

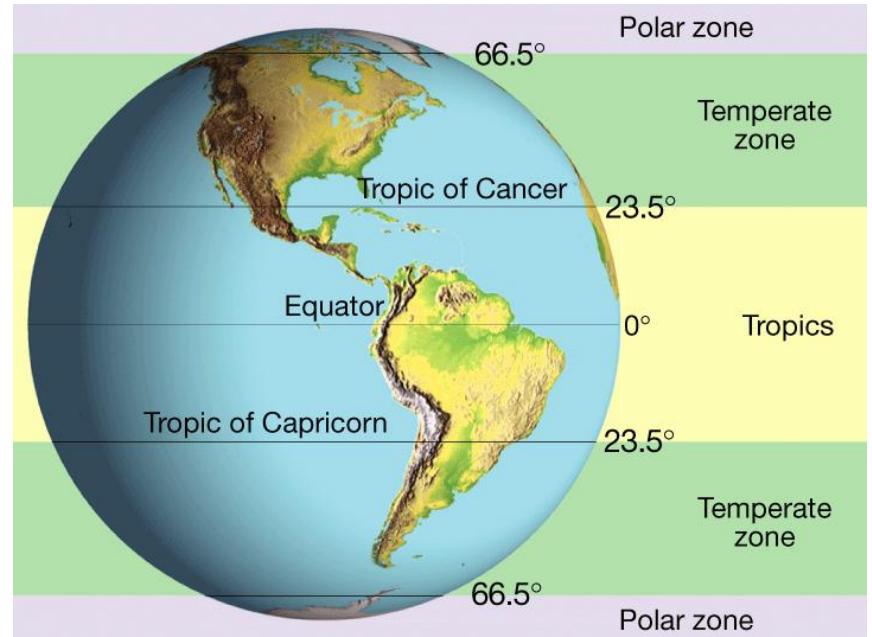
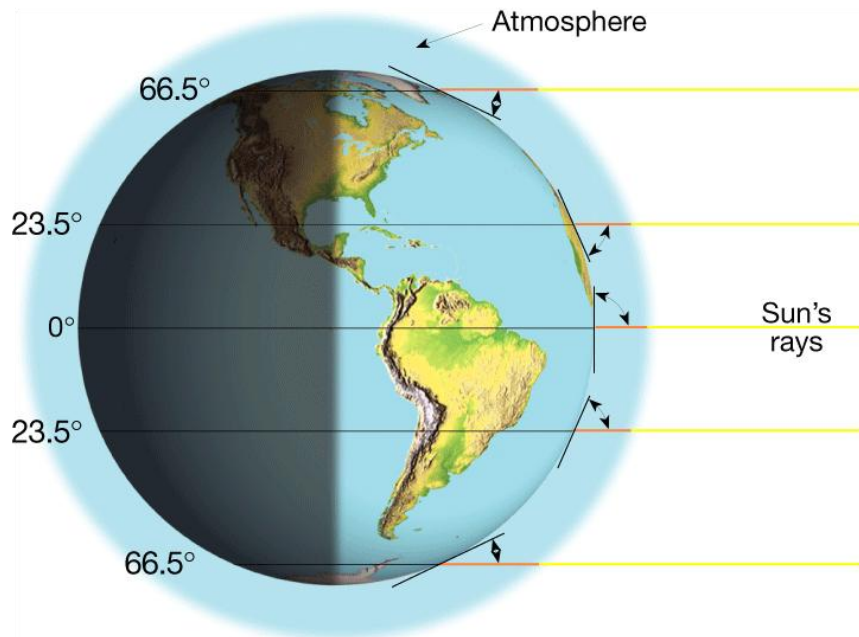
# 21.1 Factors That Affect Climate

## Factors That Affect Climate

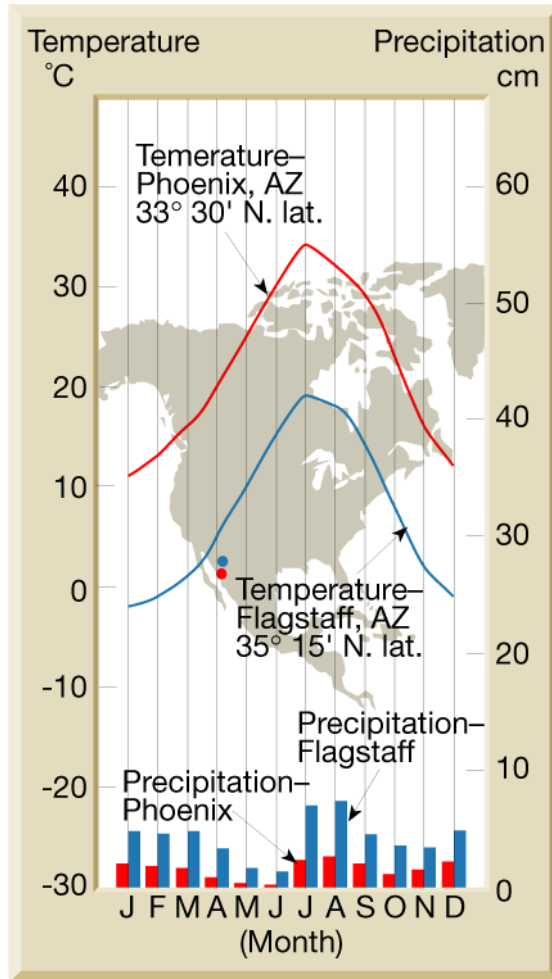
### ◆ Latitude

- As latitude increases, the intensity of solar energy decreases.
- The **tropical zone** is between  $23.5^{\circ}$  north (the tropic of Cancer) and  $23.5^{\circ}$  south (the tropic of Capricorn) of the equator. The sun's rays are most intense and the temperatures are always warm.
- The **temperate zones** are between  $23.5^{\circ}$  and  $66.5^{\circ}$  north and between  $23.5^{\circ}$  and  $66.5^{\circ}$  south of the equator. The sun's rays strike Earth at a smaller angle than near the equator.

# Earth's Major Climate Zones



# Climate Data for Two Cities



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### ◆ Latitude

- **Polar zones** are between  $66.5^{\circ}$  north and south latitudes and the poles. The sun's rays strike Earth at a very small angle in the polar zones.

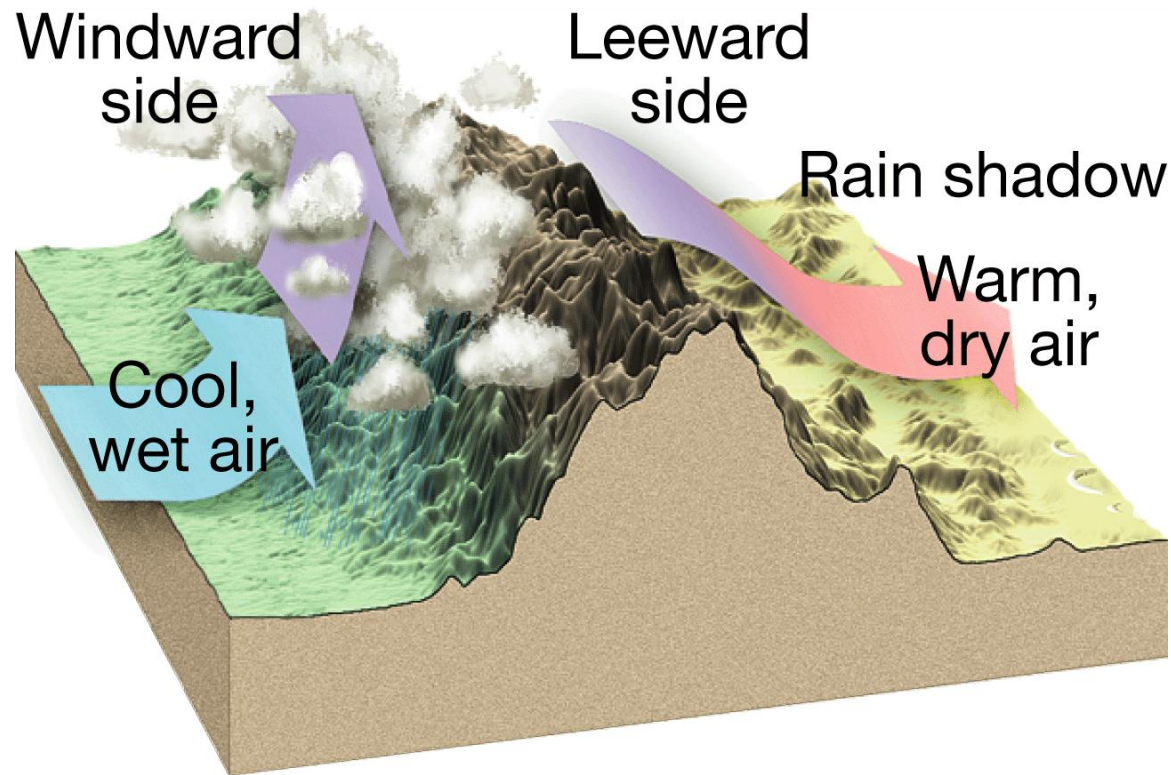
### ◆ Elevation

- The higher the elevation is, the colder the climate.

### ◆ Topography

- Topographic features such as mountains play an important role in the amount of precipitation that falls over an area.

# The Rain Shadow Effect



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### ◆ Water Bodies

- Large bodies of water such as lakes and oceans have an important effect on the temperature of an area because the temperature of the water body influences the temperature of the air above it.

### ◆ Atmospheric Circulation

- Global winds are another factor that influences climate because they distribute heat and moisture around Earth.

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### ◆ Vegetation

- Vegetation can affect both temperature and the precipitation patterns in an area.