

Liza Backman
Phenology and Vegetation in the Warming Arctic 2021

Chemistry Teacher at the Urban Assembly Institute of Math and Science for Young Women in Brooklyn, NY.

My story began with a gleeful excitement—I've been accepted to go to Alaska in June 2020!—followed very quickly by another type of excitement—the COVID-19 pandemic. The switch to online learning, figuring out how to use zoom, and reach my students, everything began to feel uncertain. Would I be going to Alaska?

I decided that regardless of if I went or I did not, I would begin to incorporate Alaska into my online teaching, especially in my Earth Science class. "What should I pack?" I asked my students innocently, knowing I was about to drag them through zoom lessons on understanding climate and factors that affect climate while the pandemic raged on.

Eventually, it was decided. No expeditions would be launched in 2020. A certainty that, while heartbreaking for our cohort, no one disagreed with. Especially as the uncertainty of the pandemic and education during the pandemic, and the 2020-2021 school year loomed around us.

I don't know if it was just me, but the 2020-2021 school year felt worse than the end of the 2019-2020 school year. When we first switched to online learning, it felt like everyone was extending grace to one another, allowing for teachers, students, and even administrators time and space to simply exist during the unworldly spot we were in the middle of. It was a time of uncertainty, but a time when it was okay to be existing in uncertainty.

But when the 2020-2021 school year came, somehow it was no longer okay to be uncertain, even as hundreds of new policies came out about how to exist both at home and in person and the policies were changing every two days. (To be perhaps a little more fair to those who work above me, I work for the biggest public school district in the entire country, so I can understand the intense amount of work it takes to even create policies that can be applied district wide.) For me personally, I was expected to teach five classes with four different contents to cover, and was expected to somehow conduct hybrid learning to two in-person students while the rest stayed at home

With all of this going on, PolarTREC, and the potential to go on an expedition became the light at the end of the tunnel. Something certain that I could look forward to. So when I was told that I could either go during 2021 or go during 2022, there was no question in my mind that I was going to go as soon as I could.

Every PolarTREC experience is unique in its own way, but one of the things that made my experience particularly unique is that it came with a lot of emotions, particularly emotions of relief. After months of botched hybrid learning and switches between being required to be in

the building and being required to be out of the building, I was going to have some time away to engage with science. Yay!

When I started writing this today, I was thinking about the theme of certainty versus uncertainty. In my case, the certainty of the PolarTREC experience and doing science versus the multitudinous uncertainties of education during peak pandemic. I was definitely thinking of the relief that certainty in the form of PolarTREC and feet on the tundra brought with it. But in thinking of the bigger picture, the PolarTREC work I was engaging with—the warming arctic and climate change—Is (to some extent) uncertain, in and of itself. I think the biggest difference between the two is being able to willfully engage in the science of climate change instead of unwilfully engaging with the pandemic as it continues (even now) to go on. [If you haven't seen the movie, *Don't Look Up!*, with Leonardo DiCaprio, you should.]

So maybe the theme of this isn't certainty versus uncertainty, but willful engagement. While this school year has been better than the previous school year [especially for me, as I left a school that I loved, but was overworked at, for a new school that has me only focused on teaching chemistry], it still presents with lots of uncertainties (and potential new waves such as omicron; aren't there nine more Greek letters after omicron?). Regardless, I think PolarTREC helped me refocus my attention in my classroom towards creating an atmosphere and a space where students are able to willfully engage in science in a meaningful way.

John “H” Wood

Seismic Tomography of Erebus Volcano, Antarctica/2008-2009

Effects of Experimental Warming of Air, Soil, and Permafrost on Carbon Balance in Alaska Tundra/2011

Retired- Science/STEM Middle School Teacher

Prompt: Can you share some of the creative ways you engage with science and education in the pandemic?

For the Alaska project we were fortunate enough to have a town close to our study site. The town of Healy is the location of the Tri-Valley School that services students from the surrounding areas. This provided us with the opportunity to engage with the locals where I was able to visit the school and make some connections with a couple of teachers there. We eventually were able to arrange school field trips for the 6th and 7th graders so that they could spend half a day each at our study site. We had them tour the site and then use some of the instruments to collect data. It was so cool because our study site was in their “backyard”! They knew about many of the plants and animals in the tundra and understood how the landscape changes throughout the year.

I was very happy to be working with the local students, but I was equally frustrated at the same time that I could not show this all to my own 6th and 7th graders back in Southern California! That was when the idea of Climate Buddies came in. What if we could set up a “pen-pal” program between the students at both of the schools and wrap it around them sharing their own experiences about where they live? We started by just having them collect simple weather data and observations and then writing to each other about what their local conditions were, including photographs, on any given day. Both of the groups of students were quite taken by the differences in the data and the locations. Of course that led to deeper discussions about climate and latitudes and seasons and daylight hours and much more!!

As the students became more comfortable with each other they began to share more personal information like hobbies and food! When we had our first video-conference with the classes it was amazing for them to see each other and actually talk face to face! When the pandemic closed the classrooms down Climate Buddies became even more of a hit with the students because we could contact even more schools and still have a chance to get out to meet new people and visit new places. I think also the kids began to learn about communicating science and questioning pre-conceived ideas. The program evolved into some of my science fair students becoming Climate Buddies with undergrad and graduate students who would mentor them. In a couple of cases the two buddies met at the American Geophysical Union gatherings where they both were presenting posters on their work (photo and poster included).

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My PolarTREC and, prior to PolarTREC, TEA (Teachers Experiencing the Arctic and Antarctic) experiences were highlights of my teaching career. As a (now) retired teacher, I continue to reflect on these experiences and am consistently amazed at the threads from these that have become a part of my life. I have been able to weave those threads throughout my classroom teaching and beyond. How many people can say, "When I was in Antarctica/the Arctic I saw/learned/experienced this"? I also viewed my experiences as a way of modeling the value of being a lifelong learner for my students. I taught in an alternative high school; my students needed to see concrete examples of a passion for learning and doing!

I am a true believer of the fundamental need for infusing climate and polar literacy throughout my teaching and life while trying to create interesting, engaging, and relevant curricula. There's always some way to slip in some polar factoids or to design entire units around the experiences. Creating a polar/climate literate population is an inspiring challenge. My PolarTREC experiences and post-PolarTREC reading of journals and activities has kept me engaged and interested in current research. I truly love reading articles about climate change or polar science where I actually know the researchers through following PolarTREC expeditions. Whether it's an article on Icefish in the New York Times or permafrost in the New Yorker, I feel connected because I have read about or met the PIs through PolarTREC.

I retired before teaching in a pandemic was ever a concept. But, as a lifelong learner and teacher, I feel that science, scientific research, and following a scientific process to examine our world are more important than ever. PolarTREC can provide you with the proverbial soapbox upon which to stand while you bring science to life.

Susy Ellison

[Forest Response to Arctic Environmental Change](#)
[Early Human Settlement in Arctic Alaska 2011](#)
Retired Yampah Mountain High School Teacher
Carbondale, CO