



A storm was building. Fitful gusts of wind stirred the snowdrifts above us. We had worked our way around Gulkana Glacier's terminus, up its west flank, under an icefall, and over to a small weather station high on the glacier's east side. Crampons probably weren't necessary but I wore them anyway. Black clouds, pregnant with moisture, sailed north into the Alaska Range, banging into ridges, sticking to peaks. Tufts of tundra covered the lower reaches of the valley. Dall sheep—tiny white dots in the distance—clung to their high green ground. Everywhere else, the rock was bare, grey, primordial. Angular fragments of granodiorite, loosened by the rain, clinked down the surrounding cliffs. Snow began to collect a thousand feet above us. The Pleistocene was settling back around our shoulders like a shawl. It was August.



▲ Gulkana Glacier flowing down from the Alaska Range.

◀ Terminus of Gulkana Glacier, north of Paxson.

◀◀ Snow collecting on the upper reaches of Nebesna Glacier on the flanks of Mount Blackburn, Wrangell-Saint Elias National Park and Preserve.



▲ Dall Sheep in the Alaska Range, Denali National Park and Preserve.

Dennis Trabant had recorded the glacier's outline with a GPS receiver as we walked its lower perimeter. Rod March was a mile away, already at the weather station, fussing with the anemometer and precipitation gauges. At that time, the US Geological Survey had exactly two glaciologists working full time in all of Alaska—Dennis and Rod. I was along for the ride, learning their glacial world from the ground up.

Crossing the glacier, I wove a zig-zag path through a field of minor crevasses. These cracks extended up and down the glacier, parallel to its spine. The breaks were only twenty or thirty feet deep, separated by comfortably wide catwalks of surface ice. I walked first left, then right, then left, through this rectilinear maze—ten steps sideways for every one forward. I could hear water rushing below as I jumped two or three feet over the narrower crevasses. I was getting used to this place.

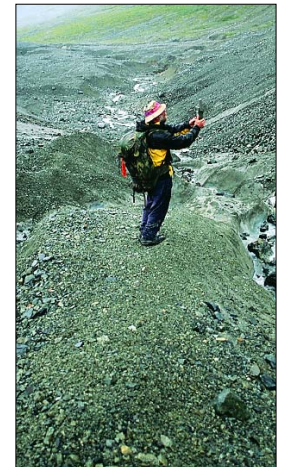
▼ Bare flanks above Gulkana Glacier attest to its dramatic shrinkage over the past 150 years.



We spent two hours at the weather station, changing antifreeze, repairing wind vanes, tinkering with batteries. I kept looking south, where even darker clouds roiled as the storm grew more ominous. Dennis and Rod patiently ignored my not-so-subtle hints about the approaching rain. Running low on optimism, I assumed that it would wash us off this glacier—or worse, turn into snow and trap us up here for the winter. They smiled, shrugged, and kept working as rain began to fall in earnest.

The maintenance chores were done by 5 PM. We buttoned up the station and headed off the moraine. The truck was too many miles away to think about. Rain steadily filled my backpack as we marched down the glacier. The Nikon camera submerged in the front compartment blew bubbles of disbelief at my carelessness. My crampons made a satisfying s-c-r-i-t-c-h with each bite into the ice. Unfortunately for the camera, I scarcely noticed the rain, mesmerized instead by this wild white world. Glacier—this amalgam of an all-but-infinite number of snowflakes. Glacier—this irresistible force leveling the mountains even as I watched. Glacier—this great sleeping beast beneath my feet.

▼ The terminus of Gulkana Glacier has been steadily retreating as the glacier loses volume. Dennis Trabant and Rod March use GPS technology to monitor the retreat.





ICE. Three-quarters of all fresh water in the world is locked up as ice. Six million square miles of the Earth's surface lie shrouded beneath a silent white blanket. Near the end of the Pleistocene ice ages twenty thousand years ago, three times more ground was ice-covered—at least a quarter of the Earth's land surface. Glacial ice exerts a profound influence on the shape of the world in which we live—gouging the Great Lakes, dismantling the Himalayas, scooping out the fjords of Norway, beveling the American Midwest. Nowhere else in North America can we find better examples of these on-going processes than throughout the state of Alaska.

Gulkana is only one of Alaska's one hundred thousand glaciers. This number, at best a crude guess, rises and falls as the climate changes and icefields expand or contract. Ice covers 29,000 square miles of this state—about five percent of its total land surface. And where there is no ice, you're likely to find evidence of past ice ages—land forms that have been whittled down or heaped up by the great ice sheets that buried half of Alaska eighteen thousand years ago.

Why is there so much ice in Alaska? Why not North Dakota, where it's just about as cold? I learned the answer to this question the hard way as I flew, floated, and hiked through Alaska's glacier country. Storms were always brewing and my boots were always wet. If precipitation isn't falling yet, it will soon. Snow is the first, second, and third ingredient in any glacier pie.

A quick squint at a map shows glaciers rimming the coast of the Gulf of Alaska. The gulf is home to the semi-permanent Aleutian Low, a predictable area of low atmospheric pressure that generates so much of the weather that goes on to soak the rest of the United States and Canada. These storms, spinning counter-clockwise, take their first landfall punches against the coastlines of southeastern Alaska and Prince William Sound. Rainfall at Yakutat averages 130 inches a year. The Juneau Icefield receives 100 feet of snow every winter.

← *Fog clings to the Taklimsha Mountains west of Haines.*