

THE IMPACT OF THE HELISKIING INDUSTRY AND ITS CONTRIBUTION TO AVALANCHE RESEARCH

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ABSTRACT: The early history of the heliskiing industry and its contribution to avalanche research.

KEYWORDS: History of Heliskiing, Avalanche Research

1. INTRODUCTION

A number of the early heliskiing operators have supported avalanche related-research. This poster is a timeline of early heliskiing history and of the research they have supported.

2. EARLY HELISKIING TIMELINE OF SIGNIFICANT EVENTS

Leonardo da Vince (1452 - 1519) in the 1480's designs his first vertical flying machine (i.e., a helicopter).



Figure 1: Leonardo da Vinci drawing of his helicopter design. Credit: New York City Library.

May 13, 1940: First flight by Igor Sikorsky (inventor - pilot) in his R-4 helicopter.



Figure 2: Igor Sikorsky flying the R-4. Credit: Bell Helicopter Corp.

June 18, 1940: The German Luftwaffe Fa-223 Drach (The Dragon) helicopter first flew. When the Fa-223 was first demonstrated to Adolf Hitler he is quoted to have said, "This could be very useful for mountain warfare." There is no definitive proof that the German mountain troops used skis while testing the Fa-223 in the Bavarian Alps. There is film of the Fa-223 landing in snow (with bearpads) [A film of the Fa-223 Drach helicopter](#). and performing some of the first long-line carries.

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Figure 3: German Fa-223 Drach helicopter long-lining. Credit: Helicopter of the Third Reich.

December 31, 1946: the Bell 47G (M.A.S.H style) model helicopter was approved for civilian use. In May 1949, a Bell 47G set an altitude record of 18,550 feet (5,650 m).



Figure 4: Bell 47G model helicopter in the Cariboo Mountains, BC. Credit: Mike Wiegele Helicopter Skiing.

January 30, 1948: The first documented time that skiers were carried by helicopter to the top of a mountain for skiing. The skiers (Martin Chislie and Colin Paterson) flew from downtown Vancouver, BC to the top of Grouse Mountain ski area. The pilot was Paul Ostrander, flying an early version of the Bell 47G helicopter.

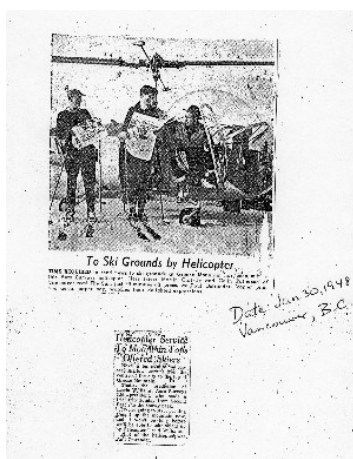


Figure 5: Skiers and helicopter at the top of Grouse Mountain Ski Area, BC. Credit: Bob Petite, Vertical Magazine.

1950: Notable American avalanche researcher and snow ranger, Monty Atwater, used a helicopter for a 3-day site survey of the proposed Walt Disney ski area, (Mineral King), in Northern California. Later Andre Roch would also use a helicopter for another site survey of the same area.

1953: Philippe Bieler while working as a "rodman" on a survey job becomes the first-ever wilderness heliskier in British Columbia near Siffleur lake and Horetzky peak.

January 1959: *SKI* magazine features an article, *By Helicopter to Virgin Snowfields*. The article features Binx Sandal's (early Alta snow ranger) Alaska heliskiing trips in the area that is now Alyeska ski area.



Figure 6: Ski Magazine Cover January 1959.
Credit: Colorado Ski and Snowboard Museum.

February 1963: Hans Gmoser, (who goes on to found Canadian Mountain Holidays (CMH)) does his first heliskiing day with 20 clients. The clients paid \$20 CAD (approximately \$160 USD in today's dollars) for a "day of heliskiing." As it turned out, it was less than ideal conditions: breakable wind crust.

1966: Bill Janss starts the first commercial heliski operation in the United States with Sun Valley Heliski (SVH), in Sun Valley, Idaho. Sun Valley Helicopter Skiing is still in operation.

1970: Mike Wiegele starts his heliski operation in Valmont, BC. He later moves the operation to Blue River, BC.

1971: The first avalanche transceiver The Skadi (Viking Goddess of Winter) is introduced to the market by John Lawton. Leo Grillmair (CMH guide) uses it that season to save a buried avalanche victim. This may have been the first successful avalanche transceiver rescue.

1973: Wasatch Powderbird Guides (WPG) starts operations in the Wasatch Mountains of Utah. WPG is still operating from Snowbird, Utah.

1977: Colorado First Tracks begins operations from Crested Butte, Colorado. They would be in business until 1984.

October 1977: The first advertisement in POWDER magazine for a heliski company was in the October issue, for Mike Wiegele Helicopter Skiing.

1980: Mammoth Heliski begins operations. They were in operation for two seasons.

1980: The first Powder 8 World Championships were held at Mike Wiegele Helicopter Skiing, in Blue River, BC.

1981: Whistler Heliski begins operations. WHS is still in operation from Whistler BC.

1982: Telluride Helitrax was founded. Their first operational day was over Memorial Day weekend in May 1983. They are still in operation.



Figure 7: Telluride Bell 47G Helicopter. Credit: Telluride Helitrax photo.

1984: Mike Wiegele presents his first ISSW paper: Safe Helicopter Skiing. The paper covered the topics of *Choice of Site* (tenure), *Guide Qualifications*, *Client Orientation*, *Attitude* (i.e., Attitude of Safety).

1987: Mike Wiegele approaches Bruce Jamison and Colin Johnston about starting an avalanche research program in partnership with his heliski operation. The result is the Applied Snow and Avalanche Research Calgary (ASARC). Within a couple of years other Canadian heliski and snowcat operations help support the ASARC. There were other field research stations in addition to Wiegele's at CMH Bobby Burns and Parks Canada Rogers Pass. The program ended in 2014.

1990: The first couple of pairs of Atomic "Fat Boy" skis were demoed at Mike Wiegele Heliskiing. These skis had a 115mm waist. They became widely available in the 1991-92 season. These skis led to the "fat ski" boom in the heliski industry.

March 12, 1991: "The Baystreet" avalanche accident happened at CMH Bugaboos. Nine skiers are killed in the avalanche.

April 6 - 13, 1991: The first World Extreme Skiing Championship ski competition was held outside of Valdez Alaska. This competition opened the door to Valdez becoming a major heliskiing destination.

1994: Doug and Emily Coombs start Valdez Heli Ski Guides (VHSG). VHSG is still in operation.

1995: Hans Gmoser sells CMH to Alpine Helicopters and retires from CMH.

September 25, 1996: "The Baystreet" avalanche accident trial concludes. The CMH waiver is upheld by the court.

July 5, 2006: Hans Gmoser at age 74 died.



Figure 8: photo of Hans Gmoser. Credit: CMH.

October 2012: Mike Wiegele at the 2012 ISSW in Anchorage; presented "Avalanche Forecasting for Safe Traveling in the Backcountry: The 5-Step Checklist."

July 15, 2021: Mike Wiegele died at age 82.



Figure 9: photo of Mike Wiegele. Credit: Mike Wiegele Heliskiing.

May 08, 2025: Gordon Precious becomes the oldest heliskier by skiing at age 100 on his birthday at CMH Cariboo's.

3. AVALANCHE RESEARCH STUDIES

There has been a symbiotic relationship between avalanche/snow researchers and the heliski (and snowcat) industry since 1970. The heliski ski industry has contributed funding and data (weather and snowpits), but also in-kind field support for researchers. There are very few ISSW Proceedings without having numerous acknowledgements of the heliskiing operations for contributing to making a paper or study possible.

Here are some of the research topics up to 2009 that the heliski (and snowcat) industry has helped support:

- forecasting factors for skier-triggered avalanches at a helicopter skiing operation.
- properties of persistent and non-persistent weak layers.
- strength of snow slabs and fracture propagation.
- refinement and limitation of the Rutschblock test.
- refinement of shear frame stability indices for skier triggering.
- correlations of shear frame, compression and rutschblock results with skier triggering of persistent slabs.
- micromechanical model of strength changes of surface hoar.
- skier triggering, including triggering from isolated weaknesses.
- spatial variability of snow stability.
- fracture in weak snowpack layers.

Other topics include:

- crack propagation and propagation saw test.
- avalanche bulletin verification.
- which field observations correlate with danger ratings.
- decision support for deep slab avalanches.
- faceting and factors influencing stabilization.
- surface hoar formation and factors influencing stabilization.
- the stress under skiers, snowmobiles, and triggering avalanches.
- snowpack modelling.
- statistical modelling of snow avalanche runout.
- evolution of melt-freeze crusts.
- warming of dry snow and related avalanches.
- GPS tracking of guides' route finding.

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