

## Unit 7–Severe Weather & Climate Twitter Review Questions

U7-1: Explain what happens to the intensity of a hurricane as it reaches land.

- Answer: Intensity decreases due to friction with land and lack of warm, moist air

U7-2: NEED TO KNOW: Be able to analyze and interpret climatogram data.

- Answer: Precipitation (Bar Graph) / Temperature (Line Graph)

U7-3: What is true about the pressure center of a tornado? (Think cyclones)

- Answer: Very low pressure

U7-4: Identify the two (2) most important greenhouse gases in the lower atmosphere.

- Answer: Water Vapor & Carbon Dioxide

U7-5: Which weather instrument is used to measure relative humidity?

- Answer: Psychrometer

U7-6: Which weather instrument is used to measure air pressure?

- Answer: Barometer

U7-7: Which weather instrument is used to measure wind speed?

- Answer: Anemometer

U7-8: Identify the three (3) stages of thunderstorm formation in order.

- Answer: Cumulus Stage, Mature Stage, Dissipation Stage

U7-9: Explain what happens to the intensity of solar energy as latitude increases.

- Answer: Increase latitude = Decrease solar energy

U7-10: NEED TO KNOW: Be able to identify and describe all of the main classifications of the Koppen climate.

- Answer: Polar, dry/arid, humid tropical, etc

U7-11: What is the primary air pollutant that causes acid deposition (acid rain)?

- Answer: Sulfur Dioxide (SO<sub>2</sub>)

U7-12: What is true of the eye wall of a hurricane?

- Answer: Contains fastest/highest wind speeds

U7-13: What is true of the eye of a tornado?

- Answer: Contains fastest/highest wind speeds

U7-14: Compare the impact/effect of pH on acid deposition (acid rain).

- Answer: Lower the pH level = Greater acid deposition effects

U7-15: Describe the weather conditions within the eye of a hurricane.

- Answer: Calm & Clear – No winds or rain

U7-16: Identify the three (3) necessary conditions needed for the development and formation of severe weather, such as thunderstorms and hurricanes.

- Answer: Rising warm air (heat energy) / Water vapor content (moisture) / Air pressure differences (unstable clouds)

U7-17: What is the name of the biome that would most likely experience an arid climate system?

- Answer: Desert

U7-18: What are the negative impacts of burning fossil fuels and its relationship to the greenhouse effect?

- Answer: Burning fossil fuels release carbon dioxide into atmosphere, thus INCREASING greenhouse effect

U7-19: Which climate region (zone) is located closest to the equator?

- Answer: Tropical Zone (0-30 degrees N/S latitude)

U7-20: Identify three (3) roles/properties of greenhouse gases.

- Answer: 1) Prevents the release of Earth's heat at night (thermal blanket effect) / 2) They do not block incoming solar radiation, but rather reflects it back to surface keeping it warmer / 3) Water vapor and carbon dioxide are two most important greenhouse gases

U7-21: Which Koppen climate system does not experience different seasons?

- Answer: Humid tropical – Remains warm and moist (near equator) year-round

U7-22: Which Koppen climate system experiences periods of continuous night?

- Answer: Polar – Due to limited exposure to solar energy (sunlight)

U7-23: NEED TO KNOW: Negative effects of rising global temperatures (global warming).

- Answer: 1) Increased respiratory disease due to greater pollution in warmer air / 2) Increased spreading of infectious diseases as warmer air is able to hold more pollutant particles (increased turbidity of air) / 3) Increased malnutrition due to damage of agricultural farmlands

U7-24: Identify three (3) major factors that may cause long-term changes in climate.

- Answer: 1) Changes in solar radiation exposure / 2) Changes in shape of Earth's orbit around Sun / 3) Changes in Earth's degree of tilt

U7-25: Describe the relationship between elevation and climate.

- Answer: Higher the elevation, colder the climate

U7-26: NEED TO KNOW: Be able to identify/describe the difference between an El Nino and La Nina.

- Answer: Relate to upwelling and downwelling

U7-27: A greater than normal upwelling of cold water in the Pacific Ocean is associated with an \_\_\_\_\_ (El Nino/La Nina) effect.

- Answer: La Nina

U7-28: Differentiate between the "greenhouse effect" and the "enhanced greenhouse effect".

- Answer: Greenhouse Effect – Natural warming of lower atmosphere due to natural release of greenhouse gases (Water vapor & CO<sub>2</sub>)
- Enhanced Greenhouse Effect – Increased release of greenhouse gases due to HUMAN actions such burning of fossil fuels (oil and natural gas) and coal

U7-29: Based on the Koppen Climate Classification system, what is the MOST important cause of a region's climate and why?

- Answer: Latitude – As latitude increases, direct solar radiation decreases resulting in lower temperatures

U7-30: Identify three (3) major consequences of global warming.

- Answer: 1) More frequent/intense hurricanes / 2) Rising sea levels / 3) More frequent/intense droughts in arid climate regions

U7-31: Compare Earth's current average surface temperature to that from 100 years ago.

- Answer: Earth's current average surface temperature has increased

U7-32: How would the climate of a coastal city differ from that of a city at the same latitude located farther inland?

- Answer: The coastal city would have cooler summers than inland

U7-33: How does volcanic activity on Earth affect the absorption of solar radiation?

- Answer: 1) Large particles increase the amount of solar radiation that is trapped at Earth's surface / 2) Increased amount of CO<sub>2</sub> and water vapor trap outgoing heat / 3) Small particles increase the amount of solar radiation reflected into space

U7-34: What causes a low pressure cell of rising air to become a tornado?

- Answer: High speed horizontal wind strikes the cell 3 miles high up in the atmosphere

U7-35: Which phenomenon is associated with surface temperatures in the eastern Pacific ocean that are colder than normal?

- Answer: La Nina (upwelling)

U7-36: Compare the strength between tornadoes and hurricanes.

- Answer: Tornadoes are usually more violent as there is a higher concentration of circulating air

U7-37: Explain what happens during the mature stage of a thunderstorm.

- Answer: Continual updraft (rising) of warm air and downdraft of COOL air that creates heavy precipitation

U7-38: What effect do greenhouse gases have at nighttime temperatures and why?

- Answer: Greenhouse gases act as a heat blanket by trapping and storing outgoing solar radiation

U7-39: Explain how Earth's position in its elliptical orbit around the Sun affects climate on Earth.

- Answer: Closer in orbit to the Sun causes Earth's temperatures to be slightly higher, thus causing variations in climate

U7-40: Describe an El Nino effect on climate.

- Answer: Warm currents that become strong in areas of usually cold current. Replaces normally cold waters with warm, equatorial Pacific waters. Brings abnormal rain averages to areas that are usually dry and more winter precipitation to warmer regions

U7-41: What scale is used to classify the strength of tornadoes?

- Answer: Enhanced Fujita scale (EF0-EF5)

U7-42: What scale is used to classify the strength of hurricanes?

- Answer: Saffir-Simpson scale (Category 1 – Category 5)

U7-43: Order the stages of hurricane formation.

- Answer: Tropical Depression → Tropical Storm → Category Hurricane

U7-44: Explain the importance of the air quality index (AQI).

- Answer: Measures the quantity of pollutant particles in the atmosphere and potential health hazards

U7-45: Describe the dangers of ground-level ozone.

- Answer: "Ozone in the troposphere" that pose greatest pollutant threat to health