

Supplementary material of

Spatio-Temporal Changes in Air Quality of the Urban Area of Chongqing from 2015 to 2021 Based on a Missing-Data-Filled Dataset

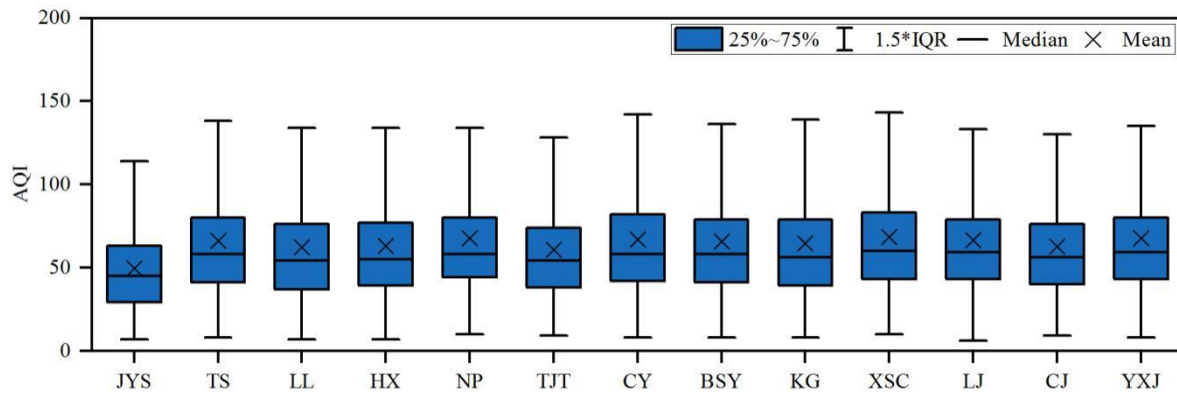


Figure S1. A boxplot of hourly AQI for each site from 2015 to 2021.

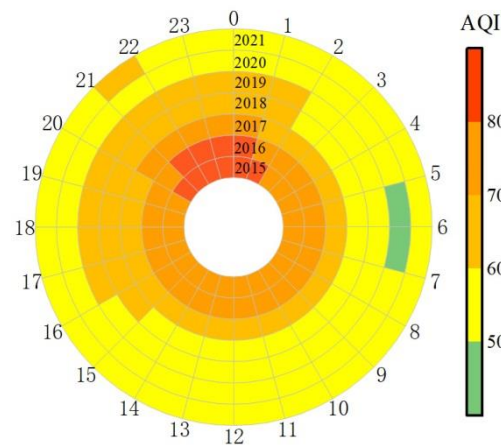


Figure S2. Heatmap of 24-hour mean AQI from 2015 and 2021.

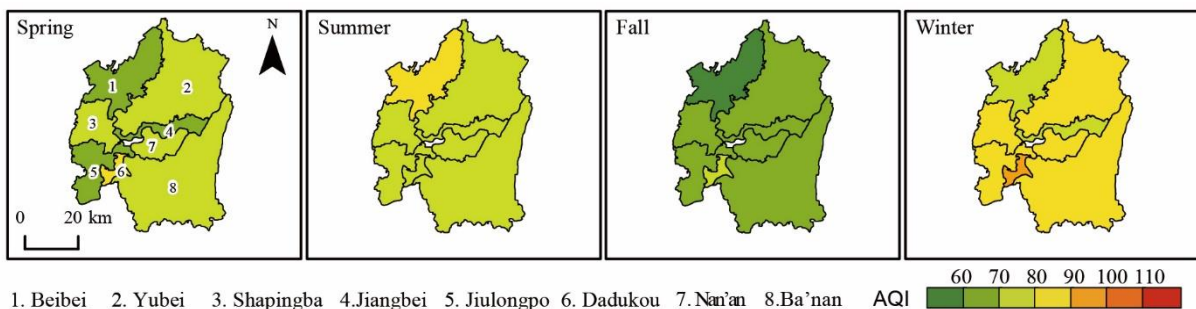


Figure S3. Spatial heterogeneity of seasonal AQI from 2015 to 2021.

Table S1. Overview of observation sites.

Site	Name	Abbreviation	County	Longitude (°E)	Latitude(°N)	Missing rate
1414A	Jinyunshan	JYS	Beibei	106.3787	29.8279	5.38%
1416A	Tiansheng	TS	Beibei	106.4213	29.8253	5.49%
1417A	Lianglu	LL	Yubei	106.6263	29.7228	4.46%
1418A	Huxi	HX	Shapingba	106.2953	29.5983	4.36%
1419A	Nanping	NP	Nan'an	106.5777	29.5102	4.23%
1420A	Tangjiatuo	TJT	Jiangbei	106.6556	29.6277	4.37%
1421A	Chayuan	CY	Nan'an	106.6349	29.4906	4.22%
1422A	Baishiyi	BSY	Jiulongpo	106.3754	29.4572	5.57%
1425A	Konggang	KG	Yubei	106.6205	29.7166	4.65%
1426A	Xinshancun	XSC	Dadukou	106.4782	29.4875	4.21%
1427A	Lijia	LJ	Yubei	106.5616	29.6453	4.83%
1428A	Caijia	CJ	Beibei	106.4522	29.7091	5.93%
1429A	Yuxinjie	YXJ	Ba'nan	106.5093	29.3917	4.65%

Table S2. Concentration breakpoints of pollutant items.

IAQI	SO ₂ (μg/m ³)		NO ₂ (μg/m ³)		CO (mg/m ³)		O ₃ (μg/m ³)		PM _{2.5} (μg/m ³)		PM ₁₀ (μg/m ³)	
	Hourly	Daily	Hourly	Daily	Hourly	Daily	Hourly	Daily	Hourly	Daily	Hourly	Daily
0	0	0	0	0	0	0	0	0	0	0	0	0
50	150	50	100	40	5	2	160	100	35	35	50	50
100	500	150	200	80	10	4	200	160	75	75	150	150
150	650	475	700	180	35	14	300	215	115	115	250	250
200	800	800	1200	280	60	24	400	265	150	150	350	350
300	1600	1600	2340	565	90	36	800	800	250	250	420	420
400	2100	2100	3090	750	120	48	1000	1000	350	350	500	500
500	2620	2620	3840	940	150	60	1200	1200	500	500	600	600

Note: Hourly and daily appearing in this table respectively refer to hourly and daily breakpoints for AQI calculation.

Table S3. Categories of air quality.

Levels of Health Concern	AQI
Excellent	0-50
Good	51-100
Unhealthy for sensitive groups	101-150
Unhealthy	151-200
Very Unhealthy	201-300
Hazardous	301-500

Table S4 Descriptive statistics of each observation site from 2015 to 2021.

Site	Mean	Median	Standard Deviation	Minimum	1st Quartile (25%)	3rd Quartile (75%)	Maximum
JYS	49	45	28	7	29	63	285
TS	66	58	38	8	41	80	373
LL	62	54	38	7	37	76	455
HX	63	55	35	7	39	77	302
NP	68	58	37	10	44	80	335
TJT	61	54	33	9	38	74	324
CY	67	58	37	8	42	82	420
BSY	66	58	37	8	41	79	348
KG	65	56	37	8	39	79	344
XSC	68	60	39	10	43	83	500
LJ	66	59	36	6	43	79	500
CJ	63	56	34	9	40	76	455
YXJ	68	59	38	8	43	80	500

Table S5. Primary contributors of polluted days in Chongqing from 2015 to 2021.

Year	Days of primary pollutants						Polluted days	Non-polluted days	Recorded days
	PM _{2.5}	O ₃	NO ₂	PM ₁₀	SO ₂	CO			
2015	61	15	0	0	0	0	76	288	364
2016	70	21	0	0	0	0	91	275	366
2017	52	44	0	1	0	0	97	268	365
2018	31	41	4	0	0	0	76	289	365
2019	27	36	0	0	0	0	63	302	365
2020	15	28	0	0	0	0	43	323	366
2021	33	27	0	0	0	0	60	305	365
Total	289	212	4	1	0	0	506	2050	2556