



PEP725: real time monitoring of phenological events in Austria, Germany, Sweden and Switzerland

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The main objective of PEP725 (Pan European Phenological database; <http://www.pep725.eu/>) is to promote and facilitate phenological research by delivering a pan European phenological database with an open, unrestricted data access for science, research and education. The first datasets in PEP725 date back to 1868; however, there are only a few observations available until 1950. From 1951 onwards, the phenological networks all over Europe developed rapidly. So far more than 11 923 489 of observations of 121 different plants are now available in the PEP725 database. Approximately 40 % of all data are flowering records, 10 % are fruit ripeness observations and also 10 % are leaf unfolding observations.

The PEP725 database is updated annually. But since recently Deutscher Wetterdienst and MeteoSwiss offer their observers to upload their observations via web in real time mode, ZAMG introduced this web-based feature already in 2007 (phenowatch.at) and the observers of SWE-NPN (the Swedish National Phenology Network) can submit their observations through the web application naturenskalender.se since the start in 2008. Since spring 2016 one can find a real time animated monitoring tool showing how the “green wave” in spring is moving from 46° northern latitude up to the Arctic Circle and the “brown wave” in autumn in the opposite direction. In 2015 the “green wave” speeds up from app. 4.4 days/degree latitude for hazel flowering to 2.9 days/ degree latitude for willow flowering and 2.25 days/degree latitude for birch leaf unfolding.

There are other European countries as for instance Italy, The Netherlands, UK that have been doing visualizations of ground phenology in real time for some years, but these efforts always end at the national borders.

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