

Urban Heat Islands



New York City, Credit: NASA: [ISS039-E-18538](#)

[Link image to enlarge.](#)

[The narrow island of Manhattan](#), located between the Hudson River and the East River, is a familiar feature to crews on the International Space Station. Wharves jut into the rivers; bridges are visible thanks to the shadows they cast; and the grid pattern of major streets stands out. On Manhattan itself, Central Park takes center stage.

In an urban setting, rivers and parks can reduce the [heat island effect](#). This term refers to the local zone of higher surface and air temperatures caused by the way concrete and tarmac (asphalt) [absorb, store, and release heat](#). Rivers provide pathways for wind, and the cooling effect of vegetated parks can be detected by space-based instruments that measure [ground surface temperature](#).




Urban heat island research has significant implications for human health. In the middle of an already hot summer, the urban heat island effect can be deadly, especially at night. Round-the-clock heat means that city residents have no respite, and those who manage to sleep through the night may not drink enough water to stay hydrated. Air conditioning provides some relief, though not everyone has access to it, especially in low-income neighborhoods and developing nations. Where available, some kinds of air conditioning can raise outside temperatures.







Image courtesy of the [Earth Science and Remote Sensing Unit, NASA Johnson Space Center](#).
Text courtesy of NASA Earth Observatory: [New York City](#) and [Urban Heat Islands](#).

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DISCUSSION PROMPTS

-  Can you identify heat islands in your community? Think of and document the land cover of various neighborhoods.
-  What ideas and concrete solutions would you propose to decrease the heat island effect in your community?
-  Share your ideas and prospective solutions with us on social media.

OPTIONAL

-  Take pictures to document the land cover in heat islands.
-  Take pictures to document land cover in other neighborhoods with more trees and greenery.
-  Compare and contrast the images you took.
-  Share your images with us on social media.

HEAT ISLAND EFFECT RESOURCES

From NASA Earth Observatory:

- [New York City](#)
- [Urban Heat Islands](#)
- [Vegetation Limits City Warming Effects](#)
- [In the City, Bright is the New Black](#)
- [Windows on Earth: Manhattan \(view caption\)](#)

Additional Resources:

- [NASA Global Climate Change: Vital Signs of the Planet](#)
- [NASA Overview: Weather, Global Warming, and Climate Action for the Climate Emergency](#)
- [Perspectives of Earth: Main Website](#)
- [Perspectives of Earth: UN Sustainable Development Goals: Six Essential Elements](#)
- [Windows on Earth: See Earth Through the Astronauts' Lens](#)