



Mapping future phenology of birch in Ireland

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Phenological responses to climate change may have large implications for future species distributions and ecosystem processes. Process-based phenological models are important tools that may help to estimate these impacts. Mapping model outputs over wide regions is important to fully appreciate the spatio-temporal variability of climate change impacts on phenology.

The aim of this work was to spatially enable a process-based model for *Betula pubescens* (birch) budburst and produce budburst phenological projections over Ireland using climate change scenarios.

The phenological model DORMPHOT (Caffarra et al., 2010), developed for birch, was linked to the Irish spatial grid, and applied to different ENSEMBLE scenarios up to 2100. Downscaling of climate data was performed in order to model local variability in modelled phenology. Results for the next decades show a noticeable advance in budburst timing all over Ireland. However, this effect will not be homogeneous: areas currently showing an early onset of growth will show a smaller advance than “late” areas. This difference is possibly due to the stabilizing effect of photoperiod, one of the driving variables of the DORMPHOT model. In conclusion, these projections suggest that climate change will affect late budburst areas more than early budburst areas. This system will be further developed to map different phenological stages and include the simulation of useful information such as the timing of allergenic phenophases.