

Chapter 13 Section 1 Notes

climate – long term prevailing weather conditions at a particular place

weather – atmospheric conditions on a given day

Latitude – position with respect to the equator, measured in degrees north or south

- low latitudes – in regions closer to the equator, the sun is higher in the sky
- high latitudes – in regions closer to the poles, the sun is lower in the sky
- latitude strongly influences climate because more solar energy falls on areas that are closer to the equator than to the poles
- equatorial regions get vertical sunlight

Global Air Circulation determines Earth's precipitation pattern

- Rain frequently results whenever warm, moist air rises
- Areas of High and Low Pressures
 - an important property of air circulation is that cold air is denser than warm air.
 - Since density is greater for cold air, the cold air pushes the warm air up
 - As cold air sinks, it compresses and warms
- Prevailing Winds
 - trade winds
 - westerlies – a belt of prevailing winds
 - polar easterlies

Oceanic Circulation Patterns

- El Nino – Southern Oscillation
 - during an El Nino event, winds in the western Pacific Ocean strengthen and push warm water eastward
- La Nina – water is cooler than normal in the eastern Pacific Ocean
- ocean currents have a great effect on climate because water holds large amounts of energy in the form of heat
- surface ocean currents are caused by wind and influenced by Earth's rotation

Topography

Elevation is a factor in climate because under most conditions temperature falls as elevation increases

Other influences on Earth's climate

volcanic eruptions – sulfur dioxide is a gas that can reach the upper atmosphere after a large scale volcanic eruption affecting the world climate

Seasonal Changes in Climate

- seasonal changes in daylight hours and climatic conditions are caused by the 23.5° tilt of Earth's axis
- during summer in the Southern Hemisphere, the Northern Hemisphere experiences winter
- "winter" is characterized by low angle sunlight
- during summer in the Northern Hemisphere, sunlight shines more directly for long days