Indoor and outdoor ambient air temperatures during summer 2019 in Augsburg, Germany

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The summer of 2019 featured significantly too warm conditions in Germany during all summer months. This included several distinct warm episodes and heat waves, the most pronounced of these appearing around end of July.

Within the framework of the interdisciplinary research project Abc (Augsburg bleibt cool – Augsburg stays cool) – funded by the German Federal Ministry for Environment, Nature Conservation and Nuclear Safety – it is intended to detect and quantify urban thermal hot-spots with respect to outdoor and as well indoor air temperatures in the city of Augsburg (Bavaria, SE Germany). The knowledge of such spatiotemporal patterns of thermal and especially heat-stress exposure are an indispensable basis for any further aspired local climate modeling and adaptation studies.

To this end, in June 2019 around 500 low-cost thermometers and around 50 thermo-hygrometers have been distributed among residents of the central city parts of Augsburg to record ambient indoor temperatures during summer. As high indoor air temperatures are suspected to be health relevant in particular during night, participants placed the thermometers in their bedrooms.

Outdoor temperature and humidity have been recorded simultaneously by an already existing comprehensive urban climate measuring network.

In this contribution we present main features of the data set of indoor temperatures and show and discuss first analyses concerning temporal and spatial variability of indoor air temperatures during summer 2019. This includes a comparison of indoor and outdoor temperatures, analyses of the influence of urban structures (e.g. in terms of local climate zones) and as well the influence of building characteristics (e.g. age, building material, ...) on indoor air temperatures.