Permafrost is a permanently frozen layer below the Earth's surface. It consists of soil, gravel, and sand, usually bound together by ice. Permafrost usually remains at or below 0°C (32°F) for at least two years.

Permafrost can be found on land and below the ocean floor. It is found in areas where temperatures rarely rise above freezing. This means permafrost is often found in Arctic regions such as Greenland, the U.S. state of Alaska, Russia, China, and Eastern Europe.

Permafrost thickness can range from 1 meter (3 feet) to more than 1,000 meters (3,281 feet). Permafrost covers approximately 22.8 million square kilometers (8.8 million square miles) in the Earth's Northern Hemisphere. Frozen ground is not always the same as permafrost. A layer of soil that freezes for more than 15 days per year is called "seasonally frozen ground." A layer of soil that freezes between one and 15 days a year is called "intermittently frozen ground." Permafrost is frozen for two years or more.

Permafrost does not always form in one solid sheet. There are two major ways to describe its distribution: continuous and discontinuous.

Continuous permafrost is just what it sounds like: a continuous sheet of frozen material. Continuous permafrost extends under all surfaces except large bodies of water in the area. The part of Russia known as Siberia has continuous permafrost.

Discontinuous permafrost is broken up into separate areas. Some permafrost, in...
the shadow of a mountain or thick vegetation, stays all year. In other areas of discontinuous permafrost, the summer sun melts the permafrost for several weeks or months. The land near the southern shore of Hudson Bay, Canada, has discontinuous permafrost.

Scientists who study permafrost are able to understand changes in the Earth's climate by observing changes in permafrost. Studies show the Earth's permafrost warmed by 6C during the 20th century. Scientists predict widespread melting of permafrost by 2100.

Melting permafrost would raise water levels in the Earth's oceans and increase erosion. Erosion happens when permafrost melts because soil and sediment are easily washed away without the ice binding them together.

Vocabulary

<table>
<thead>
<tr>
<th>Term</th>
<th>Part of Speech</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>approximately</td>
<td>adjective</td>
<td>generally or near an exact figure.</td>
</tr>
<tr>
<td>Arctic</td>
<td>noun</td>
<td>region at Earth's extreme north, encompassed by the Arctic Circle.</td>
</tr>
<tr>
<td>climate</td>
<td>noun</td>
<td>all weather conditions for a given location over a period of time.</td>
</tr>
<tr>
<td>continuous</td>
<td>noun</td>
<td>layer of soil that is permanently frozen.</td>
</tr>
<tr>
<td>permafrost</td>
<td>noun</td>
<td>frozen layer of soil that thaws during the summer.</td>
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<tr>
<td>discontinuous</td>
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<tr>
<td>permafrost</td>
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<tr>
<td>erosion</td>
<td>noun</td>
<td>act in which earth is worn away, often by water, wind, or ice.</td>
</tr>
<tr>
<td>freezing</td>
<td>adjective</td>
<td>at or below 0 degrees Celsius (32 degrees Fahrenheit).</td>
</tr>
<tr>
<td>gravel</td>
<td>noun</td>
<td>small stones or pebbles.</td>
</tr>
<tr>
<td>ice</td>
<td>noun</td>
<td>water in its solid form.</td>
</tr>
</tbody>
</table>
intermittently frozen ground  
**noun**  
earth that freezes between one and fifteen days a year.

mountain  
**noun**  
landmass that forms as tectonic plates interact with each other.

Northern Hemisphere  
**noun**  
half of the Earth between the North Pole and the Equator.

permafrost  
**noun**  
permanently frozen layer of the Earth's surface.

sand  
**noun**  
small, loose grains of disintegrated rocks.

seasonally frozen ground  
**noun**  
earth that freezes more than fifteen days a year, but less than two continuous years.

sediment  
**noun**  
solid material transported and deposited by water, ice, and wind.

shadow  
**noun**  
dark area where an object prevents light from reaching a surface.

Siberia  
**noun**  
region of land stretching across Russia from the Ural Mountains to the Pacific Ocean.

soil  
**noun**  
top layer of the Earth's surface where plants can grow.

temperature  
**noun**  
degree of hotness or coldness measured by a thermometer with a numerical scale.

vegetation  
**noun**  
all the plant life of a specific place.

**Articles & Profiles**
- [National Geographic News: Thawing Permafrost Could Supercharge Warming](#)

**Websites**
- [International Permafrost Association: Find Out More About Permafrost](#)