蕁麻疹就診人數資料

資料來自高雄榮民總醫院 (皮膚科)，為 2017 年 1 月 1 日至 2017 年 12 月 31 日診斷 ICD-9 代碼為 708(蕁麻疹) 每日就診人數資料，此篇為蕁麻疹的結果。

univariate gam

Generalized additive Poisson model

$$\ln(patient) = Intercept + \beta \times Airpollution + s(temperature) + s(humidity) + s(time)$$

s= a cyclic cubic regression splines
下列依不同的空汙指標分別做單變數 Generalized additive Poisson model，並以時間趨勢、當天的溫度、濕度、雨量與風速作為共變量做平滑函數的擬合，下列各空汙列出了不同的滯後天數 (row, 當天 前七天) 與不同的移動平均天數 (colum, 當天平均 七天平均) 的模型結果 (p-value 與空汙估計係數)

CO

Table 1: linear term p-value with lag and moving average data

	p.pv	mv2	mv3	mv4	mv5	mv6	mv7
1	0.087	0.140	0.349	0.329	0.098	0.158	0.219
2	0.822	0.419	0.404	0.493	0.315	0.091	0.148
3	0.145	0.270	0.139	0.129	0.188	0.081	0.013
4	0.099	0.043	0.077	0.052	0.076	0.117	0.057
5	0.003	0.022	0.025	0.053	0.038	0.058	0.114
6	0.612	0.141	0.147	0.102	0.126	0.060	0.063
7	0.198	0.484	0.054	0.060	0.043	0.069	0.040
8	0.101	0.598	0.500	0.633	0.484	0.325	0.350

row:lag days,col:moving average for the n days

Table 2: Parametric coefficients with lag and moving average data

	beta	mv2	mv3	mv4	mv5	mv6	mv7
1	0.582	0.635	0.470	0.555	1.054	1.000	0.947
2	0.080	0.346	0.414	0.389	0.637	1.186	1.104
3	0.502	0.474	0.729	0.855	0.832	1.221	1.899
4	0.567	0.866	0.878	1.097	1.124	1.102	1.454
5	0.967	0.980	1.106	1.094	1.315	1.336	1.211
6	-0.185	0.635	0.722	0.924	0.970	1.320	1.417
7	0.447	0.306	0.958	1.062	1.283	1.278	1.571
8	-0.618	-0.234	-0.343	0.272	0.443	0.692	0.715

SO2

Table 3: linear term p-value with lag and moving average data

	p.pv	mv2	mv3	mv4	mv5	mv6	mv7
1	0.982	0.063	0.082	0.032	0.003	0.052	0.057
2	0.530	0.739	0.038	0.019	0.005	0.000	0.013
3	0.002	0.129	0.082	0.004	0.003	0.001	0.000
4	0.818	0.085	0.418	0.307	0.051	0.040	0.015
5	0.177	0.312	0.047	0.212	0.172	0.032	0.028
6	0.028	0.748	0.966	0.310	0.587	0.411	0.098
7	0.906	0.099	0.490	0.718	0.638	0.963	0.763
8	0.026	0.179	0.929	0.707	0.533	0.180	0.323

row:lag days,col:moving average for the n days

Table 4: Parametric coefficients with lag and moving average data

	beta	mv2	mv3	mv4	mv5	mv6	mv7
1	-0.001	0.099	0.107	0.148	0.226	0.153	0.157
2	-0.027	0.018	0.127	0.161	0.208	0.274	0.203
3	0.139	0.081	0.106	0.198	0.220	0.265	0.336
4	0.010	0.092	0.050	0.070	0.145	0.161	0.200
5	0.059	0.054	0.123	0.086	0.101	0.168	0.181
6	-0.096	-0.017	0.003	0.069	0.040	0.064	0.136
7	-0.005	-0.087	-0.042	-0.025	0.035	0.004	0.025
8	0.096	0.071	-0.005	0.026	0.046	0.105	0.081

O3

Table 5: linear term p-value with lag and moving average data

	p.pv	mv2	mv3	mv4	mv5	mv6	mv7
1	0.674	0.714	0.971	0.858	0.559	0.723	0.488
2	0.033	0.036	0.050	0.085	0.069	0.039	0.065
3	0.117	0.037	0.026	0.038	0.080	0.064	0.037
4	0.007	0.028	0.021	0.031	0.061	0.126	0.119
5	0.659	0.101	0.131	0.091	0.084	0.107	0.149
6	0.140	0.671	0.452	0.370	0.243	0.193	0.199
7	0.554	0.307	0.665	0.649	0.521	0.354	0.277
8	0.428	0.417	0.255	0.526	0.795	0.571	0.355

row:lag days,col:moving average for the n days

Table 6: Parametric coefficients with lag and moving average data

	beta	mv2	mv3	mv4	mv5	mv6	mv7
1	0.001	0.001	0.000	0.001	0.003	0.002	0.003
2	0.007	0.008	0.008	0.007	0.008	0.009	0.009
3	0.005	0.008	0.009	0.009	0.008	0.008	0.010
4	0.009	0.008	0.009	0.009	0.008	0.007	0.007
5	0.002	0.006	0.006	0.007	0.007	0.007	0.007
6	-0.005	-0.002	0.003	0.004	0.005	0.006	0.006
7	-0.002	-0.004	-0.002	0.002	0.003	0.004	0.005
8	-0.003	-0.003	-0.005	-0.003	0.001	0.003	0.004

PM2.5

Table 7: linear term p-value with lag and moving average data

	p.pv	mv2	mv3	mv4	mv5	mv6	mv7
1	0.015	0.263	0.633	0.259	0.389	0.594	0.702
2	0.349	0.481	0.814	0.996	0.393	0.495	0.697
3	0.000	0.034	0.005	0.028	0.075	0.014	0.030
4	0.005	0.000	0.002	0.000	0.007	0.024	0.005
5	0.478	0.065	0.002	0.023	0.008	0.040	0.089
6	0.843	0.690	0.142	0.006	0.033	0.010	0.037
7	0.944	0.932	0.723	0.222	0.021	0.060	0.018
8	0.471	0.746	0.921	0.738	0.248	0.027	0.055

row:lag days,col:moving average for the n days

Table 8: Parametric coefficients with lag and moving average data

	beta	mv2	mv3	mv4	mv5	mv6	mv7
1	0.009	0.005	0.003	0.007	0.006	0.004	0.003
2	-0.004	0.003	0.001	0.000	0.006	0.005	0.003
3	0.015	0.010	0.015	0.013	0.012	0.018	0.017
4	0.011	0.020	0.017	0.021	0.018	0.016	0.021
5	0.003	0.009	0.017	0.014	0.018	0.015	0.013
6	-0.001	0.002	0.008	0.017	0.014	0.019	0.016
7	-0.000	-0.000	0.002	0.008	0.015	0.014	0.018
8	0.003	0.002	0.001	0.002	0.008	0.016	0.015

PM10

Table 9: linear term p-value with lag and moving average data

	p.pv	mv2	mv3	mv4	mv5	mv6	mv7
1	0.528	0.966	0.393	0.772	0.582	0.333	0.762
2	0.432	0.924	0.927	0.655	0.733	0.936	0.764
3	0.027	0.330	0.165	0.303	0.610	0.226	0.347
4	0.304	0.046	0.252	0.201	0.450	0.814	0.418
5	0.572	0.956	0.445	0.885	0.706	0.988	0.685
6	0.159	0.233	0.527	0.865	0.796	0.952	0.830
7	0.066	0.044	0.066	0.186	0.612	0.423	0.671
8	0.454	0.431	0.166	0.161	0.375	0.927	0.766

row:lag days,col:moving average for the n days

Table 10: Parametric coefficients with lag and moving average data

	beta	mv2	mv3	mv4	mv5	mv6	mv7
1	0.001	-0.000	-0.002	-0.001	-0.002	-0.004	-0.001
2	-0.002	0.000	-0.000	-0.002	0.001	0.000	-0.001
3	0.004	0.002	0.004	0.003	0.002	0.005	0.004
4	0.002	0.005	0.003	0.004	0.003	0.001	0.003
5	-0.001	-0.000	0.002	0.000	0.001	-0.000	-0.002
6	-0.003	-0.003	-0.002	0.001	-0.001	0.000	-0.001
7	-0.004	-0.005	-0.005	-0.004	-0.002	-0.003	-0.002
8	0.001	-0.002	-0.004	-0.005	-0.003	-0.000	-0.001

NO

Table 11: linear term p-value with lag and moving average data

	p.pv	mv2	mv3	mv4	mv5	mv6	mv7
1	0.366	0.199	0.360	0.494	0.478	0.468	0.988
2	0.121	0.248	0.477	0.414	0.364	0.423	0.384
3	0.859	0.294	0.365	0.585	0.580	0.516	0.622
4	0.165	0.386	0.210	0.305	0.529	0.592	0.594
5	0.271	0.660	0.698	0.447	0.505	0.691	0.625
6	0.823	0.638	0.623	0.657	0.487	0.580	0.767
7	0.519	0.987	0.751	0.636	0.569	0.359	0.378
8	0.895	0.692	1.000	0.818	0.603	0.495	0.301

row:lag days,col:moving average for the n days

Table 12: Parametric coefficients with lag and moving average data

	beta	mv2	mv3	mv4	mv5	mv6	mv7
1	0.025	0.042	0.033	0.027	0.031	0.034	0.001
2	-0.044	-0.038	-0.026	-0.033	-0.040	-0.037	-0.042
3	-0.005	-0.035	-0.034	-0.022	-0.024	-0.030	-0.024
4	-0.040	-0.029	-0.047	-0.042	-0.028	-0.025	-0.026
5	0.030	-0.014	-0.014	-0.031	-0.029	-0.018	-0.024
6	-0.006	0.015	-0.018	-0.018	-0.030	-0.026	-0.014
7	0.018	0.000	0.012	-0.019	-0.025	-0.043	-0.043
8	0.004	0.013	-0.000	0.009	-0.023	-0.032	-0.051

NO2

Table 13: linear term p-value with lag and moving average data

	p.pv	mv2	mv3	mv4	mv5	mv6	mv7
1	0.706	0.812	0.880	0.746	0.804	0.902	0.516
2	0.034	0.173	0.163	0.346	0.823	0.879	0.626
3	0.003	0.473	0.530	0.775	0.646	0.284	0.243
4	0.602	0.029	0.448	0.586	0.921	0.801	0.474
5	0.186	0.702	0.207	0.900	0.960	0.649	0.659
6	0.829	0.338	0.655	0.224	0.741	0.800	0.947
7	0.701	0.724	0.439	0.694	0.290	0.820	0.906
8	0.243	0.662	0.823	0.578	0.786	0.403	0.871

row:lag days,col:moving average for the n days

Table 14: Parametric coefficients with lag and moving average data

	beta	mv2	mv3	mv4	mv5	mv6	mv7
1	0.004	-0.003	-0.002	0.005	0.004	-0.002	-0.014
2	-0.024	-0.018	-0.021	-0.016	-0.004	-0.003	-0.010
3	0.032	0.009	0.009	0.005	0.008	0.021	0.024
4	0.006	0.028	0.011	0.009	0.002	0.005	0.015
5	0.015	0.005	0.019	0.002	-0.001	-0.009	-0.009
6	0.002	0.013	0.007	0.020	0.006	0.005	-0.001
7	0.004	0.005	0.011	0.006	0.019	0.004	0.002
8	0.013	0.006	0.003	0.009	0.005	0.016	0.003