

**Table S1.** Summary database of block scale

Author, Year	Country	Climate	Site Classification	Vegetation Scene	Arrangements Type	Vegetation Parameters			Research Data	Analysis Method			Experimental Variables				Research Scope	Season				Software
						P	B	S		M s	Si	M o	P	B	S	C		Sp	Su	A u	W i	
Cao et al., 2010	Japan	Cfa	Park	Group	Mixed			•	Descriptive	•							Surface temperature	•	•	•		N/A
Fahmy et al., 2010	Egypt	Bwh	Private Garden	Group	Mixed	•			Experimental	•	•			•	•		Air temperature		•			ENVI-met ©
Gómez-Muñoz et al., 2010	Mexico	Cwb	Street	Unit	Individual	•			Descriptive	•							Energy					N/A
Pandit & Laband, 2010	USA	Cfa	Building	Group	N/A	•			Descriptive	•							Energy		•		•	N/A
Shahidan et al., 2010	Malaysia	Af	Educational facility	Group	Aligned	•			Descriptive	•		•					Others				•	Autodesk® Ecotect®
Shashua-Bar, Tsiros, et al., 2010	Greece	Csa	Street	Group	Aligned			•	Experimental	•					•		Air temperature		•	•		N/A
Shashua-Bar, Potchter, et al., 2010	Israel	Csa	Park	Group	Mixed			•	Experimental	•					•		Air temperature		•			N/A
Tsiros, 2010	Greece	Csa	Street	Group	N/A			•	Descriptive	•							Air temperature		•			N/A
Wong & Jusuf, 2010	Singapore	Af	Street	Group	Aligned			•	Descriptive	•							Air temperature		•			Rayman
Gaitani et al., 2011	Greece	Csa	Park	Group	Mixed			•	Descriptive		•						Air temperature		•			CFD-PHOENICS
Shashua-Bar et al., 2011	Israel	Bwk	Educational facility	Group	Aligned	•	•	•	Experimental	•					•		Comfort		•			N/A
Armson et al., 2012	UK	Cfb	Park	Group	Aligned	•		•	Descriptive	•							Mixed		•			N/A
Bencheikh & Rchid, 2012	Argelia	Bwh	Street	Group	Mixed			•	Descriptive	•							Air temperature			•		N/A
Cohen et al., 2012	Israel	Csa	Park	Group	Mixed	•		•	Descriptive	•							Air temperature	•	•	•	•	Rayman
Correa et al., 2012	Argentina	Bwk	Street	Group	Aligned	•			Descriptive	•							Comfort		•			Pixel de Cielo
Enete et al., 2012	Nigeria	Aw	Street	Unit	N/A			•	Descriptive	•							Air temperature	•	•			N/A
Lu et al., 2012	China	Cwa	Park	Group	Mixed			•	Descriptive	•							Air temperature		•			SPSS software
Park et al., 2012	Japan	Cfa	Street	Group	Mixed			•	Experimental	•					•	•	Comfort		•	•		N/A
Shashua-Bar et al., 2012	Greece	Csa	Street	Group	N/A			•	Experimental	•		•			•		Comfort		•			ENVI-met ©
Yan et al., 2012	China	Dwa	Park	Group	Dense	•		•	Descriptive	•							Air temperature		•			SPSS software
Armson et al., 2013	UK	Cfb	Street	Unit	Individual	•	•		Descriptive	•							Surface temperature		•			SPSS software
Charalampopoulos et al., 2013	Greece	Csa	N/A	Group	Mixed	•			Descriptive	•	•						Comfort		•			Rayman
Morakinyo et al., 2013	Nigeria	Aw	Educational facility	Group	Clustered			•	Descriptive	•							Air temperature	•	•	•	•	SPSS software
Qin et al., 2013	China	Cfa	Park	Group	Mixed	•		•	Descriptive	•							Comfort	•				N/A
Vailshery et al., 2013	India	Aw	Street	Group	N/A			•	Descriptive	•							Air temperature		•			STATISTICA™
Vidrih & Medved, 2013	Slovenia	Cfb	Park	Group	Mixed	•	•		Experimental	•	•		•		•		Air temperature		•			Fluent
Zhang et al., 2013	China	Cfa	Park	Group	Mixed	•			Descriptive	•					•		Air temperature	•	•	•	•	SPSS software
Asikin et al., 2014	Indonesia	Aw	Private Garden	Group	Aligned	•			Experimental	•				•	•		Air temperature			•		N/A
Balogun et al., 2014	Nigeria	Aw	Educational facility	Group	Clustered	•		•	Descriptive	•							Energy	•	•			N/A
Feyisa et al., 2014	Ethiopia	Cwb	Park	Group	Mixed	•		•	Descriptive	•							Surface temperature			•		ArcGIS ©
Millward et al., 2014	Canada	Dfb	Educational facility	Mixed	Mixed	•			Descriptive	•							Surface temperature		•			SAS/STAT Software
Morakinyo et al., 2014	Nigeria	Aw	Educational facility	Group	Clustered			•	Descriptive	•							Comfort	•	•	•	•	N/A
Rashid et al., 2014	Malaysia	Af	Park	Group	N/A	•			Descriptive	•							Air temperature					N/A

Author, Year	Country	Climate	Site Classification	Vegetation Scene	Arrangements Type	Vegetation Parameters			Research Data	Analysis Method			Experimental Variables				Research Scope	Season				Software
						P	B	S		M s	Si	M o	P	B	S	C		Sp	Su	A u	W i	
Tsiros & Hoffman, 2014	Greece	Csa	Private Garden	Group	Dense	•		•	Descriptive	•							Air temperature		•			Rayman
Abdel-Aziz et al., 2015	Jordan	BSH	Building	Group	Aligned	•		•	Experimental	•					•		Energy		•	•		N/A
Chatzidimitriou & Yannas, 2015	Greece	Cfa	Park	Group	Mixed	•		•	Descriptive	•	•						Air temperature		•			ENVI-met ©
de Abreu-Harbach et al., 2015	Brazil	Cfa	Park	Mixed	Mixed	•			Descriptive	•							Comfort		•		•	Rayman
Gillner et al., 2015	Germany	Dfb	Street	Group	N/A	•			Descriptive	•							Mixed		•			LAI-2200 File Viewer
Gromke et al., 2015	Netherlands	Cfb	Street	Group	Aligned	•	•		Experimental		•				•		Air temperature		•			ANSYS FLUENT
Klemm et al., 2015	Netherlands	Cfb	Street	Group	Aligned	•		•	Descriptive	•							Comfort		•			SPSS software
Lobaccaro & Acero, 2015	Spain	Cfb	Street	Group	Aligned			•	Experimental	•	•			•	•	•	Comfort		•			ENVI-met ©
Noro & Lazzarin, 2015	Italy	Cfa	Square	Group	Mixed	•		•	Experimental		•						Air temperature		•			ENVI-met ©
Rahman et al., 2015	UK	Cfb	Street	Unit	Individual	•	•		Descriptive	•							Energy	•	•	•		SPSS software
Gaitani et al., 2011	Greece	Csa	Park	Group	Mixed			•	Descriptive		•						Air temperature		•			CFD-PHOENICS
Salata et al., 2015	Italy	Csa	Building	Group	N/A			•	Experimental	•	•				•		Air temperature		•		•	ENVI-met ©
Shahidan, 2015	Malaysia	Af	N/A	Unit	Individual	•			Descriptive	•	•						Air temperature				•	ENVI-met ©
Wang Y., et al., 2015	Netherlands	Cfb	Private Garden	Group	Scattered	•			Descriptive	•							Comfort	•	•			Rayman
Wang Y.,et al., 2015	Netherlands	Cfb	Private Garden	Group	Scattered	•		•	Descriptive	•	•						Air temperature		•		•	ENVI-met ©
Yoshida et al., 2015	Japan	Cfa	Front garden	Group	Mixed	•		•	Descriptive	•							Air temperature		•			N/A
Al-Gretawee et al., 2016	Australia	Cfb	Park	Group	Mixed			•	Descriptive	•							Mixed			•		N/A
Calcerano & Martinelli, 2016	Italy	Csa	Building	Mixed	Mixed	•		•	Experimental	•	•				•		Energy					Energy Plus
Coutts, White, et al., 2016	Australia	Cfb	Street	Group	Aligned	•		•	Descriptive	•							Air temperature	•	•	•	•	Rayman
El-Bardisy et al., 2016	Egypt	BWh	Educational facility	Group	Mixed	•			Experimental		•			•	•		Comfort		•			ENVI-met ©
Hsieh et al., 2016	Taiwan	Aw	Park	Group	N/A	•			Descriptive	•	•						Comfort		•			CFD Software
Konarska et al., 2016	Sweden	Cfb	Street	Group	Mixed	•		•	Descriptive	•		•					Air temperature	•	•	•	•	SOLWEIG
Kong, Sun, et al., 2016	China	Cfa	Educational facility	Group	Mixed			•	Experimental	•	•				•		Energy		•			ENVI-met ©
Kong, Yan, et al., 2016	China	Cfa	Urban Forest	Unit	Dense	•			Descriptive	•		•					Air temperature		•			Gap Light Analyze©
Lindén et al., 2016	Germany	Cfb	Park	Group	Mixed	•	•	•	Descriptive	•							Evapotranspiration		•			N/A
Morakinyo & Lam, 2016	China	Cwa	Street	Group	Aligned	•		•	Experimental	•	•		•			•	Comfort		•			ENVI-met ©
Ryu et al., 2016	Switzerland	Cfb	Street	Group	Individual	•	•	•	Experimental	•			•				Air temperature		•			N/A
Wang Z. H.,et al., 2016	USA	Bwh	Street	Group	N/A	•	•		Descriptive	•							Mixed	•	•	•	•	N/A
Zheng S. et al., 2016	China	Dwa	Park	Group	N/A	•		•	Descriptive	•	•						Comfort	•	•			Fluent
Huang K. T. & Li, 2017	Taiwan	Cfa	Street	Group	Aligned	•		•	Experimental	•	•				•		Energy		•			ENVI-met ©
Kong L. et al., 2017	China	Cwa	Street	Unit	Mixed	•			Experimental	•		•	•	•		•	Comfort		•			SOLWEIG
Milošević et al., 2017	Serbia	Cfb	Parking lot	Group	Scattered	•		•	Experimental	•	•				•		Comfort	•	•	•	•	Rhinoceros
Rahman et al., 2017	Germany	Cfb	Street	Group	Mixed	•	•		Descriptive	•							Air temperature		•	•		Software R
Salas Esparza & Herrera Sosa, 2017	Mexico	Bwk	Park	Group	Mixed	•		•	Descriptive	•							Air temperature		•			N/A
Salata et al., 2017	Italy	Csa	Educational facility	Group	Mixed	•		•	Experimental	•	•				•		Comfort	•	•	•	•	ENVI-met ©

Author, Year	Country	Climate	Site Classification	Vegetation Scene	Arrangements Type	Vegetation Parameters			Research Data	Analysis Method			Experimental Variables				Research Scope	Season				Software
						P	B	S		M s	Si	M o	P	B	S	C		Sp	Su	A u	W i	
Zhao T. F. & Fong, 2017	China	Cwa	Educational facility	Group	Mixed			•	Descriptive	•	•						Comfort		•			ENVI-met ©
Afshar et al., 2018	Iran	BSk	Park	Group	Dense	•	•	•	Experimental	•	•			•		•	Comfort				•	ENVI-met ©
Amani-Beni et al., 2018	China	Dwa	Park	Group	Mixed			•	Descriptive	•							Air temperature		•			SPSS software
Cheung & Jim, 2018	China	Cwa	Park	Group	Mixed			•	Descriptive	•							Comfort		•			Rayman
Herath et al., 2018	Sri Lanka	Af	Street	Group	Scattered	•		•	Experimental		•				•		Air temperature		•			ENVI-met ©
Hsieh et al., 2018	China	Cfa	Educational facility	Group	Dense	•	•	•	Experimental		•		•	•	•		Surface temperature		•			Energy Plus
Irmak et al., 2018	Turkey	Dsb	Park	Unit	Individual	•	•		Descriptive	•							Air temperature		•			Rayman
Liu et al., 2018	China	Cfa	Park	Unit	Individual	•	•		Descriptive	•	•						Air temperature	•	•			ENVI-met ©
Matsaba et al., 2018	Kenya	Cwb	Park	Unit	Individual	•			Descriptive	•							Comfort		•			N/A
Stocco & Correa, 2018	Argentina	Bwk	Park	Group	Mixed			•	Experimental	•	•				•	•	Air temperature		•			ENVI-met ©
Yilmaz et al., 2018	Turkey	Dfb	Urban & Rural Area	Group	Scattered	•	•	•	Experimental	•	•			•	•		Air temperature		•		•	ENVI-met ©
Zhao Q. et al., 2018	USA	Bwh	Building	Mixed	Mixed			•	Experimental	•					•		Surface temperature		•			N/A
Ahmadi V. et al., 2019	Iran	BWk	Street	Group	Mixed	•		•	Experimental	•	•				•		Comfort		•			ENVI-met ©
Ali & Patnaik, 2019	India	Csa	Park	Group	Dense	•		•	Descriptive	•							Air temperature		•			ArcGIS ©
Chen X. et al., 2019	China	Cfa	Park	Group	Dense	•	•		Descriptive	•							Air temperature	•	•	•	•	SPSS software
Cheung & Jim, 2019	China	Cwa	Park	Group	Mixed	•		•	Descriptive	•							Air temperature		•			Rayman
Colter et al., 2019	USA	Bwh	Park	Unit	N/A	•			Descriptive	•	•						Comfort		•			Rayman
Farhadi et al., 2019	Iran	Csa	Street	Group	Mixed			•	Experimental	•	•				•		Comfort		•			ENVI-met ©
Li & Song, 2019	South Korea	Dwa	Park	Group	Dense	•			Experimental	•	•		•	•	•		Comfort		•			ENVI-met ©
Moser-Reischl et al., 2019	Germany	Cfb	Street	Unit	Aligned	•	•		Descriptive	•							Others		•	•		N/A
Ow et al., 2019	Singapore	Af	Street	Unit	Aligned	•	•		Experimental	•						•	Evapotranspiration	•	•	•	•	N/A
Rahman et al., 2019	Germany	Cfb	Street	Group	Aligned	•	•		Descriptive	•							Surface temperature		•			Software R
Rana & Ferrara, 2019	Italy	Cfa	Park	Group	N/A	•	•		Descriptive	•		•					Evapotranspiration	•	•			N/A
Rui et al., 2019	China	Cfa	Park	Group	Mixed	•		•	Experimental	•	•				•		Comfort		•			ENVI-met ©
Spangenberg et al., 2019	Brazil	Cfa	Park	Group	Aligned	•			Experimental	•	•		•				Air temperature		•			ENVI-met ©
Abdi et al., 2020	Iran	BSk	Educational facility	Group	Mixed		•	•	Experimental	•	•			•	•		Comfort			•		ENVI-met ©
Cheung et al., 2020	China	Cwa	Urban Forest	Group	Mixed	•			Descriptive	•							Comfort	•	•	•	•	N/A
Lee et al., 2020	Germany	Dfb	Street	Group	Aligned	•		•	Experimental		•		•		•		Comfort		•			ENVI-met ©
Rana et al., 2020	Italy	Cfa	Park	Group	Clustered	•	•		Descriptive	•		•					Evapotranspiration	•	•	•	•	N/A
Speak et al., 2020	Italy	Cfb	N/A	Unit	Individual	•			Descriptive	•							Surface temperature		•			Software R
Tan P. Y. et al., 2020	Singapore	Af	Park	Mixed	Aligned	•	•		Descriptive	•							Evapotranspiration	•	•	•	•	N/A
Zheng S. et al., 2020	China	Cfa	Parking lot	Unit	Individual	•			Descriptive			•					Energy	•	•			Fluent
Sodoudi et al., 2018	Germany	Cfb	Park	Group	Mixed	•		•	Experimental		•			•	•		Comfort		•			ENVI-met ©

Author, Year	Country	Climate	Site Classification	Vegetation Scene	Arrangements Type	Vegetation Parameters			Research Data	Analysis Method			Experimental Variables				Research Scope	Season				Software
						P	B	S		Ms	Si	Mo	P	B	S	C		Sp	Su	Au	Wi	
Wei, J. et al., 2021	China	Cfa	Park	Unit	N/A	•			Descriptive	•							Air temperature		•			Photoshop
Li, Y. et al., 2021	China	Dwa	Park	Mixed	N/A	•	•	•	Descriptive	•							Air temperature		•		•	Rayman, ArcGIS ©
Gachkar, D. et al., 2021	Iran	Csa	Park	Group	N/A	•	•		Experimental	•	•		•	•	•		Air temperature		•		•	ENVI-met ©, Rayman
Darvish, A. et al., 2021	Iran	Csa	Educational facility	Group	N/A	•	•		Experimental	•	•				•		Comfort		•		•	ENVI-met ©, Rayman, DesignBuilder
Chen, T. et al., 2021	China	Cfa	Street	Group	Aligned	•	•		Descriptive	•				•	•		Air temperature			•		N/A
Bochenek, A. et al., 2021	Poland	Cfb	Street	Group	Aligned			•	Experimental		•				•		Air temperature		•			ENVI-met ©
Zhang, T. et al., 2022	China	Cfa	N/A	Unit	Aligned	•		•	Experimental		•	•			•		Others		•			ENVI-met ©
Yang, J. et al., 2022	China	Cfa	Educational facility	Group	Mixed	•			Experimental		•	•		•	•		Comfort		•		•	ENVI-met ©
Xiao, J. et al., 2022	Japan	Cfa	Square	Group	Mixed	•	•	•	Experimental	•	•				•		Comfort		•		•	ENVI-met ©
Kianmehr, A. et al., 2022	USA	Dfa	Street	Group	Mixed		•	•	Experimental	•	•			•	•		Comfort		•			ENVI-met ©
Fu, J. et al., 2022	China	Cfa	Park	Group	Mixed			•	Descriptive	•		•					Air temperature		•			Rayman, SPSS software
Erell, E. et al., 2022	Israel	Csa	Street	Group	N/A			•	Descriptive	•		•				•	Energy		•			Energy Plus, ArcGIS ©, Software R
Zhang, J. et al., 2023	Australia	Cfa	Educational facility	Unit	Individual	•			Descriptive	•							Others					N/A
Wang, H. et al., 2023	China	Cfa	Private Garden	Group	Mixed	•		•	Experimental	•	•		•		•		Air temperature		•			ENVI-met ©, SPSS software, Cyclone software
Ouyang, W. et al., 2023	China	Cwa	Street	Group	Mixed	•		•	Experimental	•	•		•		•		Air temperature					ENVI-met ©
Ornelas, A. et al., 2023	Portugal	Csb	Educational facility	Group	Mixed			•	Descriptive	•	•	•					Air temperature		•		•	N/A
Lee, H. et al., 2023	South Korea	Cfa	Street	Group	Aligned		•	•	Experimental	•	•			•	•		Air temperature		•			ENVI-met ©
Lai, D. et al., 2023	China	Cfa	Urban Forest	Group	Mixed	•		•	Experimental	•	•				•		Comfort		•			ENVI-met ©
Deng, W. et al., 2023	China	Cfa	Educational facility	Unit	Individual	•	•		Descriptive	•							Comfort				•	N/A

**Nomenclature: Climate (Köppen-Geiger):** Af (Tropical rainforest climate); Am (Tropical monsoon climate); Aw (Tropical savanna climate with dry winter); As (Tropical Savanna climate with dry summer); BWh (Hot desert climate); BWk (Cold desert climate); BSh (Hot semi-arid climate); BSk (Cold semi-arid climate); Csa (Hot-summer mediterranean climate); Csb (Warm-summer mediterranean climate); Cfa (Humid subtropical climate); Cfb (Oceanic climate); Cwb (Dry winter subtropical); Dfa (Hot summer humid continental climate); Dfb (Warm-summer humid continental climate); Dwa (Monsoon-influenced hot-summer humid continental climate). **Vegetation Parameters:** P (Physical); B (Biological); S (Spatial) . **Analysis Method:** Ms (Mathematical and Statistical Method); Si (Simulation); Mo (Modelling). **Experimental Variables:** P (Physical); B (Biological); S (Spatial); C (Context). **Season:** Sp (Spring); Su (Summer); Au (Autumn); Wi (Winter).

**Table S2.** Summary database of neighborhood scale

Author, Year	Country	Climate	Site Classification	Vegetation Scene	Arrangements Type	Vegetation Parameters			Research Data	Analysis Method			Experimental Variables				Research Scope	Season				Software
						P	B	S		M <sub>s</sub>	Si	M <sub>o</sub>	P	B	S	C		Sp	Su	A <sub>u</sub>	W <sub>i</sub>	
Georgi J. N. & Dimitriou, 2010	Greece	Csa	Neighborhood	Mixed	Mixed	•	•		Descriptive	•							Comfort		•			Microsoft® Excel
Hamada & Ohta, 2010	Japan	Cfa	Neighborhood	Group	Mixed	•	•	•	Descriptive	•							Air temperature	•	•	•	•	N/A
Onishi et al., 2010	Japan	Cfa	Parking lot	Group	Dense			•	Descriptive	•		•					Surface temperature	•	•	•	•	ERDAS IMAGINE
Peters & McFadden, 2010	USA	Dfa	Neighborhood	Group	Mixed	•	•	•	Descriptive	•							Surface temperature	•	•	•		N/A
Huang H. Y. et al., 2011	Taiwan	Cfa	Neighborhood	Group	N/A			•	Experimental	•					•		Mixed		•			N/A
Oliveira et al., 2011	Portugal	Csa	Park	Group	Mixed	•	•	•	Descriptive	•							Air temperature		•			Rayman
Yang et al., 2011	China	Cfa	Neighborhood	Group	Mixed	•		•	Descriptive	•	•						Comfort		•			ENVI-met ©
Chen X. et al., 2012	China	Cfa	Neighborhood	Group	Mixed		•	•	Descriptive	•		•					Others		•	•		N/A
Langer et al., 2012	Iran	Csa	Neighborhood	Group	Mixed			•	Experimental	•	•				•		Surface temperature	•	•	•	•	ENVI-met ©
Meier & Scherer, 2012	Germany	Cfb	Neighborhood	Unit	Dense	•	•	•	Descriptive	•		•					Air temperature		•			N/A
Ng et al., 2012	China	Cwa	Neighborhood	Group	N/A	•		•	Experimental	•	•				•	•	Air temperature		•			ENVI-met ©
Shahidan et al., 2012	Malaysia	Af	Neighborhood	Group	Clustered	•		•	Experimental	•	•				•		Air temperature				•	ENVI-met ©
Bilgili et al., 2013	Turkey	Csb	Neighborhood	Group	Mixed			•	Descriptive	•							Air temperature					ArcGIS ©
Chen L. & Ng, 2013	China	Cwa	Neighborhood	Group	Mixed	•		•	Experimental		•				•		Air temperature		•			ENVI-met ©
Declet-Barreto et al., 2013	USA	Bwh	Neighborhood	Group	Mixed	•	•	•	Experimental	•	•				•		Air temperature		•			ENVI-met ©
Hamada et al., 2013	Japan	Cfa	Park	Group	Mixed		•	•	Descriptive			•					Surface temperature		•			N/A
Srivanit & Hokao, 2013	Japan	Cfa	Educational facility	Group	Mixed	•		•	Experimental	•	•				•		Air temperature		•			ENVI-met ©
Chang & Li, 2014	Taiwan	Cfa	Neighborhood	Group	Mixed			•	Descriptive	•							Others		•		•	S-Plus
Doick et al., 2014	UK	Cfb	Neighborhood	Group	Mixed			•	Descriptive	•							Air temperature			•	•	N/A
Müller et al., 2014	Germany	Cfb	Neighborhood	Group	Mixed			•	Experimental	•	•			•		•	Comfort	•	•	•	•	ENVI-met ©
Perini & Magliocco, 2014	Italy	Cfb	Neighborhood	Group	Mixed	•		•	Experimental	•	•				•		Comfort		•			ENVI-met ©
Skelhorn et al., 2014	UK	Dfb	Neighborhood	Group	Clustered	•	•	•	Experimental	•	•			•	•	•	Surface temperature		•			ENVI-met ©
Skoulika et al., 2014	Greece	Csa	Park	Group	N/A			•	Descriptive	•		•					Air temperature		•			N/A
Sodoudi et al., 2014	Iran	Csa	Neighborhood	Group	Mixed			•	Experimental	•	•				•		Air temperature		•			ENVI-met ©
Tariq & Arch, 2014	Bangladesh	Aw	Neighborhood	Group	N/A			•	Experimental	•	•				•		Mixed		•			ENVI-met ©
Yahia & Johansson, 2014	Syria	BSk	Street	Group	Aligned	•		•	Experimental	•	•				•		Comfort		•		•	ENVI-met ©
Yan H. et al., 2014	China	Dwa	Neighborhood	Group	N/A			•	Descriptive	•							Air temperature		•		•	Rayman
Cheng X. et al., 2015	China	Cfa	Neighborhood	Group	Mixed			•	Descriptive	•		•					Surface temperature		•			ArcGIS ©
Colunga et al., 2015	Mexico	BSh	Neighborhood	Group	Scattered	•		•	Descriptive	•							Air temperature	•	•	•	•	N/A
Duarte et al., 2015	Brazil	Cfa	Neighborhood	Group	Mixed	•			Experimental	•	•				•		Air temperature		•			ENVI-met ©
Ellis et al., 2015	USA	Cfa	Neighborhood	Group	Mixed			•	Descriptive	•							Air temperature		•			N/A
Emmanuel & Loconsole, 2015	UK	Cfb	Neighborhood	Group	Mixed			•	Experimental	•	•				•		Mixed		•			ENVI-met ©
Lin W. et al., 2015	China	Dwa	Park	Group	Mixed			•	Descriptive	•		•					Air temperature			•		N/A
O'Malley et al., 2015	UK	Cfb	Square	Group	Mixed			•	Experimental	•	•			•		•	Mixed					ENVI-met ©

Author, Year	Country	Climate	Site Classification	Vegetation Scene	Arrangements Type	Vegetation Parameters			Research Data	Analysis Method			Experimental Variables				Research Scope	Season				Software
						P	B	S		M s	Si	M o	P	B	S	C		Sp	Su	A u	W i	
Peron et al., 2015	Italy	Cfb	Neighborhood	Group	Clustered	•	•	•	Experimental	•	•				•	•	Air temperature		•			ENVI-met ©
Ballinas & Barradas, 2016	Mexico	Cwb	Neighborhood	Group	N/A	•	•		Experimental	•					•		Air temperature	•			•	N/A
Jenerette et al., 2016	USA	Bwh	Neighborhood	Group	Mixed			•	Descriptive	•		•					Surface temperature		•			Matlab
Lee et al., 2016	Germany	Cfb	Neighborhood	Group	Scattered	•		•	Experimental	•	•				•	•	Air temperature		•			ENVI-met ©
Martins et al., 2016	France	Cfb	Neighborhood	Group	Mixed			•	Experimental	•	•				•		Comfort		•			ENVI-met ©
Taleghani et al., 2016	USA	Csa	Neighborhood	Group	Aligned			•	Experimental	•					•		Comfort		•			ENVI-met ©
Tan Z. et al., 2016	China	Cwa	Neighborhood	Unit	Aligned	•			Experimental	•	•		•				Air temperature		•			ENVI-met ©
Vaz Monteiro et al., 2016	UK	Cfb	Park	Group	N/A			•	Descriptive	•							Air temperature		•	•		N/A
Wang Y. & Akbari, 2016	Canada	Dfb	Neighborhood	Group	Mixed	•	•	•	Experimental	•	•		•		•		Air temperature		•			ENVI-met ©
Wang Y. et al., 2016	Canada	Dfa	Neighborhood	Group	Aligned			•	Experimental	•	•				•	•	Comfort		•		•	ENVI-met ©
Alchapar et al., 2017	Argentina	BWk	Neighborhood	Group	Mixed	•		•	Experimental	•	•				•		Air temperature		•			ENVI-met ©
Barakat et al., 2017	Egypt	BWh	Neighborhood	Group	Mixed			•	Experimental		•		•		•		Comfort	•	•	•	•	ENVI-met ©
Gaitani et al., 2017	Greece	Csa	Neighborhood	Group	Mixed			•	Descriptive	•		•					Surface temperature		•			N/A
Jamei & Rajagopalan, 2017	Australia	Cfb	Neighborhood	Group	Aligned	•		•	Experimental	•	•				•		Comfort		•			ENVI-met ©
Saito K. et al., 2017	Malaysia	Af	Neighborhood	Group	Scattered			•	Experimental		•				•		Comfort		•			ENVI-met ©
Wu & Chen, 2017	China	Dwa	Neighborhood	Group	Mixed			•	Experimental		•				•		Air temperature		•			ENVI-met ©
Alchapar et al., 2018	Argentina	BWk	Neighborhood	Group	Mixed	•		•	Experimental		•		•		•	•	Air temperature		•			ENVI-met ©
Chatzinikolaou et al., 2018	Greece	Csa	Neighborhood	Group	Mixed	•	•		Experimental		•		•				Mixed		•			ENVI-met ©
Morakinyo et al., 2018	China	Cwa	Neighborhood	Group	Mixed	•		•	Experimental	•	•		•				Air temperature		•			ENVI-met ©
Aboelata & Sodoudi, 2019	Egypt	BWh	Neighborhood	Group	Aligned			•	Experimental		•				•		Air temperature	•	•	•	•	ENVI-met ©
Amani-Beni et al., 2019	China	Dwa	Neighborhood	Group	Mixed			•	Descriptive	•							Surface temperature		•			ArcGIS ©
Kim et al., 2019	South Korea	Dwa	Park	Group	Mixed			•	Descriptive			•					Energy	•	•	•	•	SPSS software
Lobaccaro et al., 2019	Spain	Cfb	Street	Group	Aligned	•		•	Experimental	•	•		•			•	Comfort		•			ENVI-met ©
Makido et al., 2019	USA	Csb	Neighborhood	Group	Mixed			•	Experimental	•	•				•	•	Air temperature		•			ENVI-met ©
Ouyang et al., 2019	China	Cwa	Neighborhood	Group	Aligned	•		•	Experimental	•	•				•		Air temperature		•			ENVI-met ©
Ramyar et al., 2019	Iran	Csa	Neighborhood	Group	Aligned			•	Experimental		•				•		Air temperature		•			ENVI-met ©
Srivaniit & Hokao, 2019	Thailand	Aw	Neighborhood	Group	Mixed	•		•	Descriptive	•	•						Air temperature		•			ENVI-met ©
Krayenhoff et al., 2020	Canada	Csb	Neighborhood	Group	Mixed	•	•		Descriptive	•		•					Mixed			•		CFD Software
Morakinyo et al., 2020	China	Cwa	Street	Group	Aligned	•		•	Experimental		•		•				Air temperature		•	•		ENVI-met ©
Ouyang et al., 2020	China	Cwa	Street	Group	Aligned			•	Experimental	•	•				•		Comfort		•	•		ENVI-met ©
Richards et al., 2020	Singapore	Af	Neighborhood	Group	Mixed			•	Descriptive								Air temperature	•	•	•	•	N/A
Wai et al., 2020	China	Cwa	Street	Unit	Individual	•			Experimental	•	•		•				Surface temperature		•			ENVI-met ©
Wu, C. et al. 2021	China	Cfa	Park	Group	Mixed			•	Descriptive	•		•					Surface temperature			•		N/A
Sabrin, S. et al. 2021	USA	Cfa	Street	Unit	N/A	•	•	•	Descriptive	•	•			•			Comfort					Rayman

Author, Year	Country	Climate	Site Classification	Vegetation Scene	Arrangements Type	Vegetation parameters			Research Data	Analysis Method			Experimental Variables				Research Scope	Season				Software
						P	B	S		M	Si	M	P	B	S	C		Sp	Su	A	W	
Meili, N.et al. 2021	Singapore	Af	Street	Mixed	N/A	•		•	Experimental	•	•						Comfort	•	•			N/A
Cheung, P. et al. 2021	China	Cwa	Park	Group	N/A	•		•	Descriptive	•							Air temperature		•			N/A
Li, Yingnan et al. 2023	China	Cfa	Street	Group	Mixed	•		•	Experimental	•	•				•		Comfort		•			N/A

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Table S3. Summary database of city scale

Author, Year	Country	Climate	Site Classification	Vegetation Scene	Arrangements Type	Vegetation parameters			Research Data	Analysis Method			Experimental Variables				Research Scope	Season				Software
						P	B	S		M	Si	M	P	B	S	C		Sp	Su	A	W	
Buyantuyev & Wu, 2010	USA	Bwh	City	Group	Mixed			•	Descriptive	•		•					Surface temperature		•	•		ERDAS IMAGINE
Leuzinger et al., 2010	Switzerland	Cfb	Park	Group	Mixed	•	•		Descriptive	•		•					Air temperature		•			ENVI ®
Zhou Y. & Shepherd, 2010	USA	Cfa	City	Group	Mixed			•	Descriptive	•		•					Surface temperature	•	•	•	•	N/A
Zhou W. et al., 2011	USA	Cfa	City	Group	Mixed			•	Descriptive	•		•					Surface temperature		•			N/A
Choi et al., 2012	South Korea	Dwa	City	Group	Mixed			•	Descriptive	•		•					Others		•			ArcGIS ©
Halper et al., 2012	USA	Bsh	Urban & Rural Area	Group	Mixed			•	Descriptive	•		•					Surface temperature					Matlab
Connors et al., 2013	USA	Bwh		Group	Mixed			•	Descriptive	•		•					Surface temperature		•			ArcGIS ©
Dobrovolný, 2013	Czechia	Cfb	City	Group	Mixed			•	Descriptive	•		•					Surface temperature		•			GIS
Holmer et al., 2013	Burkina Faso	Bsh	Neighborhood	Group	Mixed	•		•	Descriptive	•							Air temperature			•		N/A
Qiao et al., 2013	China	Dwa	City	Group	Mixed			•	Descriptive	•							Surface temperature	•	•	•	•	N/A
Sawka et al., 2013	Canada	Dfa	Neighborhood	Group	N/A	•	•	•	Descriptive	•							Energy	•	•	•	•	MICROPAS®
Tan M. & Li, 2013	China	Dwa	City	Group	Mixed			•	Descriptive	•		•					Surface temperature		•			ENVI-met ©
Adams & Smith, 2014	Australia	Cfa	Park	Group	Mixed			•	Descriptive	•							Surface temperature					ArcGIS ©
Black & Stephen, 2014	USA	Bwk	City	Group	Mixed			•	Descriptive	•							Air temperature					N/A
Kong F. et al., 2014	China	Cfa	City	Group	Mixed			•	Descriptive	•		•					Air temperature		•			ESRI ArcMap
Zheng B. et al., 2014	USA	Bwh	City	Group	Mixed			•	Descriptive	•		•					Surface temperature		•			FRAGSTATS©
Zhou W. et al., 2014	USA	Cfa	City	Group	Mixed			•	Descriptive	•		•					Surface temperature	•	•	•	•	SPSS software
Alavipanah et al., 2015	Germany	Cfb	City	Group	Mixed			•	Descriptive	•							Surface temperature		•			ESRI ArcMap
Brown et al., 2015	Malaysia	Af	City	Group	Mixed	•			Experimental	•						•	Energy					N/A
Fan C. et al., 2015	USA	Bwh	City	Group	Mixed			•	Descriptive	•		•					Surface temperature		•		•	eCognition
Myint et al., 2015	USA	Bwh	City	Group	Mixed			•	Descriptive	•							Surface temperature	•	•	•		Definiens Developer
Rasul et al., 2015	Irak	Csa	City	Group	Mixed			•	Descriptive	•		•					Surface temperature		•			ENVI ®
Rotem-Mindali et al., 2015	Israel	Csa	City	Group	Mixed			•	Descriptive	•		•					Surface temperature		•			ArcGIS ©
Trihamdani et al., 2015	Vietnam	Cfa	City	Group	Mixed			•	Experimental	•		•			•		Air temperature		•			N/A
Coutts, Harris, et al., 2016	Australia	Cfb	City	Group	Mixed			•	Descriptive			•					Surface temperature		•			ArcGIS ©
Jaganmohan et al., 2016	Germany	Cfb	Park	Group	Mixed			•	Descriptive	•							Air temperature		•			ArcGIS ©
Jeganathan et al., 2016	India	Aw	City	Group	Mixed			•	Descriptive			•					Air temperature		•			ArcGIS ©
Tayyebi & Darrel Jenerette, 2016	USA	Csa	City	Group	Mixed			•	Descriptive	•		•					Surface temperature	•				Atmospheric
Žuvela-Aloise et al., 2016	Austria	Cfb	Park	Group	Mixed			•	Experimental	•	•				•		Air temperature		•	•	•	N/A
Zhou W. et al., 2017	USA	Cfa	City	Group	Mixed			•	Descriptive	•		•					Surface temperature		•			N/A
Ren et al., 2018	China	Dwa	Park	Group	Mixed	•		•	Descriptive	•		•					Surface temperature		•	•		SPSS software
Xie et al., 2018	China	Cfa	City	Group	Mixed			•	Descriptive	•		•					Surface temperature		•			N/A
Duncan et al., 2019	Australia	Csa	Park	Group	Mixed			•	Descriptive	•		•					Surface temperature		•		•	N/A
Fan H. et al., 2019	China	Cwa	City	Group	Mixed			•	Descriptive	•		•					Surface temperature		•			ENVI ®
Masoudi & Tan, 2019	Singapore	Af	Neighborhood	Group	Mixed			•	Descriptive	•		•					Surface temperature	•		•	•	ESRI ArcMap



Author, Year	Country	Climate	Site Classification	Vegetation Scene	Arrangements Type	Vegetation Parameters			Research Data	Analysis Method			Experimental Variables				Research Scope	Season				Software
						P	B	S		Ms	Si	Mo	P	B	S	C		Sp	Su	Au	Wi	
Masoudi et al., 2019	Singapore	Af	Neighborhood	Group	Mixed			•	Descriptive	•		•					Surface temperature	•	•		•	ESRI ArcMap
Moss et al., 2019	UK	Cfb	Urban Forest	Group	N/A	•	•	•	Experimental	•	•				•		Energy	•	•	•	•	TRNSYS
Pramanik & Punia, 2019	India	Cfa	City	Group	Mixed			•	Descriptive	•							Surface temperature	•				ArcGIS ©
Wang C. et al., 2019	USA	Cfa	City	Group	Mixed			•	Descriptive	•							Surface temperature	•	•	•	•	N/A
Wang W. et al., 2019	China	Dwa	City	Group	Mixed	•	•		Descriptive	•							Air temperature		•			N/A
J. Yan et al., 2019	USA	Bwh	Neighborhood	Group	Mixed			•	Descriptive	•		•					Surface temperature		•			N/A
Zhou W. et al., 2019	China	Cfa	Park	Group	Mixed			•	Descriptive	•		•					Surface temperature		•			N/A
Bartesaghi-Koc et al., 2020	Australia	Cfa	City	Group	Mixed			•	Descriptive	•		•					Surface temperature		•		•	PARGE®
Chen J. et al., 2020	China	Cfa	City	Group	Mixed	•		•	Descriptive	•							Air temperature	•				Software R
Wang J. et al., 2020	USA	N/A	City	Group	Mixed			•	Descriptive	•							Surface temperature		•			N/A
Yu et al., 2020	USA	Cfa	City	Group	Mixed			•	Descriptive			•					Surface temperature	•	•			N/A
Zhu, W. et al., 2021	China	Cwa	Park	Group	Mixed			•	Descriptive	•		•					Surface temperature		•			N/A
Zhao, J. et al., 2021	China	Dwa	Park	Group	Mixed	•		•	Descriptive	•		•					Surface temperature	•	•	•	•	N/A
Sun, Y. et al., 2021	China	Cfa	Park	Group	Mixed			•	Descriptive	•		•					Surface temperature		•		•	ArcGIS ©
Peng, J. et al., 2021	China	Cfa	Park	Group	Mixed			•	Descriptive	•		•					Surface temperature					ArcGIS ©
Li, Y. et al., 2021	China	Dwa	Park	Group	Mixed			•	Descriptive	•							Air temperature		•			ENVI ®, ArcGIS ©
Jamali, F. et al., 2021	Iran	Csa	Park	Group	Mixed			•	Descriptive	•							Surface temperature	•	•	•	•	QGIS®
Gomez-Martinez, F. et al., 2021	Mexico	Cwb	Park	Group	Mixed			•	Descriptive	•		•					Surface temperature	•	•	•	•	N/A
Ekwe, M. et al., 2021	Nigeria	Am	Park	Group	Mixed			•	Descriptive	•		•					Surface temperature		•			ArcGIS ©
Alexander, C., 2021	Denmark	Cfb	City	Group	Mixed	•		•	Descriptive	•		•					Surface temperature		•			Matlab, ESRI ArcMap
Zhang, J. et al., 2022	Australia	Cfa	Park	Mixto	Mixed	•			Descriptive	•			•				Air temperature		•			WinSCANOPY
Murtinová, V. et al., 2022	Slovakia	Dfb	City	Group	Mixed			•	Descriptive	•		•					Surface temperature		•			ArcGIS ©, Software R
Li, C. et al., 2022	Bangladesh	Aw	City	Group	Mixed			•	Descriptive	•							Surface temperature				•	N/A
Lemoine-Rodríguez, R. et al., 2022	Mexico	Cfb	City	Group	Mixed			•	Descriptive	•							Surface temperature	•				Software R
Kowe, P. et al., 2022	Zimbabwe	Cwb	Park	Group	Mixed			•	Descriptive	•		•					Surface temperature	•				N/A
Du, C. et al., 2022	China	Cfa	Park	Group	Mixed			•	Descriptive	•		•					Surface temperature		•			N/A
Das, M. et al., 2022	India	Aw	Park	Group	Mixed			•	Descriptive	•		•					Surface temperature	•				N/A
Sharmin, M. et al., 2023	Australia	Cfa	Park	Unit	Individual	•			Descriptive	•							Mixed		•			N/A
Liu, Zhixin et al., 2023	China	Cfa	Park	Group	Mixed			•	Descriptive	•		•					Surface temperature		•			Google Earth Engine, idu Map API
Kirschner, V. et al., 2023	Czech Republic	Cfb	City	Group	Mixed			•	Descriptive	•		•					Surface temperature		•			N/A
Gallay, I. et al., 2023	Slovakia	Dfb	City	Group	Mixed		•	•	Descriptive	•		•					Surface temperature		•			ArcGIS ©, Software R
Feng, X. et al., 2023	China	Cwa	Park	Group	Mixed			•	Descriptive	•		•					Surface temperature		•			ENVI ®

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