

The Great Moderation, Dead or Alive?

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Why water affects temperature

water regulates temperature due to the hydrogen bond between water molecules.

It takes a great deal of energy to break down hydrogen bonds which is why boiling points of water are high and why it has a high specific heat capacity.

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Vocab

specific heat capacity: The quantity of heat required to raise the temperature of a substance by one degree Celsius

climate: weather conditions ocean: vast body of salt water

blood: circulates in the arteries and veins of humans and other vertebrate animals, carrying oxygen to and carbon dioxide from the tissues of the body.

cytoplasm: between the cell membrane and nucleus

cells: smallest unit of an organism

land: earths surface not covered by water

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How Water moderate temperature of the Earth

Oceans have great heat capacity because the specific heat of water is greater than dry soil

Mixing of the upper ocean results in more water mass being heated than land, it then causes land to heat and cool more rapidly compared to oceans.

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How water can moderate the temp of individual organisms

Our cells are filled with liquid water in order for them to work properly.

Our body temperature is difficult to change quickly because of this.

Example of water moderation.

on hot days sand on the beach is hot but water still feels cool.

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Heat can be absorbed and stored in surface layers of the oceans



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contined

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continued

seas, lakes, and rivers maintain more constant temperatures than air. That means the animals can live in water year round. They do not have to adapt to climate change.