AVALANCHE NEWS NO. 12

JUNE 1983

EDITORIAL NOTE

The intention of AVALANCHE NEWS is to assist communication between persons and organizations engaged in snow avalanche work in Canada. Short articles cover reports of accidents, upcoming and past events, new techniques and equipment, publications, personal news, activities or organizations concerned with avalanche safety, education and research. Contributions are expected from the readers.

Avalanche News is issued three times per year, usually in January, June, and October. There is no subscription fee. Requests for copies and notifications of changes of address should be sent to the publisher.

Editor: Peter Schaerer
National Research Council of Canada
3904 West 4th Avenue
VANCOUVER, B.C. V6R 1P5

Telephone: (604) 732-4829

Publisher: Geoff Freer
Snow Avalanche Section
Ministry of Transportation and Highways
940 Blanshard Street
VICTORIA, B.C. V8W 3E6

Telephone: (604) 387-1738

AVALANCHE NEWS

Canadian Avalanche Association, 3904 West 4th Ave., Vancouver, B.C., V6R 1P5

June 1983, No. 12

SNOW AND AVALANCHE CONDITIONS
WINTER 1982-1983

The principal characteristics of the weather in Western Canada during the past winter were low precipitation and well above average temperatures. The total precipitation was above average on Vancouver Island and the South Coast but decreased toward the North. Major storms moved along south of the International Border with a strong variation in precipitation at the northern edge of the storm track. Often significant differences in snowfall were observed even in adjacent valleys.

The high temperatures caused the precipitation to fall in the form of rain at low elevations and the snow lines to move upslope. As a consequence few avalanches were observed at low elevations. Some highways which are located in active avalanche areas, for example the Fraser Canyon and the Terrace-Prince Rupert route, were not hit by avalanches this winter.

At higher elevations the avalanche activity was about average. Numerous avalanches were observed in January and February, but the snowpacks stabilized later under the high temperatures, and deep spring thaw avalanches were almost absent. Two or three surface hoar layers that had formed at the end of December and in January were responsible for unstable snow for a long period from January into March.

This condition produced unusual slab avalanche fractures which propagated over wide areas into adjacent slopes and at locations where they were not expected. Although the avalanches were wide they were not deep and usually ran only a short distance. The instability seemed to prevail longest in the Purcell Mountains where it restricted skiing to safe slopes for a long time.

AVALANCHE INCIDENTS IN CANADA
WINTER 1982-1983

Compiled by Paul Anhorn
National Research Council

The Avalanche Centre of the National Research Council received reports of 34 incidents with persons or equipment involved in avalanches. The reporting period covers October 1, 1982 to May 31, 1983. Probably more persons than reported were caught and partially buried in avalanches.

Number of Incidents

15 incidents involved skiers in or near a ski area
13 incidents involved backcountry skiers
5 incidents concerned maintenance personnel on highways
1 incident involved a group of mountaineers on snowshoes

Of these incidents 9 occurred in the Rocky Mountains, 18 in the Interior Ranges, 6 in the Coast Mountains, and 1 on Vancouver Island.

Persons Involved

12 persons were in vehicles caught by avalanches
18 persons were caught but remained on the surface
18 persons were partially buried
4 persons were completely buried and rescue alive
3 persons were completely buried and found dead

Of the persons who were completely buried and rescued alive:

1 was found by an article on the surface
1 was found by digging
1 was found when a rescuer heard his shout, then probed and verified the location by metal detector
Of one the means of detection is unknown

Of the persons who were recovered dead:

1 was found by rescue transceiver
1 was found by digging
1 was found by probing and shovelling

Vehicles

1 vehicle was trapped
3 vehicles were partially buried

Structural Damage

An avalanche damaged the Conrad Kain hut in the Purcell Mountains.

Fatal Accidents

Three persons lost their lives in avalanches.

On November 27, 1982 a group of seven mountaineers were caught in an avalanche at Mount Sheer near Britannia Beach, B.C. They were hiking down when they released a slab which carried them 200 m down into a shallow gully. Four of them were partially buried and two were completely buried. The lowest person on the slope was found unconscious after 20 to 30 minutes under 1.5 m of snow. He died of asphyxiation. The others were unhurt. The survivors stated later that swimming and fighting during the descent of the avalanche saved them from being buried.

On January 8, 1983 two skiers were caught in an avalanche at Apex Alpine ski resort near Penticton, B.C. They were skiing in a treed gully when the upper skier started a slab under his feet. He was tossed against a tree and partially buried. The lower skier was completely buried and found 20 minutes later with probing and shovelling by an organized rescue party. The cause of death was suffocation.

On February 13, 1983 a guide after landing with a helicopter took a group of skiers down the east side of Tent Ridge near Canmore, Alberta. The guide started an avalanche about 150 m from the ridge. He was carried down 300 m and completely buried. Members of his party located him quickly by transceiver and dug him out, but he was pronounced dead on the scene.

Bulldozer Operator Completely Buried

The following accident was report by Frank Baumann (Squamish, B.C.).

On February 14, 1983 an employee of a forest operation was clearing avalanche snow off the logging road in the Ashlu River valley north-west of Squamish, B.C. Heavy rain and high tempertures had plagued the West Coast for several days causing severe debris flows, flooding at low elevations, and wet snow avalanches at higher elevations. At 1430 hours on February 14 a large avalanche of wet snow roared down Rab Creek, pushed the D-8 bulldozer off the road, covered it and continued for another 200 m distance partially damming the Ashlu River.

Nearby workers quickly combed the debris but could find no clues. At 1635 hours the Squamish Rescue and the R.C.M.P. arrived, equipped with probes and a metal detector. Coarse probing was started immediately while other rescuers did a quick search for clues below the last seen point. At 1645 hours one of the rescuers heard a call for help from below the snow, directly in line and 20 metres below the last seen point. This area was immediately probed and sounded with the metal detector. The top of the bulldozer was located under about 1.5 m of hard snow, and after ten minutes of digging, a smiling and uninjured operator emerged from the partially filled cab of his bulldozer, to the cheers of his fellow workers and the rescuers. A large air pocket in the cab and rollover cage of the bulldozer kept him alive for 2 1/2 hours, despite the heavy, wet nature of the snow. While imprisoned he tried to dig himself out with his hard hat and jackknife.

The elevation of the accident site is 350 m and the avalanche had started at least 500 m above. The snow debris was 10 m to 15 m deep, 100 m wide, and filled the creek for a length of at least 1 km.

Despite the seemingly hopeless nature of this accident, a systematic search starting from the last seen point quickly located the victim. Probing in the ice-hard snow turned out to be very difficult but the metal detector would have located the machine within a few minutes if the hasty searchers had not heard the voice first.

The incident shows that supervisors and personnel working on forest roads must keep in mind avalanche hazards and apply standard safety measures when necessary.

AVALANCHE ACCIDENTS IN OTHER COUNTRIES

The International Committee on Alpine Rescue has released statistics about the numer of avalanche accidents in the countries of its members. The reporting period covers the winter 1981-1982 plus the summer 1982.

Country	Backcountry Skiers	Mountain Climbers	Skiers Near Ski Areas Outside Marked Runs	Skiers Inside Ski Areas	Personnel of Industrial Operations	On Roads	In Residences	TOTAL
German Fed. Republic	-	-	-	-	-	-	-	-
Austria	25	2	3	-	2	-	-	32
Canada	-	5	3	-	-	1	-	9
Spain	-	1	-	-	-	-	-	1
U.S.A.	6	2	2	-	-	4	4	18
France	13	3	11	1	-	-	-	28
Italy	11	4	3	-	1	1	-	20
Lichtenstein	-	-	-	-	-	-	-	-
Norway	-	-	2	-	-	-	1	3
Poland	-	2	-	-	-	-	-	2
Switzerland	6	8	5	-	-	1	-	20
Czechoslovakia	-	-	-	-	-	-	-	-
Yugoslavia	-	-	-	-	-	-	11	11
TOTAL	61	27	29	1	3	7	16	144
Percent	42	19	20	1	2	5	11	100

AVALANCHE HAZARDS ON EASTERN ICE-CLIMBS

Submission by Kevin O'Connel
(Safety Committee, Alpine Club of Canada)

Over the past twenty years the type of avalanche victim has shifted from people on roads, in industrial operations, and residences toward skiers and mountain climbers. The following story tells us that avalanche hazards in climbing are also real in the eastern part of this continent and that avalanches form there under the same conditions as they do in the mountains of the West. It may serve as a warning to ice climbers anywhere.

In the Adirondacks of upper New York state, isolated avalanches do occur on the great slide zones of Mts. Colden, Giant and Gothics during the winter months. In the Adirondacks, the slide zones tend to be popular summer and winter ascent routes. In general, the snow conditions in the East produce a consolidated and stable snowpack and, except in the Mt. Washington area, no avalanche warnings are routinely issued. Eastern climbers are relatively unaware of potential snow or ice avalanche hazards in the mountain recreation areas.

In recent years, particularly with the increased interest in ice climbing, a number of reports have been received regarding ice and snow slides on Chapel Pond Slab which is located on the east side of Round Mountain in the high peaks region of the Adirondack State Park. The Chapel Pond Slab is a popular and accessible granite slab approximately 200 m high, with slopes of about 40° on the lower apron, 65° to 70° on the mid-section and about 40° to 50° near the top. Good water ice is frequently found in the mid-section of the slab with snow most often occurring on the top and bottom sections.

On March 8, 1975 an avalanche accident occurred on this slab which involved a total of seven climbers in two separate groups. The avalanche resulted in serious injuries to four of the climbers, but fortunately no deaths. Prior to the incident, overnight snowfall of about 10 cm had been recorded and in the early part of the day, the sky was overcast with low broken cloud and light snow falling. Winds were gusting up to 40 km/h and the morning temperatures of about -4° warmed up to 0° around noon as a three-man party neared the top of the slab after one and one-half hours of climbing. The ice slab was described as being well formed and the leader was belaying from a single well placed wart hog driven into the ice on a 40° to 50° pitch near the end of the climb which would have been on an easy snow-covered slab.

The snow above the belay point on the ice was described afterwards as being "flat" in appearance, and the wind had apparently deposited up to two feet of snow. The exit to the climb above the belay was about 15 m wide by 50 m long. This exit snow slab suddenly fractured without warning, to its complete two foot depth, 15 m wide. A crescent-shaped fracture line was left at the top of the slab just where the angle steepened. The snow had a loose consistency and was apparently not bonded to the ice. The climbers were unaware of the ice layer underneathe the snow slab until the slab released and had not considered the possibility of an avalanche occurring under the conditions they had observed.

The leader was well under the snow as the slab avalanched over him and he was uncertain whether the belay anchor had pulled out or the carabiner had broken or come unclipped. The rapid descent of the roped party of three resulted in the leader's leg breaking as he went over a block and attempted to arrest his fall by digging in his crampons. He was unable to use his ice axe in the tumbling descent. The party stopped about 50 m from the bottom of the slab when it tangled with a four person party making the same ascent. Injuries were sustained by members of both parties.

Details of this accident were originally reported in the Lake Placid News on March 13 and April 3, 1975.

AVALANCHE SAFETY MEASURES QUESTIONNAIRE

Submission by Chris Sadleir
Parks and Outdoor Recreation division
British Columbia Ministry of Lands, Parks and Housing
Box 118
Wasa, B.C.
V0B 2K0

At Mount Assiniboine Provincial Park a pilot study concerning the avalanche safety equipment carried by Parks visitors was conducted between December 1982 and March 1983. Parks personnel completed a questionnaire through interviewing individual groups of skiers. The principal objective of the program was to test the questionnaire, the reaction of the public and the value of the project.

1. The Questionnaire

Attached is a copy of the questionnaire which was changed considerably based on experiences gained during the test.

The questionnaire was printed on both sides of stiff waterproof paper about the size of a standard fieldbook page.

For groups of up to five persons the survey took approximately five minutes to complete. Larger groups up to ten took anywhere between 8-12 minutes.

2. Reaction of the Public to Being Surveyed

No one refused or even objected to being sampled. The sampling was done by uniformed Park staff. However, staff felt there would have been no problems if they had not been in uniform.

Once questioning had begun, the common reaction of people was to become defensive about their actions (or lack of action). Often it had to be explained that the survey was for information purposes only and that no judgement was being passed. This satisfied everyone and information was easily obtained.

In summary, it appears that if questionners identify themselves in some manner, e.g. by wearing a uniform, or saying "I'm from the Canadian Avalanche Association", and if people are reassured that they are not being tested or judged, few problems will surface when conducting such interviews.

3. Results

Following is a summary of the results. They are a simple compilation of data and are not intended to be statistically significant, nor do they contain all the information that could be obtained through cross-tabulation.

The interviews covered 28 groups (of which 20 skied in avalanche terrain) with a total of 116 individuals.

Objective 1:

To determine if skiers travelling in avalanche terrain have the equipment to carry out a self rescue.

Transceiver

- 82 individuals or 71% carried a transceiver
- of the 20 groups that skied in avalanche terrain 10 groups or 50% had each member carrying a transceiver
- of the 82 people carrying a transceiver 55 or 67% borrowed or rented their unit

Shovels

- 55 people or 47% carried a shovel
- of the 20 groups that skied in avalanche terrain 17 groups or 85% had at least one shovel and 11 groups or 55% had at least one shovel for every two persons

Probes

- 14 people or 12% carried a probe
- of the 20 groups skiing in avalanche terrain 6 groups or 30% carried at least one probe; only 3 of these groups carried more than one probe

The people who did not carry a transceiver gave the following responses:

11 said they did not feel they were in terrain that required one
1 did not ski enough
1 did not want to be rescued when caught
1 meant to pick up a rental unit but forgot
1 travelled solo, therefore nobody would hear the beep

Objective 2:

To determine if skiers have an understanding of avalanches and possess the knowledge to avoid or travel safety through avalanche terrain.

Participation in an Avalanche Course

Course Length (Days)	0	1	2	3	4	5	6	7	14
Number of Individuals	75	4	11	5	12	4	1	2	2
Grouping of Knowledge	65%		16%			13%			6%

35% of the individuals had at least a basic awareness of avalanche hazards.

70% or 14 groups who skied in avalanche terrain had at least one member who had formal training of at least two days, 6 groups did not.

Objective 3:

To determine if skiers have the training and familiarity with techniques and equipment to effect a quick recovery.

19 people or 70% of the people who own transceivers have owned them for one or two seasons; 30% have owned them for longer.

Of the people wearing a transceiver only 51% had practised at least once this season; only 9 people or 12% had practised three or more times this season.

Of those who own their transceiver 62% had practised at least once this season; of those who borrowed a transceiver only 40% practised at least once.

Group Responses

Have you skied the area before?

Yes 15 groups (54%) No 13 groups (46%)

Do you expect to encounter avalanche terrain on this trip?

Yes 16 groups (57%)

Are they likely to encounter avalanche terrain? (answer by interviewer)

Yes 24 groups (82%)

Did you obtain, before the start of this trip,:

a weather forecast? Yes 19 groups (68%)
avalanche information? Yes 9 groups (32%)

Where did you obtain your weather forecast?

11 groups	radio
7 groups	Parks Canada
1 group	helicopter company

Where did you obtain your avalanche information?

6 groups	Parks Canada
1 group	ski patrol
1 group	helicopter company
1 group	mountain guide

4. Comment

Even though the data has not been fully analyzed it is obvious that there are some serious concerns. The message of self-help and preparedness has not been received by all people who are visiting Mount Assiniboine Park. The low number of individuals who are equipped to ski in avalanche terrain is startling.

Recommendation by the Editor

The survey carried out by Chris Sadleir has given some indication of how well back country skiers are prepared to travel in avalanche areas and where education is needed. We suspect that the number of transceivers, shovels, and probes carried would be even lower in other areas. Management, rescue organizations and educators can draw valuable conclusions from such questionnaires; therefore we wish to recommend that other organizations conduct similar inquiries.

Readers of Avalanche News are invited to comment on the questionnaire as to suggest improvements, additions or deletions.

Organizations who intend to carry out such a survey on avalanche safety measures in the coming winter are requested to notify either Chris Sadleir or the Avalanche Centre of the National Research Council of their intentions. We hope that the interest will be great enough to allow central printing of the questionnaire forms and perhaps coding and co-ordinated analysis of the answers.

Peter Schaerer

AVALANCHE SAFETY MEASURES QUESTIONNAIRE

__Yr. __Mo. ___Day Region_____ Area_____ Location_____ Recorder_____

Use column #1 for the leader of the group. If more than 10 in group use another card and number 11, 12, etc. No apparent leader (check) ____.

Individual Response	1	2	3	4	5	6	7	8	9	10
Avalanche Transceiver										
X-Own O-Others N-No										
Probe? N-No X-Ski Pole S-Sectional										
Shovel? Y-Yes N-No										
Snow Observation Equipment? (Y-N)										
Have you taken an avalanche course?										
(Yes, indicate days N-No)										
Have you or any member of a party you have been with at any time before been caught in an avalanche? (Y-N)										
How many seasons have you back country skied? 1 = this season										
Transceiver "On"? (Y-N)										
How many seasons have you used a transciever? 1 = this season										
How many times have you practised transceiver search this season?										

If "No" transceiver, WHY?_____

Group Response

Have any of you skied this area before? ___Yes ___No

Do you expect to encounter avalanche terrain on this trip? ___Yes ___No ___Unknown

Are they likely to? (to be filled out by recorder) ___Yes ___No ___Unknown

If "Yes" indicate potential of terrain. ___Low ___Moderate ___High

Did you obtain (before the start of the trip)? Wx Synopsis ___Yes ___ No

Aval Synopsis ___Yes ___No

If "Yes" where? Wx:_____ Aval:_____

What is the general Avalanche Hazard Rating? ___Low ___Mod. ___High ___Extreme

CANADIAN AVALANCHE ASSOCIATION

The Canadian Avalanche Association held its Annual General Meeting on May 6, 1983 at Vancouver, B.C. The Association has 52 active members and 12 associate members.

The Directors elected at the meeting are:

Peter Schaerer	President
Willi Pfisterer	Vice President
Geoff Freer	Secretary-Treasurer
Walter Schleiss	Membership Committee Chairman
Chris Stethem	
Jeff Boyd	
Brian Weightman	Representative of Associate Members

The Membership Committee consists of:

Walter Schleiss	Chairman
Willi Pfisterer	
Paul Anhorn	

The Education Committee elected at the Annual General Meeting in 1982 had prepared an outline for an introductory avalanche awareness course. The outline describes the objectives and topics that should be covered in a two-day course for the general public. At the meeting on May 6, 1983 the members of the Canadian Avalanche Association approved the outline, and recommends it to all those who teach avalanche awareness courses. This recommendation does not mean, however, that the Association would approve individual courses and instructors.

The Education Committee will continue to be active by preparing an outline for an advanced avalanche course. Members of the Committee are Clair Israelson (Parks Canada, Lake Louise), Chris Stethem (Consultant, Whistler), Brian Weightman (Canadian Ski Patrol System, Calgary), Ron Matthews (Alpine Club of Canada, Banff), Tony Daffern (Alberta Mountain Council, Calgary), Garry Walton (British Columbia Institute of Technology, Burnaby).

A Committee was appointed with the task of developing guidelines for the application of explosives in avalanche control. One of its most important duties will be to advise the Workers' Compensation Boards concerning the qualifications for blasters. It was felt that blasters tickets should be valid for specific applications only, for example hand charges, helicopter bombing, or firing an avalauncher. The members of the Explosives Committee are Roger McCarthy (Whistler Ski Corp.), Clair Israelson (Parks Canada, Lake Louise), Bill Moffat (B.C. Ministry of Transportation and Highways, Victoria).

In May 1982 the Association had announced a contest for a logo. By April 1983 the directors had received and screened nine proposals and the final three designs were judged by the members of the Canadian Avalanche Association. By majority vote, Gerry Israelson's submission was selected. His proposal will go through a modification of colour and letter arrangement and then be used where applicable.

It was noted that numerous avalanche safety operations (for example; ski areas) are not represented in the Canadian Avalanche Association, although they could benefit from a mutual exchange of information and experience. Organizations which are involved in avalanche work are urged to become associate members if they are not already represented by active members.

The 1984 Annual General Meeting will be held on May 4, 1984 at Revelstoke, B.C.

On May 5, 1983 the directors discussed a draft of a code of ethics for members of the Association. They decided that further discussions are needed before it can be submitted to the members. The directors will also initiate a study of liability insurance for members of the Association.

TECHNICAL MEETING

of the Canadian Avalanche Association

The annual end-of-the-season meeting of avalanche personnel was held on May 6, 1983 in Vancouver, B.C. The objective was to discuss matters of interest to those persons directly involved in avalanche safety operations such as roads, ski areas, and guiding. The meeting was attended by 45 persons who represented various industries, governments, and consultants involved in avalanche work, as well as associated services such as the weather office and explosives manufacturers. Noticeable was a low attendance of members from the Rocky Mountain area, a result of financial restrictions. The significant discussions at the meeting are summarized below.

Gary Wells (Pacific Weather Centre, Vancouver) reviewed the information contained in the mountain weather forecast guidance and presented the results of a verification of the forecast in 1982-1983. The forecasted freezing levels were satisfactory in 80% of the cases. The predictions for wind speed were right in 40%, close in 40%, and missed in 20% of the cases. Snowfall amounts were generally over-forecasted. The loss of experienced forecasters and a difficult weather pattern in this past winter were the most significant factors responsible for the inaccuracies of the forecasts. At a meeting on May 4, 1983 users of the mountain weather forecast presented a "wish list" of information that should be contained in future weather forecasts. The request will be examined by the Pacific Weather Centre and changes may be initiated, dependent upon budgetary constraints.

Roger McCarthy (Whistler Ski Corporation, Whistler, B.C.) stressed the need for controls on the qualifications of personnel carrying out avalanche control with explosives. For example, helicopter bombing should be permitted only after the person has been trained in a helicopter. Because avalanche control operations vary, however, it will not be possible to write strict rules on how explosives should be applied.

Dave McClung (National Research Council, Vancouver) summarized the avalanche research work of the National Research Council of Canada. The research is concerned with developing information needed for the solution of engineering problems: speeds, flow depth, impact pressures, mass, and runout distances of avalanches, as well as snow pressures and fracture mechanics of snow. The most important project in the current year is to develop probability functions for the calculation of avalanche runout distances by taking into account characteristics of the terrain.

Clair Israelson (Parks Canada, Lake Louise) tabled the results of an evaluation of transceivers, which will be published in a later edition of Avalanche News. Paul Anhorn (National Research Council, Revelstoke) presented the results of a test concerning the range of transceivers. The tests showed insignificant differences in the range of transmitting and receiving between Skadi, Pieps 2 and Ortovox.

Peter Schaerer (National Research Council, Vancouver) discussed the shovel shear test which is a part of the snow cover observations carried out for snow stability analysis. He stressed that the principal objective of the test is to identify locations for a potential shear failure in a deep snowpack, and not to test the stability of the snow. The shovel shear test is only one of many index observations and must be considered with caution.

Other short topics concerned the accidents in the winter 1982-1983, avalanche courses, hazard forecasting, private avalanche dog handlers, equipment for, and methods of, searching, and the policy for helicopter skiing in British Columbia.

AVALANCHE COURSES BCIT/NRC

The senior instructors of the avalanche courses sponsored by the National Research Council and the British Columbia Institute of Technology met for a review of the courses on May 5, 1983.

Courses 1982-1983

In this past winter avalanche courses were held as follows:

Date	Location	Application	No. of Participants Registered	Passed
		Level I		
November 29-December 3	Creston	Transportation	25	25
December 12-18	Whistler	Ski Area/Ski Guiding	27	26
January 16-22	Lake Louise	Ski Area/Ski Guiding	33	31
		Level II		
December 4-11	Whistler	Ski Area/Ski Guiding	16	16
January 9-16	Lake Louise	Ski Area/Ski Guiding	9	9
January 9-13	Lake Louise	Control	15	15
		TOTAL	125	122

Fewer courses than planned were carried out, and the number of participants had dropped significantly from previous years. In 1981-1982 a total of 202 persons had participated, whereas the number of students was 125 in this past winter. Financial restrictions by governments and ski corporations were mainly responsible for the low attendance.

Courses 1983-1984

Courses planned for the coming winter are:

	Application	Date	Location
Level I	Transportation & Industry	November 28-December 2	Creston
		December 5-9	Creston
Level I	Ski Operations	December 11-17	Whistler
		January 15-21	Mt. Assiniboine or Jasper
Level II	Ski Operations	December 3-10	Whistler
Avalanche Control		January 8-14	Whistler
Avalanche Terrain		April 9-13	Revelstoke

The course fees for the 1983-1984 courses will be the same as last year: $250 for a 5-day course, $350 for a 7-day course, and $400 for the Level II Ski Operations course.

As before, the courses will be oriented toward the needs of the industry and not toward the casual back country traveller. Courses for the general public are offered by other organizations.

Brochures containing a list of the courses and registration forms should be available in October 1983. For more information contact the avalanche course co-ordinator of:

Industry Services Department
British Columbia Institute of Technology
3700 Willingdon Avenue
Burnaby, B.C.
V5G 3H2

Telephone: (604) 434-5734

Avalanche Control Course

For the first time a course for avalanche control personnel was organized in January 1983 at Lake Louise, Alberta. The timing of the course coincided with a major avalanche cycle. Although numerous avalanches could be released and observed, the unstable snow condition restricted the activity. A five-day course was found to be too short, and consequently the course duration will be extended to seven days in the coming winter.

In the discussion on May 5, 1983 it was decided that the objective of the control course should be to train field staff who carry out operational avalanche control work, such as handcharging and avalauncher firing, but not to educate leader-managers of an operation.

Level 3 Course

It was decided that a Level 3 avalanche course conducted by B.C.I.T. is not warranted because of insufficient demand and high cost. The objective of a level 3 course would be to educate the participants in avalanche hazard evaluation and the formal approach to making decisions.

Instead CMH heli-skiing intends to organize a seminar for its senior guides and will open it to helicopter ski guides from other organizations. At the planned seminar, avalanche hazard forecasting, operational problems, and decision making in helicopter skiing will be discussed. Details will be announced in Avalanche News #13 prior to the coming winter.

AVALANCHE COURSES IN U.S.A.

National Avalanche School

The National Avalanche School, held every two years, is scheduled for November 6-11, 1983 in Reno, Nevada. The school consists of classroom work only.

Because the U.S. Forest Service is slowly withdrawing from its involvement in avalanche control, warning and education the school is no longer subsidized. Consequently, a course fee of $400 U.S. will be charged.

Information and application forms should be requested from:

Mr. Warren Walters
2638 Dapplegray Lane
Walnut Creek, California 94596

American Avalanche Institute

A professional avalanche course for skiers and mountaineers will be offered from October 31, 1983 to November 3, 1983 at Snowbird, Utah. The course consists mainly of classroom work with one half-day field session; cost $225 U.S., plus lodging and meals.

The course is followed by an avalauncher training session on November 4. This course can be taken separately; cost $40 U.S.

Brochures, information and registration forms, as well as brochures for other courses are available from:

American Avalanche Institute
Box 308
Wilson, Wyoming 83014

Telephone: (307) 733-3315

INTERNATIONAL SNOW SCIENCE WORKSHOP

Following in the tradition of the workshops in Banff (1976), Vancouver (1980) and Bozeman (1982) a workshop is planned for the mutual exchange of new information between those engaged in the study of theoretical, professional and recreational aspects of snow. The organizing committee encourages presentations involving descriptive narratives and/or case histories of successful field methods, as well as quantitative analysis of specific scientific topics. The first day of the workshop will be devoted to Search and Rescue topics only, sponsored by the U.S. National Organization for Search and Rescue.

Dates: October 24-27, 1984

Location: Aspen, Colorado

Brochures containing further details may be obtained from:

ISSW Conference Committee
c/o Mountain Rescue - Aspen, Inc.
P.O. Box 4446
Aspen, Colorado 81612

AVALANCHE AWARENESS COURSE OUTLINE

Copies of the outline for introductory avalanche awareness courses, recommended by the Canadian Avalanche Association for use by organizatins and individuals who teach avalanche awareness to the general public are available on request from:

a) Avalanche Centre
National Research Council Canada
3904 West 4th Avenue
Vancouver, B.C.
V6R 1P5

Telephone: (604) 732-4829

b) Alberta Mountain Council
P.O. Box 1026
Banff, Alberta
TOL 0C0

Telephone: (403) 762-4481

NOTE TO CONSULTANTS AND ORGANIZERS OF AVALANCHE COURSES

In future, the list of avalanche resource agencies such as was included with Avalanche News No. 11 shall not contain the names of consultants. Similarly, the brochure describing the avalanche courses of BCIT/NRC shall not list other avalanche courses.

Consultants who wish to offer their services to industry and government are requested to submit a note to that effect and list the areas of work which they are qualified for. Organizations and individuals who offer avalanche courses to the general public are invited to send their brochures, or other announcements of intended courses. The information about consulting services and courses will be kept on hand and made available when inquiries are received. Please send the information to Peter Schaerer and Geoff Freer.

MAINTENANCE OF TRANSCEIVERS

Greg Baumeister announces that he is qualified and has spare parts to carry out maintenance and repairs on PIEPS.

Greg Baumeister
General Delivery
Whistler, B.C.
VON 1B0

Telephone: (604) 932-4418

SUPPLY OF AVALAUNCHERS

SEAR Search and Rescue are making and supplying avalaunchers, old and new design tailfin assemblies, and spare parts for distribution in Canada under license from P. Peters of AVADYNE.

SEAR Search and Rescue Equipment Ltd.
2818 Bayview Street
Surrey, B.C.
V4A 2Z4

Telephone: (604) 531-7300

FROM:

Snow Avalanche Section
Ministry of Transportation
and Highways
940 Blanshard Street
VICTORIA, B.C.
V8W 3E6

Jim Bay
Box 1193
REVELSTOKE, B.C.
V0E 2S0