

Laboratory Exploration of Aerosol Emissions and Processes

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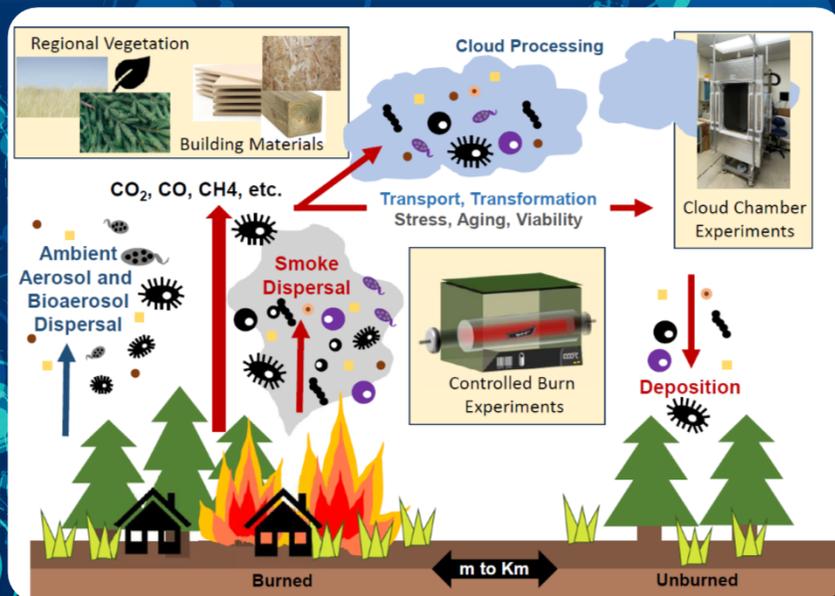


Atmospheric aerosols have diverse optical, chemical, and physical properties. Despite significant advances, there are many outstanding questions related to the impact of aerosols particularly with regards to aerosol-cloud interactions and the evolution of aerosol optical properties. The movement of fire from forests to the wildland-urban interface has altered composition of the smoke, but these emissions are only just starting to be well characterized. In addition, newer

technology and sampling approaches have enabled the characterization of bioaerosol (e.g. bacteria, fungi, pollen) which have recently been shown to be elevated in smoke plumes from biomass fires. In this talk I will present three laboratory-based projects that cover elements of these important topics. First, I will present emissions of aerosols

and trace gases from the lab burns of manufactured building materials.

Next, I will share the results of controlled burns of biomass fuels to understand the effect of smoldering and flaming temperatures on the amount and properties of bioaerosol particles emitted. Finally, I will introduce LANL's newly built cloud chamber designed to probe aerosol-cloud interactions.



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