Special Issue

Modeling of Forest Structure and Dynamics

Message from the Guest Editors

Forests are complex adaptive systems and their modelling involves substantial modeling challenges. In recent years, large datasets recording ecological variables have become widely available. These datasets provides opportunities to complement traditional experimental approaches with new generation predictive models of forest dynamics and data-driven discovery and hypothesis testing methods. These new approaches aim to evaluate vegetation and biochemistry dynamics at different spatial scales, from forests stands to the regional and continental scales. The underlying modeling challenges include three major components: (1) the use of individual-based models, as they are among the most suitable and promising tools for simulating complex-adaptive systems and interactions on multiple scales, (2) the development of different scaling methods that approximate individual-based processes, and (3) the investigation of various inverse problems to connect models with empirical data including imagery and 3D modeling.

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