





# NEON News

- Dr. Paula Mabee new Observatory Chief Scientist starting February 3, 2020
  - Former NSF Division Director for the Environmental Biology
- NSF announces NEON re-compete
  - Letter of intent by Feb. 21<sup>st</sup> & proposals by June 19<sup>th</sup>
  - 5yr award beginning Nov 2021
- Biorepository at ASU fully operational
  - Over 103,000 samples & over 700 identified taxa including microbes, invertebrates, vertebrates, aquatic/terrestrial plants

# Science recap (phenology/insect team)

- Plant phenology observations 5/14 – 9/17
  - Over next two years will shift from 3 to 20 focal species (with less replicates)
- Mosquito phenology collections 5/24 – 9/25
  - Toolik holds the record among all NEON sites for mosquito captures!
- Beetle (Carabids) traps deployed 6/13 – 8/22
  - 19 species identified to date
- Tick sampling: still zero!



# Science recap (flora)

- Plant Diversity and above-ground herbaceous biomass 7/8- 7/26/19
- Surveyed 13,200 m<sup>2</sup> of land for all vascular plants present
- Encountered 135 vascular plant species
- Reduced intensity in 2020 (198m<sup>2</sup>)
  - More effort will be dedicated to sorting/weighing bryophytes
- Assessed woody species in plots around the NEON tower to see if they met criteria for veg structure survey; will reassess every 5yrs

# Science recap (aquatics)

- Continued year-round surface water chemistry microbe analyses in Toolik Lake & seasonal sampling at Oksrukuyik creek
- Continued biological monitoring in both lake and stream (June – September)
  - Sampling dates are shared with Lake and stream LTER groups
- Extended instrumentation monitoring into shoulder seasons
  - Oks Met station in operation mid-march through mid-October
  - 4 Aquatrols (Temp, conductivity, pressure) in lake powered by external battery packs swapped out by TFS maintenance crew in fall have allowed us to capture conditions of the lake as the ice thickens and the sensors freeze in place. Thanks to this partnership we have extended our data collection window by several months

# Science recap (Small mammal team)

- Three bouts; June, July, August
- Changes for the 2020 Season:
  - Cover traps with tar paper to reduce the exposure from rain and wind events.
  - Reduce time between checks (6 hour intervals).
  - Planning to evaluate sampling design in response to investigator disturbance on grids



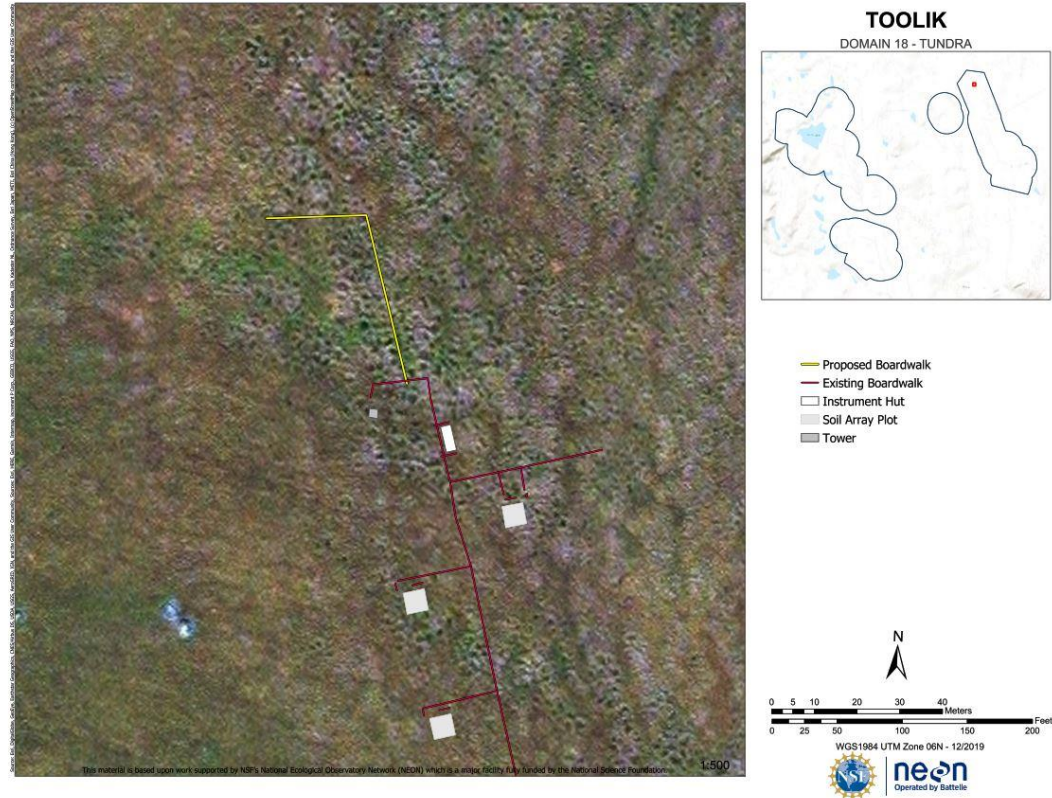
# Boardwalks

## Boardwalk construction 2020

- Propose to construct ~60m of boardwalk next to tower
- Deliver material by snow machine, construct after snowmelt

## Total NEON Boardwalk

- 14 Terrestrial plots and access (2,808m)
- Oksrukuyik Creek (1,980m)
- Toolik lake (375m)
- Tower (~500m)





# Generator shed

**2019:**

- Two new generators installed 7/15, expected consumption reduced by 50%
- Powers NEON tower and NOAA station

## Maintenance

- Primarily supported by NEON
- visual inspections continued by TFS maintenance ~ 3days
- Remote monitoring planned for coming season

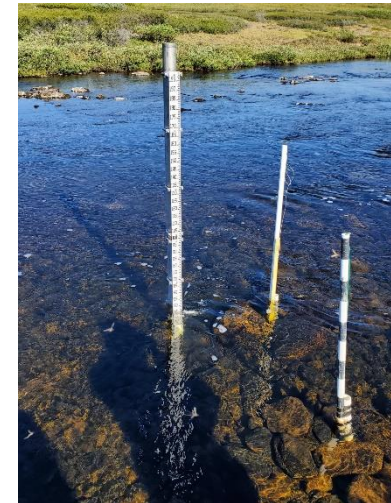
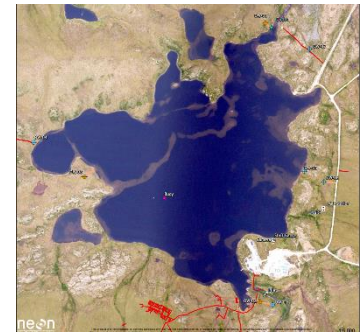




# Aquatic infrastructure

2018

2019



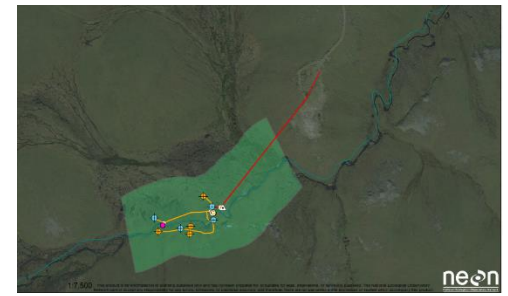
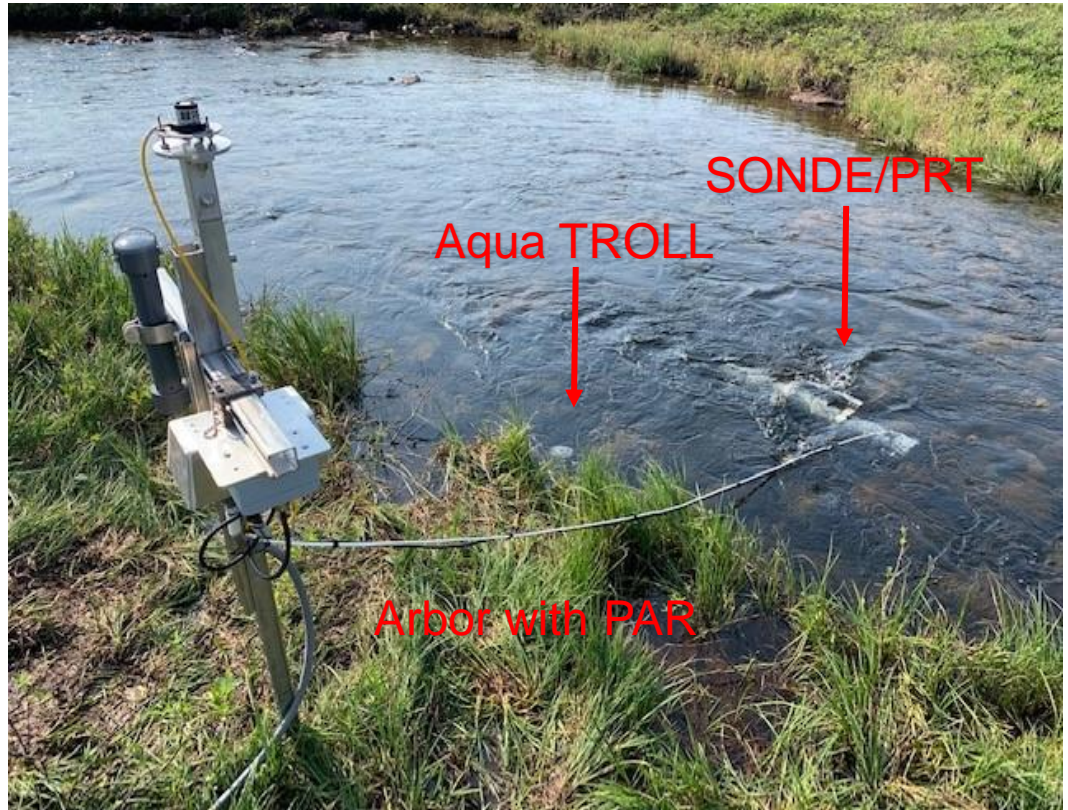


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2018

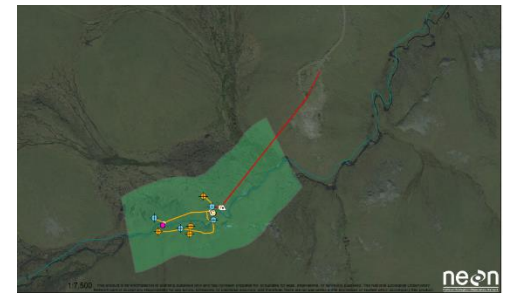


2019



# 2020 Oksrukuyik upgrades

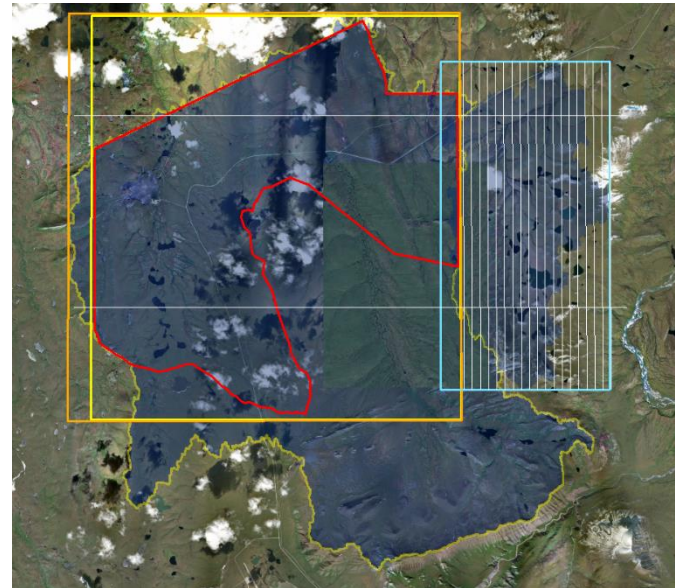
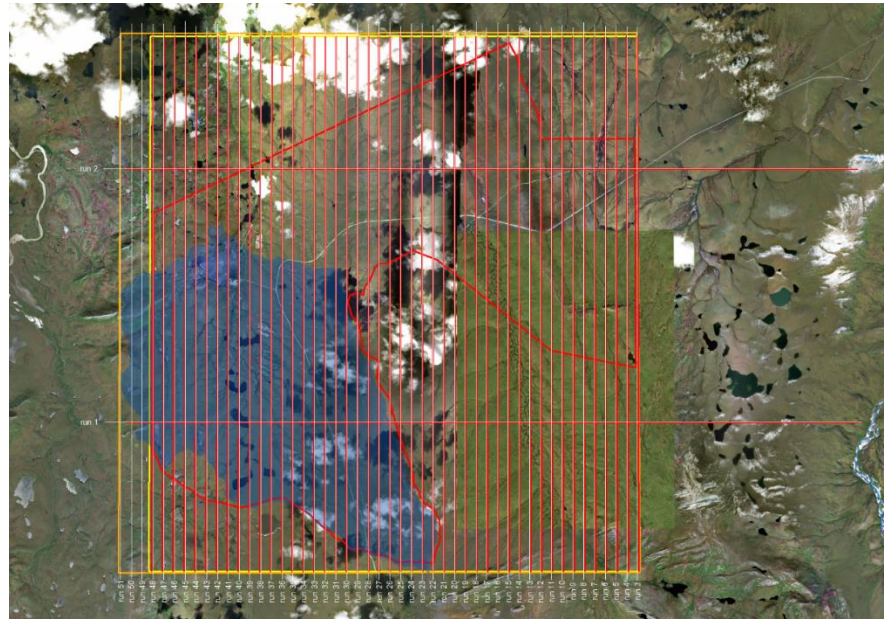
- Current solar power system is insufficient to continuously operate the site (March - Oct)
  - Proposed install: Atrix 1500w fuel cell + four 100lb propane tanks
- Addition of satellite communications to meet data availability requirements.
  - Streaming: up to 256 kbps
  - IP: up to 352 kbps (up), 700 kbps (down)





# Remote Sensing

- 2019 Flight dates
  - 6/22 – 7/14
- 2020 Flight dates
  - 6/26 – 7/27
  - Flight box expanded to the west to cover Toolik lake watershed





neon  
Operated by Battelle