

Why do we care about glaciers?

We are losing some of the most magnificent landscapes in the world and to see those landscapes disintegrate before your very eyes is just awful

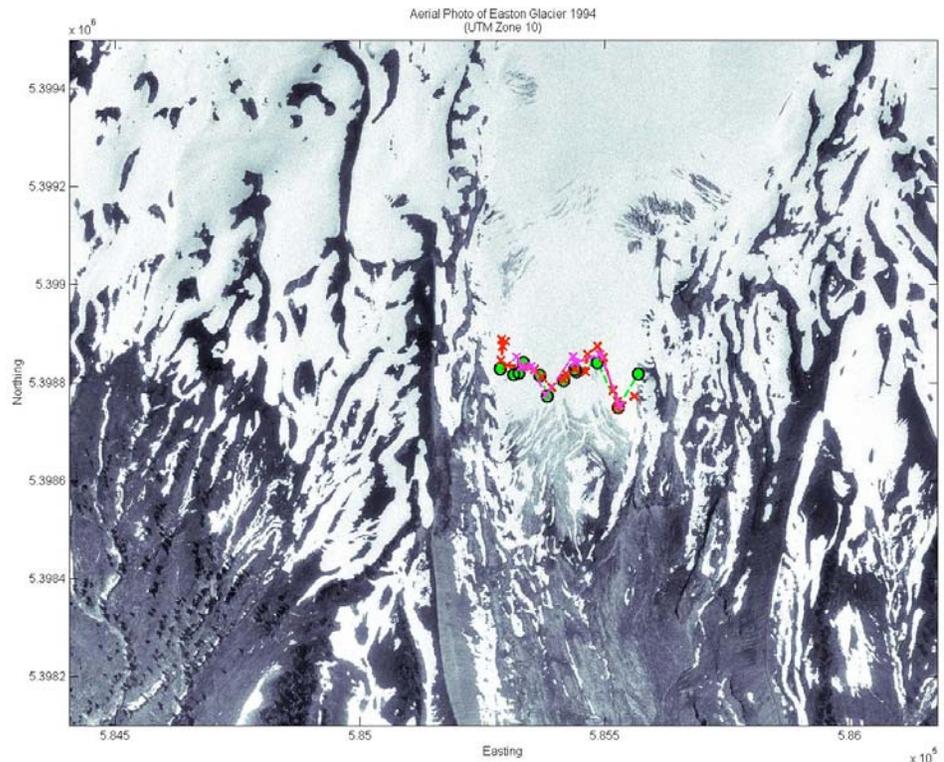
No one can put into words what walking on a glacier is like—and no one can understand what it's like unless if they have walked on one. And we got the great opportunity to explore the Easton Glacier on Mount Baker. We spent a week learning how to travel on the ice and snow, how to 'self arrest' (save ourselves if we fall), and we learned how incredibly difficult it is physically and mentally to do science in the back country. On the last day of exploration, we set out to map the Terminus of the glacier.

The terminus of the glacier is the transitional zone where the glaciers end. By studying and mapping the terminus over time, we can determine how much the glacier is growing or receding.

The day we hiked down to the terminus we went in a team that consisted of Kaia, Annie, Angelica, Abrianna, Sune, Bethany, Cece and Erin. We constantly watched for the edge of the glacier so that we could be sure where to mark waypoints on our GPS indicating the extent of the glacier. Mapping out the edge of the glacier on the 6th of August, 2009 was more precise than previous years because the annual snow was completely melted this year at the terminus, which allowed us to see the ice edge transition more clearly. Yet seeing the edge of the glacier did not make it any easier to physically get to the point. We started off in a group of four on the centre toe of the terminus.

To map the terminus we had to use a GPS, Global Positioning System, a GPS uses at least 3 satellites to find one point, as that is the only way to determine positional accuracy in a three-dimensional world. Mapping out the points of the glacier was tricky. We were tripping over loose rocks, looking over steep, muddy, ridges, and trying to find a safe way to the different points of the glacier we needed coordinates of. Yet playing in the mud and rocks to scramble to our way points was a adventure of its own, we got to sink knee high into the mud, travel at speeds over mud to prevent ourselves from sinking to deep and finding strange rocks and stream openings out the glacier. We saw a lot of awesome things at the Terminus. We were literally walking inside a cloud. This amazed me to feel the soft mist hitting my face as we travel around the terminus. Heading back to camp to found ourselves in a small white out that excited us because we got to navigate our way back to camp! Leaving the glacier was always a sad event and this time was our last adventure on the ice which made it even worse.

Looking at our way points afterwards and comparing them to previous years we couldn't see an extreme recession but comparing the ice now to the amount there was 15 years ago on pictures it has changed dramatically. One thing that has changed in these short years is the thickness of the ice and we could personally see how thin the ice is because we got the chance to climb underneath the glacier in an ice cave.



So why is the Easton glacier on Mount Baker so important? And why is the fact that it is melting away important to the world?

This glacier is only important because it is the one we are studying. Almost all of the other glaciers around the world are reacting the same way—receding. By studying this glacier we can predict that many other glaciers in the same situation are also melting. The fact that they are melting is important because it is one of the most obvious and globally consistent examples that shows we are already experiencing the effects of climate change.

Glaciers hold most of the Earth's fresh water. Many people and animals depend on the glacial runoff for most of their water supply. If the glaciers completely melt it could make it impossible for many animals, plants, and people to survive in regions that are water dependent on the glaciers. For example many communities

(cities, farms and ecosystems downstream of the Easton Glacier rely on the consistent flow of water provided by the rivers fed from the melting snow and ice of the Easton Glacier – especially in the most dry of summer months.

The Earth's climate is also interdependent on glaciers because of the Albedo effect. Glaciers are very good at reflecting sun rays, rather than absorbing them. Ice can reflect 75-80% of the rays, snow can even reflect up to 96%. While the Earth usually reflects % and the oceans only reflect %. So glaciers are needed to help cool the earth, and as they melt it will accelerate the climate shift even more. When we were at the glacier we observed that the darker blue ice, in the ablation zone of the mountain, was melting much more rapidly. We could see the differences in melting first hand and the Albedo effect really makes much more sense. Especially in our time lapse photography, the snow around the rocks is melting much more rapidly than anywhere else. This is because the rocks are darker, and absorb more heat than the snow, which causes the snow around the rocks to warm and melt.