

ABC - Augsburg (bleibt) stays cool: identification and modeling of thermal hot spots in the Augsburg urban area.

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Related to recent and future climate change an increase in frequency and intensity of heat waves is expected for Germany. In particular for urban areas a distinct vulnerability against such events has to be stated. However, depending on the specific urban structural characteristics also intra-urban variations concerning the potential thermal load have to be taken into account.

The research project ABC (Augsburg bleibt cool – Augsburg stays cool) – funded by the German Federal Ministry for Environment, Nature Conservation and Nuclear Safety - addresses the issue of the thermal load and in particular of thermal “hot spots” in the urban area of Augsburg (Bavaria) from an interdisciplinary perspective.

Main research goals of the project comprise:

- the assessment of the summertime indoor thermal load in Augsburg utilizing low-cost sensors in a citizen science approach,
- the development of a transferable statistical model for determining spatio-temporal dynamics of urban thermal hot spots,
- the application of a micro-scale numerical climate model (ENVImet) to simulate microclimatic conditions for selected urban structural settings, taking into account potential climate change effects and as well different adaptation measures,
- the improvement of the public awareness for the multilayer problem of urban heat stress under climate change and
- the initiation of discussion and planning processes concerning adaptation measures incorporating all relevant stakeholders.

In this contribution the focus is set on micro-scale numerical climate models that are applied to investigate the thermal characteristics – including human bioclimatic effects - of urban structural settings that are potentially prone for heat stress. Thereby potential effects of climate change dynamics and as well different adaptation measures (e.g. facade and roof greening) are taken into account.

We present the setting and first results of preliminary modeling studies that will be further extended and refined in the course of the project.