

## Supporting information

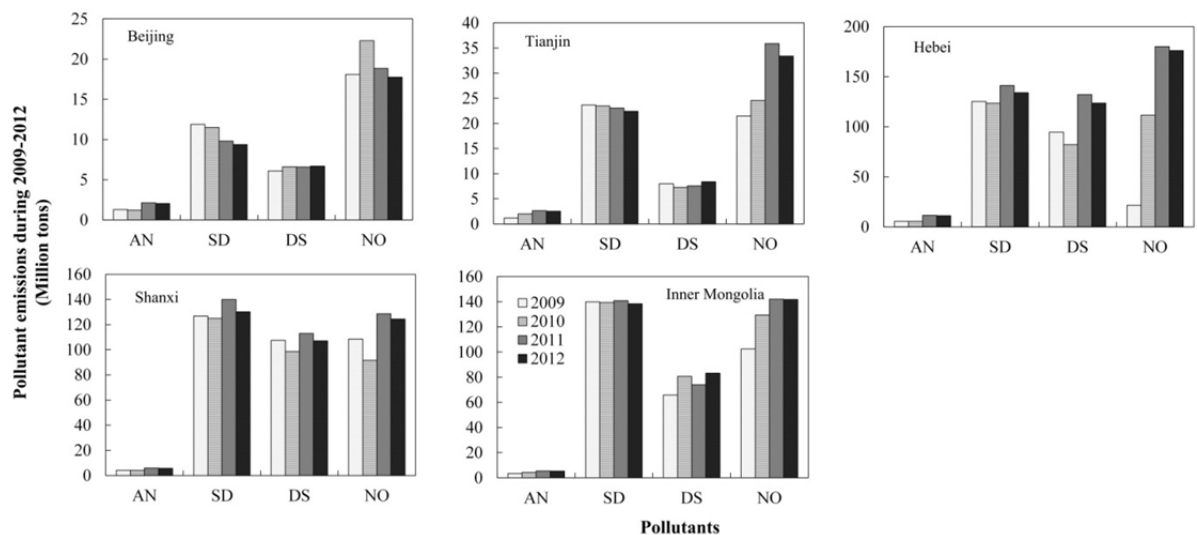
Table S1 Comparison of the annual average WS and windy days in Beijing (2001–2012)

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Wind speed (m/s)	2.3	2.3	2.5	2.4	2.4	2.2	2.2	2.2	2.2	2.3	2.1	2.1
Windy days (day)	11	15	6	12	5	5	5	8	15	18	3	4

Notes: A windy day refers to the maximum instantaneous wind speed of >17 m/s or an average wind speed of >10.8 m/s.

Table S2 Meteorological factors for extreme pollution days and clean days

Type	Extreme pollution days					Clean days	
Date	2009/12/25	2010/3/20	2011/5/1	2012/4/29	2011/11/23	2012/12/17	2012/12/18
PM <sub>10</sub> (μg.m <sup>-3</sup> )	600	548	562	540	34	33	45
Wind speed (m.s <sup>-1</sup> )	4.5	3.9	3.9	1.8	3.6	2.6	2.2
Air pressure (hPa)	1024	1004	1006	1008	1028	1030	1032
Temperature (°C)	-7.6	7.4	21.8	16.1	1.7	-2.7	-4.7
Rainfall (mm)	0	0	0	0	0	0	0
Relative humidity (%)	16	41	18	27	25	48	36
Cluster	9	8	2	5	6	8	6



**Fig. S1** Emissions of main pollutants (AN: ammonia nitrogen, SD: sulfur dioxide, DS: dust and smoke, NO: nitrogen oxides) in Beijing and the surrounding regions, including Tianjin, Hebei, Shanxi, and Inner Mongolia.