

Meeting Presentations and Conference Proceedings

- Raffuse S.M. and Sullivan D.C. (2010) Response to the 2008 Northern California Smoke Event. *Paper presented to the National Fuels Meeting of the USDA-Forest Service AirFire Team, Sacramento, CA, May* (STI-3875).
- Raffuse S.M., Healy A.N., and Pryden D.A. (2010) BlueSky Playground - a new method for interactively exploring smoke impacts. Presented to the *Yosemite Fire Science Symposium, Yosemite, CA, April 28* (STI-3858).
- Raffuse S., Pryden D., Larkin N., Strand T., Solomon R., and Sullivan D. (2009) Merging satellite-detected wildfire information with ground reports for improved fire and smoke modeling in emergency response. Poster presented at the *AGU Fall Meeting, San Francisco, CA, December 14-18*, by Sonoma Technology, Inc., Petaluma, CA, and USDA Forest Service AirFire Team, Seattle, WA (STI-3775).
- Huang, S., Sullivan, D.C., Raffuse, S., and Procter, T. (2009) A retrospective analysis of smoke during the 2008 California fires. Presented at the *4th International Fire Ecology and Management Congress, Savannah, GA, December 2*, by Sonoma Technology, Inc., Petaluma, CA (STI-620000-3689).
- Raffuse S.M., Wade K., Stone J., Wheeler J.M., Larkin N.K., Strand T., and Solomon R. (2009) Validation of modeled smoke plume injection heights using satellite data. Presented at the *Eighth Symposium on Fire and Forest Meteorology, Kalispell, MT, October 14*, by Sonoma Technology, Inc., Petaluma, CA, and USDA Forest Service AirFire Team, Seattle, WA (STI-3728).
- Wheeler N.J.M., Raffuse S.M., Sullivan D.C., Craig K.J., and Reid S.B. (2009) Daily air quality predictions from the BlueSky gateway. Presented at the *30th NATO/SPS International Technical Meeting on Air Pollution Modelling and its Application, San Francisco, CA, May 18-22*, by Sonoma Technology, Inc., Petaluma, CA (STI-3589).
- Raffuse S.M., Reid S.B., Pollard E.K., and Wheeler N.J. (2009) A daily fire greenhouse gas emission inventory for the United States and comparison with other inventories. Paper presented at the *First International Greenhouse Gas Measurement Symposium, Burlingame, CA, March 23* by Sonoma Technology, Inc., Petaluma, CA (STI-3584).
- Sullivan D., Chan A., Knoderer C., Raffuse S., Wheeler N., and Craig K. (2008) Emergency smoke response systems: air quality forecasts and monitoring during the 2008 California wildfires. Presented at the *Pacific Coast Fire Conference, San Diego, CA, December 3* by Sonoma Technology, Inc., Petaluma, CA; USFS AirFire Team, Seattle, WA; Desert Research Institute, Reno, NV; and USFS Region 5, CA (STI-3515).
- Raffuse S.M., Reid S.B., Pollard E.K., Wheeler N.J., Larkin N.K., Strand T.M., and Solomon R. (2009) Conterminous U.S. fire emissions of greenhouse gases. Presented at the *First International Greenhouse Gas Measurement Symposium, San Francisco, CA, March 23-25* (STI-3584).
- Raffuse S.M., Larkin N.K., Sullivan D.C., Strand T.M., Gilliland E.K., Solomon R., and Chinkin L.R. (2008) A daily wildland fire greenhouse gas emission inventory for the conterminous United States. Poster presented at the *American Geophysical Union, Fall Meeting, San Francisco, CA, December 15-19* (STI-3525).
- Strand T., Larkin N.K., O'Neill S.M., Raffuse S., Solomon R., Sullivan D.C., and Pryden D.A. (2008) The BlueSky smoke modeling framework. Poster presented at the *American Geophysical Union, Fall Meeting, San Francisco, CA, December 15-19*.

- Sullivan D.C., Raffuse S.M., Wheeler J.M.W., and Craig K.J. (2008) Emergency smoke response systems. Slide show presented at the *California Air Response Planning Alliance, Air Quality in Emergency Response: Monitoring, Modeling, Messaging, and Media, Sacramento, CA October 15-16*, by Sonoma Technology, Inc., Petaluma, CA (STI-3510).
- Raffuse S., Gilliland E., Sullivan D., Wheeler N., Chinkin L., Larkin S., Solomon R., Strand T., and Pace T. (2008) Development of wildland fire emission inventories with the BlueSky Smoke Modeling Framework. Presented at the *7th Annual Community Modeling and Analysis System (CMAS) Conference Chapel Hill, NC, October 6-8*, by Sonoma Technology, Inc., Petaluma, CA; U.S. Forest Service AirFIRE Team, Seattle, WA; and U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, NC (STI-3457).
- Craig K.J., Wheeler J.M.W., Raffuse S.M., Sullivan D.C., Reid S.B., Solomon R., Strand T., and Larkin S. (2008) BlueSky Gateway: providing access to products from the BlueSky smoke modeling program. Poster presented at the *7th Annual Community Modeling and Analysis System (CMAS) Conference, Chapel Hill, NC, October 6-8*, by Sonoma Technology, Inc., Petaluma, CA, and the U.S. Forest Service Pacific Northwest Research Station, Seattle, WA (STI-3452).
- Larkin N.K., Strand T., Solomon R., Raffuse S., Sullivan D.C., Chinkin L., Brown T., O'Neill S., Friedl L., and Knighton R. (2008) The state of smoke tools: What we know now. Presented at the *International Association of Wildland Fire, The '88 Fires: Yellowstone & Beyond, Jackson Hole, WY, September 22-27*, by the U.S. Forest Service AirFire Team, Seattle, WA; Sonoma Technology, Inc., Petaluma, CA; Desert Research Institute, Reno, NV; USDA Natural Resource Conservation Service, Portland, OR; NASA, Washington, D.C.; and USDA Cooperative State Research, Education, and Extension Service, Washington, D.C.
- Raffuse S.M. (2008) Potential near real-time analyses of smoke impacts from the Northern California wildfires. Poster presented on July 10 (STI-3500).
- Raffuse S.M., Sullivan D.C., Gilliland E.K., Chinkin L.R., Larkin S., Solomon R., and Pace T. (2008) Development of wildland fire emission inventories for 2003-2006 and sensitivity analyses. Presentation made at the *U.S. Environmental Protection Agency's 17th International Emission Inventory Conference, Portland, OR, June 5*, by Sonoma Technology, Inc., Petaluma, CA; U.S. Forest Service AirFire Team, Seattle, WA; and U.S. Environmental Protection Agency Office of Air Quality Planning and Standards, Research Triangle Park, NC (STI-905028-3377).
- Sullivan D.C., Raffuse S.M., Pryden D.A., Craig K.J., Reid S.B., Wheeler N.J.M., Chinkin L.R., Larkin N.K., Solomon R., and Strand T. (2008) Development and applications of systems for modeling emissions and smoke from fires: the BlueSky smoke modeling framework and SMARTFIRE. Paper presented at the *17th International Emissions Inventory Conference, Portland, OR, June 5*, by Sonoma Technology, Inc., Petaluma, CA, and the U.S. Forest Service, Seattle, WA (STI-3378).
- Raffuse S.M., Gilliland E.K., Sullivan D.C., Larkin N.K., Solomon R., and Strand T. (2008) Development of wildland fire emission inventories for 2003-2006 and sensitivity analyses. Presented at the *BlueSky Smoke Modeling Framework Stakeholders' Meeting, Boise, ID, May 20-22* (STI-905028-3371).
- Raffuse S.M., Craig K.J., Wheeler N.J.M., Sullivan D.C., Larkin N.K., Solomon R., and Strand T. (2008) PM_{2.5} emissions and smoke predictions from the BlueSky Smoke Modeling Framework. Presentation at the *Aerosol & Atmospheric Optics: Visual Air Quality and Radiation, Moab, UT, May 2* (STI-3324).

- Raffuse S.M., Sullivan D.C., Chinkin L.R., Pryden D.A., Wheeler N.J.M., Larkin N.K., Solomon R., and Soja A. (2007) Integration and reconciliation of satellite-detected and incident command-reported wildfire information in the BlueSky smoke modeling framework. Presented at the *6th Annual CMAS Conference, Chapel Hill, NC, October 1-3*, by Sonoma Technology, Inc., Petaluma, CA, the U.S. Forest Service AirFire Team, Seattle, WA, and the National Institute of Aerospace, Hampton, VA (STI-3227).
- Raffuse S.M., Sullivan D.C., Chinkin L.R., Larkin N.K., Solomon R., and Soja A. (2007) Integration of satellite-detected and incident command-reported wildfire information into BlueSky. Paper No. 205 presented at the *Air & Waste Management Association's 100th Annual Conference & Exhibition, Pittsburgh, PA, June 26-29* (STI-3127).
- Reid S.B., Sullivan D.C., Penfold B.M., Raffuse S.M., and Funk T.H. (2007) Activity trends for key emission sources in California's San Joaquin Valley, 1970-2030. Paper presented at the *16th International Emission Inventory Conference, Raleigh, NC, May 14-17*, by Sonoma Technology, Inc., Petaluma, CA (STI-3121).
- Raffuse S., Chinkin L., Sullivan D., and Larkin N. (2006) Applications of a GIS-based fire emissions model - or - BlueSky SMARTFIRE. Presentation for the *Third International Fire Ecology & Management Congress, San Diego, CA, November 18*, by Sonoma Technology, Inc. and U.S. Forest Service AirFire Team (STI-3041).
- Raffuse S., Chinkin L., and Larkin N. (2006) Evaluation of the BlueSky smoke prediction model using satellite data. Presentation for the *Third International Fire Ecology & Management Congress, San Diego, CA, November 18*, by Sonoma Technology, Inc., Petaluma, CA, and the USFS AirFire Team (STI-2962).
- Penfold B.M., Hafner H., and Raffuse S. (2006) Analytical techniques used for regional-scale network assessments. Presented at the *National Air Monitoring Conference, Las Vegas, NV, November 6-9*, Sonoma Technology, Inc., Petaluma, CA (STI-3061).
- MacDonald C.P., Miller D.S., Raffuse S., and Dye T.S. (2006) WESTAR Ozone Transport Analysis. Presented at the WESTAR Fall Business Meeting, Boise, ID, by Sonoma Technology, Inc., Petaluma, CA, STI-3037, September.
- Raffuse S.M., Sullivan D.C., Chinkin L.R., Larkin S., and Solomon R. (2006) Expanding BlueSkyRAINS to support emission inventory preparation. Presented at the *U.S. Environmental Protection Agency's 15th Annual Emission Inventory Conference, New Orleans, LA, May 17*, by Sonoma Technology, Inc., Petaluma, CA, and U.S. Department of Agriculture, Forest Service, Seattle, WA (STI-2950).
- Brown S.G., Frankel A., Raffuse S.M., Hafner H.R., Roberts P.T., and Anderson B. (2005) Source apportionment of PM_{2.5} at Hercules-Glade, Missouri, using positive matrix factorization. Poster prepared for the *24th Annual American Association for Aerosol Research Conference, Austin, TX, October 17-21*, by Sonoma Technology, Inc., Petaluma, CA, and U.S. Environmental Protection Agency, Region 7 (STI-2739).
- Raffuse S.M., McCarthy M.C., and Miller D.S. (2005) Automated mapping tools for large spatial data sets. Presented at *Air & Waste Management Association Environmental Data Analysis: Assessing Health and Environmental Impacts, Oak Brook, IL, October 4* by Sonoma Technology, Inc., Petaluma, CA (STI-2707).

- Raffuse S.M., Brown S.G., Sullivan D.C., and Chinkin L.R. (2005) Estimating regional contributions to atmospheric haze. Presented at the *2005 ESRI International User Conference, San Diego, CA, July 26* (STI-2649).
- Raffuse S.M., Sullivan D.C., and Chinkin L.R. (2005) Emission impact potential - a method for relating upwind emissions to ambient pollutant concentrations. Presented at *the U.S. Environmental Protection Agency 14th International Emission Inventory Conference, Las Vegas, NV, April 11-14* by Sonoma Technology, Inc., Petaluma, CA (STI-2715, STI-2722).
- Brown S.G., McCarthy M.C., Raffuse S.M., and Hafner H.R. (2005) Assessment of ozone and PM_{2.5} exceedances on a national scale. Presentation at the *U.S. Environmental Protection Agency's 2005 National Air Quality Conference: Quality of Air Means Quality of Life, San Francisco, CA, February 12-13* (STI-2647).
- Raffuse S., Husar R., Poirot R., and Kleiman G. (2005) The FASTNET project. Presentation at the *U.S. Environmental Protection Agency's 2005 National Air Quality Conference: Quality of Air Means Quality of Life, San Francisco, CA, February 12-13* (STI-2646).
- Funk T.H., Penfold B.M., Raffuse S.M., and Stiefer, P.S. (2004) Using GIS technology for emission inventory development and improvement (case studies). Presented at *WESTAR GIS & Emission Inventory Development Workshop, Snowbird, UT, September 30 to October 1, 2004* (STI-904490-2614).
- Knoderer C.A., Raffuse S.M., Funk T.H., Dye T.S., and MacDonald C.P. (2004) Surface and upper-air meteorological representativeness in the San Joaquin Valley. Presentation to the *CRPAQS Data Analysis Workshop, Sacramento, CA, March 9-10* (STI-902324-2497).
- Raffuse S.M., Chan A.C., Funk T.H., Alcorn S.H., Strohm D.E., and Dye T.S. (2004) Incorporating ASOS visibility data in PM_{2.5} mapping. Presented at the *U.S. Environmental Protection Agency's 2004 National Air Quality Conference: Your Forecast to Breathe By, Baltimore, MD, February 22* (STI-2492).

Journal Articles

- Larkin N.K., O'Neill S.M., Solomon R., Raffuse S., Strand T.M., Sullivan D.C., Krull C., Rorig M., Peterson J., and Ferguson S.A. (2009) The BlueSky smoke modeling framework. *Int. J. Wildland Fire* **18** (8), 906-920 (doi:10.1071/WF07086).
- Soja A.J., Al-Saadi J., Giglio L., Randall D., Kittaka C., Pouliot G., Kordzi J.J., Raffuse S.M., Pace T., Pierce T.E., Moore T., Roy B., Pierce R.B., and Szykman J.J. (2009) Assessing satellite-based fire data for use in the National Emissions Inventory. *Journal of Applied Remote Sensing* **3**, 031504 (doi: 10.1117/1.3148859).
- Brown S.G., Frankel A., Raffuse S.M., Roberts P.T., Hafner H.R., and Anderson D.J. (2007) Source apportionment of fine particulate matter in Phoenix, AZ, using positive matrix factorization. *J. Air and Waste Manag. Assoc.* **57**, 741-752 (STI-2675).

Thesis

- Raffuse, S.M. (2003) Estimation of daily surface reflectance over the United States from the SeaWiFS sensor, M.S. Thesis, Washington University.

Formal Reports

- Craig K.J., Raffuse S.M., and Pryden D.A. (2010) BlueSky Framework version 3.1 installation guide and testing procedures for the Canadian Wildland Fire Information System extensions. Prepared for Environment Canada's Meteorological Service of Canada: Prairie and Northern Region, STI-909057-3830-FR, April.
- Reid S.B., Huang S., Pollard E.K., Craig K.J., Sullivan D.C., Zahn P., MacDonald C., and Raffuse S.M. (2009) An almanac for understanding smoke persistence during the 2008 fire season. Final report prepared for the U.S. Department of Agriculture, Forest Service, Pacific Southwest Region, STI-908045-3747-FR, November.
- Raffuse S.M., Pryden D.A., Sullivan D.C., Larkin N.K., Strand T., and Solomon R. (2009) SMARTFIRE algorithm description. Paper prepared for the U.S. Environmental Protection Agency, Research Triangle Park, NC, by Sonoma Technology, Inc., Petaluma, CA, and the U.S. Forest Service, AirFire Team, Pacific Northwest Research Laboratory, Seattle, WA STI-905517-3719, October.
- Raffuse S.M., Du Y., and Sullivan D.C. (2009) Development of wildland fire emission inventories for 2006-2008. Paper prepared for the U.S. Environmental Protection Agency, Research Triangle Park, CA, by Sonoma Technology, Inc., Petaluma, CA, STI-905517-3711, October.
- Sullivan D.C., Du Y., and Raffuse S.M. (2009) SMARTFIRE- and BlueSky-enabled methodology for developing wildland fire emission inventories for 2006-2008. Technical memorandum prepared for the U.S. Environmental Protection Agency, Research Triangle Park, NC, by Sonoma Technology, Inc., Petaluma, CA, STI-905517-3714, October.
- Larkin N.K., Raffuse S.M., Pryden D.A., Healy A.N., Unger K.D., Strand T.M., and Solomon R. (2009) Conversion of the BlueSky Framework into collaborative web service architecture and creation of a smoke modeling application. Final report prepared for the Joint Fire Science Program, September 30.
- Larkin N.K., Solomon R., Strand T.M., Raffuse S.M., Pollard E.K., and Potter B. (2009) Uncertainties in the use of fuel consumption models, fuel loading maps, and fire reporting systems. Final report prepared for the Joint Fire Science Program, September 30.
- Wheeler J.M., Reed J.E., Unger K., Raffuse S.M., Ludewig S.A., Funk T.H., and Gray E.A. (2009) Interagency Fuels Treatment Decision Support System software design specifications. Software specifications prepared for the Joint Fire Science Program, Boise, ID, by Sonoma Technology, Inc., Petaluma, CA, STI-909029.03-3664-SS, August 18.
- Drury S.A., Rauscher H.M., Raffuse S.M., and Funk T.H. (2009) Refined work flow scenarios and proposed proof of concept system functionality for the interagency fuels treatment decision support system. Final report prepared for The Joint Fire Science Program, Boise, ID by Sonoma Technology, Inc., Petaluma, CA, and Rauscher Enterprises LLC, Leicester, NC, STI-909029.02-3655-FR, July.
- Funk T.H., Raffuse S.M., Chinkin L.R., and Rauscher H.M. (2009) The development of an Interagency Fuels Treatment Decision Support System. Presentation made to the Joint Fire Science Program, The National Interagency Fuels Coordination Group, Boise, ID by Sonoma Technology, Inc., Petaluma, CA, and the Joint Fire Science Program, Boise, ID, STI-908038-3587, March 31.
- Funk T.H., Corman R.G., Reed J.E., Raffuse S.M., and Wheeler N.J.M. (2009) The Interagency Fuels Treatment Decision Support System (IFT-DSS) software architecture. Software architecture design prepared for the Joint Fire Science Program, Boise, ID, by Sonoma Technology, Inc., Petaluma, CA, STI-908038.04-3565, March.

- Stone J.M., Wade K.S., and Raffuse S.M. (2009) Vertical analysis of smoke plumes using satellite data. Extended abstract prepared by Sonoma Technology, Inc., Petaluma, CA, (STI-3577), March.
- Funk T.H., Rauscher M., Raffuse S.M., and Chinkin L.R. (2008) Findings of the current practices and needs assessment for the Interagency Fuels Treatment Decision Support System (IFT-DSS) project. Technical memorandum prepared for the Interagency Fuels Treatment Work Group (IFTWG), by Sonoma Technology, Inc., Petaluma, CA, and the Air Fire Science Team, Seattle, WA, STI-908038.01-3504, December.
- Reid S.B., Chinkin L.R., McCarthy M.C., Raffuse S.M., and Brown S.G. (2008) A comparison of ambient measurements to emissions representations for modeling to support the Central California Ozone Study (CCOS). Final report prepared for the California Air Resources Board, Sacramento, CA, by Sonoma Technology, Inc., Petaluma, CA, STI-905044.13-3144-FR, October.
- Raffuse S.M., Sullivan D.C., McCarthy M.C., Penfold B.M., and Hafner H.R. (2007) Ambient air monitoring network assessment guidance: Analytical techniques for technical assessments of ambient air monitoring networks. Guidance document prepared for the U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards, Research Triangle Park, NC, by Sonoma Technology, Inc., Petaluma, CA, EPA-454/D-07-001 (STI-905212.02-2805-GD), February.
- Wade K.S., Brown S.G., Raffuse S.M., and Hafner H.R. (2006) Assessment of wood smoke air pollution. Literature review and case study analysis prepared for the U.S. Environmental Protection Agency, Research Triangle Park, NC, by Sonoma Technology, Inc., Petaluma, CA, STI-906204-3104, December.
- Reid S.B., Sullivan D.C., Cozzo E.M., Penfold B.M., Raffuse S.M., and Funk T.H. (2006) Compilation of emission growth factors, emission growth surrogates, and activity projections used in forecasting area, point, or mobile source emissions. Final compilation prepared for the San Joaquin Valley Unified Air Pollution Control District, Fresno, CA, by Sonoma Technology, Inc., Petaluma, CA, STI-905032-2868-FC, December.
- MacDonald C.P., Miller D.S., and Raffuse S.M. (2006) Regional and local contributions to peak local ozone concentrations in six western cities. Final report prepared for the Western States Air Resources Council, Seattle, WA, by Sonoma Technology, Inc., Petaluma, CA, STI-906004-2970-FR, May.
- Sullivan D.C., Hafner H.R., Brown S.G., MacDonald C.P., Raffuse S.M., Penfold B.M., and Roberts P.T. (2005) Analyses of the causes of haze for the Central States (Phase II) Summary of findings. Executive summary prepared for the Central States Regional Air Planning Association by Sonoma Technology, Inc., Petaluma, CA, STI-904780.08-2754-ES, August.
- Brown S.G., Vaughn D.L., Raffuse S.M., and Roberts P.T. (2005) Validation guidelines for and analyses of Aethalometer™ black carbon data collected at the Phoenix supersite from October 2003 through March 2005. Executive summary prepared for the Arizona Department of Environmental Quality, Phoenix, AZ, by Sonoma Technology, Inc., Petaluma, CA, STI-905020.02-2768-ES, June.
- Brown S.G., Vaughn D.L., Raffuse S.M., Frankel A., Hafner H.R., and Roberts P.T. (2005) Analysis and comparison of Aethalometer black carbon with multiple thermal measurements of elemental carbon in Phoenix, Arizona. Technical memorandum prepared for the Arizona Department of Environmental Quality, Phoenix, AZ, by Sonoma Technology, Inc., Petaluma, CA, STI-905020.02-2767-TM, June.
- Raffuse S.M. and Chinkin L.R. (2005) Emission inventory reconciliation in the CRPAQS study area. Final report prepared for the California Air Resources Board, Sacramento, CA, by Sonoma Technology, Inc., Petaluma, CA, STI-902327-2751-FR, July.
- Sullivan D.C., Reid S.B., Penfold B.M., and Raffuse S.M. (2004) An emission inventory of toxic air pollutants for South Phoenix and recommendations for further inventory development. Final report

prepared for the Arizona Department of Environmental Quality, Phoenix, AZ, by Sonoma Technology, Inc., Petaluma, CA, STI-903773-2670-FR, December.

Reid S.B., Sullivan D.C., Penfold B.M., Funk T.H., Tamura T.M., Stiefer P.S., Raffuse S.M., and Arkinson H.L. (2004) Emission inventory development for mobile sources and agricultural dust sources for the Central States. Final report prepared for The Central States Air Resource Agencies and The Central Regional Air Planning Association, Oklahoma City, OK, by Sonoma Technology, Inc., Petaluma, CA, STI-903574-2611-FR, October.

Reid S.B., Sullivan D.C., Funk T.H., Tamura T.M., Stiefer P.S., Penfold B.M., and Raffuse S.M. (2004) Emission estimation methods for mobile sources and agricultural dust sources in the Central States. Methods document prepared for The Central States Air Resource Agencies and The Central Regional Air Planning Association, Oklahoma City, OK, by Sonoma Technology, Inc., Petaluma, CA, STI-903574-2610-MD, September.

Knoderer C.A. and Raffuse S.M. (2004) CRPAQS surface and aloft meteorological representativeness (California Regional PM₁₀/PM_{2.5} Air Quality Study Data Analysis Task 1.3). Web page prepared for the California Air Resources Board, Sacramento, CA, by Sonoma Technology, Inc., Petaluma, CA, STI-902324-2786, April. Available on the Internet at <<http://www.sonomatechdata.com/crpaqsmetrep/>>.