Data2Resilience: Data-driven Urban Climate Adaption for Dortmund

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Introduction

Extreme heat endangers human health and well-being and impairs the use of public spaces. **This project supports the city of Dortmund, Germany, by deploying a state-of-the-art biometeorological sensor network and developing a   service for monitoring thermal comfort across the city**.

Modelled, remotely sensed, and in-situ data will be used in a series of on-ground actions for supporting the evaluation of already existing climate adaptation measures and the design of new ones. A series of workshops and on-site events are planned, such as climate comfort labs, mobile campaigns, or climate walks with citizens. The overall goal of the project is for the city of Dortmund to adopt and integrate the network and nowcasting service into its smart-city ecosystem.

Dortmund

Dortmund's Integrated Climate Adaption Master Plan (MIKADO) puts a priority on actions and measures that improve heat resilience. This project is to support the city of Dortmund in attaining this goal. The project aims to pioneer the integration of thermal comfort data in smart-city ecosystems and provide actionable insights for the development of Dortmund's Heat Action Plan.

Mobile Campaign in Dortmund Nordstadt
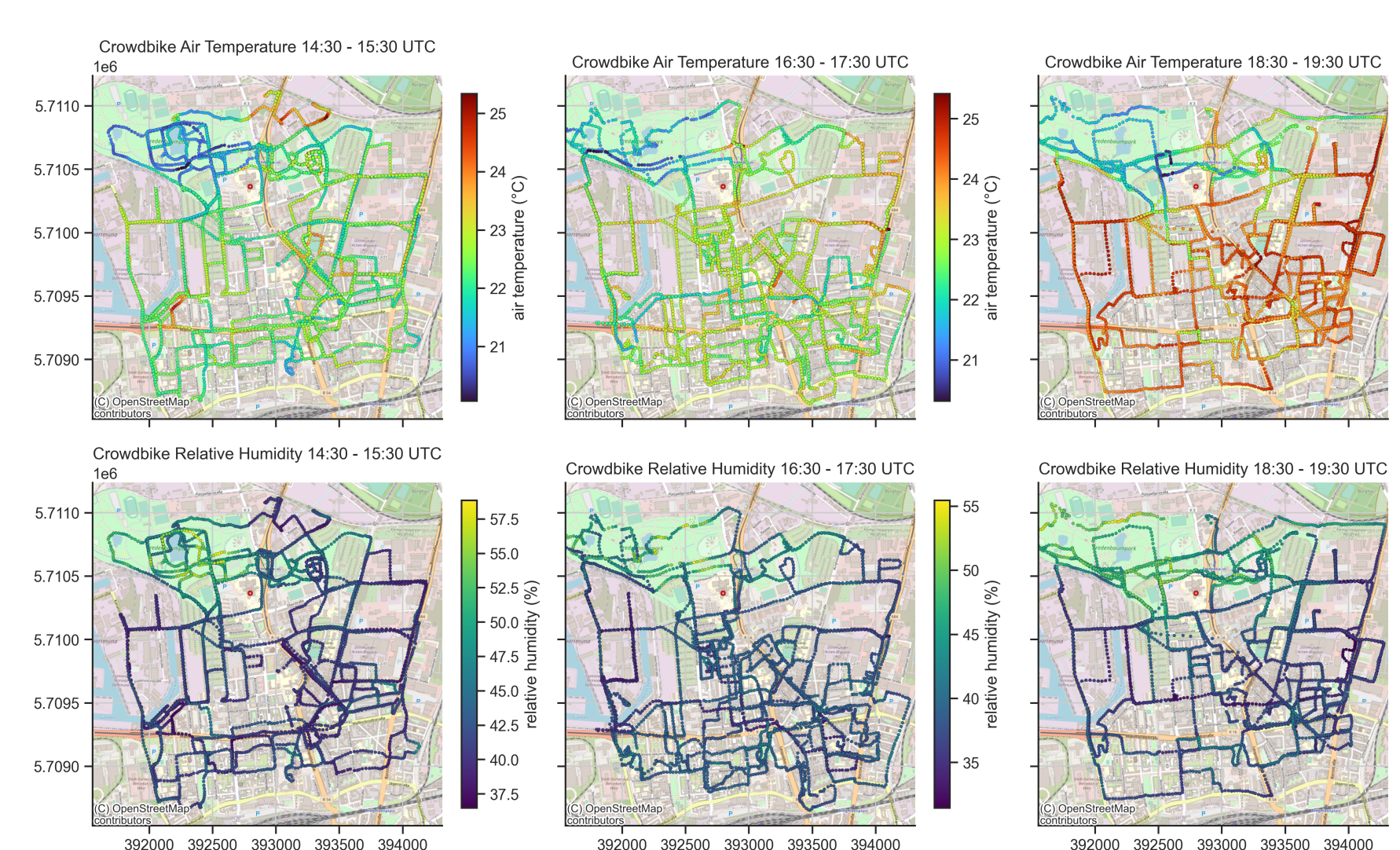

ICLEI Action Fund 2.0

In the ICLEI Action Fund 2.0, seven million euro are awarded to civil society organizations and academic institutions in six European cities to implement inclusive climate action using different data sources. Led by ICLEI Europe and funded through Google.org, the grants program funds data-driven projects aimed at helping local governments improve environmental quality, reduce greenhouse gas emissions and adapt to climate change.

The D2R Project

On-ground Actions

The goal of this project is to deploy a state of the art **biometeorological sensor network** and to develop a nowcasting service for **monitoring thermal comfort** across the city, which will further guide on-ground actions and services for smarter **urban climate comfort planning.** The project started in June 2023 and will last two years.
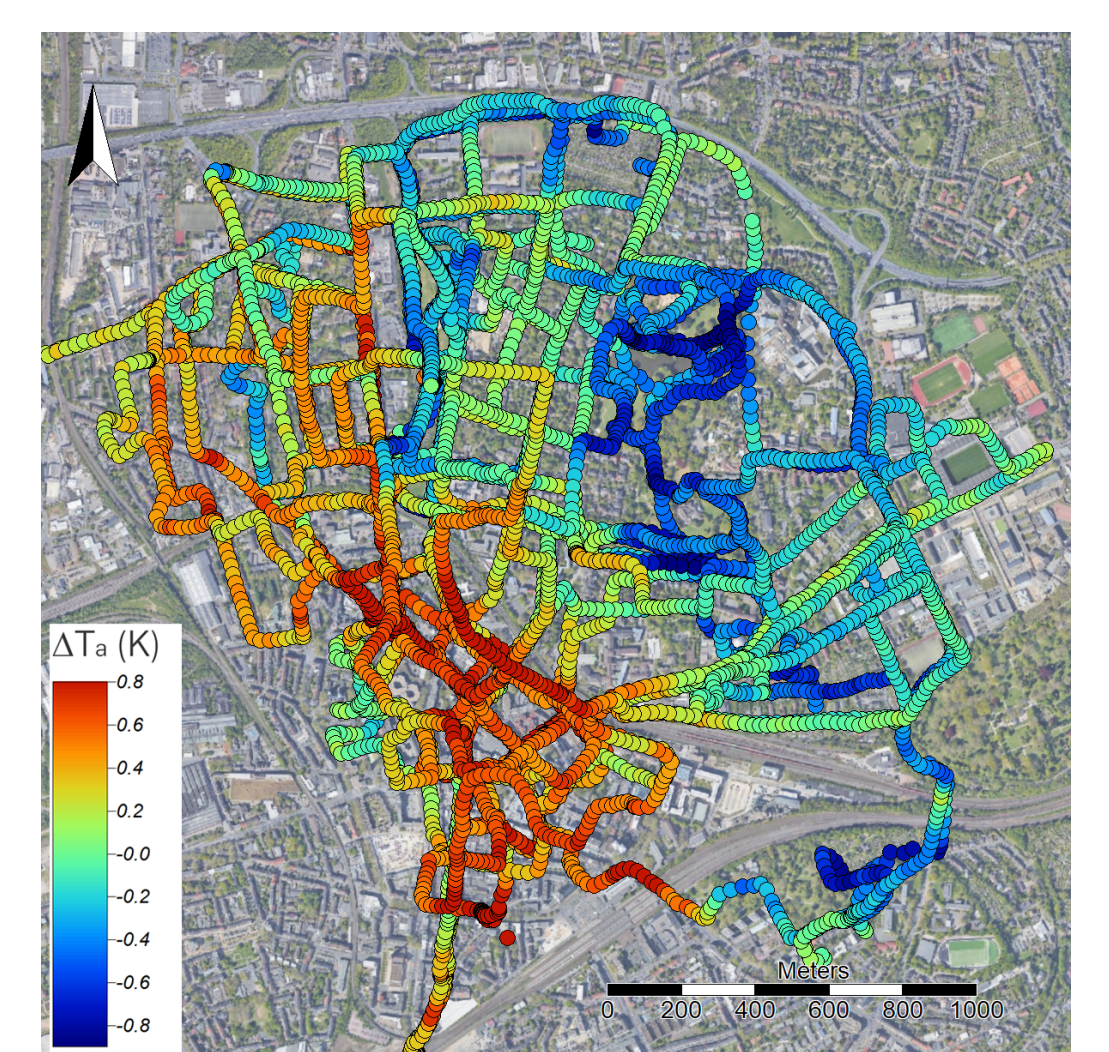
Biometeorological Network
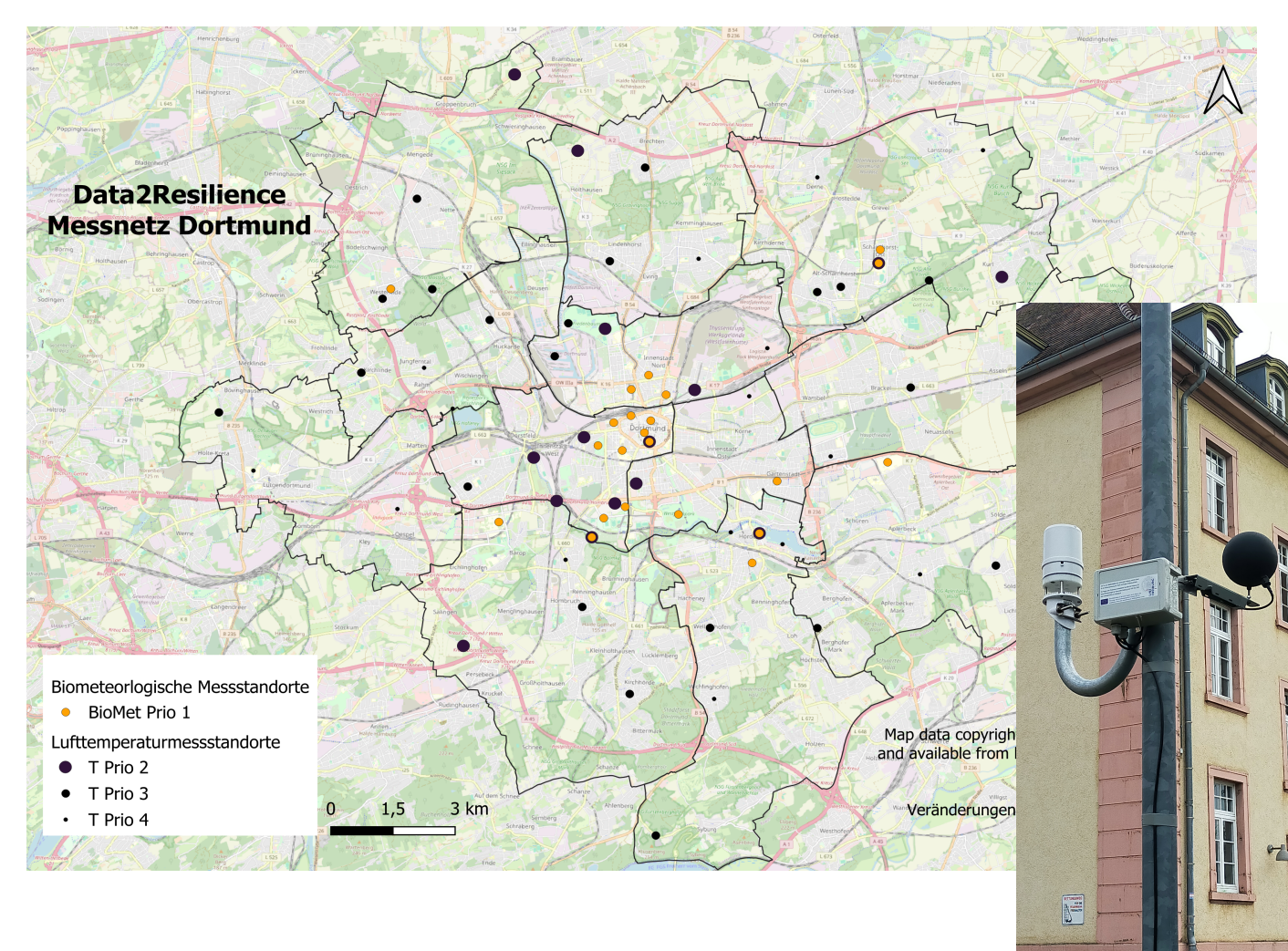
Nowcasting Service
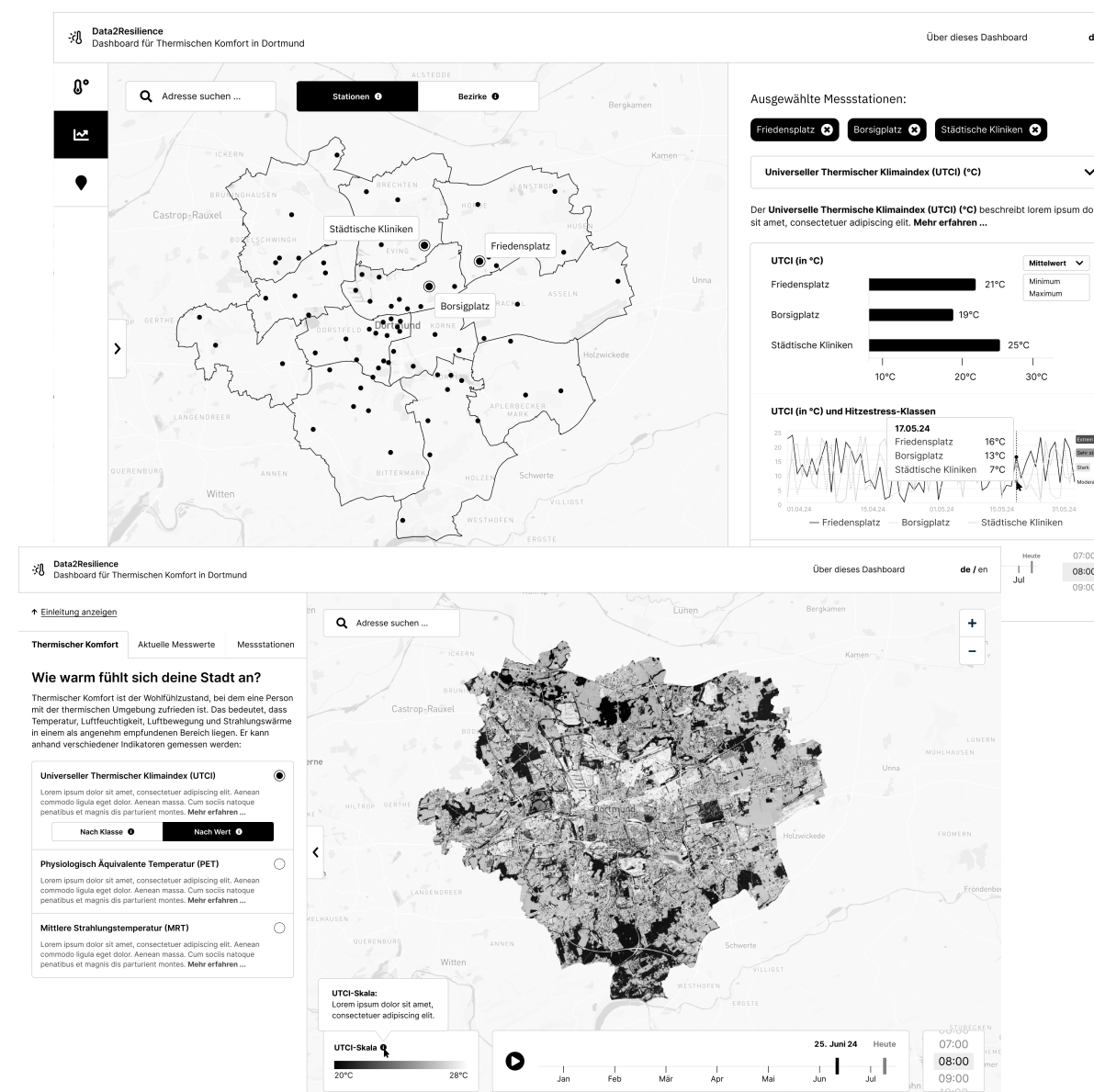
On-ground Actions and Scientific Case Studies

Data-driven Approach

In-situ, satellite and model data will be used in the network design, the service development, and the case studies.

- Crowdsourced microclimatic observations
- Google EIE and EE
- EO data from Copernicus, ESA, and NASA
- NWP from ICON
- Public data from the city of Dortmund
- Other auxiliary data from open street map

Thermal Campaign in Dortmund Nordstadt

Stations and Other examples

Core Impact

- Develop and deploy novel biometeorological services
- Provide tangible benefits for citizens and planners
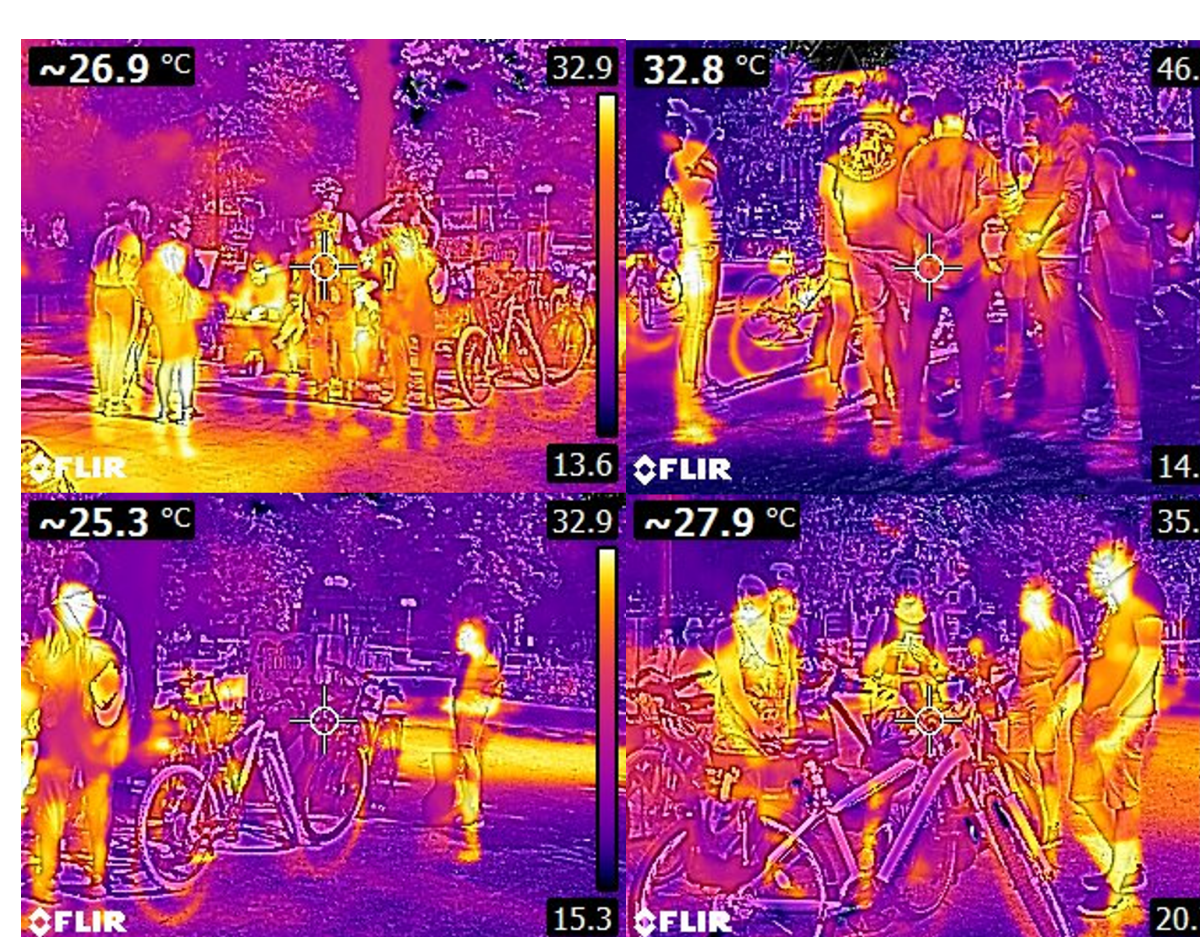- Upscaling to cities worldwide

Climate Justice

- Urban heat exposure is unequally distributed across income groups within Dortmund. A similar inequality is also evident in urban infrastructure provisioning and availability.

- We aim for a more equitable distribution of monitoring infrastructure across Dortmund that ensures representation and inclusion of the most vulnerable groups when describing the effects of climate change.

- On-ground actions targeted to vulnerable groups and areas.

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