

## **Supplementary information**

### **Global distribution of surface soil organic carbon in urban greenspaces**

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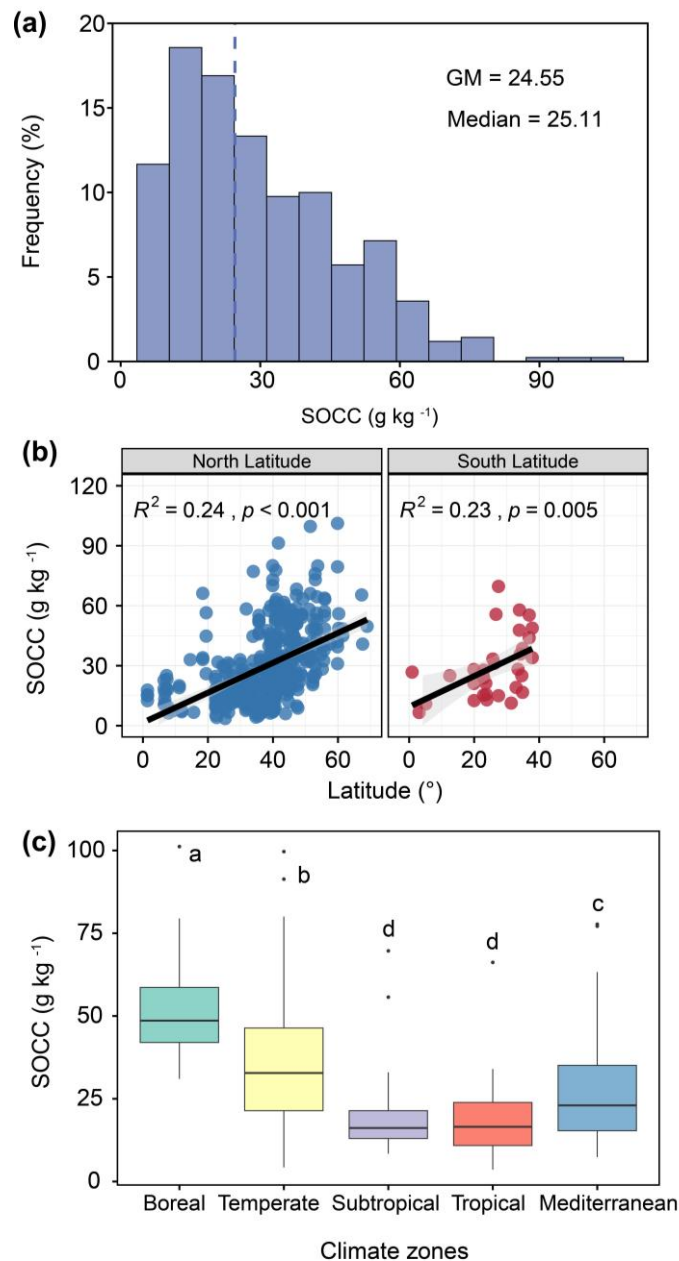
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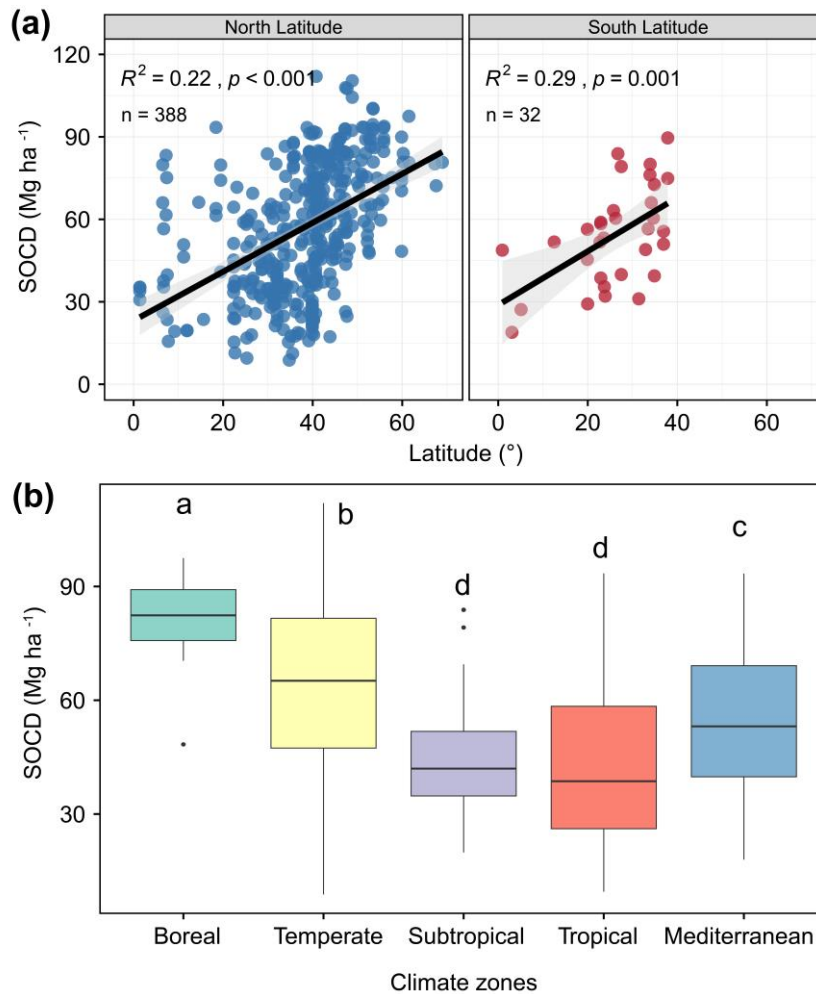
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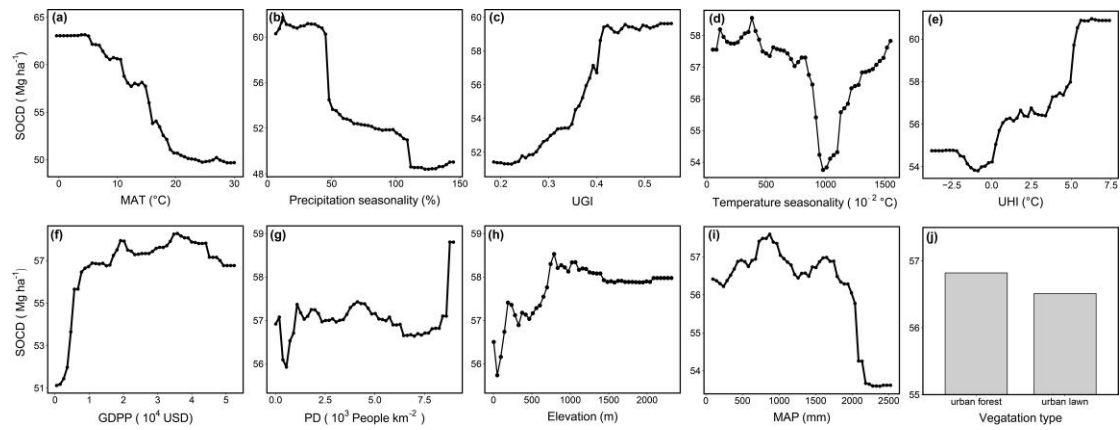
Supplementary Figures 1 to 14, Supplementary Tables 1 to 5, and Supplementary References.



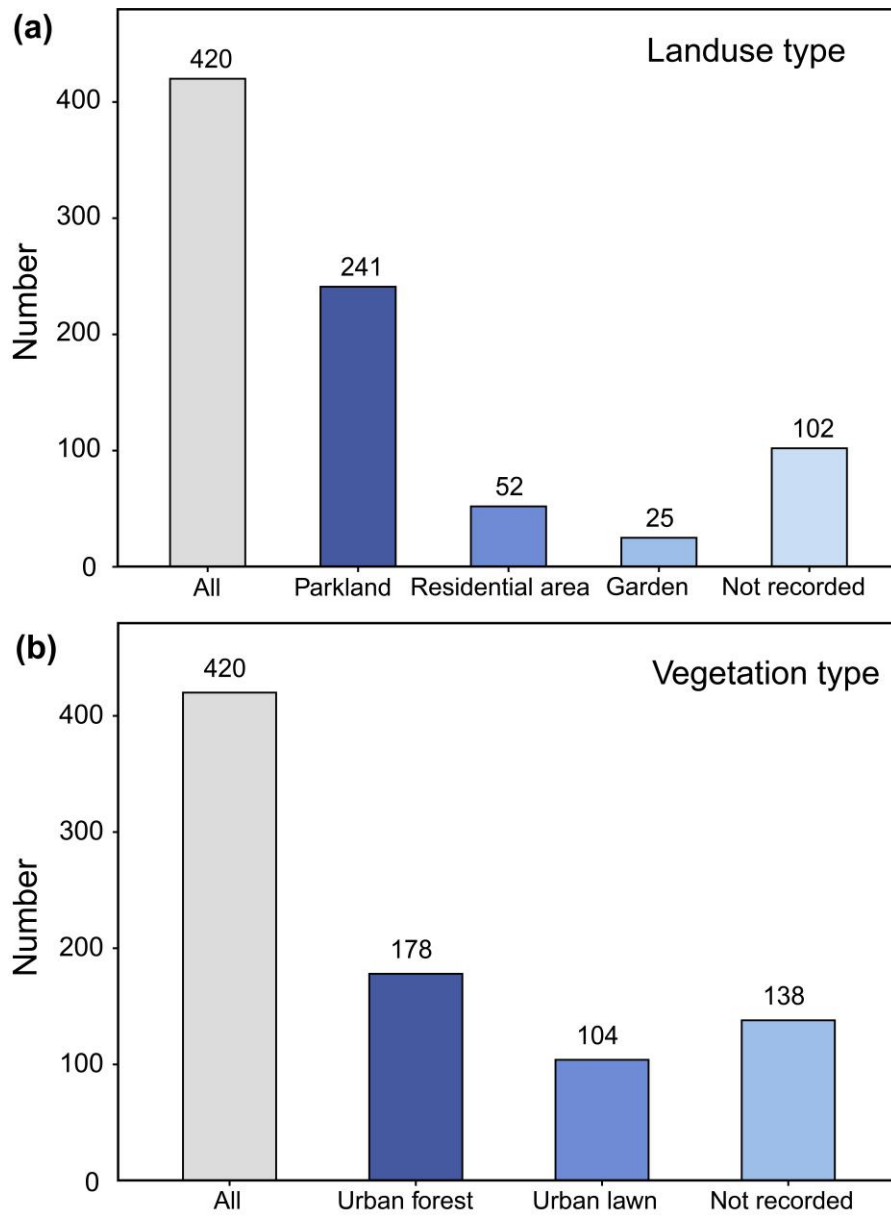
**Supplementary Fig. 1. Spatial variation of observed surface SOC concentration (SOCC, g kg<sup>-1</sup>) (0-20 cm) across global urban greenspaces in SOC-U database. a,** The frequency distribution of observed SOCC. **b,** Changes in observed SOCC with latitude for the northern and southern hemisphere. The shaded area represents the 95% confidence interval. **c,** Boxplots showing SOCC in urban greenspaces for different climate zones. Upper and lower bars represent 95th and 5th percentiles. Different letters indicate significant differences for the SOCC among climate zones (LSD test,  $P < 0.05$ ). Source data are provided as a Source Data file.



**Supplementary Fig. 2. Spatial variation of observed surface SOC density (SOC D, Mg C ha<sup>-1</sup>) (0-20 cm) across global urban greenspaces in SOC-U database. a,** Changes in observed SOC D with latitude for the northern and southern hemisphere. The shaded area represents the 95% confidence interval. **b,** Boxplots showing SOC D in urban greenspaces for different climate zones. Upper and lower bars represent 95th and 5th percentiles. Different letters indicate significant differences for the SOC D among climate zones (LSD test,  $P < 0.05$ ). Source data are provided as a Source Data file.

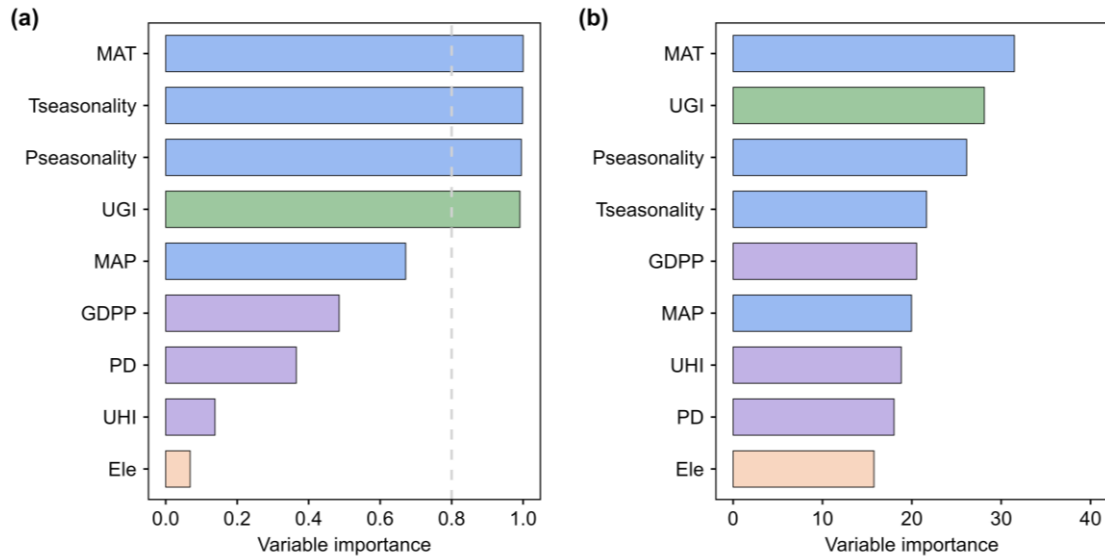


**Supplementary Fig. 3. Partial dependence plots indicating the dependence of soil organic carbon density (SOCD) on ten predictors (MAT, MAP, temperature seasonality, precipitation seasonality, UGI, UHI, GDPP, PD, elevation, and vegetation type).** Abbreviations: UGI, urban greenness index; MAT, mean annual air temperature; MAP, mean annual precipitation; GDPP, GDP per capita; PD, population density; UHI, urban heat island index. Source data are provided as a Source Data file.



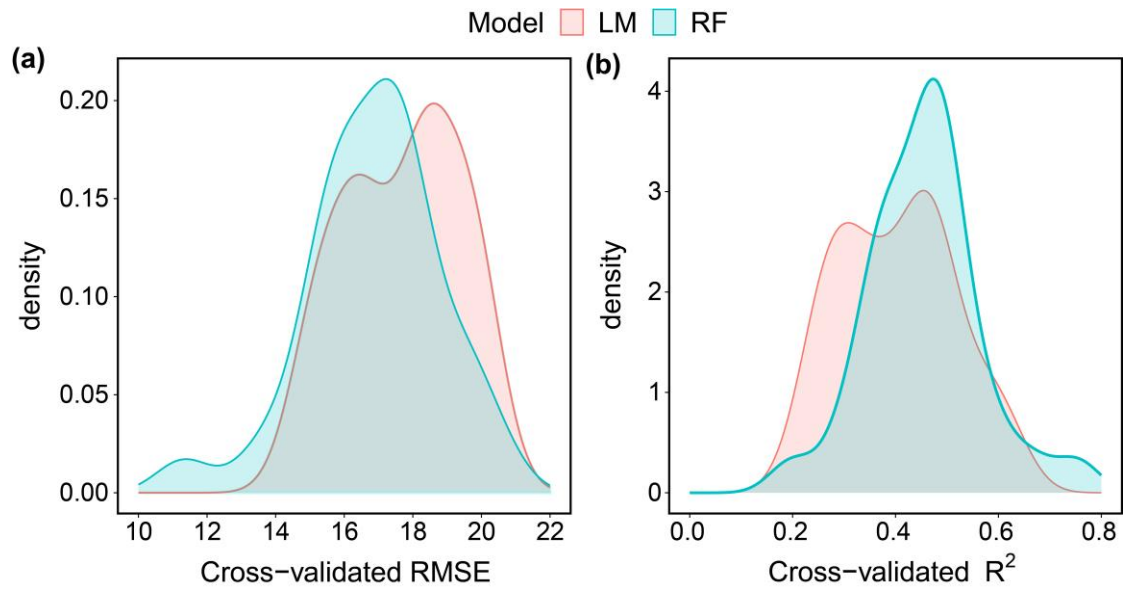
**Supplementary Fig. 4. Land use type (a) and vegetation type (b) for urban greenspaces in SOC-U database.** The numbers above the bar indicate the sample size.

Source data are provided as a Source Data file.

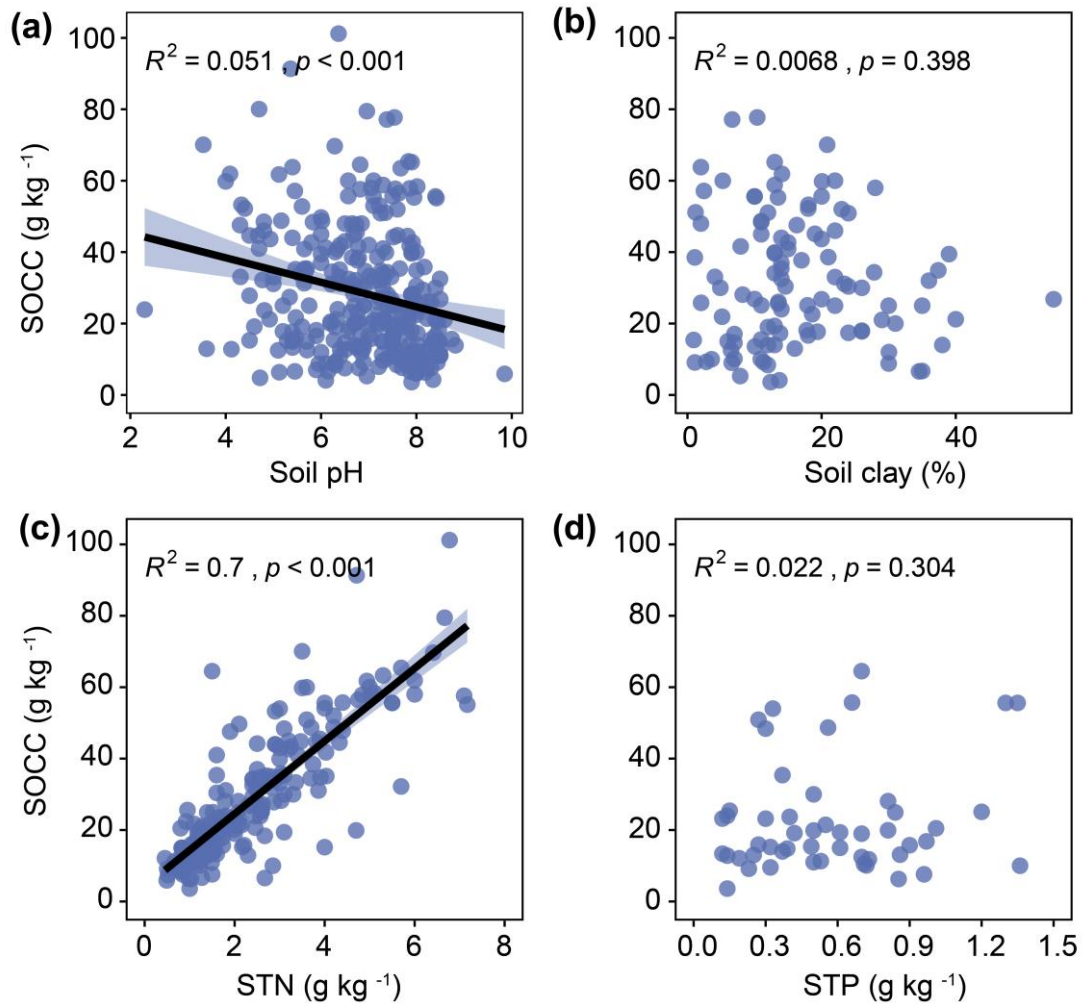


**Supplementary Fig. 5. Relative importance of the potential predictors for SOC density (SOCd) based on linear model analysis (a) and random forest analysis (b).**

All data of SOC-U were used for the analysis (n=420). The variable importance shown in **a** is based on the sum of the Akaike weights derived from model selection using corrected Akaike information criterion. The cut-off is set at 0.8 (dashed line) to differentiate among the important predictors. The importance shown in **b** is based on Mean Decrease Gini of random forest models. Abbreviations: MAT, mean annual air temperature; MAP, mean annual precipitation; Tseasonality, temperature seasonality, Pseasonality, precipitation seasonality; UGI, urban greenness index; GDPP, GDP per capita; PD, population density; UHI, urban heat island index; Ele, city elevation. Source data are provided as a Source Data file.

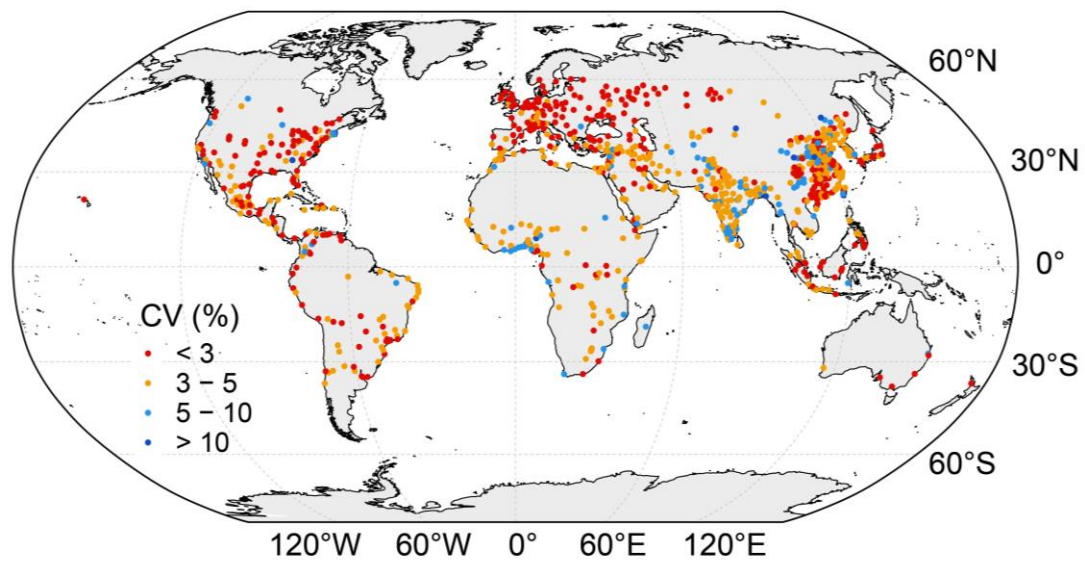


**Supplementary Fig. 6. Density plot comparing cross-validated RMSE (a) and cross-validated  $R^2$  (b) for the linear model (LM) and the random-forest model (RF). Source data are provided as a Source Data file.**

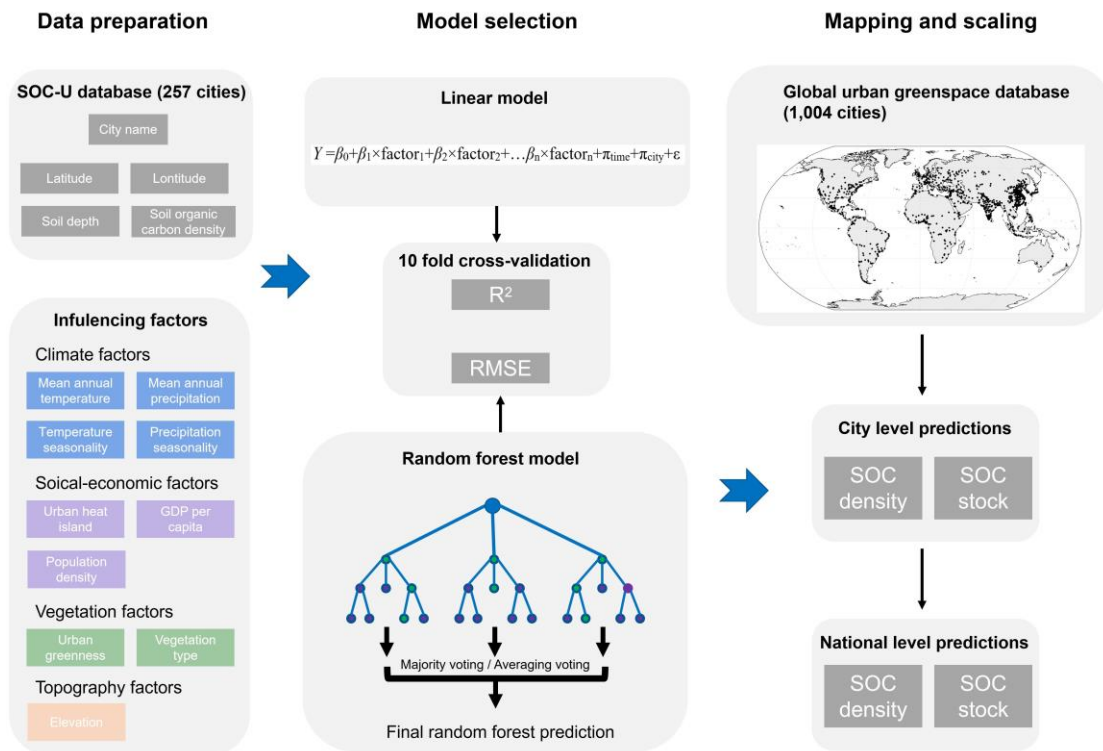


**Supplementary Fig. 7. Relationships between surface SOC concentration (SOCC, g kg<sup>-1</sup>) (0-20 cm) and soil pH (a), soil clay fraction (%) (b), soil total nitrogen concentration (STN, g kg<sup>-1</sup>) (c), soil total phosphorus concentration (STP, g kg<sup>-1</sup>) (d) in urban greenspaces. The shaded area represents the 95% confidence interval. Source data are provided as a Source Data file.**



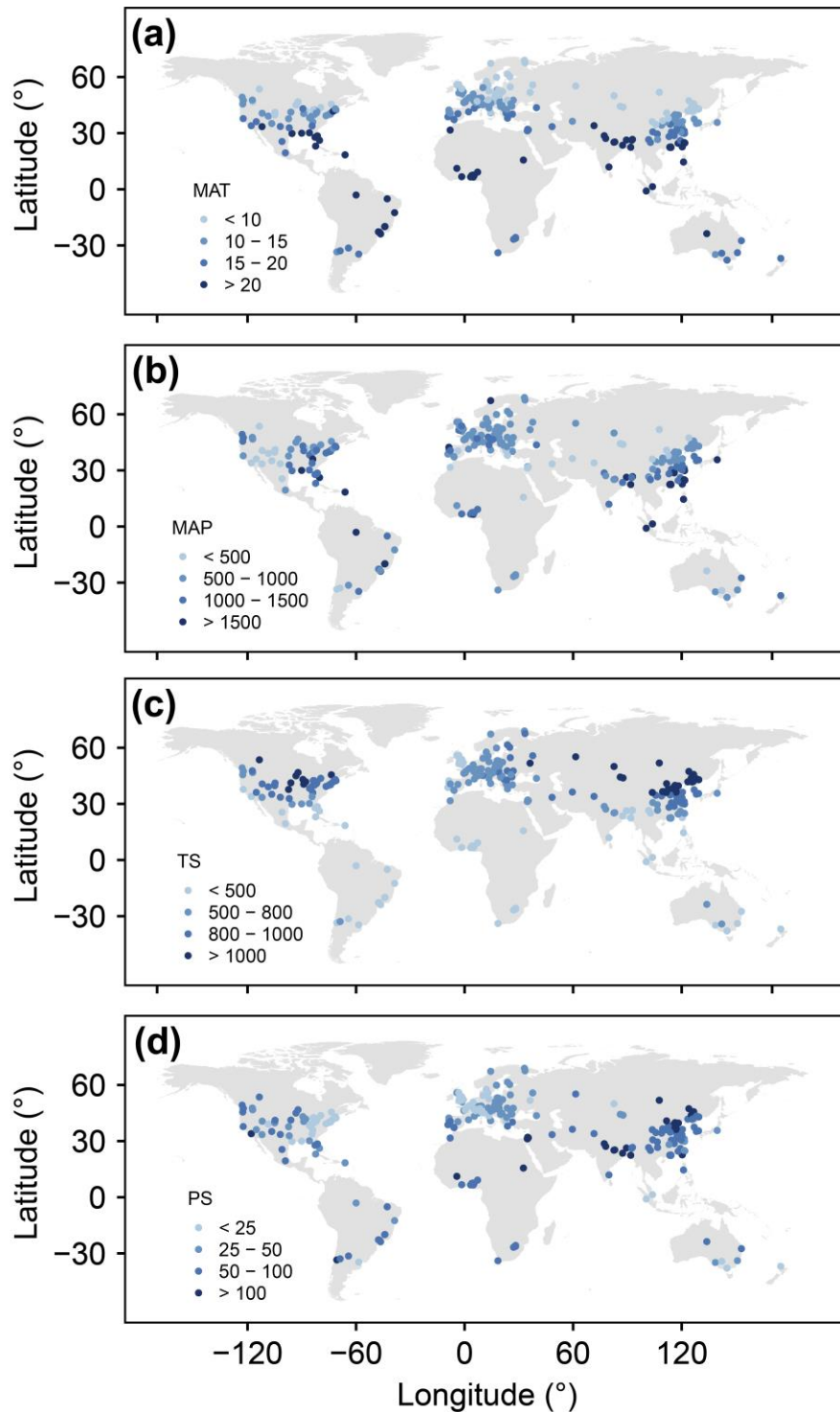


**Supplementary Fig. 8. Coefficients of variance (CV, %) of predicted surface soil organic carbon density (SOCD) (0-20 cm) in global urban greenspaces.** The world map was created using R 4.0.5 (see more details in Methods section). Source data are provided as a Source Data file.

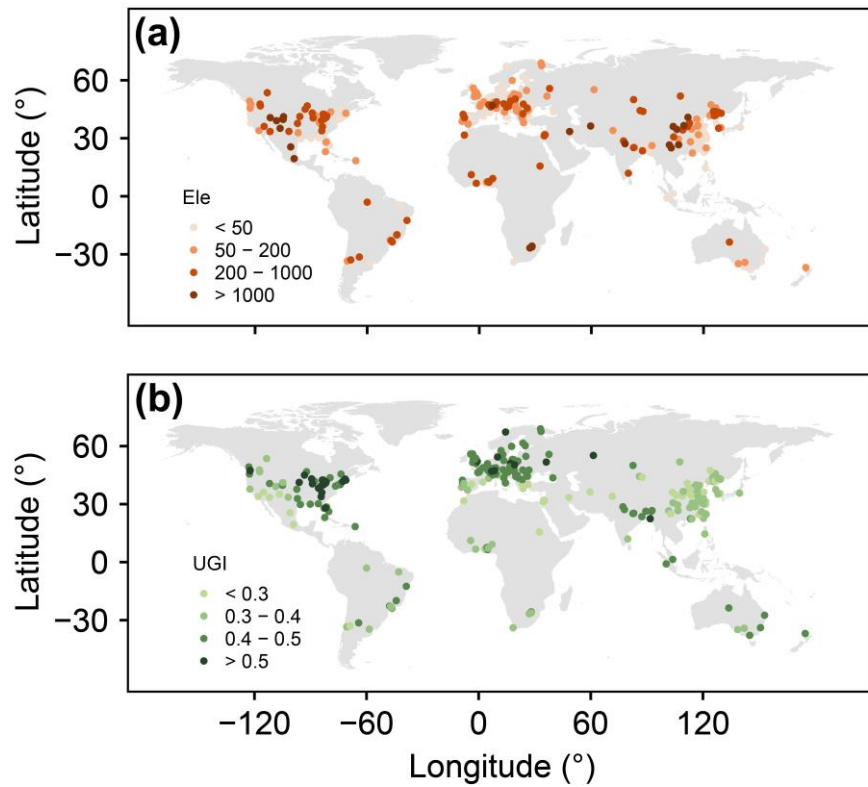


**Supplementary Fig. 9. A conceptual framework for data collection and analysis.**

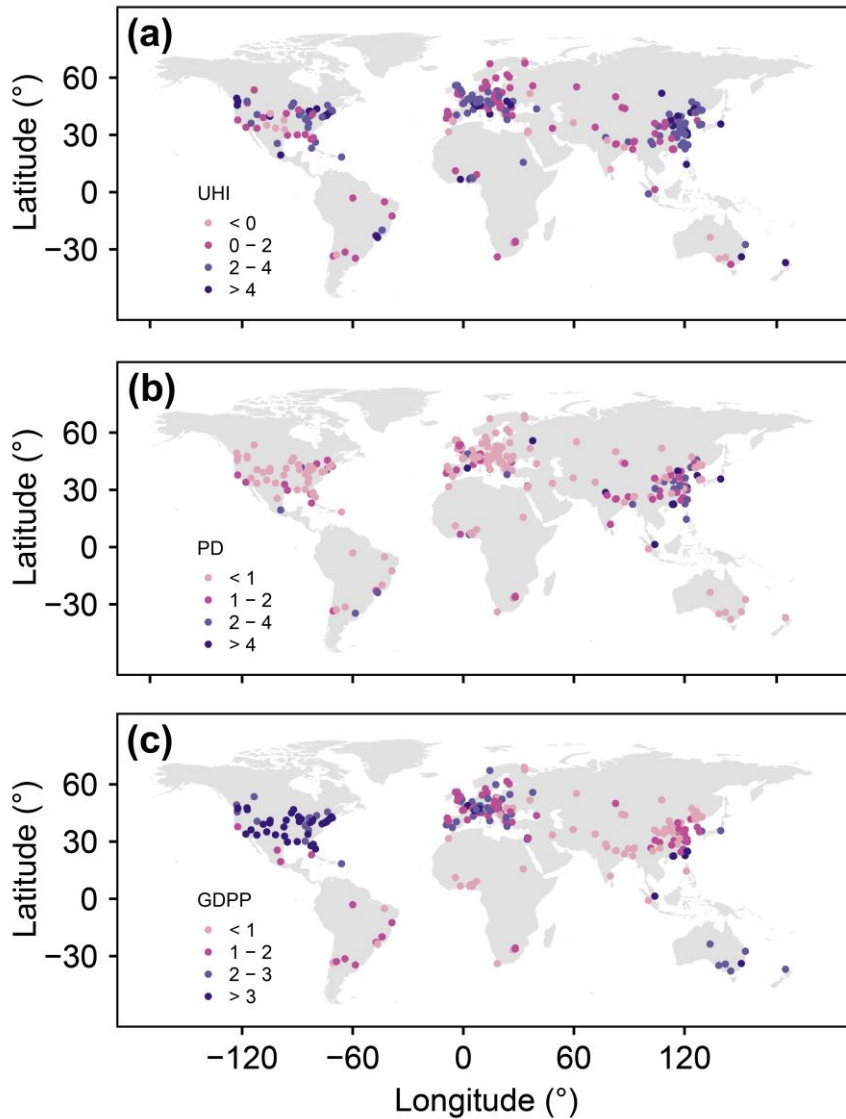
The world map was created using R 4.0.5 (see more details in Methods section). The conceptual figure of the random forest model was created in Microsoft PowerPoint 2019. Source data are provided as a Source Data file.



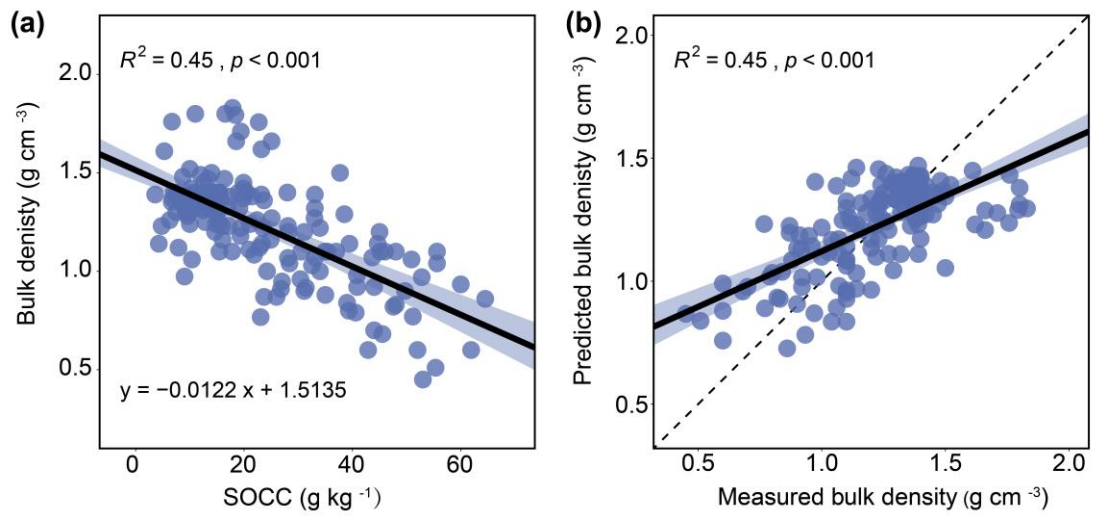
**Supplementary Fig. 10. Spatial distribution of climatic variables for sampling cities in the SOC-U database. a-d,** mean annual temperature (MAT, °C) **(a)**, mean annual precipitation (MAP, mm) **(b)**, temperature seasonality (TS,  $10^{-2}$  °C) **(c)**, and precipitation seasonality (PS, %) **(d)**. The maps were created using R 4.0.5 (see more details in Methods section). Source data are provided as a Source Data file.



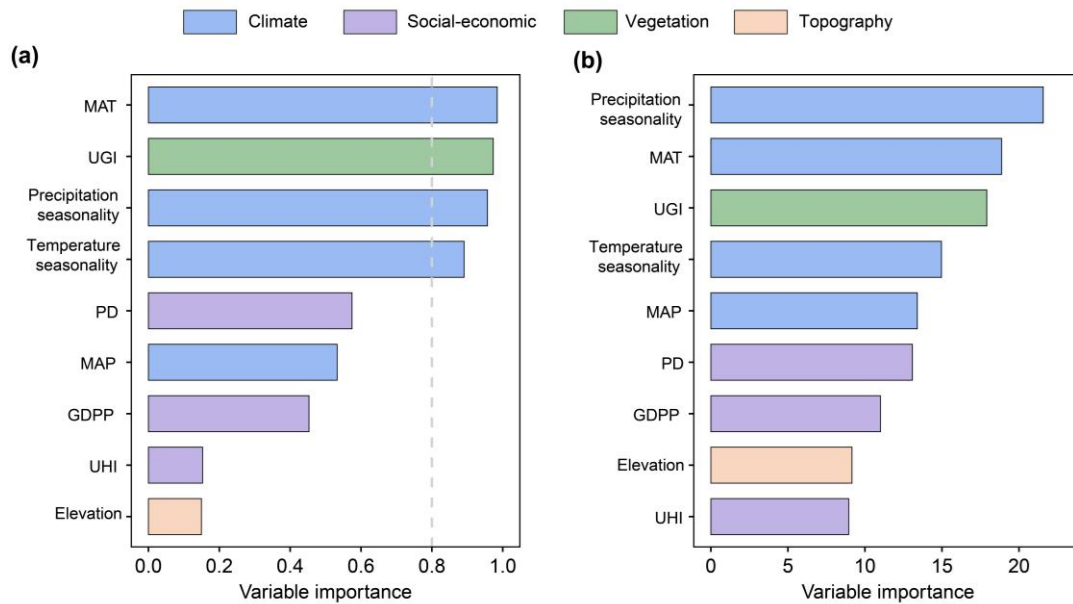
**Supplementary Fig. 11. Spatial distribution of topographical and vegetational variables for sampling cities in the SOC-U database. a-b, elevation (Ele, m) (a), and urban greenness index (UGI) (b). The maps were created using R 4.0.5 (see more details in Methods section). Source data are provided as a Source Data file.**



**Supplementary Fig. 12. Spatial distribution of social-economic variables for sampling cities in the SOC-U database. a-c, urban heat island index (UHI, °C) (a), urban population density (PD,  $10^3$  people  $\text{km}^{-2}$ ) (b), and GDP per capita (GDPP,  $10^4$  USD) (c). The maps were created using R 4.0.5 (see more details in Methods section). Source data are provided as a Source Data file.**



**Supplementary Fig. 13. Relationships between observed surface SOC concentration (SOCC,  $\text{g kg}^{-1}$ ) (0-20 cm) and soil bulk density ( $\text{g cm}^{-3}$ ) in urban greenspaces (a) and predicted versus observed values of soil bulk density (b). The shaded area represents the 95% confidence interval. The 1:1 line is plotted in b. Source data are provided as a Source Data file.**



**Supplementary Fig. 14. Relative importance of the potential predictors for surface SOC density (SOCD) based on linear model analysis (a) and random forest analysis (b).** Only data with reported information on soil bulk density were used for the analysis (n=155). The variable importance shown in **a** is based on the sum of the Akaike weights derived from model selection using corrected Akaike information criterion. The cut-off is set at 0.8 (dashed line) to differentiate among the important predictors. The importance shown in **b** is based on Mean Decrease Gini of random forest models. Abbreviations: UGI, urban greenness index, MAT, mean annual air temperature; MAP, mean annual precipitation; GDPP, GDP per capita; PD, population density, UHI, urban heat island index. Source data are provided as a Source Data file.

**Supplementary Table 1. Descriptions of the data sets on potential predictors used for model selection.**

<b>ID</b>	<b>Variable</b>	<b>Unit</b>	<b>Type</b>	<b>Source</b>	<b>Reference</b>
1	MAT	°C	Climate	References for the data	/
2	MAP	mm	Climate	References for the data	/
3	Temperature seasonality	10 <sup>-2</sup> °C	Climate	WorldClim database	1
4	Precipitation seasonality	%	Climate	WorldClim database	1
5	Elevation	m	Topography	Global Human Settlement Layer (GHSL) Data Package, 2015	2
6	Vegetation type	/	Vegetation	References for the data	/
7	Urban greenness index	/	Vegetation	Global Human Settlement Layer (GHSL) Data Package, 2015	2, 3
8	Urban heat island index	°C	Socioeconomic	Global Urban Heat Island (UHI) Data Set, 2013	4
9	GDP per capita	USD	Socioeconomic	Global Human Settlement Layer (GHSL) Data Package, 2015	2, 5
10	Population density	People / km <sup>2</sup>	Socioeconomic	Gridded Population of the World Version 4 (GPW v4), 2015	6



**Supplementary Table 2. Descriptions of the data sets on important predictors used for global prediction and upscaling.**

<b>ID</b>	<b>Variable</b>	<b>Unit</b>	<b>Description</b>	<b>Reference</b>
1	MAT	°C	Global Human Settlement Layer (GHSL) Data Package, 2015	2
2	MAP	mm	Global Human Settlement Layer (GHSL) Data Package, 2015	2
3	Elevation	m	Global Human Settlement Layer (GHSL) Data Package, 2015	2
4	Temperature seasonality	10 <sup>-2</sup> °C	WorldClim2 database	1
5	Precipitation seasonality	%	WorldClim2 database	1
6	Urban greenness index	/	Global Human Settlement Layer (GHSL) Data Package, 2015	2, 3
7	Urban heat island index	°C	Global Urban Heat Island (UHI) Data Set, 2013	4
8	GDP per capita	USD	Global Human Settlement Layer (GHSL) Data Package, 2015	2, 5
9	Population density	People / km <sup>2</sup>	Gridded Population of the World Version 4 (GPW v4), 2015	6
10	Urban greenspace coverage	%	Global urban green spaces in 1039 cities, 2015	7
11	Urban built-up area	km <sup>2</sup>	Global Human Settlement Layer (GHSL) Data Package, 2015	2

**Supplementary Table 3. Comparison of model performance among two different models, based on ten-fold cross validation.**  $R^2$  and root mean square error (RMSE) were used to evaluate the performance of the models.

Model	SOCD	
	$R^2$	RMSE
Linear regression	0.40	17.64
Random forest	0.46	16.85

**Supplementary Table 4. Significance of random factors.**

Model:

SOCD20 ~ UGI + MAT + T\_seasonality + P\_seasonality + (1 | City) + (1 | Year)

	npar	logLik	AIC	LRT	Df	Pr(>Chisq)
<none>	8	-1785.9	3587.9			
(1   City)	7	-1802.7	3619.5	33.594	1	6.791e-09 ***
(1   Year)	7	-1785.9	3585.9	0.000	1	1

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Signif. codes: 0 '\*\*\*' 0.001 '\*\*' 0.01 '\*' 0.05 '.'

**Supplementary Table 5. The global database of soil organic carbon (SOC) concentration and density of greenspaces in urban built-up areas (SOC-U).** Abbreviations: Lat, latitude (°); Lon, longitude (°); Depth, soil sampling depth (cm); Ele, city elevation (m); MAT, mean annual air temperature (°C); MAP, mean annual precipitation (mm); TS, temperature seasonality ( $10^{-2}$  °C); PS, precipitation seasonality (%); PD, population density (People km<sup>-2</sup>); GDPP, GDP per capita (USD); UGI, urban greenness index; UHI, urban heat island index (°C); SOCC, soil organic carbon concentration (g kg<sup>-1</sup>); SOCD, soil organic carbon density (Mg ha<sup>-1</sup>); SOCD20, soil organic carbon density (0-20 cm) (Mg ha<sup>-1</sup>). Source data are provided as a Source Data file.

ID	City	Lat	Lon	Depth	Vegetation	Ele	MAT	MAP	TS	PS	PD	GDPP	UGI	UHI	SOCC	SOCD	SOCD20	Reference
1	Adelaide	-35	139	10	Urban forest	53	12	551	419	43	427	25729	0.34	-0.85	38.60	40.24	72.66	8
2	Adelaide	-35	139	10	Urban forest	53	12	551	419	43	427	25729	0.34	-0.85	16.67	21.84	39.43	9
3	Athens	38	24	10		155	19	365	681	65	2625	20302	0.27	3.67	26.05	31.15	56.24	10
4	Athens	38	24	20	Urban forest	155	19	365	681	65	2625	20302	0.27	3.67	23.00	56.71	56.71	11
5	Auckland	-37	175	10	Urban forest	53	18	1200	322	20	895	22786	0.47	4.18	55.33	28.22	50.95	12
6	Auckland	-37	175	10	Urban forest	53	18	1200	322	20	895	22786	0.47	4.18	44.00	30.80	55.61	13
7	Aveiro	40	-8	20		16	18	1000	438	51	114	12720	0.38	1.45	13.50	36.42	36.42	14
8	Baltimore	39	-77	10	Urban forest	10	14	1080	897	11	939	32721	0.47	2.86	59.80	46.88	84.64	15
9	Baltimore	39	-77	10	Urban lawn	10	14	1080	897	11	939	32721	0.47	2.86	37.00	40.70	73.48	16
10	Baltimore	39	-77	10	Urban forest	10	14	1080	897	11	939	32721	0.47	2.86	35.38	38.92	70.27	17
11	Baltimore	39	-77	10	Urban lawn	10	14	1080	897	11	939	32721	0.47	2.86	24.00	29.30	52.89	18
12	Beijing	40	116	20	Urban forest	51	12	640	1098	133	6609	16241	0.33	4.90	6.80	18.63	18.63	19
13	Beijing	40	116	20	Urban forest	51	12	640	1098	133	6609	16241	0.33	4.90	8.21	22.33	22.33	20
14	Beijing	40	116	15		51	12	640	1098	133	6609	16241	0.33	4.90	9.10	18.75	23.76	21
15	Beijing	40	116	20		51	12	640	1098	133	6609	16241	0.33	4.90	9.71	27.00	27.00	22
16	Beijing	40	116	20	Urban forest	51	12	640	1098	133	6609	16241	0.33	4.90	10.00	30.40	30.40	23

ID	City	Lat	Lon	Depth	Vegetation	Ele	MAT	MAP	TS	PS	PD	GDPP	UGI	UHI	SOCC	SOCD	SOCD20	Reference
17	Belgrade	45	20	20		117	12	700	784	26	560	16084	0.45	0.85	12.00	32.81	32.81	24
18	Belgrade	45	20	10	Urban forest	117	12	700	784	26	560	16084	0.45	0.85	55.60	46.44	83.84	25
19	Berlin	53	13	20	Urban forest	35	9	580	698	18	878	23559	0.49	2.02	24.23	48.46	48.46	26
20	Bloomington	40	-89	15	Urban forest	252	12	1207	1040	28	43	31723	0.55	2.28	39.33	47.20	59.82	27
21	Bobo-Dioulasso	11	-4	20		460	28	900	181	106	292	1191	0.33	1.76	20.00	50.78	50.78	28
22	Boston	42	-71	15	Urban forest	14	14	1050	926	8	1094	43495	0.52	2.77	48.00	59.76	75.74	29
23	Boston	42	-71	15	Urban forest	14	14	1050	926	8	1094	43495	0.52	2.77	51.14	59.07	74.86	30
24	Brasov	46	26	10	Urban forest	774	11	832	795	50	106	14097	0.41	5.11	32.00	35.94	64.89	31
25	Budapest	47	19	10	Urban lawn	100	11	533	781	25	557	27860	0.45	1.97	25.40	30.57	55.20	18
26	Buenos Aires	-35	-59	20	Urban forest	31	17	1146	490	25	2700	18763	0.34	0.61	25.00	60.43	60.43	32
27	Campinas	-23	-47	10	Urban forest	693	21	1462	229	67	1007	17644	0.36	4.44	15.29	21.41	38.65	33
28	Carpi	45	10	15	Urban forest	29	14	657	806	20	246	15696	0.38	0.37	23.30	39.84	50.50	34
29	Changchun	44	125	20	Urban forest	300	5	650	1392	110	1771	8323	0.34	4.36	21.46	59.22	59.22	35
30	Changsha	28	113	15	Urban forest	54	17	1360	869	48	897	10579	0.31	0.42	19.14	37.90	48.04	36
31	Chattogram	22	92	10		20	29	2800	316	106	4018	3932	0.54	0.54	5.29	8.52	15.38	37
32	Chengdu	31	104	20	Urban forest	500	16	945	710	99	3336	13406	0.33	0.67	17.15	42.20	42.20	38
33	Chengdu	31	104	20		500	16	945	710	99	3336	13406	0.33	0.67	17.89	65.48	65.48	39
34	Chengdu	31	104	10	Urban forest	500	16	945	710	99	3336	13406	0.33	0.67	28.09	34.55	62.38	40
35	Chicago	42	-88	10	Urban lawn	179	10	96	1040	27	2070	35379	0.48	3.96	58.00	46.74	84.39	41
36	Chicago	42	-88	10		179	10	96	1040	27	2070	35379	0.48	3.96	60.00	46.89	84.66	41
37	Chongqing	30	107	20		163	18	1200	751	68	1110	12697	0.39	2.39	19.34	45.64	45.64	42
38	Columbus	40	-83	20	Urban forest	235	11	950	943	22	216	30360	0.51	3.38	35.00	61.60	61.60	43
39	Cooch Behar	26	89	20	Urban forest	43	29	2305	409	109	1041	9543	0.47	2.60	6.66	18.00	18.00	44
40	Cordoba	-31	-64	20	Urban forest	500	18	750	469	73	558	15093	0.43	1.04	11.30	31.09	31.09	45
41	Coventry	52	-1	15	Urban lawn	86	10	800	462	11	275	15309	0.47	2.15	25.00	45.32	57.44	46
42	Dongguan	23	113	10	Urban forest	21	22	1796	538	72	3337	6855	0.34	1.98	15.95	19.62	35.42	47

ID	City	Lat	Lon	Depth	Vegetation	Ele	MAT	MAP	TS	PS	PD	GDPP	UGI	UHI	SOCC	SOCD	SOCD20	Reference
43	Franklin	30	-86	10	Urban forest	4	20	1425	616	30	110	27901	0.42	0.23	31.11	28.00	50.55	48
44	Fuzhou	26	119	20	Urban forest	30	20	1348	671	59	1283	12618	0.32	3.15	12.50	35.00	35.00	49
45	Glasgow	56	-4	20		44	9	900	415	30	821	16967	0.47	2.02	48.50	89.41	89.41	14
46	Guangzhou	22	113	20	Urban forest	22	21	1720	539	74	5063	22218	0.43	1.98	12.82	35.64	35.64	50
47	Guangzhou	22	113	20	Urban forest	22	21	1720	539	74	5063	22218	0.43	1.98	17.00	45.22	45.22	51
48	Guangzhou	22	113	20	Urban forest	22	21	1720	539	74	5063	22218	0.43	1.98	23.18	64.44	64.44	52
49	Hangzhou	30	120	20		19	18	1454	869	44	3097	14873	0.32	3.31	12.84	34.84	34.84	53
50	Hangzhou	30	120	15	Urban forest	19	18	1454	869	44	3097	14873	0.32	3.31	16.39	36.13	45.80	54
51	Hefei	32	117	20	Urban forest	120	17	1300	922	53	2085	6347	0.32	2.51	23.68	64.41	64.41	55
52	Helsinki	60	25	10	Urban forest	25	5	682	821	30	718	18877	0.43	1.94	56.00	46.50	83.95	56
53	Montreal	46	-74	20	Urban forest	33	7	897	1149	13	1127	22658	0.41	2.76	44.22	86.14	86.14	57
54	Helsinki	60	25	10	Urban lawn	25	5	682	821	30	718	18877	0.43	1.94	48.70	44.77	80.84	18
55	Hohhot	41	112	20		1050	8	450	1253	108	979	9088	0.27	3.36	14.91	38.76	38.76	58
56	Ibadan	7	4	20		170	27	1270	129	64	952	6226	0.33	4.84	23.20	75.17	75.17	59
57	Jinan	37	117	20	Urban forest	142	14	670	1064	112	1330	11609	0.31	2.77	6.56	18.81	18.81	60
58	Jinju-si	35	128	20		350	12	1300	916	81	235	12932	0.35	2.90	9.02	17.56	17.56	61
59	Kiel	54	10	10	Urban forest	21	12	775	598	18	319	17501	0.51	1.03	41.00	41.55	75.01	62
60	Kumasi	7	-2	15	Urban forest	258	26	1250	107	53	1288	2935	0.35	4.92	11.00	29.70	37.64	63
61	Kumasi	7	-2	15	Urban forest	258	26	1250	107	53	1288	2935	0.35	4.92	16.53	44.63	56.57	64
62	Kursk	52	36	10		196	10	607	1009	25	221	6451	0.50	-0.52	32.10	36.01	65.02	65
63	Lahti	61	24	10	Urban lawn	40	5	636	868	33	90	12500	0.42	1.10	48.40	44.67	80.66	18
64	Lahti	61	24	10	Urban lawn	40	5	636	868	33	90	12500	0.42	1.10	45.00	54.00	97.50	16
65	Lanzhou	36	104	20	Urban forest	1520	10	311	1011	93	1088	8200	0.24	0.79	11.02	29.10	29.10	66
66	Leicester	53	-1	20	Urban forest	51	8	606	479	10	1016	15603	0.43	2.15	53.00	47.70	47.70	67
67	Leuven	51	5	20	Urban forest	10	11	729	554	12	382	27823	0.48	2.05	35.38	76.56	76.56	68
68	Liverpool	53	-3	15		50	9	796	445	20	943	16099	0.43	1.93	48.00	79.20	100.38	69

ID	City	Lat	Lon	Depth	Vegetation	Ele	MAT	MAP	TS	PS	PD	GDPP	UGI	UHI	SOCC	SOCD	SOCD20	Reference
69	Ljubljana	46	15	20		302	10	1452	768	25	161	22088	0.47	3.94	48.00	89.08	89.08	14
70	Louisville	38	-86	10	Urban forest	142	14	1130	898	16	432	28029	0.54	3.63	47.56	39.00	70.42	70
71	Louisville	38	-86	15	Urban forest	142	14	1130	898	16	432	28029	0.54	3.63	31.11	56.00	70.98	71
72	Madison	43	-89	20	Urban forest	267	18	1300	1077	39	191	30554	0.52	1.39	28.09	60.00	60.00	72
73	Manchester	53	-2	10		47	10	600	449	19	1114	31530	0.50	1.93	52.79	51.20	92.45	73
74	Quezon City [Manila]	15	121	10	Urban forest	10	27	1666	108	88	3909	9118	0.35	5.95	33.00	36.66	66.19	74
75	Marrakesh	32	-8	20	Urban forest	454	25	240	576	64	481	4967	0.24	-0.54	7.60	21.28	21.28	75
76	Marrakesh	32	-8	15		454	25	240	576	64	481	4967	0.24	-0.54	11.11	22.96	29.11	76
77	Marseille	43	5	10		12	16	515	576	43	1534	20314	0.39	2.66	54.00	46.15	83.33	77
78	Melbourne	-38	145	20		27	16	647	375	14	964	27030	0.40	1.96	48.80	89.61	89.61	78
79	Milan	46	9	20	Urban forest	100	14	920	755	23	1374	24235	0.43	4.30	22.83	51.14	51.14	79
80	Moscow	56	38	10		200	7	706	983	31	6823	20523	0.47	1.92	37.80	39.78	71.82	80
81	Moscow	56	38	10		200	7	706	983	31	6823	20523	0.47	1.92	40.00	41.02	74.06	81
82	Moscow, Idaho	48	-117	15	Urban forest	790	10	760	824	37	223	31465	0.39	3.79	37.71	84.85	107.55	82
83	Murmansk	69	33	10	Urban forest	150	4	500	797	37	190	9674	0.42	-0.46	49.70	44.73	80.76	83
84	Nanchang	29	116	20	Urban forest	25	18	1700	866	60	1520	6467	0.38	2.81	15.02	41.76	41.76	84
85	Nanchang	29	116	15	Urban forest	25	18	1700	866	60	1520	6467	0.38	2.81	20.49	43.03	54.54	85
86	Nanjing	32	119	20	Urban forest	21	16	1091	930	58	2687	15062	0.31	2.83	8.40	23.18	23.18	86
87	Nanjing	32	119	20		21	16	1091	930	58	2687	15062	0.31	2.83	13.92	38.98	38.98	87
88	Nanjing	32	119	10	Urban forest	21	16	1091	930	58	2687	15062	0.31	2.83	15.52	21.73	39.23	88
89	Nanjing	32	119	10	Urban forest	21	16	1091	930	58	2687	15062	0.31	2.83	17.27	23.83	43.03	89
90	New York	41	-74	10	Urban forest	10	13	1174	893	10	6041	36082	0.49	4.34	61.90	37.14	67.06	90
91	New York	41	-74	20	Urban forest	10	13	1174	893	10	6041	36082	0.49	4.34	59.98	111.99	111.99	91
92	New York	41	-74	10	Urban forest	10	13	1174	893	10	6041	36082	0.49	4.34	53.25	46.00	83.05	15
93	New York	41	-74	20	Urban forest	10	13	1174	893	10	6041	36082	0.49	4.34	52.20	91.53	91.53	92
94	New York	41	-74	10	Urban forest	10	13	1174	893	10	6041	36082	0.49	4.34	42.89	25.73	46.46	93

ID	City	Lat	Lon	Depth	Vegetation	Ele	MAT	MAP	TS	PS	PD	GDPP	UGI	UHI	SOCC	SOCD	SOCD20	Reference
95	New York	41	-74	10	Urban forest	10	13	1174	893	10	6041	36082	0.49	4.34	39.00	32.76	59.15	94
96	Newark	40	-74	10	Urban forest	10	13	1140	861	10	621	28171	0.53	4.34	41.00	41.55	75.01	95
97	Ningbo	30	122	20	Urban forest	4	16	1480	827	41	1830	14155	0.30	4.86	33.00	83.82	83.82	96
98	Obrenovac	44	20	10	Urban forest	117	12	700	764	29	52	4274	0.47	0.64	21.00	26.40	47.67	25
99	Pancevo	45	21	10	Urban forest	78	12	700	783	26	106	4474	0.45	0.85	30.00	34.43	62.15	25
100	Paris	49	2	10	Urban forest	108	11	600	565	11	4248	34274	0.43	2.64	55.60	57.82	104.40	97
101	Paris	49	2	10	Urban lawn	108	11	600	565	11	4248	34274	0.43	2.64	25.10	31.88	57.55	97
102	Paris	49	2	10	Urban forest	108	11	600	565	11	4248	34274	0.43	2.64	55.60	61.16	110.42	98
103	Philadelphia	40	-75	10	Urban forest	12	13	1070	903	13	869	36346	0.49	4.34	70.07	46.15	83.33	15
104	Philadelphia	40	-75	15	Urban forest	12	13	1070	903	13	869	36346	0.49	4.34	44.66	64.89	82.25	99
105	Phoenix	33	-112	10	Urban lawn	355	24	194	781	48	386	32038	0.25	0.10	18.68	24.01	43.35	100
106	Phoenix	33	-112	20	Urban forest	355	24	194	781	48	386	32038	0.25	0.10	10.00	24.80	24.80	101
107	Porto	41	-9	20	Urban forest	94	15	1228	394	54	1297	13854	0.46	1.84	32.48	72.58	72.58	68
108	Potchefstroom	-27	27	10	Urban lawn	1100	15	600	464	75	93	7496	0.38	-2.40	55.70	46.45	83.87	18
109	Coahuila	26	-101	15	Urban forest	1403	16	350	405	60	313	10873	0.20	2.94	26.10	46.79	59.30	102
110	Registro	-24	-46	10	Urban forest	31	23	1563	237	41	2266	7098	0.43	2.04	12.93	17.76	32.06	103
111	Salzburg	48	13	20		436	9	1169	727	37	174	24909	0.49	3.01	41.60	83.70	83.70	24
112	San Juan	18	-66	10	Urban forest	30	26	1750	118	27	630	27938	0.44	2.32	33.10	35.42	63.94	104
113	Santiago de Compostela	42	-9	20	Urban forest	260	13	1787	393	46	440	16767	0.48	1.66	44.00	80.96	80.96	105
114	Seoul	37	127	10	Urban forest	40	13	1450	998	92	5060	13511	0.35	1.99	20.95	23.26	41.99	106
115	Sevilla	37	-6	10	Urban lawn	9	18	540	556	67	381	16731	0.27	-0.05	27.00	31.97	57.72	107
116	Sevilla	37	-6	20		9	18	540	556	67	381	16731	0.27	-0.05	20.00	50.78	50.78	14
117	Shanghai	31	121	20	Urban forest	4	16	1208	856	47	7658	14363	0.35	5.02	12.44	32.59	32.59	108
118	Shanghai	31	121	10	Urban forest	4	16	1208	856	47	7658	14363	0.35	5.02	12.85	16.06	29.00	109
119	Shanghai	31	121	10	Urban forest	4	16	1208	856	47	7658	14363	0.35	5.02	13.00	17.55	31.69	110
120	Shanghai	31	121	20	Urban forest	4	16	1208	856	47	7658	14363	0.35	5.02	18.98	53.14	53.14	111



ID	City	Lat	Lon	Depth	Vegetation	Ele	MAT	MAP	TS	PS	PD	GDPP	UGI	UHI	SOCC	SOCD	SOCD20	Reference
121	Shenyang	42	123	20	Urban forest	55	8	700	1292	97	2701	11348	0.29	5.05	30.54	67.19	67.19	112
122	Shenzhen	23	114	20		20	22	1924	540	76	5063	26071	0.30	1.98	9.16	23.83	23.83	113
123	Shenzhen	23	114	20		20	22	1924	540	76	5063	26071	0.30	1.98	14.00	37.52	37.52	114
124	Singapore	1	104	10	Urban lawn	20	28	2166	51	23	5311	52383	0.49	1.91	17.80	19.58	35.35	115
125	Singapore	1	104	20	Urban forest	20	28	2166	51	23	5311	52383	0.49	1.91	15.45	33.99	33.99	116
126	Singapore	1	104	10	Urban forest	20	28	2166	51	23	5311	52383	0.49	1.91	15.00	19.50	35.21	16
127	Smederevo	43	22	10	Urban forest	77	12	700	802	15	79	4374	0.45	0.85	26.80	31.80	57.41	25
128	Sochi	44	40	10	Urban lawn	26	17	1361	633	26	114	11598	0.49	2.49	53.10	45.97	82.99	65
129	Sofia	43	23	20	Urban forest	550	13	630	802	28	483	25565	0.43	3.42	25.00	60.43	60.43	117
130	Stoke-on-Trent	53	-2	15	Urban lawn	100	10	800	447	13	1114	16450	0.46	1.72	73.00	68.21	86.45	118
131	Strasbourg	49	8	20	Urban forest	154	11	352	658	28	406	17734	0.45	2.15	26.10	62.39	62.39	68
132	Stuttgart	49	9	20	Urban forest	207	11	665	667	31	1048	24532	0.49	2.65	54.10	92.35	92.35	119
133	Suwon	36	129	15		50	11	1261	839	66	547	28777	0.27	3.52	16.03	27.89	35.35	120
134	Székesfehérvár	47	18	10	Urban forest	150	10	540	811	25	119	10238	0.46	1.22	34.11	37.43	67.58	121
135	Székesfehérvár	47	18	20	Urban forest	150	10	540	811	25	119	10238	0.46	1.22	25.12	60.63	60.63	121
136	Taiyuan	38	113	20		800	10	420	1060	98	1737	7161	0.25	4.37	13.38	39.34	39.34	122
137	Tel Aviv	32	35	10		67	19	530	515	114	3007	22261	0.30	-1.96	17.05	22.26	40.18	123
138	Tel Aviv	32	35	10	Urban forest	67	19	530	515	114	3007	22261	0.30	-1.96	14.60	19.50	35.20	124
139	Tel Aviv	32	35	10	Urban forest	67	19	530	515	114	3007	22261	0.30	-1.96	10.15	14.11	25.47	125
140	Thessaloniki	41	23	20	Urban forest	120	15	352	764	24	457	12067	0.30	0.48	14.00	42.00	42.00	126
141	Thessaloniki	41	23	20		120	15	352	764	24	457	12067	0.30	0.48	9.20	25.78	25.78	24
142	Tianjin	39	117	20		10	14	585	1079	134	3790	17505	0.30	4.55	6.28	15.83	15.83	127
143	Tianjin	39	117	20	Urban forest	10	14	585	1079	134	3790	17505	0.30	4.55	10.10	26.26	26.26	128
144	Tokyo	36	140	5	Urban forest	40	14	1600	777	46	8955	20901	0.33	5.61	52.90	22.96	78.66	129
145	Tokyo	36	140	10	Urban forest	40	14	1600	777	46	8955	20901	0.33	5.61	51.80	45.66	82.44	129
146	Tokyo	36	140	20	Urban forest	40	14	1600	777	46	8955	20901	0.33	5.61	46.50	88.00	88.00	129

ID	City	Lat	Lon	Depth	Vegetation	Ele	MAT	MAP	TS	PS	PD	GDPP	UGI	UHI	SOCC	SOCD	SOCD20	Reference
147	Tokyo	36	140	5	Urban lawn	40	14	1600	777	46	8955	20901	0.33	5.61	55.20	23.19	79.43	129
148	Tokyo	36	140	10	Urban lawn	40	14	1600	777	46	8955	20901	0.33	5.61	52.45	45.82	82.73	129
149	Tokyo	36	140	20	Urban lawn	40	14	1600	777	46	8955	20901	0.33	5.61	45.83	87.48	87.48	129
150	Torreon	53	19	15		50	8	535	751	40	201	9725	0.43	2.15	30.00	51.64	65.45	76
151	Turin	45	8	20		18	17	598	708	38	781	18845	0.43	4.17	20.50	51.80	51.80	14
152	Uppsala	60	18	20		21	7	556	766	29	226	18817	0.46	1.94	31.00	70.39	70.39	14
153	Wulumqi	44	88	20		800	7	294	1449	38	1645	6710	0.27	1.71	6.00	17.28	17.28	130
154	Varanasi	25	83	15	Urban forest	76	30	1000	591	139	1249	2828	0.40	0.02	3.60	7.51	9.51	131
155	Varanasi	25	83	15	Urban forest	76	30	1000	591	139	1249	2828	0.40	0.02	7.90	13.27	16.82	132
156	Varanasi	25	83	10	Urban forest	76	30	1000	591	139	1249	2828	0.40	0.02	19.90	27.68	49.98	133
157	Varanasi	25	83	10	Urban forest	76	30	1000	591	139	1249	2828	0.40	0.02	19.40	33.17	59.89	133
158	Warsaw	52	21	20	Urban lawn	112	9	680	765	36	700	21183	0.48	1.50	21.70	54.20	54.20	134
159	Warsaw	52	21	20	Urban lawn	112	9	680	765	36	700	21183	0.48	1.50	20.50	51.80	51.80	135
160	Wuhu	31	118	20	Urban forest	15	16	1200	915	52	853	6122	0.29	2.85	11.00	30.80	30.80	136
161	Xi'an	34	109	20		400	15	545	943	64	2717	7566	0.29	1.72	13.59	35.88	35.88	137
162	Yan'an	37	109	20	Urban forest	1100	9	500	1028	92	126	4771	0.33	1.53	10.48	29.04	29.04	138
163	Zhengzhou	35	114	10	Urban forest	90	16	690	983	86	2453	7263	0.27	4.53	4.27	4.87	8.79	139
164	Zurich	47	9	20		556	12	550	665	23	706	40722	0.52	2.43	50.90	107.91	107.91	140
165	Glasgow	56	-4	15	Urban lawn	44	9	900	415	30	821	16967	0.47	2.02	55.00	69.51	88.10	118
166	Liverpool	53	-3	15	Urban lawn	50	9	796	445	20	943	16099	0.43	1.93	38.51	74.52	94.45	141
167	Knoxville	36	-84	10	Urban forest	298	14	1602	809	14	125	28986	0.50	3.15	33.06	45.95	82.97	142
168	Akure	7	5	20	Urban lawn	357	27	1453	117	66	524	5916	0.37	2.34	25.08	83.28	83.28	143
169	Okitipupa	6	5	20		32	28	1719	117	65	295	6219	0.44	-0.80	22.71	79.84	79.84	143
170	Akure	7	5	20	Urban lawn	357	27	1453	117	66	524	5916	0.37	2.34	18.55	61.60	61.60	143
171	Okitipupa	6	5	20		32	28	1719	117	65	295	6219	0.44	-0.80	18.41	66.04	66.04	143
172	Wulumqi	44	88	5	Urban lawn	800	7	294	1449	38	1645	6710	0.27	1.71	18.13	11.72	40.13	144

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173	Peshawar	34	72	15		170	25	428	817	57	977	4277	0.30	0.47	32.50	54.45	69.02	145
174	Ancona	44	14	5		152	14	1111	651	20	852	13254	0.40	1.02	34.35	18.80	64.40	146
175	Guangzhou	22	113	20		22	21	1720	539	74	5063	22218	0.43	1.98	9.12	24.10	24.10	147
176	Guangzhou	22	113	20		22	21	1720	539	74	5063	22218	0.43	1.98	10.43	27.50	27.50	147
177	Piracicaba	-23	-48	5		132	28	913	256	72	194	374	0.43	1.77	25.00	15.11	51.75	148
178	Santo Amaro	-13	-39	5		364	23	739	140	42	288	10175	0.41	1.27	25.00	15.11	51.75	148
179	Río Piedras [San Juan]	18	-66	10	Urban forest	82	24	1972	118	27	630	27938	0.44	2.32	34.00	34.00	61.39	149
180	Vilnius	55	25	5	Urban forest	130	9	735	835	27	331	21361	0.47	1.56	35.34	19.13	65.52	150
181	Glasgow	56	-4	10		44	9	900	415	30	821	16967	0.47	2.02	63.80	46.90	84.68	151
182	Glasgow	56	-4	20		44	9	900	415	30	821	16967	0.47	2.02	57.13	93.29	93.29	151
183	Aveiro	40	-8	10		16	18	1000	438	51	114	12720	0.38	1.45	9.28	12.99	23.46	151
184	Aveiro	40	-8	20		16	18	1000	438	51	114	12720	0.38	1.45	8.27	23.35	23.35	151
185	Uppsala	60	18	20	Urban lawn	21	7	556	766	29	226	18817	0.46	1.94	39.45	89.94	89.94	152
186	Malmö	56	13	20	Urban lawn	9	8	540	642	19	303	17839	0.42	1.30	32.53	67.01	67.01	152
187	Gothenburg	58	12	20	Urban lawn	34	7	714	671	20	611	19410	0.45	1.20	40.87	75.20	75.20	152
188	Santiago de Compostela	42	-9	10	Urban forest	260	13	1787	393	46	440	16767	0.48	1.66	34.80	37.90	68.42	153
189	Santiago de Compostela	42	-9	10	Urban lawn	260	13	1787	393	46	440	16767	0.48	1.66	31.29	35.41	63.93	153
190	Székesfehérvár	47	18	10	Urban forest	200	10	540	811	25	119	10238	0.46	1.22	58.80	46.81	84.52	121
191	Székesfehérvár	47	18	20	Urban forest	200	10	540	811	25	119	10238	0.46	1.22	51.05	90.94	90.94	121
192	Székesfehérvár	47	18	10		200	10	540	811	25	119	10238	0.46	1.22	39.90	40.97	73.96	121
193	Székesfehérvár	47	18	20		200	10	540	811	25	119	10238	0.46	1.22	39.65	81.66	81.66	121
194	Székesfehérvár	47	18	10		200	10	540	811	25	119	10238	0.46	1.22	65.20	46.82	84.53	121
195	Székesfehérvár	47	18	20		200	10	540	811	25	119	10238	0.46	1.22	55.30	92.78	92.78	121
196	Atlanta	34	-84	20		304	17	1416	748	15	983	32075	0.52	3.24	44.70	86.55	86.55	154
197	Camden	40	-75	20		3	13	1100	897	13	869	36346	0.49	4.34	73.00	90.94	90.94	154
198	Cincinnati	39	-84	20		221	12	1100	933	17	404	29811	0.51	3.08	42.60	84.67	84.67	154

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199	Cleveland	41	-82	20		246	10	979	950	18	565	30779	0.51	3.76	31.20	70.69	70.69	154
200	Detroit	42	-83	20		203	10	881	995	19	875	29087	0.51	4.35	31.30	70.84	70.84	154
201	New Orleans	30	-90	20		3	21	1645	616	16	246	34816	0.43	1.47	26.80	63.60	63.60	154
202	Omaha	41	-96	20		343	11	777	1105	53	229	33067	0.50	1.84	42.90	84.95	84.95	154
203	Phoenix	33	-112	20		355	24	194	781	48	386	32038	0.25	0.10	25.50	61.32	61.32	154
204	Portland	46	-123	20		70	12	1162	583	59	551	28792	0.49	4.07	48.00	89.08	89.08	154
205	Río Piedras [San Juan]	18	-66	20		33	24	1972	118	27	630	27938	0.44	2.32	66.20	93.46	93.46	154
206	Tacoma	47	-122	20		75	11	1233	506	59	689	32540	0.51	4.32	68.30	92.92	92.92	154
207	Panzhuhua	27	102	20		1174	18	996	485	94	316	12229	0.37	2.98	14.00	37.60	37.60	155
208	Wroclaw	51	17	20	Urban lawn	125	10	548	731	43	259	10798	0.50	1.69	34.70	75.66	75.66	156
209	Caserta	41	14	5	Urban forest	46	10	938	612	44	267	20888	0.42	4.34	63.29	23.46	80.37	157
210	Wuhan	31	114	10	Urban lawn	7	16	1100	899	53	3228	18686	0.35	2.51	11.30	15.54	28.07	158
211	Campinas	-23	-47	10	Urban forest	754	21	1462	229	67	1007	17644	0.36	4.44	27.80	32.65	58.94	159
212	Campinas	-23	-47	20	Urban forest	754	21	1462	229	67	1007	17644	0.36	4.44	23.90	58.41	58.41	159
213	Naples [Italy]	41	14	5		5	15	908	605	49	2830	20421	0.39	2.51	45.53	15.50	53.11	160
214	Philadelphia	40	-75	10	Urban forest	32	13	1239	903	13	869	36346	0.49	4.34	80.04	42.98	77.60	161
215	Newark	40	-74	10	Urban forest	10	13	1140	861	10	621	28171	0.53	4.34	44.66	50.91	91.92	161
216	Bobo-Dioulasso	11	-4	15		450	27	1050	181	106	292	1191	0.33	1.76	19.00	36.53	46.30	162
217	Hartford	42	-73	10	Urban lawn	37	23	840	939	6	477	45003	0.52	4.34	24.91	28.90	52.18	163
218	Hartford	42	-73	20	Urban lawn	37	23	840	939	6	477	45003	0.52	4.34	19.39	47.30	47.30	163
219	Brno	49	17	10	Urban lawn	241	10	552	769	45	296	14718	0.44	1.80	63.50	46.91	84.70	164
220	Edmonton	54	-113	15	Urban lawn	675	4	348	1116	71	256	28849	0.39	1.58	43.00	63.78	80.84	165
221	Estarreja	41	-9	20		24	16	1295	375	55	349	12720	0.38	1.03	21.70	54.20	54.20	166
222	Viseu	41	-8	20		459	14	1251	501	59	80	12720	0.38	1.03	32.20	72.17	72.17	166
223	Lisbon	39	-9	20		86	18	877	405	63	1569	24257	0.36	1.72	57.60	93.40	93.40	166
224	Estarreja	41	-9	20		24	16	1295	375	55	349	12720	0.38	1.03	27.40	64.62	64.62	166

ID	City	Lat	Lon	Depth	Vegetation	Ele	MAT	MAP	TS	PS	PD	GDPP	UGI	UHI	SOCC	SOCD	SOCD20	Reference
225	Viseu	41	-8	20		459	14	1251	501	59	80	12720	0.38	1.03	15.20	40.37	40.37	166
226	Lisbon	39	-9	20		86	18	877	405	63	1569	24257	0.36	1.72	39.90	81.93	81.93	166
227	Novi Sad	45	20	10		82	13	643	783	30	230	3098	0.47	1.33	40.02	41.03	74.08	167
228	Novi Sad	45	20	10		82	13	643	783	30	230	3098	0.47	1.33	42.69	42.38	76.51	167
229	Salt Lake City	41	-112	10	Urban lawn	1363	11	397	949	31	465	26379	0.40	3.90	27.00	25.60	46.21	168
230	Salt Lake City	41	-112	20	Urban lawn	1363	11	397	949	31	465	26379	0.40	3.90	23.50	57.34	57.34	168
231	Lubbock	34	-102	10	Urban lawn	987	16	487	828	58	110	33476	0.35	-0.07	21.11	26.18	47.27	169
232	Budapest	47	19	10	Urban lawn	130	12	516	781	25	557	27860	0.45	1.97	25.40	30.57	55.20	170
233	Beijing	40	116	10	Urban forest	51	12	640	1098	133	6609	16241	0.33	4.90	8.10	11.46	20.69	171
234	Beijing	40	116	20	Urban forest	51	12	640	1098	133	6609	16241	0.33	4.90	7.56	21.49	21.49	171
235	Anji	31	120	10	Urban forest	24	14	1500	905	51	381	10432	0.34	2.12	14.80	18.35	33.13	172
236	Shanghai	31	121	20		4	16	1208	856	47	7658	14363	0.35	5.02	16.82	44.01	44.01	173
237	Brisbane	-27	153	15	Urban lawn	60	19	1110	374	60	797	29333	0.42	2.31	15.00	31.50	39.92	174
238	Tonghua	42	126	5	Urban forest	394	5	874	1344	97	233	6001	0.35	1.70	91.35	18.23	62.44	175
239	Baishan	42	126	5	Urban lawn	494	3	753	1347	96	230	7600	0.28	2.46	21.21	13.31	45.59	175
240	Yanji	43	129	5	Urban forest	204	6	550	1283	96	167	8484	0.31	3.68	22.96	14.16	48.51	175
241	Dunhua	43	128	5	Urban forest	511	4	628	1327	98	133	6898	0.32	2.55	61.74	23.47	80.40	175
242	Jilin	44	127	5	Urban forest	201	4	678	1426	102	793	7609	0.35	3.44	35.21	19.08	65.37	175
243	Santiago	-33	-71	5	Urban forest	115	15	491	476	102	1278	5013	0.31	0.96	28.24	16.50	56.54	175
244	Belo Horizonte	-20	-44	5	Urban lawn	721	21	1504	185	87	735	13039	0.36	2.63	21.11	13.26	45.42	175
245	Contagem	-20	-44	5	Urban forest	858	21	1577	184	88	735	13039	0.43	2.63	28.12	16.45	56.37	175
246	Betim	-20	-44	5	Urban lawn	830	21	1511	190	87	735	11111	0.36	2.63	12.55	8.53	29.23	175
247	Longmont	40	-105	5	Urban lawn	1531	10	428	877	47	162	30760	0.42	4.96	44.71	21.64	74.14	175
248	Grand Junction	39	-109	5	Urban lawn	1423	11	231	981	25	51	34131	0.37	0.03	13.90	9.34	32.00	175
249	Cheyenne	41	-105	5	Urban lawn	1852	8	389	849	57	40	35042	0.39	-0.49	21.38	13.39	45.88	175
250	South Lyon	42	-84	5	Urban lawn	283	9	814	998	20	217	29087	0.51	4.35	23.93	14.61	50.07	175

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251	Oxford	52	-1	5	Urban lawn	72	6	573	766	29	226	27175	0.49	1.94	101.19	14.12	48.36	175
252	Bodø	67	14	5	Urban lawn	8	2	1537	554	30	14	20056	0.51	0.55	65.41	23.40	80.17	175
253	Uppsala	60	18	5	Urban lawn	21	7	556	766	29	226	18817	0.46	1.94	79.46	21.62	74.05	175
254	Poitiers	47	0	5	Urban forest	111	12	693	556	17	121	15507	0.49	2.02	44.50	21.59	73.98	175
255	Niort	46	0	5	Urban forest	40	12	825	551	26	80	15507	0.49	0.79	41.76	20.96	71.82	175
256	Tours	47	1	5	Urban forest	73	12	661	552	15	210	16001	0.45	1.51	20.10	12.74	43.66	175
257	Ljubljana	46	15	5	Urban forest	302	10	1452	768	25	161	22088	0.47	3.94	38.43	20.07	68.77	175
258	Koper	46	14	5	Urban forest	11	14	977	705	23	286	7369	0.24	0.54	57.74	23.36	80.02	175
259	Maribor	47	16	5	Urban forest	273	10	1045	743	31	147	12078	0.44	1.94	34.75	18.93	64.85	175
260	Pretoria	-26	28	5	Urban forest	1365	18	708	392	82	1213	10100	0.41	0.14	33.33	18.45	63.19	175
261	Germiston	-26	28	5	Urban lawn	1644	16	725	403	79	1879	10915	0.39	0.14	31.07	17.62	60.37	175
262	Cape Town	-34	18	5	Urban forest	48	17	538	292	68	782	8001	0.35	0.45	57.86	23.36	80.04	175
263	Durgapur	24	87	5	Urban forest	585	26	1298	446	105	809	5310	0.41	-0.30	12.69	8.62	29.54	175
264	Mirzapur	25	83	5	Urban lawn	309	26	974	603	145	1851	4021	0.43	0.71	29.42	16.98	58.18	175
265	Agra	27	78	5	Urban lawn	1584	26	802	684	131	1558	3023	0.48	-3.75	10.87	7.51	25.72	175
266	Beijing	40	116	5	Urban forest	51	12	640	1098	133	6609	16241	0.33	4.90	12.20	8.33	28.52	175
267	Tai'an	36	117	5	Urban forest	80	12	544	1043	111	510	5966	0.35	2.71	11.18	7.70	26.37	175
268	Tianjin	39	117	5	Urban forest	6	13	576	1079	134	3790	17505	0.30	4.55	16.53	10.84	37.14	175
269	Wulumqi	44	88	5	Urban lawn	800	7	210	1449	38	1645	6710	0.27	1.71	55.12	23.18	79.41	175
270	Alice Springs	-24	134	5	Urban forest	562	21	329	626	50	11	23527	0.44	-0.83	15.66	10.36	35.48	175
271	Brisbane	-27	153	5	Urban lawn	34	21	1190	374	60	797	29333	0.42	4.08	69.68	23.11	79.18	175
272	Mildura	-34	142	5	Urban lawn	60	17	301	535	15	24	25729	0.34	-3.55	35.83	19.28	66.06	175
273	Sydney	-34	151	5	Urban lawn	48	17	910	429	30	596	30159	0.43	5.08	47.77	22.23	76.15	175
274	Barcelona	41	2	5	Urban forest	32	16	653	512	32	6792	14085	0.28	2.46	27.25	16.09	55.13	175
275	Pullman	47	-117	5	Urban forest	717	9	531	745	38	25	31465	0.39	0.77	35.11	19.05	65.26	175
276	Mexico City	19	-99	5	Urban forest	2316	15	867	182	94	3532	18488	0.26	7.40	44.80	21.66	74.20	175

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277	Mexico City	19	-99	5	Urban forest	2316	16	796	182	94	3532	18488	0.26	7.40	56.48	23.28	79.76	175
278	Madrid	40	-4	5	Urban forest	41	15	428	667	40	1722	20550	0.21	2.15	21.08	13.24	45.36	175
279	Imessa Odo	8	5	5	Urban forest	270	25	1321	118	66	770	3387	0.40	3.44	6.36	4.56	15.63	175
280	Imessa Odo	8	5	5	Urban forest	270	26	1371	118	66	770	3387	0.40	3.44	17.94	11.61	39.78	175
281	Imessa Odo	7	5	5	Urban forest	270	26	1399	118	66	482	3387	0.40	3.44	9.86	6.87	23.52	175
282	Lakeland	28	-82	5	Urban forest	55	22	1269	448	53	209	33240	0.50	1.56	20.68	13.04	44.67	175
283	Utrera	37	-6	5	Urban forest	49	18	580	571	67	381	4062	0.21	1.62	7.56	5.37	18.40	175
284	Coimbra	40	-8	5	Urban forest	75	16	934	438	52	114	12720	0.38	1.45	7.37	5.25	17.98	175
285	Porto	41	-9	5	Urban forest	83	15	1228	394	54	1297	13854	0.46	1.84	33.86	18.63	63.82	175
286	Jerusalem	32	35	5	Urban forest	730	16	439	586	109	972	11836	0.24	-1.96	58.37	23.39	80.13	175
287	Beer Sheva	31	35	5	Urban forest	260	19	216	562	105	160	22268	0.19	-1.96	18.37	11.84	40.58	175
288	Ofakim	31	35	5	Urban forest	149	20	245	543	107	160	17927	0.27	-1.96	14.79	9.86	33.78	175
289	Ningbo	30	122	10		6	17	1569	827	41	1830	14155	0.30	4.86	15.40	19.25	34.76	176
290	Nanjing	32	119	10	Urban forest	21	16	1091	930	58	2687	15062	0.31	2.83	15.90	20.98	37.88	177
291	Nanjing	32	119	20	Urban forest	21	16	1091	930	58	2687	15062	0.31	2.83	13.00	35.23	35.23	177
292	Yancheng	33	120	5	Urban forest	3	14	1051	931	71	655	16753	0.34	3.26	12.78	8.68	29.73	178
293	Yancheng	33	120	5	Urban lawn	3	14	1051	931	71	655	16753	0.34	3.26	15.31	10.16	34.80	178
294	Yancheng	33	120	5	Urban lawn	3	14	1051	931	71	655	16753	0.34	3.26	14.44	9.66	33.08	178
295	Mendoza	-33	-69	20	Urban forest	772	17	188	599	67	304	13732	0.25	-1.46	19.14	49.00	49.00	179
296	Xiamen	25	118	10	Urban forest	24	21	1137	598	59	1855	13116	0.30	3.26	15.24	20.23	36.53	180
297	Xiamen	25	118	10	Urban lawn	24	21	1137	598	59	1855	13116	0.30	3.26	15.74	20.80	37.56	180
298	Sosnowiec	50	19	20	Urban forest	272	9	812	756	40	645	10596	0.51	2.12	32.00	71.88	71.88	181
299	Changsha	28	113	20	Urban forest	58	17	1448	869	48	897	10579	0.31	0.42	13.10	35.47	35.47	182
300	Changsha	28	113	20	Urban lawn	58	17	1448	869	48	897	10579	0.31	0.42	11.80	32.32	32.32	182
301	Hong Kong	22	114	5	Urban lawn	65	23	2147	540	76	8243	43639	0.37	1.98	24.66	14.95	51.22	183
302	Hong Kong	22	114	10	Urban lawn	65	23	2147	540	76	8243	43639	0.37	1.98	18.34	23.65	42.71	183

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303	Hong Kong	22	114	15	Urban lawn	65	23	2147	540	76	8243	43639	0.37	1.98	14.65	26.36	33.41	183
304	Baltimore	39	-77	10	Urban forest	70	13	1154	897	11	939	32721	0.47	2.86	44.20	43.06	77.75	46
305	Baltimore	39	-77	10	Urban lawn	70	13	1154	897	11	939	32721	0.47	2.86	32.50	36.30	65.54	46
306	Baltimore	39	-77	10	Urban forest	70	13	1154	897	11	939	32721	0.47	2.86	43.67	46.72	84.36	184
307	Baltimore	39	-77	10	Urban lawn	70	13	1154	897	11	939	32721	0.47	2.86	46.00	50.60	91.36	184
308	Padang	-1	100	20		44	29	3552	28	20	508	5496	0.47	3.27	26.80	48.78	48.78	185
309	Tangshan	40	118	20		31	12	600	1111	126	1224	8567	0.36	2.09	11.98	35.69	35.69	186
310	Xuzhou	34	117	20		43	15	841	986	90	1008	14540	0.36	2.46	22.38	56.40	56.40	187
311	Hengshui	38	116	20		22	14	546	1129	121	557	7330	0.30	1.55	12.09	33.62	33.62	188
312	Qiqihar	47	124	20		146	3	415	1497	115	534	5771	0.30	3.46	9.85	26.41	26.41	189
313	Khartoum	16	33	20		382	30	113	412	153	491	2220	0.15	2.44	6.70	23.58	23.58	190
314	Yilan	25	122	15		11	22	2700	450	29	583	23143	0.36	6.74	17.70	34.45	43.66	191
315	Taipei	25	121	15		100	22	2100	509	29	4482	34497	0.32	3.81	18.13	35.14	44.54	191
316	Kaohsiung	23	120	15		15	24	1700	376	106	2295	35055	0.32	3.81	4.10	9.00	11.41	191
317	Edinburgh	56	-3	20		59	8	962	410	14	399	17083	0.46	2.02	63.16	93.85	93.85	192
318	Leeds	54	-2	20		111	9	1138	457	17	1102	15762	0.48	2.15	79.93	86.06	86.06	192
319	Liverpool	53	-3	20		35	10	955	445	20	943	16099	0.43	1.93	56.25	93.07	93.07	192
320	Nottingham	53	-1	20		56	10	757	474	11	1016	16931	0.44	2.15	75.99	89.13	89.13	192
321	Leicester	53	-1	20		81	10	757	479	10	1016	15603	0.43	2.15	48.36	89.32	89.32	192
322	Milton Keynes	52	-1	20		86	10	704	479	11	506	24767	0.53	2.13	34.54	75.44	75.44	192
323	Cardiff	51	-3	20		30	11	1108	450	24	444	14669	0.45	0.71	99.67	59.31	59.31	192
324	Bristol	51	-3	20		52	10	1095	462	19	506	17758	0.45	0.71	66.12	93.47	93.47	192
325	Southampton	51	-1	20		23	11	976	458	26	1016	25285	0.46	1.88	39.47	81.47	81.47	192
326	Oskemen	50	83	20	Urban lawn	293	4	549	1350	21	30	17881	0.45	0.31	33.06	73.40	73.40	193
327	Chelyabinsk	55	61	10	Urban lawn	168	7	602	1246	55	613	6256	0.51	1.51	28.30	33.06	59.69	65
328	Dijon	47	5	20		300	11	982	645	16	165	17041	0.42	2.56	34.90	76.78	76.78	194



ID	City	Lat	Lon	Depth	Vegetation	Ele	MAT	MAP	TS	PS	PD	GDPP	UGI	UHI	SOCC	SOCD	SOCD20	Reference
329	Ulan-Ude	52	108	20	Urban forest	219	5	306	1547	109	195	8446	0.37	4.40	42.00	84.09	84.09	195
330	Ulan-Ude	52	108	20	Urban forest	219	5	306	1547	109	195	8446	0.37	4.40	48.00	89.08	89.08	195
331	São Paulo	-24	-47	20	Urban forest	800	27	598	237	59	4322	3906	0.37	4.44	21.20	53.21	53.21	196
332	Apatity	68	33	10	Urban forest	152	0	853	983	35	22	5593	0.44	0.51	40.82	40.00	72.22	197
333	Bratislava	48	17	10		155	11	663	772	25	309	32758	0.48	-0.01	21.90	27.29	49.28	198
334	Xiamen	25	118	5	Urban lawn	24	22	1464	598	59	1855	13116	0.30	3.26	30.00	17.21	58.97	199
335	Mashhad	36	60	20		1011	14	229	862	80	377	8090	0.17	-0.59	32.50	72.61	72.61	200
336	Singapore	1	104	10	Urban lawn	21	28	2154	51	23	5311	52383	0.49	1.91	12.50	17.01	30.72	201
337	Bydgoszcz	53	18	20		48	10	564	746	38	233	10436	0.49	1.05	25.80	61.85	61.85	202
338	Teresina	-5	-43	10		41	26	1478	115	92	353	590	0.36	1.34	10.90	15.05	27.18	203
339	Wroclaw	51	17	20	Urban lawn	193	9	583	731	43	259	10798	0.50	1.69	58.24	93.53	93.53	204
340	Manaus	-3	-60	20		638	26	2300	53	45	495	15031	0.38	1.09	6.60	18.92	18.92	205
341	Lagos	7	3	10		24	28	1342	122	70	3423	6440	0.28	2.80	10.44	14.47	26.13	206
342	Hohhot	41	112	20		1069	7	386	1253	108	979	9088	0.27	3.36	14.91	38.76	38.76	207
343	Hohhot	41	112	20		1069	7	386	1253	108	979	9088	0.27	3.36	12.99	36.12	36.12	207
344	Kunming	25	103	20		1923	15	1000	476	84	1079	5057	0.27	2.61	9.53	26.64	26.64	208
345	Linfen	36	112	20		450	11	527	1048	88	581	6549	0.30	2.31	6.09	17.53	17.53	209
346	Khorramabad	33	48	20		1222	15	360	881	87	45	4782	0.18	0.86	22.88	56.47	56.47	210
347	Havana	23	-82	20		53	26	1341	243	47	1975	16130	0.43	3.26	31.86	71.67	71.67	211
348	Çanakkale	40	26	5		23	16	786	695	62	76	10597	0.30	1.10	22.62	14.00	47.95	212
349	Jagiroad	26	92	20		76	26	1399	424	91	633	1119	0.40	0.71	25.60	61.50	61.50	213
350	Manchester	53	-2	10	Urban lawn	92	10	1010	449	19	1114	16084	0.47	1.93	64.50	55.47	100.14	214
351	Shanghai	31	121	20		4	16	1208	856	47	7658	14363	0.35	5.02	24.94	60.32	60.32	215
352	Mexico City	19	-99	10	Urban forest	2316	17	586	182	94	3532	18488	0.26	7.40	26.00	22.62	40.84	216
353	New York	41	-74	10		38	13	1161	893	10	6041	36082	0.49	4.34	54.70	46.28	83.57	217
354	Madison	43	-89	15	Urban lawn	267	18	1300	1077	39	191	30554	0.52	1.39	33.06	65.46	82.97	218

ID	City	Lat	Lon	Depth	Vegetation	Ele	MAT	MAP	TS	PS	PD	GDPP	UGI	UHI	SOCC	SOCD	SOCD20	Reference
355	Pinellas	28	-83	15		5	29	1240	461	55	1178	38117	0.49	1.56	25.00	45.32	57.44	219
356	Santiago de Compostela	43	-9	10		253	13	1242	393	46	440	16767	0.48	1.66	42.70	42.38	76.52	220
357	Kumasi	7	-2	15		258	26	1250	107	53	1288	2935	0.35	4.92	13.28	27.89	35.35	64
358	Qingdao	36	120	10		30	13	604	977	90	2471	11327	0.25	3.26	34.51	37.70	68.07	221
359	Baoding	39	115	20		20	13	500	1119	129	962	7857	0.35	2.24	14.13	37.90	37.90	222
360	Guiyang	27	107	20	Urban forest	1185	15	1200	681	70	1195	4061	0.31	1.64	30.40	69.47	69.47	223
361	Tianshui	35	106	10		1213	9	552	880	80	471	9023	0.30	2.44	5.90	8.50	15.36	224
362	Wuxi	32	120	10	Urban forest	15	17	1393	906	54	2726	10790	0.31	4.34	19.93	28.30	51.10	225
363	Harbin	46	127	20	Urban forest	146	4	529	1486	107	2495	6578	0.32	3.82	27.99	78.37	78.37	226
364	Harbin	46	127	20	Urban forest	146	4	529	1486	107	2495	6578	0.32	3.82	19.87	54.45	54.45	227
365	Neuchatel	47	7	10		1192	9	1456	647	16	334	29332	0.54	2.43	52.00	31.20	56.33	228
366	Manchester_USA	43	-71	20	Urban lawn	83	10	1132	993	10	483	31530	0.50	2.77	30.40	58.37	58.37	229
367	Lubbock	34	-102	15	Urban lawn	990	17	450	828	58	110	33476	0.35	-0.07	28.16	50.69	64.24	230
368	Albuquerque	35	-107	15	Urban lawn	1596	12	354	858	52	335	30185	0.26	-0.59	19.30	37.00	46.89	231
369	Atlanta	34	-84	15	Urban lawn	304	17	1416	748	15	983	32075	0.52	3.24	14.30	28.72	36.40	231
370	Cheyenne	41	-105	15	Urban lawn	1852	8	412	849	57	40	35042	0.39	-0.49	21.70	40.65	51.52	231
371	Dallas	33	-97	15	Urban lawn	182	19	1023	822	31	1019	35747	0.43	-0.34	22.90	42.39	53.73	231
372	Denver	40	-105	15	Urban lawn	1673	10	413	865	43	700	35796	0.43	4.96	31.70	53.58	67.91	231
373	Duluth	47	-92	15	Urban lawn	206	5	804	1141	50	85	33373	0.46	2.03	28.36	49.67	62.95	231
374	Houston	30	-95	15	Urban lawn	26	21	1264	640	21	1154	36992	0.48	1.66	21.49	40.34	51.12	231
375	Las Vegas	36	-115	15	Urban lawn	675	19	153	896	44	952	32418	0.19	2.06	25.09	45.44	57.59	231
376	Minneapolis [Saint Paul]	45	-93	15	Urban lawn	270	8	843	1517	51	707	33597	0.56	2.03	51.68	68.45	86.76	231
377	Orlando	29	-81	15	Urban lawn	31	23	1499	454	51	583	37103	0.49	1.56	17.98	34.90	44.23	231
378	Phoenix	33	-112	15	Urban lawn	355	24	194	781	48	386	32038	0.25	0.10	21.13	39.80	50.44	231
379	Portland	46	-123	15	Urban lawn	70	12	1162	583	59	551	28792	0.49	4.07	21.21	39.92	50.60	231
380	San Francisco	38	-122	15	Urban lawn	16	19	928	269	92	1759	13778	0.31	1.94	27.69	48.83	61.89	231

ID	City	Lat	Lon	Depth	Vegetation	Ele	MAT	MAP	TS	PS	PD	GDPP	UGI	UHI	SOCC	SOCD	SOCD20	Reference
381	Seattle	47	-122	15	Urban lawn	80	12	1143	520	57	689	32540	0.51	4.32	25.52	46.02	58.33	231
382	Wichita	38	-97	15	Urban lawn	408	15	847	1006	45	219	33402	0.47	-0.09	21.96	41.03	52.00	231
383	Wooster	41	-82	15	Urban lawn	303	11	1081	947	21	104	31553	0.53	0.90	32.02	53.93	68.35	231
384	Baltimore	39	-77	10	Urban lawn	70	13	1154	897	11	939	32721	0.47	2.86	21.85	23.69	42.76	232
385	Boston	42	-71	10	Urban lawn	28	11	1169	926	8	1094	43495	0.52	2.77	23.69	20.61	37.20	232
386	Los Angeles	34	-118	10	Urban lawn	173	18	236	392	100	1404	39525	0.29	0.64	23.06	17.69	31.94	232
387	Miami	26	-80	10	Urban lawn	8	25	1885	328	45	875	38891	0.43	3.04	31.40	28.79	51.98	232
388	Minneapolis [Saint Paul]	45	-93	10	Urban lawn	270	8	843	1517	51	707	33597	0.56	2.03	28.38	29.52	53.29	232
389	Phoenix	33	-112	10	Urban lawn	355	24	194	781	48	386	32038	0.25	0.10	10.38	11.00	19.87	232
390	Melbourne	-38	145	10	Urban lawn	63	15	647	375	14	964	27030	0.40	1.96	34.00	41.48	74.89	233
391	Aveiro	40	-8	10		16	18	1000	438	51	114	12720	0.38	1.45	19.00	24.35	43.97	234
392	Ljubljana	46	15	10		302	10	1452	768	25	161	22088	0.47	3.94	53.00	45.95	82.95	234
393	Turin	45	8	10		18	17	598	708	38	781	18845	0.43	4.17	21.00	26.40	47.67	234
394	Uppsala	60	18	10		21	7	556	766	29	226	18817	0.46	1.94	42.00	42.05	75.91	234
395	Ljubljana	46	15	20		302	10	1452	768	25	161	22088	0.47	3.94	43.35	85.37	85.37	235
396	Seville	37	-6	20		173	16	510	556	67	381	22576	0.33	-0.05	15.50	41.06	41.06	235
397	Turin	45	8	20		18	17	598	708	38	781	18845	0.43	4.17	17.60	45.72	45.72	235
398	Nanchang	29	116	20	Urban forest	25	18	1700	866	60	1520	6467	0.38	2.81	15.02	41.76	41.76	236
399	Vancouver	49	-123	15	Urban forest	55	12	1189	548	52	818	22688	0.43	5.78	41.24	62.50	79.22	237
400	Madrid	40	-4	20		41	18	261	667	40	1722	20550	0.21	2.15	26.86	63.70	63.70	238
401	Los Angeles	34	-118	5	Urban lawn	173	18	236	392	100	1404	39525	0.29	0.64	77.14	22.08	75.63	239
402	Baltimore	39	-77	10	Urban lawn	70	13	1154	897	11	939	32721	0.47	2.86	40.60	32.07	57.91	240
403	Puducherry	12	80	20	Urban forest	431	24	1297	239	99	1466	467	0.39	-0.45	7.50	19.50	19.50	241
404	Puducherry	12	80	20	Urban lawn	431	24	1297	239	99	1466	467	0.39	-0.45	7.00	19.60	19.60	241
405	Tezpur	27	93	10	Urban lawn	48	23	2524	423	90	444	6648	0.44	1.71	12.60	18.27	32.99	242
406	Tezpur	27	93	10	Urban forest	48	23	2524	423	90	444	6648	0.44	1.71	15.60	21.37	38.59	242

ID	City	Lat	Lon	Depth	Vegetation	Ele	MAT	MAP	TS	PS	PD	GDPP	UGI	UHI	SOCC	SOCD	SOCD20	Reference
407	Delhi [New Delhi]	29	77	10	Urban lawn	216	25	1065	694	135	7721	2220	0.40	2.43	12.80	17.37	31.37	243
408	Shihezi	44	86	10		400	8	230	1520	44	241	7961	0.36	1.31	15.49	20.51	37.03	244
409	Bucharest	44	26	20		80	13	691	877	35	1020	28720	0.40	1.74	17.40	45.28	45.28	245
410	Iassy	48	27	20		43	12	555	852	50	59	4908	0.44	2.74	18.00	46.58	46.58	245
411	Baia Mare	48	24	20		227	8	796	804	28	68	5257	0.40	4.27	8.80	24.75	24.75	245
412	Seoul	37	127	15	Urban forest	54	12	1115	998	92	5060	13511	0.35	1.99	8.70	19.31	24.48	246
413	Suwon	36	129	15	Urban forest	50	11	1261	839	66	547	28777	0.27	3.52	4.79	8.84	11.20	246
414	Naples [Italy]	41	14	5	Urban forest	5	15	908	605	49	2830	20421	0.39	2.51	77.72	21.97	75.26	247
415	Abuja	9	7	10		436	27	1125	181	96	704	3877	0.35	0.53	7.50	10.67	19.26	248
416	Beijing	40	116	20		51	12	640	1098	133	6609	16241	0.33	4.90	9.59	26.47	26.47	249
417	Beijing	40	116	20		51	12	640	1098	133	6609	16241	0.33	4.90	10.22	29.02	29.02	249
418	Beijing	40	116	20	Urban forest	51	12	640	1098	133	6609	16241	0.33	4.90	9.57	24.50	24.50	249
419	Geneva	46	6	10	Urban lawn	418	11	985	670	14	558	44417	0.48	4.29	45.13	49.64	89.63	250
420	Toronto	44	-80	5		157	8	839	975	15	1154	27690	0.45	5.61	60.00	23.45	80.32	251

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