



H2: Modeling the temperature-mortality relationship under changing climate and society

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Summary of themes covered in workshop

- Methodological development of non-linear regression models to estimate MMTs at the case study level as well as at a meta level for the past and the future and for hot climates.
- Several difficulties of how to include adaptation in the MMT models and the sensitivity of adaptation to the different methods and assumptions. Different approaches are related to different uncertainties about future climate, demography and adaptation and they result in different outcomes.
- Measuring actual adaptation over time via analysis of the government health and policy response in Switzerland.

Most controversial question that came up in this workshop?

How to quantify the effect of future adaptation of the human population (e.g., acclimatization rate, implementation of early warning systems, space climatization, etc..) in heat impact models.

Results of the discussion

One challenge is a lack of data on mortality homogeneously distributed around the world. An innovative method has been put forward: to use data on google searches for air conditioning to inform threshold levels of human comfort. How to improve the representation of climate in cities (usage of urban climate models) and the movements of the population within a city.

Research gaps identified

What drives the shape of MMT curves in the future and how are the curves expected to evolve? How to extend analysis to places for which there is no reliable mortality data? Vast majority of previous studies have been on temperate climates, yet it is probable that the majority of heat-related mortality will be in tropical areas due to large populations and low adaptation capacity. At what temperature is the maximum human heat tolerance reached in the long-run? How to deal with demographic change in the future?

Next steps

NA

Other

Analogue city approach to adaptation has very different results to other methods. Sensitivity of adaptation models to assumptions definitely as large (often more) than the uncertainty that results from climate model and emissions uncertainty. Examples from Switzerland seem to indicate that reductions in heat-related mortality are achievable using heat-warning systems, though the signal between regions is sometimes unclear.

3-5 keywords that characterize the session

Heat-related mortality; uncertainty; models; adaptation