

STEPHANIE E. CLELAND, PhD, MSPH

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Vancouver Coastal Health Research Institute
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RESEARCH FOCUS

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

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

PROFESSIONAL EXPERIENCE

Simon Fraser University – Burnaby, British Columbia

Faculty of Health Sciences

Assistant Professor (Legacy for Airway Health Chair in Promotion of Lung Health) 2023 – present

Vancouver Coastal Health Research Institute – Vancouver, British Columbia

Legacy for Airway Health

Research Scientist 2023 – present

United States Environmental Protection Agency - Chapel Hill, North Carolina

Center for Public Health and Environmental Assessment

Oak Ridge Institute for Science and Education (ORISE) Research Fellow 2020 – 2023

University of North Carolina-Chapel Hill - Chapel Hill, North Carolina

The Climate Health and Air Quality Lab

Graduate Research Assistant 2018 – 2020

Department of Environmental Sciences and Engineering

Graduate Teaching Assistant 2018 – 2019

CleanAIRE NC – Durham, North Carolina

Advocacy & Education Intern

2020

athenahealth - Watertown, Massachusetts

athenaClinicals Performance & Analytics

Product Analytics Associate 2017 – 2018

athenaClinicals Task Awareness

Product Management Associate 2016 – 2017

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, *cum laude*

May 2016

PEER-REVIEWED PUBLICATIONS

Cleland, S.E., Steinhardt, W., Neas, L., West, J.J., Rappold, A.G. (2023). Urban heat island impacts on heat-related cardiovascular morbidity: A time series analysis of older adults in US metropolitan areas. *Environment International*. doi.org/10.1016/j.envint.2023.108005.

Interactive dashboard: shiny.stat.ncsu.edu/Heat-CVD-UHI-Dashboard/

Wyatt, L.H., **Cleland, S.E.**, Wei, L., Paul, N., Patil, A., Ward-Caviness, C., Henderson, S.B., Rappold, A.G. (2023). Long-term exposure to ambient O₃ and PM_{2.5} is associated with reduced cognitive performance in young adults: A retrospective longitudinal repeated measures study in adults aged 18–90 years. *Environmental Pollution*, 320. doi.org/10.1016/j.envpol.2023.121085.

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/

☆ Selected for *EHP's* Editor's Choice Collection 2022 [[link](#)]

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., Lan, J., Brauer, M., Henderson, S.B. (2023 October). Diverse health impacts of wildfire smoke [Invited webinar]. [Cascadia Wildfire Webinar](#), Virtual.

Cleland, S.E., Rosman, L., Hill, K.L., Mazzella, A.J., Ward-Caviness, C., Rappold, A.G. (2023 September). The impact of temperature and relative humidity on ventricular arrhythmias in patients with implanted cardiac devices in North Carolina, 2010-2021 [Oral presentation]. [35th Annual Conference of the International Society for Environmental Epidemiology](#), Kaohsiung, Taiwan.

- 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.

MEDIA & INTERVIEWS

SFU Faculty of Health Sciences: “New assistant professor brings creative, collaborative quantitative approaches to planetary health research.” Sharon Mah. November 6, 2023. [\[link\]](#)

Daybreak North with Carolina de Ryk. Radio interview about how wildfire smoke affects human health. September 8, 2023. [\[link\]](#)

Freerail: “Running Through Smoke.” Keegan Sentner, September 7, 2023. [\[link\]](#)

The Conversation: “Wildfire smoke is an increasing threat to Canadians’ health.” Ryan Allen and Stephanie Cleland, August 27, 2023. [\[link\]](#)

National Geographic: “How wildfire smoke can permanently damage your brain and body.” Tara Haelle, August 14, 2023. [\[link\]](#)

UNC Gillings School of Global Public Health: “New research finds risk from hot weather depends partly on where you live.” July 31, 2023. [\[link\]](#)

EPA Science Matters: “Fighting the Haze: Effects of Wildfire Smoke and Particulate Matter on Brain Function.” May 4, 2023. [\[link\]](#)

Press Democrat: “Concerns about long-term health effects grow since 2017 North Bay wildfires.” Martin Espinoza, October 17, 2022. [\[link\]](#)

UNC Gillings School of Global Public Health: “Could an app help scientists understand wildfire smoke’s impact on cognition?” August 16, 2022. [\[link\]](#)

EHP Science Selection: “Well Played: Using Game App Data to Assess Wildfire Smoke and Cognitive Performance.” Charles Schmidt, July 13, 2022. [\[link\]](#)

AWARDS & HONORS

Gillings School Academic Excellence Award [UNC-Chapel Hill]	2023
Gary G. Koch and Carolyn J. Koch Student Travel Award [UNC-Chapel Hill]	2021
UNC-Chapel Hill’s Three Minute Thesis Competition Finalist	2021
National Institute for Occupational Safety and Health (NIOSH) Training Grant	2020
Department of Environmental Sciences & Engineering’s Environmental Sciences Achievement Award [UNC-Chapel Hill]	2020
Best Student Poster at the 18 th Annual Community Modeling and Analysis System Conference	2019
Triangle Global Health Annual Conference Student Scholarship	2019
Weiss Urban Livability Fellowship [UNC-Chapel Hill]	2018
B.B. Parker Fellowship [UNC-Chapel Hill]	2018
Alan and Linda Rimer Endowed Scholarship in Environmental Science [UNC-Chapel Hill]	2018
Gillings Merit Scholarship [UNC-Chapel Hill]	2018

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

PROFESSIONAL & VOLUNTEER SERVICE

Skype a Scientist – United States*Outreach to K-12 classrooms via talks on climate change and environmental health* 2023 – present**CleanAIRE NC** – Durham, North Carolina*Member of the NC BREATHE Conference planning committee* 2020 – 2023**University of North Carolina-Chapel Hill** – Chapel Hill, North Carolina*Graduate student representative for Dept. of Environmental Sciences & Engineering* 2019 – 2020**Science Club for Girls** – Cambridge, Massachusetts*Mentor for after-school science club for elementary school girls* 2017 – 2018