

Jonathan E. Pleim, Branch Chief, in EPA's National Exposure Research Laboratory

Computational Exposure Division

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Area of Expertise: My core expertise is in development of atmospheric models for simulation of meteorology and air quality. I have been involved with the development meteorology models such as MM4, MM5, WRF and now MPAS; and air quality (AQ) models such as ADOM, RADM, and CMAQ. I have developed an atmospheric boundary layer model called the Asymmetric Convective Model version 2 (ACM2) and the land-surface model called the PX-LSM which are both widely used in WRF and in CMAQ. I have also developed dry deposition and bi-directional surface flux models for CMAQ and been involved in many other physics and dynamics components of these models. As Chief of the Atmospheric Model Development Branch I oversee the continued development of CMAQ and the WRF-CMAQ coupled meteorology and AQ modeling system and the new development of the Next Generation AQ model.

Select Publications:

Ran, L., R. Gilliam, F. S. Binkowski, A. Xiu, J. Pleim, and L. Band (2015), Sensitivity of the Weather Research and Forecast/Community Multiscale Air Quality modeling system to MODIS LAI, FPAR, and albedo, *J. Geophys. Res. Atmos.*, 120, 8491–8511, doi:10.1002/2015JD023424.

Fu, X., Wang, S. X., Ran, L. M., Pleim, J. E., Cooter, E., Bash, J. O., Benson, V., and Hao, J. M.: Estimating NH₃ emissions from agricultural fertilizer application in China using the bi-directional CMAQ model coupled to an agro-ecosystem model, *Atmos. Chem. Phys.*, 15, 6637-6649, doi:10.5194/acp-15-6637-2015, 2015.

Xing, J., Mathur, R., Pleim, J., Hogrefe, C., Gan, C.M., Wong, D.C., Wei, C. and Wang, J., 2015. Air pollution and climate response to aerosol direct radiative effects: A modeling study of decadal trends across the northern hemisphere. *Journal of Geophysical Research: Atmospheres*.

Xing, J., Mathur, R., Pleim, J., Hogrefe, C., Gan, C. M., Wong, D. C., & Wei, C. (2015). Can a coupled meteorology–chemistry model reproduce the historical trend in aerosol direct radiative effects over the Northern Hemisphere? *Atmospheric Chemistry and Physics*, 15(17), 9997-10018.

View more research publications by [Jonathan Pleim](#).

Education:

- B.S. in Atmospheric Science, 1978, Cornell University

- M.S. in Atmospheric Science, 1981, State University of New York at Albany
- Ph.D. in Atmospheric Science, 1990, State University of New York at Albany

Professional Experience:

- Chief, Atmospheric Model Development Branch, USEPA/ORD/NERL/CED, Research Triangle Park, NC, 2015-present
- Chief, Atmospheric Model Development Branch, USEPA/ORD/NERL/AMAD, Research Triangle Park, NC, 2011-2015
- Acting Chief, Applied Modeling Branch, USEPA/ORD/NERL/AMAD, Research Triangle Park, NC, 2009-2011
- Research Physical Scientist, USEPA/ORD/NERL/AMAD/AMDB, Research Triangle Park, NC, 2008 – 2009
- Physical Scientist, NOAA Atmospheric Sciences Modeling Division (in partnership with USEPA/NERL), Research Triangle Park, NC, 1990–2008
- Air Quality Meteorologist, Environmental Research and Technology, Inc., 1981–1987

Honors and Awards:

- 2015 STAA Level III Award for Linking Agricultural Management and Air-Quality Models for Regional to National-Scale Nitrogen Deposition Assessments.
- 2015 STAA Level III Award for WRF-CMAQ two-way coupled system with aerosol feedback: software development and preliminary results.
- 2013 STAA Level III Award for Incremental Testing of the Community Multiscale Air Quality (CMAQ) Modeling System Version 4.7
- EPA ORD Bronze Medal, 2013, Integrated Air Quality-Biosphere System Team
- EPA Silver Medal, 2011, for scientific leadership in developing and delivering integrated atmospheric modeling systems to inform policies that simultaneously address air quality, climate change, and energy systems
- NERL Special Achievement Award, 2010, for demonstrating excellence in advancing the state-of-the-science in atmospheric modeling
- EPA Gold Medal for Exceptional Service in 2009, Air Quality Forecasting
- EPA Bronze Medal, 2009, CMAQ Modeling Team
- NERL Special Achievement Award, 2009, CMAQ Modeling Team
- NOAA Silver Medal, 2005, Air Quality Forecasting
- EPA Bronze Medal, 2004, CMAQ Model Development