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FOREWORD

The 48th annual Eastern Snow Conference (ESC) was held in Guelph, Ontario, on June 6th and 7th, 1991. The program included oral and poster presentations, and displays of scientific equipment. For the first time, all of the papers at the conference were reviewed, and the revised papers appear in these proceedings. The officers of the ESC hope that the newly instituted review process and Honor Paper Award will assist the authors in improving their papers, upgrade the quality of the proceedings and make the ESC an even more valuable forum for discussion of operational, applied, and scientific issues related to snow and ice.

In order to permit the timely reporting of recent results, we collected draft manuscripts at the meeting. The chairman of each session coordinated the review of papers in his/her session. If the chairman was also an author of a paper in the session, the responsibility for review of that paper was shifted to another chairman. At least two reviews were obtained for each paper and returned to the authors. Final camera-ready manuscripts were submitted by the authors in early September. Comments received from the authors concerning the review process were again almost entirely favorable. The clear majority thought that their final manuscripts represented a significant improvement over the draft, and we agree.

In addition to the review process, the 1991 proceedings include the designation of an Honor Paper Award by the ESC. During the review process the referees nominated papers that they considered worthy of consideration for this award. The criteria that were included in this judgment included:

1. Clarity of the written presentation,
2. Originality of the contribution, and
3. Importance of the work in practice or in basic understanding of snow- and ice-related processes.

Three papers received unanimous nominations by the reviewers for consideration as the 1991 Honor Paper. The final camera-ready version of each of these papers was reviewed by a 5-person panel having a broad range of backgrounds and interests. The nominated papers were all of high quality, as indicated in the point totals assigned by the reviewers. The 1991 Honor Paper Award was presented to A. Hewitt, J.H. Cragin and S.C. Colbeck for their paper entitled "Effects of crystal metamorphosis on the elution of chemical species from snow."

Publication of this year's proceedings was accomplished with the assistance of the U.S. Army Cold Regions Research and Engineering Laboratory (Technical Communication Branch, Information Management Division). The editors especially thank Sandra Smith for her exceptional effort in the final production of this document.

The editors have received several inquiries from authors concerning journal publication of papers presented at the ESC and published in these proceedings. We are pleased by this development and consider it a tribute to the quality that is being achieved by the ESC. The ESC is a valuable forum for discussion of recent work, and the session chairs, reviewers and authors have cooperated with the editors to assure the timely publication of the proceedings. We request that for journal publication authors expand the reports of their work published in these proceedings. A final journal paper can discuss the same subject and include the parts of the ESC version that remain relevant, but the contents should not be identical. An acknowledgment of the ESC in the final work would be much appreciated and effective for spreading the word in a very positive way about the Conference.

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 co-sponsored by the American Geophysical Union and the American Water Resources Association. Publication of these proceedings is made possible in part by Corporate Memberships in the Conference held by:

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We look forward to another outstanding meeting in Oswego, June 1992.

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Associate Editor

PROCEEDINGS OF THE EASTERN SNOW CONFERENCE
 FORTY-EIGHTH ANNUAL MEETING, JUNE 5-7, 1991, GUELPH, ONTARIO, CANADA

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THE EASTERN SNOW CONFERENCE

The Eastern Snow Conference (ESC) is a joint U.S./Canadian organization which was founded in the 1940's. It is an association of people interested in research and applied aspects of the study of ice in all its forms, especially snow. The principal activities of the ESC are the organization of an annual meeting, in the U.S. or Canada in alternate years, and the production of the annual Proceedings of the Eastern Snow Conference, which now form more than forty volumes deposited in libraries throughout North America and Europe. The annual meetings are sometimes held in major cities such as Washington, Montreal, Toronto or Boston and sometimes in smaller cities such as Peterborough, Oswego, Portland or Fredericton.

The members of the ESC are a very diverse and, over the years, fluctuating, group. They include professional snow surveyors, engineers and technologists (of various stripes), professors and students, hydrologists and biologists, people responsible for keeping roads clear of snow and rivers free of ice, and others interested in snow and agriculture. The members are drawn from all parts of eastern North America, they live and work in places which extend from Maryland to the high Arctic. The line between the territory of the ESC and its counterpart in the other half of the continent, the equally venerable Western Snow Conference, is not a precise one. Residents of the Mid-west and of the Prairie provinces seem to join one or the other organization on the basis of personal whim such as a preference for Reno, Nevada, over Bangor, Maine, as a desirable meeting place.

In recent years, the annual ESC meetings have included sessions on snow and small mammals, snow and buildings, river ice, permafrost, remote sensing of snow and ice, biology of sea ice, snow and ice on lakes, measuring snow and ice, hydroelectricity and snow and ice, glaciers, icebergs, snow and farming, etc.

Eastern Snow Conference est une organisation internationale canado-américaine fondée dans les années '40. Elle regroupe des gens qui ont des intérêts communs dans l'étude théorique et pratique de la glace sous toutes ses formes, en particulier sous la forme de neige. Eastern Snow Conference a comme activités principales d'organiser sa réunion annuelle en alternant le site du Canada aux États-Unis, d'en produire les comptes-rendus qui se montent maintenant à plus de quarante volumes que l'on peut trouver dans les bibliothèques de l'Amérique du Nord et d'Europe. La réunion annuelle peut se tenir tout aussi bien dans des villes importantes comme Washington, Montréal, Toronto ou Boston comme dans des plus petites comme Peterborough, Oswego, Portland ou Frédéricton.

Les membres d' Eastern Snow Conference représentent un grand nombre de domaines reliés à la neige et la glace. On y retrouve des spécialistes des relevés de neige, des ingénieurs et des techniciens, des professeurs et des étudiants, des hydrologues et des biologistes, des gens ayant la responsabilité d'entretenir les chemins en hiver ou de contrôler la glace en rivière, d'autres ayant quelque intérêt dans la neige et l'agriculture. Tous ces membres viennent de l'est de l'Amérique du Nord et peuvent y habiter de Maryland, U.S.A., à l'Arctique. D'ailleurs la ligne qui sépare le territoire d' Eastern Snow Conference à son pendant de l'ouest la vénérable Western Snow Conference est assez diffuse. Les habitants du centre-ouest américain ou des Prairies peuvent choisir de rallier une ou l'autre organisation sur une base très personnelle comme de préférer d'aller à Reno, Nevada, plutôt que Bangor, Maine, pour leur colloque annuel.

Dans les dernières années, aux réunions annuelles d' Eastern Snow Conference on a tenu des sessions sur la neige et les petits mammifères, la neige et le bâtiment, la glace de rivière, le pergélisol, la télédétection de la neige et de la glace, la biologie de la glace marine, la neige et la glace lacustres, la mesure de la glace et de la neige, l'hydroélectricité et la glace et la neige, les glaciers, les icebergs, la neige et l'agriculture, etc.

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THE PRESIDENT'S PAGE

The 48th Eastern Snow Conference in Guelph, Ontario, was another successful event as a result of the contribution of many individuals; and particularly the authors of papers and the members who made the conference very stimulating.

This has been our second year with the Honor Paper Award Program and we are satisfied with the result. This program has created a participative attitude among the members of the Eastern Snow Conference, and the peer review and constructive comments have resulted in a better publication for the benefit of us all.

We have been planning much in advance for the 50th Anniversary event of the Eastern Snow Conference. A joint meeting with the Western Snow Conference is being organized. An opportunity to meet the members of the Western Snow Conference and an occasion for diverse technical sessions will be of interest to all of us. The 50th anniversary meeting will be held in beautiful Quebec City, and we are hoping for a great attendance.

The Research Committee made an outstanding effort in reaching an ever increasing audience for student paper presentations for the Student Paper Competition as well as for papers for the technical and poster sessions. The winner of the Student Paper Competition this year was Daniel Samelson of Cornell University and the title of his paper was "An Improved Method of Predicting Snowpack Water Equivalent."

The Snow Survey Committee distributed the Snow Survey Schedule and the schedule of Landsat satellite overpasses to the Regional Offices. The schedule is widely distributed in order to ensure the consistency and the continuation of snow data collection. The Committee is working on the compilation of material necessary for the production of a "Snow Video." This video will be used as an educational tool on snow surveying, field measurements and equipment.

The Equipment Committee is busy developing a process which will be utilized for annual articles on specific types of equipment that will be included in the proceedings of the Eastern Snow Conference.

Finally, many thanks to the members of the Executive, the committee chairmen and members as well as the local arrangement committee. It is due to their hard work and dedication that the conference was so successful.

The 49th Eastern Snow Conference will be held in Oswego, New York, which marks our 20th anniversary visit to Oswego. See you all there.

Nabil Elhadi
President
Eastern Snow Conference