



Supplementary Materials:

Evaluation of MERRA-2 Black Carbon Characteristics and Potential Sources over China

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Table S1. Information of the ground-based sites over China.

ID	Station	Longitude (degree)	Latitude (degree)	Type	Province	Region
1	Qilianshan ^[1]	96.30	39.30	Countryside	Qinhai	Northwest
2	Lanzhou ^[2]	103.51	36.00	Urban	Gansu	
3	Wulumuqi ^[3]	87.35	43.53	Urban	Xinjiang	
4	Xian ^[4]	108.55	34.17	Urban	Shaanxi	
5	Waliguan ^[5]	100.54	36.17	Background	Qinhai	
6	Taklimakan Desert ^[6]	83.39	38.58	Countryside	Xinjiang	
7	Chengdu ^[7]	103.59	30.35	Urban	Sichuan	Southwest
8	Chongqing ^[8]	106.30	29.36	Urban	Chongqing	
9	Guiyang ^[9]	106.07	26.11	Urban	Guizhou	
10	Lasa ^[10]	91.10	29.60	Urban	Xizang	
11	Linan ^[11]	119.42	30.13	Background	Zhejiang	East China
12	Nanjing ^[12]	118.70	32.20	Urban	Jiangsu	
13	Suzhou ^[13]	120.65	31.38	Urban	Jiangsu	
14	Shanghai ^[14]	121.25	31.10	Urban	Shanghai	
15	Huimin ^[15]	117.53	37.49	Countryside	Shandong	
16	Hefei ^[16]	117.19	31.90	Urban	Anhui	
17	Shouxian ^[17]	116.47	32.26	Countryside	Anhui	
18	Guilin ^[11]	110.18	25.19	Urban	Guangxi	Central South
19	Zhengzhou ^[11]	113.65	34.72	Urban	Henan	
20	Panyu ^[18]	113.21	23.00	Countryside	Guangdong	
21	Wuhan ^[19]	114.31	30.59	Urban	Hubei	
22	Dongguan ^[20]	113.75	23.02	Urban	Guangdong	
23	Shenzhenxichong ^[21]	114.33	22.29	Background	Guangdong	
24	Shenzhenzhuzilin ^[21]	114.03	22.32	Urban	Guangdong	
25	Beijing ^[22]	116.47	39.80	Urban	Beijing	North China
26	Tianjin ^[23]	117.12	39.04	Urban	Tianjin	
27	Shijiazhuang ^[24]	114.53	37.98	Urban	Hebei	
28	Handan ^[25]	114.50	36.57	Urban	Hebei	
29	Changchun ^[26]	125.13	43.54	Urban	Jilin	Northeast
30	Shenyang ^[26]	123.31	41.44	Urban	Shenyang	
31	Fuxun ^[26]	124.05	41.55	Urban	Liaoning	
32	Benxi ^[26]	123.47	41.19	Urban	Liaoning	
33	Anshan ^[26]	123.00	41.05	Urban	Liaoning	
34	Dalian ^[26]	121.38	38.54	Urban	Liaoning	
35	Longfengshan ^[26]	127.36	44.44	Background	Heilongjiang	

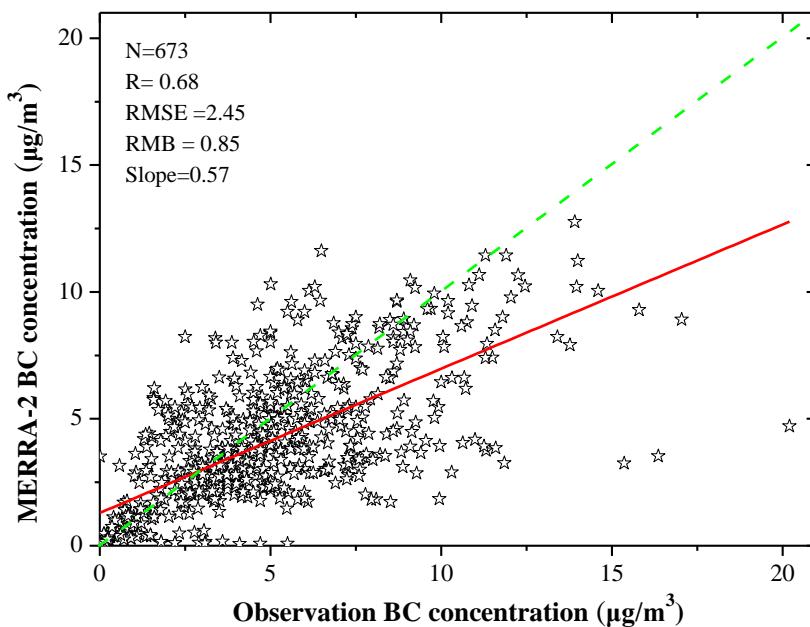


Figure S1. Comparison of the monthly average MERRA-2 BC concentration and ground observations over China. The green and red line mean 1:1 path and fitted line, respectively.

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- The black carbon (BC) sample data in Nanjing comes from actual observations by our research group. The sampling site in the Jiangbei New Area of Nanjing, was located at the top of meteorological building in Nanjing University of Information Science and Technology (NUIST), which is 40 m above the ground. BC mass concentration were observed with an Aethalometer model AE-33 (Magee SCIENTIFIC, USA) during 2020, and the data measured at 880 nm are taken as the mass concentration values of BC.
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