

The State of Our Cryosphere: The Extreme Ice Survey

Geology 1P

Mr. Traeger

Name: _____

Period: _____

Date: _____

Purpose

The purpose of this assignment is to investigate the state of our cryosphere and how the cryosphere is an indicator of rapid climate change.

Materials

Computer with Internet

Internet Investigations Page

Pencil

Part 1: Initial Questions about the Cryosphere

Go through the Internet Investigations page on the class website. Use these sites to answer the following questions.

1. What is the cryosphere?

2. Define the following terms.

Snow	Ice	Sea Ice	Glaciers	Ice Shelves	Icebergs	Frozen Ground

3. What are the three locations in the world where you will find the cryosphere?

4. How do glaciers form?

5. What are the factors that affect whether a glacier grows, shrinks, or stays the same size?

6. What causes glaciers to flow (move)?

7. How can glaciers influence the rock cycle? In other words, how do glaciers cause erosion and deposition of rock material and sediment?

8. How can melt water flowing under a glacier accelerate the glacier's flow over the bedrock?

9. How might pollution, dust, and dirt on the top of a glacier accelerate its melting?

10. What is the difference between an alpine (valley) glacier and a continental glacier?

11. What effect do melting alpine glaciers and continental glaciers have on global sea levels?

12. What effect do melting icebergs and sea ice already floating in the ocean have on global sea levels?

13. Why does the loss of ice on our planet accelerate global warming? Think albedo and permafrost.

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Part 2: Extreme Ice Survey

Go to the Extreme Ice Survey Website. Click on %ime Lapse Video and Photography.+Select 3 glaciers/ice structures to research. The time lapse videos are the best to see change over time.

Name of Glacier/Ice Structure and Location	Description of extent of ice on starting date. Date?	Description of extent of ice on ending date. Date?	How has the extent of ice changed over this time?
1)			
2)			
3)			

4. What is the Extreme Ice Survey and what does it intend to accomplish?

Conclusion

What are your feelings about rapid climate change after seeing the time lapse photos and videos in the Extreme Ice Survey Website? How can glaciers that have been around since the last ice age 11,000 years ago suddenly disappear? What is going on?