Ellen Cooter, in EPA's National Exposure Research Laboratory

Computational Exposure Division
Mailing Address

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Area of Expertise: My broad multi-disciplinary background has allowed me to make research contributions in the fields of climate change applications, multi-media/air-surface exchange modeling and climate/ecosystem interactions. Most recently I have lead the development of the Fertilizer Emission Scenario Tool for CMAQ (FEST-C) system. The system includes a GUI and software tools that provide the detailed agricultural management and biogeochemical input information required by the bi-directional ammonia flux version of the USEPA Community Multi-Scale Air Quality model. Bidirectional CMAQ is used to estimate ambient pollutant concentrations including fine particulate matter and nitrogen deposition to land surfaces and water bodies. Ongoing research includes the coupling of FEST-C results with the Soil and Water Assessment Tool (SWAT) model in order to improve regional estimates of the multi-media transport of agricultural nutrient loadings to streams, lakes, estuaries and coastal zones.

Select Publications:

Cooter, E. J. and S. K. LeDuc, 1995. "Recent frost date trends in the north-eastern USA." International Journal of Climatology, 15: 65-75.

Cooter, E. J. and D. Schwede, 2000. "Sensitivity of the NOAA multilayer model to instrument error and parameterization uncertainty," Journal of Geophysical Research, 105 (D5): 6695-6707

Cooter, E.J., Hutzell, W.T., Foreman W., and Majewski, M., 2002. "A Regional Atmospheric Fate and Transport Model for Atrazine. 2. Evaluation," Environ. Sci. Technol. , 36 (21): 4593-4599.

Cooter, E., Bash, J., Benson, V. and Ran, L., 2012. Linking Agricultural Crop Management and Air Quality Models for Regional to National-Scale Nitrogen Assessments. Biogeosciences, 9: 4023-4035. www.biogeosciences.net/9/4023/2012; doi:10.5194/bg-9-4023-2012.

Garcia V, Cooter E, Crooks J, Hinckley B, Murphy M, Xing X. 2017. Examining the impacts of increased corn production on groundwater quality using a coupled modeling system. Science of the Total Environment, doi: 10.1016/j.scitotenv.2017.02.009

McCrackin, M., E.J. Cooter, R.L. Dennis, J.A. Harrison and J.E. Compton, 2017. "Alternative Futures of Dissolved Inorganic nitrogen export from the Mississippi River Basin: Influence of crop management, atmospheric deposition, and population growth." Biogeochemistry http://link.springer.com/article/10.1007/s10533-017-0331-z

View more research publications by Ellen Cooter.

Education:

- B.S. Meteorology - University of Oklahoma - 1976
- M.S. Meteorology - University of Oklahoma - 1978
- Ph.D. Meteorology (Interdisciplinary) University of Oklahoma - 1985

Professional Experience:

- Research Physical Scientist – USEPA/ORD/NERL – 7/2008 – present
- Meteorologist - NOAA Atmospheric Modeling Division- 05/90-6/2009
- Assistant State Climatologist, Oklahoma - 1981-05/90

Honors and Awards:

- 2007 NERL Special Achievement Award, “Goal 5 – Anticipate Future Environmental Issues.”
- 2008 NERL Special Achievement Award, “Goal 4 – Integrate environmental Science and Technology to solve Environmental Problems.”
- 2010 ORD Gold Medal recognizing participation in the initial phases of the CIRAQ climate and air quality research team.
- 2014 Bronze Medal: For collaboration to develop an integrated air quality-biosphere system connecting air and agricultural management to human health and ecosystem health and services.
- 2015 Bronze Medal: In recognition of outstanding collaborative work to produce the 2016-2019 Air, Climate, and Energy and the Nitrogen and Co-Pollutants Research Roadmap.