AVALANCHE NEWS NO. 13

OCTOBER 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.

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AVALANCHE NEWS

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

October 1983, No.13

MOUNTAIN FORECAST GUIDANCE WINTER OF 1983-1984

Submission by Pacific Weather Centre
Atmospheric Environment Service
Vancouver, B.C.

During the spring and summer of 1983, several meetings were held with representatives of the major mountain forecast users in British Columbia. From these meetings and from additional correspondence, a consensus was reached on what form of mountain forecast guidance the Atmospheric Environment Service could provide during the coming winter.

This guidance is to consist of two parts. The Canadian Meteorological Centre in Montreal will provide objective upper wind forecasts, for specific points, derived from numerical atmospheric models. Initially it would be in an aviation format (units in feet and knots), but when resources permit, a change to metric would be implemented.

The Pacific Weather Centre will provide a technical alpine synopsis, four times daily, for its area of responsibility. It is expected that the times of issue will be 5:30 a.m., 10:30 a.m., 3:30 p.m. and 11:30 p.m., and that the forecast period will be 36 hours. A plain-language narrative style will be used. The synopsis will consist of:

1. Weather Systems:

   description - front, high, low, trough, etc.;
   motion - positions at beginning, mid-point and end of forecast period;
   development - intensification, or dissipation (if significant).

2. Freezing Levels (in metres above sea level):

   - in general areal terms but related to weather systems if practicable.

3. Precipitation Intensity:

   Related to the weather systems and usually given in broad categories rather than in specific amounts. The categories are defined thusly:

light	- 1 to 5 mm (in cm for snow) per 24 hours
moderate	- 6 to 15 mm (in cm for snow) per 24 hours
heavy	- 16 to 30 mm (in cm for snow) per 24 hours
very heavy	- more than 30 mm (in cm for snow)

   Where appropriate, precipitation type (snow/rain) and timing of the onset and end of precipitation shall be specified.

4. Wind:

If strong winds (greater than 50 km/hr), or significant deviations from the Canadian Meteorological Centre forecast values are expected, then they will be mentioned.

5. Confidence:

If confidence is low, then reasons for the uncertainty, or alternate scenarios can be presented.

REPORT FROM EXPLOSIVES COMMITTEE

Submission by Roger McCarthy
Whistler, B.C.

The Explosives Comittee of the Canadian Avalanche Association is preparing guidelines for blasting ticket endorsements for avalanche control. These should be complete by the new year.

The endorsements would cover hand-charging, cornice work, avalaunchers and helicopter bombing.

The Workers' Compensation Board of British Columbia has stated:

> Industrial Health and Safety Regulation 46.136 requires that,
>
> "No explosive charge shall be:
>
> a) dropped from a helicopter or other aircraft, or
> b) placed manually on site by workers, or
> c) projected by any means, for the purpose of avalanche control, until the proposed procedures have been submitted to and accepted by the Board...".
>
> The proposed procedures shall be submitted to and approved by the Board PRIOR to the use of explosives.

The Explosives Committee will endeavour to have some standard available for distribution to assist operators in the rewriting of their procedures.

The Workers' Compensation Board of Alberta has drafted regulations for the use of explosives in avalanche work. They were mailed to users for comment. The final regulations will be available after the comments are received and discussed.

AVALANCHE TRANSCEIVER EVALUATION

During February 1983, the Wardens of Parks Canada at Lake Louise conducted a series of tests on six different types of avalanche rescue transceivers. The main reason for conducting these tests was to compare the performance and use characteristics of the different beacons. The six types tested were: SKADI, PIEPS 1, PIEPS 2, ORTOVOX, RAMER ECHO II and AUTOPHON.

The tests were carried out with respect to:

- maximum transmit distance
- maximum receive distance
- minimum receive distance with the volume control at the lowest setting
- speed and ease of use in locating a buried transmitter
- compatability between brands

Five units of each type were used in all the tests, with the exception of the AUTOPHON where only one unit was available. All beacons contained new alkaline batteries tested to 1.5 volts.

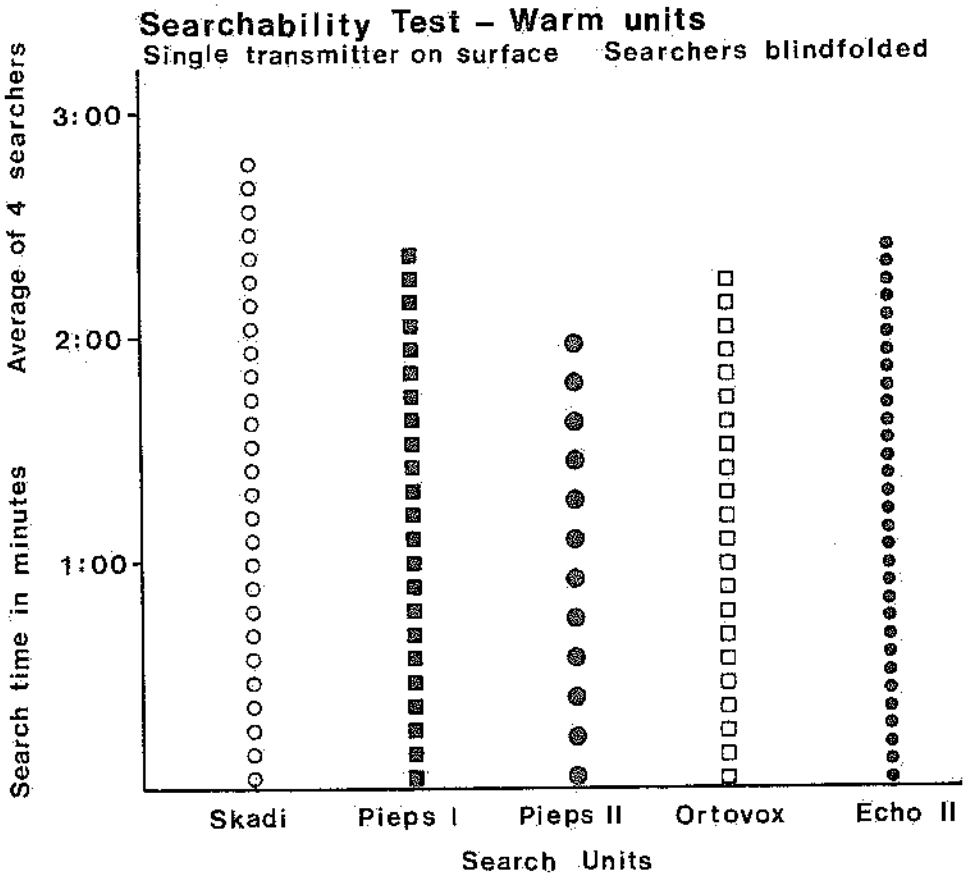
A transmitter of each type was used for the receive distance tests. To eliminate the possibility of a variation in the strength of the transmitted signal, the mean transmitter of each type was determined and used in all the tests. Variation in the orientation of the transmitter made a significant difference in the transmit distance; therefore, during all tests antennas of transceiving and receiving units were parallel.

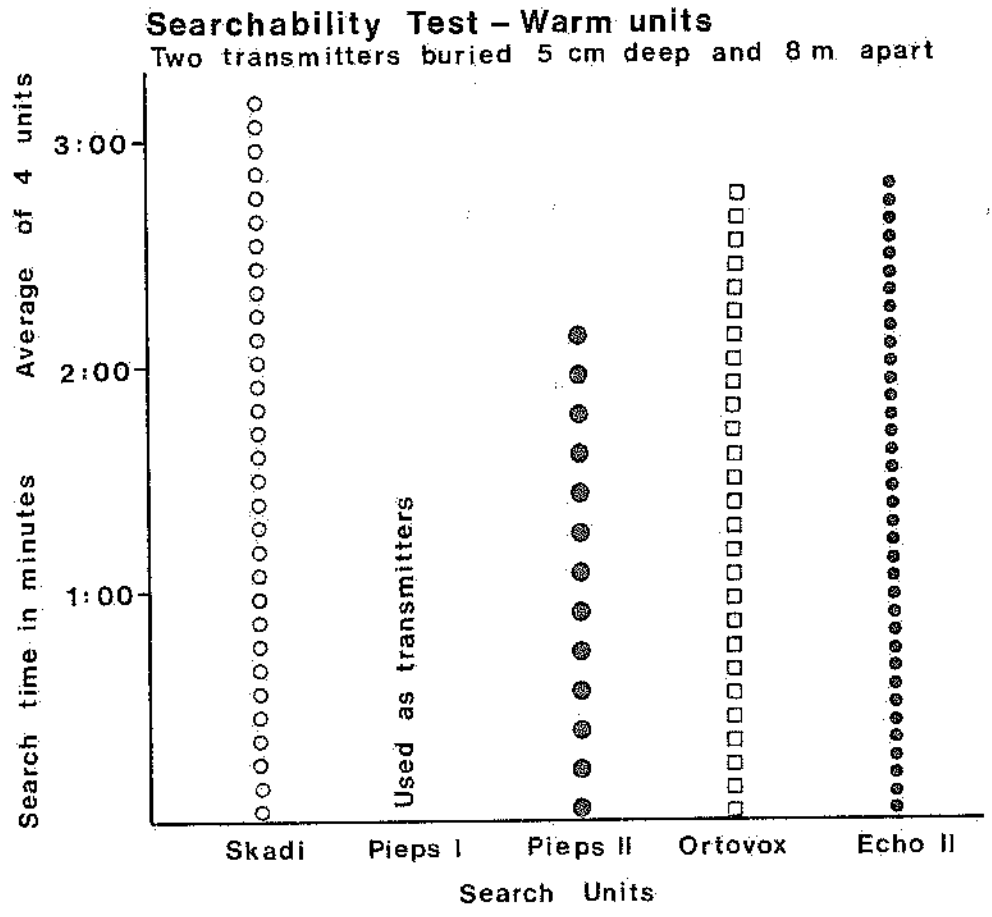
The "searchability", a term for the speed and ease of use in locating a transmitter, was tested with a blindfolded person searching for one unit, as well as a person locating two units buried with a distance of 8 m between them.

The test results lead to the following conclusions (see graphs below):

- There is a significant variation in performance due to differences in transmit strength and receive sensitivity between brands.
- There is little significant difference in search times.
- Wearing a radio close to the receiving unit will cut receive performance by more than 50%.
- Burial in one metre of hard, dense snow had no significant effect on transmit distances.
- No significant difference was found between warm or cold receive units. A warm unit was a receiver that had been worn inside a tester's jacket. A cold unit was left outside on transmit for 24 hours prior to testing.
- In search tests, units with definite stops in volume control seem to work best, but the lack of volume control on the RAMER is not a serious detriment.
- Failures of earphones were observed.

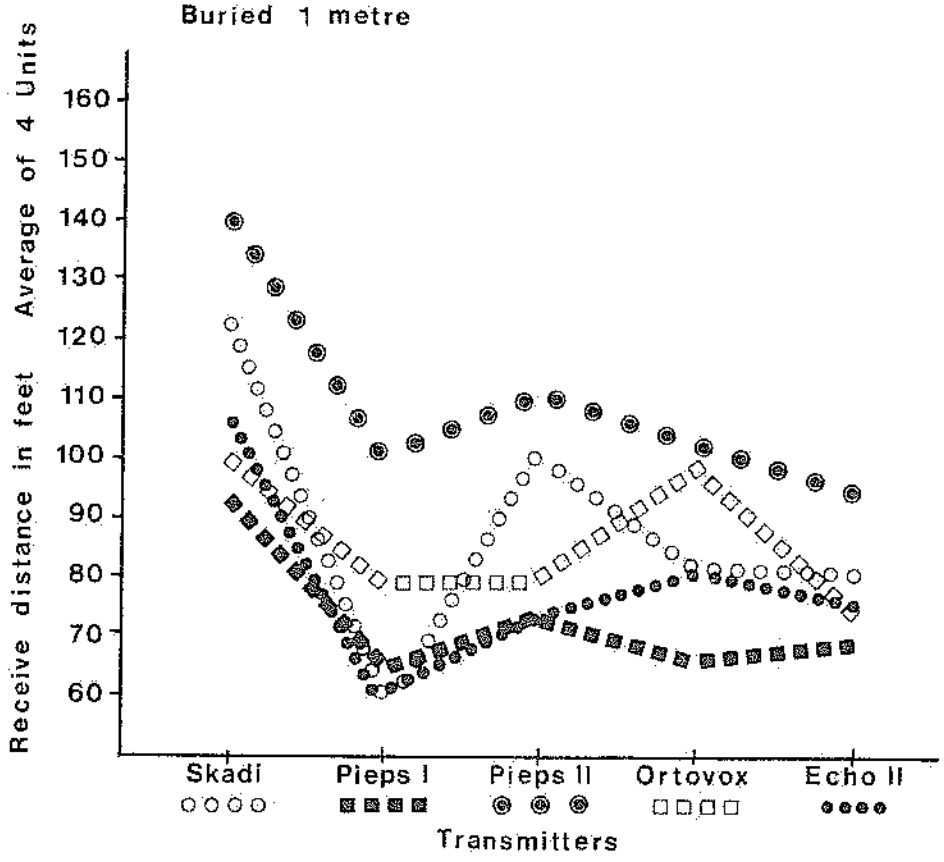
Information about the tests may be obtained from Clair Israelson, Lake Louise Warden's Service, Parks Canada, P.O. Box 900, Banff, Alberta, TOL 0C0.


Searchability Test – Warm units
Single transmitter on surface Searchers blindfolded
Search time in minutes Average of 4 searchers
3:00
2:00
1:00
Skadi
Pieps I
Pieps II
Ortovox
Echo II
Search Units

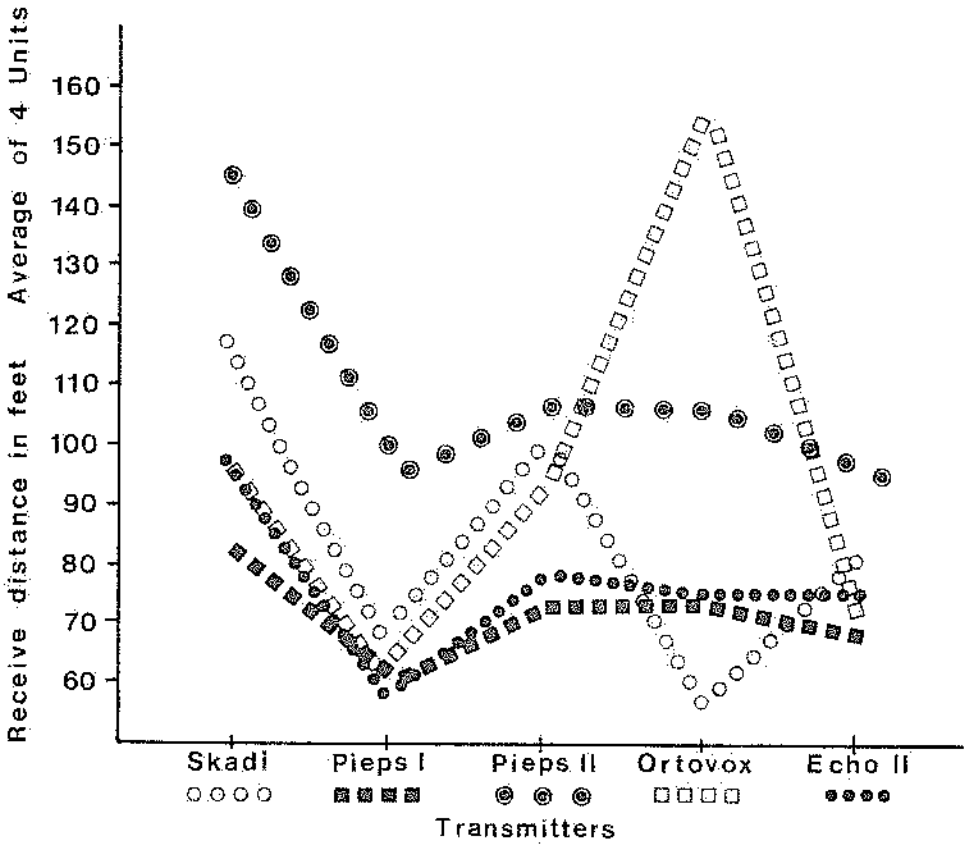

Searchability Test – Warm units
Two transmitters buried 5 cm deep and 8 m apart
Search time in minutes Average of 4 units
3:00
2:00
1:00
Used as transmitters
Skadi
Pieps I
Pieps II
Ortovox
Echo II
Search Units

Maximum Receive Test – Warm Units

Buried 1 metre

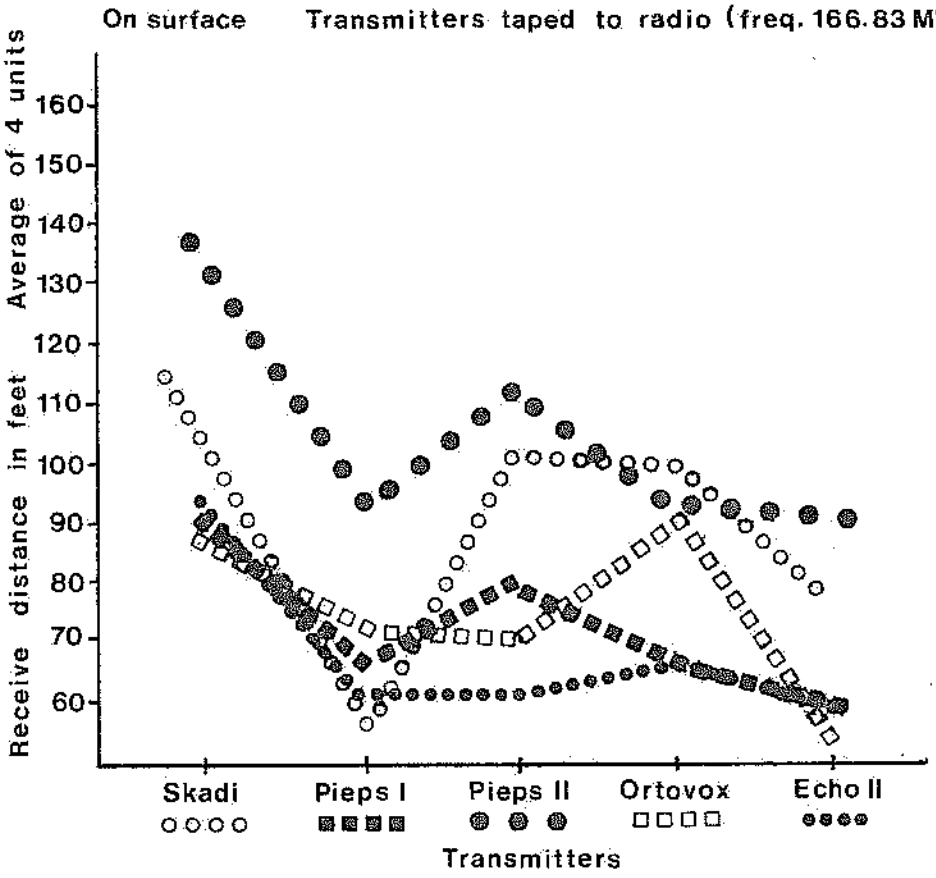


Maximum Receive Test – Warm Units, on surface



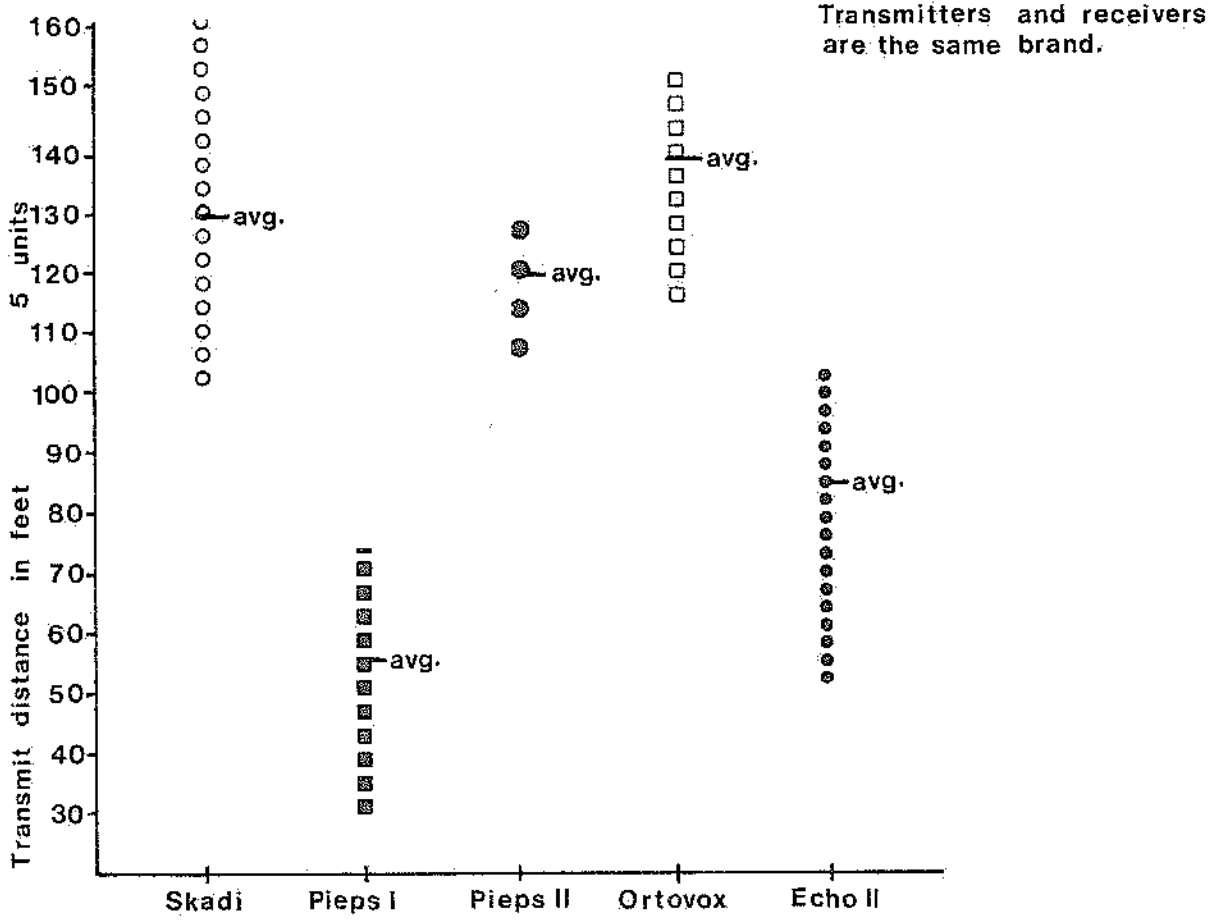
Maximum Receive Test – Cold Units

On surface Transmitters taped to radio (freq. 166.83 MHZ)



Maximum Transmit Test – Warm Units

Units on surface.
Transmitters and receivers are the same brand.



SURVEY OF AVALANCHE SAFETY MEASURES

In Avalanche News No. 12 Chris Sadleir had reported the results of a survey of avalanche safety equipment carried by back-country skiers, as well as the avalanche training of visitors to Assiniboine Provincial Park. Similar surveys were recommended for other ski touring areas.

Interested organizations are requested to comment on the questionnaire printed in Avalanche News No. 12 and to indicate their intentions to conduct similar surveys. The Canadian Avalanche Association is planning to print a uniform questionnaire that could be used for the interviews and the analysis, but in order to do so it needs comments and expressions about the desirability of the project. Please let Chris Sadleir or Peter Schaerer know your feelings.

PRELIMINARY STATISTICS OF AVALANCHE FATALITIES IN CENTRAL CHILE
PERIOD 1926-1982
REVISION NO. 1 (MAY 1983)

Submission by Rene E. Leon
GLadys Bell 55
Los Andes, Chile

Locality	Persons Involved	Year	Activity
Los Quelteheues (Maipo Canyon)	9	1926	Hydro-electric central
Rio Blanco Canyon	1	1931	Copper mine
Juncal (Km. 57)	3	1936	Transandean railway
Caracoles	7	1941	Transandean railway
Sewell (La Junta)	106	1944	Copper mine
Lo Valdes (Maipo Canyon)	23	1953	Hiking group
Rio Blanco Canyon	1	1959	Copper mine
Los Bronces (San Francisco Canyon)	4	1963	Copper mine
San Francisco (San Francisco Canyon)	5	1965	Copper mine
Portillo	5	1965	Ski resort
Rio Blanco Canyon	1	1969	Copper mine
Tinguiririca Volcano	8	1972	Crashed airplane
Mirado Mountain	1	1978	Climbing group
El Indio	7	1980	Copper mine
Maipo Canyon	2	1982	Mountain refuge
Rio Blanco Canyon	1	1982	Copper mine
Los Bronces (San Francisco Canyon)	1	1982	Copper mine
Los Leones Canyon	5	1982	Mountain expedition
Las Minas del Carbon (Maipo Canyon)	3	1982	Grazing site

NOTE BY THE EDITOR

Rene Leon has described the accident at Caracolas in 1941 in greater detail in:

> Leon, R.E. An Avalanche Tragedy in Chile. Proceedings of a workshop held at Banff, 1976; National Research Council Canada, Associate Committee on Geotechnical Research, Technical Memorandum No. 120, pp. 219-228, 1978.

The article contains a map showing localities of the above statistics.

CANADIAN AVALANCHE ASSOCIATION

The Department of Consumer and Corporate Affairs of the Province of Alberta has issued a Certificate of Incorporation under the Societies Act of Alberta. Consequently, the Canadian Avalanche Association is now registered in both Provinces, British Columbia and Alberta.

AVALANCHE RESCUE DOG ASSOCIATION

Submission by Rod Pendlebury
Box 364, Fernie, B.C., V0B 1M0

Application has been made for registration of the Canadian Avalanche Rescue Dog Association as a non-profit Society under the British Columbia Societies Act. Any person who is actively involved in the training of an avalanche dog is eligible to join the Association. Membership fees have been set at $20.00 per year.

Two training sessions are planned for the upcoming winter season:

Novices and Newcomers, December 9-11, 1983, Fernie, British Columbia:

For dog and master teams with basic obedience and little or no search training. Some of the topics will include: group obedience, canine nutrition and first-aid, transportation of dog teams, elementary search training.

Intermediates, March 7-11, 1984, Fernie, British Columbia:

Dog and master teams with good obedience and previous search training who are preparing for evaluation will be instructed in search and rescue, winter travel, etc.

Inquiries regarding these courses, the Association, fees, etc. may be sent to:

The Canadian Avalanche Rescue Dog Association
Box 364
Fernie, B.C.
V0B 1M0

NATIONAL RESEARCH COUNCIL/BRITISH COLUMBIA INSTITUTE OF TECHNOLOGY AVALANCHE COURSES

Avalanche training courses for professionals are a joint venture between the National Research Council of Canada and the British Columbia Institute of Technology. The courses have been designed to meet the needs of operations concerned with avalanche safety; for example, ski areas, ski guiding, highway operations, railways, mining and logging. The courses planned for the winter of 1983-1984 are:

Avalanche Safety for Transportation and Industry Level 1

November 28, 1983 - December 2, 1983 at Creston, British Columbia.
Course fee: $250.00

At this time it is uncertain whether or not this course will be held because restraints by the Government of British Columbia will seriously limit the number of potential participants.

Ski Operations Level 1

December 11-17, 1983 at Whistler, British Columbia
January 15-21, 1983 at Mt. Assiniboine Lodge
Course fee: $400.00

Ski Operations Level 2

December 3-10, 1983 at Whistler, British Columbia
Course fee: $465.00

Avalanche Control

January 8-14, 1984 at Whistler, British Columbia
Course fee: $400.00

The course is concerned with operational avalanche control.

Avalanche Terrain

April 9-13, 1984 at Revelstoke, British Columbia
Course fee: $250.00

The course is concerned with the recognition and prevention of avalanche hazards in the planning of facilities.

Detailed information, brochures and registration forms may be obtained from the Industry Services Department, British Columbia Institute of Technology, 3700 Willingdon Avenue, Burnaby, B.C., V5G 3H2, telephone 604-434-5734, local 637.

WEATHER FORECASTING COURSE

The format of the mountain forecast guidance of the Pacific Weather Centre for the coming winter is outlined on Page 1 of this issue of Avalanche News. With the objective of preparing avalanche hazard forecasters for the application of the weather information, the Pacific Weather Centre will give two courses.

Course at Vancouver (2 days)

Date: November 3-4, 1983; to begin at 0900 hours, November 3.

Location: Pacific Weather Centre, Atmospheric Environment Service, 1200 West 73rd Avenue, Vancouver, British Columbia, V6P 6H9

Maximum number of participants: 20

Course at Revelstoke (1 day)

Date: November 10, 1983; to begin at 0800 hours.

Location: Regent Inn, 1st Avenue, Revelstoke, British Columbia, V0E 1S0

Minimum number of participants: 15

Potential participants must have experience with making daily weather observations, have a basic knowledge of the weather, and be experienced in using the weather forecast when making avalanche safety decisions.

Interested persons should call the Avalanche Centre of the National Research Council in Vancouver (telephone 604-732-4829) for registration. The course at Revelstoke will be held if a minimum of 15 participants register by November 3, 1983. Registration for the course in Vancouver will be cut off with 20 seats filled.

The topics covered in the two courses are:

- Weather types and systems common in Western Canada
- Format and content of the Mountain Forecast Guidance
- Case studies with interpretation of weather forecasts
- Sources of weather information

The course in Vancouver will also include a visit to the forecasting offices and a discussion of instrumentation problems.

SEMINAR FOR HELICOPTER SKI-GUIDES

Canadian Mountain Holidays Heli-Skiing is planning a seminar for its senior guides. Collection of data, avalanche hazard forecasting, decision making, and operational problems will be discussed. The seminar is open to guides from other helicopter skiing operations.

Tentative date: January 7-14, 1984

Location: Bugaboo, Bobbie Burns, or Cariboo Lodge. The location will be decided later when lodge bookings are known.

Estimated cost: $1,100 (for helicopter, room and board)

Registration: Interested persons or organizations should contact Kobi Wyss, Canadian Mountain Holidays Heli-Skiing, P.O. Box 1660, Banff, Alberta, TOL OCO, telephone 403-762-4531 for further information and registration.

PERSONAL

David M. McClung, Research Officer at the Avalanche Centre of the National Research Council Canada has been appointed Adjunct Associate Professor, Geophysics and Astronomy at the University of British Columbia in Vancouver. During the term September-December 1983, he is teaching a Snow Physics and Avalanche Mechanics course which is well attended by graduate students.

INFORMATION ABOUT AVALANCHE COURSES

I frequently receive inquiries about avalanche courses. The courses offered by NRC/BCIT are oriented towards the needs of avalanche safety operations, but there are many individuals who seek avalanche education for their private needs.

In order to serve those who wish to take avalanche courses, I am asking individuals and organizations to send me information about courses which they offer to the general public. This concerns two day information courses, as well as week-long courses for back-country travellers.

We will publish lists of avalanche courses held in Canada in Avalanche News - a convenient and cost-free advertisement.

Peter Schaerer

AVALANCHE RESOURCE AGENCIES

The next issue of Avalanche News to be published in January 1984 shall contain an updated list of avalanche resource agencies in Canada. The last such list was enclosed with Avalanche News No. 11 in January 1983. The list shall show the names, addresses, and telephone numbers where information and assistance is available as follows:

1. Information about current snow stability and avalanche conditions from ski areas, parks, highways, etc. These organizations would also be equipped for search and rescue.

2. Search and rescue: Organizations that can be called upon for assistance in search and rescue work, including dog masters, emergency programs, mountain rescue groups.

3. Education: Organizations that conduct avalanche education programs and make available publications and audio-video material.

4. Weather information: Weather offices.

Individuals and organizations are requested to check the list of January 1983 and to report revisions, additions, deletions to the publisher of Avalanche News (address shown on front page) by December 31, 1983.

FROM:

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