

ATS/CIRA Colloquium

John Volckens

Visiting ATS from CSU Mechanical Engineering and Environmental Health

Air Pollution and You: The Fort Collins Commuter Study

Hosted by Jeff Pierce

Friday, May 2, 2014

**ATS room 101; Discussion will begin at 11:15am
Refreshments will be served at 10:45am in the weather lab**

The Volckens group conducts research on air pollution at the interface of engineering and public health. In this talk, I will present preliminary results from the (ongoing) Fort Collins Commuter Study, a 5-year project funded by the National Institutes of Health, that aims to improve our understanding of exposures and health effects from traffic-related air pollution. The daily commute, whether by bicycle, motor vehicle, or other mode, is an experience shared by nearly all working individuals. Even in communities with low background levels of air pollution, the commute presents intense, short-term exposures to motor vehicle exhaust that may contribute to adverse health effects, especially when considered over the duration of one's working lifetime. While a consistent link between ambient air pollution and human morbidity has been demonstrated, very little knowledge exists regarding exposures to traffic-related air pollution encountered during the commute. Individuals who exercise on or near roadways (such as cyclists) are a potentially vulnerable subgroup of commuters, given their proximity to traffic and their increased ventilation rate. The aims this research are threefold: (1) Conduct a two-year study of commuters' personal exposures to traffic-related air pollution among different modes (car, bike) and routes (high- and low-traffic); (2) Develop and evaluate an exposure modeling system that integrates mechanistic air pollution fate and transport modeling, path-following exposure estimation, and Bayesian updating; and (3) Evaluate short-term respiratory and cardiovascular effects of personal exposures experienced during the morning commute.

Link to colloquium videos and announcement page: <http://www.atmos.colostate.edu/dept/colloquia.php>