



## Bryan M. Penfold

*Department Manager, Data Science  
GIS Coordinator*

Mr. Penfold joined Sonoma Technology in 2001. He manages the Data Science Department. In addition to his staff management duties, Mr. Penfold is responsible for managing, maintaining, and coordinating activities relating to geographic information systems (GIS). He acts as a primary point of contact for GIS matters and serves as the GIS technical resource for Sonoma Technology staff and clients. He has authored or co-authored eight peer-reviewed journal articles. His areas of interest include geospatial analysis, network evaluations, monitoring study design, risk assessment, staff management, and project management.

Since joining Sonoma Technology, Mr. Penfold has concentrated on processing, analysis, and display of geographical data with the goal of assessing the relationship between spatial patterns in air quality and human health impacts. He has performed these tasks for a variety of epidemiological studies, such as the University of California at Berkeley (UCB) Chronic Ozone Health Effects Study and the National Institutes of Health Traffic Data Scoping Study. Mr. Penfold is investigating methods to improve the use of traffic activity data and location-based data, both of which require a high degree of spatial resolution and accuracy.

Mr. Penfold has led and has been involved in network assessments in the following regions: the U.S. Environmental Protection Agency's (EPA) Photochemical Assessment Monitoring Stations network, British Columbia, the State of Wyoming, the San Joaquin Valley in California, and the cities of Edmonton and Fort Saskatchewan in Alberta, Canada. Mr. Penfold has used statistical and geospatial techniques to map air quality data and has developed new methods for improving the quality and representativeness of emissions inventory data. In support of the Arizona Department of Environmental Quality toxics monitoring program, Mr. Penfold used GIS technology to identify areas within the Phoenix region where diesel particulate matter (DPM) emissions are likely to be high, and to identify potentially suitable locations for placing toxics monitors to better measure DPM.

Mr. Penfold's recent work includes the development of the Marin County Community Wildfire Protection Plan for FIREsafe Marin and the Marin County Fire Department. He is a member of the Pyregence Consortium that is developing next-generation fire and fire weather models. He has worked on projects that involve assessing air emissions, dispersion, and deposition of perfluoroalkyl substances (PFAS) to the environment as well as issues related to industrial facility emissions and potential impacts on environmental justice communities.

Before joining Sonoma Technology, Mr. Penfold worked as a geography research associate at Sonoma State University and performed GIS-based work to examine trends in climate that may affect Sudden Oak Death disease throughout California.

### Education

- MBA, Environmental Management Specialization, Ashford University
- BA, Geography, Sonoma State University

### Memberships

- Association of American Geographers
- Air & Waste Management Association
- Golden Key International Honor Society

For a list of publications, see [sonomatech.com/ResPub/BMPpub.pdf](http://sonomatech.com/ResPub/BMPpub.pdf).