

INFORMAL COOPERATIVE STATE-FEDERAL AVALANCHE-WARNING SYSTEM AND PUBLIC EDUCATION PROGRAM FOR SOUTH-CENTRAL ALASKA, U.S.A.

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ABSTRACT. The sagas of Alaskan winter outdoor activities contain increasing accounts of sudden deaths from snow avalanches. Over 100 documented fatalities have occurred within Alaska since 1898; 22 people died in south-central Alaska in the past 8 years. With increases in population, development, and use of the mountainous areas, avalanche warning and public education have acquired a new and very important function in Alaska.

Some efforts towards establishing an avalanche warning system for south-central Alaska have been initiated by state and federal agencies. Snow-avalanche education programs presented by Alaska Division of Parks, local rescue groups, and outdoor educators have helped to increase the overall avalanche awareness in the Anchorage community. Formalization and expansion of current efforts are aimed to reduce future snow-avalanche accidents and fatalities.

RÉSUMÉ. *Système coopératif informel d'avertissement d'avalanche par l'État et la Fédération et programme d'éducation du public pour le centre sud de l'Alaska, U.S.A.* Les chroniques des activités extérieures dans l'hiver Alaskien contiennent de plus en plus de récits de morts subites par avalanches de neige. Plus de cent accidents décrits concernent l'Alaska depuis 1898; 22 personnes ont été tuées dans le centre sud de l'Alaska au cours des 8 dernières années. Avec l'accroissement de la population, le développement et l'utilisation des zones de montagne, la prévision des avalanches et l'éducation du public ont pris un rôle nouveau et très important en Alaska.

Quelques efforts en vue d'établir un système de prévision d'avalanche pour le centre sud de l'Alaska ont été entrepris par les services de l'État et Fédéraux. Des programmes d'éducation sur la neige et les avalanches présentés par la division de l'Alaska des Parcs, les groupes locaux de secours et les éducateurs extérieurs, ont aidé à accroître la sécurité d'ensemble vis-à-vis des avalanches de la communauté d'Anchorage. La formalisation et l'intensification des efforts en cours ont pour but de réduire le nombre d'accidents et de victimes par avalanche de neige.

ZUSAMMENFASSUNG. *Lawinen-Warnsystem und öffentliches Erziehungsprogramm für Süd-Alaska in Zusammenarbeit zwischen Bund und Staat.* In Geschichten von winterlichen Geschehnissen in Alaska wird immer mehr von plötzlichen Todesfällen in Schneelawinen erzählt. Über 100 nachgewiesene Vorfälle solcher Art haben sich seit 1898 in Alaska ereignet; 22 Menschen starben im mittleren Süd-Alaska während der letzten 8 Jahre den Lawinentod. Mit dem Anwachsen der Bevölkerung, der Besiedlung und der Erschliessung der Gebirgsregionen haben die Lawinenwarnung und die öffentliche Erziehung eine neue und sehr wichtige Bedeutung in Alaska gewonnen.

Einige Anstrengungen zur Einrichtung eines Lawinen-Warndienstes für das mittlere Süd-Alaska wurden von Behörden des Bundes und des Staates unternommen. Programme zur Erziehung der Bevölkerung — angeboten von der Alaska Division of Parks, von lokalen Bergwachtgruppen und von Fachleuten im Aussendienst — trugen allgemein zu einer grösseren Beachtung der Lawinengefahr in der Gemeinde Anchorage bei. Die Organisation und Verstärkung solcher Bemühungen soll die Zahl der Lawinenopfer und -unfälle in der Zukunft vermindern.

THE sagas of Alaskan winter outdoor activities contain increasing accounts of sudden deaths from snow avalanches. There are seemingly several reasons for this rising mortality rate. More leisure time is available, and winter mountain sports are drastically expanding from the urbanized area of south-central Alaska.

Newcomers to Alaska are often completely unfamiliar with the Alaskan mountain environment. Improved outdoor equipment and expanded motorization have increased the scope and use of a limited road system. The spectacular mountainous regions of south-central Alaska are rapidly becoming more accessible to the average weekender.

Because of this explosion in winter sports, public recreation areas are faced with a significant increase in use by outdoor recreationists of limited knowledge and ability. Local, state, and federal agencies are finding that they must notify and "educate" the mountain visitor about the snow-avalanche phenomenon. Outdoor clubs, ski-tour leaders, and skiing area operators must also take on the additional responsibility of informing the casual visitor of the inherent dangers in the mountains. Thus, avalanche warning and public education have acquired a new and very important function in Alaska.

Since 1971, 43 people are known to have been caught in avalanches—five died within the popularly used Chugach State Park. The western boundary of this park borders the city of Anchorage in which half of the State's population resides. Elsewhere in Alaska, avalanches have claimed more than 100 people since 1898, when 67 lost their lives in the famous Chilkoot Pass. The most recent tragedy near Anchorage occurred in the Chugach National Forest in January 1978 (Table I) when four ski mountaineers lost their lives to an avalanche while skiing in the Turnagain Pass Winter Recreation Area. A fifth person was caught but escaped.

The Seward Highway, which runs between Anchorage and Seward, to the south, is closed intermittently by snowslides almost every year. As a result, the Alaska Department of Transportation is becoming more involved in avalanche control and snowslide removal. Snow removal by local, state, and federal agencies is constantly required to keep roads, parking areas, and facilities open throughout the seven winter months.

TABLE I. DOCUMENTED AVALANCHE FATALITIES IN ALASKA* (1898 TO PRESENT)

<i>Date</i>	<i>Location</i>	<i>Activity</i>	<i>Victims</i>
3 April 1898	Chilkoot Pass, Dyea	Gold stampeders	67 known (? more)
1899	Lynx Creek, Kenai Peninsula	Gold miners	4
9 May 1952	Bird Hill, Mile 91 Seward Highway	Car driver	1
27 February 1954	Harbor Mountain, Sitka	Lift skiers	2
10 January 1971	Juneau area, Tongass National Forest	Climber	1
12 April 1971	Eklutna Glacier (3 500 ft), Chugach State Park	Climbers	2
July 1972	Mount McKinley (19 600 ft), McKinley National Park	Japanese mountaineers	3
30 December 1972	Flattop Mountain, Chugach State Park	Hiker	1
1 January 1974	Taniana Peak, Chugach State Park	Climber	1
7 February 1974	Thane Road, Juneau area	Highway Department snow-plow driver	1
16 January 1975	South Fork, Campbell Creek, Chugach State Park	Tour skier	1
21 March 1975	McGinnis Glacier, Central Alaska Range	Mountaineer	1
10 May 1975	20 Mile River, Portage area	Hunter	1
15 November 1975	Granite Creek, Juneau area	Hiker	1
19 February 1976	Mount Marathon, Seward area, Chugach National Forest	Climber	1
11 August 1976	Mount Foraker (7 900 ft), McKinley National Park	Japanese climbers	3
12 December 1976	Sheep Mountain, Mile 113 Glenn Highway	Hiker	1
8 February 1977	TAPS storage tank, Valdez	Worker	1
21 January 1978	Taylor Creek, Chugach, Chugach National Forest	Ski mountaineers	4
16 May 1978	Mount Foraker (11 000 ft), McKinley National Park	Japanese mountaineers	2
9 May 1979	Mount Hunter (10 000 ft), McKinley National Park	Japanese mountaineer	1

* Compiled by Alaska Division of Parks, Chugach State Park. DF/79.

Most of the mountainous areas in Alaska, because of their latitude, closeness to large bodies of water, of large-scale orographic weather processes, are susceptible to major avalanche activity. The sheer quantity and different types of new snow, caused by abrupt and extensive altitude changes over relatively short distances, makes south-central Alaska extremely liable to major avalanche occurrences. There are thousands of snow avalanches each year in this region—and an increasing number of outdoor users are unfamiliar with this phenomenon and how to recognize its presence and danger.

Some efforts toward establishing a south-central Alaska Avalanche Warning System have been initiated by state and federal agencies. An informal cooperative system of categorizing avalanche hazards and issuing avalanche bulletins currently exists between the Alaska State Division of Parks (ASP), the National Forest Service (NFS), and the National Weather Service (NWS) (Fig. 1). Long-range plans could expand the cooperative state-federal avalanche-warning efforts of south-central Alaska to include more active and direct participation of Alaska Department of Transportation (DOT), Alaska State Troopers (AST), U.S. Soil Conservation Service (SCS), National Oceanic and Atmospheric Administration (NOAA), ski-area operators, and others.

WEATHER, SNOWPACK & AVALANCHE ACTIVITY DATA

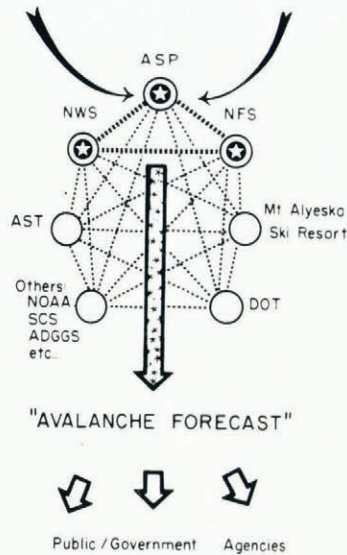


Fig. 1. Informal avalanche-warning system for south-central Alaska.

Joint public announcements are currently made through newspaper, radio, and television during times of high danger. Additionally, a 24-hour avalanche-information telephone number provides the public with up-to-date snow-hazard reports for local mountainous areas. Specialized avalanche forecasts and snow-pack information in selected areas are also available from the local NFS Snow Ranger or ASP Avalanche Ranger. Expansion of current weather sites and the integration of a snow-monitoring network would enable forecasters to make relatively consistent, reliable, and creditable avalanche warnings for south-central Alaska.

Prior to 1975 the NFS and the National Ski Patrol were the primary disseminators of avalanche information in south-central Alaska. Since then, ASP has taken a leading role in avalanche education within the Anchorage area by presenting numerous training seminars and classes to area residents.

During the winters of 1976-78, over 4 000 man-hours were used to present avalanche education through 42 separate ASP programs. Also, half-hour television programs were presented. Additionally, avalanche schools represented by local rescue groups and outdoor educators have helped to increase the overall avalanche awareness of the Anchorage community.

Avalanche education aimed at key target groups should be geared toward increasing this basic level of awareness into a good working knowledge of the avalanche phenomenon. The Anchorage Rescue

Council, in cooperation with state and federal agencies in Alaska, sponsors a comprehensive 3-day avalanche workshop session in Anchorage each fall.

Future aims in reducing snow-avalanche accidents and fatalities are a three-fold effort: (a) continue current cooperative efforts between state and federal agencies in south-central Alaska to establish a good foundation for a reliable avalanche warning system and public education program, (b) formalize the avalanche-warning system and expand the weather and snow-pack monitoring network, and (c) conduct and increase educational programs in avalanche awareness and safe winter recreational use of the mountains.