



NEWSLETTER Volume 7 Issue 2

Spring 2018

The ***Climate and Health Program***, launched in 2008, has a mission to foster innovative scholarship on the human health dimensions of climate change impacts and vulnerabilities, and to provide information of direct value in climate adaptation and mitigation planning. We train PhD and DrPH students, and postdoctoral scientists in the design and conduct of cutting edge research on mechanisms linking climate to ill-health as well as on methods for assessing health impacts and benefits of future climate policy scenarios. We also offer the first ever MPH certificate in climate and health.

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## PROGRAM NEWS

### ***Dr. Jeffrey Shaman on the current flu season***



Professor Jeffrey Shaman was interviewed by CityLab and by Mailman's Communications Office on mapping the flu. He discussed the severity of this year's flu season, his real-time forecasting system, and gaps in current surveillance systems. Strong data can improve forecasts, which can provide actionable information to prepare for an outbreak at the individual and the greater municipal levels.

Read the CityLab article [here](#) and the Mailman article [here](#).

### ***Daniel Carrion on NYC's Clean Heat Program***



Daniel Carrion, PhD candidate, was highlighted by Mailman's Communications Office for his research with Professor Diana Hernandez on NYC's Clean Heat Program and the slow phase out of residual heating fuels in low-income neighborhoods with high asthma rates.

Read the article [here](#).

### ***New staff as of fall 2017***



Xueying Li is a visiting doctoral candidate at Columbia funded by China Scholarship Council. She is enrolled in the doctoral program at the Department of Earth System Science at Tsinghua University in Beijing. At Columbia, she is working with Professor Jeffrey Shaman, focusing on the global transmission of avian influenza and ecological factors of wild birds.

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## CERTIFICATE NEWS

### ***Meet our new master's students***



**Charlotte Abrams** is from Seattle, WA. She moved to Oregon to study mathematics, then to Spain to teach English for a year. After, she moved back to Seattle to work at an amazing chocolate shop (Intrigue Chocolate...check it out), then worked as a web developer at a virtual healthcare/telemedicine company. All of these experiences inspired her to pursue her MPH in the Biostatistics Department. She elected the climate and health certificate because she believes many of the public health issues occurring in the world today stem from climate change, and she wishes to play her part at being Earth's advocate.

## Meet our new master's students



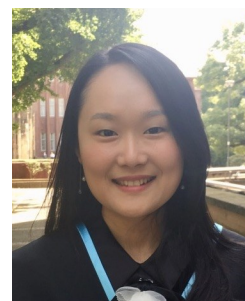
**Katherine Baker** is from Milwaukee, WI. She holds her BA in psychology from NYU and MS in human nutrition from Columbia University. She has previously worked in mental health research, food safety, and at Trader Joe's. Katherine hopes to gain a deeper understanding of public and environmental health at Mailman, and is striving to refine her research and writing skills. Katherine aspires to continue studying the intersections of the environment and nutritional outcomes. In her spare time, she enjoys hanging out with her dog and is a freelance journalist.



**Erica Chung** is from Minneapolis, MN and received her undergraduate degree in Biology with an emphasis in microbiology and food science from the University of Minnesota Twin Cities. She has interned with the Department of Homeland Security working on public health and homeland security projects. At Mailman, she hopes to gain a deeper understanding of the impacts of climate change on human health.



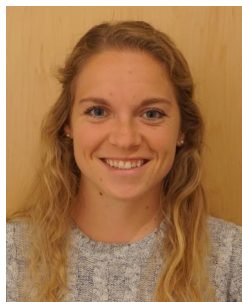
**Sonal Jessel** grew up in California and Connecticut. She attended Pitzer College and graduated in 2015 with a degree in Organismal Biology. She then moved to NYC to coordinate clinical research trials for the Department of Anesthesiology at NYP/Weill Cornell Medical Center. There, she took on a second role with a doctor and human rights specialist designing an educational iBook about global health topics for Anesthesiology residents. Now, Sonal is a student in the Helibrunn Department of Population and Family Health. She hopes to gain the tools to effectively fight for environmental justice for vulnerable populations, particularly women, in the urban US.



**Erin Kawazu** is a third culture individual, having traveled around and been raised in several countries in Asia. She received her undergraduate degree in Environmental Science from the University of Tokyo in 2017. At Mailman, she hopes to develop a deeper understanding of the health implications of climate change. Although she finds many aspects of environmental health fascinating, she is currently most interested in urbanization and pollution, and how they may relate to resilience.

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## Meet our new master's students



**Stella Keck** is originally from Portland, ME, but recently lived in Madison, WI. In Madison, she worked for Epic Systems, a healthcare software company, as a software tester and project manager. She got her BS in Biochemistry and Cell Biology from Rice University in Houston, TX. At Mailman, she hopes to learn more about climate change impacts on water and food quality and availability and gain analytical skills. She is the new VP of Communications for Students for Environmental Action and looks forward to coordinating events for the Columbia community!



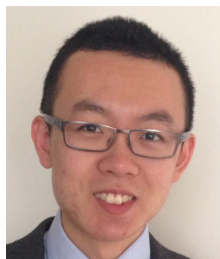
**Sarah McLarnan** is from Victoria, MN. Last May, she completed a double major in Biology and Environmental Studies at the College of Saint Benedict. She has worked with the EPA as a research fellow analyzing the effectiveness of *E. coli* as a water quality indicator organism and as an intern at the Alaska Office reporting on climate change adaptation and resilience in tribal settings. Last summer, she worked as an Environmental Health Technician for the City of Minneapolis Health Department enforcing regulations regarding noise, air, land, and water pollution. At Mailman, she hopes to continue developing technical laboratory skills, establish a network of professional connections, and further refine my goals as a future public health professional.



**Susan Lloyd** is from Akron, OH and received her BA in Economics and International Studies from Xavier University. Most recently, she worked in Seattle managing a community space that convened small businesses, nonprofits, and individuals in support of positive social, civic, and environmental impact. Currently, she is studying Epidemiology and is interested in incorporating economic and ecological frameworks into her study of infectious disease. Through the Climate and Health certificate, she hopes to explore relationships between natural environments, built environments, wildlife and people and how these relationships impact the dynamics of existing and emerging infectious diseases.



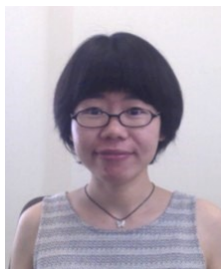
**Sydney Wolchuk** is from Westchester, NY. She graduated from Emory University this past May with degrees in Environmental Science and Human Health. Her previous summer work experiences have included working at a law firm and interning for Environment New York. She hopes to gain a more scientific background and an understanding of climate change effects on human health before going on to law school!

**Recent findings****A county-level estimate of PM2.5 related chronic mortality risk in China based on multi-model exposure data***Affiliated Investigators: Mike He**Journal: Environment International*

This study aims to provide a better understanding of long-term mortality effects of PM2.5 pollution in China and a county-level spatial map for estimating PM2.5 related premature deaths of the entire country. PM2.5 related premature mortality for five endpoints across China in 2010 were estimated using four sets of satellite-derived PM2.5 concentration data and the integrated exposure-response model. They found that premature deaths attributed to PM2.5 nationwide amounted to 1.27 million in total, and PM2.5-attributable health risk is closely associated with high population density and high levels of pollution in China, mainly in the Beijing-Tianjin-Hebei region and the North China Plain.

**Association of exercise-induced wheeze and other asthma symptoms with emergency department visits and hospitalizations in a large cohort of urban adolescents***Affiliated Investigators: Carlos Gould**Journal: Respiratory Medicine*

Exercise-induced wheeze (EIW) has been associated with asthma-related urgent care in school-aged children. Despite asthma's high prevalence and morbidity among adolescents, this association has not been examined in adolescents. This study tested the association of EIW and other asthma symptoms to asthma-related ED visits and hospitalizations in urban adolescents with probable asthma in NYC. They found that unlike findings with younger children, EIW does not appear to be associated with ED visits and hospitalizations among urban adolescents with probable asthma. Instead, symptoms, such as chest tightness and night waking, appear to be important at identifying adolescents at risk for asthma-related urgent care.

**Emergence, Epidemiology, and Transmission Dynamics of 2009 Pandemic A/H1N1 Influenza in Kampala, Uganda, 2009–2015***Affiliated Investigators: Wan Yang and Jeffrey Shaman**Journal: The American Journal of Tropical Medicine and Hygiene*

In sub-Saharan Africa, little is known about the epidemiology of pandemic-prone influenza viruses in urban settings. Using data from a prospective sentinel surveillance network, they characterized the emergence, epidemiology, and transmission dynamics of 2009 pandemic A/H1N1 influenza (H1N1pdm09) in Kampala, Uganda. Between 2009-2015, 613 cases of flu were identified, of which 191 were H1N1pdm09 positive. Patients infected with H1N1pdm09 were more likely to be older adult (ages 35–64) males with illness onset during rainy season months. Urban settings in sub-Saharan Africa are vulnerable to importation and intense transmission of pandemic-prone influenza viruses.

## Other recent publications

**Carrión D, Lee W, Hernández D.** Residual Inequity: Assessing the Unintended Consequences of New York City's Clean Heat Transition. *International journal of environmental research and public health*. 2018 Jan 11;15(1):117.

**Shaman J, Kandula S, Yang W, Karspeck A.** The use of ambient humidity conditions to improve influenza forecast. *PLoS computational biology*. 2017 Nov 16;13(11):e1005844.

**Yamana TK, Kandula S, Shaman J.** Individual versus superensemble forecasts of seasonal influenza outbreaks in the United States. *PLoS computational biology*. 2017 Nov 6;13(11):e1005801.

**Kandula S, Hsu D, Shaman J.** Subregional Nowcasts of Seasonal Influenza Using Search Trends. *Journal of medical Internet research*. 2017 Nov;19(11).

**Pei S, Shaman J.** Counteracting structural errors in ensemble forecast of influenza outbreaks. *Nature communications*. 2017 Oct 13;8(1):925.

**Shaman J, Morita H, Birger R, Boyle M, Comito D, Lane B, Ligon C, Smith H, Desalle R, Planet P.** Asymptomatic summertime shedding of respiratory viruses. *The Journal of infectious diseases*. 2018 Jan 2.

## Proposals

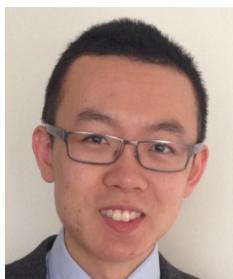
Awarded:

- **Professor Micaela Martinez** was awarded the Faculty Exchange Grant from the Universidade de So Paulo (So Paulo, Brazil) in order for her to spend time at their School of Public Health. She will be collaborating with Professor Claudia Roberta de Castro Moreno, whose work is focused on the seasonality of human diseases in temperate and tropical regions.
- **Professor Micaela Martinez** was awarded the NIEHS Center for Environmental Health in Northern Manhattan Pilot Grant (\$30,000) to study the Influence of Light Pollution & Light-at-night on the Circadian Clock

## PAST EVENTS

### HAQAST3

Mike He, PhD candidate, attended the NASA Health and Air Quality Applied Sciences Team's third meeting on Nov 28-29. At the meeting, he gave an oral presentation titled, 'Associations between Air Pollution and Hospital Admissions in New York State.'



### 2017 Clean Cooking Forum

In October, Carlos Gould, PhD candidate, presented at the 2017 Clean Cooking Forum in New Delhi, India, on his work with Professor Darby Jack in Ecuador. His talk was entitled, 'LPG Subsidies and Cooking Patterns in Rural Ecuador.'



## ***Epidemics 6 Conference***



Eight members of Professor Jeffrey Shaman's group went to the Epidemics 6 conference in Sitges, Spain. Wan Yang spoke on geospatial characteristics of measles transmission in China; Nick DeFelice on West Nile virus forecast; Sen Pei on spatial-temporal forecast of influenza; and Jeffrey Shaman on the Virome of Manhattan. Minhaz Ud-Dean, Marta Galanti, Ruthie Birger, and Teresa Yamana presented posters on various topics related to respiratory virus transmission and forecast.

## ***APHA Annual Meeting***

Project Director, Brittany Shea, and Professor Jeffrey Shaman attended the annual meeting of the American Public Health Associate in Atlanta, GA. Brittany talked up and disseminated information on the Global Consortium on Climate and Health Education, and Shaman gave a presentation on the objectives of the consortium.



## ***New Ways of Deploying Old Tools***

Professor Micaela Martinez presented her talk, 'New Ways of Deploying Old Tools: Using Maternal Immunity to Improve Infant Vaccination,' at two events: the Annual Conference to Increase Diversity in Mathematical Modeling & Public Health at the Harvard School of Public Health, and at the National Institutes for Environmental Health Sciences Center for Environmental Health in Northern Manhattan Annual Retreat.



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## **ISES Conference**

In October, Professor Darby Jack, Steve Chillrud, Senior Research Scientist, and Cara Smith, Research Assistant, went to Durham, NC for the International Society of Exposure Science conference. They hosted a pre-conference workshop called: “Air Quality Monitors – Get out! Get active! Get data!” They presented two posters: “Potential Inhaled dose and cardiovascular indicators – initial pilot results” and “Potential inhaled dose: a better metric of personal exposure to particulate air pollution.” Smith gave a talk entitled “Validation of Hexoskin Biometric Shirt at Rest, Submaximal Exercise, and Maximal Exercise” and presented the Hexoskin shirt at the technology fair.



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## **FEEDBACK**

Please email the Program Coordinator, Haruka Morita, at [hm2487@cumc.columbia.edu](mailto:hm2487@cumc.columbia.edu) with questions or suggestions for future newsletter content. For more information about the Program, please visit our [website](#).