



## AAC Publications

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### Frostbite

Alaska, Denali National Park, Denali, West Buttress Route

**On June 4, a guided group summited Denali via the West Buttress climbing route. The lead guide reported that "...temperatures were between -10°F and -20°F.** Once above Denali Pass, winds were estimated at a consistent 15 to 20 mph, with occasional gusts of 25 to 30 mph." These observations were consistent with other climber and NPS ranger reports that day. At 10 p.m., the wind increased and visibility decreased on the upper mountain while the guided team was descending the peak.

At 2:30 a.m. on June 5, mountaineering rangers at 17,200-foot camp were notified that two climbers on this guided expedition had returned to camp with frostbite injuries sustained during their summit climb and needed medical assistance. The rangers assessed both patients and deemed that one required urgent evacuation. The 53-year-old male had deep frostbite injuries to all ten fingers, all ten toes, and his nose. The patient believed that most of the frostbite occurred during the slow descent to camp; he reported that his fingers had frozen when he removed his mittens to manipulate the carabiners on snow pickets. The NPS team worked throughout the night to rewarm the affected extremities on both patients while awaiting flyable weather.

At 9:37 a.m., the NPS helicopter flew to high camp and evacuated the 53-year-old patient to base camp, where he was transferred to an air ambulance and ultimately transferred directly to the frostbite specialists at the University of Utah Burn Center in Salt Lake City for advanced treatment. Subsequent reports revealed that this climber had nearly all of the frostbitten tissue amputated during the course of his care.

Following the evacuation of the first patient, the second patient, a 31-year-old male, was also flown from high camp due to deep frostbite injury on one of his feet. The ranger team was concerned that this climber could not descend safely on the frostbitten limb and opted to evacuate in order to prevent further injury.

### ANALYSIS

Deep frostbite injuries often have long-term consequences. It is essential for climbers to actively rewarm body parts that become cold while traveling in alpine conditions. When environmental circumstances prevent the rewarming of these body parts, climbers must seek shelter or descend to a more hospitable location to prevent further injury. Keep in mind that if a frozen body part is thawed, refreezing must be prevented, as this will increase the severity of the original injury. (Source: Denali Mountaineering Rangers.)

**Images**

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