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BioScience®

A Forum for Integrating the Life Sciences
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Collaborating with NEON

Although NEON science designs, data collection, and data processing are highly standardized, there are a wide range of subsystems (e.g., soil array, groundwater wells) and sampling plots (e.g., tower plots, distributed plots) contributing to NEON's catalog of open source data products. Understanding the distribution and purpose of subsystems and plots is the first step toward effectively leveraging NEON data. Second is access to contextual site information to aid researchers in interpreting NEON data or planning future collaborations with the observatory. To assist in that understanding, we have compiled important information (see the supplemental material) about NEON sites, measurement subsystems, plot types, and the data originating from them.

As a platform for facilitating ecological research, NEON welcomes and encourages collaborations with the scientific community and provides a wide range of services and resources to aid in advancing ecological research. Guidelines for initiating collaborations are summarized in the supplemental information and present interested parties a concise introduction to working with NEON. It is important to remember that proposals including the planned use of NEON resources beyond regularly available data products should contain accompanying letters of support. Letters of support can be requested via the NEON website, and requests should be submitted no later than two weeks prior to a planned proposal submission.

NEON is open to additional sampling at its sites and to the placement of additional sensors, both on towers and elsewhere. Note that such collaborations require a greater level of synchronization with NEON because of coordinating logistics, such as power usage, tower access, sensor maintenance, and sampling locations. Initiating these more complex requests (this includes additional airborne remote sensing and the Mobile Deployment Platforms) can be conducted via the NEON Assignable Asset Program.

NEON also offers a wide range of archived samples for request by the scientific community. Archived samples range from the biological (e.g., algae, fish tissue, plant biomass) to the geological (e.g., soil). It is envisioned that throughout the lifetime of the observatory, NEON will archive more than 100,000 samples per year in the NEON Biorepository. The NEON Biorepository and archives are located at the Arizona State University Biodiversity Knowledge Integration Center, with the exception of the NEON Megapit Soil Archive and archived soils from the one-time NEON-NRCS distributed soil characterization (both still available to the public). Regardless of their collection date or storage locale, all samples will be discoverable via the online NEON Archival Samples Catalog (biorepo.neonscience.org).

To enhance the ability of users to process and analyze NEON data, NEON provides an ever-growing range of code-based resources, primarily provided as packages in the R and Python programming languages. Examples of these software packages include eddy4R, an R package for processing and performing advanced analyses on eddy covariance data; neonUtilities, which allows for NEON data download and manipulation in R and Python; and DissGas, which allows users to calculate greenhouse gas concentrations in water. More information on NEON's digital resources can be found at the NEON GitHub page (github.com/NEONScience).

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Supplemental material

Supplemental data are available at *BIOSCI* online.

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