

---

June 27, 2004

## Forecast for New York This Century: Hotter and Wetter

By ANTHONY DEPALMA

It will not happen the day after tomorrow. Nor a decade from now.

But well before this century ends, global warming will make New York City and the metropolitan area that surrounds it a hotter, wetter and significantly less healthy place to live and work, according to a federally financed study released on Friday by a group of scientists at Columbia University.

The three-year study by the New York Climate and Health Project is the most detailed look ever at the effects of global warming on New York. It makes no doomsday predictions, but it paints a worrisome portrait of New York's vulnerability to global climate change.

As global temperatures rise by 2.4 to 10.4 degrees Fahrenheit by 2100, a densely developed area like New York City will be hit even harder, the scientists said, because it has so few trees and so much heat-retaining concrete and asphalt.

Higher temperatures intensify the creation of ozone, worsening air pollution and making the city unhealthier for the elderly and other vulnerable groups, including children in poor neighborhoods that now have some of the highest rates of asthma in the country.

According to the study, heat-related deaths, which averaged about 840 a year in the region through the 1990's, could more than double by the 2050's and increase by 258 percent by the 2080's if higher temperatures are accompanied by unchecked development. The study showed that four of New York's five boroughs -- Staten Island was not included -- would endure the sharpest increase in deaths related to the heat, while in the less developed parts of the 31-county metropolitan region the rise would be less severe.

For the three-year study project, scientists, doctors and environmental specialists from Columbia and other universities joined in an unusual collaboration, sharing information and insights to assess global warming's effects on public health.

While previous studies looked at areas no smaller than the entire northeastern United States, this one covered areas as small as 2.5 square miles. As work on the project continues, projections could eventually be made for single neighborhoods; this would create important policy implications.

"Climate change is not going to impact all communities equally," said Cecil Corbin-Mark, program director of West Harlem Environmental Action. He said the study should help city officials realize that crucial decisions on land use and policy, even some as simple as deciding how many air-conditioned "cooling centers" the city needs on heat emergency days, "cannot wait to be made."

The coming environmental changes will be caused not just by global warming but also by increased urbanization.

"If we're not careful, we'll have our own global warming situation right here, just because of the way we're building things," said Dr. Barry H. Lynn, a meteorologist at Columbia University and the NASA-Goddard Institute for Space Studies who worked on the study. Temperatures in the city will be driven up 2 to 3 percent over the next 50 years by continued development in New York, he said, unless developments are designed in a way that reduces their environmental effects.

Measures like rooftop gardens and rain collection systems are already being included in the designs for some new buildings in New York. Dr. Lynn said that such initiatives help, but that officials will have to change building codes and offer more incentives if they are to have a real impact on the city's climate and public health.

Besides the direct effect of the higher temperatures, the study outlines many secondary or related results of climate change. For instance, devastating floods that now are expected to occur once a century could hit the area every 40 years. Melting ice would raise the oceans and rivers, driving insects and vermin, along with the diseases they carry, from the water's edge into the city. Molds, allergens and water-borne illnesses would spread rapidly.

**Correction:** July 10, 2004, Saturday An article on June 27 about a study predicting long-term climate changes in the New York region referred imprecisely to a finding that the sharpest increases in heat-related deaths would occur in the most developed areas. While Staten Island was included in the study, it was not among the boroughs where the study said the increases would be steepest. The article also misstated the impact of development on temperatures. Uncontrolled development could cause them to increase over the next 50 years by two to three degrees Celsius, not 2 to 3 percent.

The article misattributed predictions about a rise in sea levels due to climate change. They were part of the 2001 Metro East Coast Report, not the climate study.