



ShihMing Huang

*Fire, Smoke, and Remote Sensing Team Leader
Air Quality Scientist, Project Manager*

Mr. Huang joined STI in 2008. His projects focus on investigating the spatiotemporal trends, characteristics, and variations of wildland fire activities, smoke emissions and transport from fires, and ambient air pollution. He synthesizes ground-based, remotely sensed, and modeled data sets to answer complex fire, smoke, and air quality questions. In addition, he integrates the latest science and technology in software projects to develop smoke modeling and research tools.

From 2013 to present, Mr. Huang has worked with the U.S. Forest Service AirFire Team on developing the BlueSky smoke modeling system that is widely used in air quality research, smoke management decision support, prescribed burn planning, and smoke forecasting by government agencies (e.g., U.S. Forest Service, U.S. EPA, NOAA) and the research community. He leads the team of scientists and software engineers at STI to implement new modules, model updates, and new technology in BlueSky to improve smoke predictions and system usability.

Since 2017, Mr. Huang has been partnering with U.S. EPA scientists at the National Health and Environmental Effects Research Laboratory on the Smoke Sense study, which aims to quantify the health impacts of wildland fire smoke and improve public health communication. He couples his expertise in fire, smoke, and air quality with STI's software engineering capability in the design and development of the Smoke Sense mobile app, used to distribute fire and smoke data and collect health information from citizen scientists.

In 2015 and 2016, Mr. Huang led the development of the wildland fire sectors of the 2014 National Emissions Inventory (NEI) for the U.S. EPA, working with scientists and stakeholders in different government agencies to improve from the previous NEI by integrating updated models, new datasets, and latest emissions research outcome. Further, he directed the effort to create the 2015 wildland fire emissions inventory for the United States, Canada, and Mexico. Mr. Huang also worked on two projects funded by the Joint Fire Science Program, analyzing wildfire smoke impact potential across the contiguous United States, and evaluating the suitability of numerous fire activity data sets for developing emissions inventories.

From 2010 to 2015, Mr. Huang worked extensively on the development of the prototype of the Interagency Fuels Treatment Decision Support System (IFTDSS). His primary responsibilities included model evaluations, model intercomparisons, and scientific quality assurance for fire behavior (e.g., FlamMap, BehavePlus), fire effects (e.g., CONSUME, FOFEM), fire weather (e.g., Fire Family Plus), and risk assessment models. The IFTDSS has since been adopted and operationalized by the Bureau of Land Management.

From 2010 to 2013, Mr. Huang conducted a comprehensive case study of the 2006 Tripod Complex Fire in Washington as one of the lead analysts in the Smoke and Emissions Model Intercomparisons Project (SEMIP). His work involved evaluating and comparing multiple fire information sources, fuel loading maps, and fuel consumption and smoke emissions models, contributing to characterizing the uncertainties in wildland fire emissions modeling.

Mr. Huang is proficient with ArcGIS, Tableau, SYSTAT, and SPSS, and is experienced in coding with R, Python, SQL, Visual Basic, and FORTRAN.

Education

- MS, Environmental Science (with distinction), California State University, Chico
- BS, Biological Science, San José State University

Memberships

- International Association of Wildland Fire
- American Geophysical Union

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