



Urban climate informatics – an emerging research field

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The scientific field of “urban climate” has long investigated the two-way interactions between urbanized areas and their overlying atmosphere. A city’s composition, configuration, and morphology are important drivers of urban climate, and an accurate, fine-scale description of the built-up environment is required for climate modelling and observational studies. Recent advancements in sensing technologies coupled with rapid growth in computing power have produced novel data products that can augment traditional urban climate data and provide unprecedented insights into urban atmospheric dynamics. Urban climate informatics is a newly evolving research field that uses artificial intelligence, e.g., machine learning or deep learning, to process non-traditional big data sources such as Street View imagery for urban climate applications. This presentation reviews current developments in urban climate informatics in the context of urban form parameterization, highlighting big data-driven crowdsourcing and image processing approaches to inform urban heat island research, biometeorological modeling, climate-sensitive urban design, and heat exposure assessments.