

## **Supplementary Information for**

### **Investigation on the Relationship between Satellite Air Quality Measurements and Industrial Production by Generalized Additive Modeling**

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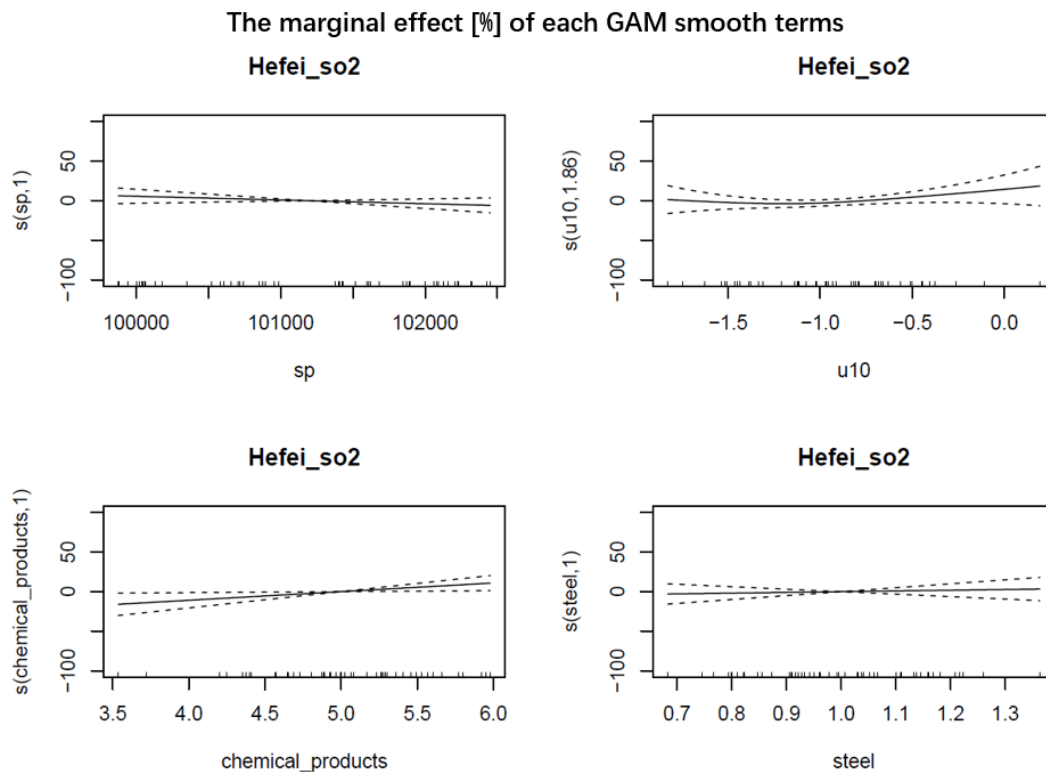
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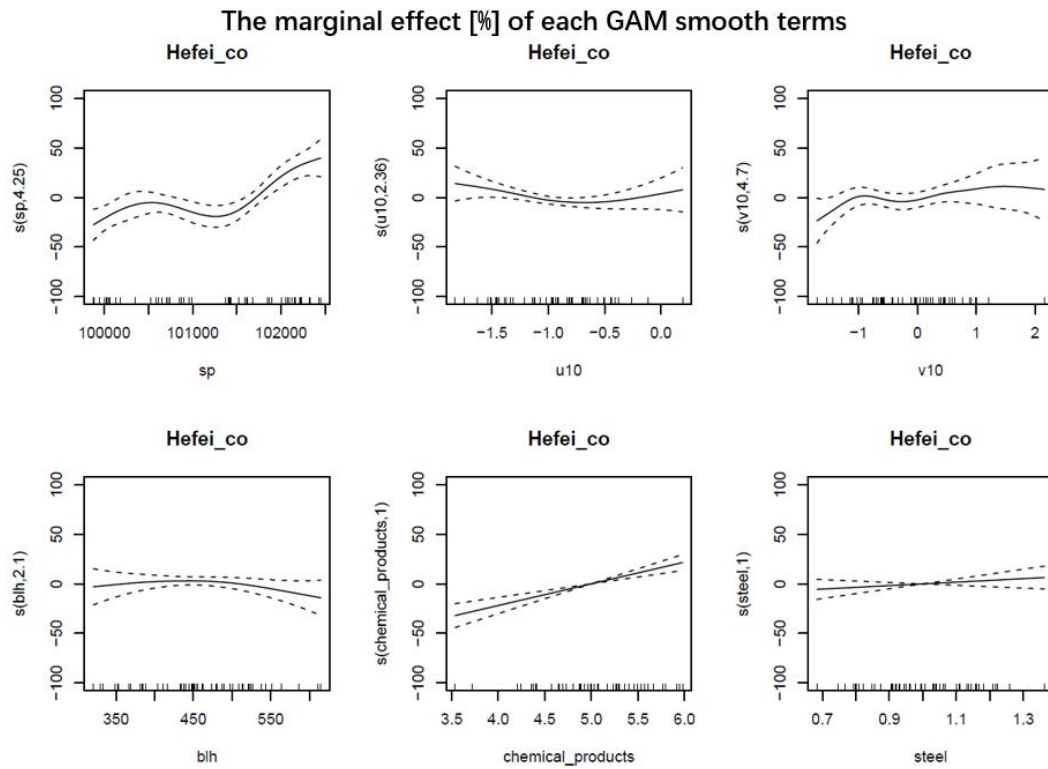
## Supplementary Figures

Figure.S1 shows the partial dependence plots of meteorological factors and industrial product output on atmospheric SO<sub>2</sub> column density in Hefei.



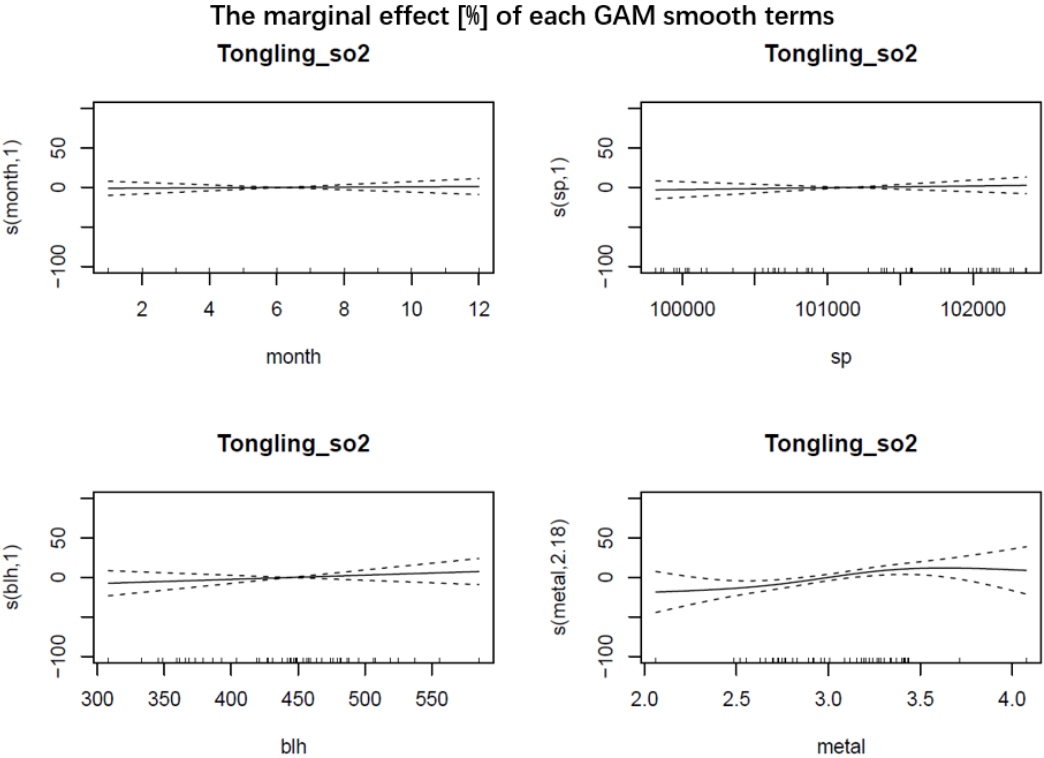
**Figure S1.** The marginal effect [%] of each GAM smooth term on SO<sub>2</sub> pollution over Hefei.

Figure. S2 shows partial dependence plots of meteorological factors and industrial product output on atmospheric CO in Hefei.



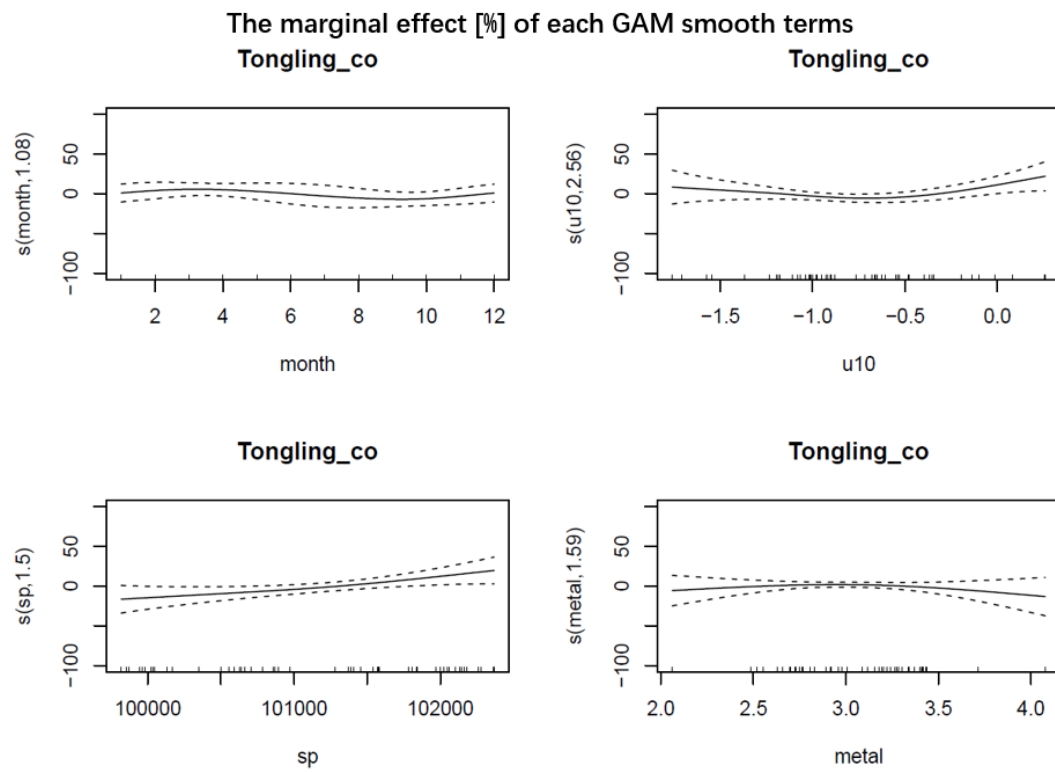
**Figure S2.** The marginal effect [%] of each GAM smooth term on CO pollution over Hefei.

Figure. S3 shows partial dependence plots of meteorological factors and industrial product output on atmospheric SO<sub>2</sub> concentration in Tongling.



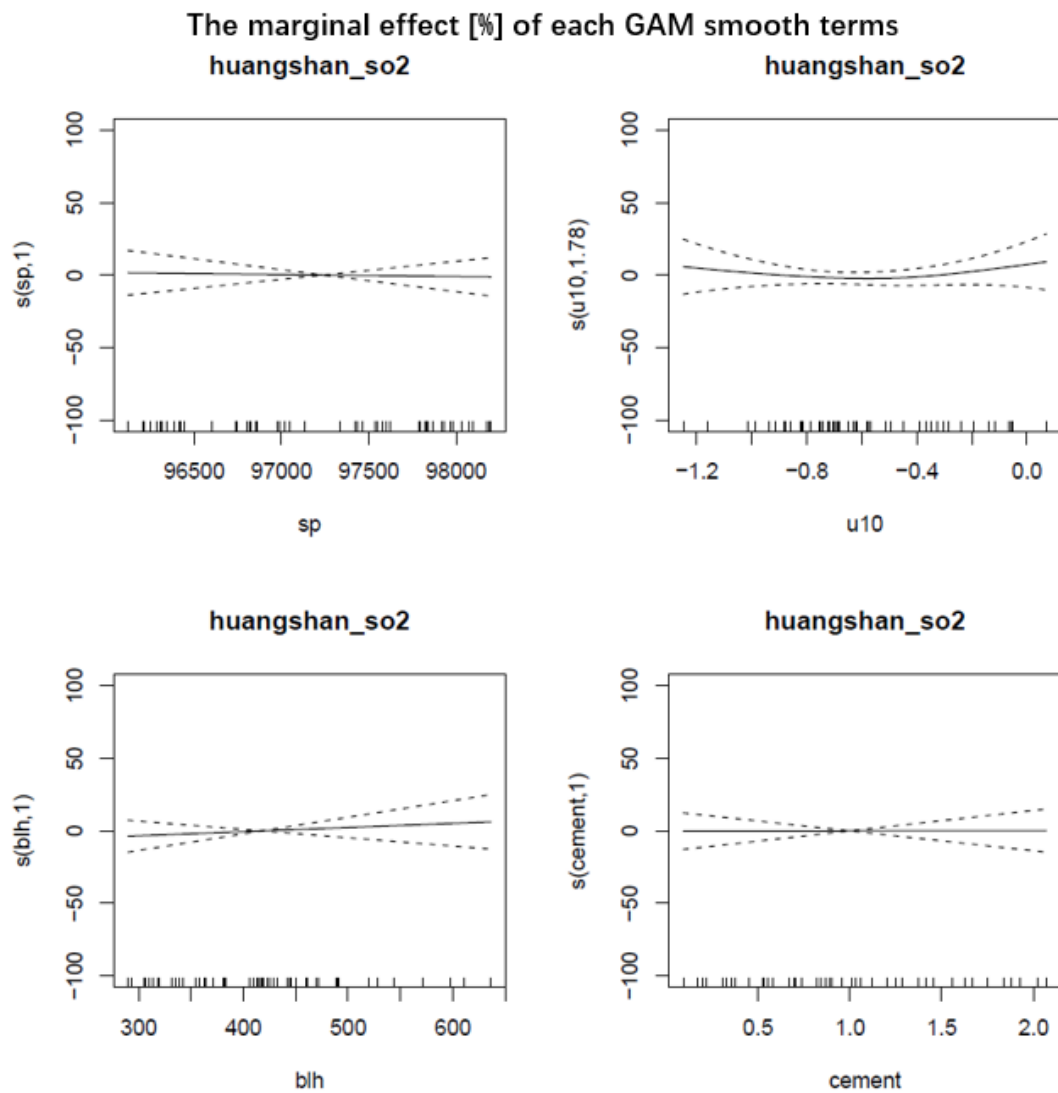
**Figure S3.** The marginal effect [%] of each GAM smooth term on SO<sub>2</sub> pollution over Tongling.

Figure. S4 shows partial dependence plots of meteorological factors and industrial product output on atmospheric CO in Tongling.



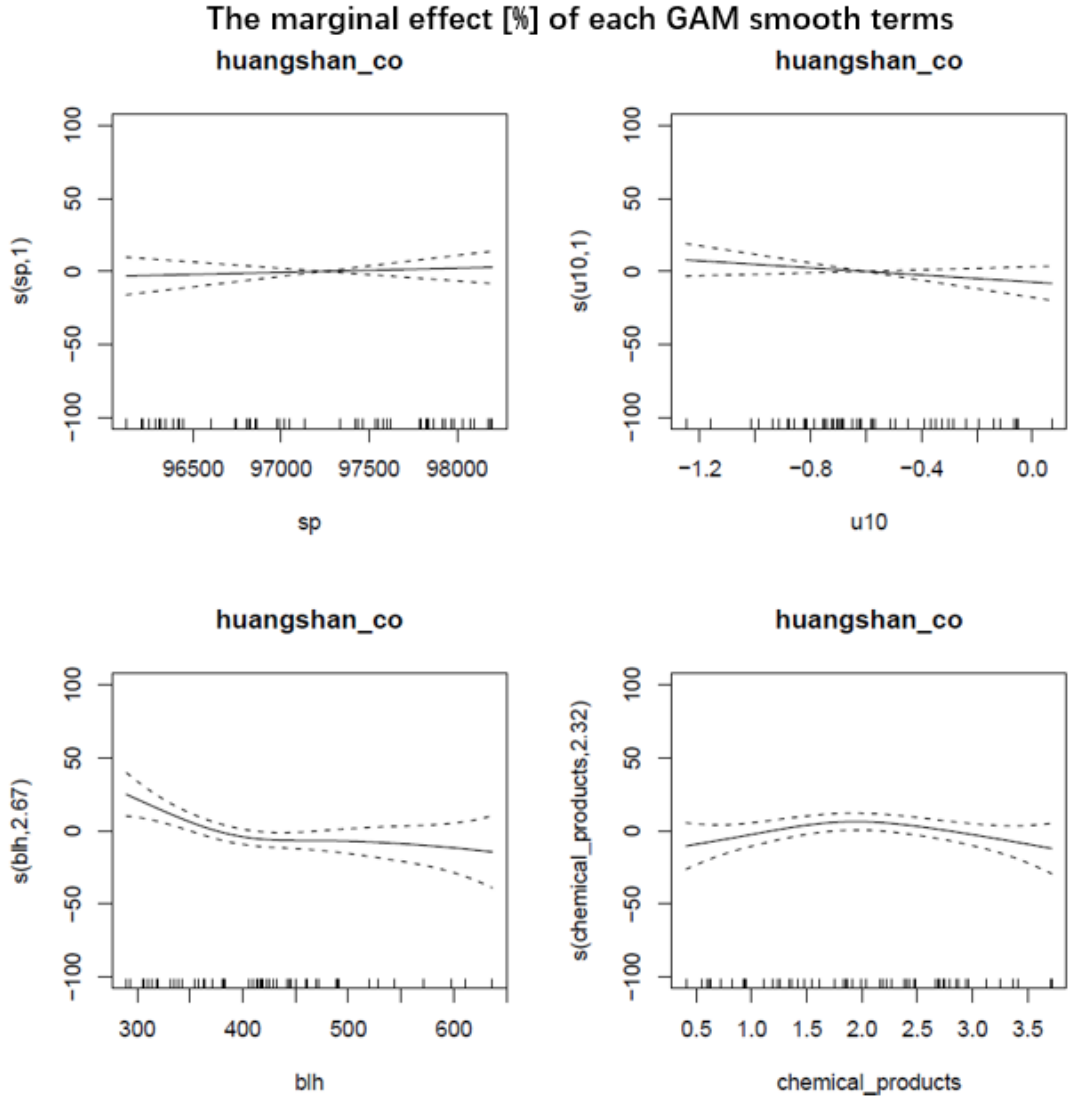
**Figure S4.** The marginal effect [%] of each GAM smooth term on CO pollution over Tongling.

Figure. S5 shows partial dependence plots of meteorological factors and industrial product output on atmospheric SO<sub>2</sub> concentration in Huangshan.



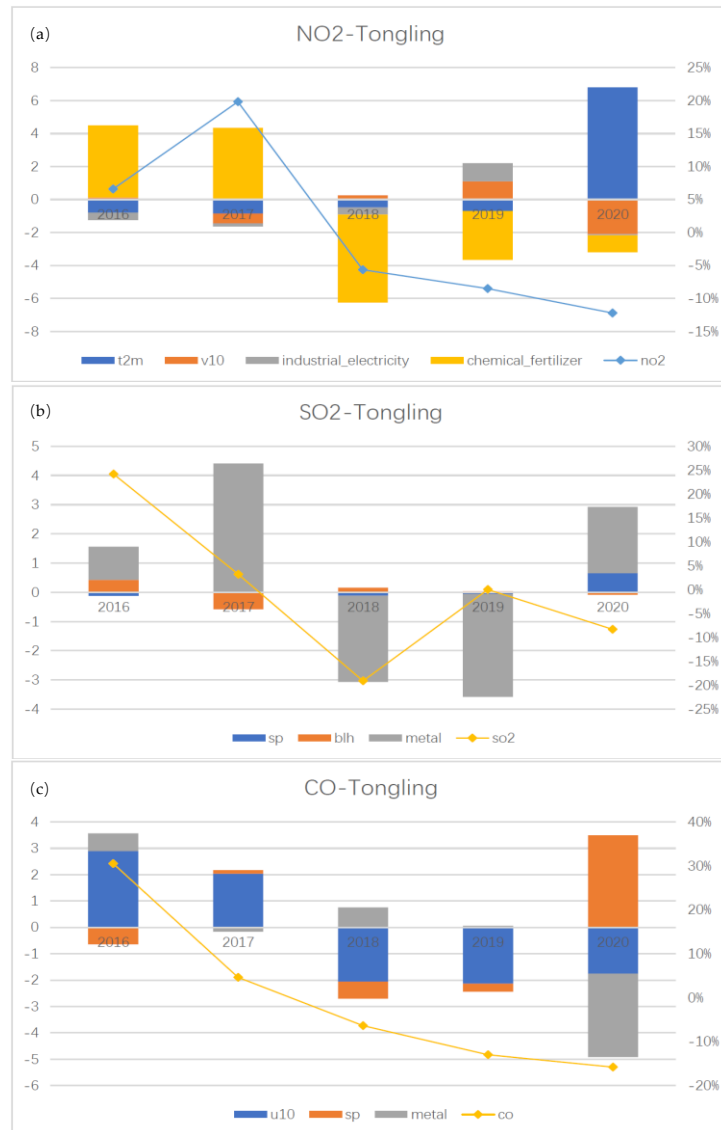
**Figure S5.** The marginal effect [%] of each GAM smooth term on SO<sub>2</sub> pollution over Huangshan.

Figure. S6 shows partial dependence plots of meteorological factors and industrial product output on atmospheric CO in Huangshan.



**Figure S6.** The marginal effect [%] of each GAM smooth term on CO pollution over Huangshan.

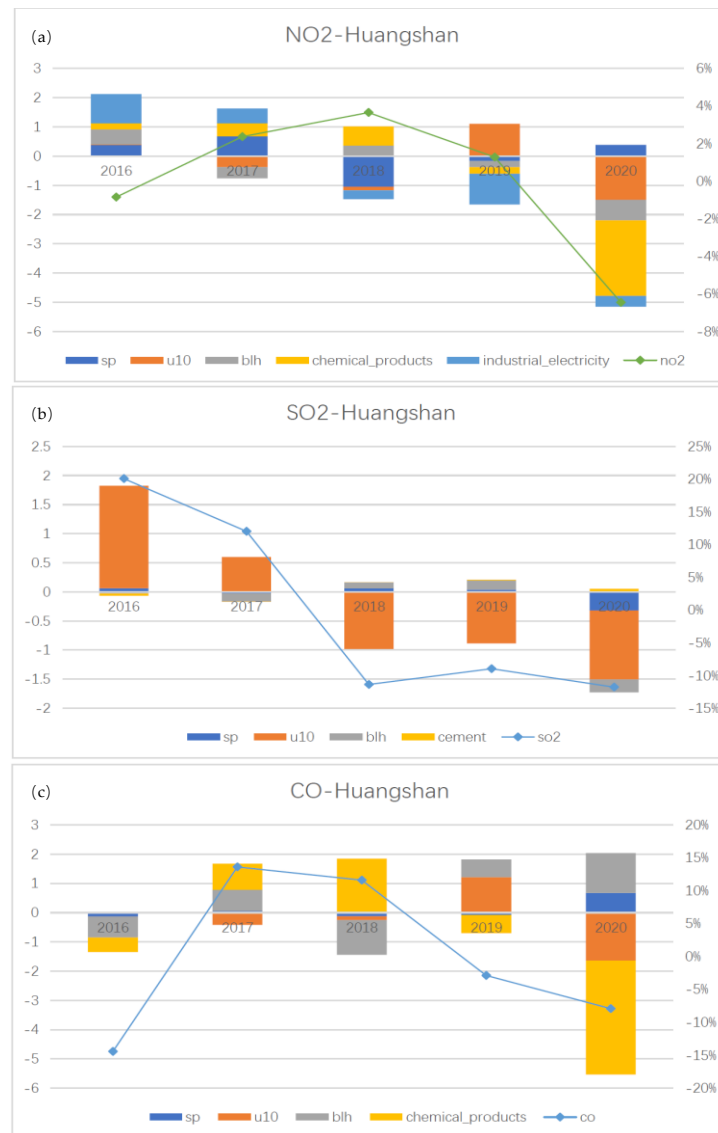
**Figure. S7** is the comparison of inter-annual variations between air pollutants and GAMs smoothing terms over Tongling.



**Figure S7.** The inter-annual variations of air pollutants concentration and the corresponding GAMs smooth terms accounted by each variable. The left y-axis is for the annual mean of smooth terms, and the right y-axis for the relative change [%] to the overall mean. The results were presented for (a) NO2, (b) SO2, and (c) CO respectively



**Figure. S8** is the comparison of inter-annual variations between air pollutants and GAMs smoothing terms over Huangshan.



**Figure S8.** The inter-annual variations of air pollutants concentration and the corresponding GAMs smooth terms accounted by each variable. The left y-axis is for the annual mean of smooth terms, and the right y-axis for the relative change [%] to the overall mean. The results were presented for (a) NO<sub>2</sub>, (b) SO<sub>2</sub>, and (c) CO respectively.

Table S1 is the input data of Hefei city

date	year	month	no2	so2	co	t2m	sp	tcwv	blh	u10	v10	mechanical	chemical	steel	industrial	electricity
16-Jan	2016	1	1212.590	18.489	1.118	276.065	102325.734	10.935	455.292	-0.830	-0.937	10.004	4.203	1.169	13.406	24.204
16-Feb	2016	2	966.470	21.146	1.038	279.822	102157.891	9.721	438.201	0.192	-0.021	10.004	4.203	1.169	5.727	16.829
16-Mar	2016	3	1042.650	21.819	1.084	285.135	101610.914	16.425	513.247	-1.464	0.268	14.096	5.772	1.160	9.174	20.230
16-Apr	2016	4	536.040	22.241	0.982	290.917	100739.750	26.545	450.745	-1.334	0.474	13.172	5.171	1.101	10.093	20.059
16-May	2016	5	464.510	17.687	0.830	293.510	100586.352	36.376	497.855	-0.809	0.224	12.273	4.926	1.146	9.846	18.608
16-Jun	2016	6	404.880	24.173	0.880	297.703	100132.492	43.522	432.764	-0.564	1.003	12.612	5.276	1.067	11.435	20.262
16-Jul	2016	7	384.180	26.755	0.757	301.830	99941.844	54.530	461.446	-0.819	1.215	11.397	5.026	1.008	16.081	25.944
16-Aug	2016	8	412.390	23.032	0.837	302.027	100049.227	51.434	520.449	-1.536	-0.702	12.287	5.304	0.921	16.668	29.938
16-Sep	2016	9	557.000	26.750	0.848	297.194	100708.477	36.039	551.484	-1.826	-0.577	12.155	5.530	0.963	8.879	23.131
16-Oct	2016	10	750.650	20.139	0.856	290.782	101378.562	37.687	479.668	-1.744	-1.431	12.585	5.496	1.217	7.381	20.882
16-Nov	2016	11	1064.020	18.059	1.099	283.953	101869.219	18.748	381.604	-0.911	-0.701	13.255	5.661	1.223	11.894	22.231
16-Dec	2016	12	1258.200	19.579	1.241	279.919	102156.117	12.787	351.518	-0.831	-0.569	14.021	5.799	1.363	14.962	24.885
17-Jan	2017	1	1291.920	13.458	1.241	278.262	102231.047	12.794	383.443	-1.076	-0.933	11.469	4.930	0.874	13.030	23.543
17-Feb	2017	2	951.840	14.720	1.127	279.792	102091.062	12.091	444.011	-0.807	-0.103	11.469	4.930	0.874	8.643	21.504
17-Mar	2017	3	1037.760	23.031	0.915	283.704	101622.172	14.880	521.942	-1.017	-0.415	14.841	5.921	0.928	11.297	23.061
17-Apr	2017	4	484.960	21.653	0.867	291.088	100875.883	21.096	489.542	-0.110	0.467	13.257	5.261	0.910	9.258	20.275
17-May	2017	5	499.370	18.601	0.759	296.278	100610.359	27.691	500.961	-0.632	0.444	12.869	4.727	0.794	11.616	21.570
17-Jun	2017	6	508.000	19.815	0.738	298.552	100179.898	40.176	563.699	-1.451	0.910	14.330	4.892	0.823	13.186	23.911
17-Jul	2017	7	387.000	18.094	0.651	303.654	100004.828	52.232	542.993	-0.407	2.159	11.988	4.872	0.768	21.213	33.536
17-Aug	2017	8	414.670	24.360	0.760	301.012	100062.453	57.548	416.106	-0.703	0.551	12.823	5.405	0.978	15.250	30.690
17-Sep	2017	9	436.290	18.543	0.940	296.063	100720.766	43.445	387.793	-1.312	-0.332	13.782	5.771	0.943	8.090	24.480
17-Oct	2017	10	950.860	19.618	0.861	289.559	101679.578	30.599	461.919	-1.462	-1.706	12.527	5.357	1.182	7.571	21.909
17-Nov	2017	11	1150.880	17.458	0.978	284.869	101897.391	15.267	368.751	-0.954	-0.625	13.462	5.568	1.037	13.233	23.640
17-Dec	2017	12	1443.060	14.955	1.167	278.530	102315.969	9.085	329.855	-0.499	-0.259	12.693	5.948	0.905	18.002	27.974
18-Jan	2018	1	1027.430	13.034	1.139	273.897	102210.266	10.581	320.700	-0.789	-1.092	9.507	5.605	0.996	19.369	32.166
18-Feb	2018	2	1363.670	17.850	0.901	277.529	102000.797	10.257	333.068	-0.442	0.043	9.507	5.605	0.996	7.835	23.224
18-Mar	2018	3	646.730	8.353	0.820	285.972	101409.797	17.962	443.857	-1.115	0.099	14.081	5.979	1.052	10.448	24.870
18-Apr	2018	4	533.160	33.115	0.792	291.411	100985.016	24.687	521.397	-0.449	0.455	12.354	4.964	1.041	10.398	23.003
18-May	2018	5	411.690	11.814	0.776	295.709	100524.484	39.431	448.013	-0.657	0.374	11.185	4.398	0.848	14.650	25.718
18-Jun	2018	6	467.510	10.405	0.759	299.288	100055.695	38.194	489.916	-1.126	0.890	11.654	4.655	1.032	16.900	28.628
18-Jul	2018	7	348.530	9.665	0.666	302.756	99877.203	56.552	480.228	-1.505	0.642	11.166	4.690	0.950	23.811	37.595
18-Aug	2018	8	391.760	9.481	0.727	301.969	99878.469	54.199	537.816	-1.516	-0.669	12.518	4.802	1.061	19.068	36.771
18-Sep	2018	9	439.820	12.922	0.678	296.964	100852.867	39.558	449.031	-0.915	-1.138	13.215	5.233	1.108	7.260	28.014
18-Oct	2018	10	862.120	10.686	0.699	290.361	101594.625	18.304	473.945	-0.967	-0.602	13.061	5.260	0.961	11.457	26.987
18-Nov	2018	11	862.980	16.962	0.946	285.075	101847.703	18.105	366.834	-1.210	-0.600	13.503	5.080	0.993	11.862	25.100
18-Dec	2018	12	1737.290	24.084	0.857	278.151	102450.656	14.477	439.566	-0.970	-1.541	13.186	5.291	0.908	18.970	32.753
19-Jan	2019	1	1178.730	12.674	1.031	276.629	102425.953	12.084	353.210	-0.684	-0.963	10.907	4.884	1.030	19.909	35.223
19-Feb	2019	2	1179.140	15.247	0.878	277.067	102078.688	15.140	410.381	-1.387	-1.025	7.398	3.723	0.822	11.009	27.617
19-Mar	2019	3	739.960	12.568	0.746	285.312	101433.328	14.232	449.987	-0.671	0.178	13.237	5.458	0.801	8.572	28.269
19-Apr	2019	4	461.040	13.131	0.751	290.355	100897.766	23.754	461.565	-1.140	-0.043	11.178	4.407	0.932	11.124	25.961
19-May	2019	5	499.140	20.126	0.644	295.112	100657.000	27.183	523.958	-1.120	0.398	11.260	4.652	0.800	15.520	27.233
19-Jun	2019	6	429.940	14.494	0.704	299.046	100037.570	38.942	508.728	-1.435	0.989	11.696	4.373	0.747	17.470	30.467
19-Jul	2019	7	399.510	17.517	0.624	302.087	99883.609	49.983	526.888	-1.020	0.774	9.999	5.265	0.856	24.280	39.145
19-Aug	2019	8	414.860	19.786	0.651	301.958	100022.539	48.727	614.702	-1.377	-0.740	11.610	4.995	0.917	20.412	40.048
19-Sep	2019	9	509.690	16.889	0.724	297.756	100957.406	33.508	586.098	-1.626	-1.117	11.869	5.067	1.110	9.147	30.263
19-Oct	2019	10	944.100	13.050	0.735	291.557	101516.953	26.725	453.672	-0.932	-0.757	12.097	4.647	1.209	13.932	30.784
19-Nov	2019	11	1093.200	14.497	0.707	285.988	101892.938	17.014	434.554	-0.965	-0.591	13.010	4.566	1.133	14.586	28.403
19-Dec	2019	12	877.000	21.639	0.867	279.750	102224.188	11.899	348.204	-0.511	-0.436	12.527	5.001	1.260	20.355	32.047
20-Jan	2020	1	582.730	8.644	0.867	277.597	102126.195	15.119	385.031	-0.261	-1.294	6.390	3.537	1.138	10.982	33.993
20-Feb	2020	2	585.780	14.697	0.602	281.536	102058.555	14.696	403.381	-0.795	-0.032	6.390	3.537	1.138	3.917	21.971
20-Mar	2020	3	494.960	12.893	0.604	285.625	101426.133	17.964	487.753	-1.021	-0.015	12.962	4.570	1.159	18.325	29.032
20-Apr	2020	4	501.650	19.871	0.576	289.505	101399.422	16.928	514.384	-0.697	0.153	12.528	4.353	0.810	14.020	26.914
20-May	2020	5	387.200	17.198	0.559	297.011	100353.445	29.632	611.390	-0.376	0.594	12.805	4.245	0.684	15.553	27.248

Table S2 is the input data of Tongling city

date	year	month	no2	so2	co	t2m	sp	tcwv	d2m	blh	u10	v10	pyrite	metal	chemical	industrial	electricity	sulfuric_ac
16-Jan	2016	1	1329.330	15.747	1.621	277.120	102258.789	13.318	273.634	458.995	-0.926	-1.177	0.901	2.554	1.679	5.806	6.915	1.107
16-Feb	2016	2	1015.000	21.782	1.782	280.800	102145.375	10.576	273.807	444.196	0.255	-0.156	0.901	2.554	1.679	5.149	6.445	1.107
16-Mar	2016	3	1084.670	22.005	1.603	285.255	101576.297	17.974	279.245	474.371	-1.197	-0.346	1.056	3.342	1.790	5.711	7.072	1.164
16-Apr	2016	4	754.500	21.886	1.333	291.294	100705.047	28.885	287.442	418.794	-1.069	-0.209	1.212	3.283	1.642	5.898	6.932	1.099
16-May	2016	5	622.000	18.836	1.159	294.005	100554.438	39.194	290.065	441.780	-0.476	-0.152	1.192	3.181	1.716	5.896	6.796	1.068
16-Jun	2016	6	548.830	22.151	1.159	297.924	100128.812	48.503	294.888	427.901	-0.137	0.367	1.167	3.153	1.587	5.837	6.739	1.102
16-Jul	2016	7	457.000	20.791	1.171	302.505	99945.312	54.977	298.422	458.993	-0.011	0.878	0.763	3.223	1.568	6.769	7.802	1.125
16-Aug	2016	8	497.170	24.349	1.183	302.990	99983.445	52.763	296.972	585.173	-1.178	-0.777	1.032	3.221	1.624	6.237	7.670	0.995
16-Sep	2016	9	718.500	28.958	1.211	297.120	100636.789	39.631	292.456	508.010	-1.710	-1.227	1.038	2.696	1.541	4.692	6.502	1.039
16-Oct	2016	10	982.670	18.043	0.959	291.691	101279.484	40.616	289.516	463.424	-1.760	-1.745	1.128	2.921	1.541	5.495	6.868	1.193
16-Nov	2016	11	1377.670	22.959	1.150	285.032	101808.664	21.404	282.261	392.926	-0.716	-0.856	1.006	3.400	1.236	5.949	6.987	1.138
16-Dec	2016	12	1498.500	27.112	1.390	280.906	102103.203	13.696	277.255	349.071	-0.627	-0.705	0.821	2.915	1.328	6.323	7.302	1.232
17-Jan	2017	1	1850.500	10.025	1.228	279.217	102162.062	14.422	275.142	378.791	-0.998	-1.212	0.971	2.630	1.642	5.993	7.056	1.020
17-Feb	2017	2	1152.170	11.286	1.185	280.496	102049.328	13.297	274.907	448.000	-0.904	-0.559	0.971	2.630	1.642	5.249	6.579	1.020
17-Mar	2017	3	1391.170	35.009	1.041	284.299	101570.578	17.485	278.830	506.290	-0.917	-0.754	1.154	3.303	1.661	5.448	6.785	0.809
17-Apr	2017	4	679.830	15.738	1.325	291.700	100868.094	23.489	285.643	481.891	0.084	0.094	1.276	3.372	1.827	5.473	6.578	1.000
17-May	2017	5	745.670	17.469	1.045	296.465	100590.414	29.600	290.861	449.330	-0.351	-0.030	1.192	3.436	1.347	5.671	6.641	0.875
17-Jun	2017	6	620.670	22.872	0.856	297.945	100167.969	45.666	294.432	431.142	-1.081	0.357	1.192	3.418	1.236	5.945	6.956	1.065
17-Jul	2017	7	438.830	16.113	0.833	303.775	100032.953	51.643	298.468	555.701	0.259	1.433	1.186	3.414	1.845	7.272	8.338	1.000
17-Aug	2017	8	398.830	18.208	0.796	301.587	100049.773	58.976	298.341	420.981	-0.195	0.522	1.186	3.195	1.808	6.376	8.015	1.034
17-Sep	2017	9	714.500	23.660	0.877	296.638	100665.875	47.722	294.183	361.092	-1.235	-0.838	1.231	3.340	1.661	5.273	7.093	0.909
17-Oct	2017	10	1351.170	20.566	0.956	290.338	101582.719	32.717	287.193	488.035	-1.547	-1.894	1.083	3.432	1.587	5.670	7.096	1.120
17-Nov	2017	11	1269.000	22.506	1.208	285.647	101839.766	17.787	280.871	368.457	-0.982	-0.778	1.199	3.201	1.513	5.991	7.174	1.057
17-Dec	2017	12	1625.670	6.493	1.252	279.213	102275.672	10.357	273.670	308.250	-0.607	-0.614	0.654	2.657	1.125	6.273	7.332	1.044
18-Jan	2018	1	2094.170	13.070	1.235	275.988	102132.984	12.508	272.604	386.409	-0.951	-1.396	1.144	2.519	0.738	6.416	7.746	1.051
18-Feb	2018	2	1242.330	10.158	1.232	278.395	101967.539	11.453	273.429	332.911	-0.367	-0.533	1.144	2.519	0.738	5.224	6.869	1.051
18-Mar	2018	3	624.170	16.816	1.134	286.655	101372.477	19.714	281.868	448.546	-0.482	-0.271	1.058	3.408	0.701	5.467	7.165	1.089
18-Apr	2018	4	484.330	32.130	0.921	291.861	100973.094	26.394	286.305	481.630	-0.012	0.146	1.167	3.337	0.756	5.443	6.942	0.963
18-May	2018	5	422.670	9.794	0.863	296.612	100503.125	42.095	292.436	457.812	-0.396	0.166	0.410	3.116	0.627	5.706	6.867	0.977
18-Jun	2018	6	349.500	9.952	0.864	299.423	100044.148	41.256	294.624	459.443	-0.539	0.256	0.904	2.894	0.830	6.045	7.187	0.990
18-Jul	2018	7	328.830	10.073	0.713	303.298	99853.578	56.019	298.527	476.059	-0.879	0.356	1.006	2.804	0.738	7.253	8.593	0.969
18-Aug	2018	8	389.670	12.044	0.738	302.374	99819.094	54.880	298.156	537.111	-1.015	-0.767	0.891	2.765	0.886	6.794	8.672	1.034
18-Sep	2018	9	425.330	10.758	0.765	298.010	100787.547	42.423	293.632	479.266	-1.018	-1.179	0.904	2.747	0.572	5.282	7.472	0.995
18-Oct	2018	10	765.670	11.506	0.804	291.025	101542.906	20.090	284.230	487.030	-0.900	-0.797	0.756	2.723	0.535	5.349	7.163	0.992
18-Nov	2018	11	905.000	12.591	0.966	285.996	101782.875	19.946	282.920	361.366	-1.012	-0.920	0.737	2.768	0.443	5.920	7.225	0.992
18-Dec	2018	12	1602.830	23.524	1.041	278.968	102367.141	16.819	276.111	456.634	-0.979	-1.503	0.769	3.274	0.498	6.649	7.792	0.916
19-Jan	2019	1	1056.170	10.805	1.066	277.672	102360.367	13.817	274.478	359.593	-0.661	-1.160	0.606	2.062	0.803	6.888	8.381	0.761
19-Feb	2019	2	2098.400	16.945	1.054	278.042	101997.578	18.380	276.081	403.740	-1.369	-1.373	0.606	2.062	0.803	5.636	7.599	0.761
19-Mar	2019	3	461.170	11.304	0.929	285.770	101404.328	16.890	280.320	437.854	-0.677	-0.197	1.333	2.488	0.941	5.901	8.007	0.799
19-Apr	2019	4	527.500	9.882	0.882	291.186	100858.516	26.134	286.539	446.518	-0.664	-0.400	1.019	2.700	0.978	6.020	7.560	0.718
19-May	2019	5	562.000	25.999	0.758	295.521	100629.945	29.673	288.054	518.696	-0.976	-0.169	1.006	2.829	0.978	6.594	7.874	0.786
19-Jun	2019	6	463.830	15.217	0.759	299.016	100021.969	42.716	294.138	467.897	-1.036	0.150	1.167	2.958	0.738	6.495	7.691	0.640
19-Jul	2019	7	338.830	37.907	0.727	301.720	99874.125	51.879	297.833	454.136	-0.550	0.216	0.769	3.192	0.830	7.453	8.882	0.655
19-Aug	2019	8	448.500	21.035	0.683	301.871	99964.555	48.862	297.669	524.589	-1.186	-0.866	0.955	3.239	0.959	7.414	9.322	0.817
19-Sep	2019	9	641.170	17.119	0.815	297.355	100891.391	34.078	292.489	506.275	-1.575	-1.372	0.865	3.089	0.978	6.006	8.292	0.979
19-Oct	2019	10	784.500	12.795	0.857	292.132	101456.578	28.236	286.999	444.522	-1.112	-1.074	0.936	3.009	0.941	6.636	8.364	0.856
19-Nov	2019	11	805.500	14.262	0.908	286.399	101834.766	17.923	280.527	426.679	-1.009	-0.967	0.846	3.263	0.830	6.570	7.925	0.822
19-Dec	2019	12	1154.500	19.895	1.044	280.462	102180.516	13.163	276.412	345.592	-0.480	-0.626	0.712	2.979	0.941	7.211	8.404	1.073
20-Jan	2020	1	1251.330	15.580	0.942	278.287	102058.406	16.855	276.184	365.967	-0.344	-1.340	0.923	2.729	0.996	6.457	8.399	0.956
20-Feb	2020	2	566.000	12.522	0.885	282.114	102023.125	16.760	278.018	372.981	-0.649	-0.361	0.923	2.729	0.996	5.005	7.184	0.956
20-Mar	2020	3	648.830	14.482	0.837	286.178	101387.469	21.092	281.427	459.081	-0.764	-0.447	0.955	3.243	1.107	6.452	7.984	0.888
20-Apr	2020	4	928.670	19.977	0.766	289.907	101369.844	18.463	282.725	495.452	-0.531	-0.158	0.865	4.077	1.089	6.943	8.238	1.023
20-May	2020	5	340.500	18.873	0.795	296.946	100351.422	32.845	291.466	519.087	-0.098	0.378	1.083	3.713	1.181	7.083	8.242	1.117

Table S3 is the input data of Huangshan city

date	year	month	no2	so2	co	t2m	sp	tcwv	d2m	blh	u10	v10	mechanic	cement	clothes	chemical	storage_b	industrial	electricity
16-Jan	2016	1	328.867	16.458	0.364	277.125	98077.625	14.108	273.809	383.540	-0.576	-0.908	0.438	0.094	1.247	0.594	0.022	1.369	2.592
16-Feb	2016	2	299.733	17.795	0.200	280.183	98097.555	10.560	273.163	422.980	-0.117	-0.302	0.689	0.311	2.120	0.925	0.147	0.803	2.310
16-Mar	2016	3	261.433	17.367	0.268	284.360	97581.727	17.448	278.527	444.972	-0.752	-0.148	0.931	0.451	2.826	1.187	0.272	0.861	2.363
16-Apr	2016	4	215.933	16.040	0.618	290.393	96854.180	29.333	286.912	380.646	-0.817	0.127	1.189	0.583	3.519	1.421	0.392	1.003	2.358
16-May	2016	5	213.950	17.302	0.547	293.448	96740.359	37.890	290.004	354.125	-0.325	0.062	1.468	0.698	4.282	2.875	0.488	1.014	2.136
16-Jun	2016	6	253.450	18.584	0.431	297.153	96413.539	45.836	294.339	382.435	-0.054	0.492	1.762	0.822	4.915	1.912	1.060	1.150	2.310
16-Jul	2016	7	171.850	20.874	0.443	301.441	96315.836	49.730	296.918	489.155	0.070	1.044	2.024	0.958	5.449	2.158	1.230	1.114	2.269
16-Aug	2016	8	199.633	23.359	0.461	301.387	96284.203	47.849	295.568	570.951	-0.880	-0.496	2.284	1.120	5.992	2.405	1.416	1.346	2.856
16-Sep	2016	9	274.817	20.324	0.529	296.372	96803.742	38.763	291.500	519.739	-1.249	-1.002	2.536	1.282	6.481	2.663	1.605	1.132	2.848
16-Oct	2016	10	246.517	17.956	0.654	292.001	97334.789	39.220	289.753	414.359	-1.249	-1.027	2.800	1.456	7.026	2.945	1.816	1.089	2.579
16-Nov	2016	11	206.500	22.222	0.752	284.948	97791.711	21.381	282.351	331.883	-0.686	-0.595	3.071	1.666	7.698	3.254	2.428	1.148	2.271
16-Dec	2016	12	344.883	18.474	0.882	280.935	98028.555	12.851	276.803	304.898	-0.649	-0.545	0.399	0.199	1.019	0.632	0.148	1.191	2.395
17-Jan	2017	1	361.217	14.661	0.852	279.565	98028.422	14.751	275.321	318.400	-0.788	-0.783	0.727	0.374	1.787	0.947	0.246	1.432	2.758
17-Feb	2017	2	319.200	16.466	0.620	280.450	97963.602	13.307	274.200	417.661	-0.753	-0.509	1.030	0.537	2.408	1.239	0.346	0.721	2.254
17-Mar	2017	3	190.661	21.331	0.635	283.421	97551.227	18.292	278.382	461.426	-0.619	-0.537	1.322	0.702	3.043	1.480	0.463	1.126	2.580
17-Apr	2017	4	186.300	16.779	0.697	290.627	97022.219	23.151	284.642	472.398	-0.059	0.175	1.547	0.869	3.700	1.753	0.639	1.044	2.483
17-May	2017	5	279.117	17.100	0.648	295.084	96819.242	27.491	289.219	450.362	-0.367	0.062	1.820	1.034	4.270	1.998	0.823	1.154	2.285
17-Jun	2017	6	264.417	21.439	0.648	295.942	96443.391	46.805	293.325	335.622	-0.684	0.438	2.056	1.200	4.835	2.216	1.050	1.077	2.311
17-Jul	2017	7	178.467	17.238	0.628	302.322	96420.125	48.022	296.397	598.185	-0.139	1.033	2.298	1.374	5.375	2.479	1.248	1.835	3.059
17-Aug	2017	8	210.933	20.245	0.604	300.371	96389.180	52.593	297.019	416.823	-0.066	0.632	2.565	1.558	5.843	2.743	1.431	1.280	2.858
17-Sep	2017	9	188.783	19.470	0.694	296.590	96861.672	46.575	293.432	357.576	-0.724	-0.437	2.824	1.752	5.745	2.694	1.632	1.161	2.818
17-Oct	2017	10	261.617	18.640	0.699	290.308	97598.570	30.653	286.560	469.924	-1.160	-1.396	3.123	1.925	6.322	2.851	1.867	0.710	2.410
17-Nov	2017	11	274.883	14.935	0.696	285.279	97826.352	19.267	280.606	362.263	-0.914	-0.787	0.329	0.203	0.609	0.551	0.187	1.267	2.543
17-Dec	2017	12	399.733	13.269	0.738	278.954	98176.172	10.380	273.087	293.008	-0.581	-0.739	0.606	0.357	1.040	0.826	0.432	1.888	3.215
18-Jan	2018	1	216.850	15.648	0.714	276.573	97933.133	13.403	272.681	342.520	-0.754	-0.953	0.821	0.536	1.358	1.107	0.585	1.768	3.364
18-Feb	2018	2	394.417	15.110	0.724	278.740	97866.078	11.567	273.240	338.328	-0.513	-0.498	1.042	0.673	1.677	1.344	0.791	0.731	2.470
18-Mar	2018	3	240.600	14.077	0.680	286.011	97422.352	19.034	280.937	409.459	-0.494	-0.041	1.249	0.842	2.002	1.618	0.936	0.775	2.732
18-Apr	2018	4	192.550	30.798	0.749	290.867	97131.609	25.776	285.302	444.332	-0.238	0.128	1.455	1.012	2.326	1.830	1.106	1.123	2.756
18-May	2018	5	246.617	8.515	0.667	295.710	96743.734	40.964	291.832	432.256	-0.194	0.354	1.655	1.205	2.703	2.035	1.276	1.486	2.797
18-Jun	2018	6	174.617	9.459	0.606	298.042	96340.141	40.925	293.419	428.372	-0.391	0.307	2.272	1.415	3.020	2.271	1.438	1.418	2.882
18-Jul	2018	7	138.550	10.837	0.539	301.632	96211.297	49.966	296.374	490.034	-0.687	0.524	2.066	1.626	3.343	2.472	1.622	2.220	3.638
18-Aug	2018	8	207.867	11.640	0.697	301.013	96121.719	50.042	296.332	543.324	-0.743	-0.431	2.228	1.835	3.663	2.471	1.833	1.677	3.708
18-Sep	2018	9	226.467	9.701	0.646	297.233	96975.195	40.398	292.392	489.605	-0.816	-0.888	2.490	2.025	4.068	2.736	2.075	1.254	3.320
18-Oct	2018	10	283.817	8.685	0.583	289.864	97624.984	20.022	282.976	459.702	-0.702	-0.839	0.320	0.218	0.517	0.612	0.193	1.386	3.142
18-Nov	2018	11	180.017	11.460	0.623	285.665	97790.664	19.494	282.457	313.532	-0.716	-0.487	0.639	0.377	0.876	0.939	0.301	1.613	2.946
18-Dec	2018	12	652.133	21.433	0.788	278.581	98199.414	17.814	276.045	363.608	-0.883	-1.100	0.833	0.555	1.181	1.264	0.448	1.621	3.084
19-Jan	2019	1	188.417	9.580	0.876	277.625	98191.711	14.675	274.694	289.859	-0.633	-0.788	1.047	0.739	1.519	1.546	0.690	1.949	3.717
19-Feb	2019	2	248.065	8.833	0.812	278.049	97839.961	19.695	276.635	306.382	-0.987	-0.704	1.224	0.890	1.781	1.870	1.026	1.054	3.149
19-Mar	2019	3	307.717	8.597	0.606	284.682	97433.711	17.657	279.816	406.508	-0.566	-0.257	2.831	1.062	2.356	2.185	1.184	0.869	3.605
19-Apr	2019	4	226.617	9.099	0.526	290.410	96990.500	26.655	286.386	371.741	-0.451	0.079	3.116	1.254	2.635	2.423	1.287	1.464	3.088
19-May	2019	5	261.667	22.144	0.458	294.211	96824.977	30.990	287.571	441.377	-0.861	-0.090	3.640	1.457	2.964	2.705	1.552	1.421	2.948
19-Jun	2019	6	244.217	14.878	0.458	297.277	96308.398	42.928	293.361	413.612	-0.623	0.259	4.124	1.671	3.234	2.965	1.721	1.564	3.000
19-Jul	2019	7	208.767	17.789	0.459	300.054	96204.359	50.869	296.488	383.206	-0.287	0.349	4.706	1.876	3.494	3.372	1.915	2.183	3.707
19-Aug	2019	8	208.033	20.701	0.370	301.306	96247.484	43.727	295.377	636.439	-0.704	-0.488	5.354	2.070	3.832	3.720	2.175	2.023	4.143
19-Sep	2019	9	336.633	16.026	0.440	297.083	97044.523	31.178	290.304	610.990	-1.015	-1.436	0.830	0.170	0.332	0.407	0.173	1.756	4.107
19-Oct	2019	10	241.900	13.148	0.603	292.140	97535.781	26.431	285.950	490.608	-0.825	-1.060	1.435	0.331	0.669	0.724	0.246	1.647	3.250
19-Nov	2019	11	350.833	13.735	0.617	286.014	97833.359	16.740	279.548	419.454	-0.936	-0.767	1.878	0.527	0.982	1.360	0.408	1.747	3.207
19-Dec	2019	12	259.450	17.407	0.753	280.379	98097.609	13.095	275.361	309.712	-0.577	-0.726	2.380	0.739	1.286	1.858	0.623	1.629	3.067
20-Jan	2020	1	204.783	11.436	0.796	278.520	97915.742	16.639	276.217	319.754	-0.350	-0.870	2.597	0.903	1.448	2.378	0.864	1.738	3.805
20-Feb	2020	2	305.733	13.479	0.488	281.929	97982.102	16.933	277.603	331.243	-0.689	-0.228	2.891	1.059	1.653	2.790	0.956	0.714	2.900
20-Mar	2020	3	191.600	14.302	0.547	285.361	97418.406	21.758	281.041	425.689	-0.620	-0.252	3.297	1.282	1.891	3.127	1.182	1.328	2.958
20-Apr	2020	4	291.467	16.243	0.449	289.157	97460.914	18.286	281.287	528.422	-0.389	-0.021	3.688	1.459	2.167	3.417	1.404	1.689	3.301
20-May	2020	5	192.650	13.960	0.477	295.627	96601.633	32.719	290.613	445.109	-0.304	0.130	3.978	1.665	2.474	3.715	1.616	1.728	3.402