Supplemental information for manuscript:

A comprehensive review of tropospheric background ozone: Definitions, estimation methods, and meta-analysis of its spatiotemporal distribution in China

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Table S1. Comprehensive list of data source for background O_3 concentration in China from 1994 to 2020.

No.	Location	Type	Study Year	Study Season or Month	Background O_3 Concentration (ppb)	Reference
1	NC	Annual	2004	-	30	Meng et al., 2009
2	NC	Annual	2005	-	33	Meng et al., 2009
3	NC	Annual	2006	-	31	Meng et al., 2009
4	NC	Annual	2004-2006	-	32	Lin et al., 2008
5	NC	Annual	2004	-	34	Xu et al., 2020
6	NC	Annual	2005	-	36	Xu et al., 2020
7	NC	Annual	2006	-	33	Xu et al., 2020
8	NC	Annual	2007	-	36	Xu et al., 2020
9	NC	Annual	2008	-	39	Xu et al., 2020
10	NC	Annual	2009	-	36	Xu et al., 2020
11	NC	Annual	2010	-	38	Xu et al., 2020
12	NC	Annual	2011	-	39	Xu et al., 2020
13	NC	Annual	2012	-	40	Xu et al., 2020
14	NC	Annual	2013	-	39	Xu et al., 2020
15	NC	Annual	2004	-	45	Ma et al., 2016
16	NC	Annual	2005	-	48	Ma et al., 2016
17	NC	Annual	2006	-	44	Ma et al., 2016
18	NC	Annual	2007	-	48	Ma et al., 2016
19	NC	Annual	2008	-	51	Ma et al., 2016

20	NC	Annual	2009	-	50	Ma et al., 2016
21	NC	Annual	2010	-	46	Ma et al., 2016
22	NC	Annual	2011	-	48	Ma et al., 2016
23	NC	Annual	2012	-	52	Ma et al., 2016
24	NC	Annual	2013	-	50	Ma et al., 2016
25	NC	Annual	2004	-	34	Zhang et al., 2020
26	NC	Annual	2005	-	36	Zhang et al., 2020
27	NC	Annual	2006	-	33	Zhang et al., 2020
28	NC	Annual	2007	-	37	Zhang et al., 2020
29	NC	Annual	2008	-	39	Zhang et al., 2020
30	NC	Annual	2009	-	37	Zhang et al., 2020
31	NC	Annual	2010	-	37	Zhang et al., 2020
32	NC	Annual	2011	-	39	Zhang et al., 2020
33	NC	Annual	2012	-	40	Zhang et al., 2020
34	NC	Annual	2013	-	39	Zhang et al., 2020
35	NC	Quarterly	2003	Autumn and Winter	27	Meng et al., 2009
36	NC	Quarterly	2004-2006	Spring	39	Lin et al., 2008
37	NC	Quarterly	2004-2006	Summer	37	Lin et al., 2008
38	NC	Quarterly	2004-2006	Autumn	28	Lin et al., 2008
39	NC	Quarterly	2004-2006	Winter	22	Lin et al., 2008
40	NC	Quarterly	2007	Summer	58	Xu et al., 2011
41	NC	Quarterly	2008	Summer	59	Yang et al., 2012
42	NC	Quarterly	2009	Summer	59	Yang et al., 2012
43	NC	Quarterly	2010	Summer	67	Yang et al., 2012
44	NC	Quarterly	2011	Summer	71	Yang et al., 2012
45	NC	Monthly	2010-2012	January	24	Liu et al., 2019a

46	NC	Monthly	2010-2012	February	27	Liu et al., 2019a
47	NC	Monthly	2010-2012	March	32	Liu et al., 2019a
48	NC	Monthly	2010-2012	April	41	Liu et al., 2019a
49	NC	Monthly	2010-2012	May	55	Liu et al., 2019a
50	NC	Monthly	2010-2012	June	64	Liu et al., 2019a
51	NC	Monthly	2010-2012	July	63	Liu et al., 2019a
52	NC	Monthly	2010-2012	August	48	Liu et al., 2019a
53	NC	Monthly	2010-2012	September	40	Liu et al., 2019a
54	NC	Monthly	2010-2012	October	30	Liu et al., 2019a
55	NC	Monthly	2010-2012	November	20	Liu et al., 2019a
56	NC	Monthly	2010-2012	December	20	Liu et al., 2019a
57	NC	Monthly	2008	January	18	Wu et al., 2022
58	NC	Monthly	2008	February	25	Wu et al., 2022
59	NC	Monthly	2008	March	34	Wu et al., 2022
60	NC	Monthly	2008	April	50	Wu et al., 2022
61	NC	Monthly	2008	May	51	Wu et al., 2022
62	NC	Monthly	2008	June	59	Wu et al., 2022
63	NC	Monthly	2008	July	48	Wu et al., 2022
64	NC	Monthly	2008	August	41	Wu et al., 2022
65	NC	Monthly	2008	September	36	Wu et al., 2022
66	NC	Monthly	2008	October	29	Wu et al., 2022
67	NC	Monthly	2008	November	18	Wu et al., 2022
68	NC	Monthly	2008	December	19	Wu et al., 2022
69	NC	Monthly	2009	January	23	Wu et al., 2022
70	NC	Monthly	2009	February	24	Wu et al., 2022
71	NC	Monthly	2009	March	32	Wu et al., 2022

72	NC	Monthly	2009	April	45	Wu et al., 2022
73	NC	Monthly	2009	May	52	Wu et al., 2022
74	NC	Monthly	2009	June	45	Wu et al., 2022
75	NC	Monthly	2009	July	50	Wu et al., 2022
76	NC	Monthly	2009	August	39	Wu et al., 2022
77	NC	Monthly	2009	September	33	Wu et al., 2022
78	NC	Monthly	2009	October	24	Wu et al., 2022
79	NC	Monthly	2009	November	18	Wu et al., 2022
80	NC	Monthly	2009	December	17	Wu et al., 2022
81	NC	Monthly	2010	January	22	Wu et al., 2022
82	NC	Monthly	2010	February	25	Wu et al., 2022
83	NC	Monthly	2010	March	25	Wu et al., 2022
84	NC	Monthly	2010	April	33	Wu et al., 2022
85	NC	Monthly	2010	May	43	Wu et al., 2022
86	NC	Monthly	2010	June	59	Wu et al., 2022
87	NC	Monthly	2010	July	77	Wu et al., 2022
88	NC	Monthly	2010	August	38	Wu et al., 2022
89	NC	Monthly	2010	September	32	Wu et al., 2022
90	NC	Monthly	2010	October	23	Wu et al., 2022
91	NC	Monthly	2010	November	14	Wu et al., 2022
92	NC	Monthly	2010	December	16	Wu et al., 2022
93	NC	Monthly	2011	January	27	Wu et al., 2022
94	NC	Monthly	2011	February	26	Wu et al., 2022
95	NC	Monthly	2011	March	32	Wu et al., 2022
96	NC	Monthly	2011	April	38	Wu et al., 2022
97	NC	Monthly	2011	May	48	Wu et al., 2022

98	NC	Monthly	2011	June	62	Wu et al., 2022
99	NC	Monthly	2011	July	48	Wu et al., 2022
100	NC	Monthly	2011	August	48	Wu et al., 2022
101	NC	Monthly	2011	September	40	Wu et al., 2022
102	NC	Monthly	2011	October	27	Wu et al., 2022
103	NC	Monthly	2011	November	17	Wu et al., 2022
104	NC	Monthly	2011	December	18	Wu et al., 2022
105	NC	Monthly	2012	January	19	Wu et al., 2022
106	NC	Monthly	2012	February	24	Wu et al., 2022
107	NC	Monthly	2012	March	30	Wu et al., 2022
108	NC	Monthly	2012	April	41	Wu et al., 2022
109	NC	Monthly	2012	May	58	Wu et al., 2022
110	NC	Monthly	2012	June	54	Wu et al., 2022
111	NC	Monthly	2012	July	47	Wu et al., 2022
112	NC	Monthly	2012	August	40	Wu et al., 2022
113	NC	Monthly	2012	September	35	Wu et al., 2022
114	NC	Monthly	2012	October	31	Wu et al., 2022
115	NC	Monthly	2012	November	22	Wu et al., 2022
116	NC	Monthly	2012	December	18	Wu et al., 2022
117	NC	Monthly	2013	January	20	Wu et al., 2022
118	NC	Monthly	2013	February	27	Wu et al., 2022
119	NC	Monthly	2013	March	34	Wu et al., 2022
120	NC	Monthly	2013	April	41	Wu et al., 2022
121	NC	Monthly	2013	May	57	Wu et al., 2022
122	NC	Monthly	2013	June	47	Wu et al., 2022
123	NC	Monthly	2013	July	43	Wu et al., 2022

124	NC	Monthly	2013	August	45	Wu et al., 2022
125	NC	Monthly	2013	September	32	Wu et al., 2022
126	NC	Monthly	2013	October	29	Wu et al., 2022
127	NC	Monthly	2013	November	19	Wu et al., 2022
128	NC	Monthly	2013	December	19	Wu et al., 2022
129	NC	Annual	2014	-	40	Xu et al., 2020
130	NC	Annual	2015	-	39	Xu et al., 2020
131	NC	Annual	2014	-	53	Ma et al., 2016
132	NC	Annual	2015	-	60	Ma et al., 2016
133	NC	Annual	2015	-	28	Sahu et al., 2021
134	NC	Annual	2016	-	38	Xu et al., 2020
135	NC	Annual	2014	-	40	Zhang et al., 2020
136	NC	Annual	2015	-	39	Zhang et al., 2020
137	NC	Annual	2016	-	38	Zhang et al., 2020
138	NC	Annual	2017	-	43	Zhang et al., 2020
139	NC	Annual	2018	-	37	Zhang et al., 2020
140	NC	Annual	2017-2019	-	17	Yao et al., 2021
141	NC	Annual	2017-2019	-	18	Yao et al., 2021
142	NC	Annual	2017-2019	-	20	Yao et al., 2021
143	NC	Annual	2016-2020	-	36	Sun et al., 2024
144	NC	Quarterly	2014-2017	Summer	45	Zhao et al., 2018
145	NC	Quarterly	2018	Summer	40	Han et al., 2021
146	NC	Quarterly	2018	Spring	48	Han et al., 2021
147	NC	Quarterly	2018	Autumn	28	Han et al., 2021
148	NC	Quarterly	2018	Winter	26	Han et al., 2021
149	NC	Monthly	2014	January	19	Wu et al., 2022

150	NC	Monthly	2014	February	22	Wu et al., 2022
151	NC	Monthly	2014	March	33	Wu et al., 2022
152	NC	Monthly	2014	April	47	Wu et al., 2022
153	NC	Monthly	2014	May	54	Wu et al., 2022
154	NC	Monthly	2014	June	50	Wu et al., 2022
155	NC	Monthly	2014	July	54	Wu et al., 2022
156	NC	Monthly	2014	August	51	Wu et al., 2022
157	NC	Monthly	2014	September	37	Wu et al., 2022
158	NC	Monthly	2014	October	30	Wu et al., 2022
159	NC	Monthly	2014	November	21	Wu et al., 2022
160	NC	Monthly	2014	December	21	Wu et al., 2022
161	NC	Monthly	2015	January	22	Wu et al., 2022
162	NC	Monthly	2015	February	29	Wu et al., 2022
163	NC	Monthly	2015	March	37	Wu et al., 2022
164	NC	Monthly	2015	April	52	Wu et al., 2022
165	NC	Monthly	2015	May	64	Wu et al., 2022
166	NC	Monthly	2015	June	59	Wu et al., 2022
167	NC	Monthly	2015	July	70	Wu et al., 2022
168	NC	Monthly	2015	August	55	Wu et al., 2022
169	NC	Monthly	2015	September	44	Wu et al., 2022
170	NC	Monthly	2015	October	37	Wu et al., 2022
171	NC	Monthly	2015	November	22	Wu et al., 2022
172	NC	Monthly	2015	December	18	Wu et al., 2022
173	NC	Monthly	2016	January	27	Wu et al., 2022
174	NC	Monthly	2016	February	34	Wu et al., 2022
175	NC	Monthly	2016	March	36	Wu et al., 2022

176	NC	Monthly	2016	April	45	Wu et al., 2022
177	NC	Monthly	2016	May	63	Wu et al., 2022
178	NC	Monthly	2016	June	67	Wu et al., 2022
179	NC	Monthly	2016	July	48	Wu et al., 2022
180	NC	Monthly	2016	August	38	Wu et al., 2022
181	NC	Monthly	2016	September	31	Wu et al., 2022
182	NC	Monthly	2016	October	24	Wu et al., 2022
183	NC	Monthly	2016	November	17	Wu et al., 2022
184	NC	Monthly	2016	December	20	Wu et al., 2022
185	NC	Monthly	2017	January	23	Wu et al., 2022
186	NC	Monthly	2017	February	29	Wu et al., 2022
187	NC	Monthly	2017	March	33	Wu et al., 2022
188	NC	Monthly	2017	April	41	Wu et al., 2022
189	NC	Monthly	2017	May	60	Wu et al., 2022
190	NC	Monthly	2017	June	63	Wu et al., 2022
191	NC	Monthly	2017	July	52	Wu et al., 2022
192	NC	Monthly	2017	August	40	Wu et al., 2022
193	NC	Monthly	2017	September	42	Wu et al., 2022
194	NC	Monthly	2017	October	23	Wu et al., 2022
195	NC	Monthly	2017	November	19	Wu et al., 2022
196	NC	Monthly	2017	December	17	Wu et al., 2022
197	EC	Annual	2004	-	32	Yang et al., 2008
198	EC	Annual	2009	-	34	Li et al., 2015
199	EC	Annual	2011	-	41	Su et al., 2013
200	EC	Annual	2010-2012	-	31	Liu et al., 2019a
201	EC	Annual	2006	-	33	Zhang et al., 2020

202	EC	Annual	2007	-	34	Zhang et al., 2020
203	EC	Annual	2008	-	34	Zhang et al., 2020
204	EC	Annual	2009	-	34	Zhang et al., 2020
205	EC	Annual	2010	-	31	Zhang et al., 2020
206	EC	Annual	2011	-	32	Zhang et al., 2020
207	EC	Annual	2012	-	31	Zhang et al., 2020
208	EC	Annual	2013	-	34	Zhang et al., 2020
209	EC	Annual	2006	-	34	Xu et al., 2020
210	EC	Annual	2007	-	35	Xu et al., 2020
211	EC	Annual	2008	-	35	Xu et al., 2020
212	EC	Annual	2009	-	34	Xu et al., 2020
213	EC	Annual	2010	-	31	Xu et al., 2020
214	EC	Annual	2011	-	32	Xu et al., 2020
215	EC	Annual	2012	-	32	Xu et al., 2020
216	EC	Annual	2013	-	34	Xu et al., 2020
217	EC	Quarterly	2000	Spring	40	Xu et al., 2008
218	EC	Quarterly	2000	Summer	33	Xu et al., 2008
219	EC	Quarterly	2000	Autumn	33	Xu et al., 2008
220	EC	Quarterly	2001	Spring	38	Xu et al., 2008
221	EC	Quarterly	2003	Autumn	53	Gao et al., 2005
222	EC	Quarterly	2003	Winter	24	Yang et al., 2008
223	EC	Quarterly	2004	Spring	36	Yang et al., 2008
224	EC	Quarterly	2004	Summer	38	Yang et al., 2008
225	EC	Quarterly	2004	Autumn	32	Yang et al., 2008
226	EC	Quarterly	2005	Autumn	38	Xu et al., 2008
227	EC	Quarterly	2006	Spring	42	Xu et al., 2008

228	EC	Quarterly	2006	Summer	34	Xu et al., 2008
229	EC	Quarterly	2011	Spring	56	Su et al., 2013
230	EC	Quarterly	2011	Summer	38	Su et al., 2013
231	EC	Quarterly	2011	Autumn	43	Su et al., 2013
232	EC	Quarterly	2011	Winter	30	Su et al., 2013
233	EC	Quarterly	2008	Spring	25	Ni et al., 2018
234	EC	Quarterly	2008	Spring	40	Ni et al., 2018
235	EC	Quarterly	2000	Autumn	25	Li et al., 2014
236	EC	Quarterly	2000	Summer	40	Li et al., 2014
237	EC	Quarterly	2000	Autumn	20	Li et al., 2014
238	EC	Quarterly	2000	Autumn	30	Li et al., 2014
239	EC	Quarterly	2005-2006	Winter	20	Xu et al., 2008
240	EC	Monthly	2003	July	65	Gao et al., 2005
241	EC	Monthly	2003	August	60	Gao et al., 2005
242	EC	Monthly	2003	September	62	Gao et al., 2005
243	EC	Monthly	2003	October	50	Gao et al., 2005
244	EC	Monthly	2003	November	48	Gao et al., 2005
245	EC	Monthly	2006	June	82	Kanaya et al., 2013
246	EC	Monthly	2005	Winter	18	Meng et al., 2009
247	EC	Monthly	2006	Spring	45	Meng et al., 2009
248	EC	Monthly	2006-2009	June	75	Sun et al., 2016
249	EC	Monthly	2006-2009	June	85	Sun et al., 2016
250	EC	Quarterly	2006-2009	Summer	60	Sun et al., 2016
251	EC	Quarterly	2006-2009	Summer	70	Sun et al., 2016
252	EC	Monthly	2009	January	21	Li et al., 2015
253	EC	Monthly	2009	February	22	Li et al., 2015

254	EC	Monthly	2009	March	32	Li et al., 2015
255	EC	Monthly	2009	April	46	Li et al., 2015
256	EC	Monthly	2009	May	57	Li et al., 2015
257	EC	Monthly	2009	June	46	Li et al., 2015
258	EC	Monthly	2009	July	35	Li et al., 2015
259	EC	Monthly	2009	August	30	Li et al., 2015
260	EC	Monthly	2009	September	38	Li et al., 2015
261	EC	Monthly	2009	October	43	Li et al., 2015
262	EC	Monthly	2009	November	21	Li et al., 2015
263	EC	Monthly	2009	December	15	Li et al., 2015
264	EC	Monthly	2010-2012	January	16	Liu et al., 2019a
265	EC	Monthly	2010-2012	February	25	Liu et al., 2019a
266	EC	Monthly	2010-2012	March	31	Liu et al., 2019a
267	EC	Monthly	2010-2012	April	40	Liu et al., 2019a
268	EC	Monthly	2010-2012	May	46	Liu et al., 2019a
269	EC	Monthly	2010-2012	June	35	Liu et al., 2019a
270	EC	Monthly	2010-2012	July	32	Liu et al., 2019a
271	EC	Monthly	2010-2012	August	33	Liu et al., 2019a
272	EC	Monthly	2010-2012	September	38	Liu et al., 2019a
273	EC	Monthly	2010-2012	October	39	Liu et al., 2019a
274	EC	Monthly	2010-2012	November	23	Liu et al., 2019a
275	EC	Monthly	2010-2012	December	16	Liu et al., 2019a
276	EC	Monthly	2011	March	52	Su et al., 2013
277	EC	Monthly	2011	April	60	Su et al., 2013
278	EC	Monthly	2011	May	55	Su et al., 2013
279	EC	Monthly	2011	June	38	Su et al., 2013

280	EC	Monthly	2011	July	38	Su et al., 2013
281	EC	Monthly	2011	August	38	Su et al., 2013
282	EC	Monthly	2011	September	46	Su et al., 2013
283	EC	Monthly	2011	October	42	Su et al., 2013
284	EC	Monthly	2011	November	41	Su et al., 2013
285	EC	Monthly	2011	December	35	Su et al., 2013
286	EC	Monthly	2012	January	24	Su et al., 2013
287	EC	Monthly	2012	February	30	Su et al., 2013
288	EC	Annual	2014	-	35	Xu et al., 2020
289	EC	Annual	2015	-	33	Xu et al., 2020
290	EC	Annual	2016	-	31	Xu et al., 2020
291	EC	Annual	2015	-	29	Sahu et al., 2021
292	EC	Annual	2014	-	35	Zhang et al., 2020
293	EC	Annual	2015	-	32	Zhang et al., 2020
294	EC	Annual	2016	-	31	Zhang et al., 2020
295	EC	Annual	2017	-	30	Zhang et al., 2020
296	EC	Annual	2018	-	33	Zhang et al., 2020
297	EC	Annual	2018-2020	-	52	Wang et al., 2022
298	EC	Annual	2018-2020	-	51	Wang et al., 2022
299	EC	Annual	2018-2020	-	51	Wang et al., 2022
300	EC	Annual	2018-2020	-	31	Wang et al., 2022
301	EC	Annual	2018-2020	-	31	Wang et al., 2022
302	EC	Annual	2018	-	42	Wang et al., 2022
303	EC	Annual	2019	-	42	Wang et al., 2022
304	EC	Annual	2020	-	41	Wang et al., 2022
305	EC	Annual	2018-2020	-	42	Wang et al., 2022

306	EC	Annual	2020	-	37	Sun et al., 2024
307	EC	Monthly	2016	May	32	Liang et al., 2018
308	EC	Monthly	2016	May	72	Liang et al., 2018
309	NWC	Annual	1994	-	43	Nie et al., 2004
310	NWC	Annual	1995	-	47	Nie et al., 2004
311	NWC	Annual	1996	-	44	Nie et al., 2004
312	NWC	Annual	1997	-	47	Nie et al., 2004
313	NWC	Annual	1998	-	46	Nie et al., 2004
314	NWC	Annual	1998	-	47	Zhang et al., 2020
315	NWC	Annual	1999	-	51	Nie et al., 2004
316	NWC	Annual	2000	-	53	Nie et al., 2004
317	NWC	Annual	2000	-	53	Jin et al., 2008
318	NWC	Annual	2001	-	48	Nie et al., 2004
319	NWC	Annual	2010	-	40	Xu et al., 2020
320	NWC	Annual	1994-2002	-	48	Jin et al., 2008
321	NWC	Annual	1994-2017	-	51	Wang et al., 2020
322	NWC	Monthly	1995-2016	January	43	Xu et al., 2020
323	NWC	Monthly	1995-2016	July	62	Xu et al., 2020
324	NWC	Quarterly	2003	Spring	58	Wang et al., 2006
325	NWC	Quarterly	2003	Summer	54	Wang et al., 2006
326	NWC	Quarterly	2006	Summer	55	Wang et al., 2011
327	NWC	Quarterly	2006	Summer	59	Xue et al., 2011
328	NWC	Monthly	2005	January	34	Lin et al., 2010
329	NWC	Monthly	2005	February	40	Lin et al., 2010
330	NWC	Monthly	2005	March	38	Lin et al., 2010
331	NWC	Monthly	2005	April	38	Lin et al., 2010

332	NWC	Monthly	2005	May	40	Lin et al., 2010
333	NWC	Monthly	2005	June	42	Lin et al., 2010
334	NWC	Monthly	2005	July	40	Lin et al., 2010
335	NWC	Monthly	2004	August	32	Lin et al., 2010
336	NWC	Monthly	2004	September	27	Lin et al., 2010
337	NWC	Monthly	2004	October	21	Lin et al., 2010
338	NWC	Monthly	2004	November	23	Lin et al., 2010
339	NWC	Monthly	2004	December	29	Lin et al., 2010
340	NWC	Monthly	2010-2012	January	45	Liu et al., 2019a
341	NWC	Monthly	2010-2012	February	47	Liu et al., 2019a
342	NWC	Monthly	2010-2012	March	50	Liu et al., 2019a
343	NWC	Monthly	2010-2012	April	57	Liu et al., 2019a
344	NWC	Monthly	2010-2012	May	58	Liu et al., 2019a
345	NWC	Monthly	2010-2012	June	63	Liu et al., 2019a
346	NWC	Monthly	2010-2012	July	59	Liu et al., 2019a
347	NWC	Monthly	2010-2012	August	59	Liu et al., 2019a
348	NWC	Monthly	2010-2012	September	51	Liu et al., 2019a
349	NWC	Monthly	2010-2012	October	48	Liu et al., 2019a
350	NWC	Monthly	2010-2012	November	45	Liu et al., 2019a
351	NWC	Monthly	2010-2012	December	44	Liu et al., 2019a
352	NWC	Monthly	2010-2012	January	30	Liu et al., 2019a
353	NWC	Monthly	2010-2012	February	40	Liu et al., 2019a
354	NWC	Monthly	2010-2012	March	43	Liu et al., 2019a
355	NWC	Monthly	2010-2012	April	39	Liu et al., 2019a
356	NWC	Monthly	2010-2012	May	42	Liu et al., 2019a
357	NWC	Monthly	2010-2012	June	42	Liu et al., 2019a

358	NWC	Monthly	2010-2012	July	39	Liu et al., 2019a
359	NWC	Monthly	2010-2012	August	36	Liu et al., 2019a
360	NWC	Monthly	2010-2012	September	33	Liu et al., 2019a
361	NWC	Monthly	2010-2012	October	26	Liu et al., 2019a
362	NWC	Monthly	2010-2012	November	25	Liu et al., 2019a
363	NWC	Monthly	2010-2012	December	27	Liu et al., 2019a
364	NWC	Annual	2011	-	33	Xu et al., 2020
365	NWC	Annual	2012	-	34	Xu et al., 2020
366	NWC	Annual	2013	-	31	Xu et al., 2020
367	NWC	Annual	1995	-	49	Xu et al., 2016
368	NWC	Annual	1996	-	49	Xu et al., 2016
369	NWC	Annual	2000	-	51	Xu et al., 2016
370	NWC	Annual	2001	-	50	Xu et al., 2016
371	NWC	Annual	2003	-	51	Xu et al., 2016
372	NWC	Annual	2004	-	51	Xu et al., 2016
373	NWC	Annual	2005	-	51	Xu et al., 2016
374	NWC	Annual	2006	-	50	Xu et al., 2016
375	NWC	Annual	2007	-	51	Xu et al., 2016
376	NWC	Annual	2008	-	51	Xu et al., 2016
377	NWC	Annual	2009	-	50	Xu et al., 2016
378	NWC	Annual	2010	-	51	Xu et al., 2016
379	NWC	Annual	2011	-	54	Xu et al., 2016
380	NWC	Annual	2012	-	54	Xu et al., 2016
381	NWC	Annual	2013	-	53	Xu et al., 2016
382	NWC	Quarterly	1994	Spring	51	Xu et al., 2016
383	NWC	Quarterly	1995	Spring	52	Xu et al., 2016

384	NWC	Quarterly	1996	Spring	53	Xu et al., 2016
385	NWC	Quarterly	1997	Spring	51	Xu et al., 2016
386	NWC	Quarterly	1998	Spring	54	Xu et al., 2016
387	NWC	Quarterly	1999	Spring	55	Xu et al., 2016
388	NWC	Quarterly	2000	Spring	53	Xu et al., 2016
389	NWC	Quarterly	2001	Spring	52	Xu et al., 2016
390	NWC	Quarterly	2002	Spring	55	Xu et al., 2016
391	NWC	Quarterly	2003	Spring	54	Xu et al., 2016
392	NWC	Quarterly	2004	Spring	55	Xu et al., 2016
393	NWC	Quarterly	2005	Spring	54	Xu et al., 2016
394	NWC	Quarterly	2006	Spring	54	Xu et al., 2016
395	NWC	Quarterly	2007	Spring	54	Xu et al., 2016
396	NWC	Quarterly	2008	Spring	54	Xu et al., 2016
397	NWC	Quarterly	2009	Spring	53	Xu et al., 2016
398	NWC	Quarterly	2010	Spring	56	Xu et al., 2016
399	NWC	Quarterly	2011	Spring	58	Xu et al., 2016
400	NWC	Quarterly	2012	Spring	57	Xu et al., 2016
401	NWC	Quarterly	1995	Summer	60	Xu et al., 2016
402	NWC	Quarterly	1996	Summer	56	Xu et al., 2016
403	NWC	Quarterly	1999	Summer	58	Xu et al., 2016
404	NWC	Quarterly	2000	Summer	61	Xu et al., 2016
405	NWC	Quarterly	2001	Summer	60	Xu et al., 2016
406	NWC	Quarterly	2002	Summer	58	Xu et al., 2016
407	NWC	Quarterly	2003	Summer	59	Xu et al., 2016
408	NWC	Quarterly	2004	Summer	60	Xu et al., 2016
409	NWC	Quarterly	2005	Summer	58	Xu et al., 2016

410	NWC	Quarterly	2006	Summer	57	Xu et al., 2016
411	NWC	Quarterly	2007	Summer	60	Xu et al., 2016
412	NWC	Quarterly	2008	Summer	62	Xu et al., 2016
413	NWC	Quarterly	2009	Summer	56	Xu et al., 2016
414	NWC	Quarterly	2010	Summer	60	Xu et al., 2016
415	NWC	Quarterly	2011	Summer	64	Xu et al., 2016
416	NWC	Quarterly	2012	Summer	60	Xu et al., 2016
417	NWC	Quarterly	2013	Summer	62	Xu et al., 2016
418	NWC	Quarterly	1994	Autumn	42	Xu et al., 2016
419	NWC	Quarterly	1995	Autumn	42	Xu et al., 2016
420	NWC	Quarterly	1996	Autumn	45	Xu et al., 2016
421	NWC	Quarterly	1997	Autumn	45	Xu et al., 2016
422	NWC	Quarterly	2000	Autumn	45	Xu et al., 2016
423	NWC	Quarterly	2001	Autumn	44	Xu et al., 2016
424	NWC	Quarterly	2003	Autumn	46	Xu et al., 2016
425	NWC	Quarterly	2004	Autumn	46	Xu et al., 2016
426	NWC	Quarterly	2005	Autumn	46	Xu et al., 2016
427	NWC	Quarterly	2006	Autumn	46	Xu et al., 2016
428	NWC	Quarterly	2007	Autumn	47	Xu et al., 2016
429	NWC	Quarterly	2008	Autumn	44	Xu et al., 2016
430	NWC	Quarterly	2009	Autumn	45	Xu et al., 2016
431	NWC	Quarterly	2010	Autumn	48	Xu et al., 2016
432	NWC	Quarterly	2011	Autumn	48	Xu et al., 2016
433	NWC	Quarterly	2012	Autumn	49	Xu et al., 2016
434	NWC	Quarterly	2013	Autumn	49	Xu et al., 2016
435	NWC	Quarterly	1995	Winter	42	Xu et al., 2016

436	NWC	Quarterly	1996	Winter	43	Xu et al., 2016
437	NWC	Quarterly	1997	Winter	43	Xu et al., 2016
438	NWC	Quarterly	1998	Winter	44	Xu et al., 2016
439	NWC	Quarterly	1999	Winter	45	Xu et al., 2016
440	NWC	Quarterly	2000	Winter	44	Xu et al., 2016
441	NWC	Quarterly	2001	Winter	44	Xu et al., 2016
442	NWC	Quarterly	2002	Winter	44	Xu et al., 2016
443	NWC	Quarterly	2003	Winter	45	Xu et al., 2016
444	NWC	Quarterly	2004	Winter	44	Xu et al., 2016
445	NWC	Quarterly	2005	Winter	45	Xu et al., 2016
446	NWC	Quarterly	2006	Winter	44	Xu et al., 2016
447	NWC	Quarterly	2007	Winter	44	Xu et al., 2016
448	NWC	Quarterly	2008	Winter	46	Xu et al., 2016
449	NWC	Quarterly	2009	Winter	43	Xu et al., 2016
450	NWC	Quarterly	2010	Winter	43	Xu et al., 2016
451	NWC	Quarterly	2011	Winter	46	Xu et al., 2016
452	NWC	Quarterly	2012	Winter	47	Xu et al., 2016
453	NWC	Quarterly	2013	Winter	46	Xu et al., 2016
454	NWC	Monthly	1994-2017	January	44	Wang et al., 2020
455	NWC	Monthly	1994-2017	February	46	Wang et al., 2020
456	NWC	Monthly	1994-2017	March	50	Wang et al., 2020
457	NWC	Monthly	1994-2017	April	54	Wang et al., 2020
458	NWC	Monthly	1994-2017	May	59	Wang et al., 2020
459	NWC	Monthly	1994-2017	June	61	Wang et al., 2020
460	NWC	Monthly	1994-2017	July	60	Wang et al., 2020
461	NWC	Monthly	1994-2017	August	56	Wang et al., 2020

462	NWC	Monthly	1994-2017	September	49	Wang et al., 2020
463	NWC	Monthly	1994-2017	October	46	Wang et al., 2020
464	NWC	Monthly	1994-2017	November	45	Wang et al., 2020
465	NWC	Monthly	1994-2017	December	43	Wang et al., 2020
466	NWC	Annual	1995	-	48	Zhang et al., 2020
467	NWC	Annual	1996	-	49	Zhang et al., 2020
468	NWC	Annual	1997	-	48	Zhang et al., 2020
469	NWC	Annual	1998	-	47	Zhang et al., 2020
470	NWC	Annual	1999	-	51	Zhang et al., 2020
471	NWC	Annual	2000	-	51	Zhang et al., 2020
472	NWC	Annual	2001	-	50	Zhang et al., 2020
473	NWC	Annual	2002	-	52	Zhang et al., 2020
474	NWC	Annual	2003	-	51	Zhang et al., 2020
475	NWC	Annual	2004	-	51	Zhang et al., 2020
476	NWC	Annual	2005	-	51	Zhang et al., 2020
477	NWC	Annual	2006	-	50	Zhang et al., 2020
478	NWC	Annual	2007	-	51	Zhang et al., 2020
479	NWC	Annual	2008	-	51	Zhang et al., 2020
480	NWC	Annual	2009	-	50	Zhang et al., 2020
481	NWC	Annual	2010	-	51	Zhang et al., 2020
482	NWC	Annual	2011	-	54	Zhang et al., 2020
483	NWC	Annual	2012	-	54	Zhang et al., 2020
484	NWC	Annual	2013	-	53	Zhang et al., 2020
485	NWC	Annual	1995	-	48	Xu et al., 2020
486	NWC	Annual	1996	-	49	Xu et al., 2020
487	NWC	Annual	1997	-	48	Xu et al., 2020

488	NWC	Annual	1999	-	51	Xu et al., 2020
489	NWC	Annual	2000	-	51	Xu et al., 2020
490	NWC	Annual	2001	-	51	Xu et al., 2020
491	NWC	Annual	2002	-	52	Xu et al., 2020
492	NWC	Annual	2003	-	51	Xu et al., 2020
493	NWC	Annual	2004	-	51	Xu et al., 2020
494	NWC	Annual	2005	-	51	Xu et al., 2020
495	NWC	Annual	2006	-	51	Xu et al., 2020
496	NWC	Annual	2007	-	51	Xu et al., 2020
497	NWC	Annual	2008	-	51	Xu et al., 2020
498	NWC	Annual	2009	-	50	Xu et al., 2020
499	NWC	Annual	2010	-	51	Xu et al., 2020
500	NWC	Annual	2011	-	54	Xu et al., 2020
501	NWC	Annual	2012	-	54	Xu et al., 2020
502	NWC	Annual	2013	-	54	Xu et al., 2020
503	NWC	Annual	2014	-	53	Xu et al., 2020
504	NWC	Annual	2015	-	53	Xu et al., 2020
505	NWC	Annual	2016	-	54	Xu et al., 2020
506	NWC	Annual	2014	-	30	Xu et al., 2020
507	NWC	Annual	2015	-	29	Xu et al., 2020
508	NWC	Annual	2016	-	32	Xu et al., 2020
509	NWC	Annual	2014	-	53	Zhang et al., 2020
510	NWC	Annual	2015	-	52	Zhang et al., 2020
511	NWC	Annual	2016	-	54	Zhang et al., 2020
512	NWC	Annual	2017	-	56	Zhang et al., 2020
513	NWC	Annual	2018	-	53	Zhang et al., 2020

514	NWC	Annual	2015	-	30	Sahu et al., 2021
515	NWC	Annual	2020	-	34	Sun et al., 2024
516	SWC	Annual	2007-2009	-	41	Ma et al., 2014
517	SWC	Annual	2009	-	38	Li et al., 2015
518	SWC	Quarterly	2007-2009	Spring	55	Ma et al., 2014
519	SWC	Quarterly	2007-2009	Summer	30	Ma et al., 2014
520	SWC	Quarterly	2007-2009	Autumn	33	Ma et al., 2014
521	SWC	Quarterly	2007-2009	Winter	45	Ma et al., 2014
522	SWC	Quarterly	2009	Spring	54	Li et al., 2015
523	SWC	Quarterly	2009	Summer	28	Li et al., 2015
524	SWC	Quarterly	2009	Autumn	29	Li et al., 2015
525	SWC	Quarterly	2010-2012	Spring	50	Liu et al., 2019a
526	SWC	Quarterly	2010-2012	Summer	27	Liu et al., 2019a
527	SWC	Quarterly	2010-2012	Autumn	31	Liu et al., 2019a
528	SWC	Quarterly	2008	Spring	40	Ni et al., 2018
529	SWC	Quarterly	2008	Spring	80	Ni et al., 2018
530	SWC	Monthly	2007-2009	January	45	Ma et al., 2014
531	SWC	Monthly	2007-2009	February	51	Ma et al., 2014
532	SWC	Monthly	2007-2009	March	57	Ma et al., 2014
533	SWC	Monthly	2007-2009	April	58	Ma et al., 2014
534	SWC	Monthly	2007-2009	May	50	Ma et al., 2014
535	SWC	Monthly	2007-2009	June	37	Ma et al., 2014
536	SWC	Monthly	2007-2009	July	27	Ma et al., 2014
537	SWC	Monthly	2007-2009	August	24	Ma et al., 2014
538	SWC	Monthly	2007-2009	September	30	Ma et al., 2014
539	SWC	Monthly	2007-2009	October	31	Ma et al., 2014

540	SWC	Monthly	2007-2009	November	38	Ma et al., 2014
541	SWC	Monthly	2007-2009	December	40	Ma et al., 2014
542	SWC	Monthly	2010-2012	January	39	Liu et al., 2019a
543	SWC	Monthly	2010-2012	February	45	Liu et al., 2019a
544	SWC	Monthly	2010-2012	March	51	Liu et al., 2019a
545	SWC	Monthly	2010-2012	April	53	Liu et al., 2019a
546	SWC	Monthly	2010-2012	May	47	Liu et al., 2019a
547	SWC	Monthly	2010-2012	June	31	Liu et al., 2019a
548	SWC	Monthly	2010-2012	July	23	Liu et al., 2019a
549	SWC	Monthly	2010-2012	August	26	Liu et al., 2019a
550	SWC	Monthly	2010-2012	September	23	Liu et al., 2019a
551	SWC	Monthly	2010-2012	October	29	Liu et al., 2019a
552	SWC	Monthly	2010-2012	November	41	Liu et al., 2019a
553	SWC	Monthly	2010-2012	December	40	Liu et al., 2019a
554	SWC	Annual	2008	-	43	Xu et al., 2020
555	SWC	Annual	2009	-	38	Xu et al., 2020
556	SWC	Annual	2010	-	32	Xu et al., 2020
557	SWC	Annual	2011	-	39	Xu et al., 2020
558	SWC	Annual	2012	-	42	Xu et al., 2020
559	SWC	Annual	2013	-	41	Xu et al., 2020
560	SWC	Monthly	2009	January	42	Li et al., 2015
561	SWC	Monthly	2009	February	47	Li et al., 2015
562	SWC	Monthly	2009	March	58	Li et al., 2015
563	SWC	Monthly	2009	April	55	Li et al., 2015
564	SWC	Monthly	2009	May	51	Li et al., 2015
565	SWC	Monthly	2009	June	37	Li et al., 2015

566	SWC	Monthly	2009	July	22	Li et al., 2015
567	SWC	Monthly	2009	August	25	Li et al., 2015
568	SWC	Monthly	2009	September	28	Li et al., 2015
569	SWC	Monthly	2009	October	27	Li et al., 2015
570	SWC	Monthly	2009	November	32	Li et al., 2015
571	SWC	Monthly	2009	December	33	Li et al., 2015
572	SWC	Annual	2014	-	38	Xu et al., 2020
573	SWC	Annual	2015	-	42	Xu et al., 2020
574	SWC	Annual	2016	-	38	Xu et al., 2020
575	SWC	Annual	2015	-	25	Sahu et al., 2021
576	SWC	Annual	2017	-	40	Liu et al., 2019b
577	SWC	Annual	2020	-	32	Sun et al., 2024
578	SWC	Annual	2013-2017	-	37	Liu et al., 2019b
579	SWC	Quarterly	2015-2017	Spring	39	Liu et al., 2019b
580	SWC	Quarterly	2015-2017	Summer	34	Liu et al., 2019b
581	SWC	Quarterly	2015-2017	Autumn	28	Liu et al., 2019b
582	SWC	Quarterly	2015-2017	Winter	32	Liu et al., 2019b
583	SC	Annual	1995	-	31	Wang et al., 2009
584	SC	Annual	1996	-	31	Wang et al., 2009
585	SC	Annual	1997	-	32	Wang et al., 2009
586	SC	Annual	1998	-	33	Wang et al., 2009
587	SC	Annual	1999	-	33	Wang et al., 2009
588	SC	Annual	2000	-	34	Wang et al., 2009
589	SC	Annual	2001	-	34	Wang et al., 2009
590	SC	Annual	2002	-	35	Wang et al., 2009
591	SC	Annual	2003	-	35	Wang et al., 2009

592	SC	Annual	2004	-	36	Wang et al., 2009
593	SC	Annual	2005	-	37	Wang et al., 2009
594	SC	Annual	2006	-	37	Wang et al., 2009
595	SC	Annual	2007	-	38	Wang et al., 2009
596	SC	Annual	2006	-	37	Shen et al., 2019
597	SC	Annual	2007	-	37	Shen et al., 2019
598	SC	Annual	2008	-	39	Shen et al., 2019
599	SC	Annual	2009	-	40	Shen et al., 2019
600	SC	Annual	2010	-	40	Shen et al., 2019
601	SC	Annual	2011	-	42	Shen et al., 2019
602	SC	Annual	2012	-	37	Shen et al., 2019
603	SC	Annual	2013	-	37	Shen et al., 2019
604	SC	Quarterly	2006	Summer	20	Wang et al., 2011
605	SC	Quarterly	1994-2007	Spring	35	Wang et al., 2009
606	SC	Quarterly	1994-2007	Summer	20	Wang et al., 2009
607	SC	Quarterly	1994-2007	Autumn	43	Wang et al., 2009
608	SC	Quarterly	2006	Summer	28	Li et al., 2012
609	SC	Quarterly	2006	Summer	29	Li et al., 2012
610	SC	Quarterly	2006	Autumn	41	Li et al., 2012
611	SC	Quarterly	2006	Autumn	40	Li et al., 2012
612	SC	Monthly	1994-2007	January	38	Wang et al., 2009
613	SC	Monthly	1994-2007	February	37	Wang et al., 2009
614	SC	Monthly	1994-2007	March	37	Wang et al., 2009
615	SC	Monthly	1994-2007	April	37	Wang et al., 2009
616	SC	Monthly	1994-2007	May	33	Wang et al., 2009
617	SC	Monthly	1994-2007	June	21	Wang et al., 2009

618	SC	Monthly	1994-2007	July	18	Wang et al., 2009
619	SC	Monthly	1994-2007	August	21	Wang et al., 2009
620	SC	Monthly	1994-2007	September	38	Wang et al., 2009
621	SC	Monthly	1994-2007	October	47	Wang et al., 2009
622	SC	Monthly	1994-2007	November	43	Wang et al., 2009
623	SC	Monthly	1994-2007	December	39	Wang et al., 2009
624	SC	Annual	2015	-	28	Sahu et al., 2021
625	SC	Annual	2020	-	34	Sun et al., 2024
626	SC	Annual	2019	-	38	Xie et al., 2022
627	SC	Annual	2014	-	43	Shen et al., 2019
628	SC	Annual	2015	-	39	Shen et al., 2019
629	SC	Annual	2016	-	36	Shen et al., 2019
630	SC	Annual	2017	-	34	Shen et al., 2019
631	SC	Annual	2018	-	34	Shen et al., 2019
632	SC	Quarterly	2019	Summer	28	Xie et al., 2022
633	SC	Monthly	2019	January	32	Xie et al., 2022
634	SC	Monthly	2019	February	31	Xie et al., 2022
635	SC	Monthly	2019	March	35	Xie et al., 2022
636	SC	Monthly	2019	April	30	Xie et al., 2022
637	SC	Monthly	2019	May	35	Xie et al., 2022
638	SC	Monthly	2019	June	26	Xie et al., 2022
639	SC	Monthly	2019	July	26	Xie et al., 2022
640	SC	Monthly	2019	August	27	Xie et al., 2022
641	SC	Monthly	2019	September	43	Xie et al., 2022
642	SC	Monthly	2019	October	50	Xie et al., 2022
643	SC	Monthly	2019	November	67	Xie et al., 2022

644	SC	Monthly	2019	December	52	Xie et al., 2022
645	NEC	Quarterly	2008	Spring	35	Ni et al., 2018
646	NEC	Quarterly	2008	Spring	45	Ni et al., 2018
647	NEC	Annual	2006	-	34	Xu et al., 2020
648	NEC	Annual	2007	-	36	Xu et al., 2020
649	NEC	Annual	2008	-	30	Xu et al., 2020
650	NEC	Annual	2009	-	30	Xu et al., 2020
651	NEC	Annual	2010	-	34	Xu et al., 2020
652	NEC	Annual	2011	-	35	Xu et al., 2020
653	NEC	Annual	2012	-	30	Xu et al., 2020
654	NEC	Annual	2013	-	30	Xu et al., 2020
655	NEC	Monthly	2010-2012	January	23	Liu et al., 2019a
656	NEC	Monthly	2010-2012	February	29	Liu et al., 2019a
657	NEC	Monthly	2010-2012	March	35	Liu et al., 2019a
658	NEC	Monthly	2010-2012	April	37	Liu et al., 2019a
659	NEC	Monthly	2010-2012	May	42	Liu et al., 2019a
660	NEC	Monthly	2010-2012	June	47	Liu et al., 2019a
661	NEC	Monthly	2010-2012	July	33	Liu et al., 2019a
662	NEC	Monthly	2010-2012	August	33	Liu et al., 2019a
663	NEC	Monthly	2010-2012	September	33	Liu et al., 2019a
664	NEC	Monthly	2010-2012	October	34	Liu et al., 2019a
665	NEC	Monthly	2010-2012	November	27	Liu et al., 2019a
666	NEC	Monthly	2010-2012	December	22	Liu et al., 2019a
667	NEC	Annual	2015	-	27	Sahu et al., 2021
668	NEC	Annual	2020	-	33	Sun et al., 2024
669	NEC	Annual	2014	-	29	Xu et al., 2020

670	NEC	Annual	2015	-	31	Xu et al., 2020
671	NEC	Annual	2016	-	39	Xu et al., 2020
672	CC	Annual	2009	-	26	Li et al., 2015
673	CC	Monthly	2009	January	22	Li et al., 2015
674	CC	Monthly	2009	February	23	Li et al., 2015
675	CC	Monthly	2009	March	20	Li et al., 2015
676	CC	Monthly	2009	April	26	Li et al., 2015
677	CC	Monthly	2009	May	38	Li et al., 2015
678	CC	Monthly	2009	June	23	Li et al., 2015
679	CC	Monthly	2009	July	18	Li et al., 2015
680	CC	Monthly	2009	August	18	Li et al., 2015
681	CC	Monthly	2009	September	26	Li et al., 2015
682	CC	Monthly	2009	October	40	Li et al., 2015
683	CC	Monthly	2009	November	28	Li et al., 2015
684	CC	Monthly	2009	December	25	Li et al., 2015
685	CC	Annual	2015	-	22	Sahu et al., 2021
686	CC	Annual	2020	-	35	Sun et al., 2024
687	CC	Monthly	2017	January	35	Luo et al., 2019
688	CC	Monthly	2017	February	41	Luo et al., 2019
689	CC	Monthly	2017	March	38	Luo et al., 2019
690	CC	Monthly	2017	April	46	Luo et al., 2019
691	CC	Monthly	2017	May	51	Luo et al., 2019
692	CC	Monthly	2017	June	36	Luo et al., 2019
693	CC	Monthly	2017	July	32	Luo et al., 2019
694	CC	Monthly	2017	August	35	Luo et al., 2019
695	CC	Monthly	2017	September	57	Luo et al., 2019

696	CC	Monthly	2017	October	47	Luo et al., 2019
697	CC	Monthly	2017	November	46	Luo et al., 2019
698	CC	Monthly	2017	December	46	Luo et al., 2019
699	China	Quarterly	2006	Spring	51	Wang et al., 2011
700	China	Quarterly	2006	Summer	41	Wang et al., 2011
701	China	Quarterly	2006	Autumn	42	Wang et al., 2011
702	China	Quarterly	2006	Winter	43	Wang et al., 2011
703	China	Annual	2006	-	44	Wang et al., 2011
704	China	Annual	2015	-	27	Sahu et al., 2021
705	China	Annual	2020	-	35	Sun et al., 2024
706	China	Annual	2016	-	34	Xiao et al., 2022
707	China	Annual	2017	-	34	Xiao et al., 2022
708	China	Annual	2018	-	38	Xiao et al., 2022
709	China	Annual	2019	-	39	Xiao et al., 2022
710	China	Annual	2020	-	36	Xiao et al., 2022
711	China	Quarterly	2016	Spring	38	Xiao et al., 2022
712	China	Quarterly	2017	Spring	38	Xiao et al., 2022
713	China	Quarterly	2018	Spring	44	Xiao et al., 2022
714	China	Quarterly	2019	Spring	44	Xiao et al., 2022
715	China	Quarterly	2020	Spring	43	Xiao et al., 2022
716	China	Quarterly	2016	Summer	34	Xiao et al., 2022
717	China	Quarterly	2017	Summer	33	Xiao et al., 2022
718	China	Quarterly	2018	Summer	36	Xiao et al., 2022
719	China	Quarterly	2019	Summer	38	Xiao et al., 2022
720	China	Quarterly	2020	Summer	34	Xiao et al., 2022
721	China	Quarterly	2016	Autumn	32	Xiao et al., 2022

722	China	Quarterly	2017	Autumn	34	Xiao et al., 2022
723	China	Quarterly	2018	Autumn	37	Xiao et al., 2022
724	China	Quarterly	2019	Autumn	39	Xiao et al., 2022
725	China	Quarterly	2020	Autumn	34	Xiao et al., 2022
726	China	Quarterly	2016	Winter	29	Xiao et al., 2022
727	China	Quarterly	2017	Winter	35	Xiao et al., 2022
728	China	Quarterly	2018	Winter	34	Xiao et al., 2022
729	China	Quarterly	2019	Winter	37	Xiao et al., 2022
730	China	Quarterly	2020	Winter	34	Xiao et al., 2022
731	China	Quarterly	2016-2017	Spring	49	Lu et al., 2019
732	China	Quarterly	2016-2017	Summer	50	Lu et al., 2019
733	China	Quarterly	2016-2017	Summer	39	Lu et al., 2019
734	China	Quarterly	2016-2017	Autumn	43	Lu et al., 2019
735	China	Quarterly	2016-2020	Spring	42	Xiao et al., 2022
736	China	Quarterly	2016-2020	Summer	35	Xiao et al., 2022
737	China	Quarterly	2016-2020	Autumn	35	Xiao et al., 2022
738	China	Quarterly	2016-2020	Winter	34	Xiao et al., 2022
739	NC	Quarterly	2013-2019	Summer	55	Chen et al., 2022
740	NWC	Quarterly	2013-2019	Summer	54	Chen et al., 2022
741	EC	Quarterly	2013-2019	Summer	53	Chen et al., 2022
742	SWC	Quarterly	2013-2019	Summer	53	Chen et al., 2022
743	SC	Quarterly	2013-2019	Autumn	52	Chen et al., 2022
744	NC	Quarterly	2013-2019	Summer	49	Chen et al., 2022
745	NWC	Quarterly	2013-2019	Summer	43	Chen et al., 2022
746	EC	Quarterly	2013-2019	Summer	39	Chen et al., 2022
747	SWC	Quarterly	2013-2019	Summer	38	Chen et al., 2022

748	SC	Quarterly	2013-2019	Autumn	35	Chen et al., 2022
749	NC	Quarterly	2013-2019	Winter	34	Chen et al., 2022
750	NWC	Quarterly	2013-2019	Winter	33	Chen et al., 2022
751	EC	Quarterly	2013-2019	Winter	35	Chen et al., 2022
752	SWC	Quarterly	2013-2019	Winter	28	Chen et al., 2022
753	SC	Quarterly	2013-2019	Winter	35	Chen et al., 2022
754	NC	Quarterly	2013-2019	Winter	39	Chen et al., 2022
755	NWC	Quarterly	2013-2019	Winter	41	Chen et al., 2022
756	EC	Quarterly	2013-2019	Winter	38	Chen et al., 2022
757	SWC	Quarterly	2013-2019	Winter	36	Chen et al., 2022
758	SC	Quarterly	2013-2019	Winter	35	Chen et al., 2022

Table S2. The seven geographical regions of China and their corresponding provinces.

Region	Province
Northeast China (NEC)	Heilongjiang, Jilin, Liaoning
North China (NC)	Beijing, Tianjin, Hebei, Shanxi, Inner Mongolia
East China (EC)	Shanghai, Anhui, Fujian, Jiangsu, Jiangxi, Shandong, Zhejiang
Central China (CC)	Henan, Hunan, Hubei
Northwest China (NWC)	Shaanxi, Gansu, Ningxia, Qinghai, Xinjiang
Southwest China (SWC)	Yunnan, Guizhou, Sichuan, Chongqing, Tibet
South China (SC)	Guangdong, Guangxi, Hainan, Hong Kong Special Administrative Region

*The Macao Special Administrative Region and Taiwan were not included due to limited data availability.

9 **Table S3. Geographical location of the 33 background observation stations.**

No.	Location	Station	Longitude (° E)	Latitude (° N)	Above Sea Level (m)
1	NEC	Longfeng Mountain	127.60	44.73	331
2	NEC	Changbai Mountain	128.13	42.14	1220
3	NWC	Mt. Waliguan	100.90	36.28	3816
4	NWC	Akedala	87.93	47.10	562
5	NWC	Menyuan	101.29	37.59	3250
6	NWC	Kanas	87.03	48.73	1391
7	NC	Shangdianzi	117.07	40.39	293
8	NC	Xinglong	117.58	40.38	940
9	NC	Pangquangou	111.47	37.85	1807
10	NC	Hulunbuir	119.31	49.88	618
11	NC	Dingling	116.22	40.29	-
12	NC	Badaling	115.99	40.37	-
13	NC	Miyun Reservoir	116.91	40.50	-
14	NC	Donggaocun	117.12	40.10	-
15	NC	Yongledian	116.78	39.71	-
16	NC	Yufa	116.30	39.52	-
17	NC	Liulihe	116.00	39.58	-
18	EC	Mount Tai	117.10	36.25	1534
19	EC	Lin’an	119.44	30.18	139
20	EC	Changdao	120.74	38.19	125
21	EC	Mount Wuyi	117.73	27.59	1139
22	SC	Hok Tsui	114.25	22.22	60
23	SC	Tianhu	113.62	23.65	251

24	SC	Nanling	112.90	24.70	1689
25	SC	Yongxing Island	112.35	16.84	12
26	SC	Wuzhishan	109.49	18.84	961
27	CC	Jinsha	114.20	29.63	750
28	CC	Shennongjia	110.27	31.45	2930
29	CC	Hengshan Mountain	112.68	27.11	948
30	SWC	Xianggelila	99.73	28.01	3580
31	SWC	Lijiang	100.25	27.23	3410
32	SWC	Namtso	90.96	30.77	4730
33	SWC	Hailuogou	101.97	29.55	3670

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Table S4. Comprehensive list of data source for background O_3 concentration in the United States, Canada, Europe, South Korea and Japan.

No.	Location	Study Period	Concentration (ppb)	Reference
1	Canada	1989-2001	23-34	Vingarzan, 2004
2	Northern Europe	1989-1993	28-33	Vingarzan, 2004
3	United states	1989-2001	13-47	Vingarzan, 2004
4	Western Europe	April 1987-March 2003	36	Simmonds et al., 2004
5	Europe	1997	30	Auvray and Bey, 2005
6	Northern Europe	March 1989-February 1993	30-37	Scheel et al., 1997
7	Western Europe	March 1989-February 1993	34	Scheel et al., 1997
8	Central Europe	1970-1999	33-45	Naja et al., 2003
9	Central Europe	1992-1998	39-50	Brönnimann et al., 2000
10	South Korea	2016	32-47	Lee and Park, 2022
11	South Korea	2018	42-43	Yeo and Kim, 2021
12	Eastern Canada	1997-2006	24-37	Chan and Vet, 2010
13	Western Canada	1997-2006	21-36	Chan and Vet, 2010
14	Eastern Canada	1997-2006	27	Chan and Vet, 2010
15	Western Canada	1997-2006	15-25	Chan and Vet, 2010
16	Western United States	1997-2006	46	Chan and Vet, 2010
17	Eastern United States	1997-2006	25-37	Chan and Vet, 2010
18	Europe	1996-2006	10	Wilson et al., 2012
19	Japan	1992	30-60	Tsutsumi et al., 1994
20	Japan	1983-1988	10-60	Sunwoo et al., 1994
21	Japan	1990-2010	55-70	Akimoto et al., 2015
22	Japan	2006	16-62	Lam and Cheung, 2022
23	South Korea	2006	25-48	Lam and Cheung, 2022
24	Southern Europe	1996-1998	20-40	Kalabokas et al., 2000

25	Western United States	2000	20-40	Parrish et al., 2009
26	Western Europe	2000	27-47	Parrish et al., 2009
27	Southern Europe	Summer 1992-1995	40-50	Vecchi and Valli, 1998
28	Southern Europe	Winter 1992-1995	20-35	Vecchi and Valli, 1998
29	South Korea	2002-2019	43-58	Kim et al., 2023
30	South Korea	1995	30	Ghim and Chang, 2000
31	South Korea	1990-1995	20	Ghim and Chang, 2000
32	Eastern United States	May 1990-1994	40	Hirsch et al., 1996
33	Eastern United States	September 1990-1994	25	Hirsch et al., 1996
34	United states	Summer 1995	20-45	Fiore et al., 2002
35	United states	March to October 2001	15-35	Fiore et al., 2003
36	Western United States	Ozone season 1980-2005	30-40	Steiner et al., 2010
37	United states	Spring and Summer 2006	20-45	Emery et al., 2012
38	United states	Spring and Summer 2006	25-50	Emery et al., 2012
39	United states	Spring to Summer 2006-2008	27	Zhang et al., 2011
40	United states	Spring to Summer 2006-2008	40	Zhang et al., 2011
41	Western United States	April to October 2007	40-45	Dolwick et al., 2015
42	Eastern United States	Summer 2013	10-30	Yan et al., 2021
43	Western United States	1979-2017	54-63	Parrish and Ennis, 2019
44	Eastern United States	1990-2017	46	Parrish and Ennis, 2019
45	Western United States	1993-2017	62	Parrish and Ennis, 2019

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