

Brian Lamb

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Education

Ph. D. Div of Chemistry and Chemical Engineering, California Institute of Technology, 1978
B. S. Chemistry, Idaho State University, 1973

Research Interests

Dr. Lamb has been involved in atmospheric pollutant transport and dispersion studies for more than twenty five years. This has involved a combination of atmospheric tracer field studies and the development, evaluation, and application of a variety of air quality models. Currently, Dr. Lamb is directing the development of a real-time urban air quality forecast system for the Pacific Northwest as well as a project to investigate the effects of global change on regional air quality supported through the EPA STAR grant program. For the forecast system, model evaluation has been expanded through a NASA grant to incorporate satellite air quality measurements into the model evaluation process. Dr. Lamb has also directed the development of a smoke dispersion forecast system for agricultural field burning and a regional windblown dust air quality model for the Columbia Plateau region of eastern Washington. In related work, Dr. Lamb has developed atmospheric tracer instrumentation—portable syringe samplers and real-time continuous tracer analyzers—which have been widely used at WSU and by others to probe the nature of pollutant transport and dispersion over scales ranging from a few meters to hundreds of kilometers. Most recently, Dr. Lamb directed the development of an automated profiling system for SF₆ that was successfully deployed in a large Homeland Security urban dispersion study in Oklahoma City and in a number of nighttime drainage flow studies related to carbon respiration in forest canopies.

Dr. Lamb is also involved in research concerning biogenic trace gas emissions and their role in atmospheric chemistry. The EPA Biogenic Emission Inventory System (BEIS) was originally developed under his direction at WSU. Recent studies involve the application of eddy flux and disjunct eddy accumulation methods. Dr. Lamb also directed WSU participation in a significant field program to investigate emissions and air quality in Mexico City. This work includes the first direct VOC flux measurements reported for an urban landscape.

Recent Wind Erosion/Air Quality Related Publications

- Chen, J., J. Vaughan, J. Avise, S. O'Neill, and B. Lamb (2008), Enhancement and evaluation of the AIRPACT ozone and PM_{2.5} forecast system for the Pacific Northwest, *J. Geophys. Res.*, *113*, D14305, doi:10.1029/2007JD009554.
- Chen, J., Avise, J., Lamb, B., Salathe, E., Mass, C., Guenther, A., Wiedinmyer, C., Lamarque, J-F., O'Neill, S., McKenzie, D., Larkin, N., 2008. The effects of global changes upon regional ozone pollution in the United States, *Atmospheric Chemistry and Physics Discussion*, in press.
- Avise, J., J. Chen, B. Lamb, C. Wiedinmyer, A. Guenther, E. Salathe, and C. Mass, 2008. Attribution of projected changes in U.S. ozone and PM_{2.5} concentrations to global changes, online in *Atmos. Chem. Phys. Disc.*
- Jain, R., J. Vaughan, K. Heitkamp, C. Ramos, C. Claiborn, M. Schreuder, M. Schaaf and B. Lamb, 2006. Development of the ClearSky smoke dispersion forecast system for agricultural field burning in the Pacific Northwest, *Atmos Environ.* *41*, 6745-6761.
- Kjelgaard, J., B. Sharratt, I. Sundram, B. Lamb, C. Claiborn, K. Saxton, and D. Chandler. 2004. PM₁₀ emission from agricultural soils on the Columbia Plateau: Comparison of dynamic and time integrated field scale measurements and entrainment mechanisms. *Agricultural and Forest Meteorology* *125*:259-277.

Links:

<http://lar.wsu.edu>

<http://lar.wsu.edu/nw-airquest/>

<http://lar.wsu.edu/airpact-3/>

<http://clearsky.wsu.edu>