



Gravity
Just a theory.

Climate



Ag Earth Science – Chapter 23.1

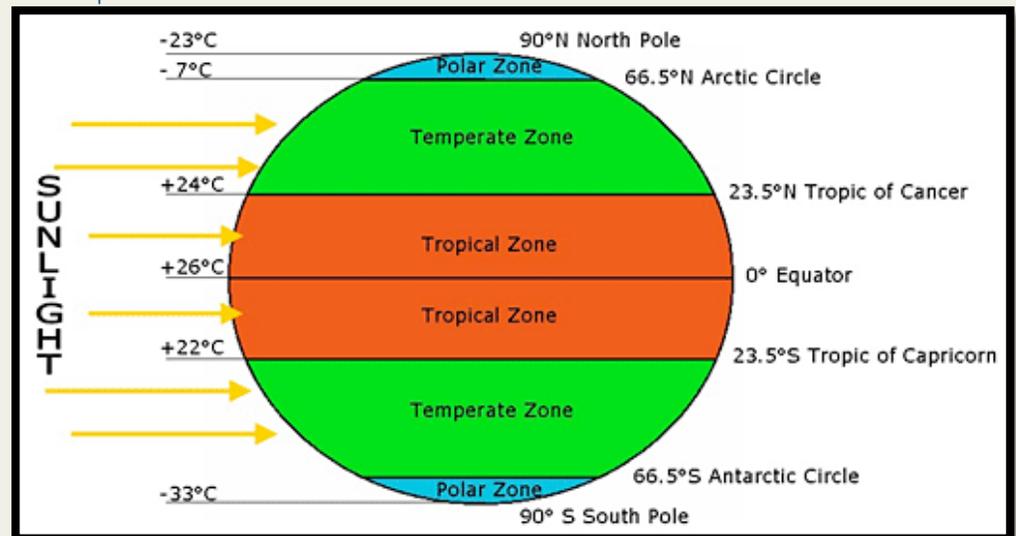


23.1 VOCABULARY



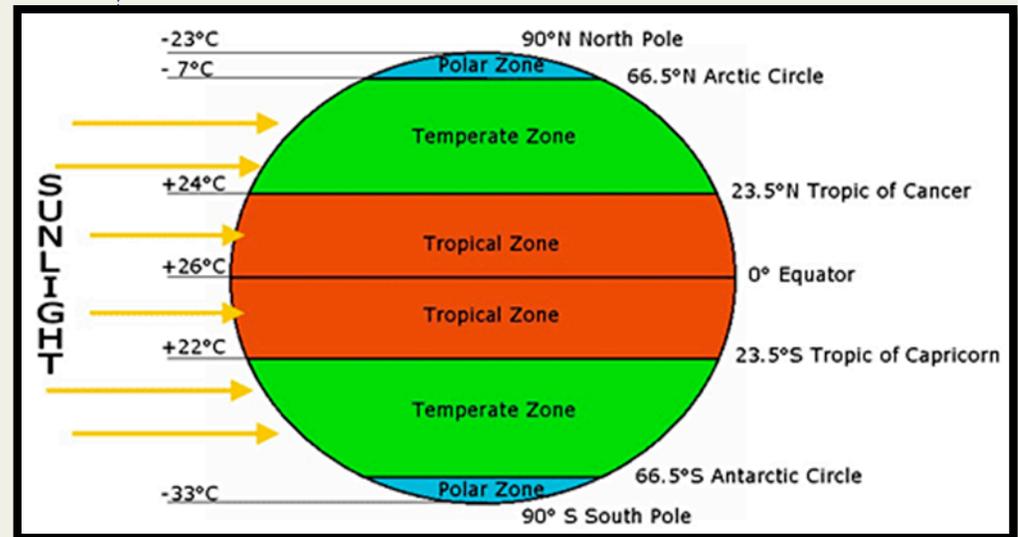
temperate zone

- Region north of the Tropic of Cancer and south of the Tropic of Capricorn. The sun's rays strike the Earth at smaller angle than the tropical zone.



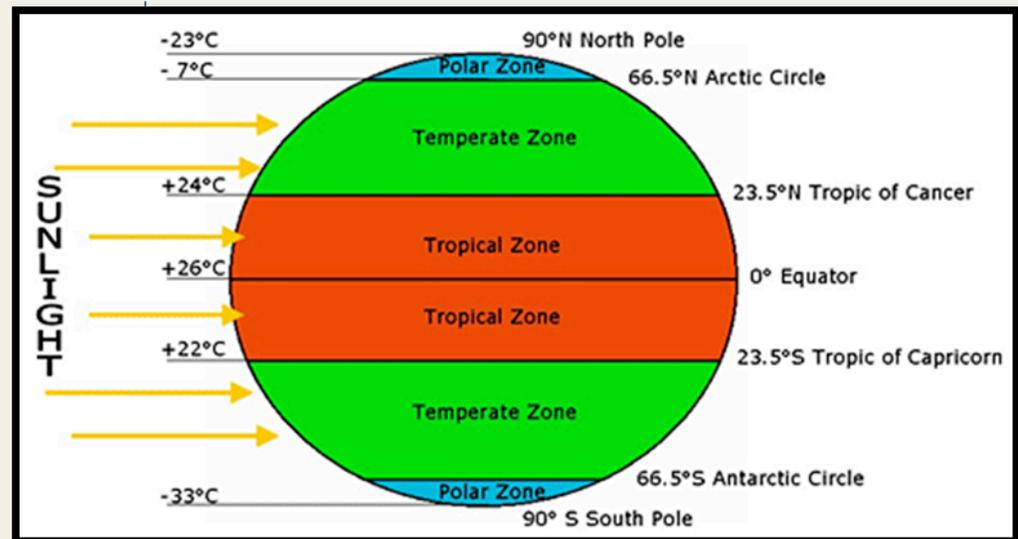
tropical zone

- Region between the Tropic of Cancer and the Tropic of Capricorn. The sun's rays are most intense and the temperatures are always warm.



polar zone

- The regions covering the north and south poles (66.5° north and south latitudes and the poles). The sun's rays strike at a very small angle.





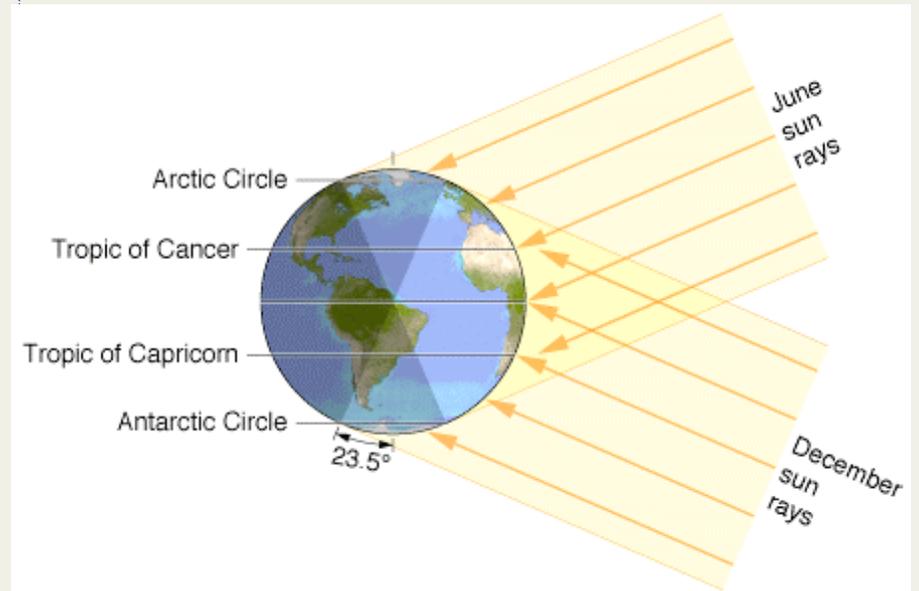
Factors That Affect Climate

- The varied nature of Earth's surface and many interactions that occur among Earth's spheres give every location a distinctive climate.

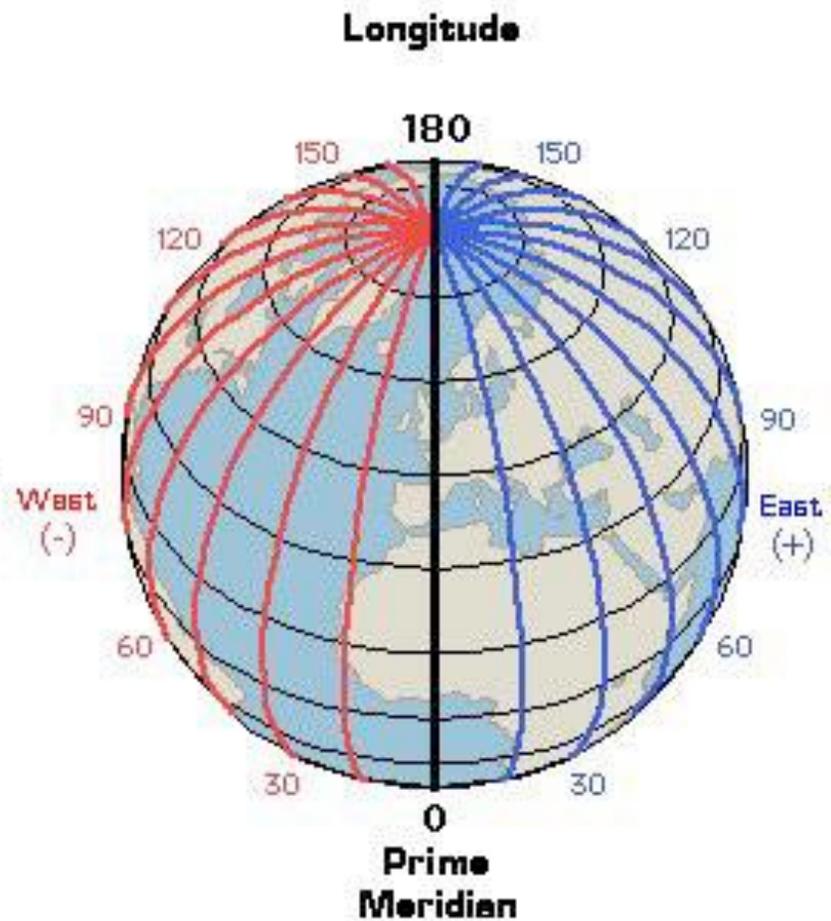
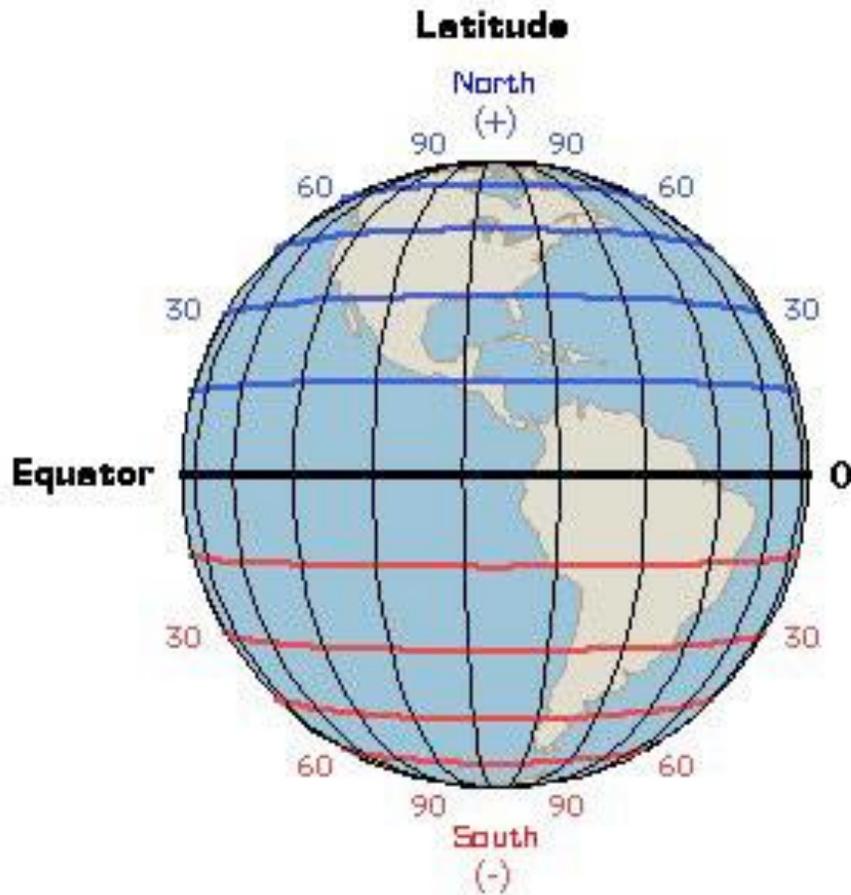


Factors That Affect Climate

- Latitude
 - Latitude is the distance north or south of the equator.
 - As latitude increases, the intensity of the solar energy decreases.



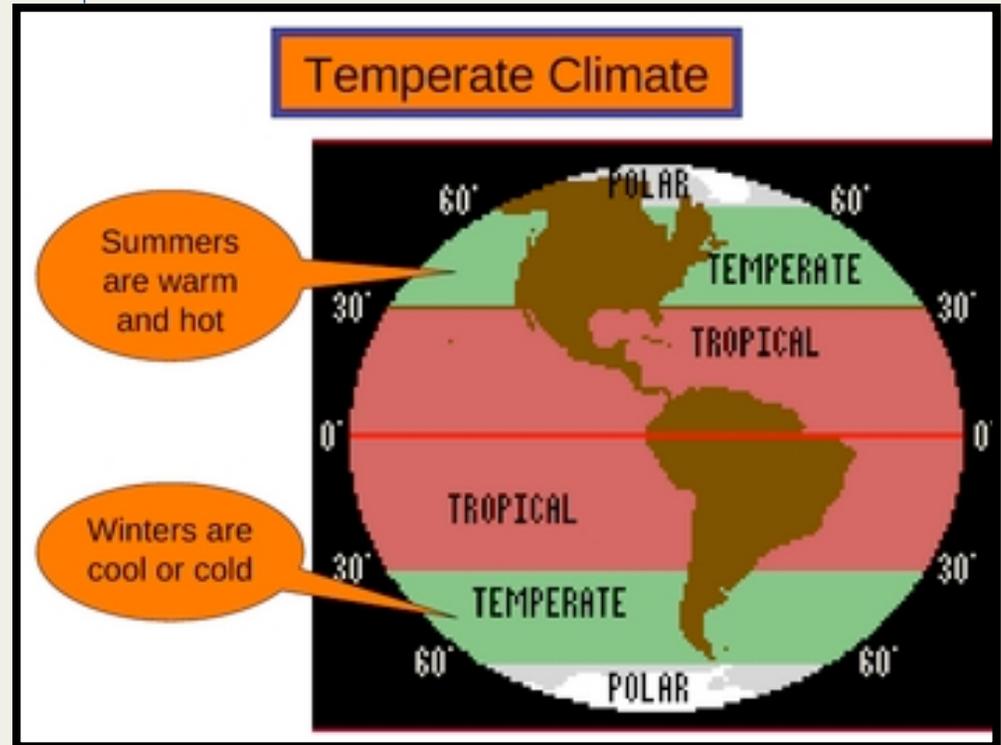
Factors That Affect Climate



Factors That Affect Climate

- Latitude

- Tropical zones – Region between 23.5° north (Tropic of Cancer) to 23.5° south (Tropic of Capricorn) of the equator is where the sun's rays are the most intense.
- Temperate zones – Regions between 23.5° and 66.5° north and south of the equator. Sun's angle is less than the tropical zone.
- Polar zones – Regions between 66.5° north/south latitudes and the poles.



Factors That Affect Climate

- Elevation
 - Elevation is the height above sea level
 - The higher the elevation is, the colder the climate.



Factors That Affect Climate

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



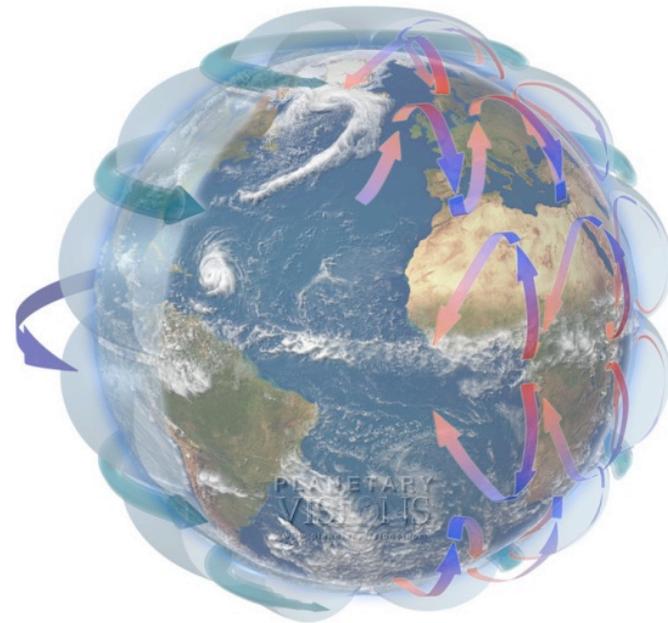
Factors That Affect Climate

- 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.



Factors That Affect Climate

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

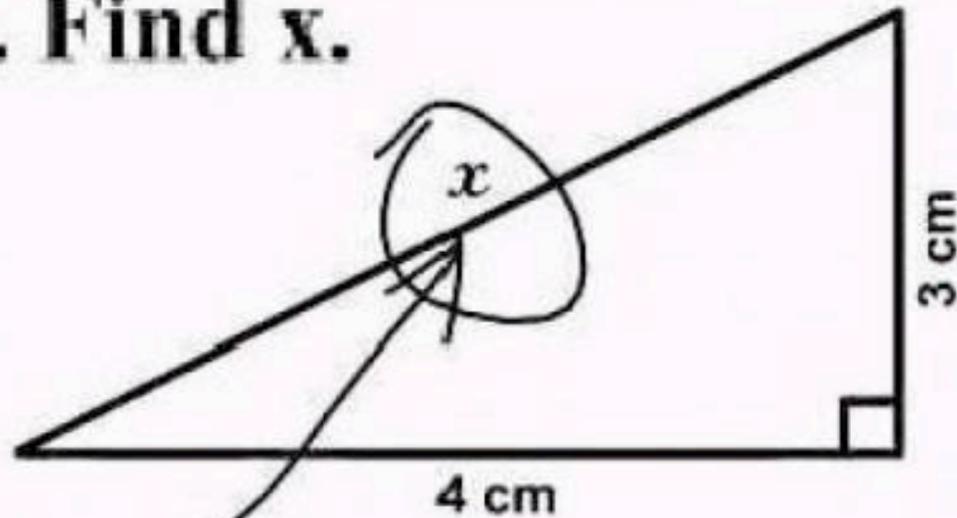


Factors That Affect Climate

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



3. Find x .



Here it is

SIMPLICITY

The simplest solutions are often the cleverest
They are also usually wrong

Ag Earth Science – Chapter 23.2



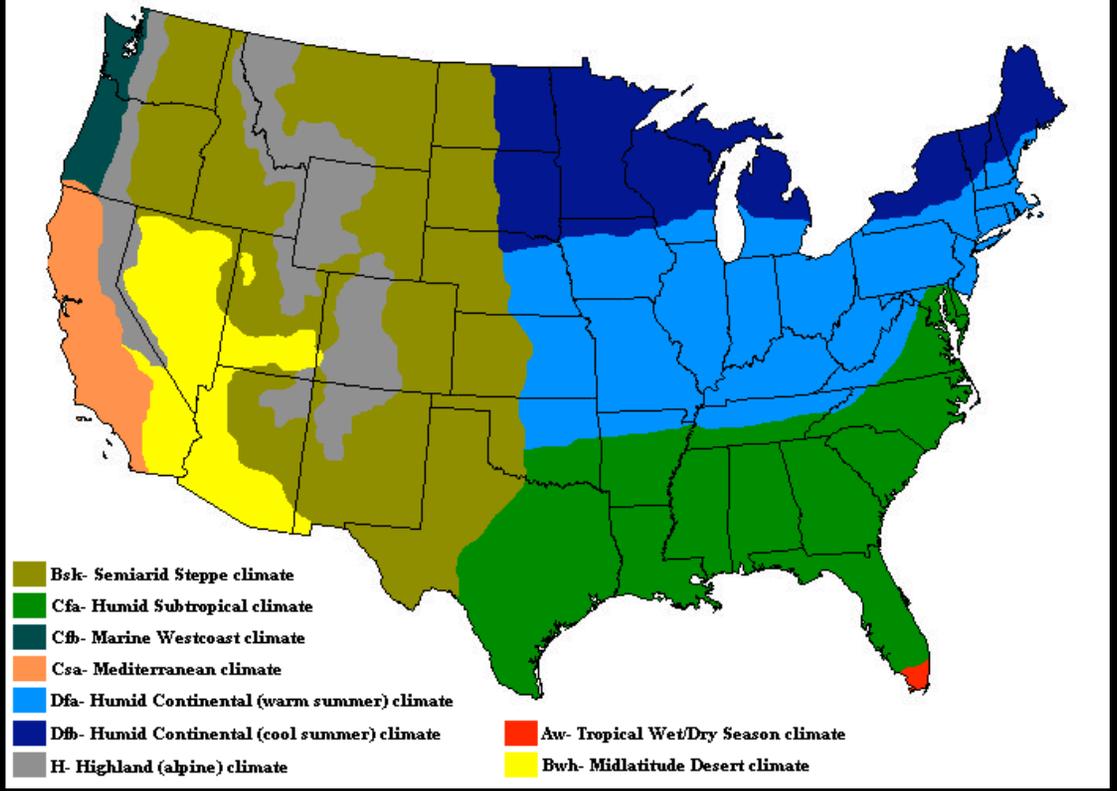
21.2 VOCABULARY



Köppen climate classification system

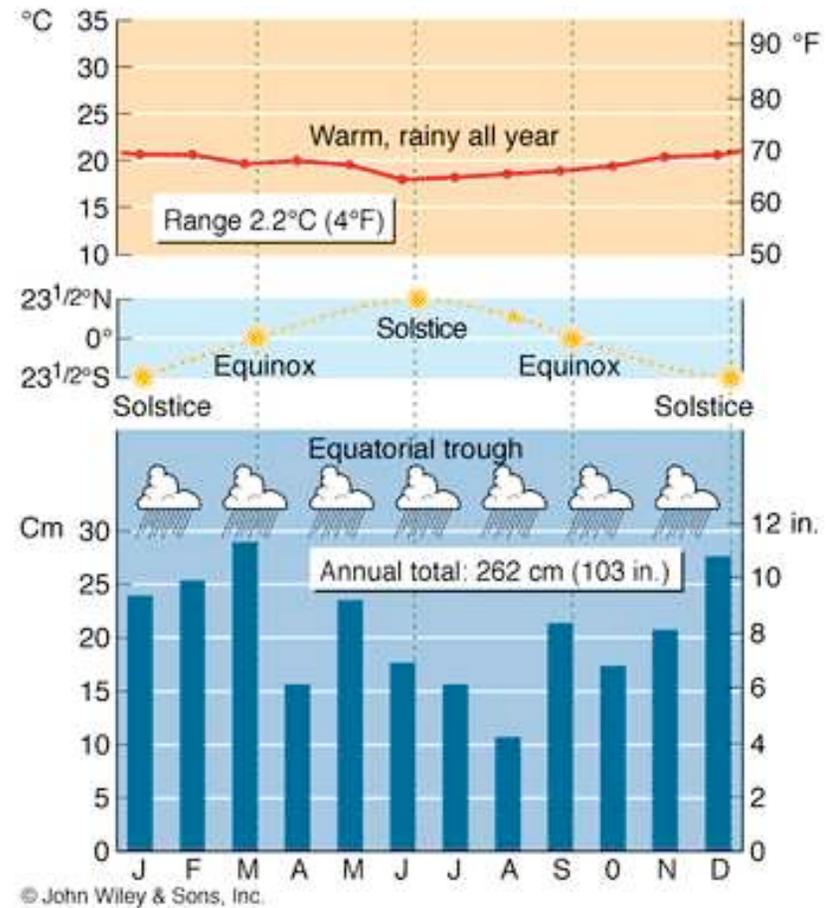
- A system for classifying climates that is based on mean monthly and annual values of temperature and precipitation.

Climate Zones of the Contiguous United States



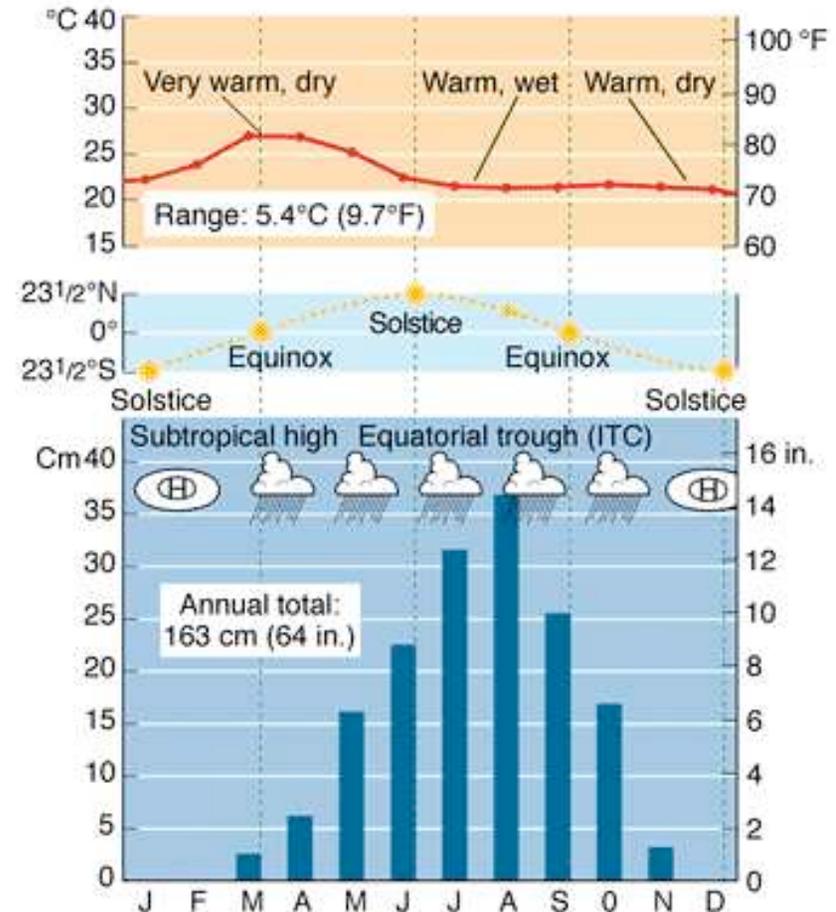
wet tropical climate

- A climate with high temperatures and high annual precipitation



tropical wet and dry climate

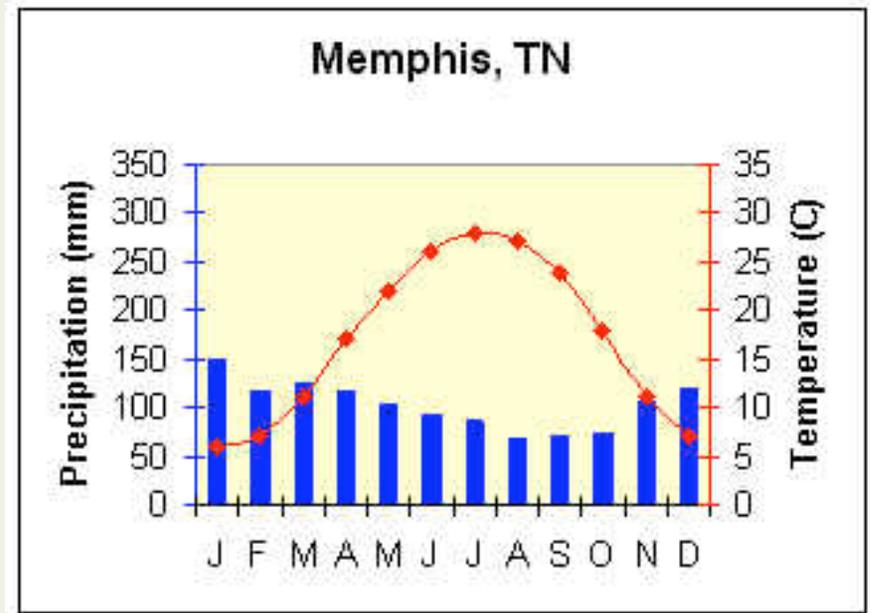
- A climate that is transitional between the wet tropics and the subtropical steppes.



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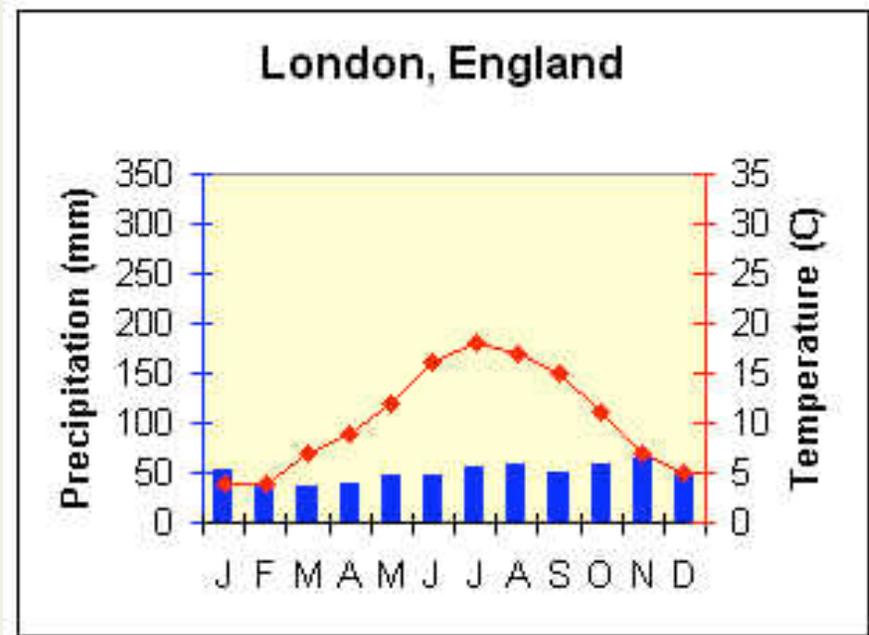
humid subtropical climate

- A climate generally located on the eastern side of a continent and characterized by hot, sultry summers and cool winters



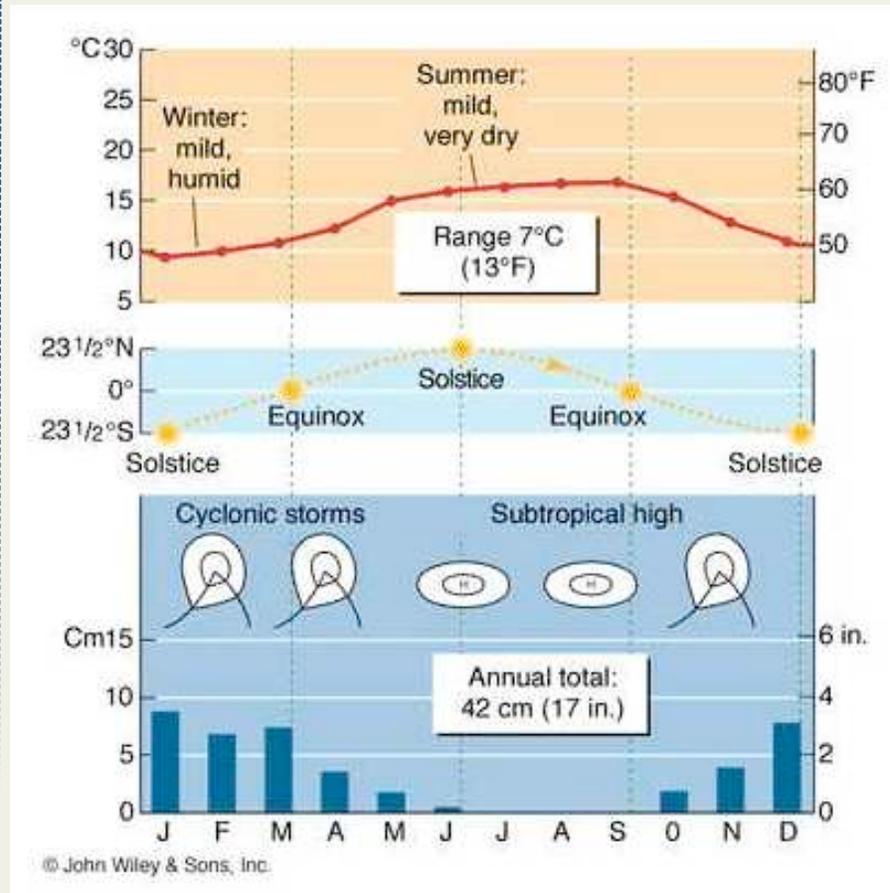
marine west coast climate

- A climate found on windward coasts from latitudes 40° to 65° and dominated by maritime air masses. Winters are mild and summers are cool.



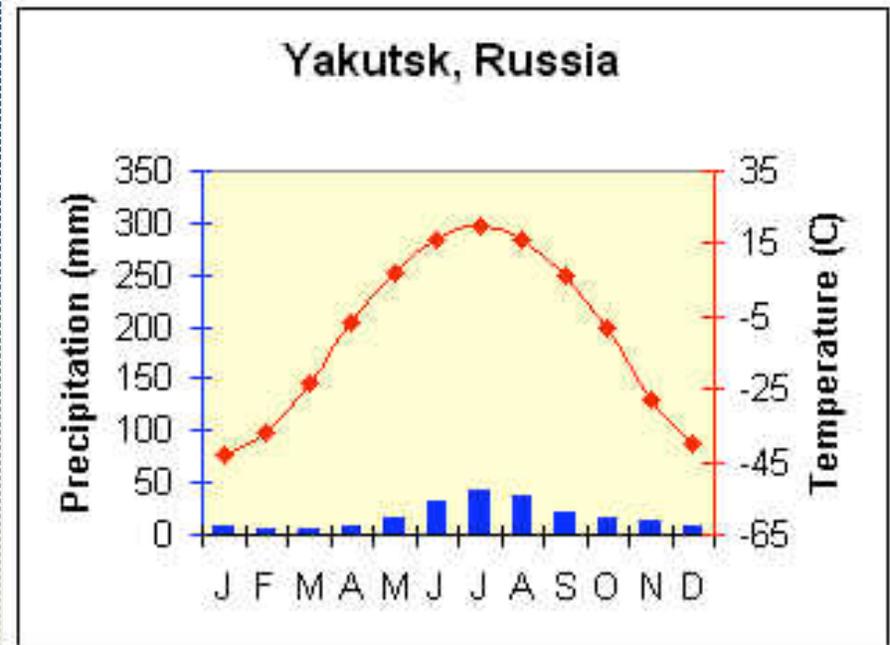
dry-summer subtropical climate

- A climate located on the west sides of continents between 30° and 45° latitude. It is the only humid climate with strong winter precipitation maximum.



subarctic climate

- A climate found north of the humid continental climate and south of the polar climate. Region characterized by bitterly cold winters and short cool summers.



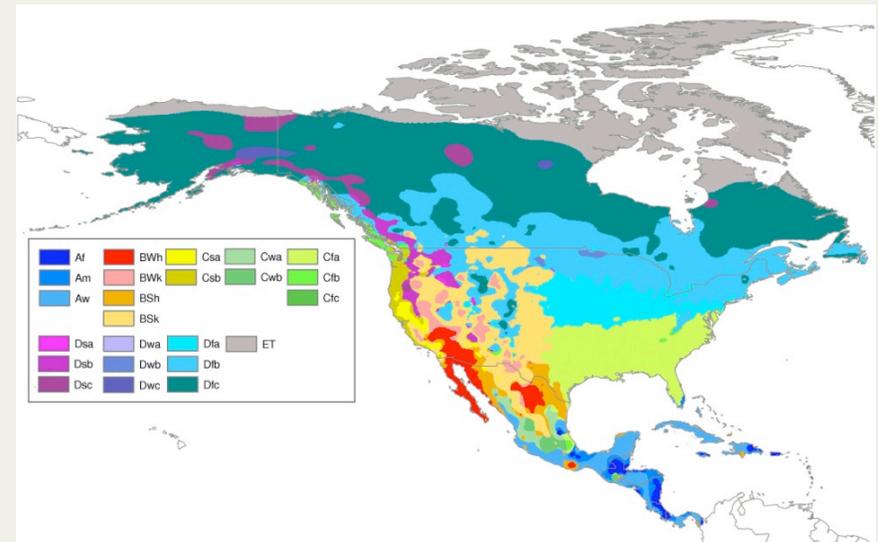


OPPORTUNITY

You don't always need an invitation to join in

The Köppen Climate Classification System

- The varied nature of Earth's surface and many interactions that occur among Earth's spheres give every location a distinctive climate.



Humid Tropical Climates

- Humid tropical climates are climates without winters. Every month in such a climate has a mean temperature above 18°C . The amount of precipitation can exceed 200 cm per year.
- Wet Tropical – high temperatures and high annual precipitation
- Tropical Wet and Dry – Similar temperatures and total precipitation as wet tropics, however experience distinct periods of low precipitation.



Humid Mid-Latitude Climates

- Climates with mild winters have an average temperature in the coldest month that is below 18°C but above -3°C . Climates with severe winters have an average temperature in the coldest month that is below -3°C .



Humid Mid-Latitude Climates

- Humid Mid-Latitude With Mild Winters
 - Humid Subtropical Climates – Hot, humid summers, and mild-frost winters.
 - Marine West Coast Climates – Mild winters and cool summers with ample rainfall.
 - Dry-Summer Subtropical Climates – The only humid climate with strong winter rainfall maximum. Sometimes called “Mediterranean climate”.



Humid Mid-Latitude Climates

- Humid Mid-Latitude With Severe Winters
 - Humid Continental Climates – Located in Northern Hemisphere where winters are severe (temperature) and summers are typically quite warm.
 - Subarctic Climates – Winters are long and bitterly cold. Summers are remarkably warm, but very short. Highest temperature ranges on Earth.



Dry Climates

- A dry climate is one in which the yearly precipitation is not as great as the potential loss of water by evaporation.



Polar Climates

- Polar climates are those in which the mean temperature of the warmest month is below 10°C .



Highland Climates

- In general, highland climates are cooler and wetter than nearby areas at lower elevations.



WHARRGARBL



WHARRGARBL

WHARRGARBL

Ag Earth Science – Chapter 23.3

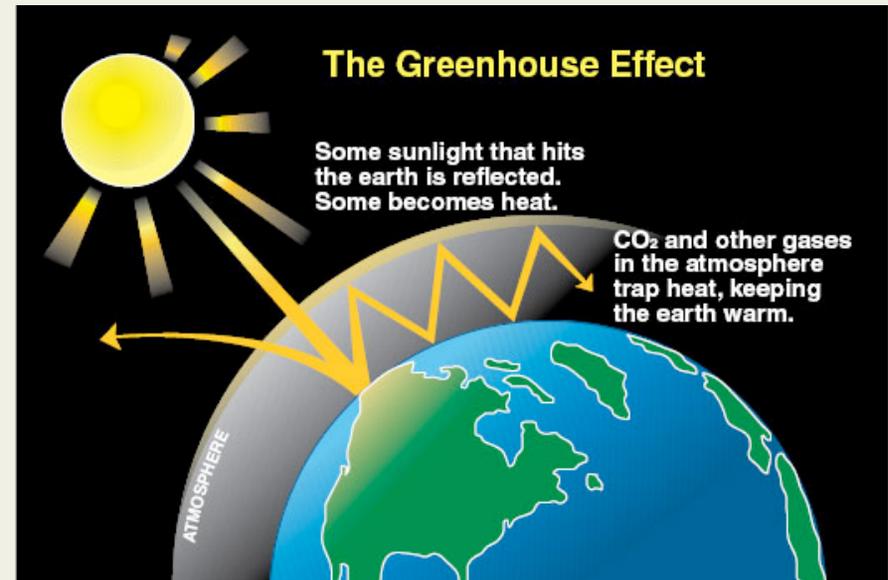


23.3 VOCABULARY



greenhouse effect

- The heating of the Earth's surface and atmosphere from solar radiation being absorbed and emitted by the atmosphere, mainly by water vapor and carbon dioxide



global warming

- The increase in average temperatures of earth and the atmosphere due in part to increased carbon dioxide levels.



A Dam Rainbow



Natural Processes that Change Climate

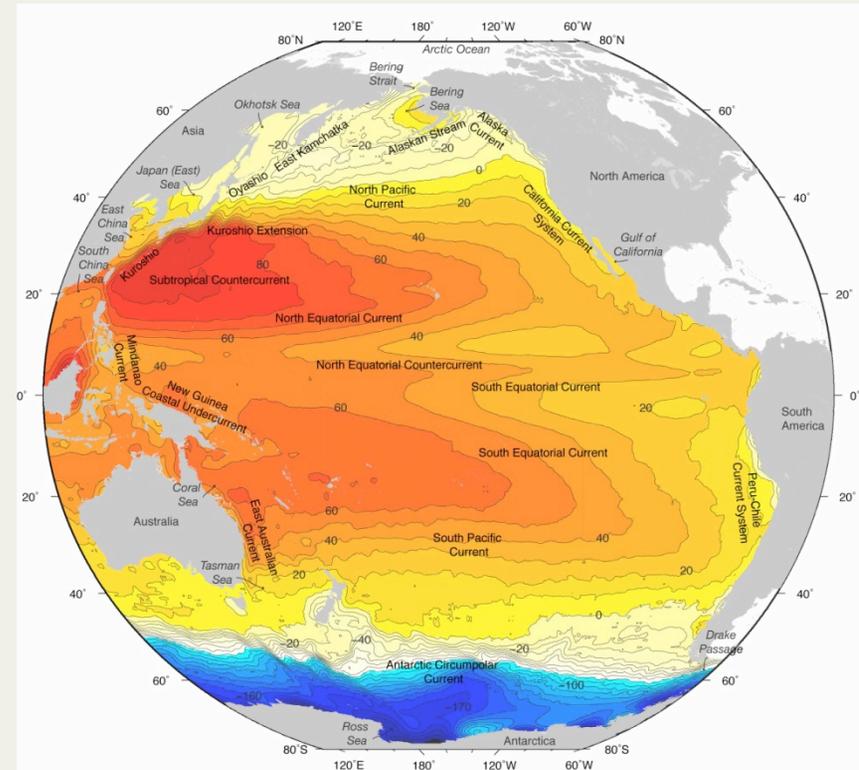
- Volcanic Eruptions
 - The presence of aerosols (volcanic ash, dust, and sulfur-based aerosols) in the air increases the amount of solar radiation that is reflected back into space. This causes Earth's lower atmosphere to cool.



Natural Processes that Change Climate

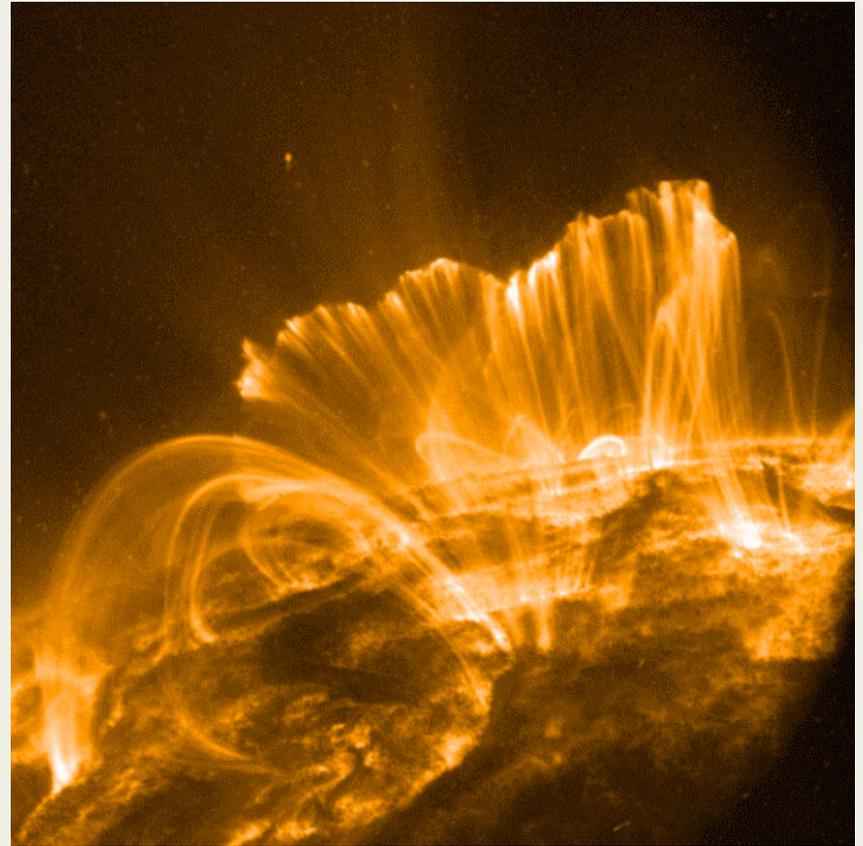
- Ocean Circulation

- These changes in ocean circulation also can result in short-term climate fluctuations.



Natural Processes that Change Climate

- Solar Activity



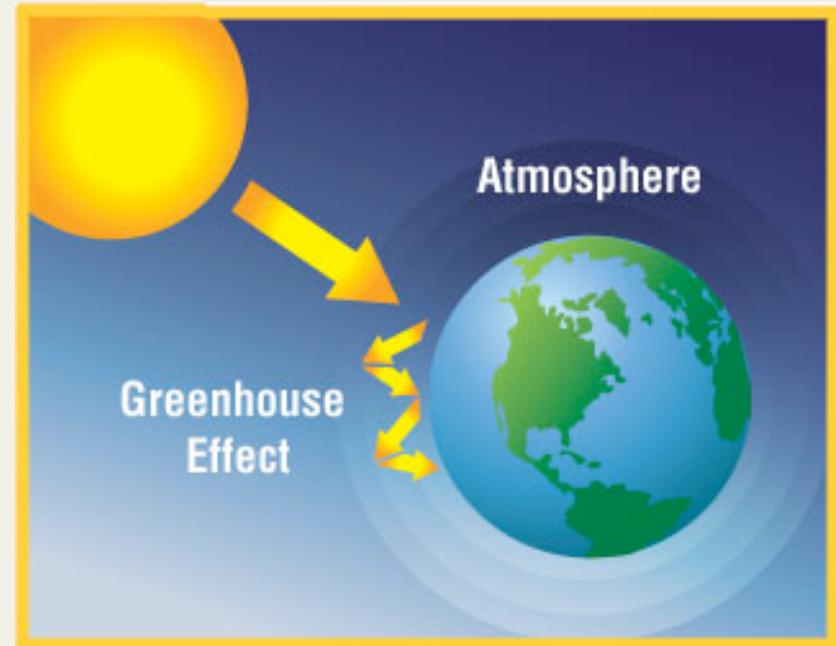
Natural Processes that Change Climate

- Earth Motions
 - Geographic changes in Earth's land and water bodies (tectonic plates) cause changes in climate
 - Changes in the shape of the earth's orbit and the tilt of the Earth on its axis are the other Earth motions that affect global climates.



Human Impact on Climate Changes

- The Greenhouse Effect
 - The greenhouse effect is a natural warming of both Earth's lower atmosphere and Earth's surface.
 - The major gases involved in the greenhouse effect are water vapor and carbon dioxide.
 - Studies indicate that human activities for the past 200 years or so have strengthened the greenhouse effect.



Human Impact on Climate Changes

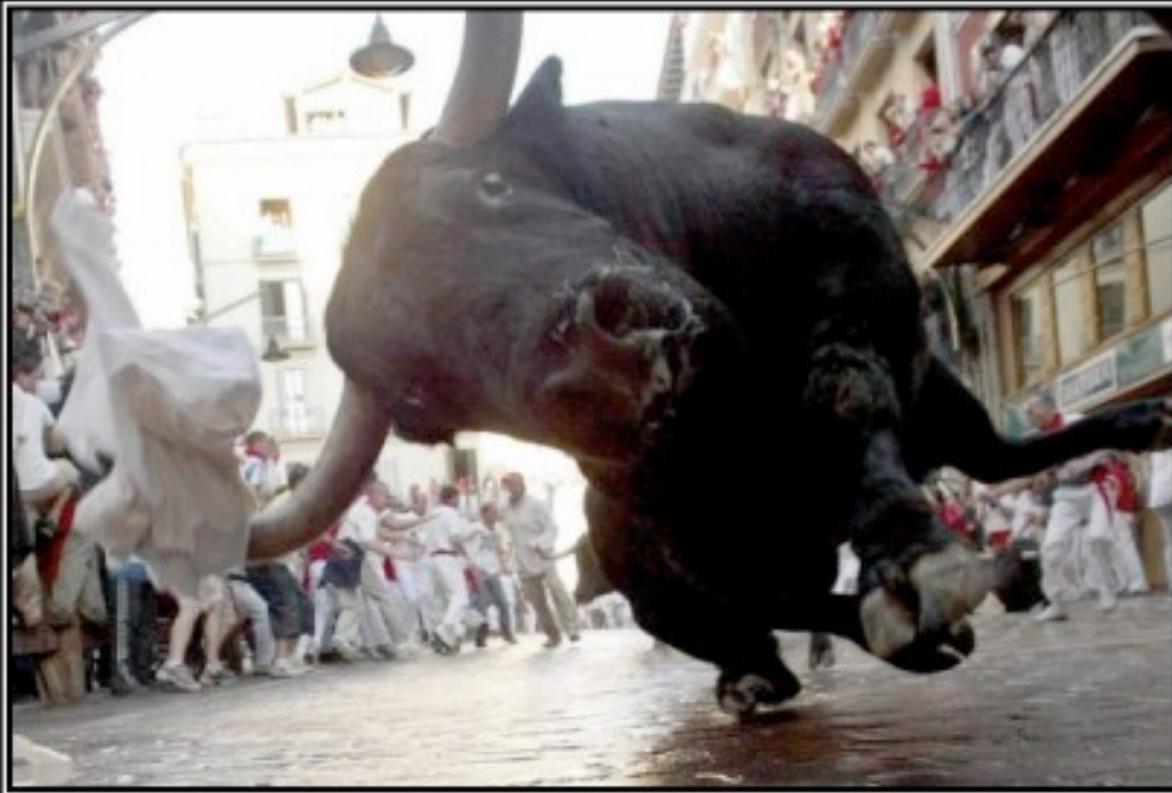
- Global Warming
 - As a result of increases in carbon dioxide levels, as well as other greenhouse gases, global temperatures have increased.
 - Warmer surface temperatures will increase evaporation rates, which will put more water vapor into the atmosphere.



Human Impact on Climate Changes

- Global Warming
 - Water vapor is a powerful absorber of radiation emitted by Earth and will magnify the effect of carbon dioxide and other gases.
 - Temperature increases will also cause sea ice to melt, causing a substantial increase in the solar energy absorbed at the surface. This, in turn, will magnify the initial temperature increase created by higher levels of greenhouse gases.





BAD LUCK

Right time, wrong place.