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Past and future changes in trees spring phenology in Lithuania under changing climate conditions

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The analysis of long-term data of spring phenology for different deciduous trees species showed that leaf unfolding for all investigated species is the most sensitive to temperatures in March and April illustrating that forcing temperature is the main driver of spring phenology. The most notable -12.7 days over the investigated 58 year period, advancement in leaf unfolding was detected for early season species birch. The least advancement in leaf unfolding - 9.4 days over was detected for maple, 10.3 and 10.4 days advancement for lime and oak respectively. The projection of climatic parameters for Central Lithuania on the basis of three different Global Circulation Models has shown that under the pesimistic climate change scenario - RCP 2.6, the mean temperature tends to increase by 1.28oC and under the pesimistic scenario – RCP 8.5, by 5.03oC until the end of the 21st century. Recently, different statistical models are used to analyze and to project the changes in spring phenology. Our study has shown that when the data of long-term phenological observations are available, multiple regression models are suitable for the projection of the advancement of leaf unfolding under the changing climate. According to the RCP 8.5 scenario, the projected advancement in leaf unfolding for early-season species birch consists of almost 15 days as an average of all three used GSMs. Markedly less response to the projected far future (2071-2100) climate change is foreseen for other investigated climax species; 9 days for lime, 10 days for oak and 11 days for maple.

Biography

Irma Sveikauskaite is a PhD student of Environmental Sciences since 2013. Her field of interest is "Past and Future Changes in Phenology under Changing Climate Conditions". Currently, she is pursuing her internship at Acadia National Park (Maine, USA) working on some experimental project with Dr. Abraham Miller-Rushing. She investigates chilling importance for the different trees species spring phenology and try to incorporate physiological data to the models.

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