3.11 Intro to USA-NPN Culmination Activity

Note: I fully realize that phenology data may not be relevant to all of you.

Two suggestions:

1. Be creative, example: Say you work with ground water hydrology, how could leaves on trees perhaps be relevant to groundwater recharge rate? Might there be a lag? Etc etc.
2. I will fully accept alternate citizen-science-based datasets and project proposals based on those. The challenge of taking this option is that we have not covered that data.

Write up a 1-page **derived data product or research pipeline proposal** summary of a project that you might want to explore using USA-NPN data. Include the types of USA-NPN (and other data) that you will need to implement this project. Save this summary as you will be refining and adding to your ideas over the course of the semester.

Sugestions:

1. Tables or bullet lists of **specific** data products
2. An **overarching high-quality figure** to show how these data align
3. One paragaph summarizing *how* this data or analysis is useful to **you and/or the infrastructure**.

Answer:

Possible data use: The use of phenology data to monitor vegetation stress.

Tree stress can be evident in the forest canopy phenology. While deciduous trees dieback in the Fall, it can be evidence of tree stress if a forest canopy experiences dieback in the Summer. This stress can be a sign of moisture stress or other elements. I hope to use the USA-NPN data to monitor forest canopy with the integration of environmental dataset to better understand the behavioral characteristics of forests under stress, especially drought. The goal is to examine how shifts in vegetation timing affect seasonal water availability and drought sensitivity at the landscape scale.

This project is particularly relevant in semi-arid and drought-prone regions where earlier leaf-out or prolonged growing seasons may increase evapotranspiration demands and reduce soil moisture and groundwater recharge.

Data Requirements

USA-NPN Data Products

- Phenophase Status and Intensity Data
    - Leaf-out
    - Full canopy development
- Site-level metadata (species, location, elevation)

Remote Sensing & Environmental Data

- Landsat Thermal band to get surface temperature
- Vegetation moisture index for drought stress (NDWI/NDMI)

Prelim:

It was nice to see how the visualization tool for USA-NPN works. It was super easy to extract more than a decade of analysis. Showing the effect of summer maximum temperature on Quercus spp. onset of leaves. It would have been to select the condition of the leaves. But great tool overall.