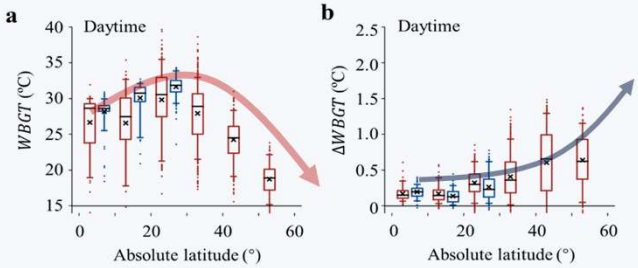
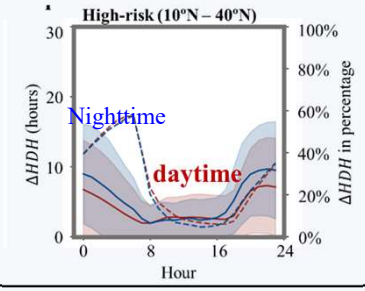
Takeaway

Findings		Implications and actions required
I	**Asymmetry in cooling potential and heat risk**  **Baseline WBGT** **Mitigated WBGT**	• Combined heat mitigation measures are more effective in high-latitude cities. • Low-latitude humid climate regions, and cities with low access to AC, would require accelerated actions and innovations. • Adaptation measures (e.g., heat shelter) need to be included to address future urban heat, especially in regions with lower cooling effectiveness.
II	**Larger nighttime cooling potential than daytime**  	Different strategy required to address both daytime and nighttime heat stress: • **Nighttime**: These city-scale mitigation measures (green transformation, anthropogenic heat reduction) are more effective during nighttime.. (**AT↓, RH↓, WS↑**) • **Daytime**: implement reflective surfaces at city-scale, also provide shading devices, urban street trees. (**MRT↓**)

Ding, X., Fan, Y., Zhao, Y., Ge, J., Ürge-Vorsatz, D., and Carmeliet, J.: Unequal potential to mitigate future urban heat for cities in different climates, 12th International Conference on Urban Climate, Rotterdam, The Netherlands, 7–11 Jul 2025, ICUC12-904, https://doi.org/10.5194/icuc12-904, 2025.

THANK YOU

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This work is ready to be submitted:

Ding, X, Fan, Y., Zhao, Y., Ürge-Vorsatz, D., Ge, J., & Carmeliet, J.(to be submitted). Asymmetric global urban cooling capacity calls for accelerated and context-specific actions.

selected publications at building-scale

[1] **Ding, X.**, Zhao, Y., Fan, Y., Li, Y., Ge, J. (2023). Machine learning-assisted mapping of city-scale air temperature: Using sparse meteorological data for urban climate modeling and adaptation. Building and Environment, 234, 110211.

[2] **Ding, X.,** Zhao, Y., Strebel, D., Fan, Y., Ge, J., & Carmeliet, J. (2024). A WRF-UCM-SOLWEIG framework for mapping thermal comfort and quantifying urban climate drivers: Advancing spatial and temporal resolutions at city scale. Sustainable Cities and Society, 112, 105628.