



Extreme climate events, health, and youth

Extreme climate events will continue to increase in terms of frequency, intensity, duration, and geographic reach around the world in the coming decades under current climate policy pledges. Thus, heat waves, droughts, crop failures, floods, cyclones, and wildfires are expected to increase worldwide. Young generations will experience more severe events during their lifetime in comparison to their parents and grandparents. The well-being and safety of young generations calls for serious emission reductions to safeguard their future.

The findings presented in this factsheet are derived from research conducted by the “Cascading climate risks: towards adaptive and resilient European societies” (CASCADES) project funded by the EU Horizon 2020 programme. The CASCADES project focuses on quantifying the impact of extreme climate events and specifically studies how youth will experience more climate-related extreme events than older generations.

The purpose of this factsheet series is to showcase key findings from research on climate change and health from projects funded by the EU and Belmont Forum which are part of the ENBEL network. The series includes only findings from research produced by four EU-funded projects

and one JPI Climate-funded project in the ENBEL network as well as from projects funded through the Belmont Forum Climate, Environment and Health Collaborative Research Action (CEH1).



Key findings

- Extreme climate events refer to severe occurrences such as heat waves, droughts, crop failures, floods, cyclones, and wildfires, which deviate from normal patterns and have a significant impact on society and ecosystems.
- Extreme climate events are projected to increase significantly in frequency, intensity, duration, and geographic reach in upcoming decades under a 2°C global warming scenario.
- Heat waves are expected to increase by 2000% in global population exposure assuming a global warming of 2°C, with higher exposure in regions such as the Middle East and South Asia.
- Droughts are projected to increase by 370% globally given a 2°C global warming scenario with Mediterranean and Amazon regions facing the most exposure increases.
- Crop failure is projected to increase by 120% globally in response to a 2°C global warming scenario, especially affecting crop failures in tropical regions that grow maize and wheat.
- River floods are expected to increase by 100% in global population exposure with 2°C global warming scenario increasing the risk of flooding around the world.
- Tropical cyclones are expected to impact 50% more people annually under a 2°C global warming scenario, with the most impact on island countries in the Indian and Pacific oceans.
- Wildfires are expected to increase by 30% in global population exposure under a global warming scenario of 2°C.
- Young generations, in comparison to older generations, are expected to experience more severe extreme events throughout their lifetimes due to ongoing climate change.
- A child born in 2020 will experience on average two to seven times more extreme events, particularly heat waves, than those born in 1960, under current climate policy pledges.
- A person born in 1960 experiences on average around 4 (\pm 2) heat waves in their lifetime compared to a child born in 2020 that will experience 30 (\pm 9) heat waves under current climate policy pledges.
- Children born in 2020 will experience on average two times as many wildfires, 2.8 times as many river floods, 2.6 times as many droughts and, potentially, three times as many crop failures compared to people born in 1960.

Ål, Norway Photo: Kim Atle Kleven



Implications of the research

- The findings from this research highlight that the world will experience more severe climate events in the coming decades. Lifetime exposure to extreme events consistently increases under higher warming scenarios and among younger age groups.
- Limiting global warming to 1.5°C instead of current pledges could nearly half the additional exposure of newborns to heat waves and reduce the burden for other extreme events yet still leaves younger generations with unprecedented exposure to extreme climate events.
- The intergenerational inequities in exposure to climate extremes raises issues of fairness and climate justice. Despite contributing the least to climate change, young generations will face the brunt of the consequences, which is a cornerstone of the intergenerational climate justice movement.

Who is most at risk?

- Younger generations, specifically children born in recent years, are particularly vulnerable to the increasing frequency and intensity of extreme events caused by climate change.
- Regional patterns indicate that the Middle East and North Africa face the highest increase in lifetime exposure, up to seven times higher for cohorts younger than 25 years old in 2020 under current emission reduction pledges.
- Residents of low-income countries will face the highest increases in lifetime exposure with more than a fivefold increase for the 2020 birth cohort under current climate policy pledges.



Photo: Unsplash

Conclusion

Drastic reductions in greenhouse gas emissions are necessary to safeguard the health, well-being, and future of younger generations in the face of the escalating threats posed by climate change. As global warming progresses, younger generations will experience more extreme events throughout their lifetime compared to older generations, particularly in terms of heat waves, wildfires, floods, cyclones, droughts, and crop failures which raises concerns about intergenerational equity and the need for climate justice. Younger generations, especially those in low-income countries and the Global South, are most at risk due to the increasing intensity of climate-related extreme events. Limiting global warming to 1.5°C would substantially decrease younger generations exposure to extreme events.



Photo: Unsplash

Publications

- Thiery, W, Lange, S, Rogelj, J, Schleussner, C-F, Gudmundsson, L, Seneviratne, SI, et al. (2021). Intergenerational inequities in exposure to climate extremes. *Science*, 374 (6564): 158-160. [DOI:10.1126/science.abi7339](https://doi.org/10.1126/science.abi7339)
- Lange, S, Volkholz, J, Geiger, T, Zhao, F, Vega, I, Veldkamp, T, et al. (2020). Projecting exposure to extreme climate impact events across six events categories and three spatial scales. *Earth's Future*, 8 (11): e2020EF001616. <https://doi.org/10.1029/2020EF001616>

For more information

Visit CASCADES website:

<https://www.cascades.eu/>

Visual infographic and information:

<https://myclimatefuture.info/>

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