The USA National Phenology Network: Overview and Recent Progress

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Patterns of phenology for plants and animals control ecosystem processes, determine land surface properties, control biosphere-atmosphere interactions, and affect food production, health, conservation, and recreation. The USA National Phenology Network (USA-NPN; www.usanpn.org) is an emerging and exciting partnership between federal agencies, the academic community, and the general public to establish a national science and monitoring initiative focused on phenology as a tool to understand how plants, animals and landscapes respond to climate variation, and as a tool to facilitate human adaptation to ongoing and potential future climate change. In its second year of operation, USA-NPN produced many new phenology products and venues for phenology research and citizen involvement. A new web-page contains an advanced on-line user interface to facilitate entry of contemporary data into the National Phenology Database. The new plant phenology monitoring program provides standardized methods and monitoring protocols for 215 local, regional, and nationally distributed plant species. Monitoring methods have been modified to facilitate collection of sampling intensity and absence data for both plants and animals; animal monitoring protocols will be added in March 2010. Coordinated development of regional networks will facilitate focused communication and interaction around regional phenology issues. Future directions include increased integration with national and international formal and informal science networks; enhanced consistency and availability of remote sensing of phenology terminology, methods, products and services; tools for discovery, description, ingestion, curation and distribution of historic phenology datasets; and, improvement of tools for data entry, download and visualization.