Geophysical Research Abstracts
Vol. 12, EGU2010-14866, 2010
EGU General Assembly 2010

A new approach to generating research-quality phenology data: The USA National Phenology Monitoring System

Ellen Denny (1), Abraham Miller-Rushing (1,2), Brian Haggerty (3), Bruce Wilson (4), Jake Weltzin (1,5)

(1) USA National Phenology Network National Coordinating Office, Arizona, USA, (2) The Wildlife Society, Maryland, USA, (3) University of California, Santa Barbara, California, USA, (4) Oak Ridge National Laboratory, Tennessee, USA, (5) United States Geological Survey, Virginia, USA

The USA National Phenology Network (www.usanpn.org) has recently initiated a national effort to encourage people at different levels of expertise—from backyard naturalists to professional scientists—to observe phenological events and contribute to a national database that will be used to greatly improve our understanding of spatio-temporal variation in phenology and associated phenological responses to climate change. Traditional phenological observation protocols identify specific single dates at which individual phenological events are observed, but the scientific usefulness of long-term phenological observations can be improved with a more carefully structured protocol. At the USA-NPN we have developed a new approach that directs observers to record each day that they observe an individual plant, and to assess and report the state of specific life stages (or phenophases) as occurring or not occurring on that plant for each observation date. Evaluation is phrased in terms of simple, easy-to-understand, questions (e.g. "Do you see open flowers?"), which makes it very appropriate for a broad audience. From this method, a rich dataset of phenological metrics can be extracted, including the duration of a phenophase (e.g. open flowers), the beginning and end points of a phenophase (e.g. traditional phenological events such as first flower and last flower), multiple distinct occurrences of phenophases within a single growing season (e.g multiple flowering events, common in drought-prone regions), as well as quantification of sampling frequency and observational uncertainties. The system also includes a mechanism for translation of phenophase start and end points into standard traditional phenological events to facilitate comparison of contemporary data collected with this new "phenophase status" monitoring approach to historical datasets collected with the "phenological event" monitoring approach. These features greatly enhance the utility of the resulting data for statistical analyses addressing questions such as how phenological events vary in time and space, and in response to global change.