**9UA.4**
**Contamination of Urban Stormwater Runoff in Syracuse, NY by Previously Deposited Atmospheric Aerosol.** CLIFF DAVIDSON, Emily Procopio, Jeremy Tamargo, *Syracuse University*

It is well known that runoff from streets, parking lots, and other hardscape can bring contaminants to receiving waters. Some of this runoff is contaminated by tire wear, tailpipe emissions, and material falling into the street from vehicles, as well as by trash lying in the street. However, much of the runoff during major storms comes from the surrounding land and buildings that can cover a sizeable surface area. As a result, aerosol dry deposition on urban surfaces can provide significant amounts of contamination that ends up in waterways.

In this research, we examine chemical contaminants in urban runoff and attempt to identify those constituents that originated from atmospheric deposition. We have collected runoff directly from streets and other impermeable surfaces at selected locations around the City of Syracuse and Onondaga County. We have also targeted two large buildings in downtown Syracuse for collection of runoff, namely the Convention Center which has a large (0.56 hectare) green roof, and the Onondaga County War Memorial Arena which has a similarly sized traditional roof. In both of these buildings, pipes have been added to the stormwater drainage system to enable collection of the water flowing off the roof during rainstorms. Fresh precipitation is sampled simultaneously. Collection is accomplished in real time during the storms, and the samples are analyzed chemically for a variety of constituents.

This research is part of a larger program to examine water management challenges facing urban areas as suburbs expand and increasing land area is covered with impermeable surface material. Water flowing over surfaces contaminated by atmospheric deposition as well as other pollution sources is channeled into storm sewers and ultimately receiving waters which can result in health and ecosystem effects.

**9UA.5**
**Spatial Distribution of and Correlation between Noise And Particulate Matter near Two Freeways in Los Angeles, California.** SHI SHU, Yang Pu, Yifang Zhu, *UCLA*

Near-freeway environments are important from public health and environmental justice perspectives. Because both the traffic emitted air pollution and noise are associated with cardiovascular disease, there is a knowledge gap on how they distributed in space and if they are correlated with each other. This study investigated the spatial profile of particle concentrations and noise levels near Interstate 405 and Interstate 710, two major freeways in Los Angeles, CA. Besides ultrafine particle (UFP) number concentrations and fine particle (PM2.5) mass concentrations, A-weighted equivalent continuous sound level (LeqA) was measured simultaneously at increasing distances from the freeways on four streets with or without sound wall. Twenty sampling sessions were conducted on nine different days from February to June 2013. For the 405 site, the sampling sessions were scheduled at different hours of daytime to cover different traffic and meteorological conditions. For the 710 site, the sampling sessions were scheduled during both daytime and nighttime to capture different meteorological conditions. Generally, LeqA levels showed a more symmetrical profile on both sides of freeways than particulate matter concentrations did. Under upwind conditions, UFP showed relatively low concentrations and no obvious gradient, while LeqA showed decay with increasing distance as it did under downwind conditions. Moderate correlations (Pearson correlation coefficients ranged from 0.39 to 0.72) between LeqA and UFP were observed under downwind conditions on all four streets. The presence of a sound wall was found to effectively reduce LeqA but not UFP and PM2.5. Both the LeqA level and UFP concentrations at a fixed location increased with increased traffic volume, but at different rate. These data may be used to study the independent and synergistic health impacts of noise and air pollutants near roadways.

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