

Clear footprint of global warming on death toll in European summer of 2022

August 1st, 2023



Research has shown that nearly 1% of the global population dies because of heat. One out of three of these heat-related mortalities can be attributed to human-induced climate change. A recent study focused on the observed mortality due to heat in Switzerland during the summer of 2022 and quantified the contribution of human-induced climate change to this extreme event. They concluded that 60% of the people that died from heat that summer in Switzerland would not have died in the absence of global warming.

3.5% of all deaths attributed to heat

The summer of 2022 in Western and Central Europe was characterized by a cascade of heatwaves. Temperatures reached extremely high values, partly amplified because of the drought that reduced the cooling effect of evaporation. The number of people that died during these heatwaves in Switzerland was much higher than in the same period in previous years. 3.5% of all-cause deaths between June and August 2022 were attributed to heat, and 60% of this heat-related mortality was due to anthropogenic climate change.

For the period 1990-2017, thus not including the COVID pandemic, researchers quantified the relationship between summer heat and mortality. They quantified the summer heat that would have occurred in Switzerland in 2022 in the absence of global warming. Then they used the heat-mortality relationship over the 1990-2017 period to quantify the hypothetical number of heat-related deaths in a summer without climate change, compared this number with the observed heat-related mortality, and quantified the impact of climate change as the difference between these two numbers.

90% of heat-related mortality people over 65

In this study, a distinction was made between people younger and older than 65. Remarkably, the percentage of deaths attributed to heat was the same for both age groups, about 3.5%. However, nearly 90% of the estimated heat-related mortality happened in the age group of people over 65, simply because overall mortality is much higher in this age group.

In the absence of climate change, the heat-related burden would have amounted to 1.4% of all-cause mortality. Thus, 2.1% of the all-cause mortality in the summer of 2022 can be attributed to climate change. This corresponds to 60% of the observed heat-related mortality.

Source: Vicedo-Cabrera et al., 2023. Environmental Research Letters 18, 074037.