

BBC Global Climate Change - Examining Ocean Floor Sediments Practice Test (Sample)

Study Guide



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Questions

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- 1. Which human activity has been linked to soil drying and increased drought risk?**
 - A. Planting cover crops**
 - B. Slash and burn agriculture**
 - C. Rainwater harvesting**
 - D. Soil conservation practices**
- 2. What shows the most accurate forecasting of temperature changes according to climate models?**
 - A. Exclusively natural forcings**
 - B. Randomized emissions data**
 - C. Using both natural and anthropogenic forcings**
 - D. Only anthropogenic forcings**
- 3. Which statement is NOT supported by the National Snow and Ice Data Center climate change findings?**
 - A. The Arctic is generally more sensitive to climate change than Antarctica**
 - B. Antarctica is usually more sensitive to climate change than the Arctic**
 - C. Antarctica and the Arctic are both affected by climate change**
 - D. Climate change impacts both polar regions**
- 4. What would be a potential global impact of the Arctic warming faster than other areas?**
 - A. Increased economic opportunities for Arctic nations**
 - B. Warmer temperatures everywhere**
 - C. Changes in global weather patterns**
 - D. Complete redistribution of ocean currents**
- 5. What is a potential consequence of decreased precipitation and increased drought risk?**
 - A. Lower temperatures**
 - B. Increased forest fire risk**
 - C. More abundant water supplies**
 - D. Enhanced wetland areas**

- 6. Which national park is mentioned as facing challenges due to lengthened wildfire seasons?**
- A. Yosemite**
 - B. Yellowstone**
 - C. Grand Canyon**
 - D. Glacier**
- 7. What is currently the main threat to the health of the Amazon Rainforest?**
- A. Deforestation**
 - B. Drought**
 - C. Mining activities**
 - D. Urban expansion**
- 8. What factor has significantly contributed to the modern rise in global sea levels?**
- A. Glacial melting**
 - B. Thermal expansion of the ocean**
 - C. Increased precipitation**
 - D. Deforestation**
- 9. What is a possible outcome for farming in high latitudes as a result of climate change?**
- A. Negative impact on yields**
 - B. Better farming conditions**
 - C. Loss of arable land**
 - D. Decrease in soil fertility**
- 10. What is one major consequence of thermal expansion in the context of climate change?**
- A. Stronger ocean currents**
 - B. Rising global sea levels**
 - C. Increased ocean acidity**
 - D. Decreased fish populations**

Answers

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1. B
2. C
3. B
4. C
5. B
6. A
7. B
8. B
9. B
10. B

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Explanations

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1. Which human activity has been linked to soil drying and increased drought risk?

A. Planting cover crops

B. Slash and burn agriculture

C. Rainwater harvesting

D. Soil conservation practices

The link between slash and burn agriculture and soil drying, as well as increased drought risk, is rooted in the methods employed in this agricultural practice. Slash and burn agriculture involves clearing land by cutting down and burning plants and trees. This process not only destroys existing vegetation but also releases carbon stored in the biomass and soil into the atmosphere, contributing to climate change. Moreover, the removal of trees and vegetation reduces the soil's capacity to retain moisture. Without the protective canopy and root systems that hold water, the soil can become more susceptible to erosion and drying. This not only impacts that specific area but can also lead to broader regional climate alterations, exacerbating the conditions that lead to drought. In contrast, practices such as planting cover crops, rainwater harvesting, and soil conservation methods are designed to enhance soil health, improve water retention, and ultimately mitigate the risks associated with drought.

2. What shows the most accurate forecasting of temperature changes according to climate models?

A. Exclusively natural forcings

B. Randomized emissions data

C. Using both natural and anthropogenic forcings

D. Only anthropogenic forcings

The choice that indicates the most accurate forecasting of temperature changes according to climate models is using both natural and anthropogenic forcings. This approach incorporates all significant factors that influence the Earth's climate system, including both naturally occurring processes, such as volcanic eruptions and solar radiation variations, as well as human activities, like greenhouse gas emissions and land use changes. The combination of these two types of forcings allows for a more comprehensive understanding of climate dynamics. Climate models that factor in both natural and human-induced changes can more accurately replicate past temperature patterns and project future warming scenarios. This is crucial because anthropogenic activities have substantially altered the natural greenhouse effect and are a significant driver of current climate change. By not considering one type of forcing, the models would potentially overlook critical aspects of climate variability and trends, leading to less reliable predictions. Thus, utilizing both natural and anthropogenic forcings provides a fuller picture of the factors impacting global temperatures, resulting in more precise forecasts in climate models.

3. Which statement is NOT supported by the National Snow and Ice Data Center climate change findings?
- A. The Arctic is generally more sensitive to climate change than Antarctica
 - B. Antarctica is usually more sensitive to climate change than the Arctic**
 - C. Antarctica and the Arctic are both affected by climate change
 - D. Climate change impacts both polar regions

The statement that Antarctica is usually more sensitive to climate change than the Arctic is not supported by the findings of the National Snow and Ice Data Center. In fact, research indicates that the Arctic is experiencing more rapid changes in climate compared to Antarctica, primarily due to factors such as increased atmospheric warming and loss of sea ice. The Arctic is significantly affected by temperature increases and resultant feedback loops, contributing to more pronounced effects from climate change in this region. On the other hand, both the Arctic and Antarctica are indeed affected by climate change, as indicated in the other statements. These regions are showing signs of change, including shifts in ice cover and temperature variations. However, the rate and magnitude of these changes tend to be more prominent in the Arctic, making the comparison between the two regions' sensitivities a key point of distinction in climate studies.

4. What would be a potential global impact of the Arctic warming faster than other areas?
- A. Increased economic opportunities for Arctic nations
 - B. Warmer temperatures everywhere
 - C. Changes in global weather patterns**
 - D. Complete redistribution of ocean currents

Choosing the impact of changes in global weather patterns as the potential global impact of the Arctic warming faster than other areas is insightful because the Arctic acts as a critical component in the Earth's climate system. As the Arctic warms due to climate change, it can lead to alterations in atmospheric circulation patterns. The polar regions influence weather patterns globally by affecting the jet stream, which is vital in determining weather across continents. A warming Arctic can lead to a more undulating jet stream, resulting in extreme weather events such as prolonged heatwaves, colder winters, or increased precipitation in various regions. In contrast, while Arctic nations may indeed find increased economic opportunities due to easier access to resources, this aspect doesn't capture the broader global implications of Arctic warming. Warmer temperatures everywhere is an oversimplification because the warming is not uniform across the globe; some areas may experience cooling effects. Complete redistribution of ocean currents, while a potential consequence of broader climate changes, is a more complex process that does not directly relate to immediate global impacts of Arctic warming like changes in weather patterns do. The interconnectedness of climate effects underscores the significance of understanding changes in global weather patterns as a substantial consequence of the Arctic's accelerated warming.

5. What is a potential consequence of decreased precipitation and increased drought risk?

- A. Lower temperatures**
- B. Increased forest fire risk**
- C. More abundant water supplies**
- D. Enhanced wetland areas**

Decreased precipitation and increased drought risk can lead to increased forest fire risk due to several interconnected factors. When there is less rainfall, vegetation becomes drier and more vulnerable to ignition. The lack of moisture can deplete the natural humidity levels in the surrounding environment, causing plants and trees to lose their moisture content, making them highly flammable. Moreover, drought conditions can stress ecosystems, leading to dying vegetation which can serve as ample fuel for wildfires. The combination of dry conditions with extreme heat can create a perfect storm for forest fires to ignite and spread rapidly across affected areas. Therefore, increased forest fire risk is a direct and plausible consequence of decreased precipitation and rising drought risks.

6. Which national park is mentioned as facing challenges due to lengthened wildfire seasons?

- A. Yosemite**
- B. Yellowstone**
- C. Grand Canyon**
- D. Glacier**

Yosemite National Park is highlighted as facing challenges due to lengthened wildfire seasons because the park's unique ecosystem and geography make it particularly susceptible to the effects of wildfires. Warmer temperatures and prolonged dry periods have resulted in increased fire risks, leading to a longer wildfire season. This evolution in the climate not only exacerbates the frequency and intensity of wildfires but also poses threats to the park's biodiversity, water resources, and the availability of habitats for wildlife. Yosemite's famous granite cliffs and diverse flora are also at risk as these environmental changes unfold. While other national parks also experience impacts from climate change and wildfire, Yosemite's exposure to extreme weather patterns and its significant history of wildfires draw particular attention in discussions about the challenges national parks face in adapting to a shifting climate.

7. What is currently the main threat to the health of the Amazon Rainforest?

- A. Deforestation**
- B. Drought**
- C. Mining activities**
- D. Urban expansion**

The primary threat to the health of the Amazon Rainforest has been identified as deforestation. While drought conditions and other factors like mining activities and urban expansion can impact the Amazon ecosystem, deforestation presents a more immediate and widespread danger. Deforestation primarily occurs due to agricultural expansion, logging, and infrastructure development. These activities not only reduce the forest cover but also disrupt the habitat, leading to a loss of biodiversity. When trees are removed, the soil erosion increases, the water cycle is altered, and the carbon storage capacity of the forest diminishes, contributing to climate change and impacting global weather patterns. Furthermore, deforestation can exacerbate drought conditions, creating a feedback loop where the removal of trees leads to reduced rainfall, which in turn aggravates the forest's vulnerability. In summary, deforestation is the main threat because it directly leads to various ecological imbalances and introduces secondary threats like increased susceptibility to droughts and changes in local weather patterns. Understanding the implications of deforestation is crucial for conservation efforts in the Amazon Rainforest.

8. What factor has significantly contributed to the modern rise in global sea levels?

- A. Glacial melting**
- B. Thermal expansion of the ocean**
- C. Increased precipitation**
- D. Deforestation**

The rise in global sea levels is largely influenced by the thermal expansion of ocean water due to rising temperatures. As global temperatures climb, ocean water absorbs heat and expands. This thermal expansion contributes significantly to sea level rise, accounting for a substantial portion of the increase observed in recent history. The oceans are vast and capable of absorbing a considerable amount of heat, making this process a major contributor to the overall rise in sea levels. While glacial melting also plays a significant role by adding freshwater to the oceans, thermal expansion represents a direct response to climate change and is ongoing as global temperatures continue to rise. Increased precipitation can impact sea levels but does not have the same direct effect as the thermal expansion of water. Deforestation is primarily linked to other climate issues, such as increased CO₂ levels and changes in local ecosystems, rather than directly influencing sea levels on a global scale.

9. What is a possible outcome for farming in high latitudes as a result of climate change?

- A. Negative impact on yields**
- B. Better farming conditions**
- C. Loss of arable land**
- D. Decrease in soil fertility**

Farming in high latitudes may experience better conditions as a result of climate change due to rising temperatures and extended growing seasons. As average temperatures increase, areas that were previously too cold for agricultural production might become more suitable for crops. This transition could lead to the thawing of previously frozen land, making it possible to cultivate previously inaccessible regions. Additionally, increased atmospheric carbon dioxide levels can enhance plant growth and yields for some crops, particularly in cooler climates where they traditionally struggled to thrive. This can lead to more favorable agricultural practices, adapting the farming methods to fit new climatic scenarios and potentially improving food production in certain high-latitude areas. While there are concerns about negative impacts such as soil erosion, pests, and changing precipitation patterns, the immediate premise of better farming conditions due to the warming climate captures the positive aspects of such changes in high-latitude regions.

10. What is one major consequence of thermal expansion in the context of climate change?

- A. Stronger ocean currents**
- B. Rising global sea levels**
- C. Increased ocean acidity**
- D. Decreased fish populations**

Thermal expansion refers to the phenomenon where water expands as it warms, which is a direct consequence of global temperature increases due to climate change. As the oceans absorb heat from the atmosphere, the water molecules move more vigorously and take up more space, leading to an increase in the volume of water. This results in rising global sea levels, which can have widespread effects on coastal communities, ecosystems, and infrastructure. In contrast, stronger ocean currents, increased ocean acidity, and decreased fish populations are impacted by climate change but are not direct results of thermal expansion. Stronger currents can be influenced by various factors, including changes in wind patterns and temperature gradients. Ocean acidity is primarily affected by the absorption of carbon dioxide in seawater rather than thermal changes, and fish populations can be affected by many factors including habitat changes and overfishing, rather than solely by the rise in sea levels caused by thermal expansion.