

Rachelle M. Duvall, Research Physical Scientist, in EPA's National Exposure Research Laboratory

Exposure Methods and Measurements Division

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Area of Expertise: Rachelle's background is in the development and evaluation of receptor-based source apportionment models (CMB, PMF, and Unmix) and linking air pollution sources to health effects. Her current research focus includes: (1) the development and implementation of Federal Reference and Equivalent Methods (FRM/FEM) for criteria air pollutants, and (2) water-soluble organic carbon methods development.

Select Publications:

Baxter L.K., Duvall R.M., Sacks J., Examining the effects of air pollution composition on within regional differences in PM_{2.5} mortality effect risk estimates, *Journal of Exposure Science and Environmental Epidemiology*, DOI: 10.1038/jes.2012.114.

Duvall R.M., Norris G.A., Burke J.M., Olson D.A., Vedantham R., Williams R. (2012) Determining spatial variability in PM_{2.5} source impacts across Detroit, MI, *Atmospheric Environment*, 27, 491-498.

Zota A., Willis R., Jim R., Norris G.A., Shine J.P., Duvall R.M., Schaidler L.A., Spengler J.D. (2009) Impact of mine waste on airborne respirable particulates in northeastern Oklahoma, USA, *Journal of the Air & Waste Management Association*, 59, 1347-1357.

Junninen H., Monster J., Rey M., Cancelinha J., Douglas K., Duane M., Forcina V., Muller A., Lagler F., Marelli L., Borowiak A., Niedzialek J., Paradiz B., Mira-Salama D., Jimenez J., Hansen U., Astorga C., Stanczyk K., Viana M., Querol X., Duvall R.M., Norris G.A., Tsakovski S., Wahilin P., Larsen B.R. (2009) Quantifying the impact of residential heating on the urban air quality in a typical European coal combustion region, *Environmental Science & Technology*, 43, 7964-7970.

Duvall R.M., Norris G.A., Dailey L.A., Burke J.M., McGee J.K., Gilmour M.I., Gordon T., Devlin R.B. (2008) Source apportionment of particulate matter in the U.S. and associations with lung inflammatory markers, *Inhalation Toxicology*, 20, 671-683.

Bullock K.R., Duvall R.M., Norris G.A., McDow S.R., Hays M.D. (2008) Evaluation of the CMB and PMF models using organic molecular markers in fine particulate matter collected during the Pittsburgh Air Quality Study, *Atmospheric Environment*, 42, 6897-6904.

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Education:

- Ph.D., Civil & Environmental Engineering, University of Wisconsin-Madison, 2005
- M.S., Civil & Environmental Engineering, University of Wisconsin-Madison, 2002
- B.S., Chemical Engineering, University of Rochester, 2000

Professional Experience:

- Research Physical Scientist, USEPA,ORD,NERL,HEASD, Research Triangle Park, NC 2007-present
- Acting Associate Director for Air Research, USEPA,ORD,NERL,HEASD, Research Triangle Park, NC 2009-2010
- Physical Scientist (Postdoctoral), USEPA,ORD,NERL,HEASD, Research Triangle Park, NC 2005-2007
- Adjunct Assistant Professor, North Carolina Central University, College of Science & Technology, Durham, NC 2006-2008
- Graduate Research Assistant, University of Wisconsin-Madison, Madison, WI 2000-2005