ShihMing Huang

Manager, Wildland Fire and Smoke Group
Fire and Smoke Program Manager

Sonoma Technology

Mr. Huang joined Sonoma Technology 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 wildland 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.

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.

Since 2017, Mr. Huang has partnered with U.S. Environmental Protection Agency (EPA) scientists on the Smoke Sense study, where he couples his expertise in fire, smoke, and air quality with Sonoma Technology's software engineering capability in designing and developing the Smoke Sense mobile application, used to distribute fire and smoke data and collect symptom and smoke observational data from citizen scientists. Mr. Huang recently embarked on two new wildland fire smoke health impact studies with collaborators at the California Department of Public Health and the University of California, San Francisco. He is leading the exposure assessment component of the studies, developing smoke and fire exposure assignments under various burning scenarios. Mr. Huang is helping CAL FIRE with quantifying greenhouse gas emissions from forestry activities, including prescribed burns. He is also developing a highly spatiotemporally-resolved fire occurrence history based on satellite and ground observations of wildland fires for a utility company in California to improve fire potential prediction.

From 2013 to 2019, Mr. Huang worked with the USDA 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., USDA Forest Service, EPA, NOAA) and the research community. He led a team of Sonoma Technology scientists and software engineers to implement new modules, model updates, and new technology in BlueSky to improve smoke predictions and system usability.

In 2015 and 2016, Mr. Huang led the development of the wildland fire sectors of the 2014 National Emissions Inventory (NEI) for the EPA, and worked with scientists and stakeholders in different government agencies to improve on the previous NEI by integrating updated models, new datasets, and the latest emissions research outcomes. Furthermore, 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 responsibilities included model evaluations, model intercomparisons, and scientific quality assurance for fire behavior, fire effects, fire weather, 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.

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