

# ROBBIE M PARKS, PhD

Earth Institute, Columbia University, New York, NY, USA

E-mail: robbie.parks@columbia.edu Twitter: @rmiparks website: robbiemparks.github.io

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## Career Summary

As an environmental epidemiologist with a background in physics, Dr. Robbie M. Parks has diverse experience in large-scale multi-disciplinary quantitative research. He is currently an Earth Institute Post-doctoral Research Scientist at Columbia University. Robbie completed his PhD at the School of Public Health at Imperial College London with Profs. Majid Ezzati and Ralf Toumi in 2019. He graduated with a BA/MA (Oxon) in Physics from the University of Oxford.

While at the Earth Institute, Robbie has been part of the Diversity, Equity and Inclusion Working Group. During his PhD, he created and co-chaired the first citizens' climate assembly in Westminster, London, which successfully petitioned the local council to declare a climate emergency. Throughout his career, Robbie has mentored undergraduate, Master's and PhD students. Robbie is Filipino-British, the first in his family to graduate high school, and following his undergraduate degree, spent time as a musician in a rock group.

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## Education and Scholarships

**Earth Institute post-doctoral research fellow, Columbia University, New York** 2019 - present

- Highly-competitive scholarship to explore an independent research agenda
- Collaborating with Profs. Marianthi-Anna Kioumourtoglou, Ana Navas-Acien, G Brooke Anderson, Rachel Nethery, Francesca Dominici, Jacqueline Klopp, Joan Casey among others

**Honorary Research Associate, Epidemiology and Biostatistics, Imperial College London** 2019 - present

- Continuing to work with Prof. Majid Ezzati on global environmental health research

**PhD, Imperial College London** 2015 - 2019

- "Anomalous temperature and seasonality of mortality in the United States"
- Supervisors: Profs. Majid Ezzati & Ralf Toumi
- Methods: Bayesian statistics, time series analysis, stochastic weather generators
- Papers published from thesis work in Nature Medicine, PLOS Medicine and eLife

**BA/MA (Oxon), Physics, Keble College, University of Oxford** 2005 - 2008

- Modules included: Condensed Matter, Quantum Mechanics, Particle Physics, Thermal Physics
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## Relevant Experience and Projects

**Global Heat Health Information Network (GHHIN)** 2017 - present

- Focused on global hazards, exposure, vulnerability, and technical capabilities of Heat Early Warning Systems
- Co-organiser of first GHHIN First Global Forum for Heat and Health in Hong Kong, December 2018

**Joint Office of Climate and Health, World Meteorological Organization (WMO)** Summer 2017

- Gained strong policy experience working within Global Framework for Climate Services (GFCS)

**Physics and mathematics teacher and tutor** 2008 - 2015

- High school teacher for A-level and GCSE qualifications in UK
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## Awards and Honors

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|---|---------------|
| - K99/R00 NIEHS NIH Award (pending) (\$954,796)   | 2021 - 2026   |
| - Earth Frontiers seed funding (\$56,300)   | 2020 - 2022   |
| - President's Global Innovation Fund seed funding (\$45,000)  | 2020 - 2021   |
| - Earth Institute post-doctoral fellowship (\$133,090+)   | 2019 - 2021   |
| - Wellcome Trust studentship (via Institutional Strategic Support Fund) (\$160,000)                 | 2015 - 2019   |
| - UCAR travel grant for travel to GHHIN conference in Hong Kong (\$3000)                            | December 2018 |
| - Awarded 1st prize for best presentation at Imperial College School of Public Health PhD symposium | October 2018  |
| - WMO internship funding from Imperial College London (\$5000)                                      | Summer 2017   |

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## Selected Publications

### Published or In Press

#### 2021

Kruczkiewicz A, Klopp J, Fisher J, Mason S, McClain S, Sheekh NM, Moss R, **Parks RM**, Braneon C. (2021). Compound risks and complex emergencies require new approaches to preparedness, **PNAS** (link)

Rowland S, **Parks RM**, Boehme AK, Goldsmith J, Rush J, Just AC, Kioumourtzoglou MA. (2021). The Association Between Ambient Temperature Variability and Myocardial Infarction: An Examination of Different Variability Metrics, **Environmental Research** (link)

Elser H, **Parks RM**, Moghavem N, Bozinov B, Henderson VW, Rehkopf DH, Casey JA. (2021). Anomalously warm weather and acute care visits in patients with multiple sclerosis: A retrospective study of privately insured individuals in the U.S., **PLoS Medicine** (link)

**Parks RM**, Anderson GB, Nethery RC, Navas-Acien A, Dominici F, Kioumourtzoglou MA. (2021). Tropical cyclone exposure is associated with increased hospitalization rates in older adults, **Nature Communications** (link)

deSouza P, Braun D, **Parks RM**, Schwartz J, Dominici F, Kioumourtzoglou MA. (2021). Nationwide Study of Short-Term Exposure to Fine Particulate Matter and Cardiovascular Hospitalizations among Medicaid Enrollees, **Epidemiology** (link)

#### 2020

Nethery RC, Katz-Christy N, Kioumourtzoglou MA, **Parks RM**, Schumacher A, Anderson GB. (2020). Causal predictive models for forecasting health impacts of impending tropical cyclones, **arXiv** (link)

Kontis V, Bennett JE, Rashid T, **Parks RM**, Pearson-Stuttard J, Guillot M, Asaria P, Zhou B, Battaglini M, Corsetti G, McKee M, Di Cesare M, Mathers C, Ezzati M. (2020). Magnitude, demographics and dynamics of the effect of the first wave of the COVID-19 pandemic on all-cause mortality in 21 industrialized countries, **Nature Medicine** (link)

**Parks RM**\*, Thalheimer L\*. (2020). The hidden burden of pandemics, climate change and migration on mental health, **UN International Organization for Migration (IOM) thematic series on health** (link)

Kontis V, Bennett JE, **Parks RM**, Rashid T, Pearson-Stuttard J, Asaria P, Guillot M, Blangiardo M, Ezzati M. (2020). Age- and sex-specific total mortality impacts of the early weeks of the Covid-19 pandemic in England and Wales: Application of a Bayesian model ensemble to mortality statistics, **MedRxiv** (link)

**Parks RM**, McLaren M, Rivett U, Thomson M. (2020). Vital signs: health security in South Africa. Chapter 5: climate, drought, food and health, **Brenthurst Foundation, Oppenheimer & Sons** (link)

**Parks RM**, Bennett JE, Tamura-Wicks H, Kontis V, Toumi R, Ezzati M. (2020). Anomalously warm temperatures are associated with increased injury deaths, **Nature Medicine** (link)

#### 2019

Bennett JE\*, Tamura-Wicks H\*, **Parks RM**, Burnett RT, Pope CA III, Bechle MJ, Marshall JD, Danaei G, Ezzati M. (2019). National and county life expectancy loss associated with particulate matter pollution in the USA: a spatiotemporal analysis, **PLoS Medicine** (link)

**Parks RM**, McLaren M, Toumi R, Rivett U. (2019). Experiences and lessons in managing water from Cape Town, **Grantham Briefing Papers** (link)

#### 2016 – 2018

**Parks RM**, Bennett JE, Foreman KJ, Toumi R, Ezzati M. (2018). National and regional seasonal dynamics of all-cause and cause-specific mortality in the USA from 1980 to 2016, **eLife** (link)

**Parks RM**. (2016). Weather, climate and health, **Weather** (link)

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## Selected Teaching, Mentoring, and Supervision Experience

### Mentoring and Supervision, Columbia University

2020 - present

- Supervision of Arin Balilian, PhD Candidate
- Supervision of Jennifer Bock, Masters Candidate
- Co-Supervision of Sophia Lacambra (with Jane W. Baldwin), Senior
- Supervision of Ellen Scott, Senior

### Time Series and Anomalies, Columbia Mailman School of Public Health

April 2021

- Covering identification of anomalies in time series analysis

### SHARP Training: Workshop on Analyzing Mixtures in Environmental Health Studies

August 2020/2021

- Teaching assistant on 2-day course led by Prof. Marianthi-Anna Kioumourtzoglou
- Topics included Bayesian Kernel Machine Regression (BKMR), variable selection and tree-based methods

### Novel Assessments of Climate-related Exposures and their Impacts on Health, Colorado State University

March 2021

- Covering tropical cyclones, anomalous temperatures, air pollution, COVID-19 excess deaths

### Models for studying time-varying exposures, Imperial College London

March 2021

- Covering time-stratified case-crossover, time series, distributed lag in 1-hour lecture

### Using $\LaTeX$ to make a CV, Columbia University

April 2020

- 1 hour guest lecture as part of graduate course at Mailman School on using  $\LaTeX$  in academia

### Guest lecturer on air pollution and health, New York University

December 2019

- 2.5 hour lecture as part of graduate course on air pollution and health

### Physics, Imperial College London

2017-2018

- Undergraduate tutorial assistant in mechanics, linear algebra, matrices, electricity & magnetism, special relativity

### Statistics, Imperial College London

2016-2017

- MSc Epidemiology tutorial assistant, teaching Bayesian statistics

### Physics and mathematics teacher and tutor

2008 - 2015

- High school teacher for A-level and GCSE qualifications - Teaching classes of students, some with learning difficulties
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## Conference Session Chairing

**Parks RM, Baldwin JW, Kioumourtzoglou MA (2020).** Exploring the 'Hidden Burden' of Climate Change and Pollution on Mental Health and Conflict, *AGU, San Francisco, United States*

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## Paper Reviews

Paper reviews for: American Journal of Epidemiology, American Journal of Public Health, BMC Public Health, BMJ, Climate Services, Environmental Research, International Journal of Biometeorology, Journal of the Royal Statistical Society: Series A, Nature Climate Change, Scientific Reports.

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## Selected Presentations

**Parks RM** (2021). Climate Change, Hurricanes & Health, *Expert Panel Discussion, Boston University, Boston, United States*

**Parks RM** (2021). Keynote talk on climate, weather, and injuries, *Virtual Pre-Conference Global Injury Prevention Showcase, Public Health Association of Australia, Adelaide, Australia*

**Parks RM** (2020). Spatio-temporal modelling to estimate the impact of air pollution, anomalous temperature, coastal storms, and COVID-19 on mortality and morbidity, *Technical University of Crete, Crete, Greece*

**Parks RM**, Anderson GB, Nethery RC, Navas-Acien A, Dominici F, Kioumourtzoglou MA (2020). Tropical cyclones and multiple hospitalization outcomes in the United States, *ISEE Virtual Conference*

**Parks RM** (2020). WE ACT Climate Justice Group knowledge exchange, *WE ACT, New York, United States*

**Parks RM** (2020). Spatio-temporal modelling to estimate the impact of air pollution, anomalous temperature and coastal storms on mortality and morbidity in the United States, *IRI, New York, United States*

**Parks RM** (2019). Air pollution health and policy, *New York University, New York, United States*

**Parks RM** (2019). Particulate matter air pollution and national and county life expectancy loss in the USA: A spatiotemporal analysis, *Centre for Air Pollution, energy and health research (CAR) webinar series, Sydney, Australia*

**Parks RM** (2019). Using Bayesian spatio-temporal modelling to estimate the impact of anomalous temperature and air pollution on mortality in the United States, *Department of Chemical Engineering, Columbia University*

**Parks RM**, McLaren M, Toumi R & Rivett U. (2019). Experiences and lessons in managing water from Cape Town. *Making the most of London's waterways, Future of London*

**Parks RM**, Bennett JE, P, Foreman KJ, Toumi R & Ezzati M. (2018). Impact of anomalous temperature on injury mortality in the USA. *ISES-ISEE 2018 Joint Annual Meeting, Ottawa, Canada*

Shumake-Guillemot J, Jones H, **Parks RM** & Trtanj J. (2017). Introduction to the Global Heat Health Information Network. *International Conference of Biometeorology, Durham, UK*

Fernandez Montoya L, **Parks RM**, & Shumake-Guillemot J. (2017). Building Health System Resilience to Climate and Environmental Health risks: Insights from Climate Services. *Strengthening Space Cooperation for Global Health, Geneva, Switzerland*

**Parks RM**, Bennett JE, P, Foreman KJ, Toumi R & Ezzati M. (2016). Seasonal dynamics of mortality in the USA from 1982 - 2013. *Bayesian Young Statistician Meeting, Florence, Italy*

**Parks RM**, Bennett JE, P, Foreman KJ, Toumi R & Ezzati M. (2016). Seasonality of mortality: identifying patterns and trends with Bayesian spatiotemporal modelling. *International Workshop on Spatiotemporal Statistics, London, UK*

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## Public Engagement

- Environmental Justice and Health Townhall, Columbia University** (<https://bit.ly/3bsdZZ3>) **April 2020**
- Panellist along with Joan Casy, Manuela Orjuela-Grimm and Sonal Jessel
  - Discussing social justice, climate and the environment on 50th anniversary of Earth Day
- The Past and Future of Sustainable Development, Rockefeller University** (<https://bit.ly/2UoPrdD>) **January 2020**
- Panellist along with David Rockefeller, Jr. and Peter Goldmark, Jr.
  - Discussing ways in which the climate crisis can be dealt with politically as well as technologically
- More than 55 scientists sign letter supporting the Green New Deal, Bernie Sanders 2020** (<https://bit.ly/2uiY1Qz>) **January 2020**
- One of 55 scientists who were asked to support Bernie Sanders's Green New Deal with letter signing
- GREEN SPACE, Great Exhibition Road Festival 2019** (<https://bit.ly/3vMnnk5>) **June 2019**
- Collaborator (contributed sound art) for installation that explored the health benefits of urban green spaces in cities and how we connect with nature
- Westminster for a Green New Deal: Citizens' Assembly** (<https://bit.ly/2HjBxFi>) **June 2019**
- Co-organised and co-chaired an citizens' assembly to discuss solutions to climate crisis, with panel including Alan Whitehead MP, Shadow Minister for Energy and Climate Change
  - Led campaign for Westminster Council to declare climate emergency; officially approved September 2019 full council meeting
- Reddit Ask Me Anything (AMA) interview** (<https://bit.ly/2Qcbu5E>) **November 2018**
- Discussed the implications of my work on seasonal dynamics of mortality on Reddit online platform by answering questions from the public
- Plastic not fantastic in the oceans** (<https://bit.ly/2B3us5l>) **Summer 2016**
- With Erik van Sebille at Royal Society educating public about dangers of contaminating oceans with plastic
  - Public-facing event speaking to hundreds of people of all ages and backgrounds
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## Activities to promote Diversity, Equity, Inclusion, (DEI) and Belonging

- Core Working Group, Environmental Justice Climate Just Cities Network** **2021 - present**
- Engaging Columbia researchers and faculty across disciplines and supporting co-learning with environmental justice advocates and community-based organizations
- Co-organizer, Environmental Epidemiology Climate Connections** **2020 - present**
- Faculty, students, postdocs, and staff informally discuss relevant topics in the fields of environmental and climate epidemiology today.
- Climate Cares Steering Group** **2020 - present**
- Working with scientists and policymakers around the world to steer program at Imperial College London
- Climate Justice Working Group member for WE ACT** **2020 - present**
- Discussing different action plans for the Climate Justice Working Group in New York City
- DEI Working Group member for Earth Institute, Columbia University** **2019 - 2020**
- Helped to draft and edit the first DEI survey
- Co-chair, Westminster Refugee Welcome** **2017 - 2019**
- Concerned with bringing Syrian refugees to Westminster under Community Sponsorship and Syrian Vulnerable Persons Resettlement Scheme (VPRS)
  - Obtained public commitment from Westminster Council to approve requests for Community Sponsorship schemes
  - Actively negotiating with Westminster Council to bring newcomer families to Westminster, London

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## Press Coverage

### COVID-19 excess deaths, temperature and air pollution

UK, Italy, Spain had high 'excess deaths' in first pandemic wave, study finds, <b>Reuters</b>	October 2020
Study: Health systems, govt responses linked to virus tolls, <b>Associated Press</b>	October 2020
Study finds health systems, government responses linked to virus tolls, <b>PBS</b>	October 2020
Study: Health systems, govt responses linked to virus tolls, <b>Washington Post</b>	October 2020
Covid-19: England and Wales among highest per capita death tolls, <b>The Guardian</b>	October 2020
England Wales had most excess deaths in Europe's covid-19 first wave, <b>New Scientist</b>	October 2020
Men and women equally at risk from coronavirus, study finds, <b>The Times</b>	October 2020
Study: Early lockdowns prevented additional COVID-19 deaths in multiple countries, <b>The Hill</b>	October 2020
Environmental Racism and COVID-19 Are a Deadly Combination, <b>Bitch Media</b>	August 2020
Mention of results from England and Wales COVID-19 paper in UK parliament, <b>UK Parliament</b>	June 2020
Pod of the Planet: Ep.5 Look After Yourself, <b>Pod of the Planet</b>	April 2020
Air pollution plummeting worldwide, <b>Accuweather</b>	April 2020
Aural Vignettes to Help Keep Me Together, <b>KnowScience</b>	April 2020

### Anomalously warm temperatures are associated with increased injury deaths

Climate crisis likely to increase violent deaths of young people - report, <b>The Guardian</b>	January 2020
Injuries and Deaths Could Rise with Climate Change in the U.S., a New Study Finds, <b>TIME</b>	January 2020
Climate-Change Related Injuries Will Kill Thousands in the US, <b>New Scientist</b>	January 2020
Climate Change Could Lead to More Injuries and Deaths, <b>The Verge</b>	January 2020
Climate change could kill thousands of Americans each year, <b>Daily Mail</b>	January 2020
Rising temps could cause as many as 2,100 fatal injuries per year, <b>Breitbart</b>	January 2020
The Heat is On: rise in violence as planet warms, <b>Daily Star</b>	January 2020
How climate change could change the way we die, <b>Anthropocene</b>	January 2020
Hotter temperatures will mean more deaths from injury, <b>The Conversation</b>	January 2020
Rising temperatures could increase injury deaths by 2,000 a year: study, <b>Smart Cities Dive</b>	January 2020
Climate Change May Translate Into More Fatal Injuries, <b>HealthDay</b>	January 2020
Warmer temperatures linked to increase in US injury deaths, study says, <b>CNN</b>	January 2020

Coverage in United States, United Kingdom, Colombia, France, Spain, Italy, India and others

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## Transferable Skills

### Languages

<b>English</b>	Native speaker
<b>German</b>	C2 (Professional Proficiency) level. Awarded Goethe-Zertifikat C1 (score: 86.5/100) in May 2018
<b>French</b>	B1 (Conversational) level
<b>Spanish</b>	A2 (Advanced beginner) level

### Computing

High level of computing proficiency in R, Python, C/C++, Matlab, GIS,  $\text{\LaTeX}$ , Adobe Illustrator, Max/MSP/Jitter

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## References

<b>Prof. Marianthi-Anna Kioumourtzoglou</b>	Fellowship mentor	mk3961@cumc.columbia.edu
<b>Prof. Majid Ezzati</b>	PhD supervisor	majid.ezzati@imperial.ac.uk
<b>Prof. Francesca Dominici</b>	Harvard collaborator	fdominic@hsph.harvard.edu
<b>Prof. Jacqueline Klopp</b>	Earth Institute collaborator	jk2002@columbia.edu
<b>Dr. Joy Shumake-Guillemot</b>	WMO supervisor	jshumake-guillemot@wmo.int