APIS: Advanced Phenological Information System

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Background

- There are currently several fairly advanced phenology-related datasets.
- But integration is currently lacking.
- So the APIS project is developing tools for more synthesis.
“Real-time phenological monitoring can contribute to improved management of ecological systems in the face of increasing climate variability and change.”
Today’s tutorial
Use case 1

► using Nature's Notebook to record blooming dates
► using the USA NPN's visualization tool to associated field data with gridded products
► using r code to allow machine services to the USA NPN data and provide more customization and automation to the user's analysis
USA-NPN Mission

Collect • Store • Share
Phenology data and information

Advance Science
Inform Decisions
Communicate & Connect
> 13,000 active observers
> 11,000 active sites
~ 15 million records
> 60 publications
68 data products
Start at www.usanpn.org
Select “Visualization Tool” from the dropdown menu
Need to hit + to get to further filters below.
Visualizations

Scatter Plots
This visualization plots selected geographic or seasonal climatic variables against estimated onset dates at a site or region for individuals or sites for up to three species, phenophases or years.

Calendars
This visualization illustrates the daily timing of phenological activity for selected species and phenophases. Horizontal bars represent the annual patterns at a site or region for up to two years.

Activity Curves
This visualization plots annual patterns of the timing and magnitude of phenological activity, based on proportion of "yes" records, animal abundances per hour and other metrics. Data are summarized at a weekly, biweekly or monthly scale for one or more sites, for up to two years, phenophases or years.

Maps
This visualization maps ground-based observations overlaid with USA-Tree phenology maps, including Accumulated Growing Degree Days and Spring Index models.
This layer is an annual representation of the days of year that the requirements for the first leaf Spring Index were met for Red Rothomagensis lillac, available from 1981 to last year, calculated using PRISM Tmin and Tmax data. The Extended Spring Indices are models that predict the “start of spring” (timing of leaf out or bloom) at a particular location. The map shows the number of days from January 1 to September 30 during which the conditions for leaf out or bloom were met.

Category:
Spring Indices, Historical Annual

Layer:
First Leaf - Lilac

Year:
2018

Opacity:
0 - 75 - 100

Range:
Jan 1 - Sep 1
Need to hit + to get to further filters below

Then, select “Plot Data”
Easily integrate NPN ground-based observation records and phenometrics into analyses using robust, and fully customizable search parameters.

- Stream incoming data results directly to file for easier management or large data sets.

- Direct integration between raster data products, including remote sensing variables, and NPN ground-based observation data
Use case 2

- Brief overview of the Phenocam Network
- Tutorial on the PhenoSynth r-shiny app to view and analyze coincident phenocam and MODIS time series data.
The Phenocam Network

A network for over 400 near-surface remote sensing cameras acquiring hyper-temporal resolution
Go to phenosynth demo...

http://phenocam.nau.edu/phenosynth/
Kamuela (Parker Ranch), Hawaii; tropical grassland.

Kellogg Biological Station, Michigan; Corn.
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