

# Internet outages in the US doubled during Hurricane Sandy

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USC scientists who track Internet outages throughout the world noted a spike in outages due to Hurricane Sandy, with almost twice as much of the Internet down in the U.S. as usual.

Previous research by this team has shown that on any given day, about 0.3 percent of the Internet is down for one reason or another. Just before [Hurricane Sandy](#) hit the East Coast, that number was around 0.2 percent in the U.S. (pretty good, by global standards) – but once the storm made landfall, it jumped to 0.43 percent and took about four days to return to normal, according to a new report by scientists at the Information Sciences Institute (ISI) at the USC Viterbi School of Engineering.

"On a national scale, the amount of outage is small, showing how robust the Internet is. However, this significant increase in outages shows the large impact Sandy had on our national infrastructure," said John Heidemann, who led the team that tracked and analyzed the data. Heidemann is a research professor of computer science and project leader in the Computer Networks Division of ISI.

Heidemann worked with graduate student Lin Quan and research staff member Yuri Pradkin, both also from ISI, sending tiny packets of data known as "pings" to networks and waiting for "echoes," or responses. Though some networks—those with a firewall—will not respond to pings, this method has been shown to provide a statistically reasonable picture of when parts of the Internet are active or down.

The team was also able to pinpoint where the outages were occurring, and noted a spike in outages in New Jersey and New York after Sandy made [landfall](#).

Their research was published as a technical report on the ISI webpage on December 17, and the raw data will be made available to other scientists who would like to analyze it.

The data is not yet specific enough to say exactly how many individuals were affected by the outage, but does provide solid information about the scale and location of outages, which could inform Internet service providers on how best to allocate resources to respond to natural disasters.

"Our work measures the virtual world to peer into the physical," said Heidemann. "We are working to improve the coverage of our techniques to provide a nearly real-time view of outages across the entire Internet. We hope that our approach can help first responders quickly understand the scope of evolving natural disasters."

Provided by University of Southern California

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