

SEMINAR

The Birthplace of Cloud Nuclei – a Global Perspective from the Atmospheric Tomography Mission

Christina Williamson

University of Colorado – Cooperative Institute for Research in Environmental Sciences and NOAA Earth Systems Research Laboratory

Abstract:

The Atmospheric aerosols affect climate by direct scattering of solar radiation and by altering cloud properties. Current uncertainties in anthropogenic aerosol forcing are one of the largest factors in total uncertainties in predicting climate change. In situ measurements of the properties, origins and climatic relevance of aerosols are needed to constrain global climate models, validate satellite measurements and better understand aerosol sources and processing in the atmosphere. In-situ measurements of aerosol in the remote free troposphere have hitherto been particularly sparse.

The Atmospheric Tomography Mission (ATom) is a unique set of measurements characterizing the remote free troposphere. ATom uses the NASA DC-8 as a flying lab, equipped with gas phase and aerosol measurements, flying over both Pacific and Atlantic Ocean basins, with near pole-to-pole coverage, constantly scanning between 0.2 and 13km altitude. Measurements are conducted in all four seasons to capture seasonal variations.

We describe the measurement of aerosol size distributions from 3 to 3000nm diameter on ATom, how these measurements inform our understanding new particle formation in the remote atmosphere, and how these particles influence climate. We compare our data from ATom with the GEOS-Chem global chemical-transport model (www.geos-chem.org) with online TOMAS aerosol microphysics.

Date: Monday, April 2, 2018; Time: Refreshments 3:15pm, Seminar 3:30pm
NCAR Foothills Laboratory - 3450 Mitchell Lane, Boulder, CO 80301
FL2-1022, Large Auditorium

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

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