



Greenland Glacier Unveils Harsh Reality of Ice Sheet Decline

Description

From the vantage point of a helicopter hovering over Greenland, the challenge lies in grasping the sheer scale of the landscape. Initially mistaking icebergs for mere shards of ice and skimming over fjords that reveal their true enormity only when viewed from above, the mind struggles to comprehend the vastness of this icy wilderness. Crevasses, those telltale cracks in the glacier's surface, further exemplify the bewildering contrasts of scale that characterize the region. From minuscule millimeter-wide rifts inland to gaping chasms hundreds of meters wide where the ice meets the ocean, these crevasses serve as markers of the ice sheet's flow towards the sea.

Recent research has shed light on the changing nature of these crevasses, with significant increases in volume observed across fast-flowing sectors of Greenland's ice sheet. Notably, the southeast region has experienced a notable surge in crevasse volume, signaling the impact of ocean-induced acceleration and retreat. However, a key outlier, the Sermeq Kujalleq glacier, has played a pivotal role in offsetting the overall increase in crevassing. This glacier, renowned as the fastest-flowing on Earth, temporarily slowed and thickened in response to environmental shifts, leading to a reduction in surface crevasses.

As these cracks grow and deepen, they contribute to the acceleration of ice loss from the ice sheet. Surface meltwater funneled into these crevasses can warm the ice or lubricate its base, hastening its flow into the ocean. Moreover, at the glacier's terminus, crevasses serve as precursors to the calving of icebergs, further adding to the ice sheet's output into the sea. The complex interplay between crevasses, ice flow, and sea-level rise underscores the urgency of understanding these processes as we strive to mitigate the impacts of climate change on our planet's delicate cryosphere.

Vocabulary List:

1. **Crevasse** /krə'væs/ (noun): A deep narrow opening or crack in a glacier.
2. **Glacier** /'gleɪ.ʃər/ (noun): A large body of ice moving slowly down a slope or valley.
3. **Acceleration** /ək,sel.ə'reɪ.ʃən/ (noun): The process of increasing speed or rate of movement.
4. **Calving** /'kæl.vɪŋ/ (verb): The process of ice breaking off a glacier to form an iceberg.
5. **Terminous** /'tɜ:r.mɪ.nəs/ (noun): The outer edge or end of a glacier.
6. **Retreat** /rɪ'tri:t/ (verb): The process of moving back or withdrawing particularly in relation to glaciers.

Comprehension Questions



Multiple Choice

1. What is one challenge faced when observing Greenland from a helicopter?
Option: Mistaking icebergs for shards of ice
Option: Navigating dense fog over the landscape
Option: Difficulty in landing due to rough terrain
Option: Avoiding air traffic with other helicopters
2. What do crevasses in the glacier serve as markers of?
Option: Wind patterns in Greenland
Option: The wildlife distribution in the region
Option: The ice sheet's flow towards the sea
Option: The presence of underground caves
3. Which region of Greenland has experienced a surge in crevasse volume according to recent research?
Option: Northwest
Option: Southeast
Option: Southwest
Option: Northeast
4. What is a key outlier mentioned in the text regarding crevassing?
Option: Vatnajökull glacier
Option: Sermeq Kujalleq glacier
Option: Antarctic Peninsula glacier
Option: Mount Everest glacier
5. How do crevasses contribute to the acceleration of ice loss from the ice sheet?
Option: By creating snowfall
Option: By trapping warm air pockets
Option: By slowing down the flow of ice
Option: By funneling surface meltwater into them
6. What do crevasses at the glacier's terminus serve as precursors to?
Option: Heatwaves in Greenland
Option: The growth of new icebergs
Option: Sea-level decrease in the region
Option: Surface freezing of the ice sheet



True-False

7. Crevasse volume has been decreasing across Greenland's ice sheet.
8. Surface meltwater funneled into crevasses can slow down the flow of ice into the ocean.
9. The Sermeq Kujalleq glacier slowed and thickened in response to environmental shifts.
10. Crevasses only occur at the surface of the ice sheet and do not affect its overall flow.
11. Understanding the interplay between crevasses, ice flow, and sea-level rise is crucial in climate change mitigation efforts.
12. Ice calving does not contribute significantly to the ice sheet's output into the sea.

Gap-Fill

13. The Sermeq Kujalleq glacier is renowned as the fastest-flowing glacier on Earth and temporarily slowed and thickened in response to environmental shifts, leading to a reduction in surface crevasses. Ratan Naval Tata was the chairman of Tata Group from 1990 to _____.

Answer

Multiple Choice: 1. Mistaking icebergs for shards of ice 2. The ice sheet's flow towards the sea 3. Southeast 4. Sermeq Kujalleq glacier 5. By funneling surface meltwater into them 6. The calving of icebergs

True-False: 7. False 8. False 9. True 10. False 11. True 12. False

Gap-Fill: 13. 2012

Vocabulary quizzes

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

1. Which field of study focuses on the Earth's structure materials and processes?

Option: Physics

Option: Astronomy



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- Option: Geological
Option: Chemistry
2. Which term describes a material that resembles glass in texture and appearance?
- Option: Foamy
Option: Vitreous
Option: Metallic
Option: Rubbery
3. What refers to the community of microorganisms that live in and on the human body?
- Option: Atmosphere
Option: Microbiome
Option: Biosphere
Option: Lithosphere
4. Which term describes a mutual relationship or connection between two or more things?
- Option: Isolation
Option: Contrast
Option: Correlation
Option: Variation
5. What is the act of removing or separating something from a larger unit or body?
- Option: Attachment
Option: Adornment
Option: Detachment
Option: Confinement
6. Which term is used to describe a deep crack in a glacier?
- Option: Ravine
Option: Canyon
Option: Crevasse
Option: Plateau
7. Which term means to increase in speed or amount?
- Option: Decelerate
Option: Stagnate
Option: Accelerate
Option: Regress
8. Which term refers to a localized physical condition in which part of the body becomes reddened swollen hot and often painful?
- Option: Regeneration
Option: Inflammation



- Option: Congestion
- Option: Degeneration

9. In glaciology what process involves the breaking off of ice chunks from the edge of a glacier?

- Option: Melting
- Option: Freezing
- Option: Calving
- Option: Condensation

10. Which term means exposed to danger suspicion or disrepute?

- Option: Defended
- Option: Compromised
- Option: Enhanced
- Option: Protected

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

11. Studying history provides valuable _____ into human behavior.
12. Some individuals have a heightened _____ to certain foods.
13. The _____ of the new drug in treating the disease is being carefully studied.
14. Climate change is _____ the rate of glacier melt in polar regions.
15. _____ pressure measurements are important for weather forecasting.
16. The surgeon performed the _____ of the appendix to treat the patient.
17. The company's profits showed a significant _____ last quarter.
18. Consuming fruits rich in _____ can help neutralize free radicals in the body.
19. The journey ended at the _____ station in the city center.
20. Early _____ can help prevent the spread of infectious diseases.

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

21. The forest was teeming with a variety of wildlife and plant species.



22. The artist described the of his latest masterpiece in detail.
23. Many people experience the phenomenon of floaters in their vision.
24. The committee a new policy to address environmental concerns.
25. Regular exercise has a effect on overall health and well-being.
26. During the winter bears often to their dens to hibernate.
27. Lack of sleep can feelings of stress and anxiety.
28. The device has a high level of able to detect even subtle changes.
29. Hawaii is known for its activity with several active volcanoes.
30. Many athletes use dietary to enhance their performance.

Answer

Multiple Choice: 1. Geological 2. Vitreous 3. Microbiome 4. Correlation 5. Detachment 6. Crevasse 7. Accelerate 8. Inflammation 9. Calving 10. Compromised

Gap-Fill: 11. Insights 12. Sensitivity 13. Efficacy 14. Accelerating 15. Barometric 16. Detachment 17. Decline 18. Antioxidants 19. Terminus 20. Intervention

Matching sentence: 1. Abundance 2. Genesis 3. Muscae volitantes 4. Proposed 5. Beneficial 6. Retreat 7. Exacerbate 8. Sensitivity 9. Volcanic 10. Supplements

CATEGORY

1. Health - LEVEL5

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