



Mendenhall Glacier

TONGASS
National Forest

WELCOME

On behalf of the U.S. Forest Service, we welcome you to the Mendenhall Glacier Recreation Area of the Tongass National Forest. Here, the Mendenhall Glacier has been the dominant force in shaping the landscape. The Mendenhall scene changes day to day. This is your opportunity to experience it firsthand.

The Mendenhall Glacier Visitor Center — the hub of activities in the Recreation Area — affords the most spectacular view of North America's most accessible glacier. Forest naturalists of the center are your hosts during your visit. They provide you with informative programs of the glacier, the new forest, and the wildlife of this glacier-carved landscape.

We invite you to take time to enjoy the beauty and rich landscape you find here. Please help us keep it clean and uncluttered for others to enjoy.



Remember,

TAKE ONLY PICTURES

LEAVE ONLY FOOTPRINTS

For your personal safety, please do not approach the base or sides of the glacier. Large pieces of ice weighing many tons may fall from the glacier at any time. (In Winter Too!)

THE GLACIER STORY

Several times during the last million years, much of the North American continent, as well as all of Southeast Alaska, has been buried under glacial ice. Along the southern coast of Alaska, the valleys, channels, and fiords were carved by rock and grit frozen into the bottom of the moving ice. When the climate warmed, much of the ice sheet melted back and exposed the valleys.

THE JUNEAU ICEFIELD — WHERE IT ALL BEGINS

The Mendenhall Glacier and many others along the Southeast Alaska coast are remnants of the Little Ice Age which began about 3,000 years ago. Warm, moist air flowing in from over the ocean cools as it rises above the 5,000 foot coastal mountains and drops its moisture as snow. Each year, more snow falls than melts on the 1,500 square mile Juneau Icefield where the Mendenhall and 35 other glaciers begin. Snowfall on the icefield exceeds 100 feet in some years. At snow depths of about 200 feet, the tremendous weight and pressure changes the snow into glacial ice. The glacier is a frozen textbook, for in its ice pages - the annual layers of snow laid down during its building - is the record of its history and clues to a much larger story of this region's glaciation.

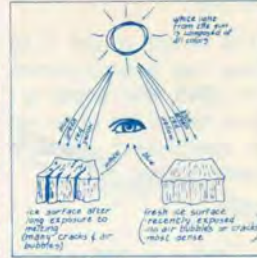
The glacial ice is pushed out of the icefield under tremendous pressure. Then the glacier moves down the valley like a great conveyor belt - plucking rocks of every size from the valley floor and mountain walls - gouging and polishing the bedrock as it travels its 12 mile course. As ice melts at the 1 & 1/2 mile wide glacier front, it deposits its load of rock and debris and builds land forms called moraines. The ice at the face of the glacier is less than 150 years old.

Though the glacier is solid and crystalline on its surface, along the bottom it is plastic-like due to the great weight and pressure from above. The glacier, then, flows - like a ponderous, viscous river between the mountains, sometimes as fast as several feet per day. When the warm air of the valley melts the ice faster than it can be replaced from the higher elevations, the glacier face recedes. But because glaciers are a product of climate, they respond to climatic change. For the Mendenhall to begin advancing once again, either of two changes would have to occur. More snow would have to fall in the zone of nourishment, or melting of the face would have to decrease. Either change could be caused by just a minor change in climate.

Grooves and scratches gouged by the glacier before it receded are still visible in the surface of the bedrock - sometimes with the rocks that carved them still in place at the end of a groove.

BLUE ICE

Glacial ice shows its true blue color in fresh crevasses, and where the ice has recently broken away, or "calved". The crystals of glacial ice are so dense that no cracks or air bubbles that would reflect white light are present. This allows light to pass deep into the ice. The crystals of glacial ice act like prisms, reflecting only the blue wavelength and absorbing all other colors. As the exposed ice begins to melt, tiny cracks develop along the crystal faces, with the result that white light is reflected back. The blue is more intense on overcast days because more blue than other colors passes through the clouds.



HOW WAS THE GLACIER NAMED?

Mendenhall Glacier was once named after the Auke Indians, a village group of Tlingits who lived in the Juneau area. In 1879 John Muir, the noted naturalist of the late 1800's, visited Southeast Alaska, and in his journals he noted his impressions of his visit to "Auk Glacier." In 1892 the name was changed in honor of Thomas Corwin Mendenhall, Superintendent of the U.S. Coast and Geodetic Survey, under whose administration the international boundary of Southeast Alaska was surveyed. This survey took place between 1886 and 1894 and finally settled a boundary question which the United States inherited when it purchased Alaska from Russia in 1867.

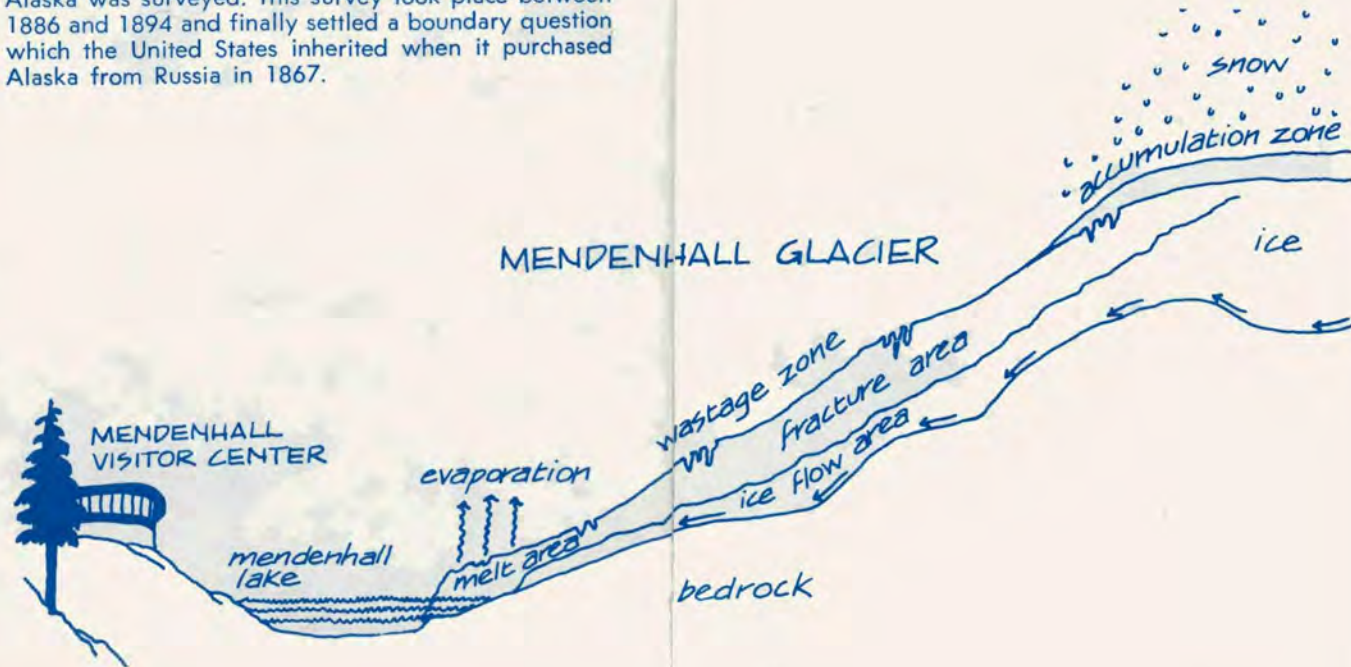
FROM ICE TO FOREST - THE DYNAMIC PROCESS

Before 1750, Mendenhall Glacier was an advancing glacier; that is, more snow nourished the glacier than melted. At that time, it was two and one-half miles down the valley from its present position. Slightly warmer temperatures increased the rate of melt and the glacier began to recede.

Today, the Mendenhall Glacier is continuing to recede slowly. As it melts, new land that is feeling the warmth of the sun for the first time in centuries is being exposed. As the glacier recedes, the valley floor is covered by boulders, gravel, sand, and silt that the glacier delivers from several miles up the valley.

Lichens, among earth's longest-lived, slowest-growing plants, are quick to inhabit the new, ice-free land. These small plants may grow for centuries, and hence, by their age, reveal when the ice began to recede. Very soon other pioneering plants and animals colonize the glacial debris. In about 75 years, a lush, fast-growing forest of Sitka spruce and western hemlock covers the once ice-covered area.

This transition - the process of a forest becoming established on new land - can be studied firsthand in this valley. Here, we observe the complex process of soil building and the succession of plants and animals in ever-changing habitats. The principles of development of this landscape apply as well to the changes that occurred thousands of years ago when the massive Ice Age glaciers melted back from the continents of the northern hemisphere. So, at Mendenhall we look into the past as well as to the present and future.







THE JUNEAU ICEFIELD

AN OUTDOOR RESEARCH LABORATORY

Because glaciers are products of climate, they respond to climatic change. In a sense, they are like giant thermographs containing the record of past climatic conditions. Mendenhall Glacier, one of Alaska's many living reminders of the Ice Age, gives scientists new insights into the past and present climatic conditions and yields information for predicting conditions in the future.

Each summer, scientists and students inhabit the vast expanses of snow and ice along Juneau's coast mountains. In an area where raw nature conditions man, the Juneau Icefield becomes a classroom-laboratory, revealing the environmental secrets that glaciers hold. Students from all over the world are learning to read glaciers - somewhat like a book. The pages in this book are the annual layers of snow, ice, and the accumulation of dust, pollen, and spores between the layers.

At the present time, the Mendenhall is receding very slowly, but studies of past glacial fluctuations suggest that it may soon be advancing once more. Scientists have shown that summers in Southeast Alaska have been slightly cooler since the late 1950's - enough to reduce the melting rate of Mendenhall Glacier - enough possibly to cause an advance of the glacier in the future. What will another 10, 20, or 50 years bring? Maybe the glacier will tell.

FISH

Sockeye (red), chum (dog), and coho (silver) salmon return from the open waters of the Pacific Ocean and spawn in Steep Creek - a small forest stream that enters Mendenhall Lake at the parking lot near the visitor center. You can watch the spawning salmon lay their eggs in the stream near the salmon wayside exhibit most of the summer. Sport fishing is not permitted in Steep Creek to allow you the opportunity to view this phase of the salmon life cycle.



WILDLIFE

Telescopes are provided in the visitor center to help you spot mountain goats that live high on the cliffs of Mt. Bullard above the glacier.

Black bear, snowshoe hare, porcupine, wolverine, and other animals may occasionally be seen in the vicinity of the visitor center.



BIRDS FOR ALL SEASONS

The Arctic tern, a migratory shore bird, nests on the gravel shore of Mendenhall Lake. Its annual round trip flight between the Antarctic and the Arctic makes it the world's migration champion. Its acrobatic flight during the spring nesting season is a favorite attraction for visitors.

The American bald eagle, our National Emblem and king of Southeast Alaska skies, is a frequent visitor to the Mendenhall area. Bald eagles are often seen in the fall, especially around Steep Creek, where spawned out salmon provide a hearty meal.

In winter, the willow ptarmigan, Alaska's state bird, takes on its snow white coloration - from summer's brown and white - and is often seen in the snow-covered areas around the visitor center.

VISITOR CENTER FACILITIES

The visitor center is 13 miles from downtown Juneau and about 5 miles from the airport. The center is open year round, but operates on a reduced schedule during winter.

The visitor center is located on an outcrop of bedrock that has been scoured and polished by glacial action. In 1940, the receding glacial ice still covered this rock, but today the observatory of the visitor center affords a spectacular view of Mendenhall Glacier one-half mile away.

Other facilities include:

Information desk — naturalist on duty

Large relief map — see in miniature the mountain topography of Juneau's ice field and glaciers.

Audio-visual room — featuring stories of Southeast Alaska's glacier-carved landscape.

"Trail of the Glacier" — a one-half mile self-guiding nature trail which shows how the glacier has sculptured the valley landscape and the plants and animals that now inhabit the area.

Photographic point

Restrooms and drinking fountain

East Glacier Trail — this 3 mile trip gets you above the glacier through a new forest that was covered by glacier ice 100 years ago.

Steep Creek salmon exhibit (wayside) — near the visitor center parking lot. Offers one of the best places to watch and photograph spawning salmon from early July through December.

THE GLACIER'S VITAL STATISTICS

Length — 12 miles from the Juneau Icefield to Mendenhall Lake

Width at the face — 1 & 1/2 miles, from valley wall to valley wall

Height of the face above lake level — 100 feet average

Distance from visitor center to face — 1/2 mile

Rate of forward glacial flow — sometimes several feet per day

Rate of current net retreat caused by melting — less than 50 feet per year

Age of ice at the glacier face — no more than 150 years

Maximum depth of Mendenhall Lake — 200 feet (130 feet deep along highest glacier face)

Elevation of Mendenhall Lake — approximately 50 feet above mean sea level



Administration

The Mendenhall Glacier Visitor Center - dedicated in 1962 to the "furtherance of knowledge and enjoyment of glacial phenomena" - was the first Visitor Information Service facility in any National Forest in the United States. The Visitor Information Service programs of the center are presented to you by the Forest Naturalists of the Forest Service, U.S. Department of Agriculture.

For more information, write to:

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