Scientists Unearth Baffling Fossils Beneath Antarctic Ice

Description

A team of 29 scientists, drillers, and engineers has spent nearly ten weeks living in tents on the snow in West Antarctica. They drilled over 200 meters into bedrock, a feat never accomplished before in such a remote area.

On their third attempt, they succeeded in pulling up a 228-meter cylinder of mud and rock from beneath the Crary Ice Rise. This is the deepest sediment core ever recovered from beneath an Antarctic ice sheet. The layers in this core reveal a history of changes in the West Antarctic Ice Sheet, challenging previous scientific beliefs about its stability.

To reach the sediment, the team melted a hole through 523 meters of ice using a hot-water drill. They then extracted various types of sediment, with some layers containing surprising evidence of life that requires light, indicating there was once no ice in this area.

Preliminary studies suggest that the sediment core spans about 23 million years, including times when global temperatures were higher than today. This is crucial for understanding how the West Antarctic Ice Sheet could behave in a warming climate.

The core has now been transported to Scott Base and will be sent to New Zealand for further analysis. Scientists from over 50 research organisations will study it to learn more about past climate conditions and prepare better forecasts for coastal communities affected by rising sea levels.

Vocabulary List:

1. **drilled** //drɪld// (verb): made a hole by using a tool
2. **sediment** //ˈsɛdəmənt// (noun): small pieces of rock or soil at bottom
3. **core** //kɔr// (noun): long, round sample taken from deep ground
4. **bedrock** //ˈbɛdˌrɑk// (noun): solid rock layer under soil and loose rock
5. **stability** //stəˈbɪlɪti// (noun): how likely something stays the same
6. **preliminary** //prɪˈlɪməˌnɛri// (adjective): done early before final work or results

Comprehension Questions

Multiple Choice

1. How many scientists, drillers, and engineers were part of the team in West Antarctica?

   Option: 15
   Option: 29
   Option: 50
   Option: 45

2. What is the length of the sediment core that was recovered?

   Option: 200 meters
   Option: 228 meters
   Option: 523 meters
   Option: 150 meters

3. What technique did the team use to reach the sediment?

   Option: Hand drilling
   Option: Core drilling
   Option: Hot-water drilling
   Option: Explosive drilling

4. From which location was the sediment core pulled?

   Option: Scott Base
   Option: Crary Ice Rise
   Option: Antarctic Peninsula
   Option: South Pole

5. How long did the team spend living in tents on the snow?

   Option: Five weeks
   Option: Eight weeks
   Option: Ten weeks
   Option: Twelve weeks

6. What will the sediment core be sent to New Zealand for?

   Option: Burial
   Option: Storage
   Option: Further analysis
   Option: Presentation

True-False

7. The team drilled over 300 meters into bedrock.

8. The sediment core reveals changes in the West Antarctic Ice Sheet.

9. A layer of the sediment was found to contain no evidence of life.

10. The core has been sent directly to Antarctica for analysis.

11. The research involved a collaboration of over 50 organizations.

12. The sediment core spans approximately 10 million years.

Gap-Fill

13. The team has spent nearly ten weeks living in tents on the snow in West Antarctica for _____ purposes.

14. The layers in the sediment core have a history of _____ in the West Antarctic Ice Sheet.

15. The sediment core is significant for understanding how the West Antarctic Ice Sheet could behave in a _____ climate.

16. The core was pulled from a depth of 228 meters beneath the _____ Ice Rise.

17. The team melted a hole through 523 meters of ice using a _____ drill.

18. Preliminary studies suggest the sediment core spans about _____ million years.

Answer

Multiple Choice: 1. 29 2. 228 meters 3. Hot-water drilling 4. Crary Ice Rise 5. Ten weeks 6. Further analysis
True-False: 7. False 8. True 9. False 10. False 11. True 12. False
Gap-Fill: 13. research 14. changes 15. warming 16. Crary 17. hot-water 18. 23

Vocabulary quizzes

Multiple Choice (Select the Correct answer for each question.)

1. What is a core sample mainly used for in geological studies?

   Option: To measure temperature
   Option: To analyze sediment layers
   Option: To assess wildlife
   Option: To determine weather patterns

2. Which type of vehicle can complete tasks without human intervention?

   Option: Manual
   Option: Semi-autonomous
   Option: Autonomous
   Option: Unmanned

3. What is the primary function of propulsion systems in vehicles?

   Option: To aid in steering
   Option: To provide navigational support
   Option: To generate movement
   Option: To enhance passenger comfort

4. Which of the following is a primary component in nuclear power generation?

   Option: Turbine
   Option: Reactor
   Option: Boiler
   Option: Generator

5. What typically accumulates at the bottom of lakes and oceans?

   Option: Sand
   Option: Sediment
   Option: Fish
   Option: Plants

6. What is measured in pascals in fluid dynamics?

Option: Temperature
Option: Velocity
Option: Pressure
Option: Density

7. What is a common issue observed in ice sheets due to climate change?

Option: Thickening
Option: Stability
Option: Thinning
Option: Cooling

8. Which of the following describes the speed of an object in a specific direction?

Option: Acceleration
Option: Velocity
Option: Distance
Option: Momentum

9. What do vehicles emit that contributes to air pollution?

Option: Odors
Option: Emissions
Option: Noise
Option: Vibrations

10. What type of materials are often used in medical treatments and energy generation?

Option: Thermal
Option: Electrical
Option: Chemical
Option: Radioactive

Gap-Fill (Fill in the blanks with the correct word from the vocabulary list.)

11. In physics, _____ is described as the force applied per unit area.

12. An _____ vehicle can operate independently without human intervention.

13. A sediment _____ provides valuable information about the geological history of an area.

14. Modern ships rely heavily on GPS for accurate _____.

15. The layers of _____ in the riverbed can indicate the ecological changes over time.

16. The _____ of polar ice caps is a significant concern for scientists studying climate change.

17. Reducing carbon _____ is essential for improving air quality.

18. The nuclear _____ is a critical component for generating electricity in power plants.

19. Earthquakes can produce _____ that travel through the ground.

20. A _____ of species can be found in diverse ecosystems across the globe.

Matching Sentences (Match each definition to the correct word from the vocabulary list.)

21. The construction project was halted upon discovering exposed bedrock beneath the site.
22. Engineers assess the stability of structures to ensure safety during earthquakes.
23. The outflow from the river increased significantly during the rainy season.
24. There were several unaccounted expenses in the financial report that needed clarification.
25. The software returned to its default settings after the error occurred.
26. The difficulty of the test surprised many students who were unprepared.
27. The project had a limited budget, restricting its scope and ambitions.
28. Sailors use stars to navigate their way across the open ocean.
29. Plasma is often referred to as the fourth state of matter, distinct from solids, liquids, and gases.
30. The satellites maintained their orbital paths around the Earth for years.

Answer

Multiple Choice: 1. To analyze sediment layers 2. Autonomous 3. To generate movement 4. Reactor 5. Sediment 6. Pressure 7. Thinning 8. Velocity 9. Emissions 10. Radioactive
Gap-Fill: 11. pressure 12. autonomous 13. core 14. navigation 15. sediment 16. thinning 17. emissions 18. reactor

19. shockwaves 20. variety
Matching sentence: 1. bedrock 2. stability 3. outflow 4. unaccounted 5. default 6. difficulty 7. limited 8. navigate 9. plasma 10. orbital

CATEGORY

1. Sci/Tech - LEVEL3

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1. Antarctic ice
2. ESL learning
3. esl news
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