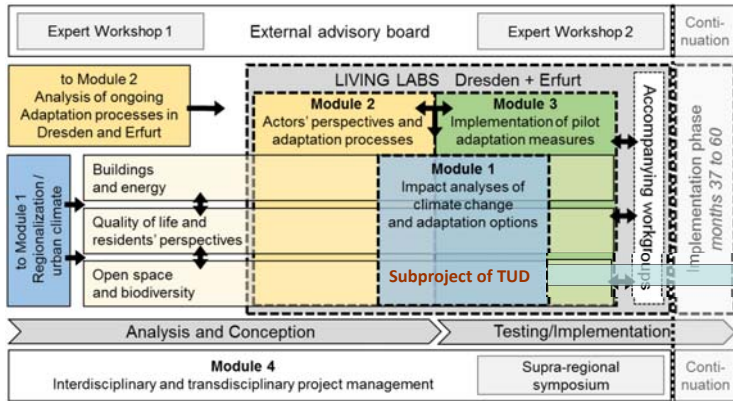


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Modules in the Joint Project „HeatResilientCity (HRC)“

## Subproject of TU Dresden, Chair of Meteorology

### Objectives

1. Downscaling of climate data for Dresden and Erfurt to the scale of city districts, on the basis of structural parameters (buildings, vegetation)
2. Determination of meteorological and human-biometeorological effects in thermally stressed city districts
3. Assessment of planning effects on thermal indices (PET, UTCI) using measurements and modeling

### Anticipated project results

User-oriented, spatially differentiated and freely available climate data base for present and near future for use in:  
building climate control, city planning and district management (regional to local scale) in Dresden und Erfurt

## Investigation Areas in Dresden and Erfurt



### Dresden-Gorbitz

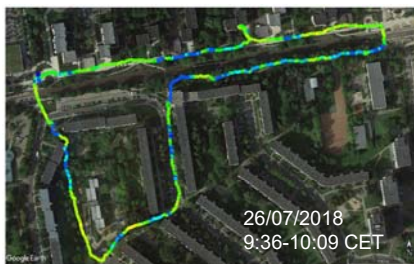
- Prefab slab building
- 3 buildings chosen with reconstruction measures by local housing company
- Modernisation of energy systems, Open-space concept to reduce deficits in urban green (dashed line: measurement area)



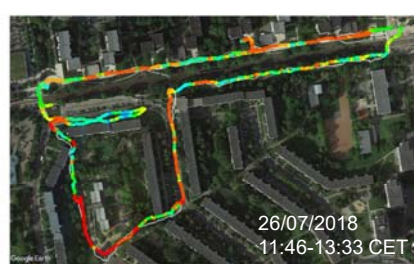
### Erfurt-Krämpfervorstadt

- Suburb, perimeter block development, Wilhemian Architecture
- Closure of facilities/ Restructuring measures, South: discontinued freight station
- Spatial consolidation and development of brownfields for planned housing (dashed line: model area)

## Mobile Measurements in Dresden



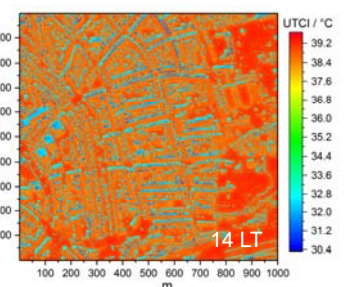
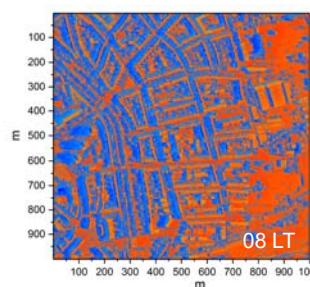
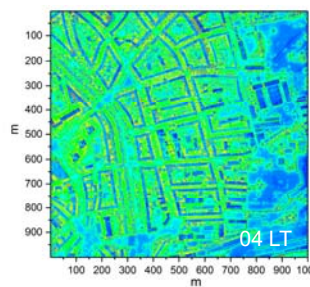
Very strong heat stress  
Strong heat stress  
Moderate heat stress  
No thermal stress



**Thermal sensation (UTCI)** measured on a round course in Dresden-Gorbitz for the morning and noon hours on a hot and sunny summer day using devices at a backpack

## Modeling with SOLWEIG/Rayman in Erfurt

Thermal sensation (UTCI) for different times on a sunny summer day in Erfurt-Krämpfervorstadt. Simulation with the models SOLWEIG and RaymanPro using DOM with 1 m resolution.



## First conclusion from the results

- Protection of open spaces and extension of shadow areas from trees have a major priority for the residents.
- Continuous participation of residents (who are affected by heat stress) in the process of project execution improves the chances for success!