

# Forget blizzards and hurricanes, heat waves are deadliest

August 2 2012, by Terry Devitt

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(Phys.org) -- In the pantheon of deadly weather events, heat waves rule.

When it comes to gnarly weather, tornadoes, blizzards and hurricanes seem to get most of our attention, perhaps because their destructive power makes for imagery the media can't ignore. But for sheer killing power, heat waves do in far more people than even the most devastating hurricane. Ask medical historian Richard Keller.

Keller, a University of Wisconsin-Madison professor of medical history and bioethics, is compiling a detailed account of the epic 2003 [heat wave](#) that broiled parts of Europe that summer and killed an estimated 70,000 people.

During the course of three excruciating weeks in August of that year, a massive high-pressure system parked over Europe, producing the hottest summer weather in more than 500 years and leading to most of those fatalities. It was so hot electrical cables melted, nuclear reactors could not be cooled, [water pumps](#) failed, and [museum specimens](#) liquefied.

By comparison, [Hurricane Katrina](#) and its floods, which devastated New Orleans and the Gulf Coast in 2005, exacted a death toll of 1,836 people.

France, in particular, was hard hit by the deadly 2003 heat wave, when temperatures surpassed 100 degrees Fahrenheit on seven days.

"Measured by mortality, it was the worst natural disaster in contemporary France," says Keller, who with support from the UW-

Madison Graduate School, the National Science Foundation and the city of Paris is working on a history to detail the effects of the heat wave on the City of Light where, according to official tallies, 14,802 people died.

The catastrophe occurred at a time when many Europeans, including government officials and physicians, were on annual holiday and was first sensed by undertakers, who were being overwhelmed with unclaimed bodies, some of which had to be stored in a refrigerated warehouse outside the city as mortuaries ran short of space.

Contributing to the death toll, explains Keller, were a host of social variables such as age of the victims, social status, gender and where they lived. In Paris, many of the victims were elderly women who lived alone, usually on the top floors of cheap, poorly ventilated walk-ups.

"People who lived in these apartments died like flies," according to Keller. "This was as much a social as a health and epidemiological disaster. There were social factors that made some people much more vulnerable."

Age, of course, put many victims at more physiological risk. The elderly often don't notice the effects of dehydration and so tend not to drink enough water. And the medications many older people take can exacerbate the effects of extreme heat as can medications used to treat psychiatric disorders and neurological conditions like Parkinson's disease.

However, Keller, who pored over records of the dead, visited their neighborhoods and talked to friends and relatives, found that the greatest risk was to people who lived on their own.

"The single biggest factor for dying was if you lived alone," he says.

The social dynamics of death from extreme heat, argues Keller, can be instructive as heat waves seem to be occurring more frequently and with greater intensity and duration: "Vulnerability to extreme events is more complex than we know and we need to think about broader scale adaptation," Keller says, noting that we build homes, apartments and public housing with more attention to staying warm in the winter than keeping cool during the dog days of summer.

"We have to recognize that heat kills far more people than the cold and that those most likely to die are people on the social margins of society," Keller says.

Provided by University of Wisconsin-Madison

Citation: Forget blizzards and hurricanes, heat waves are deadliest (2012, August 2) retrieved 25 April 2024 from <https://phys.org/news/2012-08-blizzards-hurricanes-deadliest.html>

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