implementing metrication into their measuring equipment.

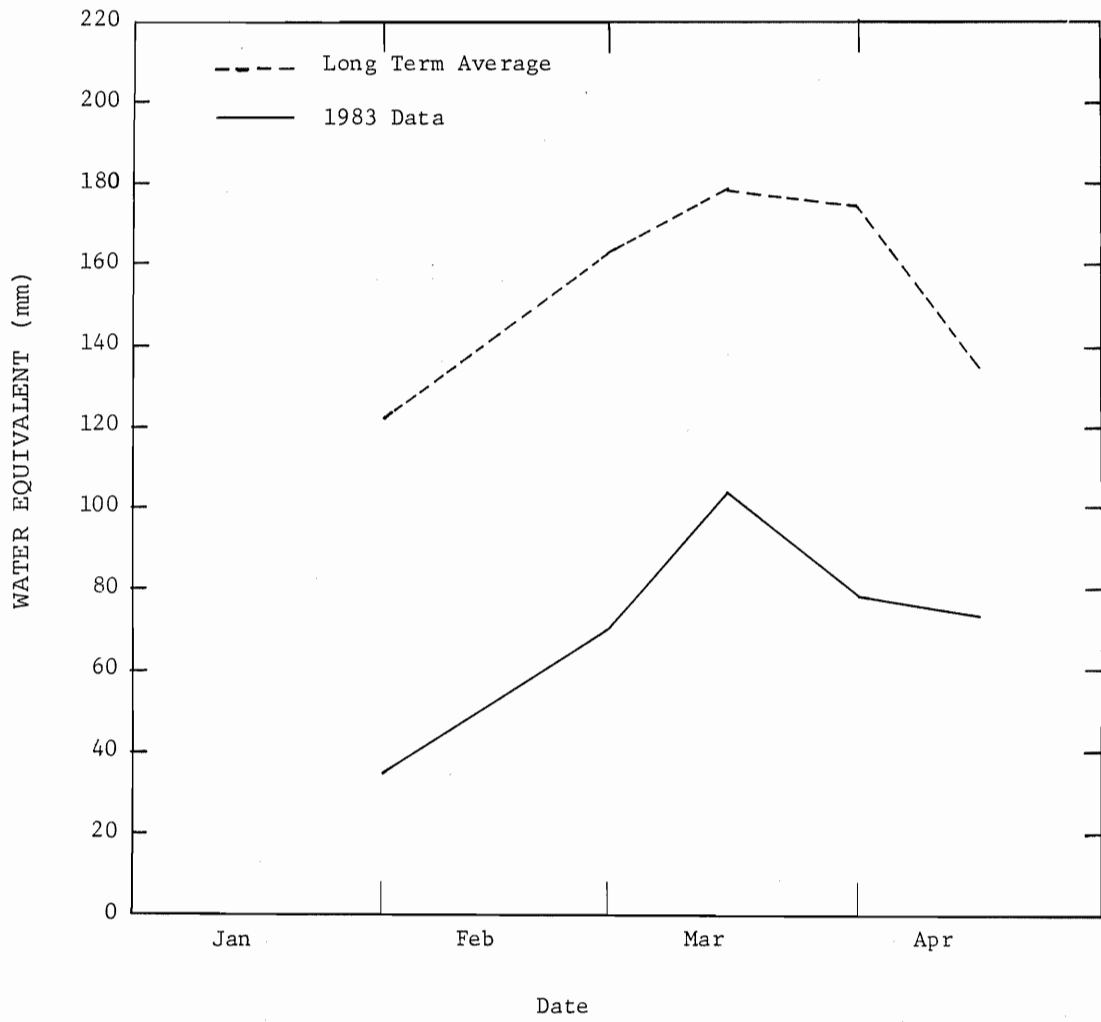


Figure 1. Saint John River Basin - Snowpack Water Equivalent (1983)

APPENDIX I
 EASTERN SNOW CONFERENCE
 AN INTERNATIONAL ORGANIZATION
 IN
 EASTERN CANADA AND THE NORTHEASTERN UNITED STATES
 CONCERNED WITH THE
 ORIGIN, PRECIPITATION, ACCUMULATION, CHARACTER, MELT, AND RUNOFF OF SNOW
PROPOSED SNOW SAMPLING SCHEDULE FOR 1983

<u>Survey Number</u>	<u>Dates 1983</u>	<u>Report Data to Regional Office By</u>
1	Jan 24 - Jan 26	Jan 27
2	Feb 21 - Feb 23	Feb 24
3	Mar 14 - Mar 16	Mar 17
4	Mar 28 - Mar 30	Mar 31
5	Apr 11 - Apr 13	Apr 14
6	Apr 25 - Apr 27	Apr 28
7	May 16 - May 18	May 19

Regional Reporting Centres:

ATLANTIC PROVINCES: Mr. D. McBride, Water Survey of Canada, DOE, 5th Floor, Queen Square, Nova Scotia, B2Y 2N6 Canada

MAINE: Mr. Derril Cowing, U.S. Geological Survey, 26 Ganneston Drive, Augusta, Maine 04330, U.S.A.

NEW BRUNSWICK: Mr. J.G. Lockhart, N.B. Department of the Environment, P.O. Box 6000, Fredericton, N.B. E3B 5H1, Canada

NEW ENGLAND STATES: Mr. Ivan C. Jams II, U.S. Geological Survey, WRD, 150 Causeway St., Boston, Mass., 02114, U.S.A.

QUEBEC: Mr. André Fréchette, Quebec Meteorological Service, Dept. of the Environment, 194 St. Screment, Quebec G1N 4J5, Canada

This schedule has been compiled in accordance with the Eastern Snow Conference Snow Survey Schedule Committee's Operating Rules by Dr. Nabil Elhadi, Mr. André Fréchette and Mr. Hugh Greenan.