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Fall 2012

New Teaching Programs in Climate and Health Launched

The mission of the Columbia Climate and Health Program is to foster innovative, cross-disciplinary, translational scholarship on the human health dimensions of climate change, with the goal of advancing society's capacity to understand, anticipate, and prevent adverse health consequences. A key component of that mission is to train a new generation of public health professionals in the science of climate and health.

The fall of 2012 marks the official launch of two new academic programs:

- **[PhD track in Climate and Health](#)**. Climate-related health impacts can arise via complex interactions among environmental exposures and vulnerabilities, involving such factors as heat waves, air pollution, airborne allergens, ecological services, poverty, conflict, access to health services, water- or vector-borne diseases, water and food availability, migration and unplanned population displacement, and diverse impacts of extreme storm events, including effects on mental health. Doctoral students acquire an understanding of the application of modern scientific methods and techniques to solve problems related to how environmental exposures affect human health as well as knowledge and skills to advance society's capacity to understand, anticipate, and prevent adverse health consequences of climate variability and change.
- **[MPH certificate in Climate and Health](#)**. This dynamic program - rare in schools of public health - will provide a new generation of interdisciplinary researchers and practitioners with the tools to understand, anticipate, and prevent adverse health consequences from climate variability and change. It brings together resources from around Columbia University, including the Earth Institute's International Research Institute for Climate and Society (IRI), to provide a comprehensive, cross-disciplinary training.



UK Report on Health Risks from Climate Change



The Health Protection Agency (HPA) of the United Kingdom published a comprehensive report on the health risks from climate change in the UK. Alongside a more detailed look at the effect of temperature rises on death rates in hot and cold spells, the scientists also investigated the effects a changing climate will have on pollen production, outdoor and indoor air pollution, floods, ultraviolet radiation, food, water and insect-borne diseases. Using new models, and taking population changes into account, the report predicts that by the 2080s there may be on average more than 12,000 heat related deaths a year in the UK – compared to about 2,000 a year now. However, the report also shows that health protection can result from well-designed policies to reduce greenhouse gas emissions.

Read the report [here](#).

Welcome, to Dr. Jeffrey Shaman



Dr. Jeffrey Shaman joined the Department of Environmental Health Sciences as a new Assistant Professor for the Columbia Climate and Health Program (CCHP). He received his PhD from Columbia University in Earth and Environmental Sciences and was an Assistant Professor at the College of Oceanic and Atmospheric Sciences at Oregon State University prior to his arrival at the Mailman School of Public Health. He will be teaching a new class offered this fall, Atmospheric & Climate Science for Public Health, in which he introduces the fundamental physical principles that govern the behavior of the earth's atmosphere and climate. Topics include the general circulation of the atmosphere, motions on a rotating sphere, atmospheric thermodynamics, radiative transfer, the basic chemistry and physics of air pollution, the hydrologic cycle, climate dynamics and synoptic weather. His research investigates links between climate variability and the incidence of infectious diseases.

Read more about him [here](#).

Student Highlights

Kate Weinberger, PhD candidate

Kate is working with Dr. Kinney and researchers at Fordham University, Mt. Sinai Medical Center and the NYC Department of Health and Mental Hygiene to investigate linkages between climate, airborne pollen, and allergic diseases in the NYC region. Her review paper, Climate Change, Aeroallergens, and Pediatric Allergic Disease, was published in the Mount Sinai Journal of Medicine in 2011. The review cites evidence that links climate change to changes in aeroallergens such as pollen and outdoor mold concentrations and, subsequently, aeroallergen association with pediatric allergic disease. The paper discusses how the timing of aeroallergen exposure, both prenatally and in childhood, could be associated with allergies.

Read more about her paper [here](#).



Amruta Sarma, MPH

Amruta worked as a research assistant with Drs. Kinney and Jack during her final year in the MPH program on a project examining health co-benefits of greenhouse gas emission reductions. Her study, Global Health and Climate Impacts of Sector-Specific Pollution Emissions, uses GIS modeling of anthropogenic emissions to estimate the health co-benefits of emissions mitigation strategies targeted towards specific emission sectors. The objective is to estimate global mortality attributable to anthropogenic emissions sectors, and to compare relative health benefits with the medium- and long-term climate impacts of those same emissions sectors. Amruta drafted a paper on the study that has recently been submitted to a peer review journal.

Climate and Health News—July 2012: National Record for Hottest Month



July 2012 beat the hottest month on record (July 1936 - 77.4 degrees Fahrenheit) with an average temperature of 77.6 degrees, which was 3.3 degrees greater than the 20th century average, according to the National Oceanic and Atmospheric Administration (NOAA). July 2012 also marked the warmest consecutive 12 months of the nation since 1985, when climatologists began keeping temperature records. Further, 63 percent of the United States suffered drought conditions. In his recently published paper, James E. Hansen, a scientist at NASA, reported with confidence that global warming is attributable to the recent weather extremes such as the heat wave of Russia 2010 and Texas 2011, which pose grave threats to human health.

Read more [here](#) and [here](#).

Recent Findings

Preparedness for climate change among local health department officials in New York state: a comparison with national survey results

Affiliated Investigators: Patrick Kinney and Perry Sheffield

Funded by Earth Institute at Columbia University and NIH Research Training Program



Climate-change adaptation strategies that address locally specific climate hazards are critical for preventing negative health outcomes, and local public health care officials are key foci for adaptation planning. This study surveys New York State Local Health Department officials' perceptions and preparedness related to climate-sensitive health areas, and compares these with a national sample.

Survey participants perceived climate change as relevant to public health, and most noted that some of their existing programs already use or are planning to use climate adaptation strategies. Overall, fewer New York State respondents identified concerns or related expertise compared with the previous national survey. Many respondents expressed uncertainty regarding necessary additional resources.

Learn more about the study [here](#).

Modeling of regional climate change effects on ground-level ozone and childhood asthma

Affiliated Investigators: Perry Sheffield and Patrick Kinney

Funded by NIH

The adverse respiratory effects of ground-level ozone are well established. Ozone is the air pollutant most consistently projected to increase under future climate change. Acute ground-level O₃ exposure is linked to childhood respiratory illness, exacerbations of asthma and, more specifically, increased emergency department visits for asthma. This study projects future pediatric asthma emergency department visits associated with ground-level ozone changes, comparing 1990s to 2020s.

The results of this assessment suggest that, compared to the 1990s, by the 2020s climate change could cause a median increase of 7.3% in regional summer O₃-related asthma emergency department visits for children aged 0–17 years across the New York City metropolitan region. This effect diminished with inclusion of ozone precursor changes. However, when examining individual counties, O₃-related emergency department increases ranged from 5.2% to 10.2%. When population growth is included, the projections of morbidity related to ozone are even larger.



Learn more about the study [here](#).

Feedback



Please email the Program Coordinator, Haruka Morita, at hm2487@columbia.edu with questions and suggestions about future newsletter content.

For more information about the Program, please visit our [website](#).