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# Ecophysiological modelling of tree primary production and carbon allocation in a Canadian boreal region

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## Abstract

Ecophysiological models are important tools to improve our understanding of the links between forests and their environment because they allow to investigate the mechanistic rules behind these relationships. Within the European funded project MAIDEN-SPRUCE, we use the process-based ecophysiological model MAIDENiso to study the factors influencing the growth and underlying biogeochemical processes of black spruce (*Picea mariana* (Mill.) B.S.P.), the most representative species of the North American boreal biome. As few other models, MAIDENiso simultaneously simulates tree biomass accumulation and cellulose isotope ratios. The model is being calibrated on a recently developed network of tree-ring data from the taiga of Quebec. During this talk, we will discuss the model's performance in simulating the climate imprint on the black spruce gross primary production and carbon allocation during the different seasons.

**Keywords:** black spruce, carbon allocation, ecophysiological model, gross primary production, process based, taiga

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