EMS Annual Meeting Abstracts
Vol. 15, EMS2018-494, 2018

Exploring urban climate change adaptation measures with CLARITY's climate service

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With more than 50% of the global population living in cities, urban climate change resilience is key to protect humans from the adverse effects of a changing climate. In order to translate climate change knowledge to information that can be used by policy makers or in areas such as urban planning, climate services are essential tools, bridging the gap between climate science and adaptation practitioners. The modelling methodology developed within the CLARITY project (funded as part of Horizon 2020, www.clarity-h2020.eu) is aimed at implementing a new generation of climate services specifically designed to assess adaptation measures at the city level under the effects of extreme weather events influenced by climate change. Climate indices derived from observations combined with IPCC climate projections are used to assess these effects. Using the urban climate model MUKLIMO_3 developed by the Deutscher Wetterdienst (DWD), regional climate model results are used to obtain this information on fine spatial scales (100 m), hence providing urban microclimate projections and enabling climate sensitivity simulations of adaptation measures on the urban scale. The climate adaptation strategies addressed in CLARITY are, among others, the effect of green roofs, increasing roof albedo, as well as blue (water) and green (parks, trees) infrastructure changes. Here, the climate assessment methodology developed within CLARITY will be presented in detail, and results will be shown for the Austrian city of Linz. In addition, the usage of these methods and results within the CLARITY climate service as well as the derivation of actionable information for e.g. urban planners and policy makers will be highlighted.