

Kyle P Messier

607 B Zennia St – Austin, Texas 78751

☎ (828) 279 2244 • ✉ kmessier@utexas.edu

🌐 kpmessier.web.unc.edu

Professional Interests

Space/Time geostatistics, as applied to human exposure, disease, and risk mapping:
Exposure and risk assessment, Environmental epidemiology, Big data analytics, Spatial and statistical modeling, Water quality, Air quality, Global climate change

Education

Environmental Defense Fund

The University of Texas at Austin

2015-2017

Kravis Postdoctoral Fellow

- Project: Fine spatial resolution air pollution exposure mapping using Google Street View mobile monitoring data
- Advisors: Joshua S Apte (UT-Austin); Elena Craft, Chris Portier (EDF)

University of North Carolina at Chapel Hill

PhD, Environmental Science and Engineering

2011-2015

- Dissertation: Spatiotemporal Geostatistical Methods for Exposure and Epidemiological Analyses of Groundwater Nitrate and Radon
- Advisor: Marc L Serre

University of North Carolina at Chapel Hill

MS, Environmental Science and Engineering

2008-2010

- Thesis : Integration of Contaminant Source Land Use Regression in the Bayesian Maximum Entropy Spatiotemporal Geostatistical Estimation of Groundwater Tetrachloroethylene Across North Carolina
- Advisor: Marc L Serre

University of North Carolina at Asheville

BS, Environmental Studies

2003-2007

Funding

- Co-authored and co-investigator for proposal titled "Space/Time Geostatistical Estimation of Nitrate and Radon Groundwater Contaminants." Awarded by the North Carolina Water Resource Research Institute (NC-WRRI). Funded \$49,500. Primary Investigator: Marc L Serre, PhD.
- Authored proposal on space/time distribution of tetrachloroethylene (PCE) in North Carolina for the National Institute of Occupational Safety and Health (NIOSH) pre-doctoral training grant. Funded \$48,000. Traineeship directed by Leena Nylander-French, PhD.

- Authored proposal for biostatistics (BIOS) pre-doctoral training grant. Awarded by the National Institute of Environmental Health Science (NIEHS). Funded \$52,000. Traineeship directed by Amy Herring, PhD, and Rebecca Fry, PhD.

Refereed Publications

10. Apte, J.S., **Messier, K.P.**, Gani, S., Brauer, M., Kirchstetter, T.W., Lunden, M.M., Marshall, J.D., Portier, C., Vermeulen, R.C.H., & Hamburg, S.P.; High-resolution air pollution mapping with Google Street View cars: Exploiting big data. *Environmental Science & Technology*, doi:10.1021/acs.est.7b00891
9. Kerckhoffs, J., Hoek, G., **Messier, K.P.**, Brunekreef, B., Meliefste, K., Klompmaaker, J., & Vermeulen, R.C.H. (2016). Comparison of ultrafine particles and black carbon concentrations from a mobile and short-term land use regression model. *Environmental Science & Technology*, doi: 10.1021/acs.est.6b03476
8. **Messier, K.P.** & Serre, M.L.(2016). Lung and stomach cancer associations with groundwater radon in North Carolina, United States. *International Journal of Epidemiology*, doi: 10.1093/ije/dyw128
7. Smith, G.S., Ghio, A.J., Stout, J.E., **Messier, K.P.**, Hudgens, E., Murphy, M.S., Pfaller, S.L., Maillard, J.M., & Hilborn, E.D. (2016). Epidemiology of Nontuberculous Mycobacteria isolations among central North Carolina residents, 2006-2010. *Journal of Infection*, 72(6), 678-686.
6. **Messier, K.P.**, Campbell, T., Bradley, P.J., & Serre, M.L. (2015). Estimation of Groundwater Radon in North Carolina using Land Use Regression and Bayesian Maximum Entropy. *Environmental Science & Technology*, 49(16), 9817-9825.
5. Jagai, J.S., Li, Q., Wang, S., **Messier, K.P.**, Wade, T.J., & Hilborn, E.D. (2015). Extreme precipitation and emergency room visits for gastrointestinal illness in areas with and without combined sewer systems: An analysis of Massachusetts data 2003-2007. *Environmental Health Perspectives*, 123(9), 873-879.
4. **Messier, K.P.**, Kane, E., Bolich, R., & Serre, M.L. (2014). Nitrate variability in groundwater of North Carolina using monitoring and private well data models. *Environmental Science & Technology*, 48(18), 10804-10812.
3. **Messier, K.P.**, Jackson, L.E., White, J.L., & Hilborn, E.D. (2014). Landscape risk factors for Lyme disease in the eastern broadleaf forest province of the Hudson river valley and the effect of explanatory data classification resolution. *Spatial and Spatio-Temporal Epidemiology*, 12, 9-17.
2. **Messier, K.P.**, Akita, Y., & Serre, M.L. (2012). Integrating address geocoding, land use regression, and spatiotemporal geostatistical estimation for groundwater tetrachloroethylene. *Environmental Science & Technology*, 46(5), 2772-2780.
1. Sanders, A.P., **Messier, K.P.**, Shehee, M., Rudo, K., Serre, M.L. & Fry, R.C. (2011). Arsenic in North Carolina: Public health implications. *Environment International*, 38(1), 10-16.

Publications Submitted for Peer Review

2. Smith, G.S., **Messier, K.P.**, Crooks, J. & Hilborn, E.D.; Extreme Precipitation and Influenza Emergency Room Visits in Massachusetts: A Case-Crossover Analysis.
1. Downward, G.S., van Nunen, E.J.H.M., Kerckhoffs, J., Vineis, P., Brunekreef, B., Boer, J.M.A., **Messier, K.P.**, Roy, A., Verschuren, W.M.M., van der Schouw, Y.T., Sluijs, I., Gulliver, J., Hoek, G., & Vermeulen, R.C.H.; Long-term exposure to ultrafine particles and incidence of cardiovascular and cerebrovascular disease.

Technical Reports

- Lobdell, D.T., Jagai, J.S., Messer, L.C., Rappazzo, K., Grabich, S., Gray, C.L., **Messier, K.P.**, Smith, G.S., Pierson, S., Rosenbaum, B., Murphy, M.S. (2014) *Creating an overall environmental quality index, Technical Report*. United States Environmental Protection Agency, Office of Research and Development, Environmental Public Health Division, Epidemiology Branch, Chapel Hill, NC.

Invited Presentations

- **Kyle P. Messier** *Spatial variability and stability of air quality data from mobile monitoring with Google Street View vehicles*. University of Utrecht, Institute for Risk Assessment Sciences, Utrecht, Netherlands, Oct 14, 2016
- **Kyle P. Messier** *Nitrate variability in groundwater of North Carolina using monitoring and private well data models*. North Carolina Department of Environment and Natural Resources, Division of Water Resources, Raleigh, NC, USA. November 21, 2014
- **Messier, K.P.**, Akita, Y., & Serre, M.L. *Integrating address geocoding, land use regression and spatiotemporal geostatistical estimation for groundwater PCE*. North Carolina GIS Conference, February 8, 2013

Conference Publications

- Apte, J.S., **Messier, K.P.**, Gani, S., Vermeulen, R.C.H., Marshall, J.D., Kirchstetter, T.W., Portier, C., & Hamburg, S.P. (2016, October). *Mapping urban air quality in Oakland, CA with Google Street View vehicles* Oral presentation at American Association of Aerosol Research Annual Conference.
- Gani, S., **Messier, K.P.**, & Apte, J.S. (2016 October). *Exposure to outdoor ultrafine particles: Roles of traffic and atmospheric new particle formation*. Oral presentation at American Association of Aerosol Research Annual Conference.
- **Messier, K.P.**, Gani, S., Lunden, M.M., Vermeulen, R.C.H., Marshall, J.D., Kirchstetter, T.W., Hamburg, S.P., & Apte, J.S. (2016, October) *Spatial variability of air quality data from extensive mobile monitoring with Google Street View cars*. Oral presentation at International Society of Exposure Science Annual Conference.
- **Messier, K.P.**, Gani, S., Lunden, M.M., Vermeulen, R.C.H., Marshall, J.D., Kirchstetter, T.W., Hamburg, S.P., & Apte, J.S. (2016, September) *Lessons learned from extensive mobile air quality monitoring with Google Street View cars*. Oral Presentation at International Society of Environmental Epidemiology Annual Conference.

- Ayub, R., Obenour, D.R., **Messier, K.P.**, Serre, M.L., & Mahinthakumar, K. (2016, March) *Non-point source evaluation of groundwater contamination from agriculture under geologic and hydrologic uncertainty*. Poster Presentation at North Carolina Water Resources Research Institute Annual Conference.
- **Messier, K.P.** & Serre, M.L. (2015, December). *Development of an anisotropic geological-based land use regression and bayesian maximum entropy model for estimating groundwater radon across North Carolina*. Poster presentation at American Geophysical Union Fall Meeting.
- Holcomb, D., **Messier, K.P.**, Serre, M.L., Rowny, J., & Stewart, J. (2015, May). *Geostatistical prediction of microbial water quality on an urbanizing inland stream network*. Poster presentation at The Water Microbiology Conference.
- **Messier, K.P.**, Kane, E., Bolich, R., & Serre, M.L. (2014, December). *Evidence for legacy contamination of nitrate in groundwater of North Carolina using monitoring and private well data models*. Poster presentation at American Geophysical Union Fall Meeting.
- **Messier, K.P.**, Akita, Y., Campbell, T., & Serre, M.L.; (2013, March). *You're too gneiss, you take me for granite: Preliminary geology-based land use regression and kriging analysis of groundwater radon across North Carolina*. Oral presentation at the North Carolina Water Resource Research Institute Annual Conference.
- **Messier, K.P.**, Akita, Y., Bolich, R., Kane, E., & Serre, M.L.; (2013, March.) *Preliminary results of land use regression and kriging analysis of groundwater nitrate Across North Carolina*. Poster presentation at the North Carolina Water Resource Research Institute Annual Conference.
- **Messier, K.P.**, Akita, Y., Bolich, R., Kane, E., Campbell, T., & Serre, M.L. (2012, March). *Building a North Carolina groundwater nitrate database using multiple data sources and land use regression modeling*. Oral presentation at the North Carolina Water Resource Research Institute Annual Conference.
- **Messier, K.P.**, Akita, Y., Bolich, R., Kane, E., Campbell, T., & Serre, M.L. (2012, March). *Multiple North Carolina groundwater radon data sources and correlations with rock types*. Oral presentation at the North Carolina Water Resource Research Institute Annual Conference.
- Hilborn, E.D., Smith, G.S., Murphy, M.S., **Messier, K.P.**, Hudgens, E., Ghio, A., Maillard, J.M., Pfaller, S., & Stout, J.E. (2011, June). *Nontuberculous Mycobacteria, reports of clinical laboratory isolation in a three county area, North Carolina, 2006—2010*. Poster presented at the International Conference on Emerging Infectious Diseases.
- **Messier, K.P.**, Akita, Y., & Serre, M.L. (2010, October). *Land use regression and bayesian maximum entropy spatiotemporal analysis of groundwater tetrachloroethylene in North Carolina*. Poster presented at the UNC Water and Health Conference: Science, Policy and Innovation.
- Jagai, J.S., Quanlin Li, **Messier, K.P.**, Wade, T.J., & Hilborn, E.D. (2012, August). *Association between gastrointestinal illness and precipitation in areas impacted by combined sewer facilities: analysis of Massachusetts data, 2003-2007*. Poster presentation at the International Society for Environmental Epidemiology Annual Conference.

- Jagai, J.S., Wang, S, **Messier, K.P.**, Wade T.J., & Hilborn, E.D. (2011, October). *Rates of gastrointestinal illness among areas impacted by combined sewer facilities: Analysis of Massachusetts data, 2003-2007*. Poster presentation at the UNC Water and Health Conference: Science, Policy and Innovation.
- Hilborn, E.D., Smith, G.S., Murphy, M.S., **Messier, K.P.**, Hudgens , E., Ghio ,A., Maillard, J.M., Pfaller, S., & Stout, J.E. (2011, May). *Modeling human exposure to Nontuberculosis Mycobacteria in central North Carolina*. Poster presentation at the ESRI Annual Conference.
- **Messier, K.P.**, Akita, Y., & Serre, M.L. (2009, March). *Cost-effective methods for estimation of groundwater contamination in North Carolina*. Oral presentation at the North Carolina Water Resource Research Institute Annual Conference.

Experience

US Environmental Protection Agency, Epidemiology Branch <i>Geographic Information Systems and Statistical Analyst</i>	Chapel Hill, NC Nov. 2010 - May 2015
University of North Carolina at Chapel Hill <i>Teaching Assistant</i>	Chapel Hill, NC 2008 - 2014
City of Durham Stormwater Services <i>Water Quality Technician</i>	Durham, NC March - July 2008

Awards

North Carolina Impact Award <i>Graduate Education Advancement Board</i> Recognizing research benefiting the state of North Carolina	2013 & 2015
The G. Herbert Stout Award <i>North Carolina Geographic Information Systems Conference</i> For exemplary and innovative use of geographic information systems	2013

Professional Services

Peer reviewer for the following journals

- Environmental Health Perspectives
- International Journal of Epidemiology
- Environmental Science & Technology
- Science of the Total Environment
- Journal of Water and Health

Conference Session Chair

- International Society of Exposure Science, "Spatial - Temporal Measures", Utrecht, The Netherlands, Oct. 2016

Professional Memberships

International Society of Exposure Science <i>Member</i>	<i>March 2016-Present</i>
---	---------------------------

International Society of Environmental Epidemiology

Member

March 2016-Present

American Geophysical Union

Member

April 2014-Present

Sigma Xi The Scientific Research Society

Associate Member

April 2012-Present

Computer skills

High Level Programming: Matlab, R, SAS, L^AT_EX, Linux for Cluster/LSF

Geographic Information Systems: ESRI ArcGIS, Google Earth Engine

Microsoft Office: Access, Excel, Powerpoint, Word