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FOREWORD

This proceedings volume contains papers presented at the 59th Eastern Snow Conference (ESC) held 5–7 June 2002 in Stowe, Vermont, USA. The theme of this year’s conference was “Snow and Ice Impacts on Operations: Theory and Applications.”

The ESC is a joint United States and Canadian forum for discussing recent work on operational, applied, and scientific issues related to snow and ice. It also retains an increasing interest as a symposium where novel approaches to cryospheric science of international significance are presented. The ESC has published an annual series of proceedings since 1952. Typical topics include studies of snow and ice as materials, snow removal, meteorological forecasting, river ice control, snow hydrology, snow chemistry, glaciology, remote sensing of snow and ice, and snow ecology. 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. Additional information about the Eastern Snow Conference may be found at: <http://www.easternsnow.org/>.

We continue with an optional review process and authors may submit extended abstracts or full papers to the Proceedings. This year’s Western Snow Conference (WSC) (<http://www.westernsnowconference.org/>) participants were invited to join the ESC participants in the option of submitting papers relevant to winter hydrology to the international journal *Hydrological Processes*. These papers went through a formal journal review, revision, and referee process, and many appear both in these proceedings and in the December 2002 issue of the journal. Janet Hardy (Engineer Research and Development Center–Cold Regions Research and Engineering Laboratory [ERDC–CRREL]), John Pomeroy (University of Wales in Aberystwyth), Kelly Elder (WSC–USDA Forest Service), and Andrew Klein (Texas A&M University) edited this special issue of *Hydrological Processes* dedicated to ESC/WSC papers.

We thank members of the Information Technology Laboratory at ERDC–CRREL. Over the years this group has contributed considerable time to this publication and has enhanced the quality of these proceedings. We especially thank Gioia Cattabriga and Mark Hardenberg for their efforts on behalf of these proceedings.

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We look forward to seeing many of you at the 60th Eastern Snow Conference meeting in Sherbrooke, Quebec, Canada, 4–6 June 2003. This meeting promises an exciting program with the general theme of “Remote Sensing of Snow and Ice—the State of the Art,” and an anticipated special session on “The Residual Effects of the 1999 Ice Storm.”

Janet Hardy and Susan Frankenstein
ESC Proceedings Co-Editors
ERDC–CRREL

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STATEMENT OF PURPOSE

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), which also is 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. Most 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-region est (ESC) est une organisation americano-canadienne fondee dans les annees '40 et dont les membres provenaient a l'origine surtout de l'est de l'Amerique-du-Nord. Actuellement, les membres, qu'ils soient chercheurs, techniciens en enneigement, ingenieurs, techniciens, professeurs, etudiants, ou specialistes des services d'exploitation et d'entretien, viennent non seulement d'Amerique du nord, mais aussi du Royaume Uni, du Japon, et d'Allemagne. Le Colloque sur la neige-region ouest (WSC), aussi une organisation americano-canadienne, est l'homologue de l'ESC pour l'ouest nord-americain. Tous les cinq ans, l'ESC et la WSC organisent des reunions en commun.

Le Colloque sur la neige-region est un forum qui rassemble chercheurs et responsables des services d'exploitation pour discuter des travaux recents sur les problemes scientifiques, operationnels, ou autres dus a la neige et a la glace. Le site de cette reunion annuelle alterne entre les Etats Unis et le Canada. Les participants y presentent les resultats de leurs travaux par des communications orales ou au moyen d'affiches. Ces communications, une fois revues et editees, sont publiees dans les Annales de l'ESC. Dans les annees recentes, les reunions de l'ESC ont inclus des sessions sur la physique de la neige, la survie hivernale de la faune, les forces exercees par la neige et la glace sur les structures et les batiments, la glace de riviere, la teledetection de la neige et de la glace, et les processus glaciaires. Les annales de l'ESC sont accessibles dans la plupart des bibliotheques scientifiques d'Amerique-du-Nord et d'Europe. Des copies d'articles peuvent etre obtenues du National Technical Information Service (NTIS) aux Etats Unis et son equivalent au Canada, le CISTI.

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THE PRESIDENT'S PAGE

The 59th annual meeting of the Eastern Snow Conference (ESC) in Stowe, Vermont, was a large and dynamic assembly that is another credit to the ESC. The ESC returned to its roots with the theme “Snow and Ice Impacts on Operations: Theory and Applications,” and showed that it focuses on societal issues of the greatest importance, and notable scientific and operational attention. Two persons deserve special recognition and thanks: the Programme Chair, Ken Rancourt, and Local Arrangements Chair, Jamie Shanley, developed a fascinating meeting at a splendid location, finishing with a tour of a famed snow research basin, Sleeper’s River. As a “solo” meeting this year we hosted a large number of papers (55) and registrants (at least 87) who found a convivial and charming atmosphere orchestrated in the Trapp Family Lodge, founded by the singing Von Trapp family. Rather than with the sound of music, the meeting began with the musings of our invited speaker, Don Cline of the U.S. National Weather Service and Chairman of NASA’s Cold Land Processes Mission. Don discussed the implications of the Mission for the future of snow science, in particular its pursuit of the snow operations “holy grail”: confident, frequent, appropriately scaled measurements of snow water equivalent by satellite. Good luck, Don and NASA.

The ESC could not operate without a devoted, industrious, competent, and uncompensated executive. ESC Proceedings Editors Janet Hardy and Susan Frankenstein have done a superb job of editing the *Proceedings* and organizing and formatting the papers in an attractive, professional package. The team of *Hydrological Processes* special issue editors (Janet Hardy, John Pomeroy, Andrew Klein, and Kelly Elder) worked hard with their insightful reviewers to edit the ESC–WSC joint special issue of *Hydrological Processes* (December 2002) with refereed papers submitted from this meeting and the Western Snow Conference. Sadly, Janet is retiring from many years as editor of the *Proceedings* and lead editor of the *Hydrological Processes* special issue; her exceptional skill in handling both authors and publication deadlines without injury or failure will be sorely missed.

The Secretary–Treasurers Miles Ecclestone, Austin Hogan, and Derril Cowing kept our finances afloat and restricted presidential profligacy as much as possible. Sadly again, Austin is retiring after many years of running our finances in a prudent manner and making a difficult job look easy. Our Web master, Andrew Klein, kept the membership informed using the Web and began the substantial task of publishing *Proceedings* on our Web site for all to download and enjoy. Finally, without sage advice we are lost, and Past President Mary Albert provided the same throughout the development of the meeting.

Student participation is the future for snow science and to this end the ESC presents its Wiesnet Medal for the strongest student submission. Claude Duguay chaired the selection committee and this year the winner is Patrick Ménard of Laval University for the paper “Simulation of Ice Phenology on a Large Lake in the Mackenzie River Basin (1960–2000).” Congratulations, Patrick! We have a new addition to this award, the Campbell Scientific Award, supported by Campbell Scientific Canada Ltd., which will be given to the paper demonstrating innovative technical expertise in data collection resulting in a superior oral or poster paper.

The Eastern Snow Conference has a unique award for those who, in striving for excellence, contrive an event of some notable humour to others, even if it involves some personal discomfort. We were honoured this year to give the Sno-Foo Award to Danny Marks, whose skiing accident this spring endangered not only himself but also successful completion of NASA’s Cold Land Processes Mission first year and earned him a well-deserved sabbatical.

The corporate sponsors, Geonor, New Brunswick Environment, Campbell Scientific Canada, Lyndon State College, and the U.S. Army Engineer Research and Development Center–Cold Regions Research and Engineering Laboratory, are thanked for supporting the work of the ESC and providing its members with access to superior information and instrumentation. Finally, contributors of talks, poster papers, and written papers to the meeting and proceedings are thanked for their skill and good humour in this meeting of minds and friends. Thank you, *diolch yn fawr*.

John Pomeroy
59th President
Eastern Snow Conference