# National Ecological Observatory Network
A Data Source For Your Classroom

neon
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About NEON

NEON is a long-term, continental-scale science and education project, funded by the National Science Foundation, and designed to collect data on ecological function and change. As a 30 year project, NEON provides standardized, consistent open data across spatial and temporal scales, as well as, resources and infrastructure for the scientific and education communities.

NEON is designed to collect data at 81 field sites across the U.S. Terrestrial field sites and aquatic field sites are often collocated to support the study of linkages across atmospheric, terrestrial and aquatic systems.
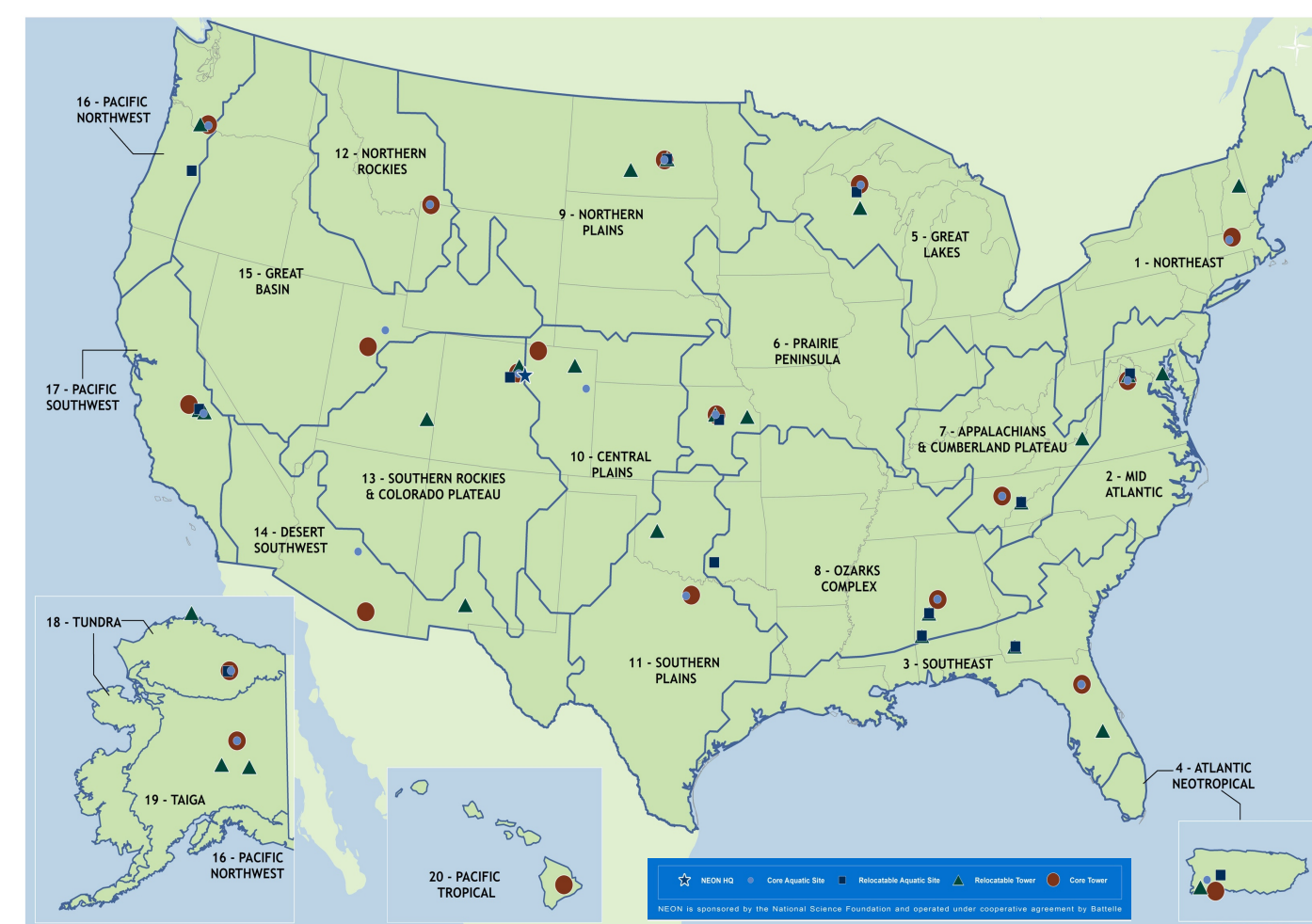
Free Standardized Data

The NEON data portal offers open access data that are collected using a variety of methods including automated instruments, observational sampling and airborne remote sensing. With over 180 data products, there are data for many topics faculty regularly teach. Standardized data formats across field sites and years allow for ease of use for students and faculty.
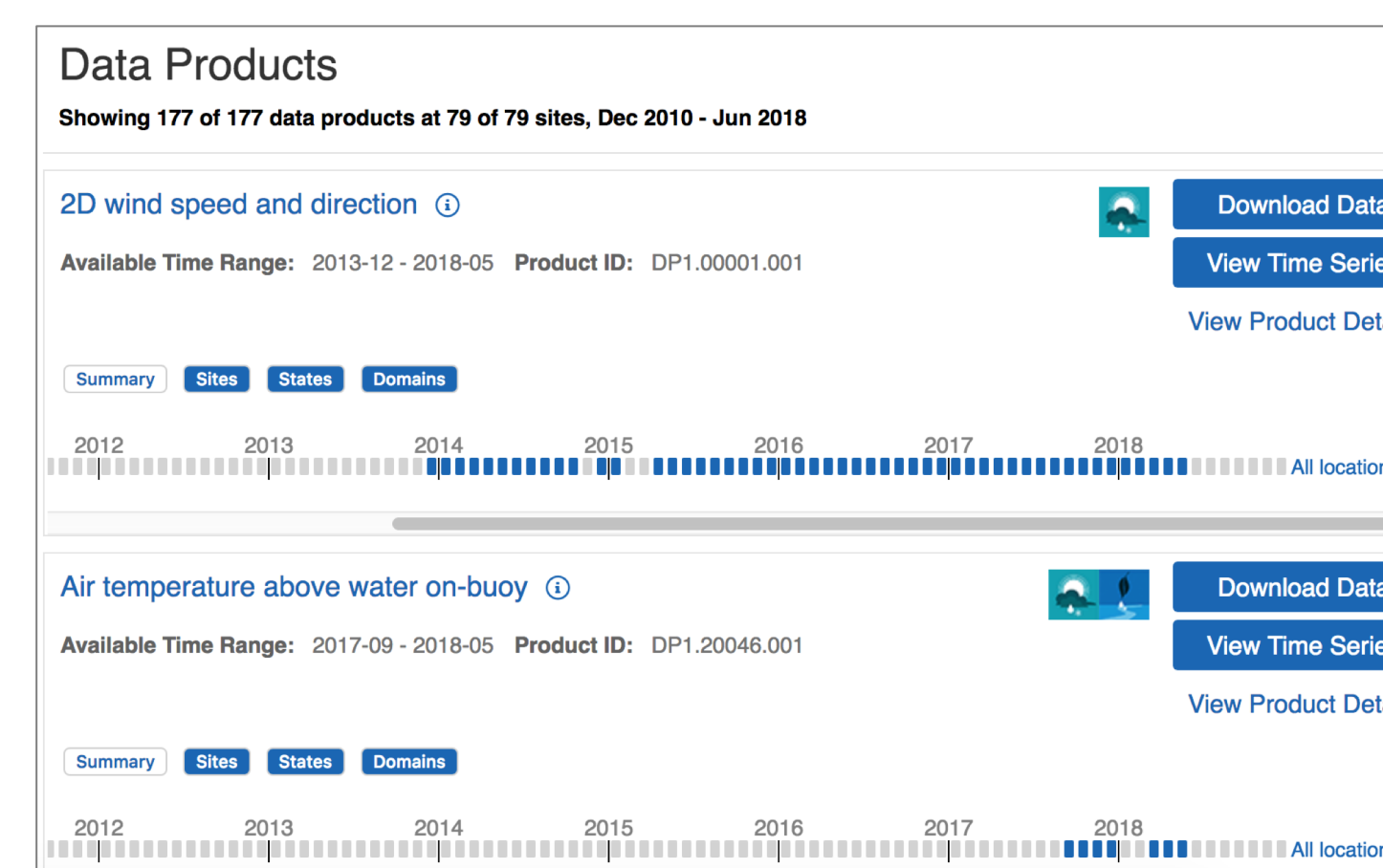

data.neonscience.org

- Search by data product type, keywords, location, or time range.
- Download data from the portal, via the NEON API, or using an R package (neonUtilities).
- Find standardized documentation and metadata for all NEON data.

Code to Work with NEON Data

Find useful code, written by scientists on the NEON project, in the NEONScience GitHub repositories. An expanding number of scripts and packages will help you work with NEON data – including combining data from multiple sites or months (the neonUtilities package), creating processed data products, and combining NEON data products with data from other organizations.

github.com/NEONScience
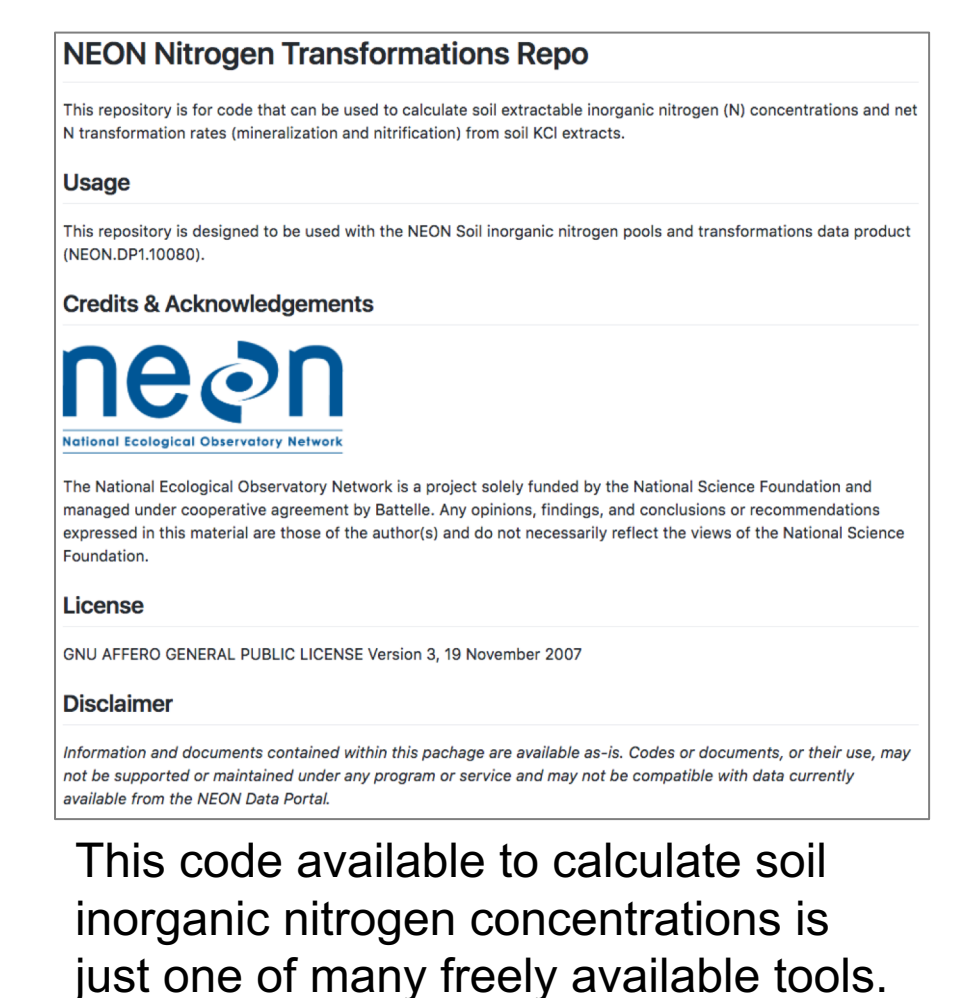
The contributory model of GitHub allows you to add to and improve the existing code to enhance your research.

This code available to calculate soil inorganic nitrogen concentrations is just one of many freely available tools.

Teaching Modules & Data Tutorials

Use NEON's free teaching modules and data tutorials in your classroom. These resources are designed to teach students a variety of ecological concepts and data science skills using real NEON data.

NEON teaching modules have been used to teach concepts from photosynthesis to ecosystem exchanges.


Gas Analyzer Measures CO$_2$ Uptake
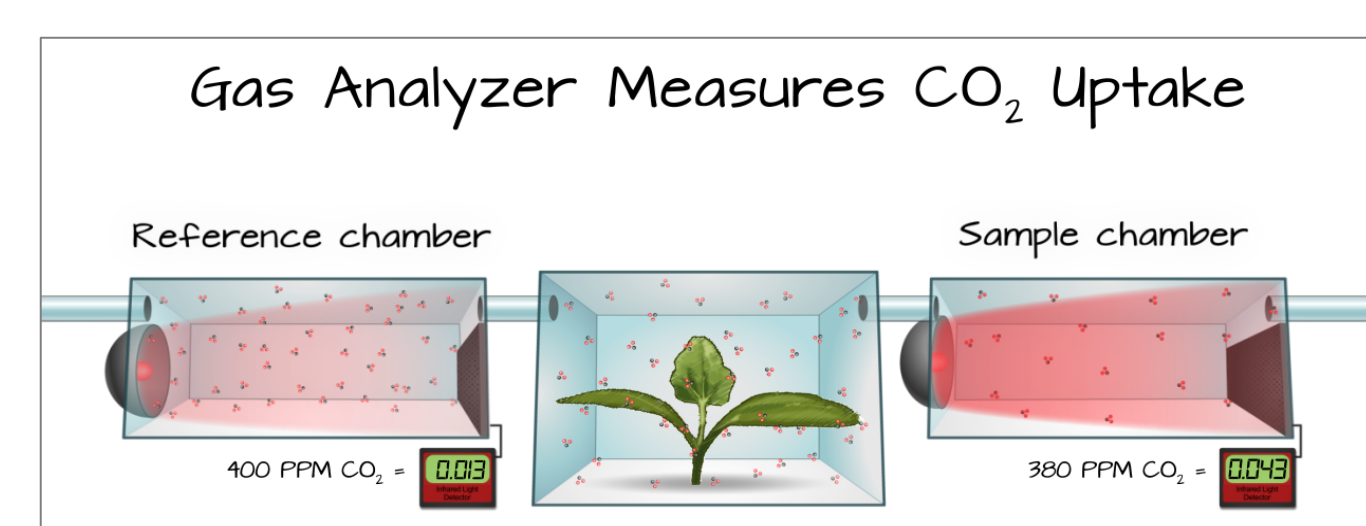
The self-paced data tutorials can be done independently online or easily adapted into guided activities. The structure of NEON data support learning and practicing reproducible research methods. neonscience.org/data-tutorials
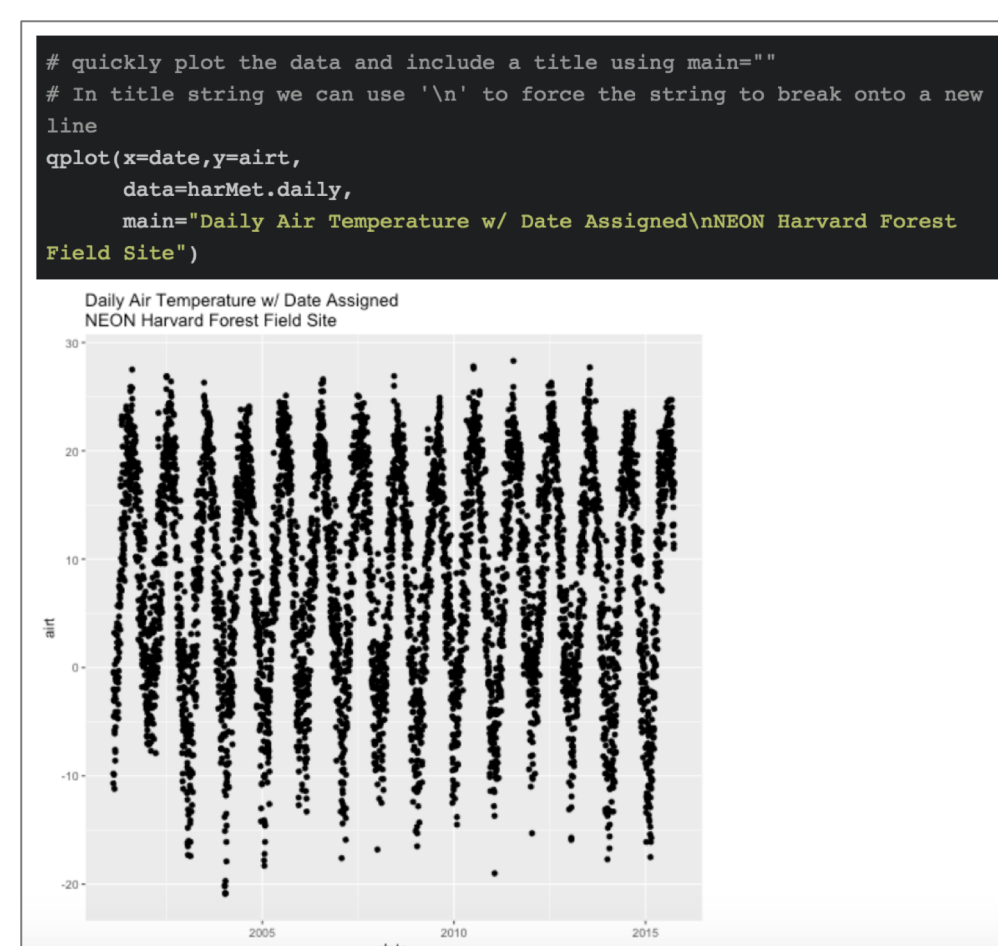
Resources for Your Classroom

Data Collection Protocols

All NEON data collection protocols are publically available. These are well documented, widely applicable protocols that students can easily follow to collect their own data for research projects. Access protocols through the Data Catalog at data.neonscience.org/data-product-catalog.
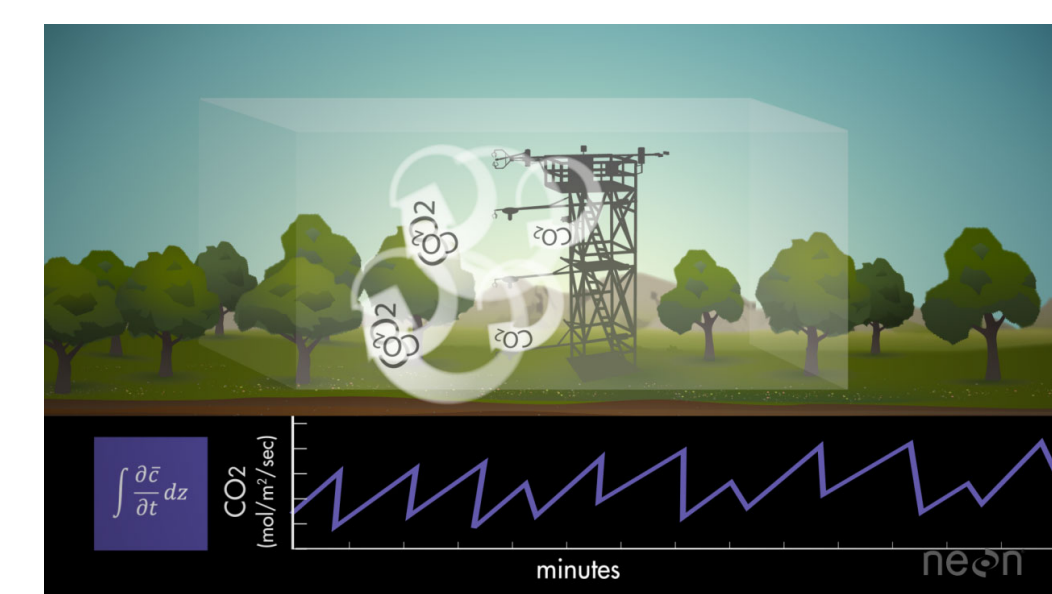
Science Videos

Short, engaging videos that teach key concepts and tell ecological stories using data. All are available at youtube.com/NEONScience.

Teaching Data Sets

Data sets from NEON data tutorials & teaching modules are available for download for faculty to create their own teaching materials around.

Faculty Mentoring Networks

In partnership with QUBES, the NEON Faculty Mentoring Networks (FMNs) are designed to support faculty's use of NEON data in their undergraduate classrooms and to facilitate the creation of Open Educational Resources using NEON data. Participants implement an existing teaching module or develop a new module using NEON data and then publish the resulting classroom materials. NEON Data Education Fellows from past FMNs have posted their classroom-ready materials here: neonscience.qubeshub.org/educational_resources

Access all of the NEON educational resources and more on NEONScience.org. New resources and events are frequently added to the site.

For more information or to suggest tutorial or teaching module topics, write neondataskills@BattelleEcology.org.