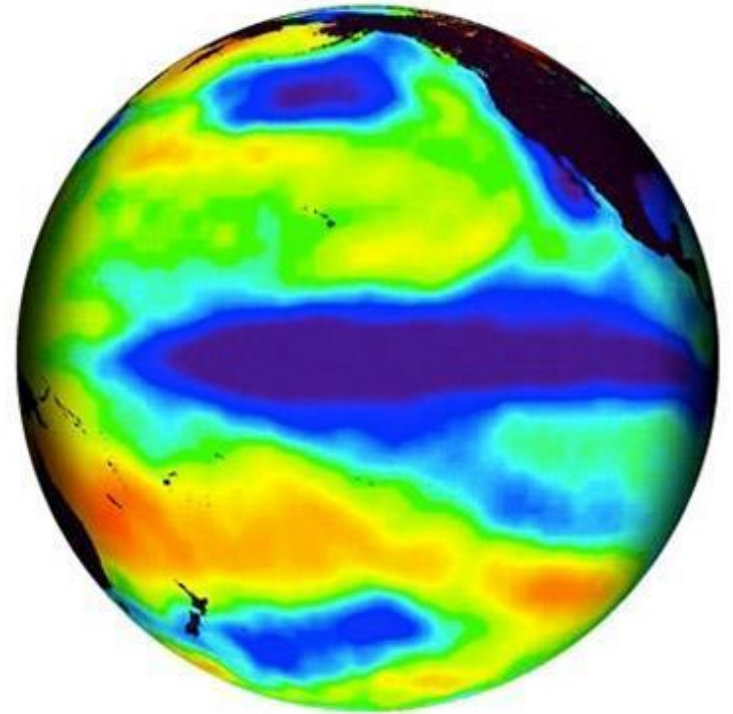
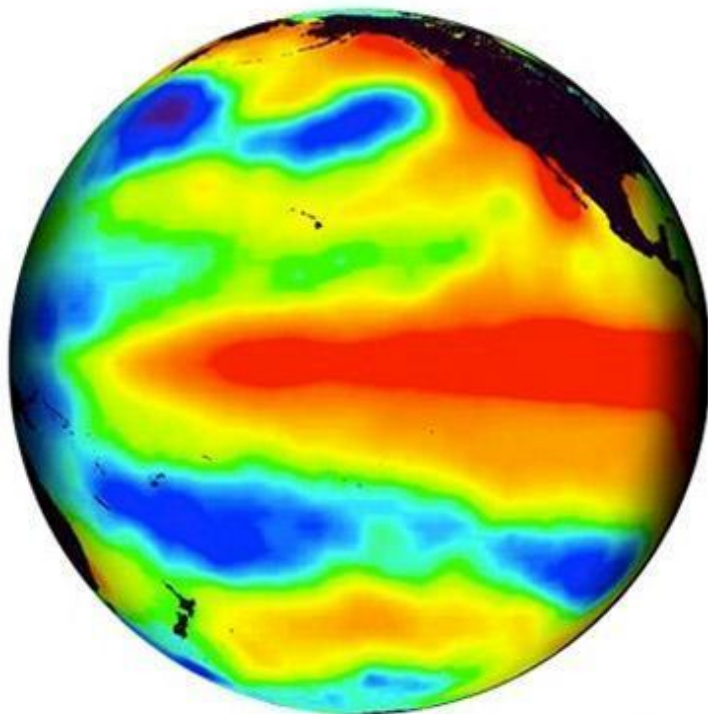
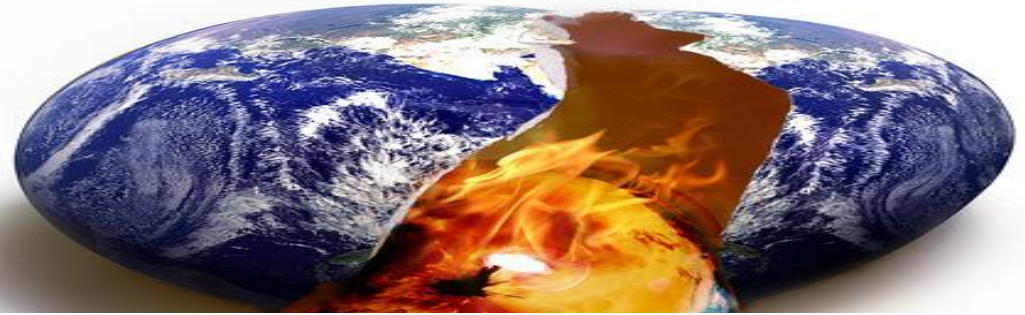


Climature



December 5th

Topic: Factors that Affect Climate

1. In your notebook create a circle map and place Climate in the middle
2. Use your space to write words that relate to climate (what causes a climate to change? How is the climate affected?)

Classwork Activities

(Move at your own pace)

1. Card Sort

With your table partner, work on matching your words with your

definitions

Time limit: 10 mins



10:00

2. Prior Knowledge

On your chart fill in the prior knowledge portion based on

the factors that affect climate

column.

Time limit:

10 mins



10:00

Short Answer Questions SWAP

Your task: Create a short answer quiz made of THREE test questions.

Focus: Climate and Its Factors

Include critical writing skill words like:

Differentiate	Distinguish	Establish
Develop	Predict	Relate
Construct	Propose	Examine

December 6th

Topic: Natural Causes of Climate Change

1. Give two specific examples of where climate change is occurring.
2. Why does latitude matter when we are discussing the greenhouse effect?

December 7th

Topic: Human Impact

1.

December 8th

Topic: Koppen Classification System

1.

What is Climate?

- Yearlong average of weather patterns over an area



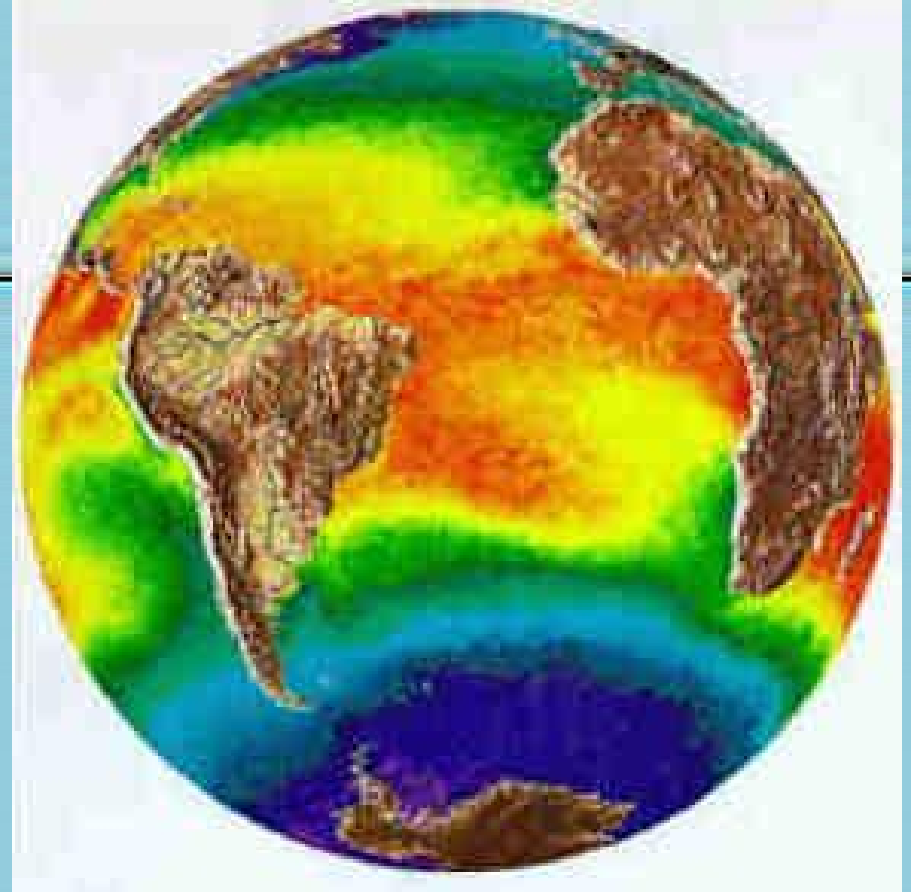
Factors that Affect Climate



- Latitude
- Elevation
- Topography
- Water Bodies
- Global Winds
- Vegetation

Factor #1: Latitude

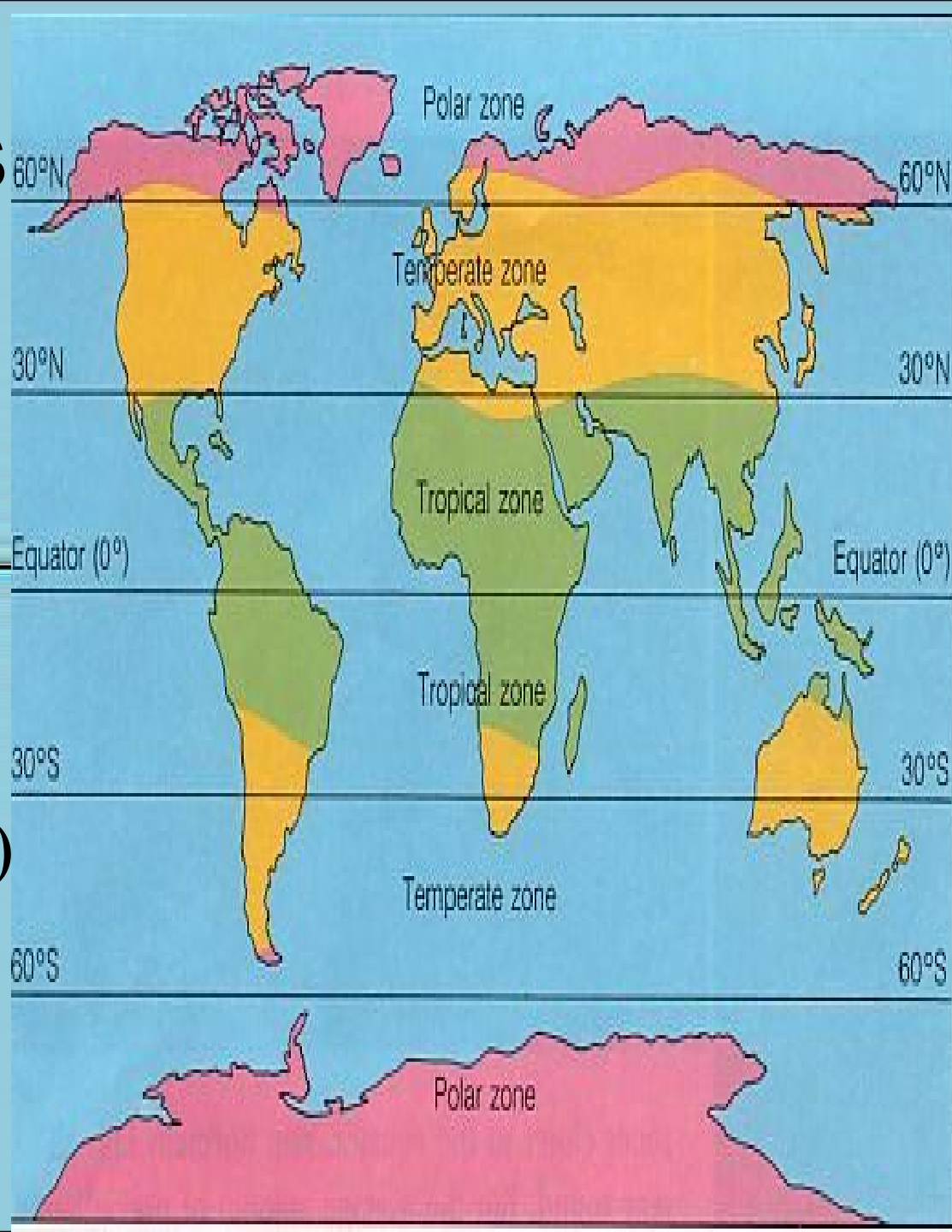
- As latitude increases, the intensity of solar energy decreases
- Three Zones
 - Tropical
 - Temperate
 - Polar



The Zones

- **Zone 1: Tropical Zone**

- Region between the Tropic of Cancer (23.5°N) and the Tropic of Capricorn (23.5°S)
- **Warm Year Round**

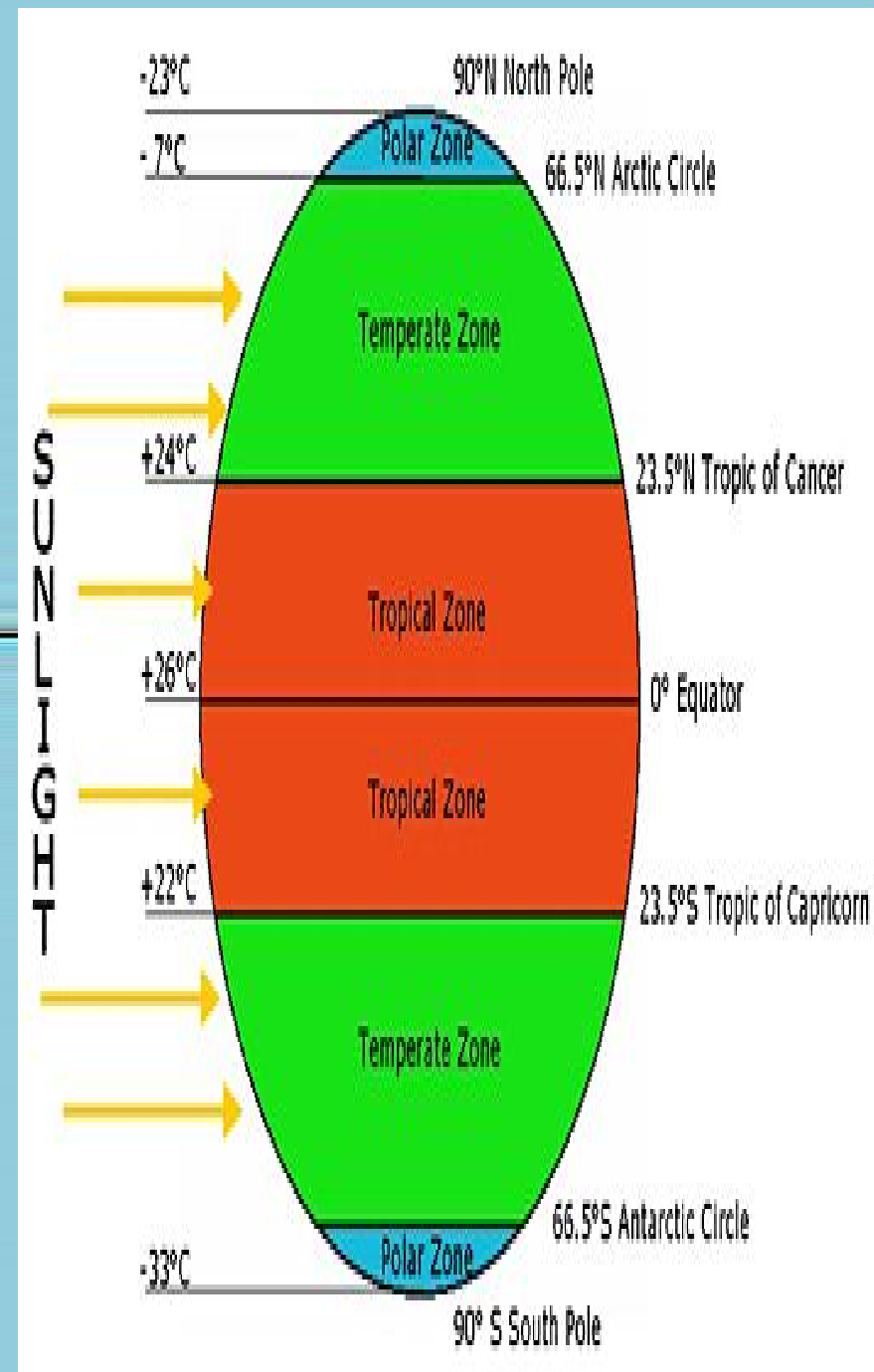


- **Zone 2: Temperate Zone**

- Region between 23.5°N/S and 66.5°N/s of the equator
- **Hot Summers**
- **Cold Winters**

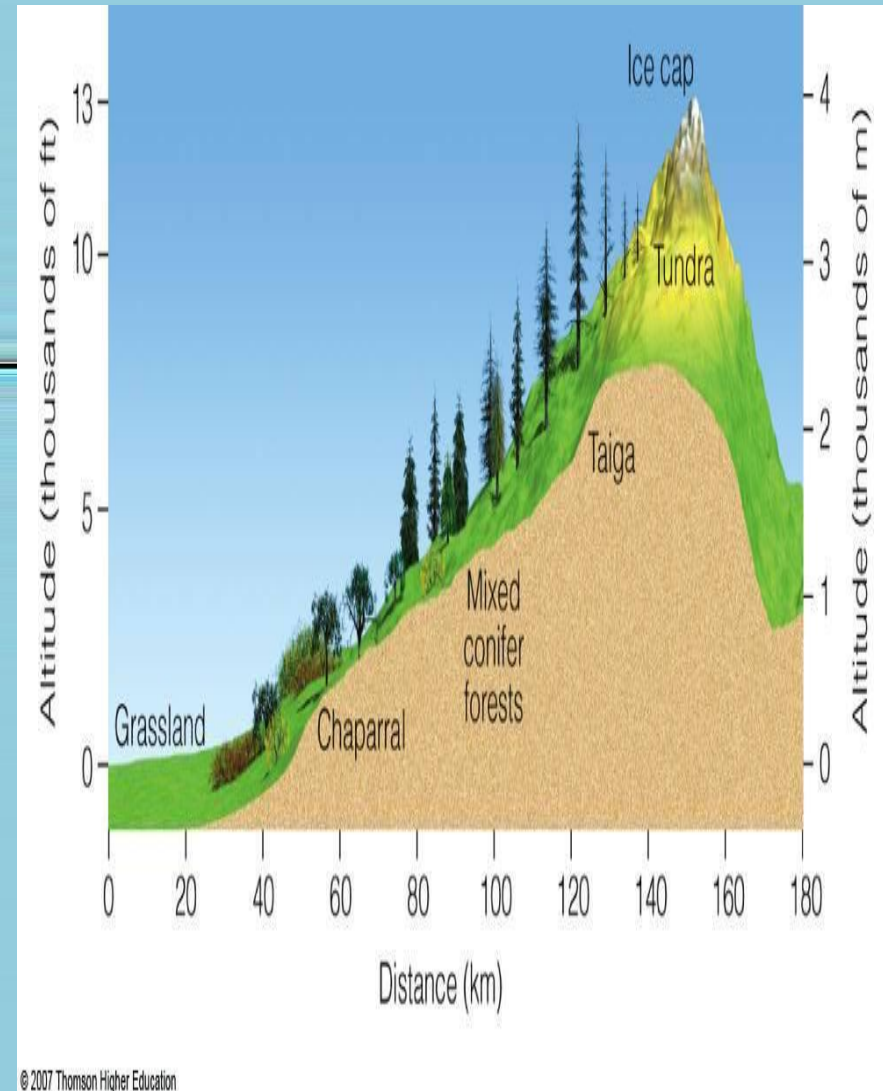
- **Zone 3: Polar Zone**

- Region from 66.5°N/S of the equator to the poles
- **Very cold temperature year round**

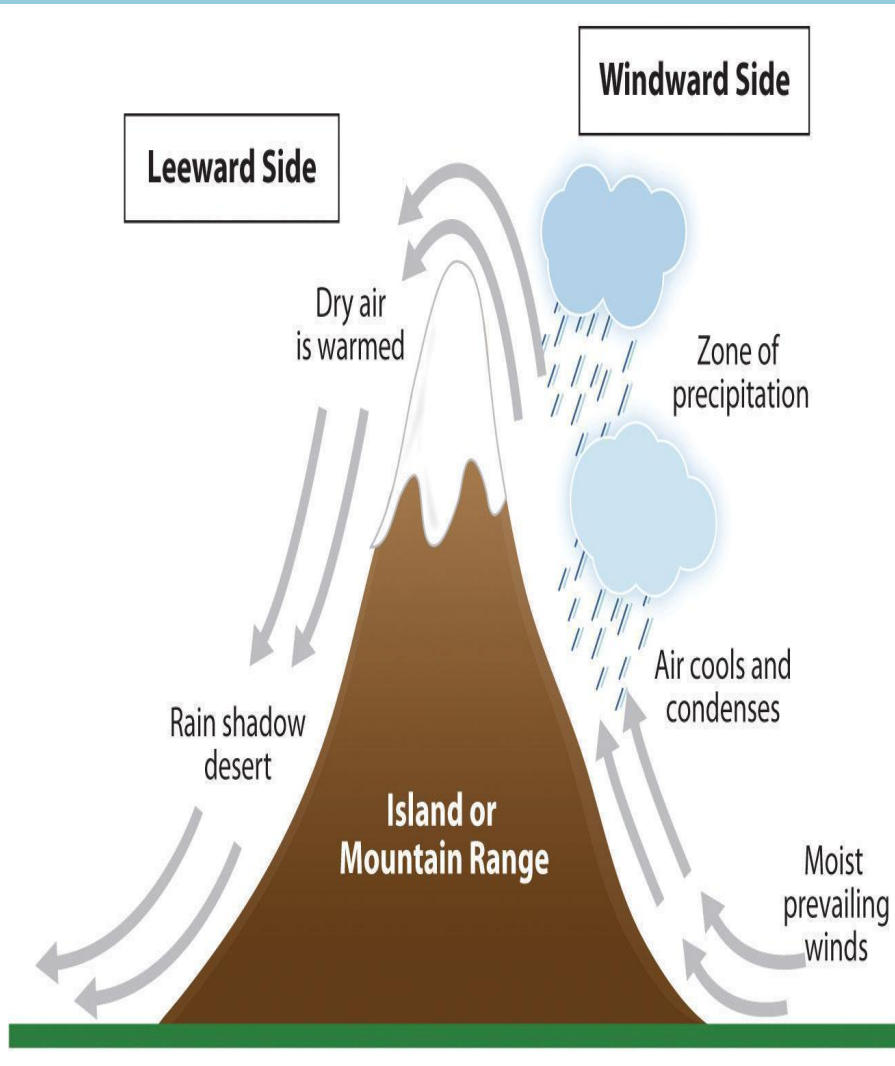


Factor #2: Elevation

- Higher the elevation is, the colder the climate
- Elevation determines amount of precipitation it receive



Factor #3: Topography



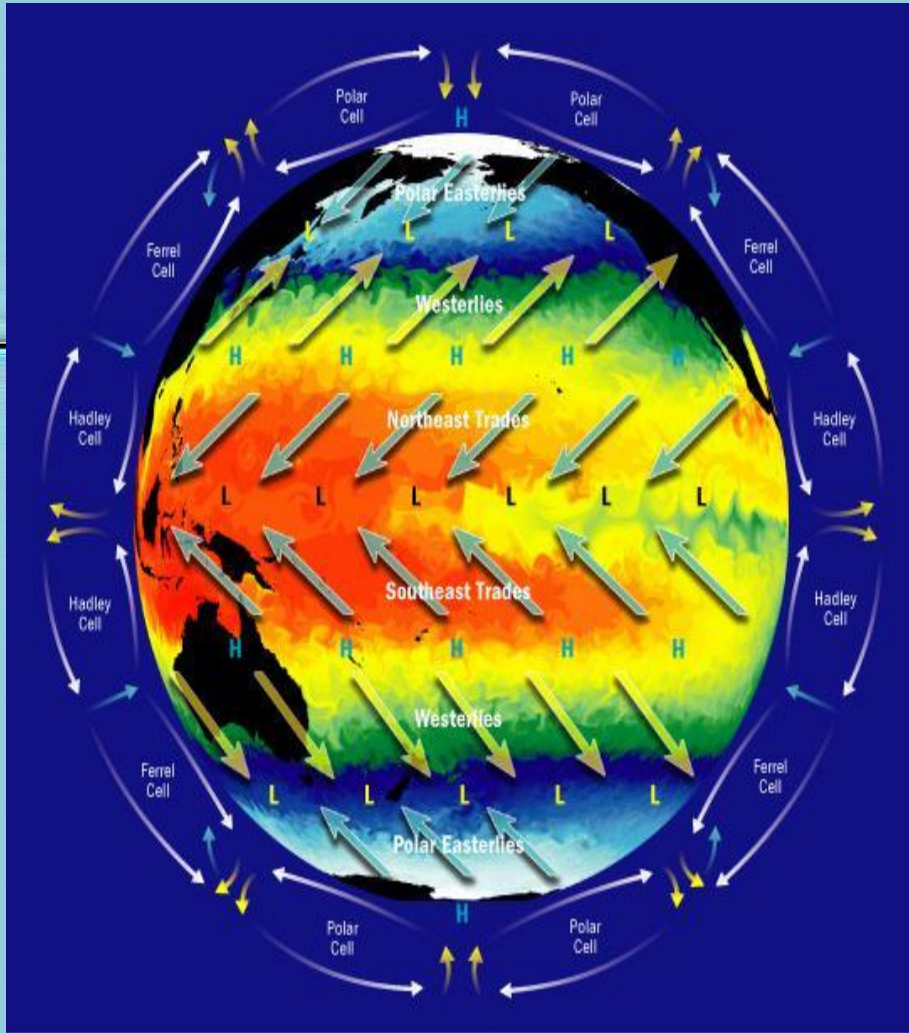
- Land features affect amount of precipitation that falls over an area
- **Mountains** cause a **rain shadow event**
 - **One side has cool, wet air**
 - **One side has warm, dry air**

Factor #4: Water Bodies

- Large bodies of water (lakes & oceans) have an important effect on the temperature of an area.
- **Temperature of the water body influences the temperature of the air above.**



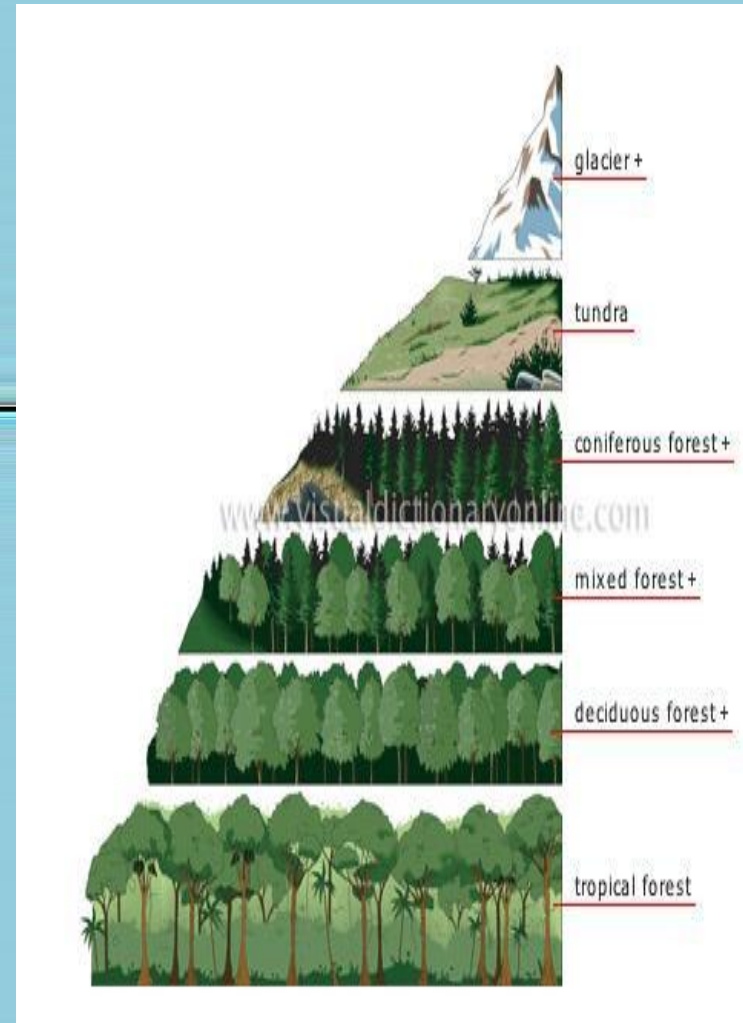
Factor #5: Global Winds



- Winds distribute heat and moisture around the Earth
- **Warm air moves to the poles**
- **Cold air moves to the equator**

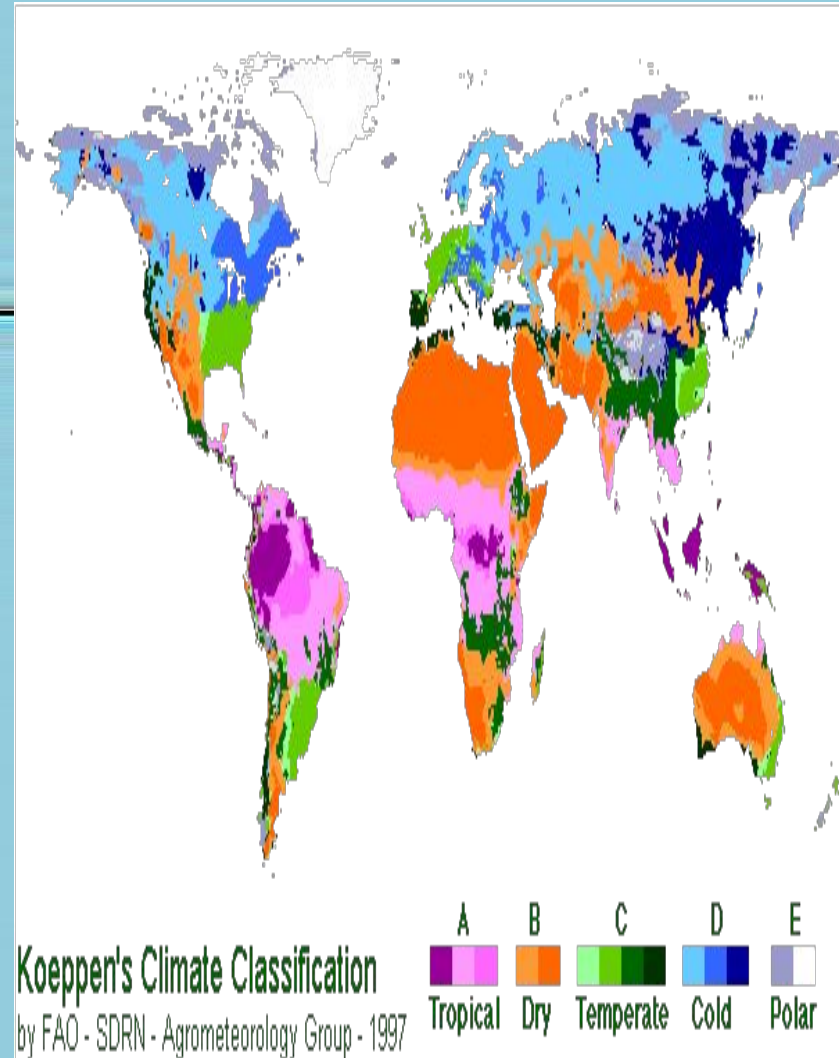
Factor #6: Vegetation

- Affects both temperature and precipitation
- Temperature
 - Influence how much of the sun's energy is absorbed and how quickly it is released
- Precipitation
 - When plants release water vapor from its leaves into the air (transpiration)



Köppen Climate Classification System

- Most commonly used system
- Uses mean monthly and annual values of temperature and precipitation
- Five Principal Groups
 - Humid Tropical
 - Humid Mid-Latitude
 - Dry
 - Highland
 - Polar



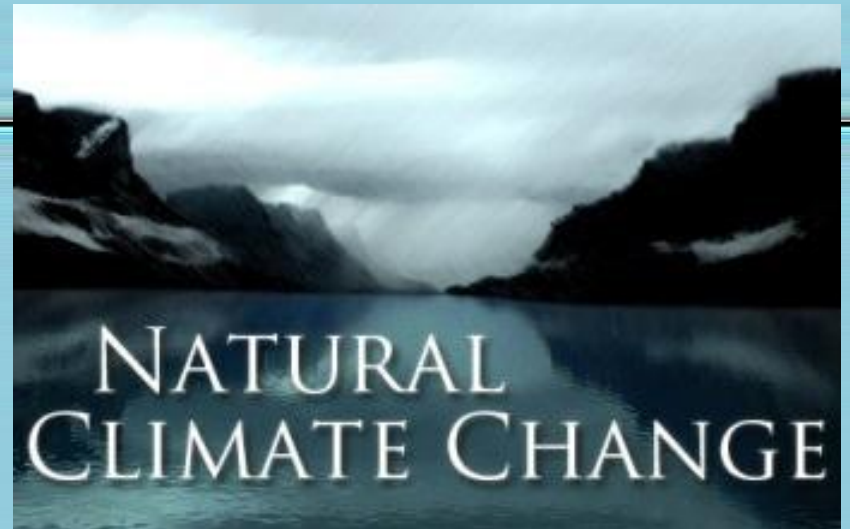
Coastal Area Climates

- The oceans heat up slowly but retain the heat for a longer period of time.
- Sea Breezes blow inland bringing rain and cools the land in the summer.
- In the winter, the coastal climates are warmer and generally wet and mild.



Natural Processes that Change Climate

- Volcanic Eruption
- Ocean Circulation
- Solar Activity
- Earth's Motions



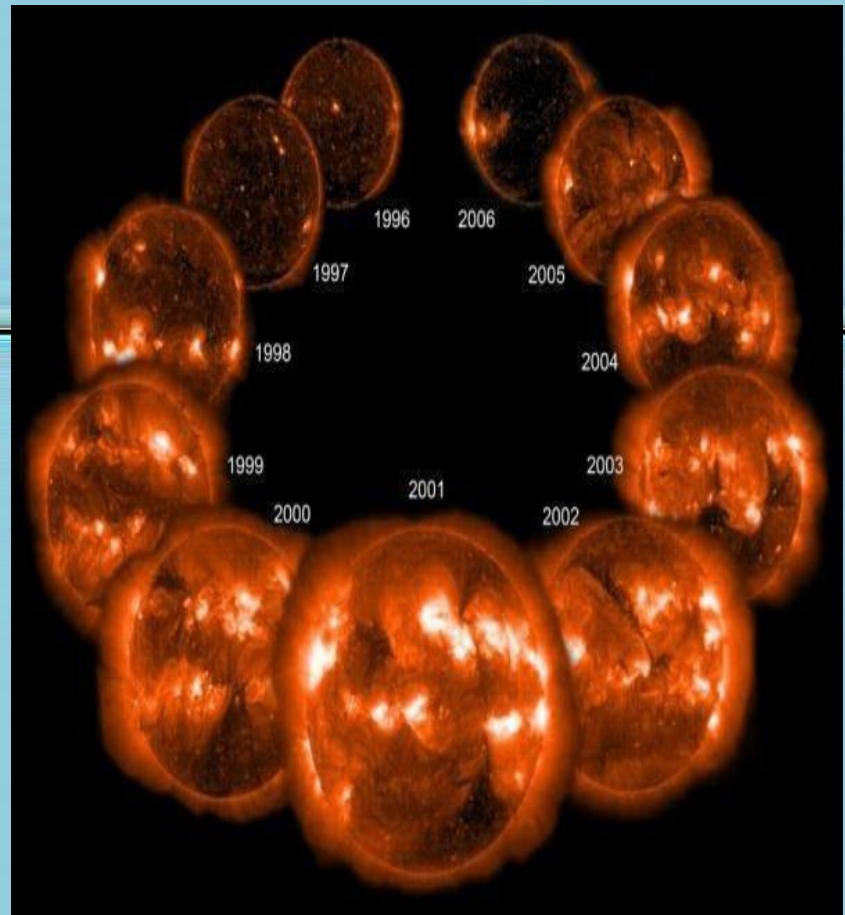
Volcanic Eruption



- The presence of volcanic ash, dust and aerosols in the air increase the amount of solar radiation that is reflected back into space.
- Causes Earth's lower atmosphere to cool

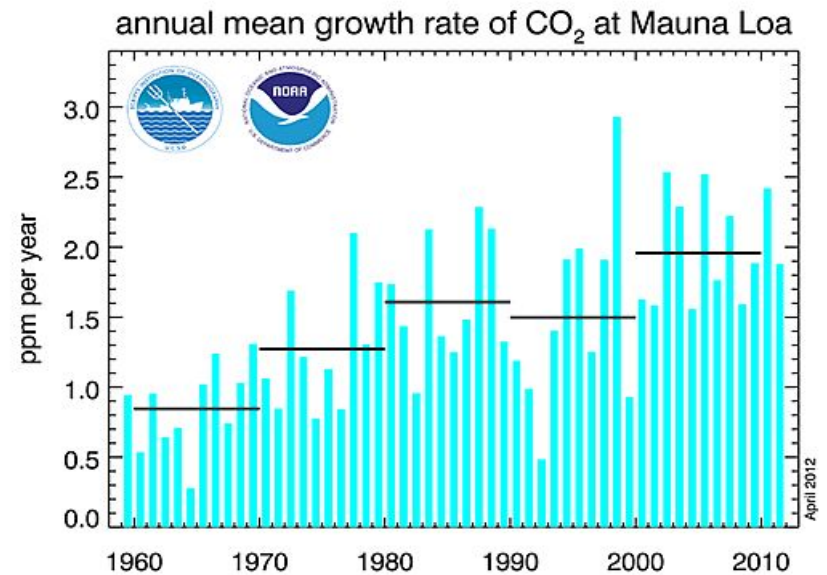
Solar Activity

- Formation of sunspots appear to correspond with warm periods in Europe and North America
- 11 year cycle



CO₂ Fluctuations

- Changes in plant growth rates
- CO₂ levels fall during the growing season and rise in the winter



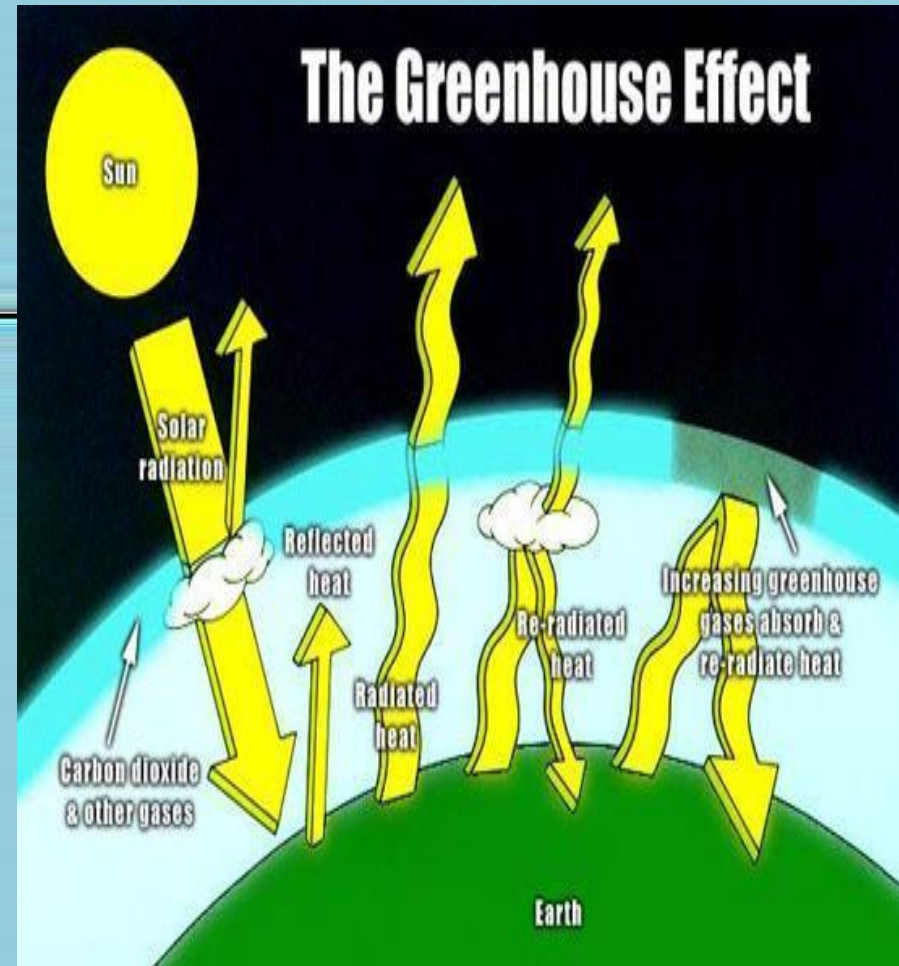
Carbon “Sinks”

- CO₂ is absorbed by the ocean and forms carbonic acid.
 - Decrease in the ocean’s pH levels in the ocean.
 - Coral Reefs: High levels of CO₂ negatively affects corals photosynthesis
 - 50% of coral reefs have been destroyed
 - [Ocean Acidification](#)



Human Impact on Climate Change

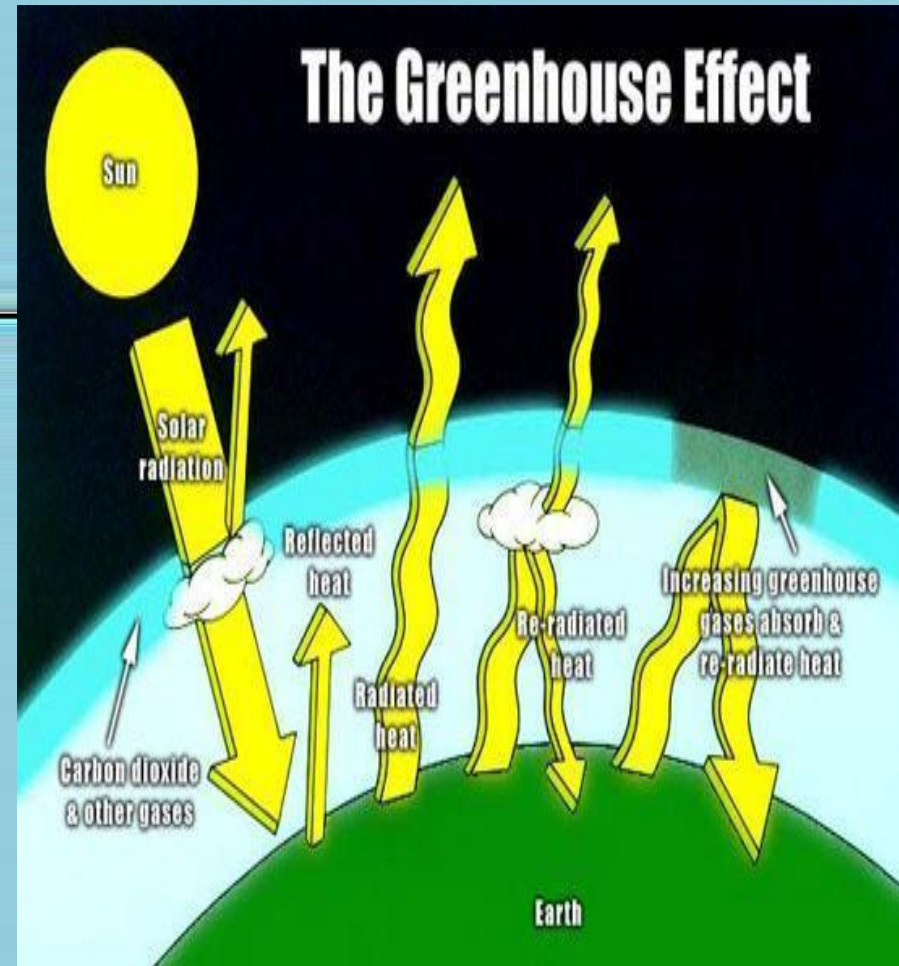
- **Burning Fossil Fuels**
 - Humans have added more greenhouse gases to the atmosphere in the past 200 years by burning fossil fuels
 - Major Gases: Water Vapor and Carbon Dioxide



Human Impact on Climate Change

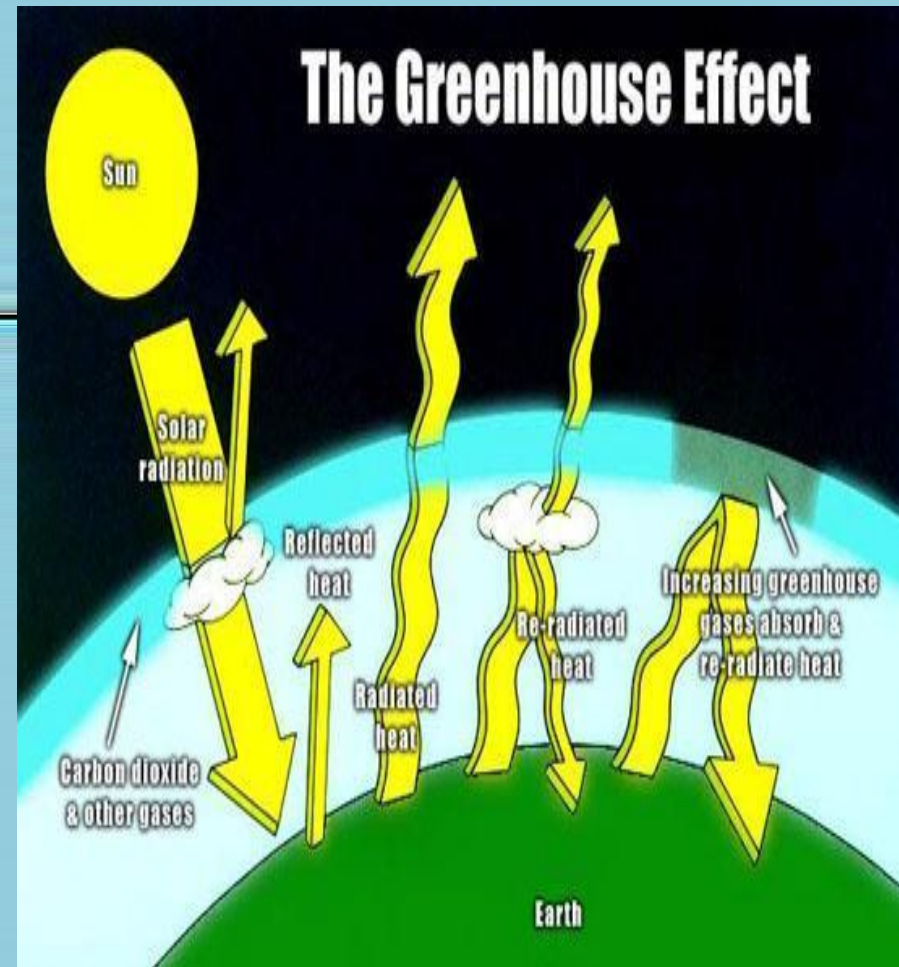
- **Deforestation**

- Plants remove carbon dioxide from the atmosphere during photosynthesis
- When large areas of vegetation are cleared, carbon dioxide, a greenhouse gas, remains in the atmosphere

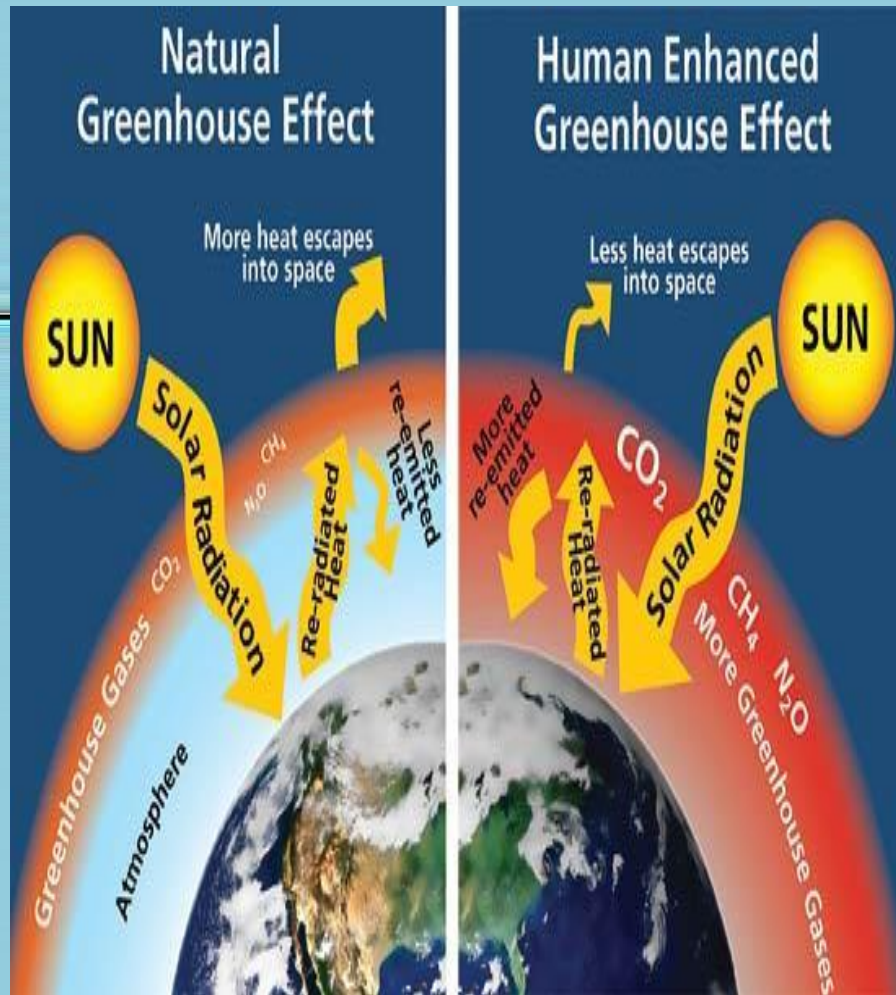


Human Impact on Climate Change

- The **Greenhouse Effect** is a natural warming of both Earth's lower atmosphere and surface
 - Makes life as we know it possible
 - Burning fossil fuels and deforestation by humans have affected this process in the last 200 years



Climate Change



- As a result of increases in Carbon Dioxide (CO₂) as well as other greenhouse gases, global temperatures have increased
- Affects weather and climates

Hottest Years

- Since 1980, the Earth has had 19 of its 20 hottest years on record

1. 2010
2. 2005
3. 2009
4. 2007
5. 2006
6. 1998
7. 2002
8. 2003
9. 2001
10. 1997



Antarctica Melting

- If all of the ice in the glaciers of Antarctica melts, the oceans will rise

