



From Climate Knowledge to Planning Practice: Urban Climatic Maps in German Cities

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Integrating climate knowledge into urban planning has become increasingly critical amid accelerating climate change. While research on urban climate adaptation gaps has expanded considerably, comparatively little attention has been paid to long-established instruments such as urban climatic maps (German: Stadtklimakarten), which have been developed since the late 1970s (VDI 3787, Part 1). These maps are internationally recognised tools designed to translate urban climate knowledge into spatially explicit planning recommendations by depicting climate functions relevant to land-use planning and decision-making. This study provides a content analysis of the availability and characteristics of urban climatic maps in German cities. We analysed the ten largest cities in each of Germany's 13 federal states, as well as all 3 city-states, using internet-based research and publicly available sources. The results show that nearly 90% of cities with more than 100,000 inhabitants ($n = 63$) provide an urban climatic map, whereas such maps are available in only about 20% of smaller cities. This indicates substantial disparities in the data basis for climate-adaptive planning, which are only partially compensated by state-wide climatic maps that generally offer lower spatial resolution. Further analysis reveals considerable heterogeneity in map characteristics, including grid resolutions ranging from 5 to 50 meters and diverse methodological approaches, with FITNAH-based modelling clearly dominating. Overall, more than half of the analysed cities ($n = 134$) make use of urban climatic maps; however, the wide variation in methods, spatial resolution, and accessibility significantly limits comparability and transferability. Consequently, the potential of urban climatic maps to support harmonised climate risk assessments and the development of coherent adaptation action plans remains constrained.