Project title

Application and further development of Urban Parameterization in ICON-CLM

Project lead
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Project overview

Cities can substantially influence the climate at local to regional scales through modification of heat and moisture fluxes, as well as affecting local atmospheric chemistry and composition, alongside air-pollution dispersion. At the same time, regional climate change impacts urban areas and is expected to more severely affect cities and their citizens in the upcoming decades. The majority of the world's population lives in densely populated urban areas, with numbers projected to increase in the current century. According to the IPCC's Sixth Assessment Report, exposure and vulnerability in urban areas are increasing (high confidence), particularly in terms of urban physical and chemical processes in combination with climate change and extreme events.

The main objectives of this project are

(1) to analyze and improve the representation of cities in regional climate models (RCMs) based on further developing the urban module TERRA-URB in ICON-CLM

and

(2) to contribute to coordinated modeling activities in the CORDEX Flagship Pilot Study URB-RCC (URBan environments and Regional Climate Change) in an international modeling effort.