

THE HISTORY OF ISSW AND THE ISSW STEERING COMMITTEE

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ABSTRACT: The International Snow Science Workshop began as meetings held informally in the 50s and early 60's. Early meetings were held as special sessions or workshops added to conferences on other topics loosely related to snow and avalanches. As the field grew in size and sophistication, the need for the regular exchange of ideas between practitioners and researchers became increasingly evident. Meetings dealing specifically with snow and avalanches were organized in the 1970's both in Canada and the United States. In 1982, the snow study group at Montana State University organized a meeting that emphasized the importance of interaction and exchanges between practitioners and researchers. This group created the title *International Snow Science Workshop* (ISSW). At ISSW in 1982, an informal meeting of interested parties was held during the conference to discuss the possibility of holding ISSW on a regular basis. Two years later, in Aspen, Colorado, the ISSW Steering Committee was created to provide guidance for future ISSW's.

The Steering Committee has maintained an informal organization, meeting only at ISSW's, but has been successful in evolving guidelines for ISSW's and maintaining an unbroken series of Workshops over the past 22 years. This paper describes the intertwined history of ISSW and the Steering Committee. In addition, it presents the guidelines that have been developed for the Workshops over the years and future plans for ISSW and the Steering Committee.

KEYWORDS: ISSW, History, Steering Committee, Future

1. INTRODUCTION

Snow science and avalanche science in particular in North America was just beginning in the 1950s with a few practitioners and researchers scattered across Canada and the United States. No organized forum or method of information exchange was available at that time. Through the 1950's and 1960's most of the information exchange in this young field occurred on the personal level or occasionally at special meetings or workshops added on to scientific conferences. The number of practitioners and researchers grew quickly in the 1970s and 1980's as winter recreation and economic use of the mountains in the winter increased. In concert with this, the need for an organized and regular forum for the exchange of ideas and experiences between those "doing" research

and those "applying" it became obvious. Especially since there is a frequent blurring between research and application in these fields.

In response to this need, the International Snow Science Workshop (ISSW) has developed into a biennial meeting that emphasizes the sharing and discussing of ideas and experiences ranging from pure research to pure application. The purpose of this paper is to extend and update the history of the ISSW beyond the last published paper on the topic, Montagne and Schaerer (1994) and to document the evolution of the ISSW Steering Committee.

2. EARLY HISTORY

The ISSW has its roots in the meetings held informally in the 50s and early 60s, when practitioners realized the importance of the interdisciplinary exchange of ideas and experiences. The first meeting that brought together government agencies, industries, and users dedicated both to snow and avalanche science was held in April, 1960 in Santa Fe, New Mexico following the

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28th Annual Meeting of the Western Snow Conference. About 30 participants spent two days discussing avalanche control methods - led in part by Monty Atwater. In 1969, the Snow and Ice Subcommittee of the Associate Committee on Geotechnical Research of the National Research Council of Canada added a meeting on avalanches to one of its conferences attracting 188 participants and 12 papers. In 1971, Dr. Ed LaChapelle organized an informal gathering in Seattle that encouraged exchanges between researchers and practitioners. This led to a number of meetings in the US and Canada in the 70s, including Workshops in Banff (1976) and Vancouver (1980) that were increasingly attended and gradually more formal.

In 1982, the snow study group at Montana State University organized a meeting that emphasized the importance of interaction and exchanges between practitioners and researchers. This group was chaired by John Montagne who used special invitations to bring together scientists and practical workers in snow and avalanches. This group created the title "International Snow Science Workshop." In addition, they coined the motto of the Workshop "The Merging of Theory and Practice," which continues to this day. At ISSW in 1982, an informal meeting of interested parties was held during the conference to discuss the possibility of holding ISSW on a regular basis. Aspen, Colorado and Seattle, Washington were offered as possible sites in 1984.

Two years later, in Aspen, Colorado, the next ISSW was presented. At this meeting the ISSW Steering Committee was created to provide guidance and continuity for future ISSW's. The Steering Committee established a biennial rotation of the Workshop through the western North American mountain region with every 3rd meeting in Canada. Two representatives were appointed from each of four US regions and two Canadian regions. No formal term was designated for Committee members, but the membership has grown as the Chairman of each ISSW has become chairman of the Steering Committee at the next ISSW and then remained a voting member, thereafter. Some attrition has

occurred over the years as some members have left, leaving the current Steering Committee at 22 members including two European representatives, as shown in Table 1. In addition, there is a Secretary of the Steering Committee which helps provide a point of contact and helps maintain continuity in the organization. John Montagne served as Secretary from the inception until 2000 when Rich Marriott accepted the position.

MEMBER	STATUS	LOCATION
Adams, Ed	2000 Chair	MT, USA
Bachman, Don	Member	MT, USA
Bennetto, Jack	2002 Chair	BC, CANADA
Birkeland, Karl	Member	MT, USA
Bones, Stan	1990 Chair	MT, USA
Daffern, Tony	Member	AB, CANADA
Fitzgerald, Liam	1994 Chair	UT, USA
Gubler, Hansueli	European Rep	SWITZERLAND
Heywood, Larry	1986 Chair	CA, USA
Jamieson, Bruce	1996 Chair	AB, CANADA
Johnson, Fay	Member	MT, USA
Kellam, Janet	Member	ID, USA
Marriott, Rich	Secretary	WA, USA
Montagne, John	1984 Chair	MT, USA
Moore, Mark	1998 Chair	WA, USA
Newcomb, Rod	2004 Chair	WY, USA
Schweizer, Jurg	European Rep	SWITZERLAND
Staudinger, M.	European Rep	AUSTRIA
Sterbenz, Craig	2006 Chair	CO, USA
Stetham, Chris	1988 Chair	AB, CANADA
Williams, Knox	1992 Chair	CO, USA
Williamson, Bill	Member	CA, USA

Table 1: Members of ISSW Steering Committee, indicating member status and home region.

3. ISSW STEERING COMMITTEE

The Steering Committee has maintained an informal organization, meeting only at ISSW's, primarily to consider bids from future host sites and to handle minor housekeeping issues. Once a local organizing committee is approved by the Steering Committee, they essentially operate as an independent entity. Previous Chairpersons or organizing committee members usually provide organizational guidance. In most instances, several thousand dollars in seed money is passed along from one ISSW to the next, though there is no requirement. In fact, since most organizing committees begin their work four

years in advance of the Workshop, they usually must begin by seeking sponsorships. In the past these have usually been sought from local ski area corporations or the local Forest Service, but increasingly, commercial sponsorships are supporting the Workshops.

The Steering Committee Secretary was originally charged with taking and distributing minutes of the Committee meetings and providing a point of contact during the time between Workshops. Several additional duties have been added over the past several years as the Workshop has grown. The Secretary also keeps track of the progress of the organizing committees several times a year reporting to the Steering Committee members at least once per year on progress and any other issues that may be of concern. This is done in the off year by an email newsletter. In addition, the Secretary helps to maintain the Steering Committee Website which eventually will contain the history and proceedings of ISSW, as well as information to encourage future workshops.

4. WORKSHOP HOSTING GUIDELINES

Over the years the attendance has grown from 220 people including 10 foreign participants in Bozeman in 1982 to more than 700 at Jackson Hole, Wyoming at ISSW 2004 with registrants from 14 countries. The Steering Committee has evolved a series of guidelines for future hosts and hosting sites. These guidelines have evolved over the past 30 years and are based on the experience of many hosting sites and attendees. Although they are not requirements, it is hoped that hosting sites will broadly follow these suggestions.

4.1 Timing of Workshops

Members of the snow and avalanche community have a definite pattern to their years, which for many leaves only small windows when they might easily attend a workshop. Early autumn has been determined to be the best time for the meeting. It is a time when people are gearing up for the coming winter and can bring excitement to the meetings. Experience over the years has shown that the optimal time for the Workshop is about

the first week of October though scheduling of facilities usually makes it fall somewhere from the last week of September through the second week of October. Earlier dates often catch people still involved in their summer activities and later often conflicts with preparations for the coming winter. Dates that span September and October cause funding problems for federal workers, as it spans the end of their fiscal year.

4.2 Location of Workshops

It is preferred that the meeting be held in a "mountain environment", though not necessarily at a Ski Resort. ISSW in 1998 in Sunriver and 2002 in Penticton were both in the lowlands, but provided a mountain feel. Perhaps the overriding feeling is that it should not be held in a strictly urban setting. As ISSW has grown this has become an issue at times due to the size of the facilities that are required to accommodate the participants.

4.3 Number of Attendees

Hosting sites should be able to seat at least 600 people, preferably in a theater arrangement. This problem was uniquely handled in Penticton by having the Workshop simulcast to another room where participants could watch the presentations and also interactively ask questions afterwards.

A similar simulcast venue is anticipated at ISSW 2006, along with plans to broadcast the Workshop sessions and the banquet over the local television channel.

4.4 Affordability

Many people working in the snow and avalanche field have only limited resources for attending meetings. As a result it is important that the Workshops remain affordable to individuals of modest means. This is both in terms of registration costs and accommodations. Registration costs have increased in recent years and a future problem for the Steering Committee will be to find a way to limit these increases so that the average worker in the field can afford to register. This may need to include "scholarships" or discounts on registration.

Affordability must extend to accommodations, again often a problem in the resort setting of many of the Workshops. Local Organizing Committees have usually negotiated some discounts on the available rooms. In all instances, camping facilities have been available near by.

4.5 Presenters

Finally, and probably most importantly, organizing committees are urged to make a special effort to encourage and include papers or posters from practitioners. Field workers are often reluctant to report on their experiences or solutions to problems in the field, either because they lack the time or are intimidated by the paper writing process or the prospect of presenting a paper at a Workshop populated, in part, by professional researchers. Organizing committees almost always try to make it as easy as possible for practitioners to present their work and they are usually given more leeway in how they present their information and what is required for the Proceedings.

4.6 Lead Times for Workshops

The Steering Committee attempts to have sites scheduled approximately 4 years in advance. At the Steering Committee meeting in Jackson Hole in 2004, Telluride Colorado was approved as the official site of ISSW 2006 and tentative approval was given to a group from Whistler, British Columbia to host ISSW 2008. Possible organizing groups for 2010 and 2012 are encouraged to contact the Steering Committee.

4.7 Local Organizing Committees

Workshops take enormous effort and many hours of volunteer work on the part of local organizers. Most ISSW organizers solicit the help of commercial or governmental sponsors for both seed and some salary money, as well as help in setting up a web site. Organizing committees typically assign individuals as Chairs to address topics such as: papers, proceedings publication, audio-visual, banquet, posters, commercial vendors,

lodging and meals, and field trips among others. The overall Chairperson then coordinates communications between the various Chairs and helps ensure that all facets of the workshop come together as intended.

5. ISSW's 1976 - 2004

The biennial meeting has seen constant growth in the number of registered participants, papers, posters, commercial exhibitors and foreign countries represented.

5.1 Banff, AB - Nov. 1-4, 1976

Peter Schaerer and Ron Perla were Chairs. 120 participants presented 35 papers and represented 4 countries.

The three day workshop was devoted wholly to avalanche technology including the major themes of avalanche control, forecasting and safety. Discussion of papers was the byword of this meeting. Vigorous discussions of the papers were, according to Ron Perla, "allowed to drift according to the interests of the participants - more in the spirit of a workshop than a formal conference". Here the emphasis of ISSW began to take shape. In fact, parts of the discussions were included in the proceedings of the meeting. A field trip to Rogers Pass was held after the meeting.

5.2 Vancouver, BC - Nov. 3-5, 1980

Peter Schaerer was the Chair. 250 participants presented 28 papers and represented 4 countries.

The workshop format continued, although the size had more than doubled since 1976. An attempt was made to "...bring together those engaged in programs of avalanche protection, in order to exchange ideas, review recent experience, and define needs for development and research." Topics were limited to avalanche hazard forecasting and public education, but this included papers on the collection of snowpack and weather information, as well as techniques in hazard evaluation. Each session began with a speaker who summarized the topic. Additionally, meetings of avalanche safety

operators in Canada led to the formation of the Canadian Avalanche Association. A field trip was held to Whistler Ski Area.

5.3 Bozeman, MT – Oct. 21-23, 1982

John Montagne was the Chair. 220 participants presented 36 papers and represented 11 countries.

This was the first meeting held under the title “International Snow Science Workshop”. The motto “A Merging of Theory and Practice” was first introduced at this meeting, crystallizing and formalizing the philosophy that had been evolving in earlier meetings. Special invitations were sent to researchers and practitioners to encourage interchange of ideas. Topics included avalanche zoning, grooming cross-country ski trails, bomb trams and post control releases. In addition, the first issues of the *Avalanche Review* were distributed by its publisher, Sue Ferguson. Ed LaChapelle was the banquet speaker. A field trip to Bridger Bowl Ski Area followed the meetings.

5.4 Aspen, CO – Nov. 24-27, 1984

M. (Pete) Martinelli was the Chair. 335 participants presented 35 papers and represented 6 countries.

Although not listed as a Chair, Greg Mace was one of the driving forces bringing ISSW 1984 to Aspen. Speakers were encouraged to focus their presentations on practical or operational applications. Discussions following the papers succeeded in expanding the topics and introduced site-specific applications and considerations. Among the topics presented were avalanche frequency and occurrence, beacons and rescue, stability and forecasting, and the French Avalanche Education Program. 12+ posters were presented. A large evening gathering was held at the Jerome Hotel to increase the opportunities for discussion. The field trip was to Aspen Highlands Ski Area. Andre Roch was the banquet speaker.

5.5 Lake Tahoe, CA – Nov. 22-26, 1986

Larry Heywood and Danny Marks were Chairs. 250 participants presented 34 papers and represented 6 countries.

The emphasis on reviewing developments in snow and avalanches and then defining needs for future developments and research continued with a discussion following each paper. Among the topics presented were several quantified snow theories and a thorough review of the legal implications and control policies involved with the recent Alpine Meadows accident. 11 posters were presented along with 12 commercial exhibitors. Additionally, a special meeting (organized by Sue Ferguson) was held to establish the American Association of Avalanche Professionals (now the American Avalanche Association). Barry Bunshoft, an attorney, was the banquet speaker. A field trip to Alpine Meadows followed the meeting.

5.6 Whistler, BC - Oct. 12-15, 1988

Chris Stetham was the Chair. 310 participants presented 33 papers and represented 8 countries.

Following each paper, participants were encouraged to share their experiences and discuss future needs in research and development. Among the topics presented were avalanche control methods, numerical models of avalanches and mountain weather, and avalanche forecasting. 14 posters and a new film were presented along with commercial exhibits. The international commission on the Classification of Snow met and discussed standards of operation. Additionally, biennial meetings of the membership of the Canadian Avalanche Association and the American Avalanche Association became part of the ISSW agenda. Peter Schaerer was the banquet speaker. The field trip visited the Whistler/Blackcomb Ski Area.

5.7 Big Fork, MT Oct. 9-13, 1990

Stan Bones was the Chair. 360+ participants presented 33 papers and represented 11 countries.

Among the topics presented were avalanche warning systems in Spain, quantitative studies of snow properties and avalanches, spatial variability of snow, and the effectiveness of air blasting in avalanche release. 6 posters and 8 commercial exhibits were presented. Two field trips were conducted, one to Big Mountain Ski Area and a second to Glacier National Park to the Goat Lick Spring Avalanche. The banquet was done as an afternoon BBQ and John Montagne was the speaker.

5.8 Breckenridge, CO – Oct. 4-8, 1992

Knox Williams was the Chair. 357 participants presented 36 papers, and represented 10 countries.

Among the wide ranging topics presented were the friction of snow on skis, snow management in ski areas, the Gaz-ex avalanche control system, experience with rutschblock tests, multi-frequency avalanche rescue beacons, traffic management for avalanche safety, and avalanche education in Japan. 14 posters and 11 commercial exhibits were presented. The tradition of a video and slide night was held for everyone to bring things of interest to show. The 10th Anniversary of the Avalanche Review was also celebrated. Ed LaChapelle was the banquet speaker. The field trip to Breckenridge Ski Area was cancelled due to a snowstorm.

5.9 Snowbird, UT Oct. 30-Nov. 3, 1994

Liam Fitzgerald was the Chair. 400+ participants presented 59 papers and represented 11 countries.

The largest number of formal presentations ever at ISSW allowed a wide range of topics including snowpack properties, avalanche warning systems in Switzerland, blowing and drifting snow, avalanche policy and litigation, and control methods. Even a paper on bacterial protein for snowmaking was given. This large number of papers was accommodated by having concurrent sessions with many papers available at the conference individually for a copying charge. 13 posters and 12 commercial exhibits were presented. Numerous attendees were forced to leave

when winter arrived early in the Pacific Northwest and ski areas began to open.

5.10 Banff, AB – Oct. 6-11, 1996

Bruce Jamieson was the Chair. 478 participants presented 40 papers and represented 14 countries.

ISSW returned to Banff after 20 years. Ten session topics were presented including instruments and methods for measurement of snow and avalanche properties, avalanche dynamics and defense, snow cover stability, avalanche initiation, and forecasting, and a session on case histories. 30 posters were presented in a special format. Each presenter gave a 3 minute summary of their poster followed by a dedicated poster session to encourage discussions. There were 13 commercial exhibitors. The field trip was to Revelstoke. Jim Haberl spoke about his ascent of K2 for the banquet which was attended by 320 people.

5.11 Sunriver, OR – Sept. 27-Oct. 1, 1998

Mark Moore was the Chair. 500+ participants presented 61 papers and represented 12 countries.

Several groups used ISSW as a meeting place. The Canadian Avalanche Association, the American Avalanche Association, the Avalanche Artillery Users of North America, and the National Avalanche School Instructors all met. The large number of papers was accommodated by shorter presentations with a summary discussion at the end of the session topic. Topics included specialized sessions in mountain weather and climate, regional avalanche forecasting, legal liability, the effects of warming rain, and snow stability testing. Following the example of Banff, an afternoon was dedicated to 25 posters. To encourage attendance, snacks were served with a no host bar. A drawing was held for door prizes at the start of each session to encourage attendees to be in their seats when the session began. 15 commercial exhibitors were present. Banquet speakers were Ed LaChapelle and Norm Wilson. After the meetings a field trip to Timberline Lodge and

Mt. Hood was held, and a golf tournament was offered as an alternative.

5.12 Big Sky, MT – Oct. 1-6, 2000

Ed Adams and Fay Johnson were the Chairs. 650+ participants presented 64 papers and represented 18 countries.

ISSW 2000 saw the largest number of attendees and largest number of formal presentations to date. 51 posters were also presented during the week with an afternoon session dedicated to posters with refreshments provided to encourage attendance and discussion. A wide breadth of topics was covered in the oral and poster presentations. These included snow metamorphism and modeling, avalanche warning systems and alpine engineering, and a session on avalanche education and risk management.

The number of papers was accommodated by shorter presentations (about 20 minutes) followed by a discussion period at the end of the topic session. ISSW 2000 also offered a midweek field trip to Lone Peak at Big Sky to view avalanche problems and other features, followed by the Banquet that evening. Gordon Wiltsie, a free-lance photographer and writer was the banquet speaker. 20 commercial exhibitors also attended.

5.13 Penticton, BC – Sep. 29-Oct. 4, 2002

Jack Bennetto was the Chair. 618 participants presented 55 papers and represented 19 countries.

Innovation characterized 2002. The oral presentations were watched both in the meeting hall and in a simulcast room that provided live telecasts of the presentations and the opportunity to ask questions in a more comfortable and less structured environment which encouraged discussions. In addition, access to the Internet and to presented papers was provided. For the first time the proceedings were disseminated primarily on CD. 57 posters were presented in a dedicated afternoon session with refreshments. Some of the topics covered by the oral and poster presentations were mountain weather, rescue and survival,

spatial variability of snow stability, avalanche control and static defenses. Once again a midweek field trip was offered to view avalanche problems and solutions on the Coquihalla highway by bicycle. A wine tasting tour was offered as an alternative. The first host country versus world softball game was held. 35 commercial exhibitors attended the meeting.

5.14 Jackson Hole, WY – Sept. 19-24, 2004

Rod Newcomb was the Chair. 736 participants presented 55 papers and represented 14 countries.

The growth of ISSW continued in 2004 with well over 700 registered attendees who were easily accommodated by the Walk Festival Hall. A 25 foot projection screen with a bright projector made presentations easily viewed. The Organizing Committee was very successful in obtaining major sponsorships to support the Workshop. 68 posters were presented in a dedicated afternoon session with refreshments. Oral and poster presentations covered the full range of "Theory and Practice". Papers ranged from the use of radar to measure snowpack properties, to search and rescue, to using direct human observations to interpolate between instrumented weather sites. A highlight presentation was given by High School Student, Erica David, who presented original research on snow fences using a home made wind tunnel and dishwashing powder. A midweek field trip was offered to view avalanche problems and solutions on Teton Pass or with the Jackson Hole Ski Area. The keynote speaker for the banquet was Grand Teton Climbing Ranger Renny Jackson. 35 commercial exhibitors attended the meeting. The proceedings were disseminated on CD and in a bound version.

6. FUTURE OF ISSW

Informal inquires are being made to return ISSW to California (for the first time in over 20 years) in 2010 and possibly to Sun Valley, Idaho in 2012. However, no formal presentations have been made to the Steering Committee, as of this writing.

In the past, local organizing committees have always approached the Steering Committee proposing a site, usually at least 4 years in advance. However, should this not happen in the future, the Steering Committee is prepared to actively seek potential hosting sites and local organizing committees.

The Steering Committee decided in 2002 to try to increase its profile at ISSW's and on the Internet to encourage a continuing interest from future hosting sites and to provide a permanent link to past ISSW's and past ISSW presentations. A permanent poster display is now presented at each ISSW featuring the history of ISSW and the Steering Committee. A website is now operational at www.issw.info. The History of ISSW is presented along with a listing of the Steering Committee Members. There is a separate page for each of the ISSW's since 1976. This contains a brief summary of each of the meetings and a picture of the "official" T-shirt. In addition, the proceedings from ISSW 1996, ISSW 2002, and ISSW 2004 are currently available online through the site. Links are also provided selected papers from 1994 and 1998 scanned in by Westwide Avalanche Network and earlier sponsors. The Steering Committee is starting on a project to digitize all of the earlier proceedings and make them available online through the website over the coming years as funds become available.

Finally, it is hoped that more historical information, including pictures and stories of the Workshops, will be added to the site to preserve the history and the flavor of the people and places that have made ISSW what it is today.

7. CONCLUSION

ISSW has become a pivotal event for the exchange of ideas among and between practitioners and researchers in the snow and avalanche field both in North

America and the rest of the world. Increasingly professional associations in the field are using the venue of ISSW as an opportunity for meetings. Participation continues to grow as does the number and variety of presentations. Both practitioners and researchers find value in the information that is exchanged and in the relationships that are created at the Workshops.

Even though the size and scope of the Workshops have grown over the years, it has been successful without much permanent structure to support it. This is a testimony to the character of the avalanche and snow science community. Individuals who believe in the importance of this information exchange make a commitment to present an ISSW and then follow through on their obligation. However, to insure that the Workshops continue to occur biennially and continue to serve the needs of the snow and avalanche community, the ISSW Steering Committee will continue to provide guidance and support as needed to organizing committees. In addition, the Steering Committee will help to document and make people aware of the history of ISSW.

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REFERENCES

Montagne, J. and Schaerer, 1994. I.S.S.W. Past, Present, and Future. ISSW '94 Proceedings, Snowbird, Utah. 105-115