

National Ecological Observatory Network: Transition to Operations and Opportunities

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Causes of Change

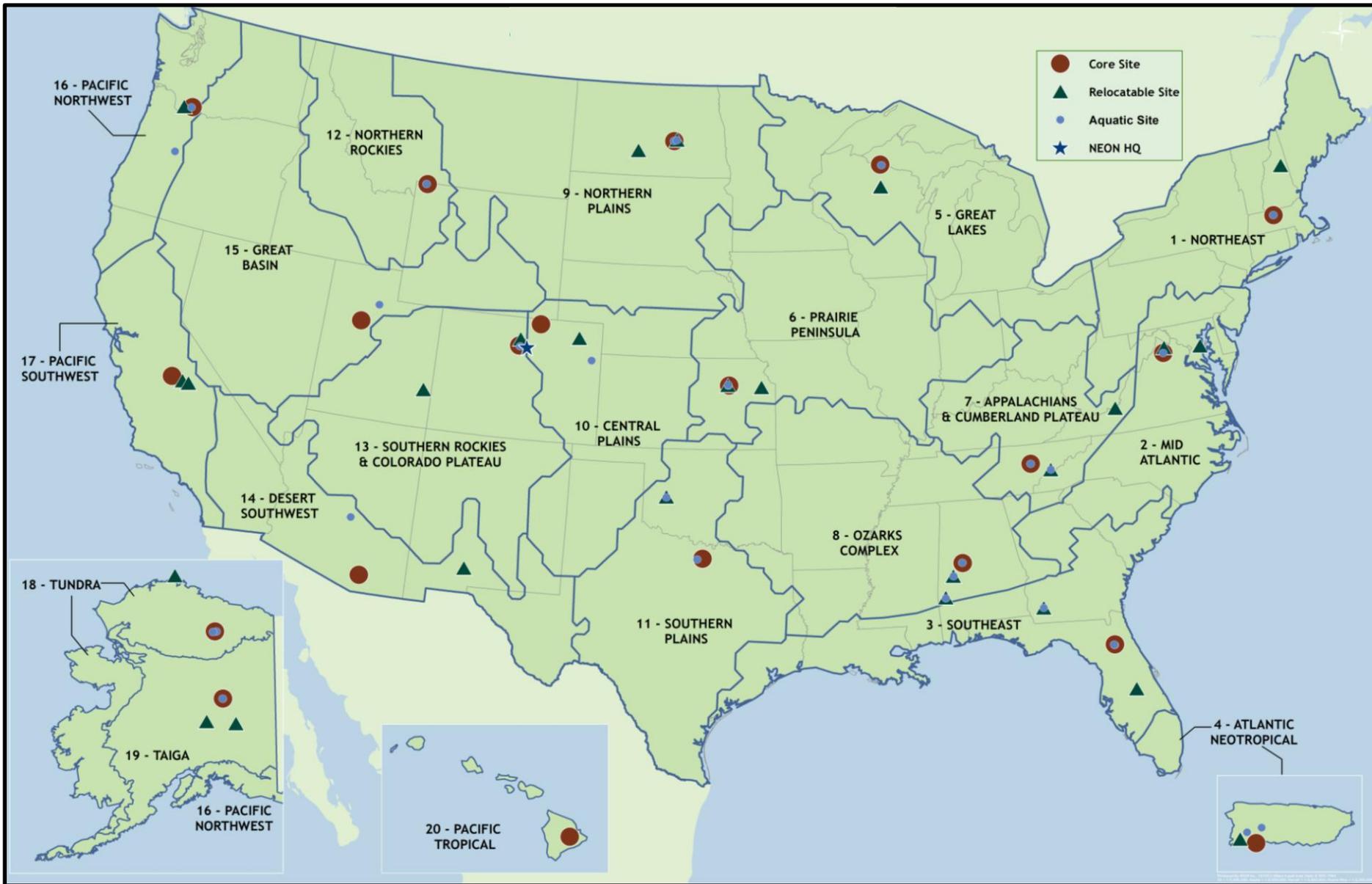
Climate
Land Use
Invasive Species



Response to Change

Biodiversity
Biogeochemistry
Ecohydrology
Infectious Disease

To enable understanding and forecasting of the impacts of climate change, land use change and invasive species on continental-scale ecology – by providing infrastructure and consistent methodologies to support research and education in these areas.



NEON Timeline



CONCEPT & DESIGN

2004 - 2011



SITES BUILT OUT

2012 - 2017

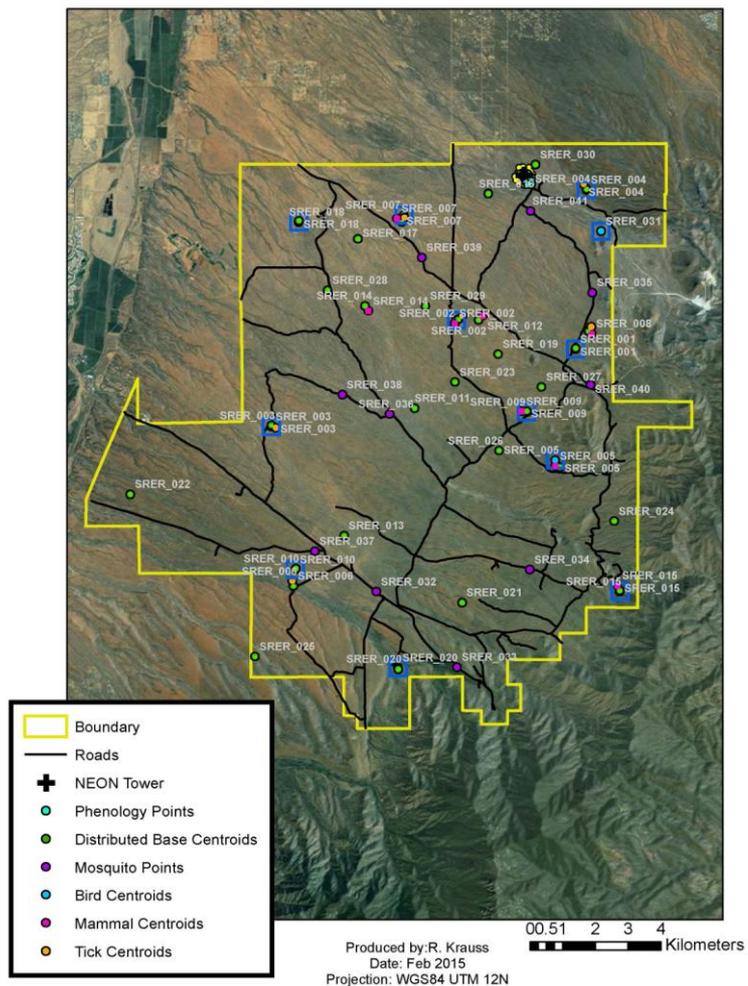


DATA COLLECTION

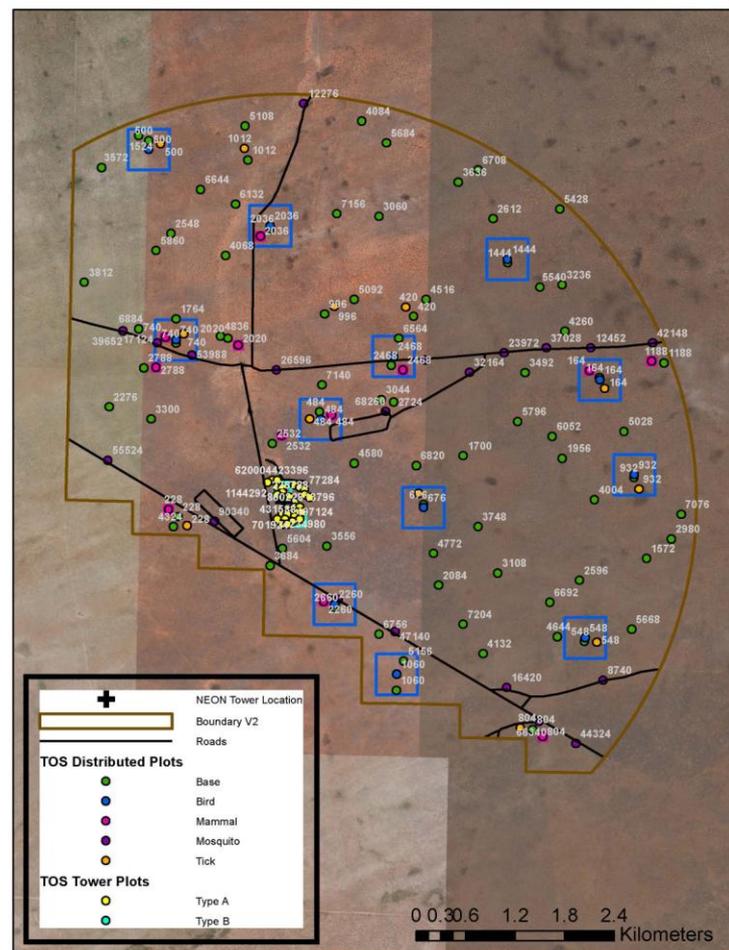
2017 - 2046

Domain14 Progress

SRER



JORN







- Three different products coming from temp sensors at multiple levels
- Multiple radiation products, including PAR sensors on the tower and in the soil array
- Wind speed & direction, barometric pressure, relative humidity and precipitation
- Phase 3 sensors (2016)

NEON Progress to Date

Terrestrial Observation System (TOS)

- Sampling at 27 sites, adding majority of remainder next summer



● Mammals, plants,
and beetles

● Soil pits





- Small mammal Sherman live trapping
- Ground beetles from pitfall traps
- Plant diversity and % cover
- Plant phenology
- Herbaceous clip harvest
- Soil physical and chemical properties
- Additional protocols 2016

NEON Data Portal 2.0

data.neoninc.org

NEON Data Portal 2.0

data.neoninc.org

The screenshot shows the top navigation bar of the NEON Data Portal. On the left, the 'neon' logo is displayed with the text 'National Ecological Observatory Network' below it. To the right of the logo is the text 'NEON Data' and 'Solely funded by the National Science Foundation' with the NSF logo. On the far right, there are links for 'Sign In' and 'Register', and a button labeled 'Enter Citation Code'. Below this, a horizontal menu contains a home icon, 'DATA PORTAL', 'BROWSE DATA' (highlighted with a red box), 'DOCUMENTS', 'FAQ', and 'DATA PRODUCT CATALOG'.

NEON Data Portal 2.0

Browse Data

X clear all filters

Time Range

All Available

2012 6 → 2015 8

Location

Sort by

STATE

NEON DOMAIN

- Alabama
- Arizona
- Colorado
 - Niwot Ridge Mountain Research Station Site, CORE
 - Rocky Mountain National Park Site, RELOCATABLE
 - Sterling Site, RELOCATABLE
 - Arikaree River Site, CORE
 - Central Plains Experimental Range Site, CORE
- Florida
- Georgia
- Kansas
- Massachusetts

Available Datasets

Location Availability



Partial



All selected locations

Name	Jun 2012	Oct 2012	Feb 2013	Jun 2013	
Soil physical properties (Megapit)					CONFIGURE DATASET
Soil chemical properties (Megapit)					hide options

Download Options

Learn more about Soil chemical properties (Megapit)

Available for: 4 sites from 2012-8 to 2014-8

Documentation

Include relevant documents for this Data Product

Data

Basic

Format

CSV (Comma Separated Values)

Est. Size: 4.0 MB

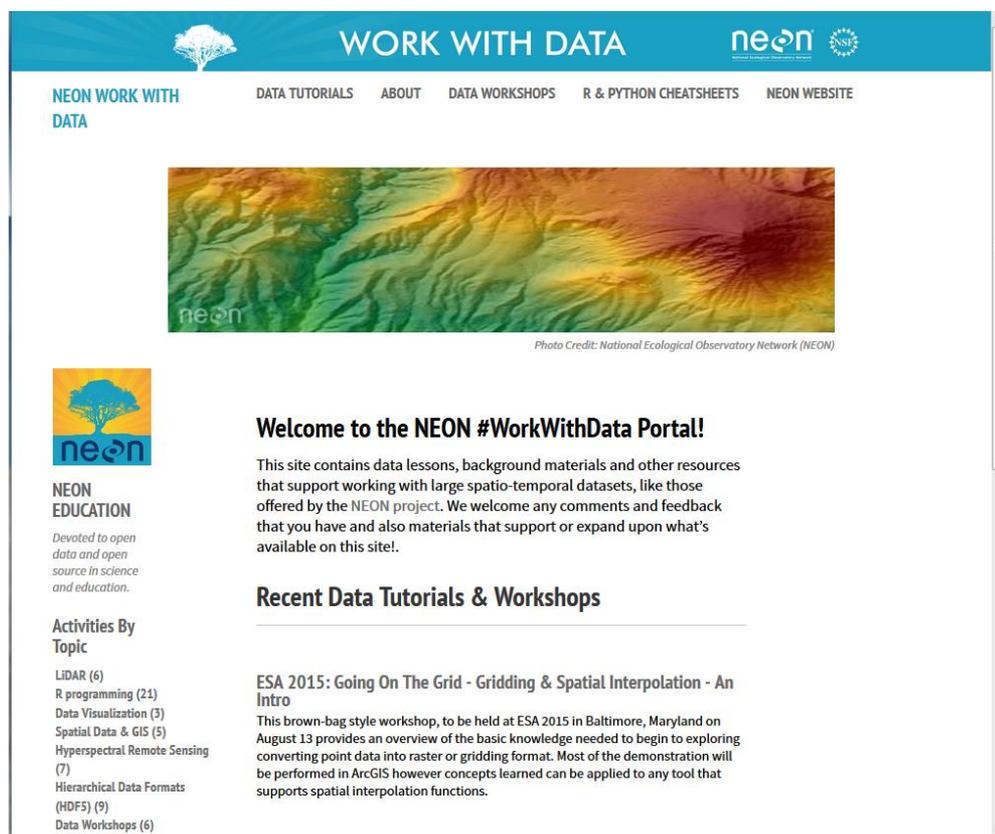
Store this query as a Citation Code [?]

[DOWNLOAD DATASET](#)

By choosing to download NEON data, you agree to NEON's Terms and Conditions.

NEON Data Portal 2.0

neondataskills.org



WORK WITH DATA 

NEON WORK WITH DATA | DATA TUTORIALS | ABOUT | DATA WORKSHOPS | R & PYTHON CHEATSHEETS | NEON WEBSITE

WELCOME TO THE NEON #WorkWithData Portal!

This site contains data lessons, background materials and other resources that support working with large spatio-temporal datasets, like those offered by the NEON project. We welcome any comments and feedback that you have and also materials that support or expand upon what's available on this site!

Recent Data Tutorials & Workshops

ESA 2015: Going On The Grid - Gridding & Spatial Interpolation - An Intro

This brown-bag style workshop, to be held at ESA 2015 in Baltimore, Maryland on August 13 provides an overview of the basic knowledge needed to begin to exploring converting point data into raster or gridding format. Most of the demonstration will be performed in ArcGIS however concepts learned can be applied to any tool that supports spatial interpolation functions.

Activities By Topic

- LIDAR (6)
- R programming (21)
- Data Visualization (3)
- Spatial Data & GIS (5)
- Hyperspectral Remote Sensing (7)
- Hierarchical Data Formats (HDF5) (9)
- Data Workshops (6)

- Developing online data tutorials, videos, and resources used to learn about and teach some of the fundamental concepts of working with spatio-temporal data

NEON Airborne Observation Platform (AOP)



- 2 aircraft with identical payloads to cover NEON sites
- 7-months/yr; 1,100 flight hrs flight season
- 3rd payload for PI-driven science, Rapid Response, Targets of Opportunity
 - Scientist able to propose additional flights for key research



NEON Airborne Observation Platform (AOP)



- Spectrometer with a very broad spectral range, including numerous channels (world class)
- LIDAR system that collects both discrete and waveform data
- High resolution camera, down to 8 cm pixels



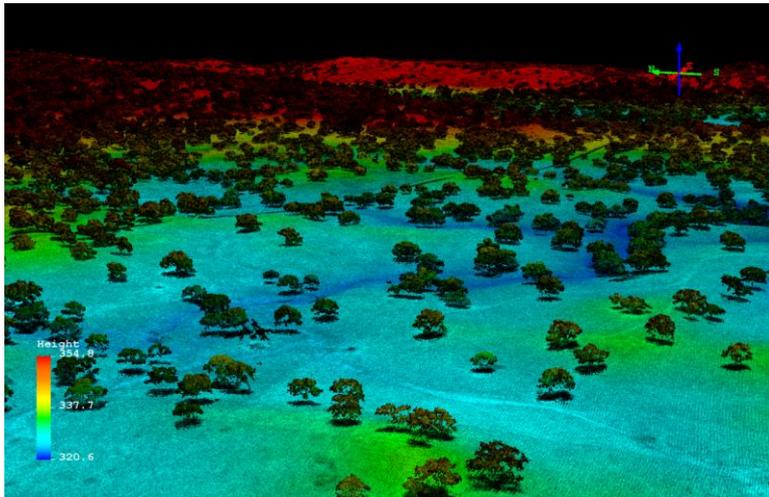
NEON Remote Sensing Payload



- Fly at least 95% tower air shed (area that impacts what the tower sees on its sensors)
- Scale out to the rest of the site guided by ecologically important attributes of the remaining area.
- Commit to flying at 90% greenness
- Collect ground samples while they are flying



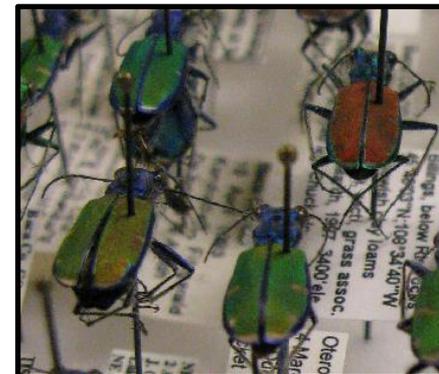
NEON AOP Data Products



- Spectral data products (vegetation and water indices)
- 3D colorized point clouds of what the structure looks like
- From that you get a digital terrain and surface models to create canopy height model
- High res camera to put the data in context

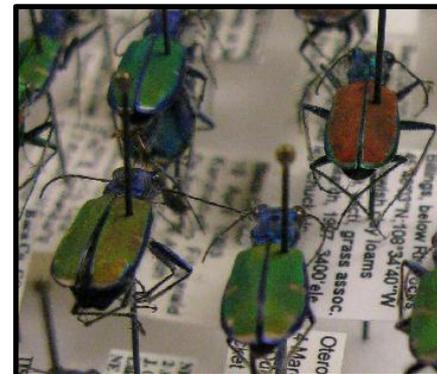
Ways to Work with NEON

- Assignable assets
 - AOP-3 & MDP (during operations)
 - Instrumentation to support field studies (basic work space, communication equipment for sensor network, data storage capability)
 - Basic sampling equipment for organismal sampling
- Bioarchive/Collections
 - Thousands of biological and physical samples hosted at external facilities
- Access to NEON sites



Ways to Work with NEON

- Access to NEON sites
 - NEON doesn't fund research, but we encourage external research that can leverage the data we produce
 - Field ops staff can't collect or process samples on behalf of investigators
 - Provide info about our infrastructure and project status
 - Help locate sampling areas
 - Researchers still need site host permission to proceed



Thank you!

