

## Boots in the Forest

# AVALANCHE FORECASTER

Hi, I'm Bruce Tremper, Director of the Forest Service [Utah Avalanche Center](#) (UAC), which is the state's central resource for avalanche information. As an avalanche forecaster, I perform a variety of tests to determine snow stability. Winter backcountry users need to know avalanche conditions to stay safe while they're in avalanche terrain.

### What were you doing when this photo was taken?

I was digging a snow profile to map avalanche danger.



[See how stability tests are done on potential avalanche areas](#)



### What is a typical day for you?

I spend a couple days per week doing fieldwork in the mountains throughout Utah, a couple days per week getting up at 3:00 am to issue the daily avalanche forecast by 7:00 am, and another day per week teaching avalanche classes or working on other projects. My office is co-located with the National Weather Service near the Salt Lake City airport. Avalanche forecasting fieldwork is essential for making accurate avalanche forecasts.

### What kind of footwear do you typically wear?

Ski boots.

### How do you forecast avalanche conditions?

As avalanche forecasters, we often think of ourselves as natural detectives. We gather as much information as possible from a wide variety of sources, and then communicate our analysis to the public. We look at the weather, talk to ski area avalanche control programs, helicopter ski companies, highway control programs, and volunteer observers on a daily basis. Our most important source of information comes from our own observations. We regularly travel into the mountains, where we can be in intimate contact with the snow. Doing fieldwork in uncontrolled backcountry avalanche terrain is not only where we get our best information, but it's also where we can get instant feedback.



*Ski boots: the best footwear for avalanche forecasting.*

## What does fieldwork involve?

We put climbing skins on our skis and huff-and-puff to the top of a mountain, take off the skins, ski down into another valley, put the skins back on again, go to another ridge, and so on. We use snowmobiles to access more remote areas. We travel with a partner and carry avalanche safety equipment like electronic avalanche beacons, shovels, probes, belay rope, cell phones and Spots. We seldom have a regular patrol area. We simply go to the area that concerns us the most, or to a place that we know is representative, where we can look at snow on a variety of aspects, elevations and terrain types.



[Watch an avalanche forecaster's field day](#)

## AVALANCHE FORECASTING

The Forest Service's Intermountain Region played an important role in the development of avalanche forecasting. Montgomery "Monty" Atwater joined the Forest Service in 1945 as a snow ranger at Alta, Utah where he established the first avalanche research center in the western hemisphere. He and Ed LaChapelle pioneered avalanche research in the 1950s.

Atwater published *The Avalanche Handbook*, which was the first English-language book of its kind. He also planned and supervised avalanche control for the 1960 Olympic Winter Games in Squaw Valley, California.

LaChapelle became a Forest Service snow ranger at Alta in 1952. In addition to his avalanche research, he was known as an accomplished physicist, glaciologist, mountaineer, skier, and professor.

## How do you gather information about avalanche conditions?

We gather information in many different ways. For instance, we dig snow pits on many different slopes to get a good feel for the distribution pattern of snow stability. We look at the crystallography of the various layers and temperatures, and we document this information in a snow profile.

We also jump on small test slopes, drop cornices, perform safe slope cuts, and visit recent avalanches to identify the weak layers and gauge how reactive they are. We keep close track of the pattern of recent avalanches, and we always pay very close attention to the present snow surface because it's much easier to map a layer of snow when it's still on the surface than after it's buried by the next storm.

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*“As avalanche forecasters, we often think of ourselves as natural detectives.”*

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## What do you like most about your job?

Being able to spend time in the snow.



**Monty Atwater helped to develop the Avalauncher, a pneumatic cannon for launching avalanche control explosives**



**Ed LaChapelle and Cola, the first dog used in locating avalanche victims.**