Charles R. Scarborough

Air Quality Data Scientist

Mr. Scarborough joined Sonoma Technology's Data Science Department in 2020 as an Air Quality Data Scientist. He uses geographic information systems (GIS) and R programming skills to support projects related to air pollution exposure, wildland fire activity, smoke emissions transport, and air pollution events.

Mr. Scarborough works on multiple projects related to wildfire activity and smoke impacts. Mr. Scarborough is currently performing data analysis of air pollution concentrations collected by open-path fenceline monitors and point monitors surrounding and within petroleum refineries. He was instrumental in developing exceptional event demonstrations related to wildfire smoke transport and stratospheric intrusion events. He also created a parcel-level wildfire threat rating map for a community wildfire protection plan (CWPP) using geospatial modeling and computer coding in R.

Education

- MS, Geography, University of Delaware
- BS, Atmospheric Science, University of Georgia
- BS, Geography, University of Georgia

Before joining Sonoma Technology, Mr. Scarborough earned his Masters Degree from the University of Delaware's College of Earth, Ocean, and Environment in the Department of Geography and Spatial Sciences. His research focused on spatially estimating evapotranspiration over irrigated agricultural fields in Delaware and validating results using eddy covariance methods. He used a variety of scientific tools, including GIS software, remote sensing, computer coding in R, and geospatial modeling. This research required advanced knowledge of boundary layer atmospheric processes, land and atmosphere interactions, and regional climatology. Mr. Scarborough also has research experience in thunderstorm-induced asthma attacks, and field work experience in forest hydrology.

Mr. Scarborough is proficient in ArcMap, ArcPro, R, Integrated Data Viewer (IDV), and the Microsoft Office Suite, and has experience with Python, FORTRAN, and QGIS. Mr. Scarborough has taught physical geography, introductory GIS, and introductory climatology courses.