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

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

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	0.072	0.178	0.441	0.399	0.111	0.182	0.248
2	0.829	0.377	0.348	0.466	0.329	0.100	0.172
3	0.109	0.227	0.109	0.115	0.197	0.095	0.016
4	0.011	0.005	0.021	0.021	0.035	0.055	0.024
5	0.007	0.050	0.050	0.087	0.053	0.071	0.130
6	0.653	0.094	0.113	0.088	0.124	0.064	0.072
7	0.307	0.621	0.073	0.080	0.057	0.087	0.044
8	0.265	0.990	0.858	0.404	0.409	0.356	0.467

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	0.692	0.644	0.412	0.494	1.030	0.956	0.899
2	0.087	0.425	0.502	0.429	0.631	1.172	1.056
3	0.633	0.584	0.848	0.919	0.832	1.186	1.851
4	1.032	1.394	1.238	1.355	1.360	1.375	1.759
5	1.050	0.957	1.055	1.007	1.252	1.288	1.173
6	-0.184	0.807	0.843	0.995	0.992	1.320	1.393
7	0.400	0.240	0.959	1.029	1.229	1.224	1.564
8	-0.458	0.006	-0.096	0.487	0.530	0.655	0.562

SO2

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

	p.pv	mv2	mv3	mv4	mv5	mv6	mv7
1	0.492	0.011	0.016	0.006	0.000	0.014	0.017
2	0.262	0.816	0.124	0.075	0.025	0.002	0.037
3	0.011	0.391	0.263	0.025	0.021	0.006	0.000
4	0.630	0.053	0.381	0.303	0.040	0.028	0.008
5	0.219	0.424	0.076	0.288	0.222	0.046	0.039
6	0.037	0.837	0.870	0.293	0.578	0.387	0.087
7	0.679	0.289	0.982	0.661	0.236	0.454	0.315
8	0.004	0.033	0.438	0.257	0.258	0.073	0.186

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	0.030	0.136	0.148	0.185	0.264	0.193	0.199
2	-0.049	-0.012	0.094	0.120	0.165	0.240	0.173
3	0.110	0.046	0.069	0.152	0.170	0.218	0.292
4	0.021	0.104	0.053	0.069	0.151	0.172	0.219
5	0.053	0.043	0.109	0.072	0.089	0.156	0.171
6	-0.091	-0.011	0.010	0.071	0.040	0.067	0.142
7	0.018	-0.057	0.001	0.030	0.087	0.059	0.083
8	0.126	0.114	0.048	0.077	0.083	0.141	0.109

O3

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

	p.pv	mv2	mv3	mv4	mv5	mv6	mv7
1	0.158	0.243	0.393	0.324	0.191	0.324	0.198
2	0.121	0.118	0.143	0.232	0.176	0.094	0.140
3	0.318	0.113	0.084	0.130	0.217	0.176	0.111
4	0.006	0.030	0.036	0.046	0.076	0.142	0.121
5	0.942	0.179	0.199	0.128	0.108	0.125	0.169
6	0.230	0.872	0.302	0.259	0.169	0.138	0.149
7	0.644	0.949	0.547	0.153	0.134	0.084	0.062
8	0.995	0.985	0.815	0.887	0.395	0.332	0.220

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	0.005	0.004	0.003	0.004	0.006	0.004	0.006
2	0.005	0.006	0.006	0.005	0.006	0.008	0.007
3	0.004	0.006	0.007	0.006	0.005	0.006	0.007
4	0.009	0.008	0.008	0.008	0.008	0.007	0.007
5	0.000	0.005	0.005	0.006	0.007	0.007	0.006
6	-0.004	-0.001	0.004	0.005	0.006	0.007	0.007
7	0.002	-0.000	0.002	0.006	0.007	0.008	0.009
8	0.000	-0.000	-0.001	0.001	0.004	0.004	0.006

PM2.5

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

	p.pv	mv2	mv3	mv4	mv5	mv6	mv7
1	0.005	0.181	0.473	0.135	0.223	0.411	0.554
2	0.203	0.603	0.993	0.754	0.598	0.711	0.925
3	0.000	0.031	0.005	0.045	0.135	0.031	0.057
4	0.001	0.000	0.000	0.000	0.004	0.016	0.002
5	0.918	0.194	0.005	0.055	0.016	0.061	0.121
6	0.965	0.478	0.069	0.002	0.019	0.007	0.030
7	0.859	0.795	0.395	0.062	0.003	0.014	0.004
8	0.160	0.323	0.439	0.350	0.129	0.018	0.060

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	0.012	0.007	0.004	0.010	0.008	0.006	0.005
2	-0.005	0.003	0.000	-0.002	0.004	0.003	0.001
3	0.018	0.011	0.017	0.013	0.010	0.016	0.015
4	0.014	0.026	0.021	0.024	0.020	0.018	0.024
5	0.000	0.007	0.016	0.012	0.017	0.014	0.012
6	0.000	0.004	0.011	0.020	0.016	0.020	0.017
7	0.001	0.001	0.005	0.012	0.021	0.018	0.023
8	0.006	0.005	0.005	0.006	0.011	0.018	0.015

PM10

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

	p.pv	mv2	mv3	mv4	mv5	mv6	mv7
1	0.348	0.808	0.654	0.800	0.996	0.639	0.886
2	0.263	0.791	0.630	0.380	0.920	0.761	0.513
3	0.048	0.502	0.320	0.582	0.991	0.497	0.673
4	0.353	0.049	0.312	0.282	0.511	0.841	0.410
5	0.334	0.718	0.558	0.936	0.711	0.981	0.719
6	0.177	0.247	0.543	0.844	0.817	0.942	0.830
7	0.205	0.138	0.246	0.606	0.804	0.935	0.759
8	0.110	0.834	0.410	0.383	0.577	0.938	0.785

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	0.002	0.001	-0.001	0.001	-0.000	-0.002	0.001
2	-0.002	-0.001	-0.001	-0.003	-0.000	-0.001	-0.003
3	0.004	0.002	0.003	0.002	0.000	0.003	0.002
4	0.002	0.005	0.003	0.003	0.002	0.001	0.003
5	-0.002	-0.001	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	-0.003	-0.004	-0.004	-0.002	0.001	-0.000	0.001
8	0.003	-0.000	-0.002	-0.003	-0.002	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	0.590	0.443	0.731	0.904	0.841	0.802	0.671
2	0.209	0.451	0.770	0.683	0.558	0.613	0.556
3	0.862	0.503	0.577	0.838	0.804	0.728	0.850
4	0.134	0.403	0.278	0.400	0.635	0.663	0.632
5	0.280	0.602	0.697	0.475	0.550	0.721	0.657
6	0.723	0.703	0.502	0.518	0.352	0.448	0.647
7	0.905	0.512	0.681	0.206	0.192	0.101	0.117
8	0.446	0.520	0.910	0.964	0.480	0.481	0.309

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	0.016	0.026	0.013	0.005	0.009	0.012	-0.021
2	-0.038	-0.026	-0.011	-0.017	-0.026	-0.024	-0.029
3	0.005	-0.023	-0.021	-0.009	-0.011	-0.017	-0.009
4	-0.046	-0.029	-0.042	-0.035	-0.021	-0.021	-0.024
5	0.032	-0.018	-0.015	-0.030	-0.027	-0.017	-0.022
6	-0.011	0.013	-0.026	-0.027	-0.042	-0.036	-0.023
7	0.004	-0.022	-0.016	-0.054	-0.059	-0.079	-0.079
8	0.023	0.022	-0.004	0.002	-0.032	-0.034	-0.051

NO2

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

	p.pv	mv2	mv3	mv4	mv5	mv6	mv7
1	0.351	0.974	0.807	0.429	0.449	0.685	0.926
2	0.007	0.086	0.087	0.207	0.550	0.596	0.398
3	0.003	0.618	0.782	0.868	0.956	0.637	0.611
4	0.376	0.017	0.409	0.555	0.854	0.748	0.410
5	0.311	0.963	0.274	0.909	0.961	0.766	0.815
6	0.646	0.251	0.604	0.224	0.780	0.847	0.891
7	0.737	0.542	0.284	0.455	0.163	0.555	0.605
8	0.005	0.076	0.220	0.202	0.468	0.211	0.671

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	0.012	0.000	0.004	0.013	0.014	0.008	-0.002
2	-0.035	-0.024	-0.026	-0.021	-0.011	-0.010	-0.017
3	0.036	0.007	0.004	-0.003	-0.001	0.009	0.010
4	0.011	0.034	0.013	0.010	0.003	0.006	0.017
5	0.013	-0.001	0.017	0.002	0.001	-0.006	-0.005
6	0.006	0.016	0.008	0.020	0.005	0.004	-0.003
7	0.004	0.009	0.016	0.012	0.025	0.011	0.010
8	0.034	0.025	0.019	0.021	0.013	0.024	0.009