Lynn M. Alley

Atmospheric Scientist
Project Manager

Sonoma Technology

Ms. Alley joined Sonoma Technology's Atmospheric and Emissions Modeling Group in 2015. She has over 15 years of air quality and atmospheric science consulting experience. Her technical expertise includes performing air quality modeling analyses for impact assessments, and interpreting model results to help clients make informed decisions. She also performs modeling to support litigation projects, meteorological data analysis and research, emissions inventory evaluations, and technical report writing.

Education

- BS, Meteorology, University of Oklahoma

Memberships

- Air & Waste Management Association
- American Meteorological Society

For a list of publications, see sonomatech.com/ResPub/LMApub.pdf.

Ms. Alley has conducted numerous near-road air quality analyses using dispersion models to support quantitative PM hot-spot assessments for transportation projects and has assessed the influence of roadside barriers on near-road $PM_{2.5}$ concentrations using the EPA R-LINE model. Ms. Alley was the lead modeler for a study that evaluated the predicted near-road $PM_{2.5}$ concentrations near major freeways. The study was published in 2020 and helped the U.S. Federal Highway Administration (FHWA), the California Department of Transportation (Caltrans), and other state DOTs to document differences between real-world measurements and modeled near-road concentrations. This work assessed the sensitivity of modeled near-road concentrations to the choice of dispersion model (AERMOD or CAL3QHCR), meteorological data, and travel data processing approach.

Ms. Alley also develops ways to organize, examine, and explain model results due to a wide array of emission sources. She created a database with customizable queries to produce results from CAMx ozone source apportionment modeling simulations and analyzed downwind ozone impacts from industrial and transportation emissions. She also used AERMOD and GIS to develop and evaluate emission mitigation strategies for industrial facilities, and modeled lead deposition impacts in soils from historical facility process emissions. Ms. Alley is an experienced user of several air dispersion models, including AERMOD, AERSCREEN, and the transportation hot-spot models CAL3QHC and CALINE4. She is also experienced at conducting meteorological data analyses and developing air parcel trajectories to support pollutant transport analyses.

For emissions assessments, Ms. Alley produced a technical memorandum that reviewed roadway dust emission calculation methods and streamlined the quality assurance process for the Caltrans CT-EMFAC on-road emissions modeling tool. She also is a skilled user of other emissions inventory models, such as EMFAC, OFFROAD, URBan EMISsions (URBEMIS), California Emissions Estimator Model (CalEEMod), and the EPA NONROAD mobile source model.

Prior to joining Sonoma Technology, Ms. Alley was an air quality analyst at URS Corporation/AECOM, where she was involved with compliance efforts for several industrial facilities and transportation projects. Her main responsibilities were to manage and perform air quality impact assessments for major source Prevention of Significant Deterioration (PSD) permits pursuant to air quality regulations and develop innovative modeling analyses to assess spatial and temporal impact contributions to the short-term NO_2, SO_2, and $PM_{2.5}$ statistical National Ambient Air Quality Standards (NAAQS) and Significant Impact Levels (SILs).

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