Participatory Climate Research in a Dynamic Urban Context

Activities of the Consortium for Climate Risk in the Urban Northeast (CCRUN)

Radley M. Horton¹, Daniel A. Bader², Franco Montalto³, William Solecki⁴

www.ccrun.org

SUMMARY

The Consortium for Climate Risk in the Urban Northeast (CCRUN) is one of eleven teams funded under NOAA’s Regional Integrated Sciences and Assessments (RISA) program. A partnership of five universities, CCRUN serves stakeholder needs in assessing and managing risks from climate variability and change. The only RISA team with a principle focus on climate adaptation in urban areas, CCRUN is designed to address the complex challenges that are associated with densely populated, highly interconnected urban systems, which include: urban heat island effects; poor air quality; intense coastal development, and multifunctional settlement along inland waterways; complex overlapping institutional jurisdictions; integrated infrastructure systems; and highly diverse, and in some cases, fragile socioeconomic communities. In its sixth year, CCRUN has begun to expand its focus to include a range of different sizes and types of cities in the region. The network’s structure enables local needs for targeted climate-risk information to be served in a coordinated way.

ABOUT CCRUN

The Consortium for Climate Risk in the Urban Northeast (CCRUN) is the umbrella for the 11 RISA teams focused on climate science and social science research and adaptation in urban communities. CCRUN is a collaborative effort among five universities, representing ten academic departments, including the School of Arts & Sciences, College of Engineering, College of Arts & Sciences, School of Urban Planning, and School of Engineering & Applied Science. CCRUN is funded by the National Oceanic and Atmospheric Administration (NOAA) under the Regional Integrated Sciences and Assessments (RISA) program.

CCRUN developed an integrated research template to ensure that our work spans places, sectors, and needs, especially as articulated by regional practitioners. It begins with domain-specific assessments of research needs, some of which were evaluated during Phase I of the project (top). The assessment findings are used to design and to co-locate research activities in new “test bed” sites, in places less emphasized by the team during Phase I (middle row). Finally, the validated research results from the test beds are used to extrapolate scale-up, and assess findings to consider regional climate impacts in a third cohort of “application sites” (bottom row), which will inform future assessments.

STAKEHOLDER SURVEYS

In order to better assess community-level understanding and concern about extreme weather events, a CCRUN stakeholder survey was distributed to ~40 attendees in June 2016 at a State of the (Jamaica) Bay Symposium.

Respondents were asked to assess the significance of a set of climate hazards on their city or management unit, the most useful sources of climate information, and the key barriers to implementing climate adaptation and resiliency in their field of work.

In response to the question, “If there is one thing that you need to better address climate hazards, and climate adaptation and resiliency needs, what would it be?”, answers included:

-Science research of climate impacts
-Quantification of the uncertainty of climate risks
-Improved communication with local scientists

Tools for more targeted analysis are being developed based on the survey, which is available online.

3) EXTREME WEATHER EVENTS

Hurricane Sandy demonstrated that extreme weather events have outsized impacts on stakeholders, and can help galvanize action. For example, Hurricane Sandy:

1) raised awareness of the diverse vulnerabilities to extreme weather in the urban northeast (e.g., at both the networked infrastructure and community levels)

2) provided opportunities for science to inform recovery and rebuilding decisions (e.g., New York City’s $20 billion Special Initiative for Rebuilding and Resiliency (see right))

3) brought diverse communities and economic resources together, providing opportunities for shared learning and action (e.g., The Science and Resilience Institute at Jamaica Bay (SRJUB) and Rebuild by Design projects)

In the years following Hurricane Sandy, each CCRUN sector focused research on understanding impacts and informing adaptation decisions (such as projected future flood heights). More recent stakeholder engagement efforts have focused on vulnerable communities and ecosystems. For example, CCRUN is partnering with SRJUB to better understand ecosystem resiliency. CCRUN and SRJUB are also co-hosting Climate Forums aimed at informing local communities about the dangers of extreme weather events, learning about community concerns, and co-developing strategies to prepare for future extreme weather events. These Climate Forum events were focused on coastal storms, bringing together science experts, first responders, and local residents to better understand risks and discuss preparedness.

4) SEMINAR SERIES

CCRUN and our stakeholder partners host a series of seminars on green infrastructure, climate and cities.

This series focuses on urban solutions to global problems associated with increasing temperature and sea level rise, precipitation variability and greenhouse gas emissions. We are interested in the implications of such changes on the complex infrastructure of intensely developed landscapes, and on the health, well-being, and vulnerability of urban residents. Speakers include both researchers, and practitioners, all of whom have new ideas on how to promote resilient, livable, and sustainable cities.

All seminars are free, and held on the first Wednesday of every month at Drexel University. The sessions are broadcast live via webcast, but also recorded, and archived on the CCRUN website for access to the larger stakeholder community (www.ccrun.org).

CONCLUSIONS

As CCRUN’s focus has evolved towards extreme weather events such as Hurricane Sandy, we are developing a broad set of tools and activities, including those described here, to enhance stakeholder-science interactions and support resilience.