

David M. Holland, Mathematical Statistician, in EPA's National Exposure Research Laboratory

Exposure Methods and Measurements Division

[Mailing Address](#)

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Area of Expertise: My current research activities include the statistical integration or fusion of environmental data (e.g., air monitoring data and numerical model output) to improve the spatial prediction of daily air pollution patterns. Predictive results from this effort can be used to model linkages between air quality and public health outcome data. I continue to participate in collaborative research efforts to develop new space-time models of air quality data to allow better characterization of spatial patterns and trends in these pollutants, to predict next day forecasts of air pollution, and to determine the optimal location of monitoring sites to meet multiple monitoring objectives.

Select Publications:

Schliep, E., Gelfand, A., and Holland, D. M. Autogressive spatially-varying coefficient models in predicting daily PM_{2.5} using VIIRS satellite AOT. *Advances in Statistical Climatology, Meteorology, and Oceanography* **1**, 59-74.

Rundel, C. W., Schliep, E., Gelfand, A. E., Holland, D. M. (2015). A data fusion approach for spatial analysis of speciated PM_{2.5} across time. *Environmetrics* **26**, 515-525.

Berrocal, V., Gelfand, A. E., and Holland, D. M. (2014). Assessing exceedance of ozone standards: space-time downscaler for fourth highest ozone concentrations. *Environmetrics* **25**, 279-291.

Pacia, L., Gelfand, A. E., and Holland, D. M. (2013). Spatio-temporal modeling for real-time ozone forecasting. *Spatial Statistics* **4**, 79-93.

Gelfand, A. E., Sahu, S. K., and Holland, D. M. (2012). On the effect of preferential sampling in spatial prediction. *Environmetrics* **23**, 565-578.

Berrocal, V., Gelfand, A. E., and Holland, D. M. (2012). Space-time data fusion under error in computer model output: an application to modeling air quality. *Biometrics* **68**, 837-848.

View more research publications by [David Holland](#).

Education:

- Ph.D., North Carolina State University, statistics, 1988
- M.S., Yale University, biometry, 1975
- B.S., West Virginia University, 1973

Professional Experience:

Honors and Awards:

- EPA Gold Medal Honor Award for downscaler fusion modeling, 2013
- Best JABES paper for 2010-2011, 2012
- ORD Silver Medal Honor Award for data fusion modeling to support the CDC, 2008
- Co—chair of EPA’s Statistical Policy and Advisory Board, 2004
- Fellow, Royal Statistical Society, 2003
- EPA bronze medal for design of national monitoring networks, 2003
- Elected Member, International Statistical Institute, 2002