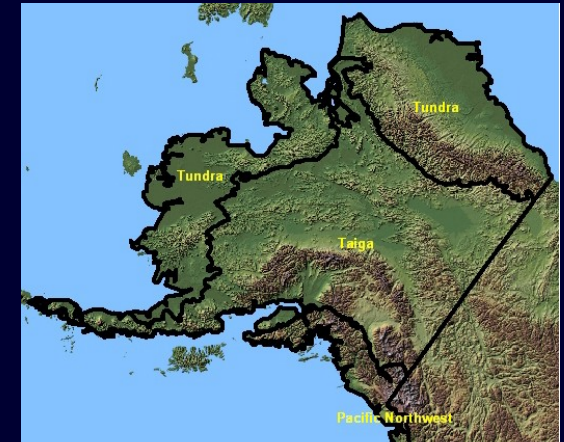


National Ecological Observatory Network



- 20 Core sites (FIU and FSU)
- 40 Relocatable sites (FIU and FSU)
 - 18 Mobile laboratories
 - 2 Airborne Observing Packages
 - 10 STREON experiments
- 4-5 Global change experiment sites

NEON Science Mission

Address the Grand Challenge Questions:

- How will terrestrial and aquatic ecosystems respond to changes in climate, land and water use, and invasive species across a range of spatial and temporal scales? And, are the responses gradual or abrupt?
- How do responses of biogeochemistry, biodiversity, and hydroecology interact with each other and with climate, land and water use, and invasives? And, how do these feedbacks vary with ecological context and spatial and temporal scale?

A very few of the CI Challenges

Meta data

- Defining common language for data documentation, search and discovery
- Supporting evolution in community standards for data interchange

Provenance

- Maintaining an accurate provenance for all data (audit trail)
- Capturing all the events affecting our data and products
- How, where, when data was created and transformed
- Creating a network of traceability from measurements through multiple levels of data products
- Repeatability and reproducibility of scientific results

Preserve integrity of over 600 billion discrete data points annually

- 1,000+ sensors per domain actively monitored, reported and recorded
- 150+ Terabytes/year acquired and transmitted by FIU representing over 600 BILLION data points
- Temporal span is considerable (30 years) requiring a flexible and extensible cyber infrastructure

Herd Cats

CI Architecture

Requirements Based Design

Define the Science Requirement—specify the what

Define the Operational Requirements

- How will the 'system operate?'
- What are the constraints?

Create the System Requirements

- What must the 'system' do to meet science and operational requirements?

Generate the Architecture

- How will the system meet these requirements?
- Provide the definitions of the system components
- Define the interfaces and interactions
- Define the process and data flows

Develop the Design

- The detailed descriptions of the systems
- The inputs, processes, outputs
- The interfaces and interactions

