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Ethical considerations associated with assessment and mapping of climate risks in cities: insights from heat risk management in Glasgow, Taipei and Fukuoka

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This paper evaluates ethical considerations associated with forecasting urban climate risks, focusing on extreme heat. Following the session aim, the paper considers negative societal effects which could arise from well-intentioned attempts to measure, communicate and respond to spatial differences in heat risk within cities. Assessing urban thermal environments and socio-economic vulnerability, and providing decision-makers with information to act (e.g. through strategic built environment actions, green infrastructure etc), can reduce harm to citizens from intensifying urban heat risks. However, critical social science suggests there is a need to reflect on the deeper and longer-term implications of urban resilience initiatives, which can if managed inappropriately inadvertently make the communities they are intended to benefit even more susceptible to harm. This contribution evaluates this tension through interview- and field observation-based assessment of heat risk management practices in Glasgow, Scotland (which has emerging interest in heat risk across space, and publicly-available socio-economic data), Taipei, Taiwan (which has no heat vulnerability information available to public yet) and Fukuoka, Japan (which has specific targeted heat risk reduction strategies); as well as the authors' own experiences of assessing heat risk in Taipei.

Drawing on our data and insights, we suggest areas of ethical consideration which geoscientists and decision-makers (planners, city governors, developers, community leaders) ought to be aware of when engaging in spatial assessment of heat and indeed other risks e.g. flooding. First is the potential psychological or stigmatising effects for inhabitants which can come with marking out an area as 'vulnerable'. Whilst hazard maps are produced in each of the case study cities for flooding, these are usually based on physical exposure and do not necessarily include socio-economic data. Particularly in Fukuoka, participants suggested inclusion of socio-economic vulnerability indicators on publicly-available risk maps could be a source of embarrassment for communities. Second is the danger that identifying areas as 'high-risk' through spatial assessment could lead to certain areas or communities being targeted by city-level planners or governments for interventions, which although well-meaning may come across as patronising or unwanted. Third is the challenge of ensuring that risk reduction strategies based on data and 'hard science' are respectful of local traditional knowledges of how to manage environmental risk, such as uchimizu street-watering practices in Japan. Fourth and final is the bigger danger of focusing on short-term and/or emergency 'solutions' targeted at vulnerable populations during periods of extreme heat, to the detriment of considering how to address longer-term social and political processes such as urban governance and social policy which can make some people and areas more susceptible to harm in the first place.

These recommendations of course do not mean scientists and decision-makers should not strive to produce spatial assessments of cities' climate risks and communicate these to citizens and decision-makers. Rather, the point of our paper is to argue that when assessing heat and other risks across space, geoscientists may benefit from collaborating with people who have good local contextual knowledge, to ensure outputs and recommendations are developed in a format sensitive to the local context.