

## ENSEMBLE-CELLULAR AUTOMATA (CA) MODELS FOR IMPROVING FOREST COVER CHANGE SIMULATION

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Reliable spatial simulation models are a prerequisite for understanding temporal and spatial forest cover changes. However, spatial simulation models require accurate transition potential maps, which represent the probability of change from one forest cover class to another. Previous studies have shown that conventional methods such as logistic regression, weights-of-evidence and neural networks fail to adequately model forest cover transition potential. The objectives of this study are to: (1) evaluate the performance of adaboost (AB) and random forests (RF) algorithms for computing transition potential maps, and (2) simulate forest cover changes using the computed transition potential maps and cellular automata (CA) model. Our results show that adaboost-CA and random forest-CA models produced better simulation accuracy than logistic regression/ weights of evidence-CA models. These results provide valuable insights, which can be used to improve transition potential modeling and forest cover change simulation in complex landscapes.

Keywords: Adaboost, Random forests, Cellular automata, Transition potential, Forest cover changes