

## Conference Abstract

# The USA National Phenology Network: A Framework for Delivery of Phenology Data Products on Multiple Spatiotemporal Scales

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## Abstract

The USA National Phenology Network (USA-NPN; [www.usanpn.org](http://www.usanpn.org)) serves science and society by promoting a broad understanding of plant and animal phenology and the relationships among phenological patterns, climate, and environmental change. Data collected by citizen and professional scientists through Nature's Notebook – a national-scale, multi-taxa phenology observation program – serve USA-NPN's strategic goals of advancing science and informing decisions. The National Phenology Database currently houses over 10 million phenology observation records; these data are being used in a rapidly growing number of applications for science, conservation and resource management. In addition, the USA-NPN produces and freely delivers maps of both historic and contemporary, short-term forecasts of accumulated growing degree days and spring onset dates (based on the Extended Spring Indices) at fine spatial scale for the conterminous United States. These data products have utility for a wide range of natural resource planning and management applications, including scheduling invasive species and pest detection and control activities, determining planting dates, anticipating allergy outbreaks and planning agricultural harvest dates.

Accumulated growing degree day (AGDD) maps are produced because accumulated temperature is a strong driver of phenological transitions in plants and animals, including

leaf-out, flowering, fruit ripening and migration. The Extended Spring Indices (SI-x) are based on predictive climate models for lilac and honeysuckle leaf and bloom which have been widely used to summarize the changes in the timing of spring onset, and have been chosen as national indicators of climate change impacts by the US Global Change Research Program and the Environmental Protection Agency.

Web services are available for both in-situ and geospatial data, and the USA-NPN is currently involved in multiple efforts to support the integration of phenology datasets. In this presentation, we will present an overview of the current status of USA-NPN phenology data products, data delivery tools, and explore the methods and possibilities of integrating USA-NPN data with outside datasets.

## **Keywords**

phenology in-situ geospatial USA-NPN "National Phenology Network" "web services" "AGDD" "Spring Index" "citizen science"

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