



## AAC Publications

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### **Frostbite - Exposure, Weather**

Alaska, Denali National Park, Mt. McKinley, West Buttress

On June 13, a guided expedition operated by Rainier Mountaineering Inc. was caught near the summit of Denali in a sudden storm. On the descent to high camp at 17,200 feet, all seven members (ages unknown) of the group sustained varying degrees of frostbite.

The RMI expedition departed the 17,200-foot high camp toward the summit at 12:30 p.m. on June 13. The group had been at high camp for 11 days in mostly poor weather, waiting for a suitable day to make a summit attempt. The group departed in two rope teams. The first team traveled well ahead of the second group, digging avalanche test pits and assessing the snow conditions on the initial section of the slope leading to Denali Pass. As each section was determined safe, the second group would move up to a new location and secure themselves while the lead group continued ahead, making snowpack assessments. At about halfway to the pass, the snow became hardpacked and windblown, and the group moved continuously from there onward. Two guides each reported in later telephone conversations with ranger Mark Westman that at Denali Pass the group had a discussion about the weather conditions and made a decision to continue up toward the summit. One guide reported that the relatively late hour was discussed, and all had noted that the air temperatures were very cold. However, the winds were almost completely calm, there were no high-wind clouds visible, and the group was feeling strong and had been moving at a good pace.

The group continued to the Football Field, where they were overtaken by ranger Westman and Chris Olson, a Volunteers in Parks member, who had left the 17,200-foot camp at 3 p.m. At this time, the group observed snow plumes beginning to stream off the summit ridge above. In addition, vapor banners forming and dissipating overhead signaled the threat of a cloud cap forming over the mountain. One group began to ascend the slope "Pig Hill" with Westman and VIP Olson now in the lead. As the teams approached the crest of the summit ridge at 20,100 feet, the wind, which up to this point had been 15 mph or less, increased to approximately 30–40 mph, and a large lenticular cloud cap formed, rapidly reducing local visibility. This transition occurred very quickly and dramatically, over the span of approximately five to ten minutes.

Around 8 p.m., the 14,200-foot camp recorded a temperature of  $-8^{\circ}\text{F}$ , a below-normal reading for mid-June. On this basis, the estimated air temperature at 20,000 feet would be approximately 20 to 25 below zero (F). Westman and Olson reached the crest around the same time this transition occurred. They immediately turned around and began descending for high camp. Throughout their descent, Westman and Olson experienced whiteout conditions and very strong winds, and they each sustained superficial facial frostbite injuries. One team met the descending NPS team about 200 feet below the summit ridge and continued their ascent to the ridge, then along the ridge to the true summit, which one guide later indicated took "less than one hour" from the time Westman and Olson descended past them. The team spent a few minutes on the summit and then began descending.

As they descended the summit ridge, the weather continued to deteriorate and the visibility became very limited. The group reported whiteout conditions between Archdeacon's Tower and the weather station, and were forced to navigate by locating bamboo wands marking the trail. The entire team reported having trouble with iced-up goggles and visibility, and near Denali Pass the guides noticed that one client who had removed her facemask and goggles had sustained frostbite to her face. Once through Denali Pass and onto the "Autobahn" slope, the team became more sheltered from the wind. Near the bottom of the Autobahn, one guide reported that the frostbitten client became very

exhausted. One guide remained behind to assist her back to camp at a slower pace, while the remaining members of the group pushed on to camp.

Westman made FRS radio contact with the lead guide at 12:30 a.m. on June 14 as he was beginning to descend the Autobahn. The guide indicated that a few in the team had “minor frostbite” on their faces, but reported no distress or need for assistance. Four of the clients each reported in subsequent phone interviews that frostbite to various fingers and toes in the group was not discovered or confirmed until camp was reached and boots and gloves were removed.

The team descended to 14,200 feet. Two clients were escorted by the lead guide to the NPS medical tent for consultation for their frostbite injuries. One client was diagnosed by volunteer medic Chris Nussbickel as having moderate to severe frostbite extending to all digits on both hands. Another client was diagnosed as having moderate frostbite on all digits of one hand and one digit of the other hand. Two clients and two guides did not visit the NPS camp for medical evaluation, but each of them sustained frostbite ranging in severity from superficial to moderate, in a variety of locations that included the face, fingers, and toes. One client was contacted at 11,200-foot camp later that evening by volunteer medic Kevin Del Duca and volunteer Jason Stiegelmeyer, who noticed that she had substantial facial frostbite, with extensive blistering and swelling that had completely closed her right eye.

The team was flown off the mountain by K2 Aviation on the afternoon of June 15. (Source: Mark Westman, Mountaineering Ranger.)

(Editor’s note: Denali can humble the fittest of climbers—including guides. Sometimes people will put the achievement of the summit ahead of physical well-being. It’s a matter of choice. In this case, it would be interesting to know what the conversation between the guides and clients might have been.)

## Images

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