

Summary

This UCaHS sub-project will provide downscaling of global climate projections to regional and urban scales in order to characterize potential future climate and extreme heat events in the considered urban regions for the time period 2041-2050. Those results will provide a basis for the climate change impact research within the UCaHS project. The results support further the assessment of the relationship between potential future extreme heat events, heat stress and vulnerability of urban inhabitants for different urban development scenarios. Specifically, two regional climate models will be applied in order to characterize potential future climate: the statistical model STARS “Statistical Analog Resampling Scheme” and the dynamic model CCLM “Climate Local Model”. Both models will be developed further in order to enhance their applicability for climate projections for urban regions.

Research questions are:

- What are key characteristics of climate and the change of climate (on average and in extremes) for the considered urban regions for the time period 2012-2070?
- What will be the frequency distribution of future extreme heat events? What are the spatial and temporal changes of the statistical mean (characterizing intensity) and the margin of deviation characterizing variability) of relevant meteorological variables?
- What are the interactions between global climate change and urban development?