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Glaciers and Polar Ice Caps

Glaciers:

Glaciers are slow moving rivers of ice, that usually form in valleys, or sometimes on plateaus, and move in response to gravity. They form when snow undergoes repeated freezing and thawing, at which stage it becomes granular ice. Then, because of the pressure of new snow or ice on top, that granular ice melds into a type of ice called firn. The firn then, over many years, becomes more and more compacted, eventually turning into glacier ice.

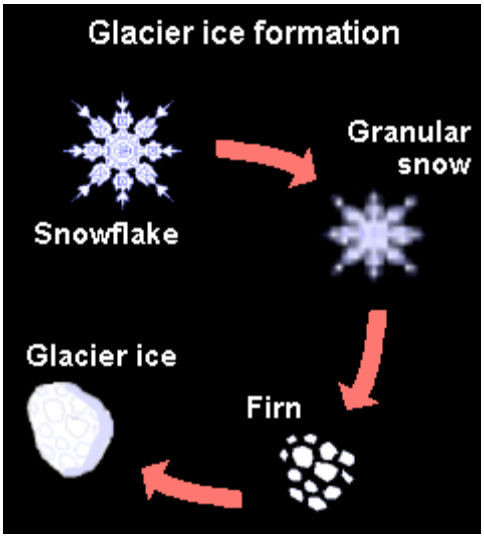

Photo from: http://en.wikipedia.org/wiki/Glaciation

There are three major types of glaciers; valley glaciers, plateau glaciers, and tidewater glaciers. Valley glaciers, the smallest of all glaciers, form in valleys, in alpine zones. Plateau glaciers are large, high-altitude glaciers, that cover plateaus. Finally, tidewater glaciers, are glaciers that flow into the ocean, breaking off as they hit the water, causing the formation of icebergs.

Polar Ice Caps:

On earth, there are two polar ice caps; the north pole and the south pole. A polar ice cap is any body of ice, floating, or over land, that is found in a planet's polar regions. The north pole is floating sea ice in the Arctic Ocean, that just recently broke away and became a sea ice island. It covers between 9 and 12 million square km, depending on the season. The south pole on the other hand is not an island. It is around 14 million square km and holds 70% of the earth's freshwater. Glaciers are slow moving rivers of ice, that usually form in valleys, or sometimes on plateaus, and move in response to gravity. They form when snow undergoes repeated freezing and thawing, at which stage it becomes granular ice. Then, because of the pressure of new snow or ice on top, that granular ice melds into a type of ice called firn. The firn then, over many years, becomes more and more compacted, eventually turning into glacier ice. There are three major types of glaciers; valley glaciers, plateau glaciers, and tidewater glaciers. Valley glaciers, the smallest of all glaciers, form in valleys, in alpine zones. Plateau glaciers are large, high-altitude glaciers, that cover plateaus. Finally, tidewater glaciers, are glaciers that flow into the ocean, breaking off as they hit the water, causing the formation of icebergs.

Glaciers, Polar Ice Caps, and Global Warming:

Due to global warming, both ice caps, and many glaciers are beginning to disappear. Since the beginning of the 20th century, the total surface area of all glaciers combined, has decreased by 50%. This melting causes damage in the form of landslides, flash floods, and overflowing lakes. As these glaciers melt, flooding will be the first thing that impacts humans. After that, drought will ensue. In addition, due to the fact that glaciers, and the ice that compose them, are white, they reflect much of the heat from the sun, away from earth. As glaciers melt,

less heat will be reflected, thus causing more melting, and then in turn, more heat, and then more melting; a negative feedback loop.

As for the north and south poles, the issue of melting is just as serious. The north pole is estimated to disappear by 2030 if the rate of global warming continues as expected. The south pole has already had major losses in the form of the Larsen Ice Shelf, and the Jones Ice Shelf, breaking off, and falling into the Arctic Ocean. Significant cracks have been discovered in both poles as well as Greenland, and depending on the size of the different chucks that could break off, as well differing predictions, many major cities could be flooded.

Questions:

1. How are glaciers formed?
2. What are the consequences of melting glaciers?
3. Describe one of the three major types of glaciers?
4. Explain what a polar ice cap is and how global warming is effecting them.

Works Cited:

"Glaciers": http://en.wikipedia.org/wiki/Glaciation

"Polar Ice Caps": http://en.wikipedia.org/wiki/Polar_ice_caps