

Table 1 Summary statistics of air pollutants and meteorological variables in Tianjin, by season, from April 1, 2018 to March 31, 2019

Variable	Mean±SD	Minimum	Percentile			Maximum	IQR
			25th	50th	75th		
All year							
PM2.5	52.4±42.0	0	26.0	44.0	63.0	252.0	37.0
PM10	84.7±50.6	0	49.5	72.0	105.0	287.0	55.5
SO ₂	11.1±6.5	2.0	6.0	10.0	15.0	36	9.0
CO	1.1±0.4	0.3	0.8	1.0	1.2	3.2	0.4
NO ₂	44.8±19.0	9.0	30.0	40.0	59.0	110.0	29.0
O ₃	105.9±62.2	4.0	56.0	90.0	155.5	282.0	99.5
Mean temperature	15.1±11.6	-7.5	5.5	16.1	26.2	33.5	20.7
Relative humidity	49.5±17.9	14.7	34.8	50.1	63.5	90.8	28.7
April-September							
PM2.5	39.5±21.8	0	26.0	37.0	51.0	174.0	25.0
PM10	71.3±38.3	0	46.0	63.0	87.0	215.0	41.0
SO ₂	7.6±3.9	2.0	4.0	7.0	10.0	21.0	6.0
CO	1.0±0.3	0.4	0.8	1.0	1.1	1.9	0.3
NO ₂	35.2±11.8	14.0	27.0	33.0	42.0	91.0	15.0
O ₃	149.8±54.6	33.0	103.0	152.0	190.0	282.0	87.0
Mean temperature	24.8±5.7	4.4	21.4	26.2	28.7	33.5	7.3
Relative humidity	55.8±16.3	20.6	42.3	56.4	68.8	90.1	26.5
October-March							
PM2.5	65.4±52.3	6	24.8	54.0	89.3	252.0	64.5
PM10	98.2±56.9	22	56.8	84.0	125.3	287.0	68.5
SO ₂	14.7±6.7	4.0	9.0	14.0	19.0	36.0	10.0
CO	1.2±0.5	0.3	0.8	1.2	1.4	3.2	0.6
NO ₂	54.5±20.0	9.0	38.8	55.0	69.0	110.0	30.2
O ₃	61.8±29.9	4.0	38.0	57.5	83.3	175.0	45.3
Mean temperature	5.3±6.9	-7.5	-1.0	5.8	10.2	20.6	11.2
Relative humidity	43.1±17.3	14.7	29.0	41.8	54.7	90.8	25.7

SD = Standard deviation, IQR = Interquartile range, PM = particulate matter; SO₂ = sulfur dioxide; CO = carbon monoxide; NO₂ = nitrogen dioxide, O₃ = ozone;

All air pollutants were in ug/m³, mean temperature was in °C, relative humidity was in %.

Table 2 Spearman correlation coefficients among air pollutants and meteorological variables in Tianjin, by season, from April 1, 2018 to March 31, 2019

	PM2.5	PM10	SO ₂	CO	NO ₂	O ₃	Temperature	Humidity
All year								
PM2.5	1	0.83	0.53	0.82	0.66	-0.14	-0.26	0.31
PM10		1	0.52	0.62	0.57	-0.10	-0.25	0.05 ^a
SO ₂			1	0.61	0.80	-0.37	-0.51	-0.18
CO				1	0.69	-0.17	-0.20	0.41
NO ₂					1	-0.40	-0.44	-0.03 ^a
O ₃						1	0.79	0.18
Temperature							1	0.40
Humidity								1
April-September								
PM2.5	1	0.64	0.33	0.53	0.38	0.45	0.11 ^a	0.17
PM10		1	0.46	0.09 ^a	0.36	0.37	-0.06 ^a	-0.36
SO ₂			1	0.35	0.61	0.28	-0.08 ^a	-0.37
CO				1	0.29	0.38	0.29	0.41
NO ₂					1	0.03 ^a	-0.32	-0.30
O ₃						1	0.58	-0.11 ^a
Temperature							1	0.19
Humidity								1
October-March								
PM2.5	1	0.89	0.49	0.87	0.68	-0.09 ^a	-0.04 ^a	0.64
PM10		1	0.47	0.78	0.60	-0.15	-0.05 ^a	0.51
SO ₂			1	0.66	0.76	-0.24	-0.15	0.24
CO				1	0.79	-0.30	-0.10 ^a	0.64
NO ₂					1	-0.20	0.11 ^a	0.48
O ₃						1	0.53	-0.10 ^a
Temperature							1	0.22
Humidity								1

^a $p > 0.05$, others are statistically significant $p < 0.05$;

PM = particulate matter; SO₂ = sulfur dioxide; CO = carbon monoxide; NO₂ = nitrogen dioxide, O₃ = ozone.