

# Formaldehyde Spectroscopy on Zeppelins and Planes: A Product-Based Approach for Understanding Atmospheric Oxidation Mechanisms

Ozone and fine particulate matter, two of the six pollutants regulated by the EPA, are not directly emitted into the atmosphere, but formed in the oxidation of volatile organic compounds (VOCs).

Unraveling the mechanisms and kinetics of VOC oxidation continues to be one of the largest challenges in accurate predictions of air quality. While measuring all reaction products is impossible, formaldehyde is formed in the oxidation of nearly all VOCs and thus provides a downstream constraint on this chemistry. This talk will focus on the contribution of recent airborne formaldehyde measurements and model efforts to our understanding of oxidation mechanisms.

First, Zeppelin-based measurements acquired in Northern Italy in 2012 will be presented. The Zeppelin's high scientific payload, long flight times, and low flight speed provide a truly unique insight into the role of boundary layer development in chemical transport and the resulting influence on reaction pathways. Second, measurements in the Southeast United States acquired aboard the NOAA WP-3 aircraft in 2013 will be presented. By transecting urban outflows and point source plumes, these measurements capture the anthropogenic influence on biogenic emission processing.

## ANALYTICAL & PHYSICAL SEMINAR

JENNIFER KAISER  
UW-MADISON, KEUTSCH GROUP

Coffee &  
cookies  
3:15 pm  
atrium

Thursday, April 3, 2014  
12:15 pm in 1315 Chemistry