
My NASA Data - Mini Lesson/Activity

Glacier Retreat

Grade Band

- 6-8

Time

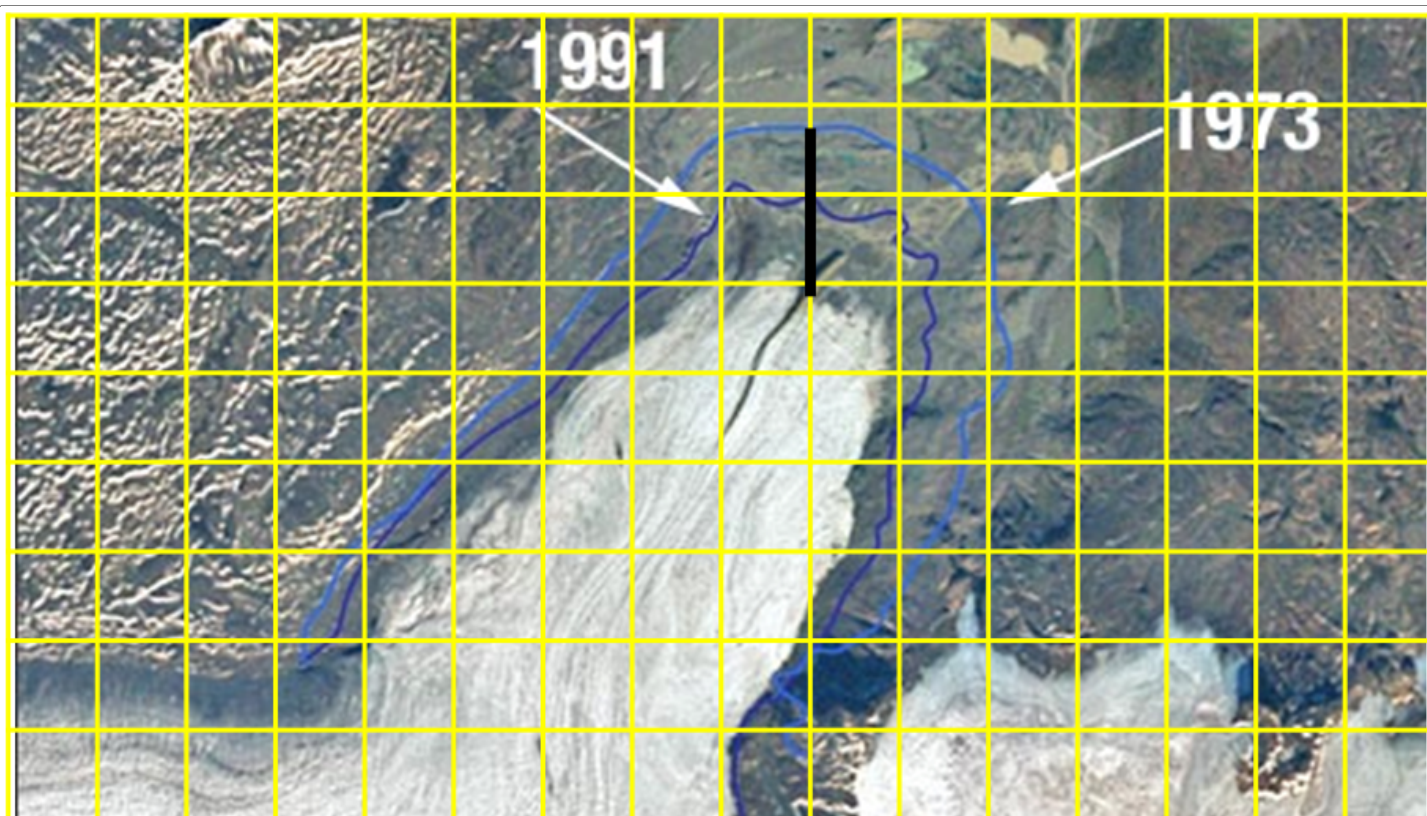
- 30 minutes

Overview

The Eyjabakkajökull Glacier is an outlet glacier of the Vatnajökull ice cap in Iceland that has been retreating since a major surge occurred in 1973. Students analyze these maps to identify the scale and rate of change of the glacier loss.

Student Directions

The Eyjabakkajökull Glacier is an outlet glacier of the Vatnajökull ice cap in Iceland. It has been retreating since a major surge occurred in 1973. This true-color Landsat-7 image shows the glacier terminus in September 2000. The light- and dark blue, or outer and inner, outlines show the terminus extent in 1973 and 1991 as labeled.



[Eyjabakkajökull Glacier](#)

[Image Credit: NASA](#)

<https://mydasdata.larc.nasa.gov/sites/default/files/inline-images/glacier%20retreat%20cropped.png>

Steps

Refer to the image to answer the questions. Check with your instructor on how to submit your answers.

1. Each box on the image represents 1 km^2 . Using the conversion $1 \text{ kilometer} = 0.62137 \text{ miles}$, what is the area of each box in square miles?
2. The change in shape is not the same everywhere. Use the locations shown by the black line on the image to estimate the answer to the question.
 - How many meters did the glacier retreat between 1973 and 1991? 1991 and 2000?
3. From your answers to Problem 2:
 - What is the average rate of retreat in meters per year between 1973-1991 and 1991 to 2000?
4. Is the retreat of the glacier speeding up or slowing down?
5. What possible explanation do you have for your answer to question 4?

Sources:

1. Dunbar, Brian. "Earth Math Educator Guide." NASA, NASA, Retrieved May 30, 2013, from <https://www.nasa.gov/audience/foreducators/topnav/materials/listbytype/...>

Teacher Note

Teachers, these mini lessons/student activities are perfect "warm up" tasks that can be used as a hook, bell ringer, exit slip, etc. They take less than a class period to complete. Learn more on the "[My NASA Data What are Mini Lessons?](#)" page.

Teachers who are interested in receiving the answer key, please complete the [Teacher Key Request and Verification Form](#). We verify that requestors are teachers prior to sending access to the answer keys as we've had many students try to pass as teachers to gain access.

NGSS Three Dimensional Learning

NGSS Disciplinary Core Ideas

- ESS2C: The Role of Water in Earth's Surface Processes

Crosscutting Concepts

- Scale, Proportion, and Quantity

Science and Engineering Practices

- Analyzing and Interpreting Data
- Using Mathematics and Computational Thinking

Google Slide interactive Files

[Glacier Retreat Slides](#)