



Angela L. Ekstrand

Group Manager, Software Development

Ms. Ekstrand has been a key member of STI's Software Development Department since 2015, and has worked as a database developer, database architect, Java developer, and web developer on numerous projects for clients such as the U.S. Environmental Protection Agency (EPA). As a Group Manager in the Software Development Department, she manages a team of engineers to develop and provide tools for data ingest and storage, public display of air quality information, automated data alerts, and electronic logging for monitor networks. She first joined STI in 2012 as part of the Data Sciences Division, and has used her data analysis and mapping expertise to complete analyses for a variety of projects, including studies on exceptional events, network assessments, and health exposure.

Ms. Ekstrand's recent database development and architecture projects include the EPA's Data Analysis and Reporting Tool (DART, airnowtech.org), the EPA's Smoke Sense app (www.epa.gov/air-research/smoke-sense-study-citizen-science-project-using-mobile-app), the EPA's AirNow-International Project (airnow.gov/international), and the U.S. Department of State and EPA's AirNow partnership project (<https://www.airnow.gov/international/us-embassies-and-consulates/>). She has also worked on database development for the desktop and web versions of STI's Data Management System (DMS) for multiple clients. She has participated in and led recent web and Java development efforts for DART, and worked on web, API, and/or Java development for multiple other projects, including AirNow, AirNow-International, SmokeSense, and CT-EMFAC2017 (a road emissions modeling tool). She is the lead developer for all components of the EPA's DART system, including database, web, data ingest, data validation, and email alerting components. In addition, she has helped to develop improved fuel models for fire science projects; her work has included developing PostgreSQL databases, processing high-resolution spatial imagery, and processing historical fuels treatment data. As part of her work with STI's Data Science Department, Ms. Ekstrand has experience with network assessment and health exposure projects. She was responsible for acquisition, validation, and AQS submission of air quality data from field projects. She has worked on incorporating a new plume rise model into the BlueSky smoke modeling framework, and has used geographic information systems software to compare air quality measurements with multi-year smoke plume data. Ms. Ekstrand is also part of a team developing prototype climate-change-related metrics that could be used to improve the communication of climate issues to the public.

Education

- MS, Geophysics: Remote Sensing, University of Alaska Fairbanks
- BS, Geology, Beloit College

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

Before joining STI, Ms. Ekstrand was a graduate student at the University of Alaska Fairbanks, where she was part of the Alaska Volcano Observatory's Remote Sensing group. Ms. Ekstrand's research focused on comparing the accuracy of volcanic plume height determination methods, including temperature heights from thermal infrared satellite measurements, radar heights from ground-based sensors, stereo heights from the Multi-angle Imaging SpectroRadiometer (MISR), and height validation using the Puff volcanic ash transport and dispersion model. Ms. Ekstrand also participated in daily satellite volcano monitoring shifts at the Alaska Volcano Observatory, identifying thermal anomaly and plume features to assist in detection of volcanic eruptions.

Ms. Ekstrand is proficient in SQL, experienced with Java and JavaScript, and also familiar with Python and R. In her thesis work, she used ESRI ArcGIS extensively, and continues to do so at STI. She is proficient in the use of image processing software, including ENVI and Erdas, and is also proficient in the use of MINX for processing MISR stereo height data.