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Toolik Field Station Quarterly Newsletter Spring 2022

Updates from Winter 2021

Spring is quickly approaching Toolik Field Station! Review the past year below.

Although many COVID mitigations remained in place in 2021, TFS hosted a more typical amount of projects and visitors compared to 2020. In total, TFS supported 32 projects with over 4,000 userdays to researchers in 2021.

The Spatial and Environmental Data Center (SEDC) continued to fulfill remote access requests, which allowed for researchers to obtain samples without traveling to the North Slope. SEDC Manager, Amanda Young, reported she and EDC technicians completed over 2,970 hours of requests for 34 projects in 2021. ToolikGIS also supported 12 projects with field sampling, site selection, and spatial data analysis.



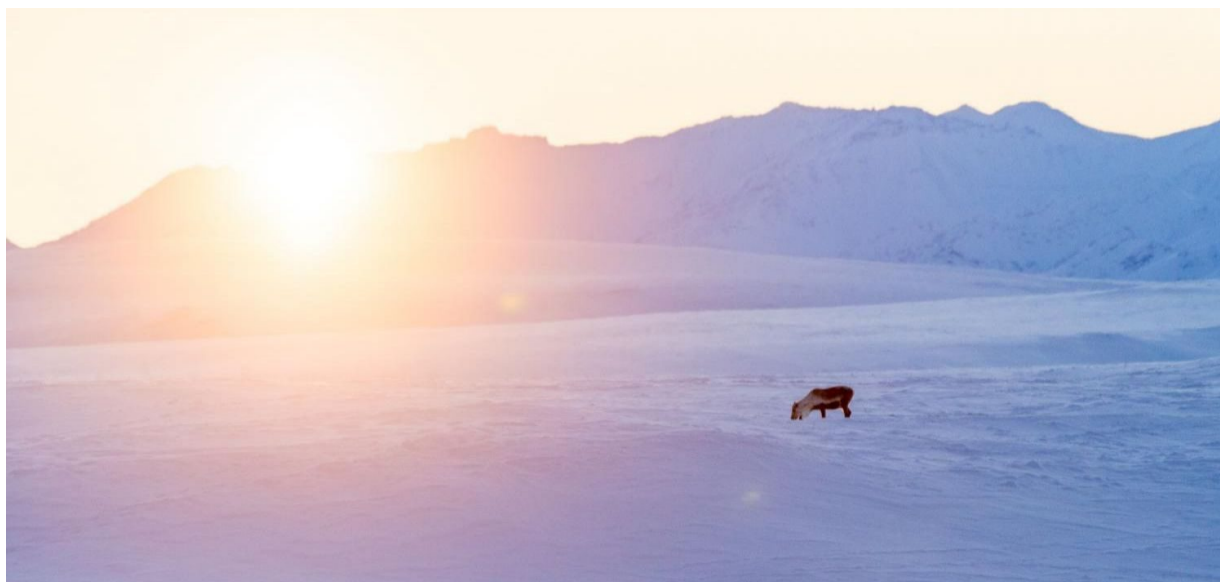
Toolik staff celebrated a snowy Halloween in camp with pumpkin carving (left, D. Aguirre). Dani Aguirre conducted mid-winter fieldwork across the lake via snowmachine (right, A. Young).

TFS welcomed new full-time staff members Adam Chisom, Haley Dunleavy, Marin Kuizenga, & Rowan McPherson and sent grateful farewells to Mike Abels, Faustine Bernadac, & Skye Greer as they moved on to new pursuits.

On November 2, EDC technician Dani Aguirre took the first official measurements of ice depth on Toolik Lake with help from Maintenance, Equipment, & Fabrication technician Collin Fossum. Since then, the sun has set and re-risen, and [caribou](#) have frequented the TFS area along with ptarmigan, fox, ravens, gyrfalcon, [wolverine](#), wolves, [muskrat](#), and [one lonely caterpillar sunbathing itself atop a bed of *Dryas* on Jade](#). Lake ice thickness is now measuring at over a meter.

The Steering Committee met virtually in January to discuss future TFS plans. Meeting notes and presentations are available [on our website](#).

We also revised our [Code of Conduct and Sexual Misconduct Policy](#) and associated pre-trip training. Please take the new training and quiz in myToolik before arriving to camp. Send feedback to uaf-toolik-communication@alaska.edu.



The first sunrise of the year at TFS occurred on January 18 (J. Franich).

Summer reservations are being finalized for the 2021 field season.

slightly reduce their use. We will be reaching out shortly about pending reservations. Please keep in mind that we still require users to be fully vaccinated and boosted according to CDC guidelines, undergo an 8-day quarantine, and show proof of a negative NAAT COVID-19 test. Refer to [our COVID-19 policy](#) for more info.

Getting excited for the upcoming field season? Read highlights from last summer in the Toolik Naturalist Journal.



Toolik Naturalist, Seth Beaudreault, recounted memorable encounters with Toolik's visiting wildlife and shares some of his favorite photos from summer 2021 in [an end-of-season wrap up](#).

Peregrine falcon chicks look up from their nest in mid-July (S. Beaudreault).

What's New at Toolik?

Facility upgrades continue with a new medical building and waste heat extension

Say goodbye to the old EMT Shack, Toolik now has an upgraded Medical Clinic—complete with heat and running water! This improvement is just one of several additions over the past few years, including an extension of our energy efficient waste heat system. [Read more about these and other facility improvements Toolik](#).

New Bikes and Composter Donated by Fleetwing Charitable Foundation!

Thank you to Fleetwing Charitable Foundation Trust for their generous donation to Toolik Field Station. With Fleetwing's contribution, Toolik has updated its bike fleet with ten new bikes. Five front suspension mountain bikes and five fat tire bikes are now available for the community's four-season biking needs—whether they be accessing field sites off the P-loop or decompressing with a Sunday ride on the Kup loop.



Bodie Davies and Faustine Bernadac take the new fat tire bikes for a ride on the Kup loop (left, P. Smith) while Cezanna Semnacher, Gina Carani, Manny Centeno, Dennis Wasserman, and Alex Radion show off some tricks on the new front-suspension fleet (below, J. Johnson).



Fleetwing's donation also supported the purchase of a new projector for the Community Center, a 10 inch electric ice auger, and, notably, an industrial composter, eliminating the need to burn camp food waste and paper products. Reduced reliance on the in-camp incinerator improves Toolik's energy consumption and lessens the incinerator's effects on scientific atmospheric measurements. The compost will be trucked back to UAF to be used in their community gardens.

UA Giving Day a success for the TUNDRA award

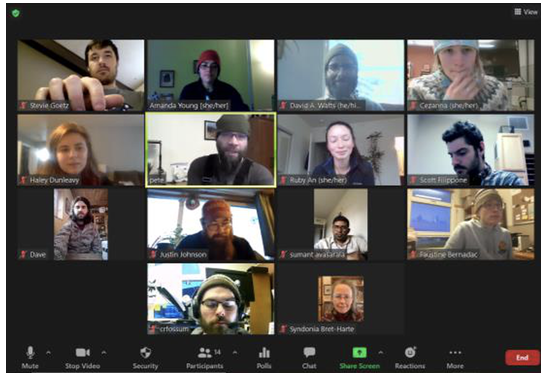
On November 8-10, Toolik joined the University of Alaska network in celebrating Giving Day, a fundraising event to foster donations over 49 hours (for the 49th State). Thank you to the 16 donors who helped raise over \$2,900 for our [TUNDRA award](#) (Toolik Userdays for Naturally Developing Research Abilities). Toolik thrives because of its strong, collaborative community. Their contribution to the TUNDRA award will

making Toolik a more diverse and accessible place. If you missed Giving Day but would like to make a donation, [please visit our giving page](#).

Congratulations to our 2022 awardees: Morag Clinton, Chelsea Smith, and Megan Wilcots! We look forward to supporting their research this field season. Applications will re-open this coming fall for 2023. We encourage all students and early career researchers to submit proposals for independent, original projects. Find more information about the award, including eligibility and how to access the application via myToolik, [on our website](#).

BeAJEDI at Toolik: Belonging, Accessibility, Justice, Equity, Diversity, and Inclusion

Toolik Community Joins Unlearning Racism in the Geosciences



Last spring, Toolik Field Station joined thousands of scientists across the United States in the journey towards being anti-racist. [Read about the Toolik community's Unlearning Racism in the Geosciences \(URGE\) discussion and action group & learn more about the station's ongoing efforts to improve diversity, equity, & inclusion at camp.](#)

If interested in joining these conversations, email Haley Dunleavy (hdunleavy@alaska.edu) or Amanda Young (ayoung55@alaska.edu).

Featured Project

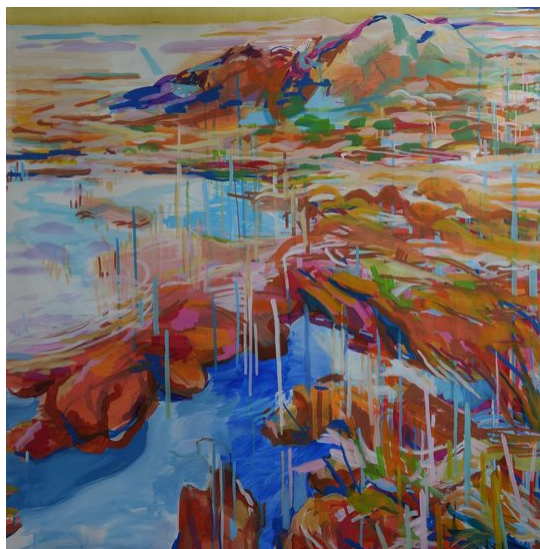
The Ecotypes Project Returns for a New Game of *Eriophorum* Chess

After transplanting tussocks for more than 30 years, Toolik researchers Ned Fetcher, Michael Moody, Jim Tang, and Gus Shaver hope their newly funded grant will illuminate how temperature, light, and genetics control *Eriophorum vaginatum*'s phenology in the face of its encroaching shrub competitors. [Learn more about the Ecotypes groups' new experiment scheduled for summer 2022.](#)



Art Corner

Reverberations in Permafrost Thaw: Update from the 2019 Artist-in-Residence Nikki Lindt



When artist Nikki Lindt first traveled to the Arctic to document permafrost thaw, she was no stranger to the effects of climate change. For over two decades, Lindt has produced art centered around issues of global change and overdevelopment. Even still, upon her arrival, Lindt said, "I absolutely wasn't prepared when I saw the scale of everything that was happening." [Read about Lindt's new multi-media project, *Tumbling Forests of the North*, born from her artist residency at Toolik in summer 2019.](#)

Toolik Community in the News

Was your Toolik-based research featured in the media? Or do you have an upcoming paper you'd like to share with the press?

Submit a [media form](#) to share an article or request a press release.

- November 8, 2021—[A new buzz: bumblebee species among discoveries enabled by Arctic research portal](#)
- 22 November, 2021—[Northern Farmers and UAF Researchers Team up to Sustainably Manage Permafrost-Agroecosystems](#)
- 22 November, 2021—[NSF Awards Grants to Early-Career Polar Investigators](#), Congrats to Toolik community member Erin Rooney!
- 17 February, 2022—[A new tundra, engineered by beavers](#)
- 24 March, 2022—[UCI researchers first to sample permafrost CO2 emissions during fall and winter](#)
- 28 March, 2022—[Women in Ecology: Shalane Frost](#)
- 29 March, 2022—[Arctic greening won't save the climate—here's why](#)

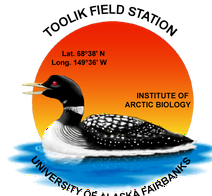
Recent Toolik Community Research Publications

Contact us at uaf-toolik-communication@alaska.edu if you want to see your publication featured in our next newsletter. To view more community publications, [go to our publication database](#).

- A model to characterize soil moisture and organic matter profiles in the permafrost active layer, [Bakian-Dogaheh et al.](#)
- Essential oil content of *Rhododendron tomentosum* responds strongly to manipulation of ecosystem resources, [Baldwin & Oberbauer](#)
- Characterization of site-specific vegetation activity as related to climate and soil state, [Brown et al.](#)
- Range shifts in a foundation sedge potentially induce large Arctic ecosystem carbon losses and gains, [Curasi et al.](#)
- Spatial distribution and biogeochemistry of redox active species in arctic sedimentary porewaters and seeps, [Hudson et al.](#)
- Leaf-level chlorophyll fluorescence and reflectance spectra of high latitude plants, [Huemmrich et al.](#)
- Stable Isotope Tracers of Cretaceous Arctic Paleoprecipitation, [Ludvigson et al.](#)
- Responses of root phenology in ecotypes of *Eriophorum vaginatum* to transplantation and warming in the Arctic, [Ma et al.](#)
- Closing the Winter Gap—Year-Round Measurements of Soil CO2 Emission Sources, [Pedron et al.](#)
- Sporadic P limitation constrains microbial growth and facilitates SOM accumulation in the SCAMPS model, [Pold et al.](#)
- Soil pore network response to freeze-thaw cycles in permafrost aggregates, [Rooney et al.](#)
- Small herbivores with big impacts: Tundra voles alter post-fire ecosystem dynamics, [Steketee et al.](#)
- Growth rings show limited evidence for ungulates' potential to suppress shrubs across the Arctic, [Vuorinen et al.](#)
- Survival estimates of free-living arctic ground squirrels, [Wilbur et al.](#)
- Earlier snowmelt predominates advanced spring vegetation greenup in Alaska, [Zheng et al.](#)
- Earlier snowmelt may lead to late season declines in plant productivity and carbon sequestration, [Zona et al.](#)

Do you have an item to add to the quarterly newsletter?

Send any additions or general suggestions/comments to Haley at hdunleavy@alaska.edu.



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