Scaling Forest Management Practices in Earth System Models: Case Study of Southeast and Pacific Northwest Forest

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ABSTRACT
While there have been numerous studies on climate change impacts on forests, interactions of management with changing climate and natural disturbance are poorly studied.

Terrestrial biophere models (TBMs) provide an excellent opportunity to investigate and assess simultaneous responses of terrestrial ecosystems to climatic perturbations and management across multiple spatio-temporal scales, but currently do not represent a wide array of management activities known to impact carbon, water, surface energy fluxes, and biodiversity.

The Ecosystem Demography model 2 (ED2) incorporates non-linear impacts of fine-scale (~10^3 km) heterogeneity in ecosystem structure both horizontally and vertically at a plant level.

The management practices that we implemented are: clear-cut, partial harvest and planting. The results are for 2 different sites in the U.S. Southeast (Duke Forest) and Pacific Northwest (Metolius Research Natural Area). These sites differ in regards to climate, vegetation, soil, and historical land disturbance as well as management approaches.

INTRODUCTION

POTENTIAL INTERACTIONS

ED2 MODEL STRUCTURE and PROCESSES

PRELIMINARY RESULTS

CONCLUSION

FUTURE WORK

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