EMS Annual Meeting Abstracts
Vol. 8, EMS2011-805, 2011
11th EMS / 10th ECAM

Forecasting the weather
- ensemble techniques
in probabilistic weather prediction

Phenology in Latvia: history and current status, phenological changes

G. Kalvāne, M. Tīrums, A. Briede, and M. Bitāne
University of Latvia, Faculty of Geography and Earth Sciences, Latvia (gunta.kalvane@lu.lv)

The first phenological observations in Latvia were performed already at the middle of the 19th century (in 1822), but the first phenological network was established and systematic observations initiated in 1926 and it is still operational. Phenological volunteers observe onset of phenophases for plants as well as arrival of birds mostly in spring.
The aim of this study is to outline historical aspects of phenology in Latvia, describing phenological trends of plants and birds encompassing the whole period of systematic observations from 1926 to 2010. The factors influencing phenological phases are evaluated in the context of climate change.
Correlation analysis, linear regression and non-parametric Mann - Kendall trend tests were used to establish the relationship between phenological phases and meteorological factors (temperature, precipitation, soil temperature, snow cover) and influence of the atmospheric circulation pattern.
The results indicate a statistically significant trend toward earlier onset of the spring and summer phyto-phenological phases. The most recent changes were observed for early spring phases. The most significant shift has happened in the last 15 years. Trend for the autumn phases is neutral (average data), but leaf yellowing values are contrasting for different observation points. The highest changes occurred in the spring arrival of common crane Grus grus, grey heron Ardea cinerea and whooper swan Cygnus cygnus.
The observed phyto-phenological trends correlate well with the air and soil temperatures for previous months. The beginning of leaf onset correlates negatively with AO index in January and February, but autumn phase – with Polar/ Eurasia pattern in August.