

Name: _____ Unit 3: Weather, Climate & The Atmosphere

NOTES: 3.02

FOCUS: Weather and Climate

ESSENTIAL QUESTION: Can you explain the difference between weather and climate?

What do you already know?

- We live in a layer of the atmosphere called the troposphere, which is where nearly all weather occurs.
- Temperature decreases as elevation increases in the troposphere, meaning the air near the ground is warmer and the air in the upper troposphere is colder.

What is meant by the term "weather"?

• Weather is... the state of the atmosphere at a particular place & time

- Can change from day to day and hour to hour.

- Described by variations in several conditions:

- Temperature :

measure of average kinetic energy of the air molecules

- Humidity : measure of the amount of water vapor in the air

- Wind : the horizontal direction and speed of air motion

- Precipitation : rain, sleet, snow, freezing rain, or hail that falls from clouds to Earth.

- Barometric Pressure : the pressure exerted by the weight of the atmosphere on Earth's surface.

- Example: Today's weather will be 61°F, mostly cloudy, humidity of 59%, ENE wind at 9mph, 20% chance of rain, falling barometric pressure.

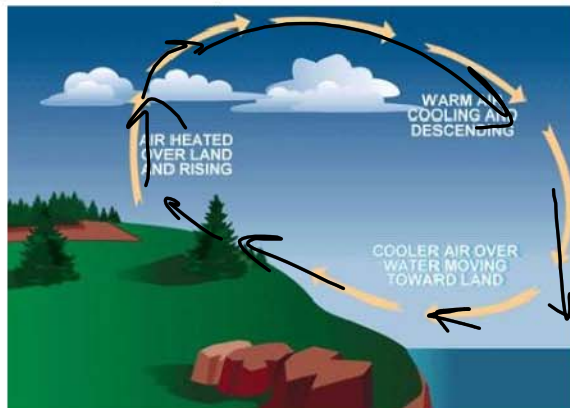


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What causes weather to occur?

• Weather is caused by the uneven heating of land and water by the sun.



• Results in a cyclical rising and sinking of warm and

cool air → Convection currents

• Differences in air temperature and pressure produce wind, storm fronts, and other weather phenomenon.

What is meant by the term "climate"?

• Climate is... the weather conditions prevailing in an area over a long period of time.

• Specifically average temperature, average precipitation, humidity, air pressure, and WIND over a long period of time.

• Examples:

○ North Carolina's climate is temperate (moderate temperature, moderate precipitation) with hot, humid summers and mild, wet winters.

○ Arizona has a desert climate with hot, dry summers and mild, dry winters.

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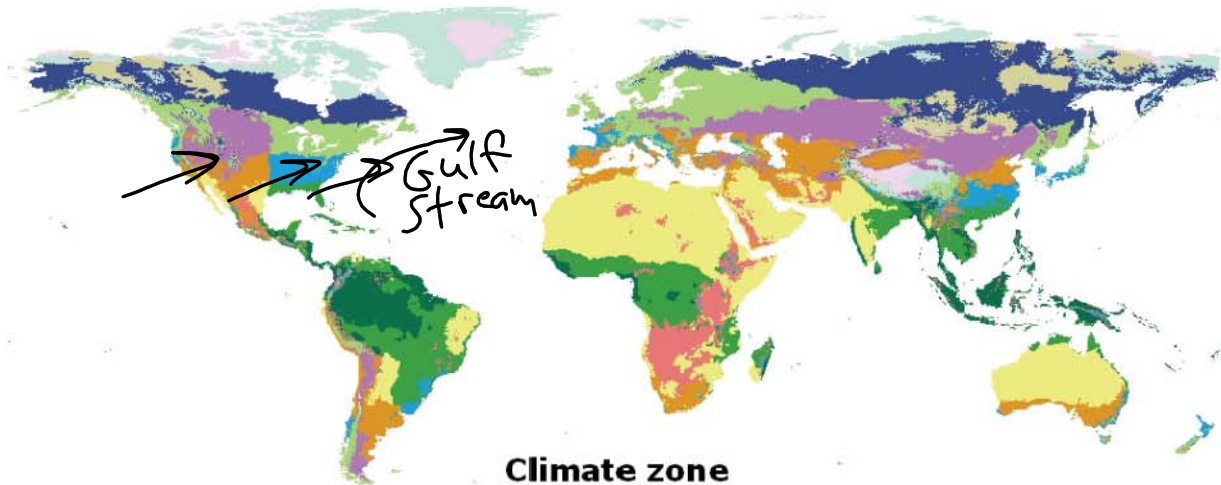
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What causes the climate in a particular location?

- The climate in a particular location is affected by:

- *closeness* latitude : distance above or below Earth's equator
- Proximity to a major body of water
- Proximity to major mountain ranges
- elevation : distance above sea level/height in the troposphere
- Ocean currents
- prevailing winds

Climate Zones



Climate zone

Other	Polar, moist	Tropical, wet
Warm temperate, moist	Polar, dry	Tropical, moist
Warm temperate, dry	Boreal, moist	Tropical, dry
Cool temperate, moist	Boreal, dry	
Cool temperate, dry	Tropical, montane	

