

Project: 1369

Project title: **WCRP CORDEX Flagship Pilot Study: “URBan environments and Regional Climate Change (FPS URB-RCC)”**

Principal investigator: **Peter Hoffmann**

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The results of the STAGE-0 simulations, centered around 5 months downscaled runs covering a temperature and a precipitation extreme, were analyzed and presented at the 12th International Conference on Urban Climate (ICUC12) as well as included in an FPS URB-RCC overview paper, which was submitted beginning of April 2026 (Hoffmann et al. 2026). In total 19 institutions contributed to STAGE-0, utilizing 9 Regional Climate Models (RCMs). A total of 44 simulations were conducted and shared via the DKRZ (Figure 1 and Table 1) using the joint analysis protocol, which provides guidance for the structure of the datasets and the naming conventions ([link](#)). There are several publications underway using the STAGE-0 simulation data, on topics such as: precipitation, urban dry island, extreme heat and heat indices, and land-use.

The 10-year ERA-5.1 driven RCM simulations for the Paris domain and global satellite cities (Langendijk et al., 2024) following the STAGE-1 experiment protocol are currently ongoing. As of April 2026, 11 institutions finished and shared their results for the Paris domain (PARIS-3), 3 for the Johannesburg domain (JNB-3) and one for the Yangtze River Delta domain (YRD-4) with a total number of 18 simulations (Table 1). Further simulations are currently running or planned for other domains (i.e. Sao Paulo, Buenos Aires, Riyadh, and Sydney) and will be uploaded in the coming months. The already finished simulations are currently analyzed ([link](#)).

The FPS URB-RCC has greatly benefited from the opportunity to exchange data on Levante. It enables cross-country and cross-continent collaborations that would not have been possible without the support of DKRZ. We wish to thank you for the opportunity to exchange our data via DKRZ in the context of this voluntary-based international research activity, endorsed under the WCRP CORDEX initiative.

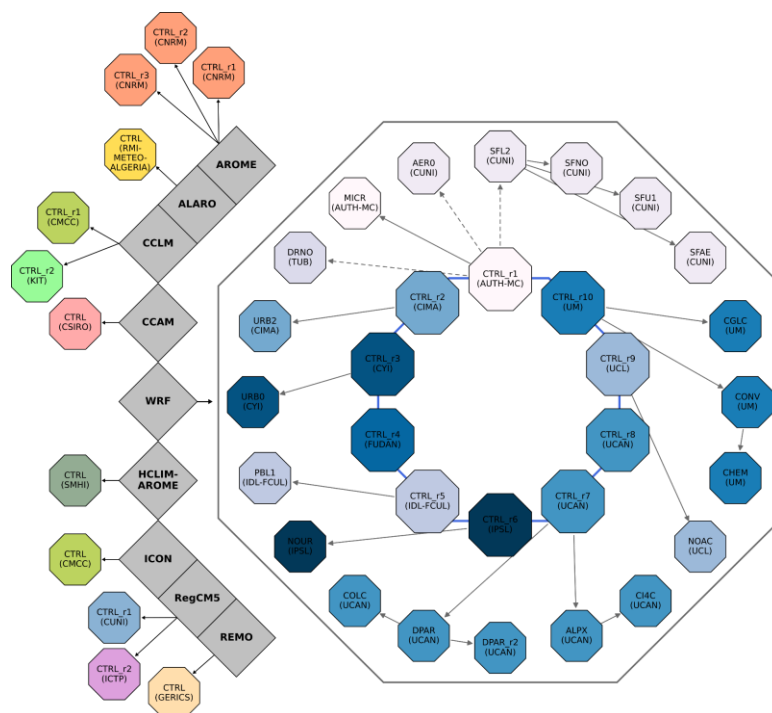


Figure 1: Ensemble of STAGE-0 experiments: RCMs are shown as grey diamonds, contributing institutions in different colors and shades, and each octagon represents a particular simulation. The WRF sensitivity sub-ensemble is shown as the large octagon.

Table 1: List of STAGE-0 and STAGE-1 model simulations, which are uploaded to levante.

Institute	RCM	urban scheme	STAGE-0	STAGE-1	STAGE-1 domains
AUTH	WRF	Bulk/TEM/TEB	2	1	PARIS-3
CMCC	CCLM	TERRA_URB	1		
CMCC	ICON-CLM	TERRA_URB	2	1	PARIS-3
CNRM-MF	CNRM-AROME	TEB	3	1	PARIS-3
CSIRO	CCAM	UCLEM	1	1	PARIS-3
CUNI	WRF	BEP+BEM, BULK, SLUCM	5		
CUNI	RegCM5	CLMU	1		
CYI	WRF	URB0/BEP+BEM	2		
Fudan	WRF	Noah	1	1	YRD-4
GERICS	REMO	TEB	2	2	PARIS-3, JNB-3
ICTP	RegCM5	CLMU	1	1	PARIS-3
IDL-FCUL	WRF	Bulk/TEM/TEB	2		
IPSL	WRF	BEP-BEM	2		
KIT	CCLM	TERRA_URB	1		
KIT	ICON	TERRA_URB		2	PARIS-3, JNB-3
KNMI	AROME	TEB		2	PARIS-3
RMI	ALARO	TEB	1		
SMHI	HCLIM-AROME	TEB	1	4	PARIS-3, JNB-3
TUB	WRF	Noah-MP	1	1	PARIS-3
UBA-CIMA-IFAECI	WRF	BEP/BEM	2		
UCAN	WRF	BEP+BEM	7	1	PARIS-3
UCL	WRF	BEP/BEP-BEM	2		
UM	WRF	Bulk	4		
		Total	44	18	

Reference:

Hoffmann P., Halenka T., Langendijk G.S., et al. (2026, submitted to PLOS Climate) Opportunities and challenges in representing the interactions between urban areas and regional climate change in CORDEX - lessons learnt from FPS URB-RCC

Langendijk G.S., Halenka T., Hoffmann P. et al. (2024): Towards better understanding the urban environment and its interactions with regional climate change - The WCRP CORDEX Flagship Pilot Study URB-RCC. Urban Climate, [10.1016/j.uclim.2024.102165](https://doi.org/10.1016/j.uclim.2024.102165)