

## Journal Articles

- Timoshek A., Eisinger D.S., Bai S., and Niemeier D. (2010) Mobile Source Air Toxics Emissions: Sensitivity to Traffic Volume, Fleet Composition, and Average Speed. *Transportation Research Record, Journal of the Transportation Research Board* (accepted).
- Hixson M., Mahmud A., Jianlin Hu, Bai S., Niemeier D.A., Handy S.L., Shengyi Gao, Lund J.R., Sullivan D.C., and Kleeman M.J. (2010) Influence of regional development policies and clean technology adoption on future air pollution exposure. *Atmos. Environ.* **44**, 552-562 (doi: 10.1016/j.atmosenv.2009.10.041).
- Chen H., Bai S., Eisinger D.S., Niemeier D., and Claggett M. (2009) Predicting near-road PM<sub>2.5</sub> concentrations: comparative assessment of CALINE4, CAL3QHC, and AERMOD. *Transportation Research Record, Journal of the Transportation Research Board* **2123**, 26-37 (doi: 10.3141/2123-04).
- Karner A., Eisinger D.S., Bai S., and Niemeier D. (2009) Mitigating diesel truck impacts in environmental justice communities: transportation planning and air quality in Barrio Logan, San Diego. *Transportation Research Record, Journal of the Transportation Research Board* **2125**, 1-8 (doi: 10.3141/2125-01).
- Niemeier D.A., Bai S., and Handy S. (2008) Linking land use, transportation and air quality: impact of urban growth patterns on vehicle travel and pollutant emissions. *Journal of Transport and Land Use* (under review).
- Wang G., Bai S., and Ogden J.M. (2008) Identifying contributions of on-road motor vehicles to urban air pollution using travel demand model data. *Transportation Research Part D: Transport and Environment* (accepted on December 19, 2008).
- Bai S., Chiu Y.-C., and Niemeier D.A. (2007) A comparative analysis of using trip-based versus link-based traffic data for regional mobile source emissions estimation. *Atmos. Environ.* **41**, 7512-7523 (doi: 10.1016/j.atmosenv.2007.05.051).
- Bai S., Nie Y., and Niemeier D.A. (2007) The impact of speed post-processing methods on regional mobile emissions estimation. *Transportation Research Part D: Transport and Environment*, **12** (5), 307-324.
- Bai S., Chiu Y.C., and Niemeier D.A. (2007) Using dynamic assignment to improve regional mobile emissions estimation. *Transportation* (under review).
- Zhu Y., Bai S., Li Z., and Zhao F. (2000) Non-discrete sample model for fuzzy comprehensive evaluation. *Journal of Tsinghua University (Sci & Tech)* **40** (8), 125-128.
- Bai S. and Meng X.H. (1998) Analysis of strategies for unifying the national housing design and construction standard. *Construction Economics*, **12**, 36-38.

## Meeting Presentations and Conference Proceedings

- Reid S.B., Roberts P.T., Eisinger D.S., Wheeler N.J.M., Bai S., and Chenausky B.T. (2010) Field study of PM<sub>2.5</sub> emissions from a road-widening project. *CRC On-Road Vehicle Emissions Workshop, San Diego, CA, March 24* (STI-3740).
- Timoshek A., Eisinger D.S., Bai S., and Niemeier D. (2010): Mobile source air toxics emissions: sensitivity to traffic volume, fleet composition, and average speed. Accepted for presentation at the *Transportation Research Board (TRB) 89th Annual Meeting, Washington, D.C., January 10-14*.
- Bai S., Eisinger D., Wang R., and Niemeier D. (2009) Construction equipment retrofits and replacements: a new tool to estimate emission reduction benefits. Presented at the *19th CRC On-road Emissions Workshop, San Diego, CA, March 24* (STI-3597).

- Bai S., Eisinger D., and Niemeier D. (2009) MOVES vs. EMFAC: a comparison of greenhouse gas emissions using Los Angeles County. Presented at the *Transportation Research Board (TRB) 88th Annual Meeting, Washington, D.C., January 13* (STI-3541).
- Chen H., Bai S., Eisinger D.S., Niemeier D., and Claggett M. (2009) Predicting near-road PM<sub>2.5</sub> concentrations: a comparative assessment of CALINE4, CAL3QHC and AERMOD. Presented at the *Transportation Research Board (TRB) 88th Annual Meeting, Washington, D.C., January 13*.
- Karner A., Eisinger D.S., Bai S., and Niemeier D.A. (2009) Mitigating diesel truck impacts in environmental justice communities: transportation planning and air quality in Barrio Logan, San Diego. Presented at the *Transportation Research Board 88th Annual Meeting, Washington, D.C., January 13*.
- Bai S. (2008) The impact of speed variability and dynamic assignment methods on regional vehicle emissions inventories. Presented at the *Seminar of Civil Engineering & Engineering Mechanics Department, University of Arizona, Tucson, AZ, April 25*.
- Bai S., Chiu Y.C., and Niemeier D.A. (2008) Using dynamic assignment to improve regional mobile emissions estimation. Presented at the *Transportation Research Board 87th Annual Meeting, Washington, DC, January 13*.
- Bai S., Eisinger D.S., and Niemeier D. (2007) Mobile source air toxics (MSATs): assessing project-level impacts. Presented at the *2007 CAPCOA Health Conference: Understanding and Addressing Health Impacts of Air Pollution on Communities, Carson, CA, September 19*, by the UC Davis-Caltrans Air Quality Project.
- Bai S., Niemeier D.A., Handy S.L., Gao S., Lund J.R., and Sullivan D.C. (2007) Integrated impacts of regional development, land use strategies and transportation planning on future air pollution emissions. Presented at the *Transportation Land-use Planning & Air Quality Conference, Orlando, Florida, July 9*.
- Bai S., Chiu Y.C., and Niemeier D.A. (2007) Comparative analysis: effect of trip-based versus link-based traffic data on regional mobile emissions estimation. Presented at the *Transportation Research Board 86th Annual Meeting, Washington, DC, January 21*.
- Bai S., Eisinger D., and Niemeier D. (2007) Project-level air toxics: emissions modeling procedures using EMFAC and U.C. Davis spreadsheet application. Presented at the *Federal Highway Administration MSAT Training Workshops, San Diego and Sacramento, CA, January 8-9* by Caltrans and the U.C. Davis-Caltrans Air Quality Project.
- Bai S., Eisinger D., and Niemeier D. (2006) Project-level air toxics: southern California case study using a new analysis framework. Presented at the *CRC MSAT Workshop, Phoenix, AZ, October 25*, University of California, Davis-Caltrans Air Quality Project, Davis, CA.
- Bai S., Nie Y., and Niemeier D.A. (2005) Impact of speed post-processing methods on regional mobile emissions estimation. Presented at the *Transportation Research Board 84th Annual Meeting, Washington, D.C., January 10*.
- Bai S., Nie Y., and Niemeier D.A. (2004) Evaluating speed post-processors for regional mobile emissions estimation. Presented at the *INFORMS Annual Meeting, Denver, CO, October 26*.
- Bai S. and Zhu Y. (2000) Statistical analysis of housing satisfaction index system. Presented at the *5th Annual Conference of Asian Real Estate Society, Beijing, China, July 27*.

## Formal Reports

- Bai S., Phillips J., Eisinger D.S., Amador J., Black T., Waters M., and Reid S.B. (2010) TESTER: The emissions sensitivity tool to evaluate CO<sub>2</sub> reductions. Prepared for Supin Yoder, Office of Planning, U.S. Federal Highway Administration, STI-908062-3842-FR, March.
- Niemeier D., Eisinger D.S., and Bai S. (2009) Developing effective and quantifiable air quality mitigation measures: overview report. Prepared for the U.C. Davis-Caltrans Air Quality Project, October 29.
- Norris G., Vedantham R., Wade K., Brown S., Prouty J., Bai S., DeWinter J., and Foley C. (2009) EPA Positive Matrix Factorization (PMF) 4.0 Fundamentals and User Guide. Prepared for the National Exposure Research Laboratory, U.S. Environmental Protection Agency, by Sonoma Technology, Inc., Petaluma, CA, STI-909017, September.
- Bai S., Eisinger D.S., Waters M., Phillips J., and Black T. (2009) Brief literature review, data compilation, and modeling approach. Land use changes and greenhouse gas emissions: a new analysis tool for small and medium metropolitan areas. Prepared for the Federal Highway Administration Office of Planning, Olympia Fields, IL, by Sonoma Technology, Inc., Petaluma, CA, Washington State Department of Transportation, Seattle, WA, Washington State Department of Commerce, Olympia, WA, and Thurston Regional Planning Council, Olympia, WA, STI-908062-3717-TM, September.
- Fuller M., Bai S., Eisinger D.S., and Niemeier D. (2009) Practical mitigation measures for diesel particulate matter: near-road vegetation barriers. Report prepared for the U.C. Davis-Caltrans Air Quality Project, July 14.
- Wang R., Eisinger D.S., Bai S., and Niemeier D. (2008) Construction equipment retrofits and replacements: a new tool to estimate emission reduction benefits. Final report prepared by the U.C. Davis-Caltrans Air Quality Project, Davis, CA, Task Order No. 81, December 30.
- Karner A., Eisinger D.S., Bai S., and Niemeier D. (2008) Mitigating diesel truck impacts in environmental justice communities: transportation planning and air quality in Barrio Logan, San Diego. Report prepared for the U.C. Davis-Caltrans Air Quality Project, November 30.
- Roberts P.T., Reid S.B., Eisinger D.S., and Bai S. (2008) Field study of PM<sub>2.5</sub> emissions generated from road widening project. Technical memorandum prepared for the Arizona Department of Transportation by Sonoma Technology, Inc., Petaluma, CA, STI-908017.03-3493, November.
- Bai S., McCarthy M.C., and Hafner H.R. (2008) Development of a new AQI indicator - progress report. Technical memorandum prepared for Eastern Research Group, Lexington, MA, by Sonoma Technology, Inc., Petaluma, CA, STI-908401.02-3487, October.
- Bai S., Eisinger D., and Niemeier D. (2008) MOVES vs. EMFAC: A comparative assessment based on a Los Angeles County case study. Prepared by the U.C. Davis-Caltrans Air Quality Project, Davis, CA, Task Orders No. 9 and 53, August 22.
- Chen H., Bai S., Eisinger D., Niemeier D., and Claggett M. (2008) Modeling uncertainties and near-road PM<sub>2.5</sub>: a comparison of CALINE4, CAL3QHC and AERMOD. Prepared by the U.C. Davis-Caltrans Air Quality Project, Davis, CA, Task order numbers 67 and 80, August 21.
- Wu P., Bai S., Eisinger D., and Niemeier D. (2007) CT-EMFAC: a computer model to estimate transportation project emissions. Prepared for the California Department of Transportation, Division of Transportation Planning, Sacramento, CA, by the UC Davis-Caltrans Air Quality Project, Davis, CA, Task Orders No. 61 and 67, December 10.
- Bai S., Eisinger D., and Niemeier D. (2006) Estimating mobile source air toxics emissions: a step-by-step project analysis methodology. Report prepared for the California Department of Transportation,

Sacramento, CA, by the University of California, Davis-Caltrans Air Quality Project, Davis, CA, October.

Tamura T.M., Bai S., Eisinger D.S., and Sullivan D.C. (2004) Revision of the Minneapolis-St. Paul Carbon Monoxide Maintenance Plan. Final report prepared for the Minnesota Pollution Control Agency, St. Paul, MN, by Sonoma Technology, Inc., Petaluma, CA, STI-904360-2583-FR, August.

### **Book Chapters**

Niemeier D. and Bai S. (2008) Urban travel demand modeling. In *Transportation planning handbook*, 3rd edition, Institute of Transportation Engineers, Washington, DC

### **Peer-Review Service**

Transportation Research Part A: Policy and Practice (2008-present).

Transportation Research Board (TRB), annual conference papers sponsored by the Committee on Transportation and Air Quality (2006-present)

### **Software**

Bai S., Amador J., Eisinger D.S., Reid S., Waters M., Black T., Phillips J. (2010) TESTER (Beta Version 3.0): The Emissions Sensitivity Tool to Evaluate CO<sub>2</sub> Reductions. Prepared for the U.S. Federal Highway Administration. Prepared by Sonoma Technology, Inc., the Washington State Department of Transportation, the Thurston Regional Planning Council, and the Washington State Department of Commerce. March 31.

Bai S., Prouty J.D., and Eisinger D.S. (2010) CT-EMFAC: a batch mode version of the UC Davis CT-EMFAC tool Software Prepared for the California Department of Transportation Division of Transportation Planning. March 26.

Wu P., Bai S., Eisinger D.S., and Niemeier D. (2008) CT-EMFAC. Prepared by the U.C. Davis-Caltrans Air Quality Project, Task Order No. 61 and 67.

Wang R., Eisinger D.S., Bai S., and Niemeier D. (2008) Construction equipment retrofit and replacement tool. Prepared by the U.C. Davis-Caltrans Air Quality Project, Task Order No. 81.

### **Thesis**

Bai S. (2006) The impact of dynamic assignment methods and speed variability on regional vehicle emissions inventories. Ph.D. dissertation, Civil and Environmental Engineering, University of California at Davis, Davis, CA