



COST725 establishing a European phenological database for climatological applications: overview and first results

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In Europe, the most vital and broadest tradition of phenological monitoring is found and enormous phenological observations especially in plants exist. But up to now the data are widespread at many different organisations with different data policies, e.g. at national meteorological services, at the IPGs and others. Observation-rules are only comparable to some extent, and differing length of time-series make the work with the data on a European wide level quite difficult. The COST Action 725 “Establishing a European Phenological Data Platform for Climatological Applications” aims to scope these problems. The basic objective is to build a reference data set of selected plant species and phases which have been observed in European countries over a common reference period, using the BBCH code. The second goal is to assess and harmonise the different observations rules and propose a common reference manual for phenological observations including rules for quality checks. Further on a working group is developing applications methods for analysis of phenological data, especially for this above mentioned reference data set, including mapping, phenological calendars, trend analyses, and relationships between climate data, satellite images and phenological observations. So far 9803 stations, where 306 different plants with 92 different phases observed are in the meta data base, all phases were coded according to the BBCH. Historical overviews and the present status of the national phenology-networks are available from almost all European countries.

The present status of the common database comprises 7687248 data in total from 15 countries plus IPG from 7285 observation sites. QC procedures based on a question-

naire have been developed and were applied to the data set. The COST725 meta analyses European phenological response to climate change matches the warming pattern, Global Change Biology 12, 1969-1976 the first really European wide analyses using 125 000 observational series of 542 plant and 19 animal species showed that 78% of all leafing, flowering and fruit ripening advanced and only 3% were significantly delayed in 1971 to 2000. while there was no clear signal for a later beginning of autumn characterized by leaf colouring and leaf fall. Temperature and phenological trends are significantly correlated thus the species' phenology is responsive to temperature of the preceding month: mean advance of spring/summer 2.5 days per °C