

Towards an automatic match of fuel model with fire behavior model

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This work summarizes the existing tools and data for modeling fire behavior in terms of their attributes. Fuel models are data, and hence record certain attributes of fuels on the landscape. Fire behavior models are algorithms which require data with certain attributes as inputs. An ontology is presented for describing the data sets and the models, and is checked for accuracy by demonstrating the data-model consistency for the cases of fire danger rating and fire behavior prediction. This ontology is then used to explore the cross compatibility of these regimes (for instance, using fuel models for fire danger rating as inputs to fire behavior models). Fuel data sets, used as inputs to the models, are described by heterogeneous metadata mapped using the model data ontology. Finally, a fused data view that facilitates faster, more accurate searches for source and derived data is presented. This system provides the basis for producing real-time, predictive fire models that will draw on fuel data, satellite data and field inputs to generate behavior indicators critical to fire management.