

New research shows temperatures vary block by block

September 1 2014, by James Ford

This summer has seen the temperature rise above the severe heat mark of 90 degrees just five times, with the latest happening Wednesday afternoon. That's far fewer times than in an average New York summer.

But before anybody gets the impression that the summer of 2014 is milder than usual, they should consider two things: a [research program](#) led by City College of New York, or CCNY, and an analysis of weather block by block, in which the pioneering CCNY program specializes.

"It's a sweaty one today," Ray Skelton, of Hamilton Heights, said Wednesday as he walked his dog with a friend.

The 91-degree high was the fifth time this summer the mercury climbed above the 90-degree mark. That fact contrasts with the 15 days of 90-plus temperatures the city has had on average in recent years. Still, weather researchers say that does not make for a mild summer.

"Science is in the business of telling you the obvious," said Brian Vant-Hull, PhD, "but telling you in a much more accurate way."

The CCNY research scientist pointed out that this has been an average summer, heat-wise, just with fewer extreme temperatures.

He should know. He spoke with PIX11 News while holding a license plate-sized piece of cardboard covered in white paper, on which half of a styrofoam cup was attached, which housed two electronic devices.

"Inside the cup," said Vant-Hull, "we have a relative humidity sensor... and a very small temperature probe."

The homemade apparatus is connected to a small handheld computer that records measurements of temperature and humidity in rapid intervals.

For the last three summers, a platoon of eight researchers has worn the apparatuses, attached to the back of backpacks they carry, and they've walked different, straight routes across Manhattan, and up and down the country's most densely populated island.

As a result of the dozens of 40-minute treks the researchers have done, they've gathered meteorological information that has come to surprise some of the research team.

"You assume that in a city, the temperature is uniform, which it's not," said Rouzbeh Nazari, a professor at Rowan University in New Jersey, who's among the half dozen collaborators on the project.

"You go block to block," he said, describing his group's research, "and the temperature changes by a couple of degrees, which is surprising."

In other words, the crosstown treks of the backpack weather station researchers ended up showing, over time, that crosstown streets are noticeably cooler than the North-South avenues.

Manhattan's streets generally run east-west and tend to be shady and breezy, while avenues run north-south and are typically more sunny and less windy than crosstown streets.

The readings from the street level backpack weather stations also showed that sunlight reflected off the city's buildings makes people on

the sidewalks below feel more heated.

The research also concluded that locations just a few blocks apart can have a noticeable difference in temperature due to a difference in elevation between the locations.

For example, 116th Street, one of the streets analyzed in the project, differed in temperature by about 4 degrees Fahrenheit from its west end, which is at 121 feet above sea level, to its east end, which is at sea level.

Interesting conclusions to be sure, but what's the point of all of this newly gathered information?

Project collaborator Maryam Karimi, a PhD candidate at the City University of New York Graduate center, provided an excellent answer.

"If you just listen to the news," she said in an interview with PIX11 News, "sometimes the temperature they tell you is 96 degrees, but the [temperature](#) on the street is actually a lot higher."

The research is intended to give a clearer picture of how climate change affects large urban areas. Based on its results, city planners, community activists, architects and legislators are anticipated to make major decisions about how and where residents of cities live.

The Manhattan street level weather station project, officially dubbed NOAA-CREST, is expected to be expanded to other New York boroughs and U.S. cities next summer.

Provided by The City University of New York

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