

Steven G. Perry, Research Physical Scientist, in EPA's National Exposure Research Laboratory

Computational Exposure Division

[Mailing Address](#)

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Area of Expertise: My research is focused on the study of atmospheric boundary layer flows as they relate to the near-field transport, dispersal, and deposition of atmospheric pollutants. Much of my work at the Agency has been directed toward the development of applied computer algorithms for simulating pollutant movement and fate, many of which have been adopted by the agency for formal regulatory analyses. This has included the development of EPA's current refined regulatory models for rural and urban areas (AERMOD model), complex terrain applications (CTDMPLUS model) and the methodologies for estimating impacts from open-pit surface coal mine operations, and aerial and ground applications of agricultural pesticides (AgDRIFT model).

For the past 18 years I have been the science team co-lead at EPA's Fluid Modeling Facility. Recent laboratory studies have been designed and conducted to investigate flow, turbulence and dispersion in urban and industrial environments. Current research is focused on improving our understanding of the complex flows around building structures and near roadway structures through laboratory wind tunnel studies and in the development of improved numerical modeling tools (AERMOD and RLINE) for these dispersion scenarios.

Select Publications:

Perry, S., D. Heist, L. Brouwer, E. Monbureau, AND L. Brixey. Characterization of pollutant dispersion near elongated buildings based on wind tunnel simulations. *ATMOSPHERIC ENVIRONMENT*. Elsevier Science Ltd, New York, NY, 142:286-295, (2016).

Heist, D., C. Hood, A. Venkatram, S. Perry, V. Isakov, M. Snyder, L. Brouwer, D. Carruthers, J. Stocker, AND S. Smith. Evaluation of US and UK Models in Simulating the Impact of Barriers on Near-Road Air Quality. ISES 2015 Annual Meeting, Henderson, NV, October 18 - 22, 2015.

Heist, D., C. Hood, A. Venkatram, M. Snyder, V. Isakov, S. Perry, D. Carruthers, J. Stocker, AND S. Smith. "Dispersion modeling approaches for near road. 16th International Conference on Harmonisation within Atmospheric Dispersion Modeling for Regulatory Purposes, Varna, BULGARIA, September 08 - 11, 2014.

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Education:

- B.S., Physics and Mathematics, Austin Peay St. Univ., 1974
- M.S., Meteorology, The Pennsylvania State Univ., 1977
- Ph.D., Meteorology, The Pennsylvania State Univ., 1985

Professional Experience:

- Research Physical Scientist, Team co-lead, Fluid Modeling Facility, Atmospheric Model Application and Analysis Branch, CED/NERL/EPA, RTP, NC, 2015 – present.
- Research Physical Scientist, Team co-lead, Fluid Modeling Facility, Atmospheric Exposure Integration Branch, AMAD/NERL/EPA, RTP, NC, 2008 – 2015.
- Meteorologist, Physical Scientist, Team lead, Fluid Modeling Facility, Air-Surface Processes Modeling Branch, ASMD/ARL/NOAA, RTP, NC, 2000 – 2008
- Meteorologist, Physical Scientist, Applied Modeling Branch, ASMD/ARL/NOAA, RTP, NC, 1985 – 2000
- Air Quality Planning Meteorologist, North Carolina Division of Environmental Management, Raleigh, NC, 1981 - 1985