

Department of
***Atmospheric and
Oceanic Sciences***
Seminar
AOS270

ALEX GUENTHER
University of California, Irvine

“Biogenic Organic Emissions in a Changing World”

ABSTRACT:

Plants and other organisms produce an abundant and diverse array of metabolites including many volatile organic compounds that are released into the atmosphere. These compounds participate in numerous chemical reactions that influence the atmospheric abundance of important air pollutants and short-lived climate forcers including organic aerosol, ozone and methane. The production and release of these organics are strongly influenced by environmental conditions including air pollution, temperature, solar radiation, and water availability and they are highly sensitive to stress and extreme events. As a result, releases of biogenic organics to the atmosphere have an impact on, and are sensitive to, air pollution and climate leading to potential feedback couplings. Their role in linking air pollution and climate is conceptually clear but an accurate quantitative representation is needed for predictive models. Progress towards this goal will be presented including numerical model development and assessments of the predictive capability of the Model of Emission of Gases and Aerosols from Nature (MEGAN). Studies of processes controlling the magnitude and variations in biogenic organic emissions will be described along with observations of their regional scale impact on atmospheric composition, air pollution and climate. Recent advances and priorities for future research will be discussed including laboratory process studies, long-term measurements, multi-scale regional studies, global satellite observations, and the development of a next generation model for simulating land-atmosphere reactive gas and aerosol exchange.

Wednesday, November 2, 2016
3:30 PM to 4:30PM
MS 7124