Thursday, Nov 9, 2017

Pick up: Climate CN

Today you will:

- Discuss climate Cornell Notes
- Complete Types of Climate Chart

HOMEWORK:

Study for Wednesday's quiz

Climate

What is the difference between climate and weather?

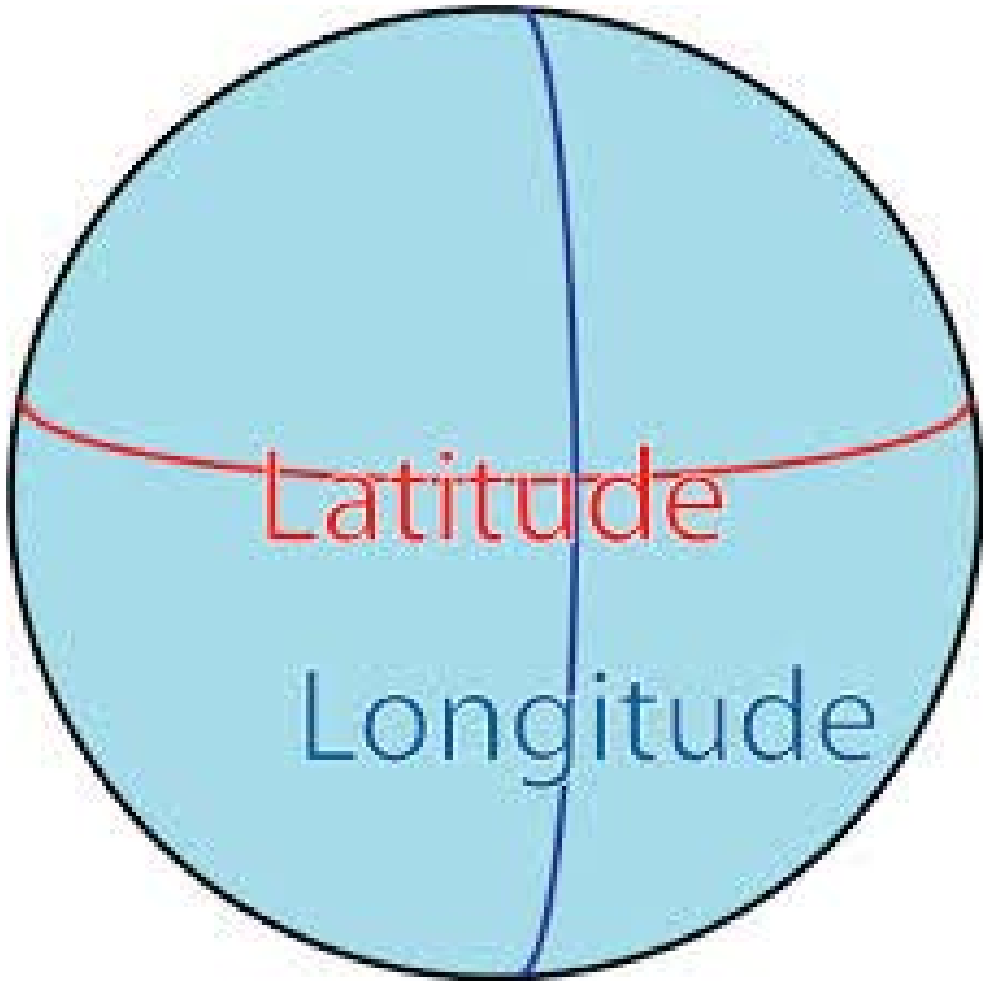
- Weather is the condition of the atmosphere at a particular time.

- Climate is the average temperature and precipitation over a long period of time.

What factors influence climate?

- Latitude
- Heat absorption and release
- Topography

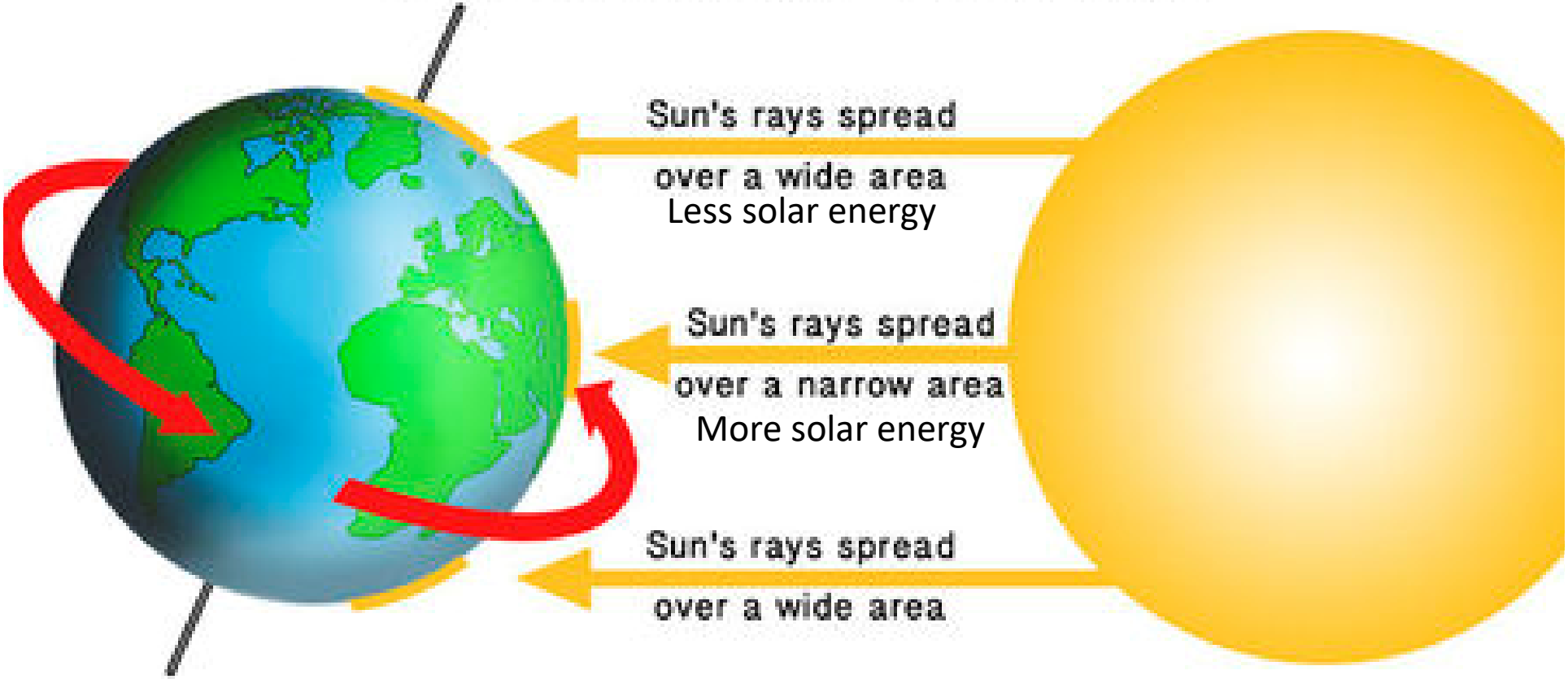
What is latitude and longitude?



How does latitude affect climate?

- Latitude is the most important factor affecting climate.
- Different latitudes receive different amounts of solar energy (heat). The more solar energy, the higher the temperature.
- The angle the sun's rays hit Earth determines the amount of solar energy.
- Less solar energy by the poles, more solar energy by the equator.

The Sun's Rays & Latitude

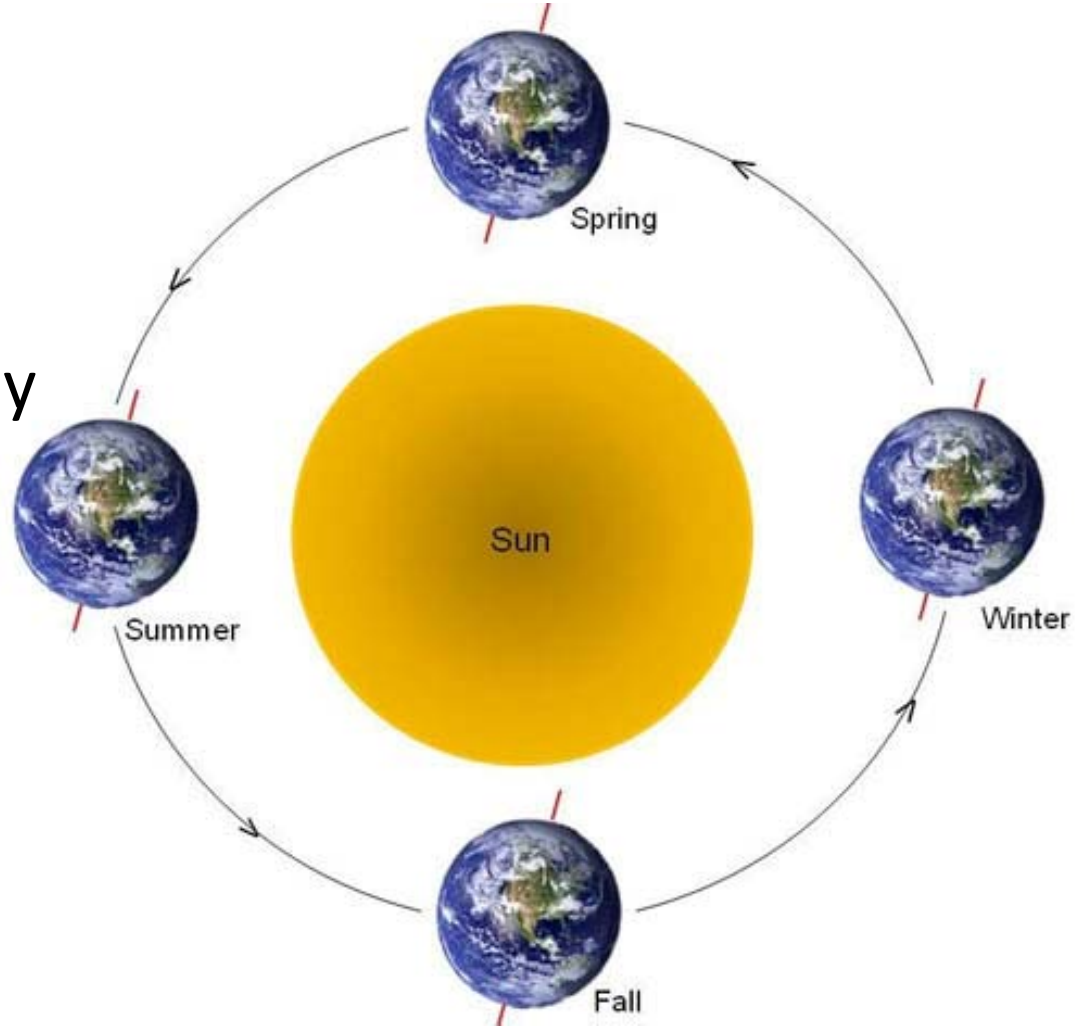


Latitude (continued)

- Temperatures at the Poles are low because the sun's rays are spread over a larger area.
- Temperatures at the equator are higher because they are spread over a smaller area.

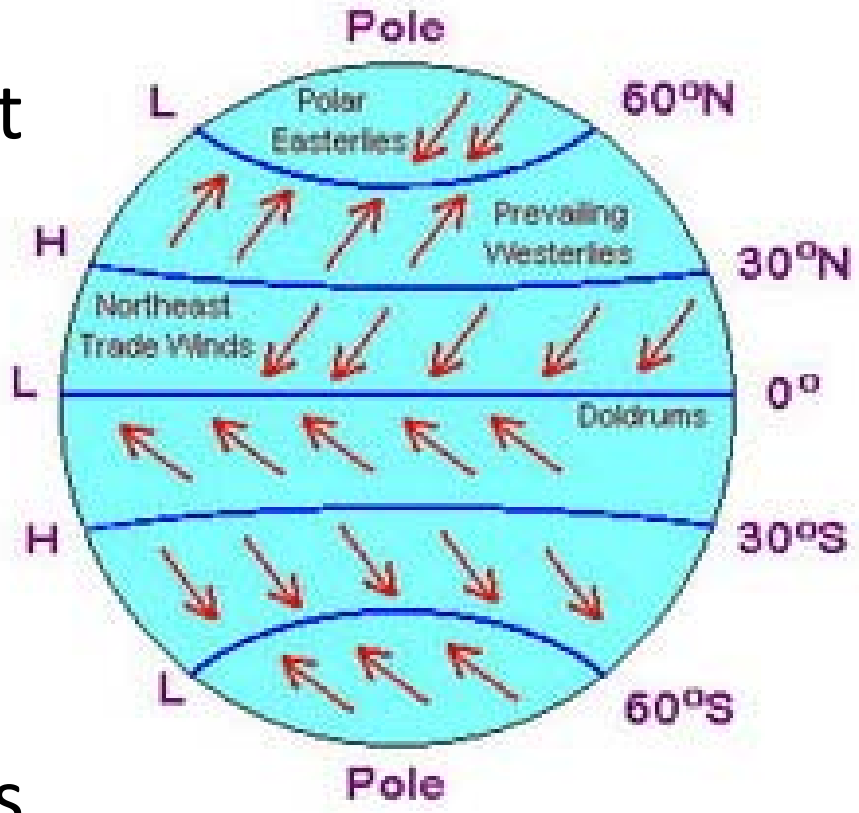
What effect does latitude have on seasons?

- Earth's tilt determines the seasons.
  - Winter: tilted away from sun (shorter days and colder)
  - Summer: tilted toward the sun (longer days and warmer)



What are global wind patterns (prevailing winds)?

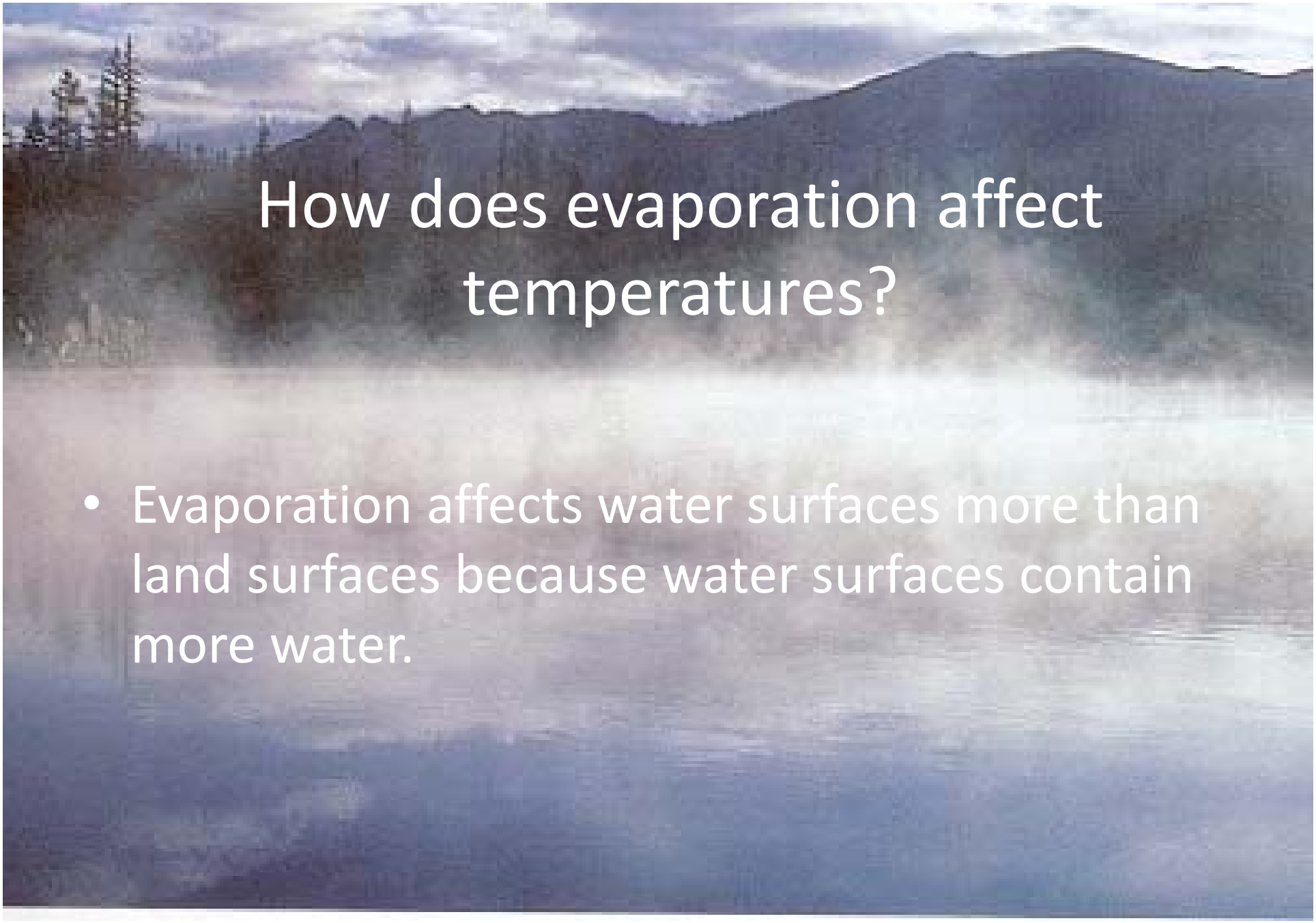
- Warm, less dense (lower pressure) air belt forms near the equator (doldrums).
- Cold, more dense (higher pressure) air belt forms near the poles.
- High pressure air moves toward low pressure air.



How does specific heat and evaporation influence climate?

- Water warms more slowly than land. It also releases heat energy more slowly because it has a higher specific heat.

- Specific heat is the amount of energy needed to change the temperature of 1g of a substance by one degree Celsius.

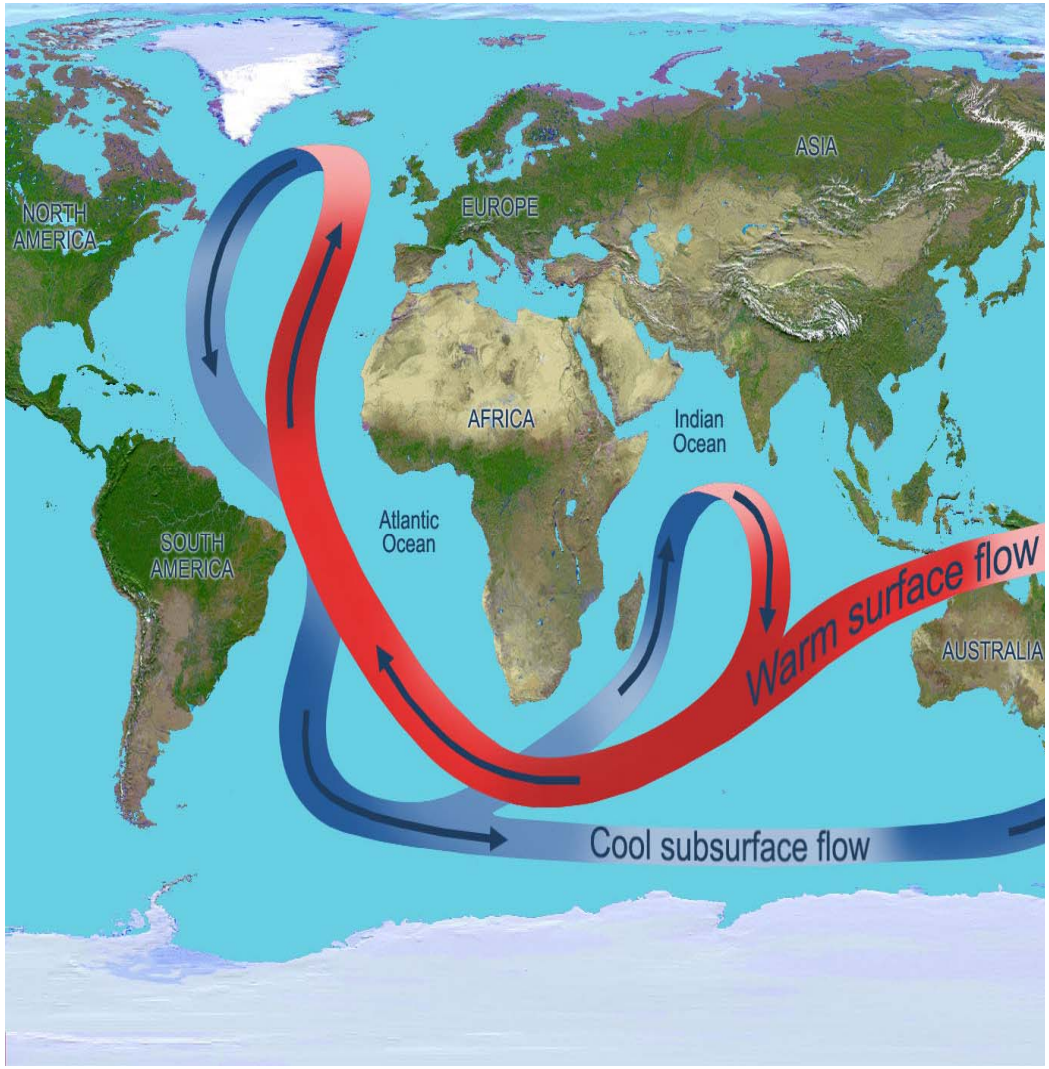


How does evaporation affect temperatures?

- Evaporation affects water surfaces more than land surfaces because water surfaces contain more water.

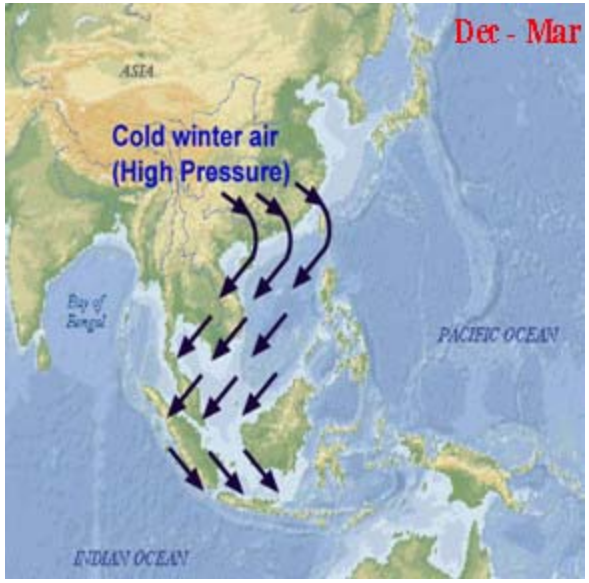
How do ocean currents affect an area's climate?

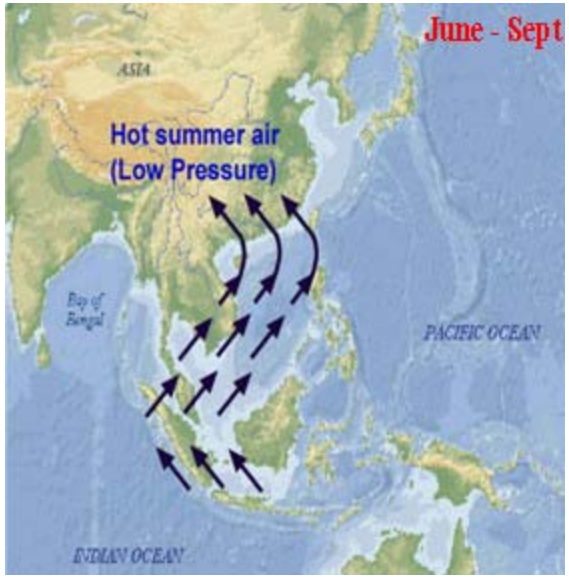
- Proximity – If an area is close to the ocean, its climate is affected.
- Wind coming from a warmer ocean to land will warm the land.
- Wind coming from a cooler ocean to land will cool the land.



What are monsoon winds?

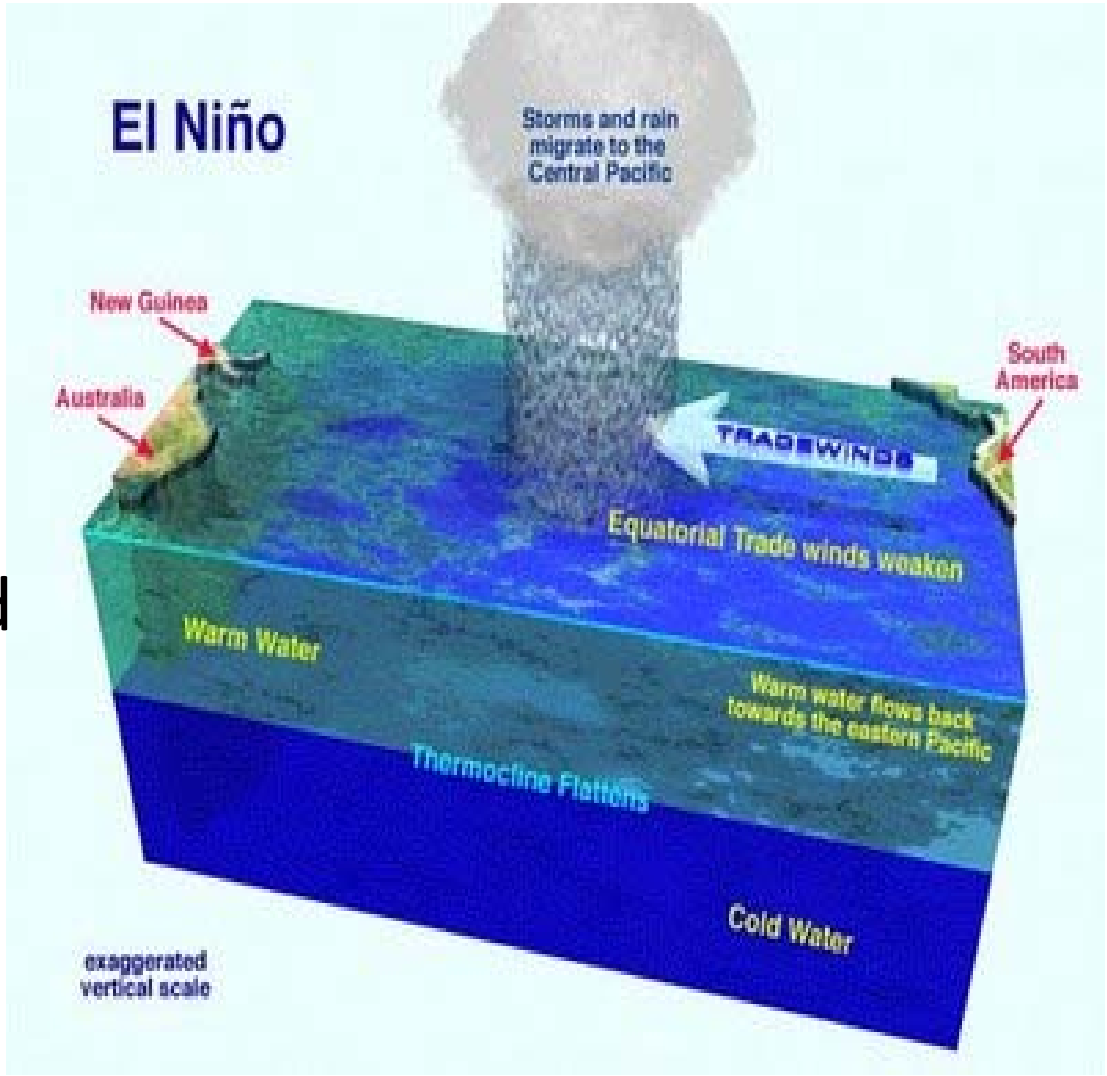
- Winds caused by seasonal heating and cooling.
- Cause droughts in the winter and heavy rainfall in the summer.



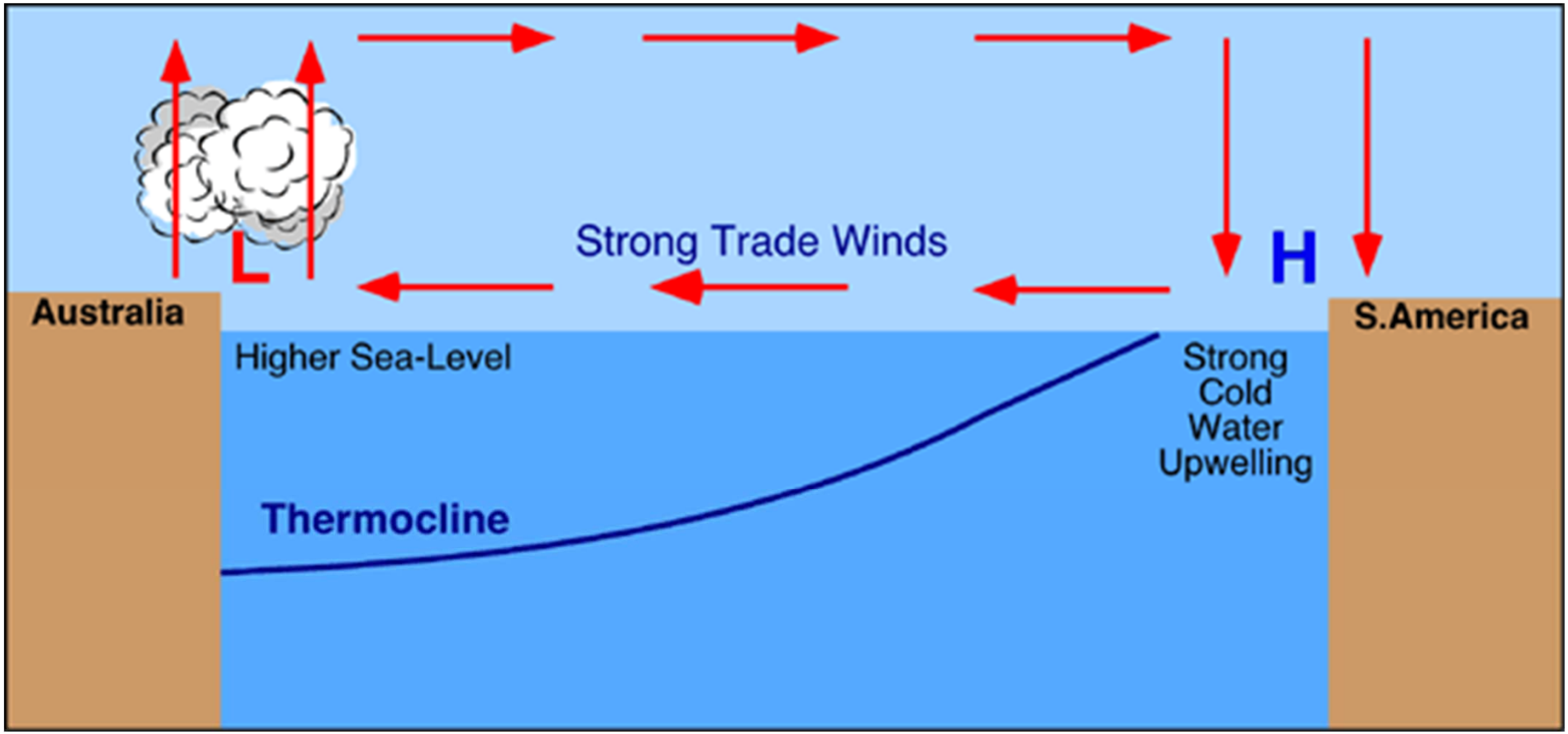


What is El Nino?

- Every 3 to 10 years surface water temperatures in some areas rise.
- Causes typhoons, cyclones and flood in some areas (South America) and droughts in others (Australia).



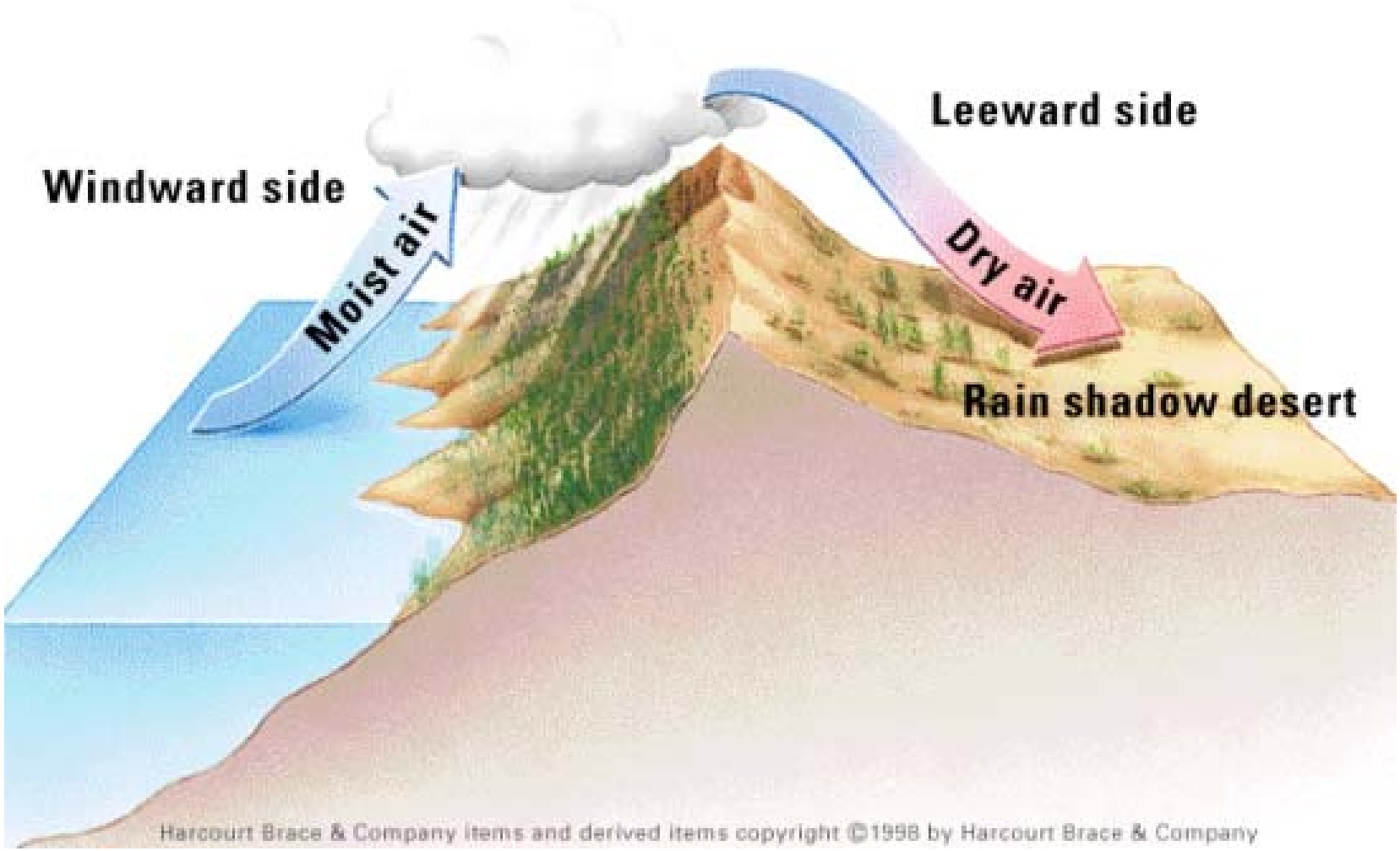
What is La Nina?



How does topography affect climate?

- Topography – surface features and elevation of land.
- Temperature usually decreases as elevation increases.
- Proximity – Mountains can also influence climate by creating a rain shadow. As air rises and cools on one side (windward side), it causes precipitation. On the other side (leeward side), air will sink and be dry.

Rain shadow



What are climate zones?

- Areas on Earth with different temperature ranges and precipitation.
- Include tropical, mid-latitude, and polar climates.

What are the tropical climates?
See chart in textbook pg 615

Dessert

Rainforest

Savanna

What are the types of mid-latitude climates?

Mediterranean

Humid continental

steppe

Marine west coast

Marine west coast

What are the polar climates?

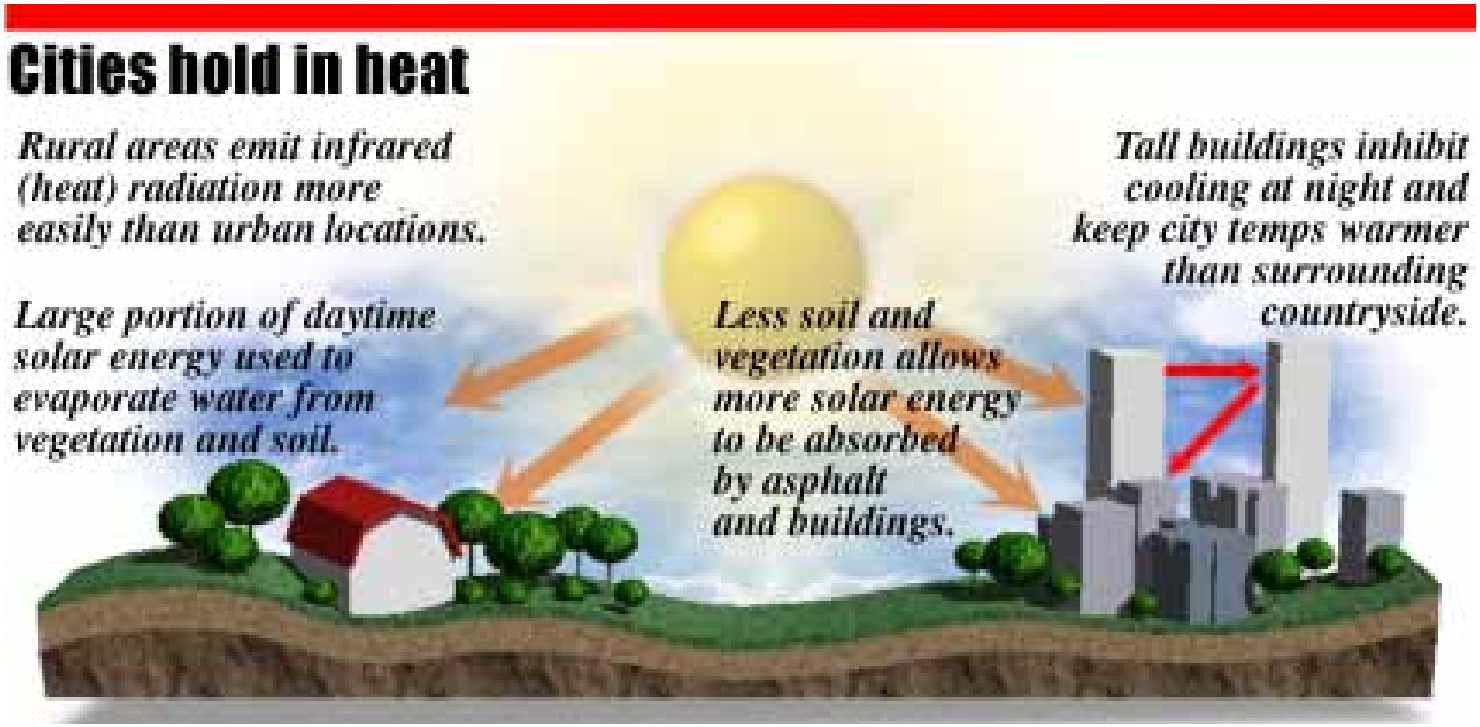
Polar icecap

tundra

subartic

What is a microclimate?

- Climate of a small area influenced by vegetation and human-made structures.
- Cities are warmer than rural areas.



How do climatologists study climate change?

- Ice cores – scientists measure gases that were in the atmosphere when the ice formed. This can show how CO2 concentrations have changed.

Also…

- Fossils of plants and animals show adaptations necessary for hot or cold climates.
- Tree ring width show hot and cool weather.
- Speleothems (stalagmites) indicate hurricane record.

What can cause climate change?

1. Orbital changes – Milankovitch theory describes that the change in Earth's orbit or when Earth's axis "wobbles", the climate can change.

2. Movement of continental plates can change an area's climate.

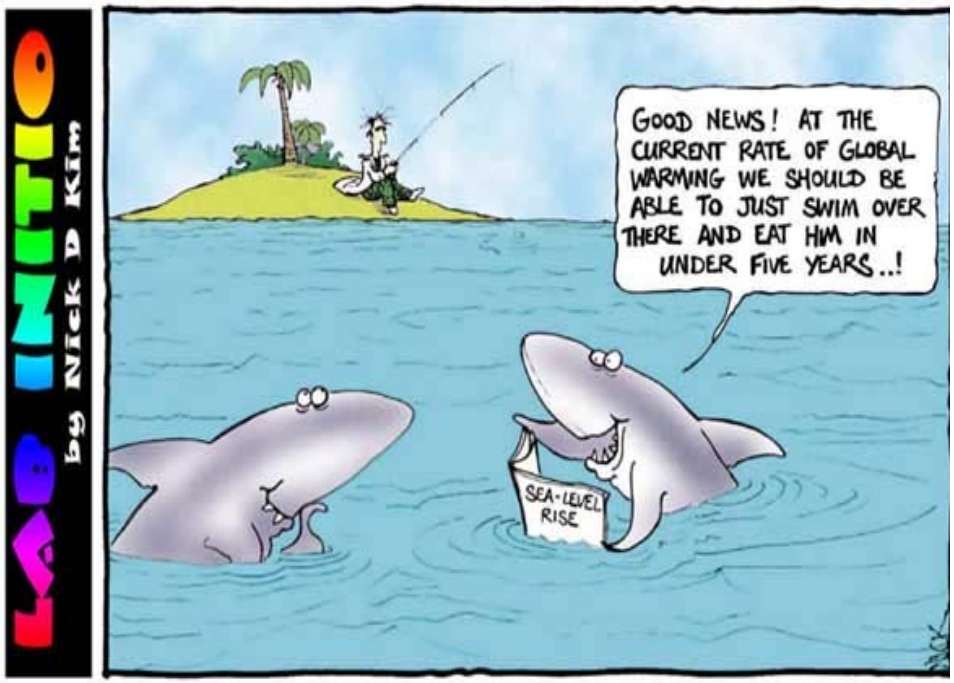
3. Volcanic eruptions can cause a decrease in temperature.

4. Human activity – burning fossil fuels, clearing land, and deforestation

What are the possible effects of climate change?

- Global warming

- Sea-level change



What can people do about climate change?

- Reforestation
- Reduce pollution caused by fossil fuels (driving cars and using electricity)
- Recycle
- Use public transportation
- Drive fuel-efficient cars