STEPHANIE E. CLELAND

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RESEARCH FOCUS

Topic: Human health impacts of exposure to climate change-influenced environmental hazards

Tools: Environmental epidemiology, geostatistical exposure assessment, health impact assessment

EDUCATION

University of North Carolina-Chapel Hill – Chapel Hill, North Carolina
Gillings School of Global Public Health
Doctor of Philosophy, Environmental Sciences & Engineering — May 2023
Advisors: Dr. Ana Rappold and Dr. Jason West

Master of Science in Public Health, Environmental Sciences & Engineering — May 2020
Advisors: Dr. Marc Serre and Dr. Jason West

Graduate Certificate in Global Health — May 2020

Tufts University – Medford, Massachusetts
Bachelor of Science, Computer Science and Community Health — May 2020
Honors: *cum laude* (GPA: 3.64, Dean's List for 7 of 8 semesters)

PROFESSIONAL EXPERIENCE

United States Environmental Protection Agency - Chapel Hill, North Carolina
Center for Public Health and Environmental Assessment — August 2020 – present
Oak Ridge Institute for Science and Education (ORISE) Research Fellow

- Studying the acute and chronic health effects of hourly and daily exposure to wildfire smoke and extreme heat among vulnerable populations
- Developing exposure surfaces using geostatistics, conducting complex epidemiological analyses, and performing health impact assessments

University of North Carolina-Chapel Hill - Chapel Hill, North Carolina
The Climate Health and Air Quality Lab — August 2018 – June 2020
Graduate Research Assistant

- Member of the NASA Health and Air Quality Applied Sciences Team Tiger Team: Air Quality and Health Burden of 2017 California Wildfires
- Researched the air quality and human health impacts of wildfires using geospatial exposure modeling and health impact assessment methods

Department of Environmental Sciences and Engineering — August 2018 – May 2019
Graduate Teaching Assistant

- Graded assignments and worked one-on-one with students for 'Temporal GIS & Space/Time Geostatistics for the Environment and Public Health' (ENVR 468) and 'Space/Time Exposure Mapping & Risk Assessment' (ENVR 765)

CleanAIRE NC – Durham, North Carolina
Advocacy & Education Intern — February 2020

- Engaged in science communication activities to promote health and equity – May 2020
- Developed county-specific and community-focused environmental health and climate change fact sheets to share with stakeholders across North Carolina

athenahealth - Watertown, Massachusetts
athenaClinicals Performance & Analytics October 2017
Product Analytics Associate – June 2018
- Developed metrics and synthesized complex data to understand performance, adoption, and usage to inform and solve business decisions and problems
- Performed data-driven research and analysis and applied knowledge of the internal database to drive strategic product development and performance

athenaClinicals Task Awareness September 2016
Product Management Associate – October 2017
- Generated streamlined solutions and executed customer-centric projects to enhance clinicians' experience using patients' electronic health records
- Conducted analyses and end user interviews to inform feature requirements

Tufts University School of Medicine – Boston, Massachusetts
The Community Assessment of Freeway Exposure and Health Study January 2016
Undergraduate Research Assistant – May 2016
- Investigated the impact of ultrafine particles and HEPA filtration on adverse health outcomes among the Puerto Rican community near highways in Boston
- Conducted statistical analyses to link concentrations to blood biomarker data

Tufts University – Medford, Massachusetts January 2014
Department of Computer Science – May 2016
Lab Leader & Teaching Assistant
- Led 2-3 lab sections a week, held regular office hours, and graded student projects for 'Introduction to Computer Science' (CS 11)
- Organized and led workshops to provide students with additional practice

PEER-REVIEWED PUBLICATIONS

Cleland, S.E., Wyatt, L.H., Wei, L., Paul, N., Serre, M.L., West, J.J., Henderson, S.B., Rappold, A.G. (2022). Short-term exposure to wildfire smoke and $PM_{2.5}$ and cognitive performance in a brain-training game: A longitudinal study of US adults. *Environmental Health Perspectives, 130(6).* doi.org/10.1289/EHP10498.
Interactive dashboard: ehs-bccdc.shinyapps.io/PMSmoke_Attention_Dashboard/
Press: EHP Science Selection, UNC Press Release, Press Democrat Article

Cleland, S.E., Serre, M.L., Rappold, A.G., West, J.J. (2021). Estimating the acute health impacts of fire-originated $PM_{2.5}$ exposure during the 2017 California wildfires: Sensitivity to choices of inputs. *GeoHealth, 5(7).* doi.org/10.1029/2021GH000414

Delang, M.N., Becker, J.S., Chang, K.L., Serre, M.L., Cooper, O.R., Schultz, M.G., Schröder, S., Lu, X., Zhang, L., Deushi, M., Josse, B., Keller, C.A., Lamarque, J., Lin, M., Liu, J., Marécal, V., Strode, S.A., Sudo, K., Tilmes, S., Zhang, L., **Cleland**, S.E., Collins, E.L., Brauer, M., West, J.J. (2021). Mapping yearly fine resolution global surface ozone through the Bayesian Maximum Entropy data fusion of observations and model output for 1990-2017. *Environmental Science and Technology, 55.* doi.org/10.1021/acs.est.0c07742

Cleland, S.E., West, J.J., Jia, Y., Reid, S., Raffuse, S., O'Neill, S., Rappold, A.G., Serre, M.L. (2020). Estimating wildfire smoke concentrations during the October 2017 California fires through BME space/time data fusion of observed, modeled, and satellite-derived $PM_{2.5}$. *Environmental Science and Technology, 54* (*21*). doi.org/10.1021/acs.est.0c03761

Brugge, D., Simon, M.C., Hudda, N., Zellmer, M., Corlin, L., **Cleland,** S.E., Liu, E.Y., Rivera, S., Byrne, M., Chung, M., Durant, J.L. (2017). Lessons from in-home air filtration intervention trials to reduce urban ultrafine particle number concentrations. *Building and Environment*, *126*. doi.org/10.1016/j.buildenv.2017.10.007

PRESENTATIONS

Cleland, S.E., Wyatt, L.H., Wei, L., Paul, N., Serre, M.L., West, J.J., Henderson, S.B., Rappold, A.G. (2022 November). Daily and hourly exposure to wildfire smoke and $PM_{2.5}$ and cognitive performance in a brain-training game: A longitudinal study of US adults [Oral presentation]. 2022 Wildland Fire Canada Conference, Edmonton, Alberta, Canada.

Cleland, S.E., Steinhardt, W., Neas, L., Rappold, A.G. (2022 September). Urban heat islands and heat-related cardiovascular morbidity in older adults: A time series study of US metropolitan areas [Poster presentation]. 34th Annual Conference of the International Society for Environmental Epidemiology, Athens, Greece.

Cleland, S.E. (2022 July). Daily and hourly exposure to $PM_{2.5}$ and wildfire smoke and cognitive performance in a brain-training game: A longitudinal study of US adults [Invited webinar]. National Collaborating Centre for Environmental Health: Environmental Health Seminar Series, Virtual.

Cleland, S.E., Wyatt, L.H., Wei, L., Paul, N., Patil, A., Henderson, S.B., Rappold, A.G. (2021 December). The cognitive performance effects of short-term $PM_{2.5}$ and wildfire smoke exposure [Oral presentation]. American Geophysical Union Fall Meeting 2021, New Orleans, Louisiana, United States of America.

Cleland, S.E., West, J.J., Jia, Y., Reid. S., Raffuse, S., O'Neill, S., Serre, M.L. (2021 September). Fusing observed, modeled, and satellite-derived concentrations to produce fine-resolution estimates of $PM_{2.5}$ during the 2017 California wildfires [Invited oral presentation]. 2021 Meteorology and Climate - Modeling for Air Quality Conference, Virtual.

Cleland, S.E. & Wyatt, L.H. (2021 September). The impacts of short and long-term exposure to air pollution on cognitive performance [Invited webinar]. University of British Columbia: Occupational and Environmental Hygiene Friday Seminars, Virtual.

Cleland, S.E., Wyatt, L.H., Wei, L., Paul, N., Patil, A., Henderson, S.B., Rappold, A.G. (2021 August). Short-term $PM_{2.5}$ exposure impacts cognitive performance: A longitudinal repeated measures study of the Western US 2017-2018 [Lightning talk presentation]. 33rd Annual Conference of the International Society for Environmental Epidemiology, Virtual.

Cleland, S.E., West, J.J., Jia, Y., Reid, S., Raffuse, S., O'Neill, S., Rappold, A.G., Serre, M.L. (2020 September). A data fusion approach for evaluating smoke exposure: Estimating $PM_{2.5}$ during the 2017 California wildfires [Oral presentation]. International Society of Exposure Science 30th Annual Meeting, Virtual.

Cleland, S.E., West, J.J., Jia, Y., Reid. S., Raffuse, S., O'Neill, S., Serre, M.L. (2020 August). A space/time data fusion method for estimating smoke concentrations during the October 2017 California fires to inform population-level exposure [Oral presentation]. 32nd Annual Conference of the International Society for Environmental Epidemiology, Virtual.

Cleland, S.E., West, J.J., Serre, M.L. (2020 April). Evaluating the acute health impact of $PM_{2.5}$ exposure during the October 2017 California wildfires [Oral presentation]. 3rd International Smoke Symposium, Virtual.

Cleland, S.E., Serre, M.L., Becker, J., DeLang, M., West, J.J. (2019 October). Fusing CMAQ with observations to estimate the air quality and health impacts of the October 2017 California wildfires [Poster presentation]. 18th Annual Community Modeling and Analysis System Conference, Chapel Hill, North Carolina, United States of America.

Cleland, S.E., Serre, M.L., Becker, J., DeLang, M., West, J.J. (2019 October). Estimating the hospital admissions attributable to the 2017 California wildfires [Poster presentation]. 2019 Triangle Global Health Annual Conference, Durham, North Carolina, United States of America.

SCHOLARSHIPS & AWARDS

Gary G. Koch and Carolyn J. Koch Student Travel Award	2021
UNC-Chapel Hill's Three Minute Thesis Competition Finalist	2021
National Institute for Occupational Safety and Health (NIOSH) Training Grant	2020
UNC-Chapel Hill Department of Environmental Sciences & Engineering's Environmental Sciences Achievement Award	2020
Best Student Poster at the 18th Annual Community Modeling and Analysis System Conference	2019
Triangle Global Health Annual Conference Student Scholarship	2019
Weiss Urban Livability Fellowship	2018
B.B. Parker Fellowship	2018
Alan and Linda Rimer Endowed Scholarship in Environmental Science	2018
Gillings Merit Scholarship	2018
Best in Show at the 2016 Tufts GIS Poster Expo	2016

TECHNICAL SKILLS

Programming Languages: R, MATLAB, Python, SQL, C++, Java, HTML, CSS, JavaScript

Software: RStudio, MATLAB, ArcGIS, STATA, Jupyter, Adobe Creative Suite, Microsoft Office Suite

RELEVANT COURSEWORK

Fundamentals of Epidemiology (EPID 710)
Environmental Epidemiology (EPID 785)
Environmental Risk Assessment (ENVR 470)
Advanced Remote Sensing (GEOG 577)
Temporal GIS & Geostatistics (ENVR 468)
Global Climate Change (ENVR 775)
Statistics for Environmental Scientists (BIOL 562)
Advanced Environmental Epidemiology (EPID 787)
Environmental Exposure Assessment (ENVR 640)
Health Effects of Environmental Agents (ENVR 430)
Proposal Writing for Environmental Research (ENVR 703)
Critical Analysis of Environmental Research (ENVR 704)
Environmental Crisis Management (ENVR 989)
Space/Time Exposure Mapping & Risk Assessment (ENVR 765)

PROFESSIONAL & VOLUNTEER SERVICE

CleanAIRE NC – Durham, North Carolina — August 2020 – present
Member of the NC BREATHE Conference planning committee

University of North Carolina-Chapel Hill – Chapel Hill, North Carolina — August 2019
Graduate student representative for Department of Environmental Sciences & Engineering — – May 2020

Science Club for Girls – Cambridge, Massachusetts — January 2017
Mentor for after-school science club for elementary school girls — – May 2018

Peer Health Exchange – Boston, Massachusetts — September 2012
Educator for health-related workshops for public high school students — – May 2014