

SEMINAR SERIES 2019 - 2020

SOUTHERN ONTARIO CENTRE FOR ATMOSPHERIC AEROSOL RESEARCH
UNIVERSITY OF TORONTO

LIGHT ABSORPTION BY ATMOSPHERIC PARTICLES: CONNECTING SOURCES, CHEMICAL PROCESSING AND IMPACTS THROUGH LAB EXPERIMENTS

CHRIS CAPPA

PROFESSOR

Department of
Civil and Environmental Engineering
UCDAVIS



An important process through which atmospheric particles exert an influence on regional and global climate is the absorption of solar radiation. Three classes of particles contribute most of the absorption: black carbon (BC), absorbing organic carbon (aka “brown” carbon, or BrC) and dust. Absorption by BC and BrC can contribute nearly as much to global radiative forcing as CO₂. However, the uncertainties in the absolute and relative BC and BrC contributions are substantial. In this seminar, new results from two CA field studies and a laboratory study focused on biomass burning emissions will be used to understand the atmospheric variability in observed BC and BrC properties. The field studies, in wintertime Fresno and summertime Fontana, CA, provide context for understanding seasonal and regional differences in how sources and chemical processing impact the relationship between particle composition and absorptivity. The “FIREX” lab study, at the US Forest Service Fire Lab, provides a comprehensive look at how chemical processing in smoke plumes alters the absorption by biomass burning-derived particles, and how this depends on the fuel burned. Together, these studies provide new constraints for representing the atmospheric variability evolution of BC and BrC in models.

Wednesday, October 9, 2019 3:00 - 4:00 PM

Wallberg Building, 200 College Street, Room 215



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