Date _____

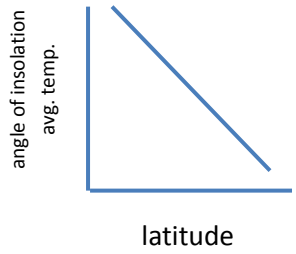
AIM: What factors affect the climate of a region?

Climate: the average monthly temperatures, annual temperature range, and the amount of precipitation of a region

1. Angle of Insolation

Incoming **Sol**ar Radi**ation** (the Sun's Rays)

a. **Latitude -**

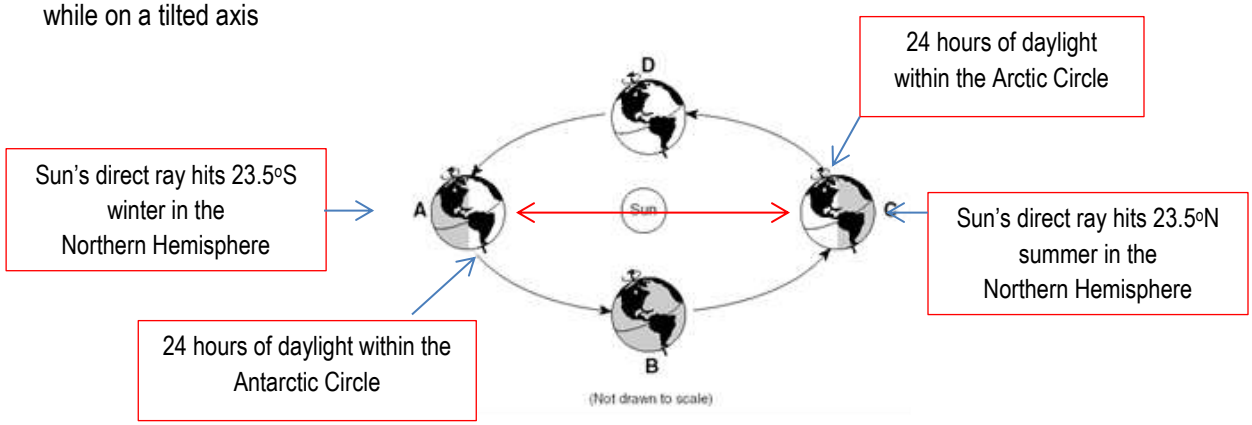


As angle of insolation increases to 90°, intensity of insolation increases – leads to warmer temperatures

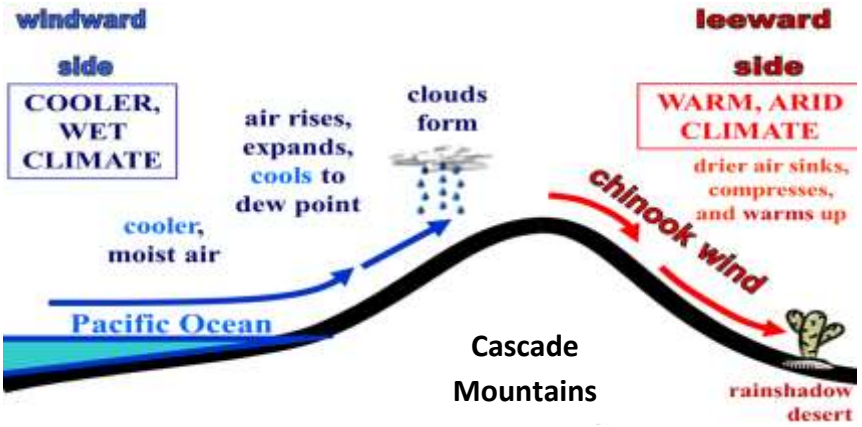
As latitude increases, average temperature decreases.

b. **Seasonal Changes -**

caused by Earth's revolution while on a tilted axis



2. Elevation and Mountain Barriers



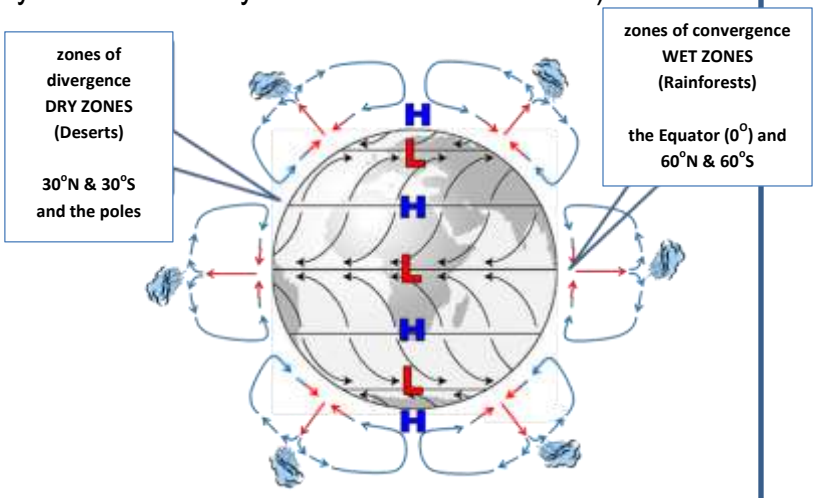
3. Urban Heat Island Effect

a. urban	b. forest / rural
1. - building materials (concrete/steel) heat up easier	1. trees= shade = cooler
2. - heat is generated by human activities	2. more humid – maintain a more balanced water cycle
3. - less permeable roads = more runoff	3. <u>if removed</u> – heat absorption in area increases, runoff increases

4. Global Air Circulation (Hadley Cells: Planetary Wind and Moisture Belts)

- caused by unequal heating of Earth's surfaces (locally and globally)
- helps circulate heat and moisture

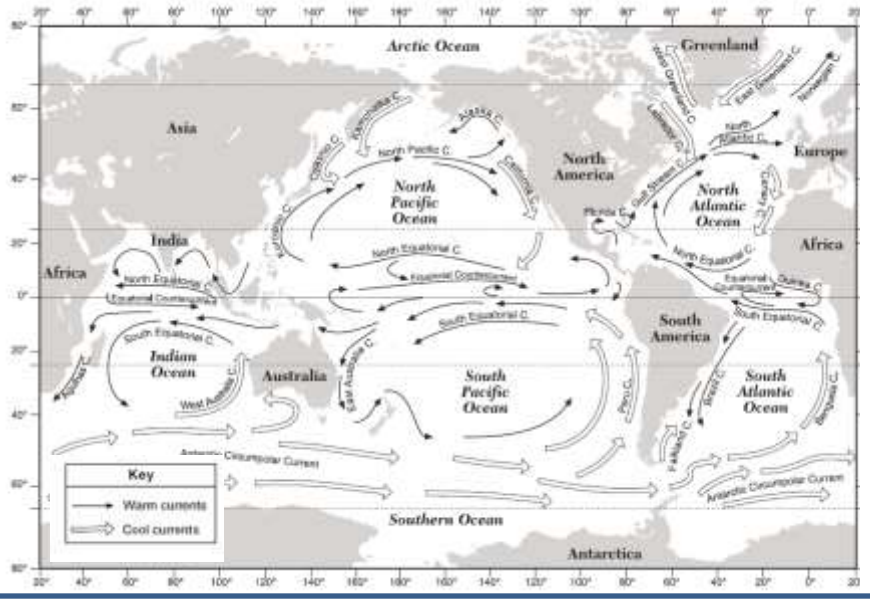
Global circulation is influenced by the rotation of the Earth – the Coriolis Effect curves the paths of the winds (and ocean currents)



5. Surface Ocean Currents

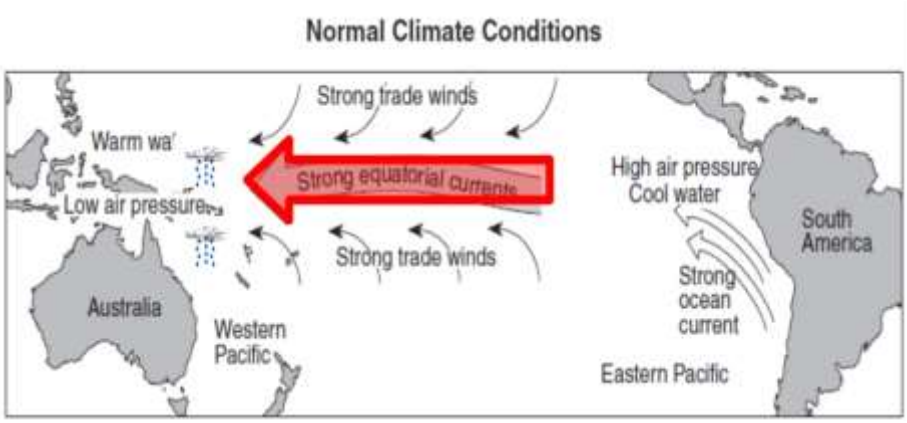
Ocean currents bring warmer or cooler water affecting temperatures of coastal locations.

Just like the planetary winds, **ocean currents contribute to heat energy distribution, but also distributes nutrients and dissolved oxygen.**

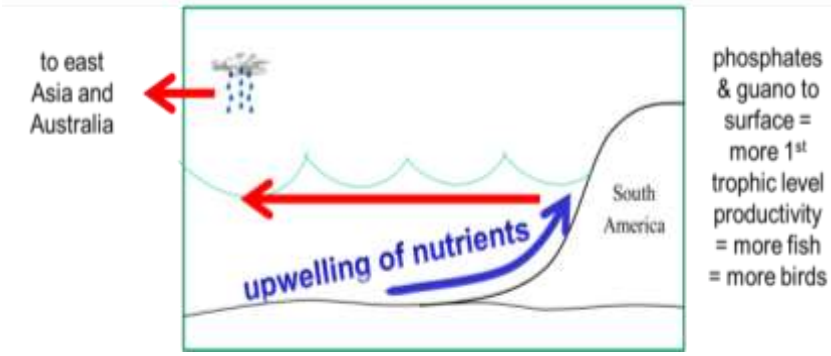


El Niño Southern Oscillation (ENSO)

a re-occurring ocean current (approx. every 5 years) that shifts the trade winds and precipitation patterns in the Pacific Ocean



Profile View of South American coastline



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