

Heatwaves and Climatic Distress : A Student's Perspective on an Escalating Crisis



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Heatwaves are one of the deadliest effects of climate change, which has evolved from a warning to a current problem. Heatwaves and the resulting climatic misery are not just an academic but also a very personal worry for me as a student who is observing and researching the quickly changing global environment. Insights from recent studies and personal experiences are combined to examine the origins, effects, and possible remedies of the growing heatwave phenomena.

Introduction: Heatwaves are prolonged periods of excessively hot weather, often accompanied by high humidity. According to the Intergovernmental Panel on Climate Change (IPCC, 2021), the frequency and intensity of heatwaves have significantly increased since the 1950s due to anthropogenic climate change. These extreme events not only strain natural ecosystems but also challenge the resilience of social, economic, and health systems.

The Science Behind Heatwaves: Increasing greenhouse effect intensity is the main cause of heatwaves. GHGs including carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O) are more prevalent now due to human activity, especially the combustion of fossil fuels, deforestation, and industrial operations. The Earth's atmosphere retains more heat as a result of these gases, raising global temperatures and making heatwaves more frequent and intense.

A 2020 study published in Nature Communications found that the probability of extreme heat events has increased by a factor of 2 to 5 times in many parts of the world compared to the pre-industrial era. This research used climate models to simulate temperature changes and concluded that over 37% of heat-related deaths across the globe between 1991 and 2018 can be attributed to anthropogenic climate change (Vicedo-Cabrera et al., 2021).



Health Impacts of Heatwaves: Heatwaves have serious negative health effects. Direct effects include heat exhaustion, heatstroke, cardiovascular stress, and respiratory discomfort; indirect effects include mental health disorders and the worsening of existing diseases. Particularly at risk are the elderly, young people, and those with underlying medical issues.

Heat-related mortality is increasing at a startling rate, especially in low- and middle-income nations with inadequate access to cooling facilities and treatment, according to a Lancet analysis from 2022. Additionally, the issue is made worse in cities by the urban heat island effect, which occurs when human activity causes metropolitan regions to be noticeably warmer than their rural surrounds.

Economic and Environmental Consequences: Heatwaves also have significant economic repercussions. Agricultural productivity declines as crops fail under extreme heat, water resources are strained, and energy demand soars due to increased use of air conditioning. For example, a 2021 report by the World Bank estimated that heat-related labour productivity losses could cost South Asian economies over \$160 billion annually by 2030.

Environmentally, heatwaves can lead to the degradation of natural ecosystems. Forests are at increased risk of wildfires, biodiversity loss accelerates, and freshwater bodies may experience algal blooms that disrupt aquatic life.

Societal and Psychological Dimensions: Climatic distress extends beyond physical and economic impacts—it also affects mental well-being. The phenomenon of "**climate anxiety**" is becoming increasingly common, especially among young people. As a student, I have observed peers expressing fear, frustration, and helplessness about the future. Studies

have shown that long-term exposure to extreme heat can increase aggression, reduce cognitive performance, and heighten the risk of anxiety and depression (Anderson et al., 2018).

Heatwaves frequently test the social fabric in areas that are already at risk. Because of disparities in access to secure housing, healthcare, and cooling, the poor and disenfranchised are disproportionately affected by climate extremes. The learning and general development of pupils can be negatively impacted by heatwaves, which can also disrupt instruction, especially in areas where schools lack proper cooling facilities.

Global and Regional Trends: Different regions experience heatwaves differently due to their geography, socio-economic conditions, and infrastructure. For instance, in Europe, the 2003 heatwave led to over 70,000 excess deaths (Robine et al., 2008). In India, the 2015 heatwave caused more than 2,500 deaths, highlighting the vulnerability of densely populated and economically challenged regions.

According to the World Meteorological Organization (WMO), 2023 was one of the hottest years on record, with numerous regions across Europe, North America, Asia, and Africa experiencing prolonged heat events. In cities like Phoenix (USA) and Delhi (India), temperatures consistently surpassed 45 degrees Celsius, pushing infrastructure and healthcare systems to the brink. **Adaptation strategies aim to reduce vulnerability and enhance resilience to heatwaves.**

These include: Developing and implementing early warning systems, urban planning that incorporates green spaces and reflective building materials to combat the urban heat island effect, enhancing healthcare infrastructure and public awareness



campaigns, ensuring access to clean water and cooling centers during heat events. For instance, Ahmedabad in India has implemented a Heat Action Plan that includes public awareness campaigns, training for healthcare professionals, and infrastructure upgrades. This model has been replicated in other cities, showing the importance of localized, community-based responses.

The Role of Education and Youth Engagement:

As students, we are not mere spectators in this crisis—we are stakeholders with the potential to drive change. Institutions of higher learning must incorporate climate education into all subject areas to provide students the information and abilities they need to solve climate issues.

Youth-led advocacy campaigns, environmental groups, and campus sustainability programs can all help to promote a climate action culture. Additionally, student voices are essential for holding businesses and governments responsible. Initiatives like **Greta Thunberg's Fridays for Future** show how young people can influence the conversation around climate change. Through research, policymaking, and grassroots engagement, students may help create a more just and resilient future.

Conclusion

Heatwaves are not just weather events—they are a symptom of a broader climatic and societal malaise. As they grow in frequency and intensity, the need for urgent, coordinated, and sustained action becomes ever more pressing. Through scientific understanding, community resilience, and youth leadership, we can confront this challenge and forge a path toward a more sustainable and just world.

In the words of climate scientist Katharine Hayhoe, **"The most important thing you can do to fight climate change is to talk about it."**

As a student, I believe it is time we amplify our voices, demand accountability, and act with urgency to safeguard our planet for generations to come.

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