



## Bryan M. Penfold

*Group Manager, Data Analysis  
GIS Coordinator*

Mr. Penfold joined STI in 2001. He manages the Data Analysis Group within the Data Science Department. In addition to his group 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 STI staff and clients. He has authored or co-authored six 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 STI, 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, the UCB Health Benefits Study, the Fresno Asthmatic Children's Environment Study (FACES), 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. Mr. Penfold contributed to several gridded emissions inventory development projects for the San Francisco Bay Area, central California, and the Phoenix area, all of which benefited from his expertise in generating GIS spatial surrogates for the spatial allocation of county-level emissions estimates. 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 also worked with the EPA to develop a geographical characterization of new NCore station sites. NCore is a multi-pollutant monitoring program that consists of about 55 urban and 20 rural stations.

Before joining STI, 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 the Sudden Oak Death disease throughout California.

Mr. Penfold has experience using and developing applications with the following software: ArcGIS, ArcGIS Server, Spatial Analyst, Microsoft Access, Microsoft Excel, ERDAS, and IDRISI image software.

### 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).