



For more information, contact:

Brad Wyche, Executive Director
Upstate Forever
(864) 250-0500
bwyche@upstateforever.org

Brian Stone, Jr., Associate Professor
School of City and Regional Planning
Georgia Institute of Technology
(404) 894-6488
stone@gatech.edu

September 23, 2010

Study Finds Sprawling Cities Experience Hotter Summer Temperatures

Greenville is Nation's Thirteenth Most Rapidly Warming Metro Area; Severe Heat Constitutes a Public Health Threat

(Greenville, SC) – After the unrelentingly hot summer of 2010, researchers have some chilling news: U.S. cities are experiencing more extremely hot days than they did fifty years ago, but sprawling areas, including Greenville, are experiencing even more of them, putting residents at risk for heat-related deaths.

Researchers from Georgia Institute of Technology, National Center for Environmental Health, and Emory University Schools of Medicine and Public Health have published a study examining the relationship between urban form and the frequency of extreme heat events (EHEs) in 53 metropolitan areas for the years 1956-2005. EHEs are days when the “apparent temperature,” a measure reflecting both temperature and humidity, exceeds the 85th percentile of the base period, and are associated with an increase in heat-related deaths.

Researchers Brian Stone, Jeremy J. Hess, and Harold Frumkin found that, over the 50-year study period, major U.S. metropolitan areas have seen an average increase in EHEs of 0.2 days per year. This amounts to ten more extremely hot days in 2005 than in 1956. But there were significant differences among the regions studied: the most compact metropolitan areas, including Chicago, Boston, and Baltimore, had an average increase in EHEs of 5.6 days; meanwhile areas with the highest “sprawl index,” including Atlanta, Grand Rapids, Tampa, and Greenville, averaged 14.8 more extremely hot days over the same period.

According to Dr. Stone, “Greenville was the 4th most sprawling region out of the 53 regions included in our study. There were 7 extreme heat events in 1963, the first year for which we have data in Greenville, and 32 events in 2005. This ranks Greenville as the 13th most rapidly warming area (by the metric of EHE increase) out of the 53 included in the study and places Greenville among the top 25 percent in terms of rate of warming.”

Severe heat kills an average of 400 Americans each summer. How can metropolitan areas avert this major health threat? The study's authors cite the loss of tree cover as the main source of the urban heat island effect. In addition to identifying vulnerable populations, such as low-income elderly residents, and creating emergency response plans for protecting those citizens during heat waves, cities and their surrounding areas can reduce the incidence of EHEs by promoting more compact design. Suggested strategies include preserving forests and green space; planting street trees; installing green roofs and reflective surfaces on roads and buildings; and increasing the percentage of travel undertaken on foot, by bicycle, and on public transit.

"This data should serve as a wake-up call for local governments in the Upstate," said Brad Wyche, Executive Director of Upstate Forever, a local nonprofit organization advocating for sensible growth policies and land conservation. "If improvements to air quality, water quality, and public health weren't reasons enough to implement policies promoting compact development, this study confirms that reducing sprawl can also be a matter of life and death."

[The full article, "Urban Form and Extreme Heat Events: Are Sprawling Cities More Vulnerable to Climate Change than Compact Cities?" was published in the journal *Environmental Health Perspectives* and is available online at <http://ehponline.org/article/info:doi/10.1289/ehp.0901879>; click on the "download: pdf" link on the right-hand side of the page to open the article.]

Upstate Forever is a nonprofit, membership-based organization promoting sensible growth and the protection of special places in the Upstate region of South Carolina. Our three program areas are Land Trust, Sustainable Communities, and Clean Air and Water. Founded in 1998, **Upstate Forever** now has over 2,700 members, two offices, and a staff of 20. For more information, see www.upstateforever.org.