

**Observations and Model Simulations of Carbon Monoxide Emission Factors from a California Highway, Journal of Air and Waste Management Association, 51(1):121-132 (2001).**

A series of twelve intensively monitored 1-hr CO dispersion studies were conducted near Davis, CA, in winter 1996. The experimental equipment included twelve CO sampling ports at elevations up to 50 m, three sonic anemometers, a tethered station, aircraft measurements of wind and temperature profile aloft, and a variety of conventional meteorological equipment. The study was designed to explore the role of vehicular exhaust buoyancy during worst-case meteorological conditions, such as low winds oriented in near-parallel alignment with the road during a surface-based nocturnal inversion. From the study, field estimates of the CO emission factor (EF) from a California vehicle fleet were computed using two different methods. The analysis suggests that the CT-EMFAC/EMFAC (EMission FACTor) models currently used to conduct federal conformity modeling significantly overpredict CO emissions for high-speed, free-flowing traffic on California highways.