ABSTRACT

Researchers use models to study ambient and fire- and forest canopy-induced turbulence because they help answer questions that field campaigns alone are unable to address due to, for example, the inability to control all degrees of freedom in the field. Possible applications of model studies of fire- and canopy-induced turbulence include improvements to predictions of smoke dispersion, tree mortality, and fire behavior. This webinar addresses efforts to simulate turbulent flows at the management scale, i.e., on spatial scales of 100 m to 10 km and temporal scales of minutes to hours.

In the first half of this webinar, I place the SERDP management-scale modeling work in the context of the project as a whole, discuss some of the basic components of models used to study ambient and fire- and forest canopy-induced turbulence, and describe some of the challenges of simulating turbulent flows (including possible sources of uncertainty in model simulations). In the second half of the webinar, I show several examples of how models are used to answer questions about ambient and fire- and forest canopy-induced turbulence, provide an outline of the SERDP management-scale modeling strategy, and finally, end with a summary of the webinar presentation before opening the floor to questions.

Kiefer, M.T., 2018: Management-scale atmospheric modeling: Exploring fire-induced turbulent flows in forested environments. North Atlantic Fire Science Exchange SERDP Webinar Series, 8 Aug 2018.