

CGD SEMINAR



DATE: Tuesday 17 September, 2019

TIME: 11 am – 12 pm

LOCATION: NCAR, 1850 Table Mesa Drive
Mesa Lab, Main Seminar Room

TITLE: Ozone removal by land and implications for
air pollution and plant damage

SPEAKER: Olivia Clifton, NCAR

ABSTRACT:

Tropospheric ozone is an air pollutant, a greenhouse gas, and central to atmospheric oxidizing capacity. While the last 30 years of research on trends and variability in tropospheric ozone concentrations has predominately focused on the role of sources, my research focuses on the role of one of the main sinks, dry deposition. Dry deposition of ozone occurs when ozone is transported to the Earth's surface through turbulence and then removed by surface-mediated chemistry, including inside the stomatal pores on plant leaves that are used for gas exchange. Stomatal uptake of ozone is injurious to plants, with implications for forest health, crop yields, and regional-to-global water and carbon cycling. Stomatal uptake of ozone is expected to largely control variations in ozone dry deposition. I will present work that employs observations, including one of the longest ozone eddy covariance datasets available, and a hierarchy of models to illustrate the importance of considering variations in both stomatal and nonstomatal deposition in interpreting changes in ozone pollution. I will also present findings from multilayer canopy large eddy simulation and global chemistry-climate modeling that show that estimating ozone damage to ecosystems relies on considering the often-overlooked interactions between meteorology and plant functioning.

Live webcast: <http://ucarconnect.ucar.edu/live>

For more information, contact Tracy Baker, tbaker@ucar.edu, 303.497.1366