



Ethan W. Emerson, PhD

Air Quality Scientist

Dr. Emerson joined Sonoma Technology in 2024, bringing extensive experience in atmospheric science and research to the company. His work spans various areas of atmospheric science, including atmospheric chemistry, methane emissions, physical processes of atmospheric aerosols, instrument development, and research program design. He specializes in statistical approaches to large-scale data analysis and data science. Currently, Dr. Emerson supports Sonoma Technology's work on advanced

measurement platforms for monitoring methane emissions for oil and gas industry clients, government agencies, and community organizations.

Before joining Sonoma Technology, Dr. Emerson worked at Colorado State University's Methane Emissions Technology and Evaluation Center (METEC), where he led programs to advance methane leak detection and quantification technologies both domestically and internationally. His most recent work with METEC focused on understanding the efficacy of these technologies and collaborating with regulatory, industry, and academic stakeholders to rigorously evaluate instruments and analytics, in addition to identifying appropriate use cases for implementation in the oil and gas industry. At METEC, he also contributed to measuring over 300 orphaned and abandoned wells, helping to build the largest dataset of its kind.

Education

- PhD, Chemistry, Colorado State University
- BS, Chemistry and Physics, Bates College

Dr. Emerson also previously worked for Handix Scientific, where he developed, prototyped, tested, and manufactured new instruments for atmospheric research. These projects and instruments included the use of canonical sensing techniques, such as light scattering, as well as new techniques, such as computer vision and image processing. Additionally, he supported research efforts conducted by academic organizations, including aerosol deposition measurements on the North Slope of Alaska, and Handix Scientific in-house efforts such as the Surface Atmosphere Integrated Field Laboratory (SAIL) campaign.

Dr. Emerson has experience working with large datasets from instrument campaigns, public data sources, and aggregating information from diverse spatial and temporal scales. He addresses these data analysis and data science projects using Python, Igor Pro, and Matlab, and commonly employs statistical analysis, and Monte Carlo methods to resolve questions.