Toolik Field Station Overview

Vision & Mission

- Toolik Field Station is a leading, year-round Arctic research, observation and education facility, providing insight to address local and global challenges of a rapidly changing Arctic.

- Our mission is to promote a greater understanding of the Arctic by safely, sustainably, and equitably fostering research and education in response to the needs of scientists and society.

On the way to reconnoitre Toolik Lake, July 1975

Jerry Brown, John Hobbie, Philip Miller, Michael Miller, Vera Alexander

Photo from the Pat Webber archives.

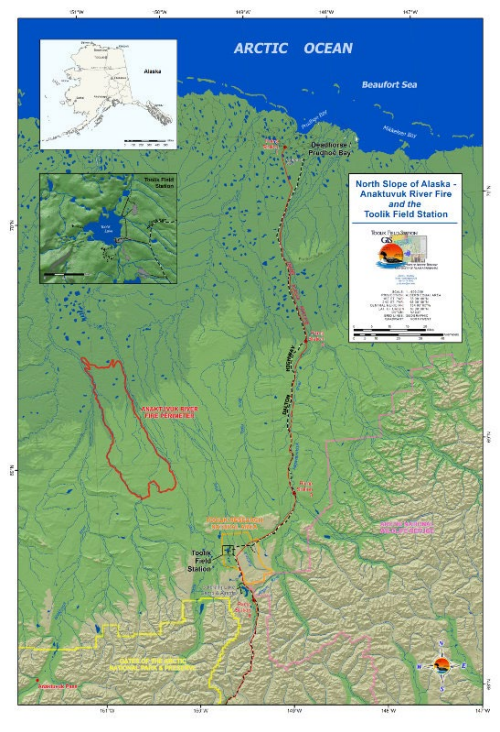
Toolik over the years

- Opened year-round in 2006
- New single occupancy dormitories, medical clinic, & washeteria

1978

2019

Why Toolik Field Station?

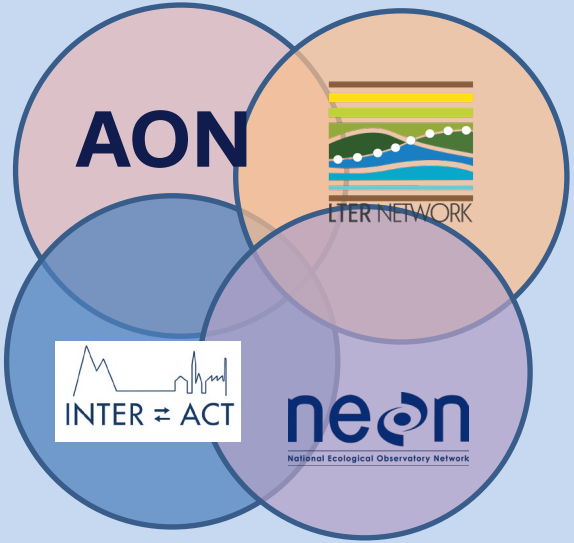


- Access to Brooks Range, northern foothills, & Arctic Coastal Plain
- Accessible & Efficient
  - Most travel via the Dalton Highway
  - Consolidated logistical & technical support
  - Open year-round since 2006

- Study systems of interest, including Anaktuvuk River Burn, thermokarsts, & aurora
- Climate change is rapid at high latitudes; strong interest in the fate of stored C in northern ecosystems

Why Toolik Field Station?

- Collaboration with national & international researchers
- Long-term, whole ecosystem experiments & observations
- Ecological and environmental gradients



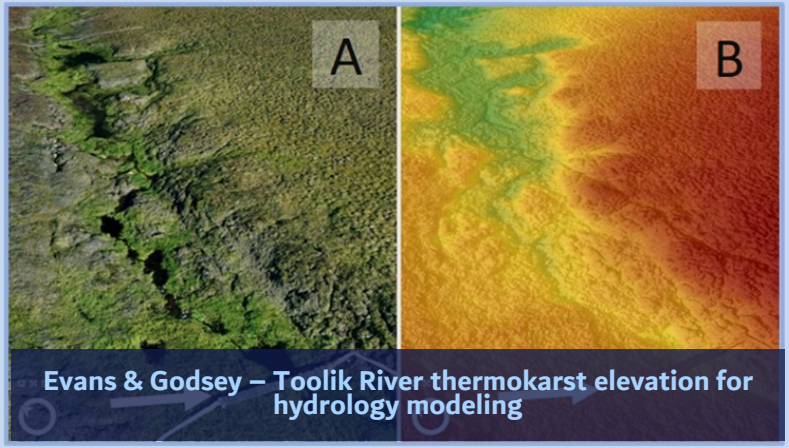

Recent LTER warming experiment


NEON Flux Tower

Science Support

- Spatial & Environmental Data Center
  - Abiotic & biotic monitoring
  - Field assistance & remote access
  - Common use equipment
- GIS & Remote Sensing
  - Site selection & permitting assistance
  - Spatial data collection & analysis
  - Map production
- Maintenance & Equipment Fabrication
  - Create sampling tools, support for autonomous power systems
- Logistic support, including transportation, shipping, & food

First winter time series of CO_2 flux from permafrost soil

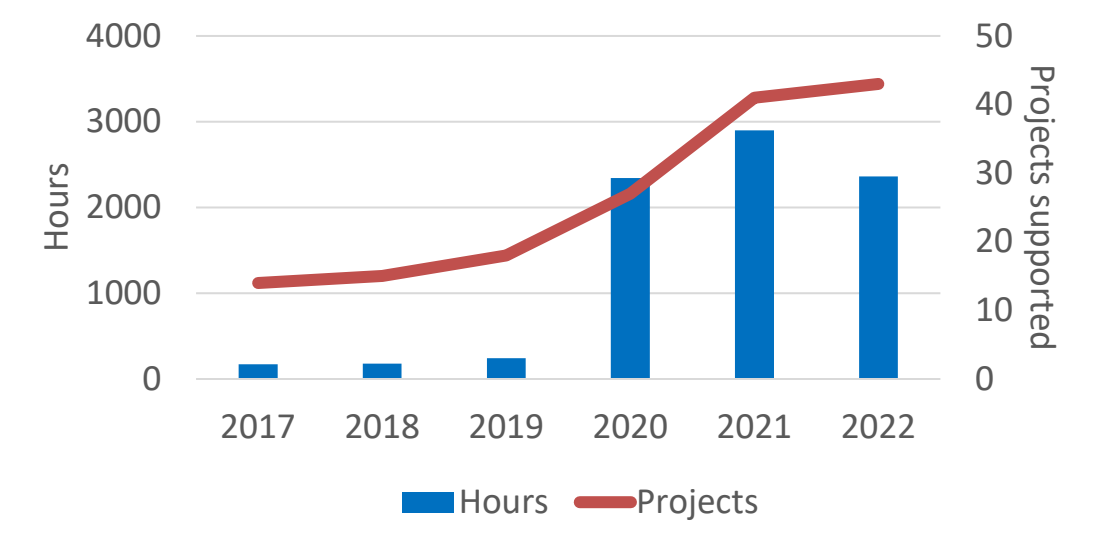


Evans & Godsey – Toolik River thermokarst elevation for hydrology modeling

Science Support

- Arctic Data Center Toolik portal
  - Meteorological data downloaded 921 times in 2021-2022
  - Phenology data downloaded 37 times & viewed 70 times on ADC portal
  - Bird count data downloaded 115 times
- Talking Shop summer seminar series
  - Includes graduate & undergraduate student presenters

Field Assistance & Remote Access



- Examples of Assistance:
  - Met station setup, downloads, and troubleshooting
  - Phenology and NDVI measurements
  - River discharge
  - Soil sampling
  - Tussock tiller measurements
  - Thaw depth measurements

Impact

- Support 350-550 scientists & 70-100 projects every year
- 2,089+ peer reviewed articles, 180+ books/chapters, 225+ theses/dissertations
  - 60 in high impact journals, receiving a combined 22,000+ citations
- Reached over 700 people in outreach activities in 2021-2022
- Daily Naturalist Journal viewership is high (>11,000 views/year)

Creating a Community of Respect

- Actively working to ensure Toolik is diverse, equitable, & welcoming to all
- Our code of conduct & multiple reporting pathways help us to prevent & rapidly respond to misconduct
- Community gear closet to reduce barriers to access
- Using communication to build sense of belonging and inclusion


Polar Pride Day

Prioritizing Safety

- Holistic view of field safety
- Safety gear & training for all residents
  - Bear Aware
  - Boat & vehicle training
- Mental health first aid training for staff
- EMT on site when researchers are at the station
- The new 2021 Medical Clinic provided much needed updates to our ability to provide first response to incidents at the station

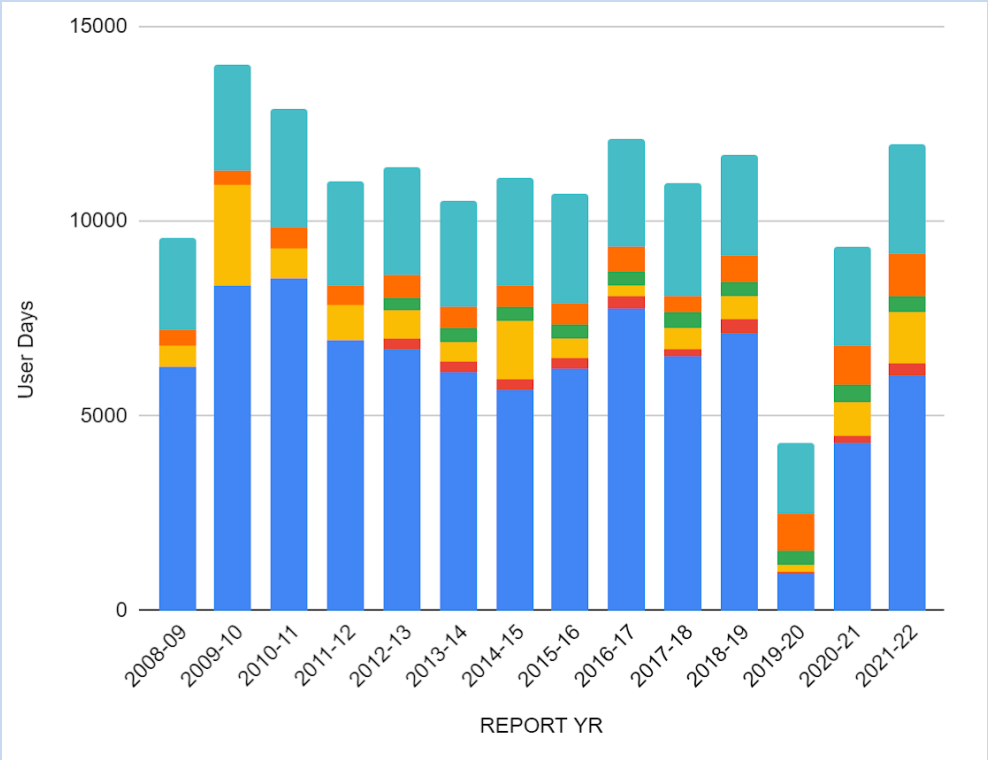
All Scientists Meeting

2023 poster session

- Biennial meeting for sharing science, soliciting feedback, & sparking new collaborations
- Travel support for invited speakers & student poster presenters

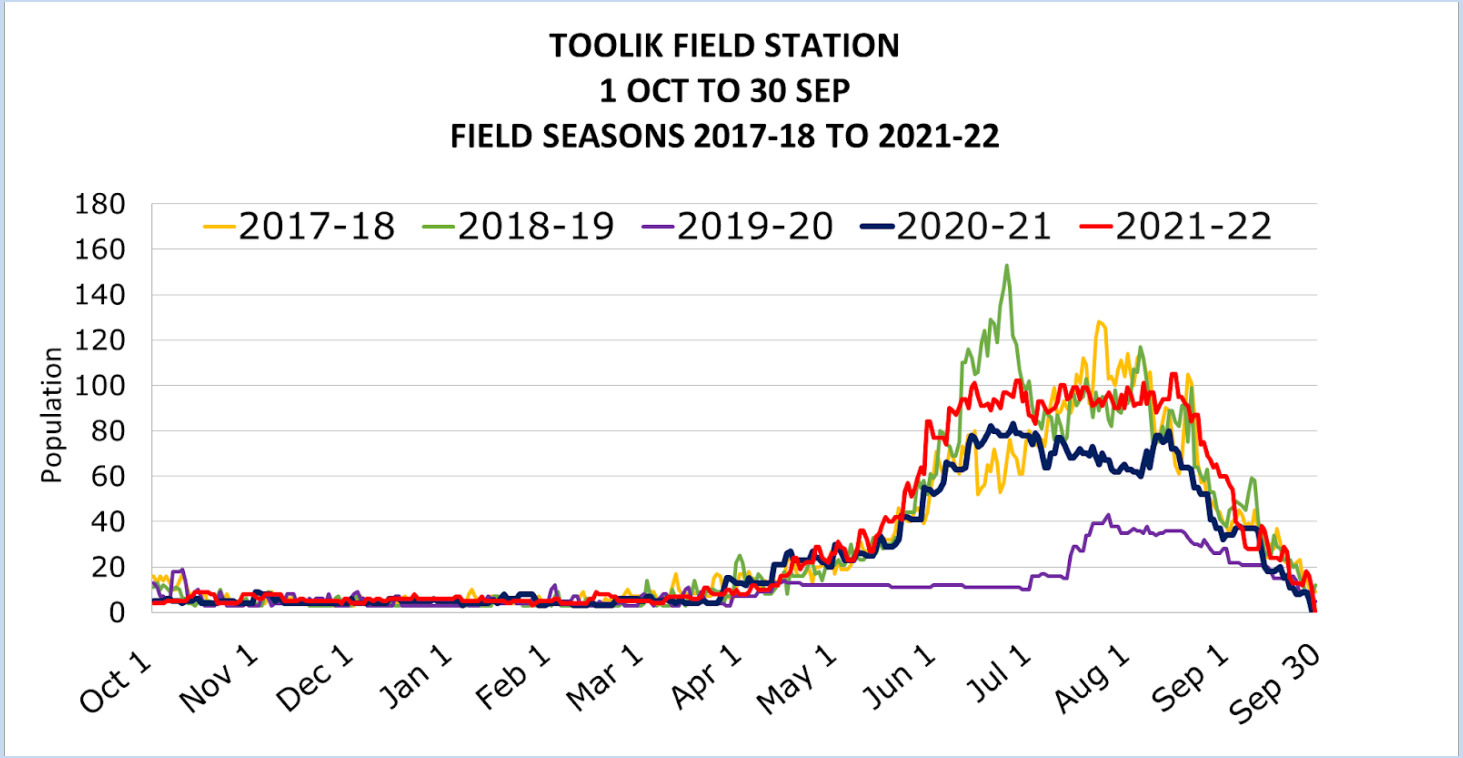
2019 attendees

Station Occupancy: 2008-present



- Station population has returned to pre-COVID numbers.
- Researchers are coming earlier and staying later in the shoulder seasons to address critical gaps in our understanding of Arctic change.

Station Occupancy: seasonal variation



Project Funding Sources: 2021-2022