Glacial Melt Lab

Purpose: In this lab you will choose a glacier, estimate the surface area, estimate the cubic volume, and finally calculate how much water could be released at various rates of melting.

Procedure

1. Either find a named glacier via a web search and then try and locate that glacier using google earth…or simply find an unknown glacier on google earth and zoom in on it.

Glacier name if know\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Location (Country)\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Use the distance tool (looks like a ruler) to estimate the length and width of this glacier (metric…meters, kilometers):

Length\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Width\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. Calculate the surface area of this glacier (area = length x width)
2. Calculate the volume. Assume average thickness (depth) to be 1,000 meters. (Volume = LxWxD)
3. If your glacier melts at the following rates, what volume of water will this equal:

1%

10%

50%

100%

1. Do a web search to find out about how many cubic meters of water are in the ocean. Convert your 4 answers above to comparisons of your glacial water to the size of the ocean (these will be really small percentages).

1%

10%

50%

100%

1. There are around 170,000 glaciers world-wide. Assume your glacier is about average in size. Calculate the volume of water added to the ocean if all of these glaciers melt at the 4 rates:

1%

10%

50%

100%