

## PEP725

[www.pep725.eu](http://www.pep725.eu)

End of Year Report 2014

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Summary: Annual report of the activities performed in the frame of the Climate Program/operational services in 2014. The main objectives - update of the database, maintenance of the webpage and support to members were achieved. The number of users and downloads increased considerably, besides the annual upload Montenegro submitted data for the first time and historical data from DWD were implemented. PEP725 was presented at international and national conferences. At the symposium “New developments in phenology” prominent phenology scientists as Annette Menzel, Elizabeth Wolkovich and Stephen Thackeray presented their new research.

### 1. Headlines

In 2014 we registered 96 new users that means that the number of users doubled since the end of 2011, the starting year. The most wanted plant were *Betula pendula* followed by *Quercus robur*, *Fagus sylvatica*, *Picea abies* and *Prunus avium*. Montenegro (member of EUMETNET) joined PEP725 with 5 stations and amazing 12 718 records from 1951 – 2013. As additional data provider for Spain (together with the national wide operating AEMet) meteo.cat showed an impressive start with almost 1000 records for the years 2013/2014. DWD provided more than 2.5 million historical records from 1951 – 2010. PEP725 can now provide 11 745 069 phenological observations on its database! As pilot project Saxony schools started to deliver actual data every week during the vegetation period 2014.

On 28<sup>th</sup> April 2014 the MCM of PEP725 took place (<http://www.pep725.eu/project/meet2014.php>), followed by the Symposium on New Developments in phenology. Annette Menzel (TU Munich) presented “Phenology at the crossroads?” Elizabeth Wolkovich (Harvard University Boston) gave a talk on “Historical phenological records and applications to global change ecology” and Stephen Thackeray (Centre for Ecology and Hydrology, Lancaster) “Shifting seasons, climate change and ecosystem consequences”.

## 2. Status of programmatic targets

### WP 1 database

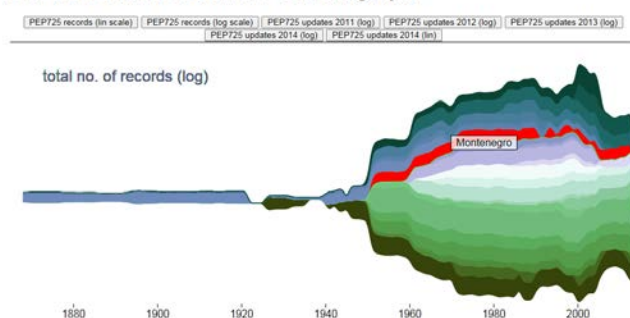
Datasets of 2013 were delivered from Austria, Bosnia Herzegovina, Croatia, Czech Republic, Finland, Germany, Ireland, Italy, Montenegrin Republic, Slovakia, Slovenia, Spain and Switzerland. The data underwent the newly developed checking routines and has been included into the public available dataset. Once a week almost real time phenological records from Saxony/Germany were implemented into the database. The data comes from a project of DWD/regional office in Leipzig and besides that DWD submitted historical data from 1951 to 2010. As some partners lack adequate IT and personal resources the team of WP database had to spend much time to convert the submitted data into a suitable format for the database.

Due to the opening of the database to all kind of plants and development stages the BBCH code had to be revised and adopted.

In total the database comprises more than 11 000 000 records from 78 different plants.

Statistic of the PEP725 Database (last update on 2014-12-19)			
number of observations	11745854		
first record	1868	last record	2014
number of plants	78	number of plants (including cultivars)	134
number of observed growing stages	41		

### PEP725 Database content - Streamgraph

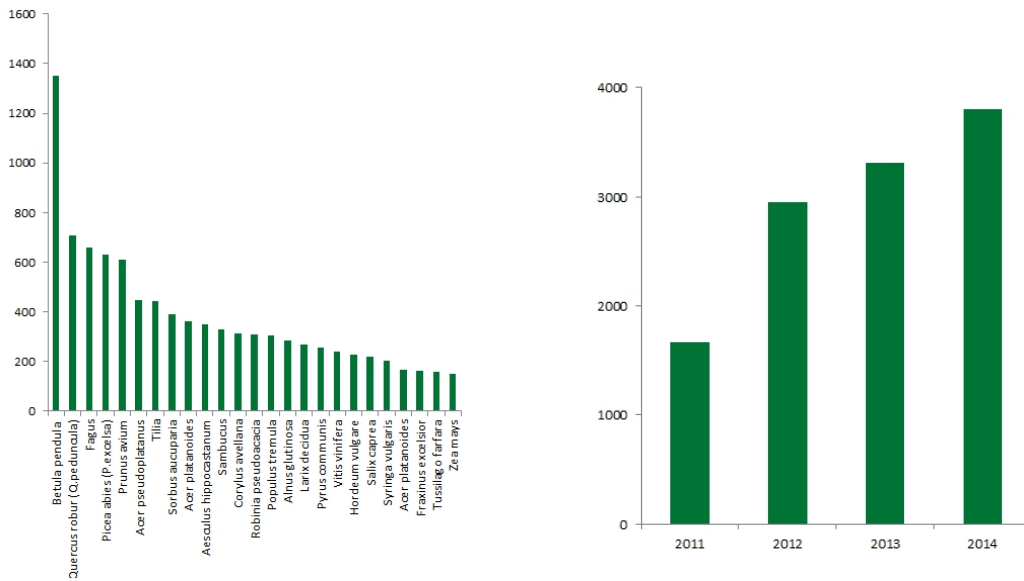


The STREAMGRAPH on the left is showing the records of the different countries in PEP725 DB starting in the 19<sup>th</sup> century. The recent addition of Montenegro is highlighted in red.

*A steamgraph is a type of stacked area graph which is displaced around a central axis, resulting in a flowing, organic shape. It's a qualitative approach to look at records and updates and an excellent way to show the annual contribution of each national network.*

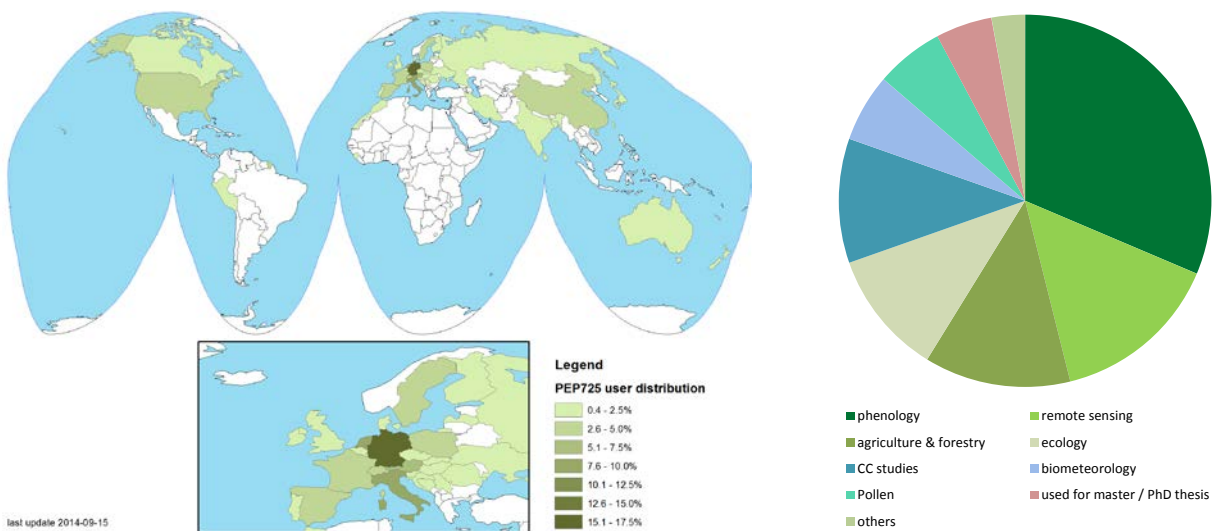
### WP2 webpage

The webpage and, especially the Facebook account (<https://www.facebook.com/groups/pep725>) developed to an information exchange platform. The number of users and of data downloads showed an amazing development since the start of PEP725. In 2014 PEP725 the downloads summed up to almost 4 000, the most wanted plants being *Betula pendula* followed by *Quercus robur*, *Fagus sylvatica*, *Picea abies* and *Prunus avium*.



Total number of downloads per plant (left panel) and total number of data downloads per year (right panel)

The users of the data come mainly from the northern hemisphere and are mostly interested in phenology, remote sensing, agriculture & forestry, ecology and climate change studies (see figure below). Besides the download from the webpage the WP webpage leader also dealt with special data demands that could not be met by the data download tool of [www.pep725.eu](http://www.pep725.eu). In 2014 the webpage recorded about 170 000 visits.



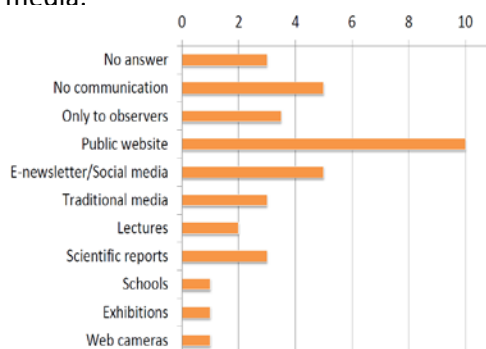
Origin of data users (left panel) and field of interest of data users (right panel)

### WP3 management and PR

In two team meetings in January and July 2014 the work program was fixed and monitored. The management meeting of the PEP725 members and partners took place on 28<sup>th</sup> April 2014 followed by a symposium on New Developments in phenology and a workshop. In the workshop the outcome of a questionnaire on nature's calendar/standardized analyses/data cleaning methods that was developed by the PEP725 partners and members SWE-NPN, Uni Bern and ZAMG was presented and discussed.

The questionnaire was sent to representatives for national phenology networks or similar and to researchers with interest and potential knowledge about national activities. The questions in the questionnaire were: 1. how do you communicate “nature’s calendar” in your country? 2. Are governmental indicators used? 3. Does it make sense to use/provide standardized analyses for phenological applications? 4. Which criteria are you using for data cleaning/correction? Answers to the questionnaire came from: Austria, Brazil, Canada, Catalonia, Croatia, Czech Republic, Finland, Germany, Ireland, Italy, Latvia, Macedonia, New Zealand, South Africa, Spain, Sweden, Switzerland, Slovakia, The Netherlands, UK, and USA.

The communication of “nature’s calendar” is in most cases via public website, E-newsletter and social media.



Most of the countries don't have governmental indicators; almost all agree that it would make sense to use/provide standardized analyses for phenological applications. The answers to question 4 spanned “no action” to model based checks. Question 3 get high agreement that standardized methods for analyzing would be appreciated but do need discussion.

PEP725 was presented at “Lange Nacht der Forschung” a public science day on 4 April 2014 at ZAMG in Vienna and Salzburg, at EGU annual meeting 28.04. – 02.05.2014 in Vienna, at EMS/ECAC in Prague at and at ISB in Cleveland/Ohio, both in October 2014. The PEP725 project manager was co/convener of the phenology sessions of the European conferences.

### 3. Outlook 2015

In September the PEP725 team submitted an application at the Austrian Ministry for Science, Research and Economy for financing PEP725 in 2015. The evaluation is not finished yet but the chances for a prolongation are quite high.

The working program for 2015 was discussed at a team meeting in January. Due to new plants/phenological events an update of the database structure is again necessary. The work for an online monitoring feature on the PEP725 webpage will be continued.

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