

Table S1 Cross Classification Table for the probability level of SUHI FPs estimated by the Gaussian surface model and the logistic model in daytime (Unit: km²)

		Logistic model									
		0 - 0.1	0.1 - 0.2	0.2 - 0.3	0.3 - 0.4	0.4 - 0.5	0.5 - 0.6	0.6 - 0.7	0.7- 0.8	0.8- 0.9	0.9- 1.0
Gaussian surface model											
0.0 - 0.1		5251	541	318	233	132	76	66	42	43	21
0.1 - 0.2		1301	89	88	47	45	21	29	29	18	11
0.2 - 0.3		601	101	60	67	72	51	36	46	26	23
0.3 - 0.4		610	55	29	56	33	60	46	61	47	17
0.4 - 0.5		132	31	45	47	46	76	68	74	84	80
0.5 - 0.6		81	20	24	19	21	28	32	47	65	20
0.6 - 0.7		55	22	22	30	17	24	22	35	31	49
0.7- 0.8		24	8	19	12	14	16	15	18	17	29
0.8- 0.9		16	16	15	14	19	25	33	23	38	57
0.9- 1.0		57	51	52	89	124	148	161	188	243	1268

Table S2 Cross Classification Table for the probability level of SUHI FPs estimated by the Gaussian surface model and the logistic model in nighttime (Unit: km²)

		Logistic model									
		0 - 0.1	0.1 - 0.2	0.2 - 0.3	0.3 - 0.4	0.4 - 0.5	0.5 - 0.6	0.6 - 0.7	0.7- 0.8	0.8- 0.9	0.9- 1.0
Gaussian surface model											
0.0 - 0.1		4014	1098	610	381	199	172	90	67	77	15
0.1 - 0.2		506	430	419	134	81	43	27	11	26	1
0.2 - 0.3		231	299	175	146	75	51	48	35	21	2
0.3 - 0.4		210	286	212	112	62	57	32	20	19	4
0.4 - 0.5		80	102	153	108	88	42	55	36	17	2
0.5 - 0.6		12	46	84	63	44	48	25	19	16	0
0.6 - 0.7		12	23	43	55	47	33	46	28	12	8
0.7- 0.8		18	27	23	30	24	7	19	9	11	4
0.8- 0.9		20	72	46	15	19	19	14	17	31	3
0.9- 1.0		77	174	218	193	133	186	173	368	578	281

Table S3 Overlay analysis of land use and SUHI FP estimated by the logistic model in the daytime (Unit: km²)

Land use types Probability level	Cropland	Forest	Grassland	Shrubland	Wetland	Water	Impervious surface	Bare land
0.0 - 0.1	809	6333	354	354	11	142	90	35
0.1 - 0.2	444	334	34	24	1	10	84	3
0.2 - 0.3	451	113	17	5	1	4	79	2
0.3 - 0.4	416	44	10	2	1	9	131	1
0.4 - 0.5	363	29	8	0	0	5	118	0
0.5 - 0.6	346	25	5	1	3	6	139	0
0.6 - 0.7	307	33	5	0	0	8	154	1
0.7- 0.8	318	25	1	0	1	3	211	4
0.8- 0.9	304	29	5	1	3	9	261	0
0.9- 1.0	548	57	5	0	5	17	941	2

Table S4 Overlay analysis of land use and SUHI FP estimated by the Gaussian surface model in the daytime (Unit: km²)

Land use types Probability level	Cropland	Forest	Grassland	Shrubland	Wetland	Water	Impervious surface	Bare land
0.0 - 0.1	1953	6379	410	379	11	155	496	40
0.1 - 0.2	368	199	7	0	2	2	130	4
0.2 - 0.3	261	181	7	5	0	4	109	0
0.3 - 0.4	188	41	2	0	1	10	87	0
0.4 - 0.5	280	36	5	2	1	4	108	0
0.5 - 0.6	153	12	4	0	1	2	87	0
0.6 - 0.7	105	29	1	1	0	2	63	1
0.7- 0.8	95	17	1	0	1	2	40	0
0.8- 0.9	91	14	0	0	0	3	58	0
0.9- 1.0	812	114	7	0	9	29	1030	3

Table S5 Overlay analysis of land use and SUHI FP estimated by the logistic algorithm at night (Unit: km²)

Land use types Probability level	Cropland	Forest	Grassland	Shrubland	Wetland	Water	Impervious surface	Bare land
0.0 - 0.1	961	3607	228	199	2	10	154	19
0.1 - 0.2	687	1491	76	72	2	9	211	9
0.2 - 0.3	711	904	52	52	5	10	247	2
0.3 - 0.4	547	381	39	33	0	15	216	6
0.4 - 0.5	342	226	15	13	2	13	157	4
0.5 - 0.6	283	186	16	7	0	11	152	3
0.6 - 0.7	223	100	6	8	1	18	173	0
0.7- 0.8	225	69	5	2	4	25	277	3
0.8- 0.9	238	46	6	1	7	81	427	2
0.9- 1.0	89	12	1	0	3	21	194	0

Table S6 Overlay analysis of land use and SUHI FP estimated by the Gaussian surface model at night (Unit: km²)

Land use types Probability level	Cropland	Forest	Grassland	Shrubland	Wetland	Water	Impervious surface	Bare land
0.0 - 0.1	1427	4315	321	253	10	93	283	21
0.1 - 0.2	287	1189	41	43	1	38	78	1
0.2 - 0.3	328	531	35	48	0	17	116	8
0.3 - 0.4	303	505	20	36	1	6	135	8
0.4 - 0.5	344	137	5	1	3	10	182	1
0.5 - 0.6	174	75	3	1	0	8	96	0
0.6 - 0.7	149	51	4	2	0	3	96	2
0.7- 0.8	105	13	2	0	0	0	48	4
0.8- 0.9	144	18	4	1	0	3	86	0
0.9- 1.0	1045	188	9	2	11	35	1088	3