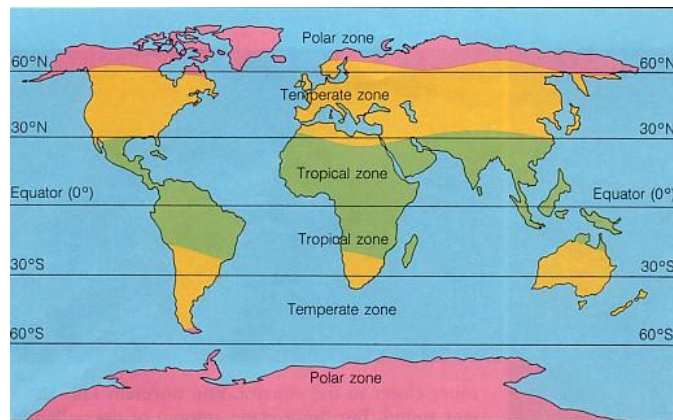


Factors that Affect Climate

Latitude: The specific north to south grid positions on earth ranging from 0° at the equator to 90° at the poles. Lower latitudes around the equator get the most sunlight, and as latitude increases temperature decreases. Large scale ascending (cloudy sky, wet weather) and descending (clear sky, dry weather) motion of air is also a function of latitude.



www.webquest.hawaii.edu Fig. 1 is showing generalized climate zones as based on latitude.

Proximity to oceans and large bodies of water: Areas that are close to oceans and other large bodies of water tend to have more moderate climate ranges between seasons and between day and night. These areas also tend to have higher average precipitation than land locked areas, although there can be exceptions.

Landlocked areas: Locations in the center of large landmasses tend to have drier climates and higher temperature extremes annually, and between day and night.

Elevation: As elevation increases, average yearly temperatures decrease. The windward side of mountain ranges tends to receive more precipitation than the leeward side.

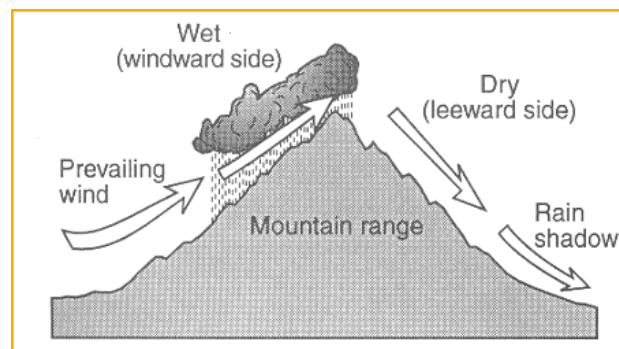


Fig. 2 shows how wind and precipitation are influenced by mountain ranges. www.edusolution.com

Ocean currents: Currents tend to warm temperatures of eastern coastal areas and cool temperatures on the west coast of continents.

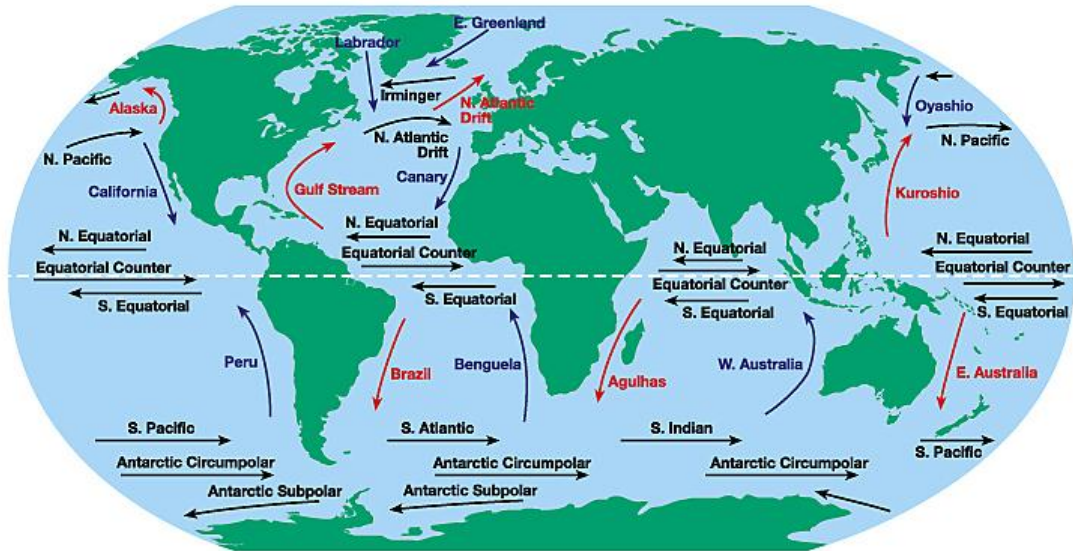


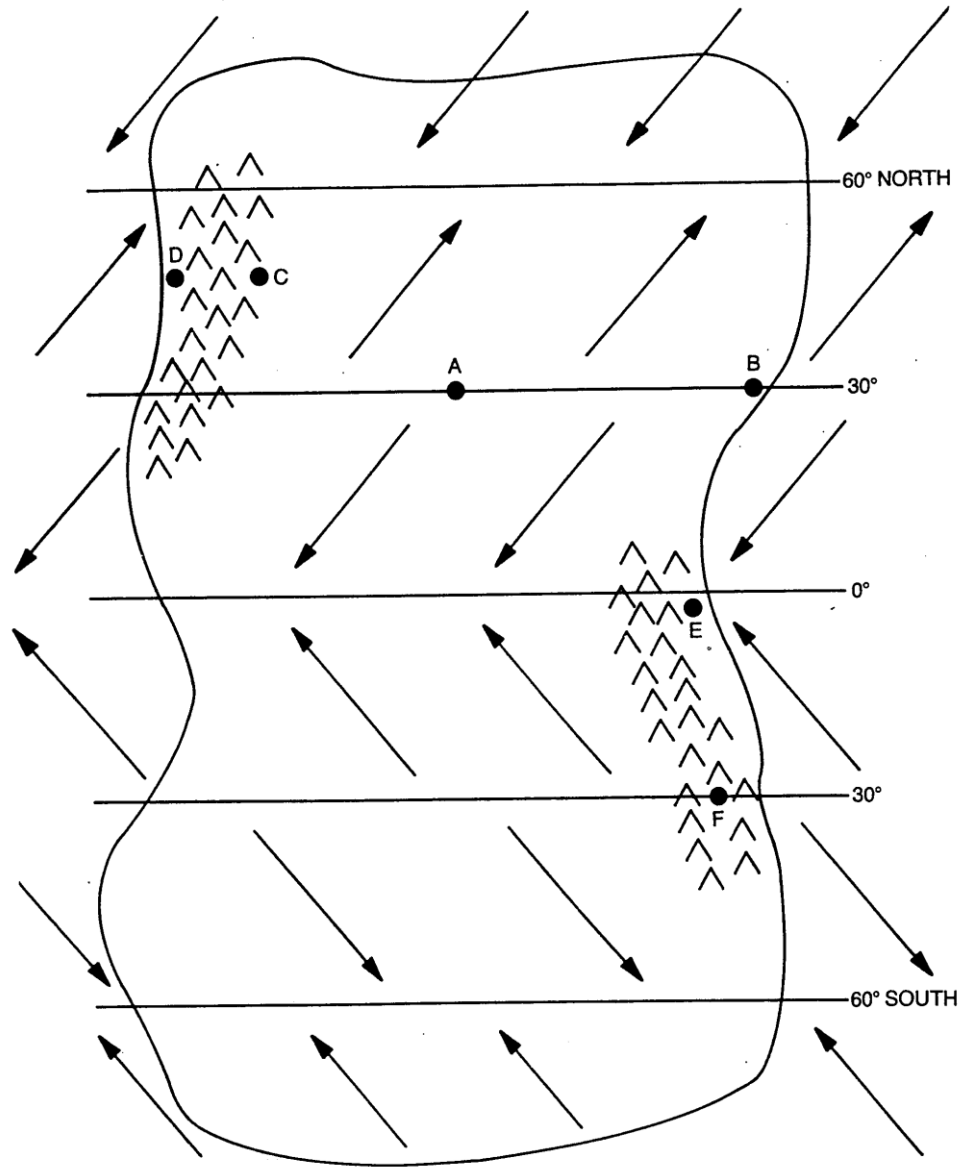
Fig. 3 Shows the global warm and cold ocean current circulation www.windows2universe.org

Prevailing winds: Wind direction influences regional climate including how much precipitation occurs in relation to mountain ranges and water bodies.

Analysis and Comprehension:

1. What is the prevailing direction of wind in the region:
 - Above and 60°N latitude?
 - Between 60°N and 30°N?
 - Between 30°N and the equator?
2. Which location probably has the same kind of weather year round?
3. What factor could cause location F to have a colder yearly climate than any other location?
4. What factors could cause location E to have the greatest annual rainfall?
5. Which city, C or D, would you expect to have a greater annual rainfall?
6. Which city, A or B, would you expect to have the greatest temperature range throughout the year?
7. Location A is in a desert. What factors could account for the low precipitation?
8. What factors could cause the climate in location D to be cooler than B?

Diagram of Imaginary Continent on Earth



Adapted from NOAA Earth Systems Research Laboratory , Teacher Lesson Plans. Module 9: Factors that Affect Climate. http://www.esrl.noaa.gov/gmd/infodata/lesson_plans/