

**Quiz - 6: Biogeochemical Cycles and Climate**

William Gutowski

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Questions: 10

**Finish****Save All****Help****1. Carbon dioxide increases from fossil fuel burning** (Points: 10)

Over the past 40 years, the measured annual increases in atmospheric carbon dioxide have been roughly \_\_\_\_\_ the amount of carbon dioxide put in the atmosphere by fossil fuel burning.

- a. half
- b. three time
- c. 1% of
- d. the same as

**Save Answer****2. Methane lifetime** (Points: 10)

Methane molecules injected into the atmosphere stay there on average a few centuries.

- True  False

**Save Answer****3. Ocean sources/sinks for CO<sub>2</sub>** (Points: 10)

Prominent sinks for carbon dioxide from the atmosphere into the ocean are located (multiple correct responses)

- a. south of Australia
- b. between North America and Europe
- c. west of northern South America
- d. southeast of the Saudi Arabian peninsula
- e. east of Japan in the Pacific

**Save Answer****4. Influence of human-caused aerosols on climate** (Points: 10)

Compared to pre-industrial times, anthropogenic (human-caused) increases in aerosols have by themselves caused a net decrease in the radiation absorbed by the Earth at the top of the Northern Hemisphere atmosphere.

True  False

Save Answer

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**5. Aerosol effects on precipitation** (Points: 10)

Human-created aerosols appear to have cause precipitation to \_\_\_\_\_ since pre-industrial times.

- a. become more evenly distributed
- b. increase by more than 50%
- c. decrease
- d. increase slightly

Save Answer

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**6. Cooling effect of aerosols** (Points: 10)

Simulation experiments that suddenly remove atmospheric aerosols show global surface air temperature

- a. decreasing by about 2°C.
- b. decreasing by about 1°C.
- c. increasing by about 1°C.
- d. increasing by about 2°C.

Save Answer

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**7. Carbon dioxide removal** (Points: 10)

Model simulations indicate that when carbon dioxide is added to the atmosphere, within 30 years, about

- a. 90% is removed.
- b. 50% is removed.
- c. 1% is removed.
- d. 10% is removed.

Save Answer

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**8. El Nino effect on atmospheric methane** (Points: 10)

The 1998 El Nino appears to have caused the growth rate of atmospheric methane to

- a. increase to about 5 ppb/yr.
- b. briefly increase to about 15 ppb/yr.
- c. become about zero.
- d. briefly decrease to about 15 ppb/yr.

Save Answer

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**9. Ocean Carbon Pumps** (Points: 10)

The ocean-atmosphere "solution pump" (multiple correct answers).

- a. adds carbon dioxide to the atmosphere where the ocean is cool and relatively fresh.
- b. removes carbon dioxide from the atmosphere where the ocean is warm and relatively saline.
- c. adds carbon dioxide to the atmosphere where the ocean is warm and relatively saline.
- d. removes carbon dioxide from the atmosphere where the ocean is cool and relatively fresh.

Save Answer

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**10. Global Carbon Cycle** (Points: 10)

The pre-industrial ("natural") net flux of carbon from the atmosphere to the underlying surface was roughly

- a. 22.2 GtC/yr
- b. 70 GtC/yr
- c. 120 GtC/yr
- d. 0 GtC/yr

Save Answer

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Help