

## **Summary**

The sub-project will contribute to the proposed Research Unit by a quantitative analysis of the atmospheric processes causing heat stress. We will provide atmospheric data from observations and model simulations for the other sub-projects. We will use observational data on indicators of heat-stress risks to quantify outdoor heat-stress hazard. Our results will be utilised for analyses on actor constellations and spatial patterns of urban development. The sub-project will also contribute to collaborative research on effectiveness and efficiency of actions for reducing heat-stress risks. Therefore, we will provide year-round hourly weather data and statistically aggregated urban-climate data for a period of more than ten years at high spatial resolution. These data will also be used for computing energy demands for heating and cooling of buildings for different building designs and technologies, as well as for different forms of urban/building vegetation and open spaces. We will provide statistically aggregated urban-climate data for three different urban-climate projections for the decade 2041 to 2050. The combinations of different urban-climate projections and urban-development projections will be jointly analysed with the partners to assess the consequences of global climate change for urban systems with respect to heat-stress risks. The analyses will not only focus on the adaptation part of the problem but also on the potential of reducing green-house gas emissions.