

NATIONAL ECOLOGICAL OBSERVATORY NETWORK

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A continental-scale observation system for
quantifying ecological change through time



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The National Ecological Observatory Network

The National Ecological Observatory Network (NEON) is sponsored by the National Science Foundation and operated by Battelle. NEON provides open, continental-scale data that characterize and quantify complex, rapidly changing ecological processes. The Observatory collects and processes data for characterizing plants, animals, soil, nutrients, freshwater and atmosphere from field sites across the continental United States, Puerto Rico and Hawaii over a 30-year time frame.

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Battelle is honored to have been selected by the National Science Foundation to complete the construction, commissioning and initial operations for NEON. By applying our extensive program management experience and scientific expertise, we are completing the construction of 81 field sites and developing the infrastructure needed to gather data from the sites. In addition, Battelle will develop

the processes necessary to provide the ecological data to the scientific community. The program aligns well with our mission of translating scientific discovery and technology advances into societal benefits and intersects with our clients that have needs in ecology and environment. The Battelle-NEON partnership is a natural fit that will result in improved capabilities and shared opportunities for discovery.



Atmospheric measurements are collected at field sites to create data products that characterize atmospheric processes and change over time in the physical climate, as well as net ecosystem exchange.



Biogeochemistry data on key nutrients, such as carbon is collected as the nutrients move through water bodies, soil, microbes, plants, animals and the atmosphere.



Ecohydrology information such as precipitation patterns, soil and groundwater dynamics, interactions with vegetation, and processes such as nutrient cycling and food web dynamics in aquatic ecosystems is collected for use in comprehensive studies of water cycles throughout diverse ecosystems.



Land Cover and Land Processes information is collected through a range of in situ measurements, field observations and airborne remote sensing observations that support the study of land surface and characteristics, such as vegetation composition.



Organisms, Populations and Communities of organisms in aquatic and terrestrial systems are sampled to collect data used to characterize individual organism traits, population dynamics and the composition of communities to be used in the comprehensive study of how organisms interact with each other and their environment.

Data Themes

NEON collects data around five general themes:

Collection Method	Aquatic Site	Terrestrial Site
Airborne Remote Sensing Data about ecological conditions such as vegetation composition, structure and health; hydrology and drainage patterns; and land cover	🌿	🌿
Aquatic Observations Data related to stream and lake morphology and hydrologic and climatic conditions	🌿	
Aquatic Sensor Measurements Data ranging from water quality measurements to localized atmospheric measurements	🌿	
Flux Tower Measurements Data about physical and chemical climate conditions such as temperature, barometric pressure and visible light or Photosynthetically Active Radiation (PAR)		🌿
Soil Sensors and Measurements Data estimates of soil moisture, soil organic carbon, root growth and phenology, temperature and heat flux		🌿
Terrestrial Organismal Sampling Data concerning the abundance and diversity of species, infectious diseases, population dynamics, plant chemistry and biomass		🌿

- ### Aquatic Observations
- Water
 - Sediment
 - Microbes
 - Algae
 - Aquatic plants
 - Macroinvertebrates
 - Fish

- ### Terrestrial Observations
- Plants
 - Ground beetles
 - Soil microbes
 - Ticks
 - Small mammals
 - Soil
 - Birds