

ACOM/EOL JOINT SEMINAR

Development of the Whole Air Sampling Pilotless Platform (WASPP) and its application in the Colorado Front Range

Elizabeth Asher
CIRES/NOAA ESRL CSD

Volatile organic compounds (VOCs) negatively impact air quality through the formation of tropospheric ozone and secondary organic aerosols. The atmospheric boundary layer (ABL) is temporally and geographically variable, and limited information is available on the vertical and horizontal gradients of VOCs within the ABL. We have developed the Whole Air Sampling Pilotless Platform (WASPP) to quantify vertical gradients of VOCs, as well as meteorological measurements of atmospheric temperature, relative humidity, pressure, and horizontal wind velocity. WASPP was designed to meet several challenges related to sampling from a multi-rotor unmanned aerial vehicle. WASPP temperature, relative humidity and pressure sensors were calibrated in NCAR's Earth Observing Laboratory, while WASPP VOC and wind measurements have been compared side-by-side to other instruments. WASPP measurements reveal noticeable vertical gradients in VOCs, even in a seemingly well-mixed ABL, and the VOC enrichment ratios may be used to identify and quantify distinct regional sources of pollution (e.g. from oil and natural gas). This instrument, which resides at ACOM, could be made available for future field campaigns in collaboration with NOAA and ACOM scientists.

Monday, November 11, 3:30 p.m

Refreshments 3:15 p.m

NCAR Foothills Laboratory

3450 Mitchell Lane, Boulder, CO 80301

FL-1022, Large Auditorium

Live webcast: www.ucar.edu/live

For more information please contact Bonnie Slagel, bonnie@ucar.edu, phone 303-497-8318.