



Bridge the gap – Revision of the paper “Including the urban heat island in spatial heat health risk assessment strategies: a case study for Birmingham, UK” by Charlie J. Tomlinson et al.

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“Case studies bridge the gap between theory and practise, and between the academy and the workplace” (Barkley, Cross and Major, 2005)

In the recent study Tomlinson and his colleagues pursued interdisciplinary research on heat health risk in order to provide reliable information for urban planners, environmental managers and health service providers when considering climate change adaptation strategies and heat wave alert schemes. (From now on we refer to the authors with the name of the first author, as the paper is part of Tomlinson’s doctoral dissertation.)

To investigate the multi-dimensional issue he used the form of case study, that enables us to examine realistic, complex, and contextually rich situations. Furthermore, such case studies help us to identify the basic dilemmas, the scientific challenge, the socio-economic problems and the conflicts of interests that one or more of the parties involved in the case must comprehend, negotiate and solve jointly.

According to the aim of the paper, “to integrate remotely sensed urban heat island data alongside commercial social segmentation data via a spatial risk assessment methodology in order to highlight potential heat health risk areas” Tomlinson addresses one of the biggest challenges of recent environmental research. As there is an emerging demand of reliable climate data applicable in real-life problems, environmental science needs to find new ways to deliver climate information that meets the end-users’ specific needs. Thus, he carried out a detailed investigation using several aspects of different disciplines – such as remote sensing, GIS mapping, socio-economical statistics and climate risk assessment – to provide a precise and reliable composite city map, with the necessary information to take proper adaptation measures to reduce heat risk.

Tomlinson used the city of Birmingham as a case study area, which is the second most populous city in the UK, with a population over one million. Since Birmingham can be considered as “representative of many inland mid-latitude cities worldwide” the research procedure can be translated in other places.

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Although the replicability is a big advantage of this study, we have a little doubt regarding the accessibility of the commercial socio-economic data. While he emphasises that data provider *Experian* offers consumer segmentation data in 29 countries, these data not being freely accessible could be a barrier to other researchers. Apart from this, the developed methodology is novel and easy to extrapolate as long as we can retrieve the needed socio-economic statistics.

A very strong point of the study is the transparency. Despite the high complexity and sometimes tedious investigation process, the text is kept simple and the steps are easy to follow. Moreover, throughout the study Tomlinson pays a special attention on defining the terms he uses, in accordance with his main intention to make the complete work understandable for anyone who wishes to use the spatial heat risk maps, including stakeholders. In the end we have a slightly lengthy, but simply well-written paper, as the phrase attributed to Einstein captures nicely this two-faced nature of scientific explanations: *as simple as possible... but not simpler*.

The objectivity of the paper is also a positive point. Tomlinson stays honest and critical with his results, pointing out in one of the last paragraphs the weak point of the study: “*A significant research gap in this paper is the verification of the results*”. Then he continues with details of lacking verifying data and other barriers, whilst opening up the research case for further developments. We also found the verification issue as a significant weak point, but accepted the arguments that there is still not available health and mortality records at both high temporal and spatial scale which are indispensable to verify the results.

Overall, we believe that this study is an excellent, forward looking example of integrated research for meaningful climate services. It's a promising step on the brand-new, narrow bridge being built between the scientific community and the city-level climate risk managers and stakeholders.

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CONTRIBUTIONS

AL selected the article and drafted the review, based on journal club discussion. All authors (members of the journal club) revised the review before submission.