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MODEL GLACIERS – PhET SIMULATION

Open the PhET simulation and spend time investigating the features to familiarize yourself. Specifically, change the aspects of climate (sea-level air temperature and average snowfall) to see the effects on the glacier. You can speed up and slow down the effects by sliding the button at the bottom (years). You can move the bear at the top to navigate along the length of the glacier. Click on the “advanced” tab and check the “ice flow vectors”. The relative length of the vectors represents relative velocities. This will provide an indication of what parts of the glacier are moving faster and slower.

1. Adjust the temperature and snowfall to create a large glacier. Click and drag several red tracer flags onto the glacier. Wait a minute or so and add new tracer flags, adding them at positions so that you can compare speeds to one another and to the debris (black dots) within the glacier. Do this with enough flags and for enough time that you can begin to draw some conclusions about the relative velocity of the glacier in different areas and under different climate conditions. Fully describe your findings below.

2. Do the same thing with the borehole drill. Click, drag and click again to drill boreholes in enough locations to draw conclusions and fully describe your findings below.

3. Use the ice thickness tool to measure the glacier at several locations and describe your findings along with any hypotheses/explanations for your findings.