



From South to North: flowering phenological responses at different geographical latitudes in 12 European countries

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Phenological sensitivity of plants strongly depends on regional climate variability, moreover it is also influenced by large-scale atmospheric circulation patterns. Plants in different environmental conditions (determined by geographical latitude and longitude, altitude, continentality) may show diverse responses to climate change.

The first results of an international cooperation aiming at the analysis of plant phenological data along a latitudinal gradient over 12 European countries (Macedonia, Bosnia and Herzegovina, Montenegro, Slovenia, Croatia, Hungary, Slovakia, Poland, Lithuania, Latvia, Estonia and Finland) are presented. The spatio-temporal changes in the flowering onset dates of common lilac (*Syringa vulgaris* L.) during the period of 1970-2000 were analysed. To characterise the environmental conditions driving the phenological responses, climatic variables (atmospheric pressure, air temperature, precipitation) obtained from a gridded observational dataset (E-OBS 9.0) and time series of the North Atlantic Oscillation (NAO) index were used.

Preliminary results for this particular species found a gradual advance of mean flowering onsets along latitudes from 40°N to 65°N, at the rate of -0.12 to -0.32 day/year. Significant zonal differences were found in these rates, which can be explained by the sensitivity of flowering to climatic conditions while moving from Mediterranean to boreal regions of Europe. Thus our results were coherent with most observations in the literature, that higher latitudes can exhibit more pronounced responses, particularly in case of spring phenological events.