Perched on a rock that shoulders the Easton Glacier, I have an incredible panoramic view of the world around me. To the west, wisps of clouds brush the snow-capped peaks of the Cascade Mountains overlooking the Pacific Ocean. To the south, Mt. Rainier rises to its gentle, rounded summit. I look across alpine forests, valleys, and ridges until my gaze settles on what brought me here: the glaciers around and above me.

Last summer, I had the opportunity to hike and camp on Mt. Baker, a glacier-covered active volcano, through a program called Girls on Ice. Founded by Dr. Erin Pettit, Assistant Professor of Glaciology at the University of Alaska Fairbanks, this program selects a team of nine high school girls from around the United States and the world every year to explore and study the glaciers and the surrounding environment in the Cascade Mountains of Washington. There, I learned to apply safe mountaineering protocol while hiking on an active volcano, investigated the alpine vegetation in the Cascades, and expanded my outlook on the natural world.

Near the end of July, I left the golden prairies of Kansas for the waves and winds of the Pacific Northwest. At the Seattle airport, I met the girls with whom I would spend a week in the Cascades; the members of my team hailed from places as diverse as New York City, Alaska, Canada, and Florida. A volunteer drove us to our home for the night, a local farm tucked in the hills of Marblemount, Washington, where we met our three instructors: Dr. Pettit; Cecelia (Cece) Mortenson, a professional mountain guide; and Kari Stiles, a landscape architect and environmental planner who specializes in botany. Exhausted from the travel, my teammates and I slid into our sleeping bags as soon as we finished dinner.

Early the next morning, we woke to the crowing of a rooster, ate breakfast, and then headed to Schrieber’s Meadow on the base of Mt. Baker. I could almost distinguish the summit looming 8,000 feet above me. I wondered if I’d ever reach the top as I heaved my 50-pound backpack over five miles of rocky, hilly, and snowy terrain scattered with streams. After about every 50 minutes of hiking, our team took brief breaks and replenished with granola bars, dried fruit, Gatorade, and water. Once, when my supply of water ran out, I refilled my bottle at a nearby stream partly covered with snow—something I would never have imagined doing at home. As we hiked the final mile of our journey up the Railroad Moraine (a ridge formed from the deposits of glacial till), I began to lose my breath—not just from the strenuous eight-hour hike, but from the beauty of the patches of snow-white glaciers sparkling before me.

by Meixi Wang
During the week, our team divided into small groups to focus on three topics: glaciers, alpine plants, and the volcanic features of Mt. Baker. My team, dubbed “Glacier Gals,” conducted research on the Deming, Easton, and Squak Glaciers. With Cece, my two teammates and I hiked across all three glaciers with a compass and GPS to map their current boundaries on a topographic map. The final result shocked me, because all three glaciers had retreated dramatically—by as much as hundreds of meters—from their former boundaries since the map’s publication in 1989. Standing there, surrounded by miles of snow and ice, I couldn’t help but think that the mystic glaciers would disappear if this trend continued.

In my short time on Mt. Baker, my vocabulary overflowed with new terms: *crevasse* (a fissure in the glacier), *firn line* (the elevation of snow on a glacier surface), *serac* (an isolated block of ice on a glacier), *fumarole* (steam vents on a volcano such as Mt. Baker). Meanwhile, I realized that glaciers are alive. Originating from the upper accumulation zone (too-much-snow zone), they stretch down to the ablation zone (too-much-sun zone), where they carve out valleys and streams. Along the tongue of the glacier, our team found snow with a patch of what looked like red spray paint but turned out to be a colony of red algae. Common in glaciers, red algae support an entire food web by providing food for the ice worms that prey on them. The ice worms, in turn, support marmot populations in the mountain. I occasionally spied marmot cubs scurrying across the snow in search of ice worms before their mother could warn them not to venture too close to us. Even in this remote environment well above the tree line, I saw signs of thriving ecosystems.

With our ice axes, crampons, ski poles, helmets, and harnesses, we leaped over and peered down a dozen crevasses to investigate the different layers of ice and snow accumulated from past years. Most of the crevasses had layers of embedded blue ice and dirt, which supported the assumption that the glaciers had not melted as much this summer. (Usually, blue ice rests deeper down a crevasse as lighter snow layers collect on the top.) While traversing up and down Mt. Baker, I also identified bergschrunds (crevasses at the head of a glacier) and marginal crevasses, which form on the side of a glacier as it rubs against the walls of valleys.

Our evening discussions at camp ranged from the impact of humans on the environment to the relationship between science and art. Through these discussions, I became more conscious of the important role of these often overlooked geophysical features. Glaciers are not just ice sheets; they support a variety of life in terrestrial, aquatic, and human ecosystems. From the salmon that hatch in the rivers supplied by melted ice to the thousands of homes in the Pacific Northwest that rely on hydroelectric dams for power, a lot of life literally depends on these glaciers.

After viewing them through a scientist’s lens, I now realize the glaciers’ significance to biological communities, how much there still is to discover about them, and how important it is to preserve these natural wonders. For me, this is only the tip of the iceberg. As I continue to pursue my passion for science, I hope to instill in others a commitment to environmental conservation and the will to explore.

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To learn more about Girls on Ice, visit http://girlsonice.org.