

## Glacial Erosion: Causes and its Characteristics

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### DESCRIPTION

Glaciers are massive sheets of solid ice and snow that cover a vast territory. The glaciers move very slowly, about 2 cm each day, due to the force produced by the weight of the ice. The movement of the packed ice pieces produces erosion of the soil beneath the glacier. This is referred to as glacial erosion. Glacial erosion is simply the bending and molding of the terrain beneath a moving glacier. This may occur around the north and south Poles, as well as on extremely high land, such as big mountains.

There are two main types of glacier erosion. The first is plucking, which involves the erosion and transfer of big fragments of rock. Water melts under the glacier as it advances over the country, seeping through cracks in the underlying bedrock. This water freezes and melts, breaking the link that holds the rock particles together. The resultant rock fragments are then ready to be removed from their stony basis and readily transported with the flowing glacier. Plucking removes rocks and alters the terrain.

Plucked boulders and sediment clinched to it, tends to scrape and cut the surface of the rock below. It's almost as though the glacier's movement were sandpapering the rocks. As the glacier sands the rock, it leaves behind lengthy scratches called glacial striations that occur in the direction of the glacial flow. The presence of these scratch marks indicates that the area was previously covered by a glacier.

Glaciers now exist exclusively in the coldest places of our world. However, glaciers covered a large area of the world during the previous ice age. When the ice melts, it leaves behind several characteristic landforms of glacial erosion features. The following are some of the most notable elements of glacier erosion.

### Cirque

A cirque, often called a corrie, is a valley formed by glacier erosion. The valley is shaped like an amphitheater and seems to be a huge cup from above. The headwalls are the highest points

on the edges of the clifflike hills. The valley floor is shaped like a bowl and is where vast volumes of debris and rock particles generated by glacier erosion are deposited. Upper Thornton Lake Cirque is located in the North Cascades National Park in the United States.

### The cirque stairway

A cirque stairway is formed by arranging a sequence of cirques one above the other at varying altitudes. The best-known example of a cirque stairway may be seen in Germany's the Black Forest. The Zester Loch is located under the highest peak of the Feldberg, the forest's tallest mountain.

### Valleys with U-shapes

Glacial erosion widens the valley sides and deepens the valley bottoms, transforming narrow and V-shaped valleys generated by streams into U-shaped valleys. Small stones transported by glaciers are found deposited throughout the valley bottom. Such valleys abound throughout the Himalayas and the Alps. A valley like this may be found in Wales, in the Nant Francon Valley.

### Arete

This is a thin ridge that connects two valleys. Glacial processes frequently erode two parallel U-shaped valleys or two glacial cirques, resulting in a ridge between them. This is referred to as an arête. Clouds Rest is an arête in California's Sierra Nevada Mountains.

### Striations in the ice

When the glacier advances, the sand grains and rock particles on the bedrock produce stains or striations in the shape of gouges and scratches. These imprints on the bedrock become evident when the glacier has receded. The glacial grooves on the Columbus Limestone may be seen on Kelley's Island in Ohio. These grooves can be 400 feet long, 10 feet broad and 35 feet deep.

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## CONCLUSION

Although it may be difficult to imagine, the Earth's climate has changed dramatically throughout time. Many cycles of warmer and colder average temperatures have occurred on Earth. Although the overall change in average world temperature may be only a few degrees celsius, this is enough to alter the quantity

of snow that falls or melts in a specific place over a year.

The Earth goes through a cooling cycle for several thousand years. Snow falls faster than it melts, and glaciers expand over time. Glaciers have advanced and retreated thousands of kilometers at least four times in the last million years.