

**Proceedings of the
FIFTY-FIFTH ANNUAL**

EASTERN SNOW CONFERENCE

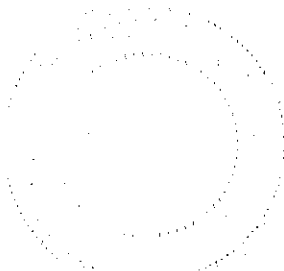
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Proceedings of the Eastern Snow Conference

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FOREWORD

This proceedings contains papers presented at the 55th annual Eastern Snow Conference (ESC) held in Jackson, New Hampshire, USA, on June 2 and 3, 1998. The ESC is a forum that brings the research and operations communities together to discuss recent work on scientific, applied, and operational issues related to snow and ice. Typical presentation topics at the conference include studies of the physics of snow and ice, snow removal, meteorological forecasting, river ice control, hydrochemical response of snowmelt, and remote sensing of snow and ice. The conference program includes oral and poster presentations, as well as displays of scientific equipment.

This year's proceedings contains 18 papers, all of which received at least two reviews. The ESC participants were also invited to submit papers relevant to winter hydrology to *Hydrological Processes*. These papers went through a formal journal review, revision, and referee process and appear both in these proceedings and in the December 1998 issue of *Hydrological Processes*.

We thank members of the Technical Information Branch at the U.S. Army Cold Regions Research and Engineering Laboratory. Over the years this group has contributed considerable time to this publication and has enhanced the quality of these proceedings. The editors especially thank Sandra Smith and Edmund Wright for their efforts in the final production of these proceedings.

Membership in the ESC is open to all interested individuals and corporations. Additional copies of the current proceedings and all back issues can be obtained from the Secretary. The annual meeting of the Eastern Snow Conference is cosponsored by the American Geophysical Union, the American Water Resources Association, and the State University of New York, Oswego Campus. Publication of these proceedings is made possible by membership fees and by Corporate Memberships held by the following companies:

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We look forward to the 56th ESC meeting, in Fredericton, New Brunswick, Canada, in June of 1999.

Susan Taylor
Editor

Janet Hardy
Editor

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The Eastern Snow Conference (ESC) is a joint Canadian/U.S. organization founded in the 1940s, originally with members primarily from eastern North America. Our current members are scientists, snow surveyors, engineers, technicians, professors, students, and operational and maintenance professionals from North America, as well as the United Kingdom, Japan, and Germany. There is a western counterpart to the ESC, the Western Snow Conference (WSC), also a joint Canadian/U.S. organization. Every fifth year the ESC and the WSC hold joint meetings.

The Eastern Snow Conference is a forum that brings the research and operations communities together to discuss recent work on scientific, applied, and operational issues related to snow and ice. The location of the conference alternates yearly between the United States and Canada, and attendees present their work by either giving a talk or presenting a poster. All resulting papers are reviewed, edited and published in our yearly *Proceedings of the Eastern Snow Conference*. In recent years, the ESC meetings have included sessions on snow physics, winter survival of animals, snow and ice loads on structures, river ice, remote sensing of snow and ice, and glacier processes. Volumes of the *Proceedings* can be found in libraries throughout North America and Europe, and the papers are also available through the National Technical Information Service (NTIS) in the United States and CISTI in Canada.

* * * * *

Le Colloque sur la neige-région est (ESC) est une organisation américano-canadienne fondée dans les années '40 et dont les membres provenaient à l'origine surtout de l'est de l'Amérique-du-Nord. Actuellement, les membres, qu'ils soient chercheurs, techniciens en enneigement, ingénieurs, techniciens, professeurs, étudiants, ou spécialistes des services d'exploitation et d'entretien, viennent non seulement d'Amérique du nord, mais aussi du Royaume Uni, du Japon, et d'Allemagne. Le Colloque sur la neige-région ouest (WSC), aussi une organisation américano-canadienne, est l'homologue de l'ESC pour l'ouest nord-américain. Tous les cinq ans, l'ESC et la WSC organisent des réunions en commun.

Le Colloque sur la neige-région est un forum qui rassemble chercheurs et responsables des services d'exploitation pour discuter des travaux récents sur les problèmes scientifiques, opérationnels ou autres dus à la neige et à la glace. Le site de cette réunion annuelle alterne entre les Etats Unis et le Canada. Les participants y présentent les résultats de leurs travaux par des communications orales ou au moyen d'affiches. Ces communications, une fois revues et éditées, sont publiées dans les Annales de l'ESC. Dans les années récentes, les réunions de l'ESC ont inclus des sessions sur la physique de la neige, la survie hivernale de la faune, les forces exercées par la neige et la glace sur les structures et les bâtiments, la glace de rivière, la télédétection de la neige et de la glace, et les processus glaciaires. Les annales de l'ESC sont accessibles dans la plupart des bibliothèques scientifiques d'Amérique-du-Nord et d'Europe. Des copies d'articles peuvent être obtenues du National Technical Information Service (NTIS) aux Etats Unis et son équivalent au Canada, le CISTI.

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THE PRESIDENT'S PAGE

The 55th Eastern Snow Conference in Jackson, New Hampshire, proved a satisfying success. The ESC had not met in New England since our 47th meeting in Bangor, Maine. Speaking for all those who attended, I can say the setting at the Eagle Mountain House and the El Nino-affected weather helped sharpen our interest in the papers and posters presented by the participants, while having the comfortable surroundings of an old New England inn. The Local Arrangements Committee, including Ken Rancourt, Dick Chisholm and Austin Hogan, did an excellent job of ensuring the facilities and hospitalities were top notch. We also had a larger turnout than was to be expected from the preregistration roles, which was a pleasant surprise coming off the hugely successful joint meeting with the WSC and CGU in Banff, Canada, last year.

This year saw some changes as usual. The former Chair of the Research Committee, Jean Stein, resigned mid year due to circumstance beyond his control and we wish him well in his new endeavors. Our Vice President, Ross Brown, picked up the slack to take over the student paper competition for the 55th ESC, in addition to his efforts in organizing the program. Ross also arranged a home for the new ESC web site, and provided a valuable addition by rewriting the web entries announcing the student paper competition, including a clearer set of rules and guidelines. At the ESC we nominated and voted for Susan Hartley to take over the Chair of the Research Committee, which is special since she was a previous award winner in the student competition. She will bring experienced-based insight to the job. Other nominations and successful candidates included Ross Brown, President for the 56th ESC, Dorothy Hall, Vice President, and Mary Albert, Chair of the Steering Committee (also the Snow Foo recipient). I volunteered to chair the Technical Committee with the hope of bringing in more corporate members and participation of the conference.

This year's student paper award, the 1998 Weisnet Medal, was presented to Andrew Grundstein of the University of Delaware for his contribution describing the use of a snow model to estimate mesoscale surface fluxes. Chris Derksen of the University of Waterloo was awarded the runner-up for his contribution toward a new understanding of the spatial patterns of persistent snow cover. Speaking of student contributions, Dick Chisholm and others actively encouraged contributions from local students for the best undergraduate poster. The award went to a group of Professor Bryon Middlekauff's students from Plymouth State College who prepared an impressive poster on a 1997 rock avalanche in Franconia Notch, New Hampshire. The award was presented to Dennis Wilkens who led the group, and who summarized the poster in the oral poster session.

Finally, this year we started making moves toward a kinder, gentler conference with the aim to embrace contributions from many sectors and encourage increasing membership roles from industry and students. After all, this is where the knowledge gets used and where it's passed along. We hope to see the effect of this paradigm in changes to the Proceedings in terms of review and format, and through outreach to the commercial sector and academic institutions.

The 56th Annual Meeting of the ESC will be hosted jointly by the New Brunswick Department of Environment and New Brunswick Power and Environment Canada in Fredericton, N.B., Canada, from 2-4 June 1999. I hope to see you there, and by now you have hopefully seen the first announcements. If not, visit our web site at <http://www1.tor.ec.gc.ca/crysys/esc/>!

Cheers,
Bert Davis
55th President, Eastern Snow Conference