



Increasing Trend Of Heavy Rain Events In Northeast Confirmed By Study

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DURHAM, N.H. – Confirming what most people in the Northeastern United States are seeing out their windows these days and “consistent with projections of climate change associated with global warming,” a new study of precipitation in the region over the last 50 years indicates an increasing trend of heavy rain events.

Conducted by the University of New Hampshire’s Carbon Solutions New England (CSNE) and Clean Air-Cool Planet (CA-CP), “Trends in Extreme Precipitation Events for the Northeastern United States 1948-2007” details precipitation data from 219 National Weather Service cooperative stations in Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and Vermont.

Photo courtesy of UNH Stormwater Center.

The new report is an update of “Indicators of Climate Change in the Northeast 2005” by CA-CP and Cameron Wake, a research associate professor at the UNH Complex Systems Research Center and director of CSNE. The update is based on Master of Science thesis work conducted by UNH graduate Susan Spierre, and Wake.

Noting that “the impacts of changing climate on our infrastructure and ecosystems has become more apparent,” Wake and Adam Markham, CEO and president of CA-CP, cite an increase in freshwater flooding events as having more frequent impacts on infrastructure and the health and life quality of people in the region.

Says Wake, “One of the key challenges for this study was to identify the best possible

precipitation data sets to analyze. We spent considerable time and effort to ensure that was the case.”

The report, which is available at www.carbonsolutionsne.org and at www.cleanair-coolplanet.org/information/factsheets.php, concludes that “all of the definitions for quantifying extreme precipitation events (frequency of accumulation, the 99th percentile of events, or recurrence intervals) indicate that the occurrences of these events, and the intensity of rainfall, are increasing” in the region. The report indicates annual precipitation also showed “predominantly positive increases from 1948-2007, with the most significant increases occurring most recently.”

The increase in extreme precipitation events and in annual precipitation is occurring primarily during the spring and fall. Indeed, three separate downpours in this past March have set new rainfall records across the region.

“It is increasingly likely that policymakers and planners are going to have to contend with the ramifications of these types of events on a more regular basis,” said Markham. “One of our chief interests at Clean Air-Cool Planet, in addition to reducing emissions of greenhouse gases, is in helping communities develop the tools and information they need to adapt to the changing climate.”

The report notes that several detailed studies published in peer-reviewed literature conclude that the recent changes in precipitation patterns around the globe are due to an increase in global temperatures driven by enhanced levels of greenhouse gases in the atmosphere, which come from the burning of fossil fuels and land use changes.

“Warmer temperatures lead to greater evaporation rates and allow air to have a higher capacity for water vapor, leading to a more active hydrological cycle. Because more water vapor is in the air, when the air rises and cools due to expansion under lower pressure, more water vapor gas is available to condense into liquid to form clouds and ultimately rainfall,” states the report.

“Overall, the region is experiencing more extreme precipitation events, with the largest increase occurring in the spring and fall seasons. Several stations, especially in coastal regions of Massachusetts and New Hampshire, are experiencing twice the number of extreme precipitation events compared to 50 years ago,” says Wake. “This is of particular concern as development increases in our watersheds because the combined impacts of more impervious surfaces and increases in extreme precipitation will lead to more flooding in the future.”

The University of New Hampshire, founded in 1866, is a world-class public research university with the feel of a New England liberal arts college. A land, sea, and space-grant university, UNH is the state's flagship public institution, enrolling 12,200 undergraduate and 2,200 graduate students.

Clean Air-Cool Planet is the leading science-based, non-partisan, non-profit organization dedicated solely to delivering solutions to global warming.

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