

Chapter 15 Notes – Glaciers & Erosion

- **glaciers** – masses of moving _____ (typically hundreds of meters thick)
- Two main types of glaciers:
 1. **Valley glacier (or alpine glacier)** – _____, slow-moving, wedge-shaped stream of ice
 - Formed in mountainous areas like coastal Alaska, the Himalayas, the Andes, the Alps, and New _____
 2. **Continental ice sheets** – larger glacier that moves through low _____
 - May _____ (or break off to form icebergs in the ocean)
 - Large ice sheets are called ice _____.
 - Only located in _____ and Antarctica

If melted entirely, these continental ice sheets would raise the world wide sea level by more than 60 m. What effect would this have on humans?

So, how do you make a difference?

1. _____

2. _____

3. _____

- *How do glaciers form?*
 - When snow and ice accumulate to a great enough _____ that the ice starts to move downslope due to gravity, a glacier is formed.
 - This occurs above the **snowline** – the _____ above which ice and snow remain throughout the year.
 - As snow accumulates above the snowline, it becomes _____ and recrystallizes into rough ice crystals called **firn**.
 - The deepest layers becomes so compressed that the air is squeezed out of the firn ice crystals, which causes its color change from white to steel-_____.

Glaciers should "recede" in the summer and "advance" in the winter. Was that the case according to the film we watched? Why?

- **Climate change** – a change in _____ or regional climate patterns
- Climate change is attributed mainly to increased levels of atmospheric _____
_____ (CO₂) produced by the use of fossil fuels.

- An **ice age** is a long period of climatic cooling during which continental ice sheets cover large areas of the earth's _____.
 - *What causes an ice age?*
 - A long-term decrease in the earth's average _____.
A drop of ~ 5°C with increased snowfall could trigger an ice age.
- There have been several ice ages throughout earth's history. The last major Ice Age ended _____ years ago. 30% of all the land area was covered by ice.
 - *How do you know this?*
 - Glacial evidence:
 - _____ Cores
 - Glaciers carry large boulders that scratch _____ as it passes.
 - Glacial features like arêtes, _____, tills, kettles, moraines, erratics, drumlins, etc.
 - *What causes the temperature drop that initiates an ice age?*
 - Serbian scientist Milutin Milankovitch proposed the most well-accepted explanation:
 1. Earth's orbit fluctuates from _____ to elliptical and back about every 100,000 years.
 2. Earth's _____ varies between 21.5° and 24.5° about every 41,000 years. This is called **obliquity**.
 3. Precession of earth's axis = earth's axis _____ which makes a full rotation every 26,000 years.
 - A combination of the three factors above result in a reduced amount of _____ energy reaching the earth's surface.