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So, will you live an unprecedented life?

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Under a continued increase in global warming, extreme events such as heatwaves will further rise in frequency, intensity, and duration over the next decades. Climate change impact studies routinely assess hazard and exposure change across discrete time windows, but thereby ignore how vulnerability and climate risk evolve across a person's lifetime. Conversely, demographic research has a long tradition of assessing population processes and vulnerability from a cohort perspective, but generally neglects climate impacts.

In the soon-to-start ERC CoG project LACRIMA (Lagrangian Climate Risk and Impact Attribution), we will develop novel concepts and methodologies to express climate change impacts and risk from a cohort perspective. More specifically, the project pursues to (i) to reconstruct two iconic climate change impacts on people around the world using machine learning (heat-related mortality and burned area), (ii) to uncover age-specific vulnerability to climate extremes including heatwaves, wildfires, river floods, droughts, tropical cyclones, and crop failures, (iii) to detect and attribute changes in lifetime extreme event exposure and climate impacts on mortality across generations and regions, (iv) to quantify how these attributable cohort impacts change country-level life expectancy around the world under a range of warming scenarios, and finally (v) to project how lifetime exposure to extreme events including compound events may trigger irreversible impacts under scenarios of temporary overshooting of long-term warming targets.

By bridging physical climate science, demography, and planetary health, LACRIMA will comprehensively identify whether and where people will live an unprecedented life in terms of climate impacts, and how mitigation choices can alter the climate change burden on current young generations around the world