

New research shows climate change could impact on 351 million Europeans by 2100

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According to a study recently published in the *The Lancet Planetary Health*, global warming could impact about two-thirds of the European population a year, 351 million people, by 2100, resulting in 152 000 deaths annually.

While previous assessments of the effects on human beings of climate extremes focused mostly on the impact of temperatures this study assessed [population](#) vulnerability to each hazard on the basis of an exhaustive dataset of observed weather-related disaster losses, collected from multiple disaster databases.

Researchers assessed the risk of weather-related hazards to the European population in terms of annual numbers of deaths in 30-year intervals up to the year 2100 (2011–40, 2041–70, and 2071–100) relative to their base reference (1981–2010). Using research undertaken by the EU's now closed ENSEMBLES project, the team combined disaster records with high-resolution hazard and demographic projections.

Formulating a robust prognosis

To create their prognostic modelling framework, they focused on the hazards with the greatest impact—heatwaves and cold waves, wildfires, droughts, river and coastal floods, and windstorms. They then evaluated spatial and temporal variations should green house emissions continue in a 'business-as-usual' scenario.

They also analysed long-term demographic dynamics using a territorial modelling platform to track how such how population movements and density will impact on levels of exposure. Using more than 2 300 records collected during the reference period, the team appraised vulnerability to weather extremes.

The authors say their study shows that, 'unless [global warming](#) is curbed as a matter of urgency and appropriate adaptation measures are taken, about 350 million Europeans could be exposed to harmful climate extremes on an annual basis by the end of this century, with a 50-times increase in fatalities compared with now.'

Although the study does not focus on sociological dimensions, the team does point out that vulnerable sectors of society are at greater risk: the elderly, the sick (who have reduced physiological and behavioural capacity for thermoregulation), as well as the poor (who have less access to technological means for private disaster stress mitigation). An ageing population could increase the impact of weather-related incidents while technological developments could mitigate and improve adaptation measures. The balance between the two has yet to be established.

The researchers acknowledge the inherent weakness of their study – the uncertain nature of the observation data and projections – but they point out that the risk estimates used are based on the two most comprehensive disaster databases available and that projections use state-of-the-art methods. Data collected under the ENSEMBLES (ENSEMBLE-based Predictions of Climate Changes and their Impacts), funded by the EU between 2004-2009 underlies the work done in the study described.

More information: Project website:
cordis.europa.eu/project/rcn/74001_en.html

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