

A glacier is a mass of thick ice that stays frozen and can move slowly over land. During the Ice Age, which ended about 10,000 years ago, many parts of the world were covered with glaciers. Almost all of Canada and the northern parts of Europe, like Scandinavia and Siberia were covered with ice.

Today, the large ice masses of the Ice Age are gone but there are still glaciers all over the world. Most of them exist high up in mountain regions but even around the equator there are places where snow falls and never melts.



Aletsch Glacier in Switzerland

HOW GLACIERS FORM

Glaciers can form in places where the snow that falls in winter months cannot completely melt away during the summer. The layers of snow get thicker and thicker. When it melts and freezes over and over again it turns into ice. This ice can become very heavy and starts to move down valleys.

The speed at which glaciers move depends on the climate. When it gets colder glaciers get bigger and move downwards. When it gets warmer over a longer period of time glaciers melt and retreat back to the tops of the mountains. In some cases glaciers can move up to 1 km or even more every year. When a glacier moves over land slowly it picks up rock and dirt and carries these materials along with it. When a glacier comes to a standstill it piles up this material to form moraines. The gigantic weight and power of glaciers can even reshape mountains. This happened to the Alps and other mountain ranges during the Ice Age.

The earth's glaciers hold about 75 % of the world's freshwater. Many people think that if temperatures around the world increase, more and more ice will melt. Sea levels will go up and flood many coastal areas.

TYPES OF GLACIERS

VALLEY GLACIERS

Valley glaciers grow high up in the mountains. They form in places where it stays cold the whole year and where snow falls even in the summertime. These glaciers flow down valleys and start to melt when it becomes too warm. Over the years rivers of ice have carved out many mountain valleys and given them the shape we see today.

Near the equator such glaciers can be very short, maybe only two or three kilometers, but in North America and Europe valley glaciers are much longer and larger. The Lambert Glacier in Antarctica is the longest in the world. It has a length of 700 km. The Aletsch Glacier in Switzerland is about 23 km long. Austria's longest glacier is the Pasterze, which lies at the foot of the Großglockner and is about 8 km long.

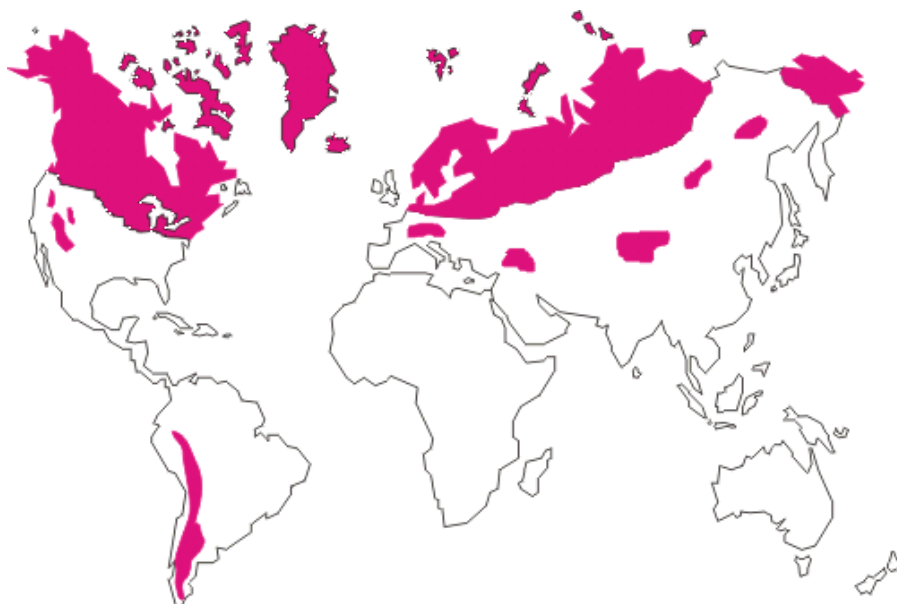
ICE CAPS AND ICE SHEETS

When a glacier lies on a high mountain plateau and moves out in all directions it is called an ice cap. When ice caps grow to cover whole islands or continents we call them ice sheets.

There are two big ice sheets in the world. In Greenland over 80% of the island is covered with ice and almost all of Antarctica has ice on it. In these places ice can grow to be 3,000 meters thick. Ice sheets continue to grow even if there is not a lot of snowfall. Sometimes ice sheets extend out into the oceans. Huge chunks of ice break off and turn into icebergs that float in the ocean

ICE AGES

Since the 19th century scientists have learned a lot about how climate works and how it changes. Today we know that at times during the earth's history there have been colder periods. During the last three million years there have been four Ice Ages that we know of. After each of these colder periods it became warmer and glaciers retreated. The last Ice Age probably ended about 10,000 years ago and today we are in an interglacial period.



WORDS

- **at times** = sometimes
- **carve out** = cut out of an object
- **chunk** = a large piece of something
- **coastal** = where the sea meets land
- **completely** = totally
- **continue** = to go on
- **cover** = to form a layer over something
- **depend on** = to be affected by something
- **direction** = path, route
- **equator** = the line around the middle of the earth
- **extend** = reach out into
- **float** = to swim on the sea
- **flood** = to cover land with water
- **flow** = move into
- **form** = start to exist
- **freeze-froze-frozen** = if an object is very cold and becomes hard
- **freshwater** = water that has no salt
- **gigantic** = very big
- **in some cases** = sometimes
- **increase** = to go up
- **interglacial** = between two Ice Ages
- **layer** = material that lies between two other parts
- **length** = how long something is
- **melt** = to become water
- **moraine** = the rocks that are moved along at the bottom of a glacier
- **period** = a time in history
- **pile** = more and more material is left there
- **probably** = likely, almost certainly
- **range** = a group of mountains
- **reshape** = to give another form
- **retreat** = to go back
- **rock** = hard objects that you can find on earth
- **scientist** = a person who is trained in science
- **sea level** = the average height of the sea; it is a standard which is used to measure how high mountains, cities and other objects are
- **shape** = form
- **speed** = how fast something is
- **standstill** = if something doesn't move
- **valley** = the low land between two mountains
- **weight** = how heavy something is