

## **Urban and semi-rural populations personal and micro-environmental exposures to VOCs, ozone, CO and PM<sub>2.5</sub> and nanoparticles during the MILAGRO-MCMA2006 campaign.**

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To analyze the contribution of the regional transportation of air pollutants from the Metropolitan Area of Mexico City in the personal exposure to air pollutants of children (9-12 years old) and their parents from in three different sites, simultaneously to the 2006 MILAGRO campaign.

### Methods

This was an exposure assessment study of 121 children, 10 to 12 years old, and 67 parents recruited in three different areas along the path of transportation of air pollutants from Mexico City to the neighbor states of Mexico and Hidalgo. Personal monitoring of VOCs (3M series 3500 and SKC-Ultra passive samplers), CO (Langan dosimeter) and ozone (Radiello sampler) were performed. Measurements at schools and homes of PM<sub>2.5</sub> (SKC pumps and impactors, and 37 mm Teflon filters), ultrafine particles (Sioutas sampler), ozone, carbon monoxide and VOCs (prepacked PE-ATD tubes) concentrations were also taken. A questionnaire to obtain volunteers' general, medical history and other exposures was administered, and a time-activity log was filled out by a 48-hr period.

### Results

Some preliminary results show that the PM<sub>2.5</sub> mean personal exposure was of 44.82  $\mu\text{g}/\text{m}^3$ , with a minimum and maximum of 13.40 and 95.91  $\mu\text{g}/\text{m}^3$ , respectively. At

homes, the PM<sub>2.5</sub> mean outdoor and indoor concentrations were of 33.45 and 38.46 ug/m<sup>3</sup>. Ozone mean personal exposure ranged from 5 to 36 ppb for children, and from 4 to 12 ppb for their parents. At homes, ozone mean outdoor concentrations ranged from 64.33 to 200.39 ppb, and ozone mean indoor concentrations from 3.18 to 28.48 ppb. The CO mean personal exposure ranged from 1.59 to 2.60 ppm. CO outdoor mean concentrations were from 0.81 to 2.38 ppb and indoor concentrations from 1.09 to 2.3 ppm