

Summary

This research module focuses on indoor heat stress in densely populated districts of Berlin and its driving factors in the view of climate change. Whereas occupants of cities might be exposed to outdoor heat stress only during day-time in mid-latitude cities, they might be affected by indoor heat stress during day- and night-time. The relationship between outdoor and indoor heat stress especially during extreme events are investigated and the understanding of the reaction of exposed population is improved. To quantify heat stress in indoor environments air temperature, air humidity, air velocity and mean radiant temperature are measured and thermal indices are calculated, namely the recently developed Universal Thermal Climate Index (UTCI). Variations of heat stress within the buildings and their dependency on outdoor atmospheric conditions and the properties of buildings will be investigated. Starting with a dense network of sensors in two buildings, the measurement set-up will be extended to several buildings in different districts of Berlin during the second and third year. A study with questionnaires will be conducted to investigate the reaction of people to heat stress in these districts. With the results of this research module the distribution patterns of indoor heat stress and their driving factors will be explained and therefore this investigation will help to assess adaptation strategies to climate change especially during extreme events in urban planning.