

Intergenerational inequities in exposure to climate extremes

Wim Thiery^{1,2}, Stefan Lange³, Joeri Rogelj^{4,5}, Carl-Friedrich Schleussner⁶, Lukas Gudmundsson², Sonia I. Seneviratne², Katja Frieler³, Kerry Emanuel⁷, Tobias Geiger^{3,8}, David N. Bresch^{9,10}, Fang Zhao^{11,3}, Sven N. Willner³, Matthias Büchner³, Jan Volkholz³, and the ISIMIP modelling team.

¹ Vrije Universiteit Brussel, Department of Hydrology and Hydraulic Engineering, Brussels, Belgium.

² ETH Zurich, Institute for Atmospheric and Climate Science, 8092 Zurich, Switzerland.

³ Potsdam Institute for Climate Impact Research (PIK), Potsdam, Germany.

⁴ Imperial College London, Grantham Institute, London, United Kingdom.

⁵ International Institute for Applied Systems Analysis (IIASA), Laxenburg, Austria.

⁶ Climate Analytics, Berlin, Germany.

⁷ Massachusetts Institute of Technology, Lorenz Center, Cambridge, MA, USA.

⁸ Deutscher Wetterdienst (DWD), Climate and Environment Consultancy, Stahnsdorf, Germany.

⁹ ETH Zurich, Institute for Environmental Decisions, Zurich, Switzerland.

¹⁰ Federal Office of Meteorology and Climatology MeteoSwiss, Zurich, Switzerland.

¹¹ East China Normal University, School of Geographic Sciences, Shanghai, China.

Proposed session: ITS3.2/NH10.7/ BG1/CL2/NP8 Climate extremes, biosphere and society: impacts, cascades, feedbacks, and resilience (co-organized by Future Earth)

Corresponding author's e-mail address: wim.thiery@vub.be

With the emergence of a global climate youth movement, questions of intergenerational justice regarding climate change mitigation have come to the fore. However, a scientific perspective on intergenerational climate impacts is still lacking. Here we show that newborns in 2020 are projected to experience 2-7 times more extreme events globally under current climate pledges than someone born in 1960, using a novel framework that quantifies impacts as they are experienced along a person's lifetime. Limiting warming to 1.5°C consistently reduces that burden while still leaving younger generations with unavoidable impacts that are unmatched by those experienced by older generations. Our results provide a scientific basis to understand the position from which younger generations challenge the present shortfall of adequate climate action.