



Earth Observation for Urban Climate and Resilience

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ABSTRACT

There is a fundamental disconnect between how climate and urban system science analyse and model climate change and urbanization. Atmospheric models, although incorporating a dynamic atmosphere, provide climate risks for a static and homogenous world. In contrast, urban system science and the urban development community mainly focus on urban function or specific sectors and how urban development affects settlement structures, emissions, behaviours and changes in cities. To this end a major challenge for the urban community is the exploitation of Earth Observation in dealing with the multidimensional nature of urban sustainability towards enhancing urban resilience, particularly in the face of climate change. Resilience has become an important necessity for cities, particularly in the face of climate change. Mitigation and adaptation actions that enhance the resilience of cities need to be based on a sound understanding and quantification of the drivers of urban transformation and settlement structures, human and urban vulnerability, and of local and global climate change, as defined in the Sustainable Development Goals and the New Urban Agenda. To address urban resilience, the urban planning community needs spatially disaggregated environmental information at local scale. Such information is not yet directly available from the Copernicus Core Services, while several elements from contemporary satellite missions consist valuable tools for retrieving urban environmental parameters at local scale. It has become clear that to address urban resilience synergies among different space systems are needed, which should also be capable of coping with the required scale and granularity by also integrating or exploiting third-party data, in-situ observations, modelling and stronger stakeholders' involvement.