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Data2Resilience: Data-driven Urban Climate Adaption – A Biometeorological Sensor Network for Dortmund, Germany

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Extreme heat endangers human health and well-being and impairs the use of public spaces. Dortmund's Integrated Climate Adaption Master Plan prioritizes actions and measures to improve heat resilience. This project supports the city of Dortmund (Germany) in attaining this goal, by deploying a state-of-the-art biometeorological sensor network and developing a nowcasting service for monitoring thermal comfort across the city. 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. Modeled, remotely sensed, and in-situ data will be used to provide near-real-time information regarding the outdoor thermal conditions. City-officials of Dortmund are involved in the design of the dashboard, and the weather station network, ensuring they meet their needs. The collected data will be used in a series of on-ground actions, supporting the evaluation of existing climate adaption measures, and the design of new ones. These actions include the mapping of areas with high potential for planting trees, the investigation of changes in human behavior during hot days, and the assessment of backyard greening strategies. To engage with the local stakeholders, promote the role of citizen scientists, and disseminate the project, a series of workshops and on-site events are planned, such as climate comfort labs, mobile measurement campaigns, or climate walks with citizens. The overall goal of the project is for the city of Dortmund to adopt and integrate the developed network and nowcasting service into its smart-city ecosystem.