Contribution 192 in session “Wood supply chain management and decision support tools“

Development and Validation of a Physically Based Forest Operations Model

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Forest operations models are expanding in scope and analytical power, yet no current models integrate forest growth and yield models and hydrologic models into predictions. In this research, a new, physically based geospatial forest operations and mobility model was developed, incorporating these additional processes for more accurate simulation of harvest equipment production rates and operating costs. The model simulates below-canopy relationships among forest microclimate, equipment, and soil physical properties, and their coupled effects on the intra-annual timing and suitability of different operational systems used in forestry. Operational data collected from the northwest United States and predictions from a commonly used forest operations model developed under narrower conditions were used to validate the model.