

Physical Geography

Mid-Term #1

- ANSWER: Geography is this type of science
- QUESTION: What a spatial science?

2

- Physical vs. Human/Cultural
- What is the fundamental duality in geography?

3

- 300,000 kps (186,000 miles ps)
- What is the speed of light?

4

- 150,000,000 km or 8' 20"
- What is the distance from Earth to the Sun?

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- X-Rays, UV, Visible, IR
- What is the electromagnetic spectrum from shortest to longest wavelengths?

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- Location on surface of Earth where Sun is directly overhead
- What is the subsolar point?

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- Hurricanes, global winds, ocean currents
- What results from the global imbalance of energy?

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- Earth's sphericity
- Why is there uneven distribution of insolation by latitude?

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- Six hours difference from Summer to Winter
- How many hours does daylight vary at 40° ?

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- 23.5° North Latitude
- Where is the tropic of Cancer?

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- December 21st and June 21st
- When are the solstices?

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- When is the longest day of the year in the northern hemisphere?
- Summer solstice

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- A mixture of gasses that behaves as if it were a single gas
- What is air?

14

- Composition, Temperature, and Function
- What are three criteria for classifying the atmosphere?

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- The ozonosphere and ionosphere shield the surface from harmful rays.
- Why is life possible on Earth? (given the amount of deadly radiation emitted by the Sun)

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- Nitrogen, Oxygen, Argon, Carbon Dioxide
- What are the main gasses in the atmosphere, arranged in order from most to least?

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- Transmission
- How does energy reach Earth from the Sun?

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- UV, Visible, Near IR
- What are the main inputs into Earth's energy balance?

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- Gasses in the atmosphere scatter short wavelengths of light first
- Why is the sky blue?

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- 31%
- What is the average albedo of Earth?

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- The equator is an area of net energy surplus, the poles are an area of energy net deficit.
- What is the distribution of energy at Earth's surface by latitude?

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- The energy is stored as latent heat in the water vapor.
- What happens to the energy used to evaporate water?

23

- 23% of our insolation causes this (19% latent heat, 4% turbulent convective transfer)
- What is weather (rain and wind)?

24

- It is stored as latent heat in the evaporated water
- What happens to the energy used to evaporate water?

25

- Latitude, continentality, altitude, cloud cover
- What are the main controls and influences on temperature?

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- Latitude, continentality
- What is the main factor that determines AVERAGE temperature, what is the main factor that determines the temperature RANGE?

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- In the summer they are cooler, while in the winter they are warmer
- How do coastal cities' temperatures differ from inland cities' temperatures?

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- Pressure gradient force
- What initiates off air flow?

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- Because the equator is rotating at 1600 kmh and the poles are rotating at 0 kmh.
- What causes the Coriolis force?

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- Deflects things to the right in the northern hemisphere
- What does the Coriolis force do?

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- From the west
- What is the prevailing wind direction in the mid-latitudes?

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- This causes air to converge and ascend, often causing clouds and rain.
- What is a low pressure center? Or what is cyclonic flow?

33

- The polar jet is above it, it is a zone where warm and cold air meet, and frequently has cyclonic storms along it.
- What is the polar front?

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- It controls the boundary between warm tropical air and cold polar air, and directs the movement of storms.
- What does the jet stream do?

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- Dry winters and wet summers
- What is the annual pattern of rain in Monsoonal climates?

36

- Because the land heats faster than the oceans
- Why does the wind blow onshore in the afternoon?

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- The Coriolis force, water density differences, and the frictional drag of wind.
- What causes ocean currents?

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