1116-92-2202 **Nikolay S. Strigul*** (nick.strigul@wsu.edu), 14204 NE Salmon Creek Ave, Vancouver, WA 98686. *Data-intensive modeling of forest dynamics using time inhomogeneous Markov chains.*

Existing forest inventory datasets offer unprecedented opportunities to model forest dynamics under evolving environmental conditions but they are analytically challenging due to the large number of records and irregular sampling intervals. In this presentation, I introduce the data-intensive inhomogeneous Markov chain model of forest biomass based on data-mining of forest inventory databases. The methodology involves the following steps: 1) parameterization of transition matrices using Gibbs sampling, 2) formalization of disturbance regimes and growth scenarios and 3) simulation of transient dynamics and stationary states. This methodology is applied to predict climate change effects on biomass of North American forests over the next 100 years. The consequences of global warming scenarios including changes in forest fire rate as well as possible growth enhancements due to increasing CO2 and temperature are estimated for the broad range of feasible climate change scenarios. The model predicts consistent short-term increases in biomass for all scenarios. Overall, the original data-intensive methodology provides both descriptions of the short-term dynamics as well as predictions of forest development on a longer timescale. (Received September 22, 2015)