Benjamin E. Brown-Steiner, PhD

Air Quality & Emissions Modeler

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Dr. Brown-Steiner joined Sonoma Technology in 2025. He has over 15 years of experience in atmospheric chemistry, air quality, emissions, and climate science in academia, industry, and the federal government. He has used multiple programming languages (FORTRAN, NCL, R, Python) and operating systems (Unix, MacOS, Windows), simulations with global (CESM CAM-Chem, GEOS-Chem), regional (WRF-Chem, CMAQ), semi-Lagrangian (STILT), box (MusicBox, BOXMOX, ASP), and emissions (MOVES) models, advanced statistical techniques, and machine learning tools in his work.

Dr. Brown-Steiner's work has included studies of trans-Pacific transport of emissions, climate-chemistry and weather-chemistry connections, the development of an emissions inventory of black carbon emissions in the transportation sector from economic data, global comparisons of chemical mechanisms of different complexities, wildfire emissions and smoke chemistry, furan chemistry, ozone and aerosol air quality, supervised and unsupervised statistical and machine learning methods, and uncertainty quantification.

Throughout his career, Dr. Brown-Steiner has volunteered as a science communicator in museums, classrooms, and community education organizations. In his current affiliation as a Research Associate with the Paleontological Research Institution (PRI) in Ithaca, New York, he writes about climate science and atmospheric chemistry for broad audiences. He has volunteered and worked with the Sciencenter (Ithaca, NY), the Museum of the Earth (Ithaca, NY), the Discovery Museum (Acton, MA), and organizations such as BiteScis, SubjectToClimate, Arlington Community Education (Arlington, MA), Massachusetts Institute of Technology (MIT) SPLASH (Cambridge, MA), and the American Geophysical Union's Voices for Science. He also holds a courtesy appointment as a Research Assistant Professor at Clarkson University (Potsdam, NY).

After receiving his doctorate in Atmospheric Chemistry and Climate Science, Dr. Brown-Steiner worked as a Postdoctoral Researcher at MIT and later as a Staff Scientist at Atmospheric and Environmental Research, Inc. (AER). Before joining Sonoma Technology, he completed a 3-year rotation at the U.S. National Science Foundation (NSF) as a Program Director in the Atmospheric Chemistry Program within the Directorate of Geosciences. At NSF, he co-directed a multimillion-dollar federal research program, requested reviews from over 500 scientists and researchers, managed the proposal review process, made funding recommendations, updated program solicitations, wrote Dear Colleague Letters, and worked alongside colleagues spanning federal agencies to advance atmospheric chemistry and science research.

Outside of his professional roles, Dr. Brown-Steiner enjoys spending time with his family, going for runs and hikes, reading science fiction short stories, and playing games ranging from the simple to the very complex. He is an avid birdwatcher with a current life list of 285 species, and he leads field trips in his local community. Although he has never worked in a chemical laboratory or in the field, he uses his kitchen as a culinary laboratory where he bakes, cooks, ferments, and otherwise fabricates delicious foods for friends and family. He collects books written by and about Julia Child as well as Star Trek memorabilia.