

Glacial Erosion and Deposition

[MUSIC PLAYING] - Imagine a giant mountain of ice slowly moving across the planet, reshaping the land as it goes along. Sounds pretty terrifying, right? Well, these massive glaciers-- or slowly moving rivers of ice-- actually exist near the poles and in high altitudes, and they play a key part in the erosion process. Glaciers tend to move down valleys and scrape across the Earth's surface, eroding the rocks underneath. They take V-shaped valleys, flip them into a new letter of the alphabet, and erode them into U-shaped valleys.

This kind of erosion takes two forms, abrasion and plucking. Abrasion is the process of scraping the underlying bedrock as a glacier moves over it, while plucking is the removal of chunks of underlying bedrock by the glacier as melted water seeps into cracks and freezes. Glacial erosion sculpts the Earth's surface into a lot of different shapes. It can form long parallel grooves called striations, which show the direction in which the glacier moved. Cirque's are steep-sided, bowl-shaped depressions formed as a glacier plucks and erodes underlying bedrock. It can even create pristine mountain lakes called tarns, formed by glacial groundwater and precipitation.

Glaciers can also form horns-- no, not the kind you would find on a unicorn. These horns are sharp-sided angular peaks formed as glaciers move away from a central peak. Staying on the pointy side, as two glaciers erode in opposite directions, they can form an arete, a steep-sided sharp-edged ridge. A roche moutonnee is an asymmetrical hill of bedrock formed by abrasion and plucking by the moving glacier. So instead of a sharp, steep peak, it looks more lumpy and undefined.

As glaciers move, rocks move with them. In their wake, they leave behind moraines, or deposits of unsorted glacial debris like rocks and soil. Medial moraines are at the middle of glaciers that form where two glaciers join together. Lateral moraines are at the edge of glaciers and form as material drops onto the glacier from erosion of the valley walls. Terminal, or end moraines, mark the farthest point the glacier advanced and ground moraines are made up of sediment deposited under the glacier that contribute to soil fertility.

When glaciers melt, they deposit the big and small bits of rocky material that they're carrying along. These unsorted bits of rock pieces are known as glacial till. They can also be glacial erratics, which are rocks in an area that are different than the bedrock in the area. Glacial melt also can form eskers, which are long, curvy, upside down V-shaped ridges of sediment deposited under a glacier by melted water. Drumlins are asymmetrical hills of sediment formed under a flowing glacier found in groups called drumlin fields.

Stratified drift is sorted material by liquid water from melted glaciers, and washout planes are broad plains created by glacial movement. These giant walls of moving ice might not seem like they do much, but they helped shape the Earth into what we know today, a few inches at a time.

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