

# SEMINAR

## **Wintertime ammonium nitrate aerosol pollution in urban areas: NO<sub>x</sub> and VOC control as mitigation strategies**

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Wintertime particulate matter (PM<sub>2.5</sub>) pollution is a significant air quality issue in many areas of the world. In several areas in the western US, wintertime PM<sub>2.5</sub> exceedances are frequent and often have large contributions from ammonium nitrate aerosol, formed from gas phase reactions of NO<sub>x</sub>, VOCs, and NH<sub>3</sub>. Using observations from the recent Utah Winter Fine Particulate Study in the Salt Lake Valley, we modeled the growth of ammonium nitrate aerosol using the parameter O<sub>x,total</sub>, which describes both O<sub>3</sub> production and HNO<sub>3</sub> production, and demonstrates that the two are closely linked. We show that the traditional NO<sub>x</sub>-VOC framework for evaluating ozone mitigation strategies also applies to ammonium nitrate. Despite being nitrate-limited, ammonium nitrate aerosol pollution in Salt Lake City is responsive to VOC control and, counter-intuitively, not initially responsive to NO<sub>x</sub> control. We demonstrate simultaneous nitrate limitation and NO<sub>x</sub> saturation and suggest this phenomenon may be general. This finding may identify an unrecognized control strategy to address a global public health issue in regions with severe winter aerosol pollution.

**Monday, February 11, 2019, 3:30 p.m**

Refreshments 3:15 p.m

NCAR Foothills Laboratory

3450 Mitchell Lane, Boulder, CO 80301

FL2-1022, large seminar room

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

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