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 995.3(過敏) 每日就診人數資料，此篇為過敏的結果。

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、當天的溫度與濕度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	0.057	0.175	0.932	0.526	0.724	0.911	0.704
2	0.309	0.572	0.575	0.805	0.515	0.695	0.931
3	0.668	0.192	0.887	0.911	0.622	0.422	0.677
4	0.610	0.735	0.791	0.568	0.541	0.879	0.621
5	0.984	0.847	0.802	0.829	0.676	0.756	0.688
6	0.536	0.621	0.375	0.366	0.672	0.297	0.275
7	0.825	0.846	0.678	0.603	0.666	0.994	0.584
8	0.955	0.488	0.417	0.887	0.811	0.701	0.926

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	0.641	0.549	0.039	-0.331	-0.207	-0.074	0.273
2	-0.353	0.228	0.255	-0.128	-0.379	-0.257	-0.062
3	-0.147	-0.534	-0.065	0.058	-0.288	-0.524	-0.299
4	0.174	0.137	-0.122	0.294	0.356	-0.099	-0.354
5	0.007	0.079	0.115	-0.112	0.244	0.203	-0.289
6	-0.217	0.203	0.406	0.466	0.246	0.680	0.781
7	-0.078	-0.081	0.194	0.270	0.251	-0.005	0.392
8	0.020	-0.288	-0.379	-0.074	0.139	0.250	0.067

SO2

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

	p.pv	mv2	mv3	mv4	mv5	mv6	mv7
1	0.077	0.105	0.980	0.920	0.841	0.520	0.290
2	0.412	0.694	0.034	0.358	0.320	0.530	0.881
3	0.000	0.001	0.053	0.000	0.015	0.014	0.019
4	0.010	0.331	0.257	0.674	0.034	0.242	0.191
5	0.309	0.284	0.203	0.191	0.432	0.023	0.129
6	0.405	0.128	0.922	0.060	0.050	0.166	0.008
7	0.011	0.153	0.574	0.080	0.972	0.840	0.750
8	0.045	0.940	0.718	0.445	0.769	0.200	0.135

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	-0.056	0.063	0.001	0.005	-0.012	-0.040	-0.070
2	0.022	-0.016	0.099	0.049	0.058	0.039	0.010
3	0.085	0.119	0.089	0.186	0.141	0.154	0.155
4	-0.085	0.038	0.053	0.022	0.122	0.073	0.086
5	0.027	-0.044	0.060	0.069	0.045	0.141	0.101
6	0.022	0.058	-0.005	0.099	0.113	0.086	0.176
7	-0.085	-0.060	-0.027	-0.096	0.002	0.013	-0.021
8	0.050	-0.003	0.017	0.041	-0.017	0.080	0.099

O3

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

	p.pv	mv2	mv3	mv4	mv5	mv6	mv7
1	0.469	0.494	0.786	0.824	0.796	0.713	0.702
2	0.767	0.785	0.821	0.551	0.534	0.516	0.401
3	0.919	0.871	0.977	0.941	0.430	0.358	0.327
4	0.044	0.441	0.608	0.643	0.659	0.298	0.252
5	0.231	0.984	0.737	0.736	0.781	0.849	0.723
6	0.310	0.191	0.689	0.520	0.464	0.431	0.403
7	0.742	0.419	0.205	0.472	0.349	0.284	0.251
8	0.300	0.739	0.581	0.416	0.788	0.667	0.619

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	-0.002	-0.002	0.001	0.001	0.001	0.001	0.002
2	-0.001	-0.001	-0.001	0.002	0.002	0.002	0.003
3	-0.000	-0.000	-0.000	0.000	0.003	0.003	0.004
4	0.005	0.002	0.002	0.002	0.002	0.004	0.004
5	-0.003	0.000	-0.001	-0.001	-0.001	-0.001	0.001
6	-0.003	-0.004	-0.001	-0.002	-0.003	-0.003	-0.003
7	-0.001	-0.002	-0.004	-0.002	-0.003	-0.004	-0.005
8	-0.003	-0.001	-0.002	-0.003	-0.001	-0.002	-0.002

PM2.5

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

	p.pv	mv2	mv3	mv4	mv5	mv6	mv7
1	0.086	0.188	0.677	0.567	0.944	0.582	0.285
2	0.006	0.431	0.622	0.114	0.679	0.404	0.859
3	0.004	0.903	0.513	0.504	0.769	0.484	0.834
4	0.603	0.142	0.819	0.627	0.605	0.684	0.601
5	0.334	0.263	0.621	0.417	0.899	0.865	0.270
6	0.217	0.307	0.362	0.591	0.589	0.987	0.998
7	0.317	0.265	0.289	0.269	0.978	0.338	0.675
8	0.734	0.488	0.272	0.273	0.323	0.887	0.490

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	0.006	0.006	-0.002	0.003	0.000	0.004	0.008
2	-0.010	-0.003	-0.002	-0.009	-0.003	-0.006	-0.001
3	0.010	-0.000	0.003	0.004	-0.002	0.005	0.002
4	-0.002	0.006	-0.001	0.003	0.003	-0.003	0.004
5	-0.003	-0.005	0.002	-0.005	-0.001	-0.001	-0.008
6	-0.004	-0.004	-0.005	0.003	-0.003	0.000	0.000
7	-0.004	-0.005	-0.005	-0.006	0.000	-0.007	-0.003
8	0.001	-0.003	-0.006	-0.006	-0.006	0.001	-0.005

PM10

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

	p.pv	mv2	mv3	mv4	mv5	mv6	mv7
1	0.011	0.069	0.769	0.519	0.833	0.532	0.270
2	0.016	0.870	0.709	0.318	0.937	0.736	0.818
3	0.000	0.585	0.085	0.096	0.640	0.146	0.288
4	0.511	0.073	0.839	0.198	0.191	0.867	0.294
5	0.502	0.310	0.394	0.757	0.478	0.470	0.766
6	0.348	0.673	0.660	0.239	0.861	0.318	0.329
7	0.016	0.043	0.125	0.121	0.815	0.271	0.759
8	0.638	0.183	0.136	0.247	0.298	0.762	0.706

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

NO

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

	p.pv	mv2	mv3	mv4	mv5	mv6	mv7
1	0.280	0.135	0.371	0.835	0.840	0.906	0.894
2	0.161	0.802	0.838	0.889	0.359	0.439	0.559
3	0.101	0.023	0.195	0.507	0.425	0.131	0.229
4	0.750	0.336	0.115	0.369	0.564	0.406	0.147
5	0.578	0.733	0.964	0.559	0.896	0.949	0.956
6	0.523	0.472	0.406	0.639	0.996	0.619	0.406
7	0.831	0.970	0.441	0.495	0.751	0.981	0.696
8	0.394	0.358	0.307	0.850	0.996	0.838	0.616

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	0.021	0.036	0.025	-0.007	-0.007	0.004	-0.005
2	-0.030	-0.006	0.006	-0.004	-0.032	-0.029	-0.023
3	-0.034	-0.059	-0.037	-0.021	-0.027	-0.056	-0.047
4	-0.006	-0.024	-0.046	-0.028	-0.020	-0.031	-0.057
5	0.010	0.008	-0.001	-0.018	-0.004	0.002	-0.002
6	-0.013	0.018	0.024	0.015	-0.000	0.018	0.033
7	0.004	-0.001	0.022	0.022	0.011	-0.001	0.015
8	-0.018	-0.024	-0.030	-0.006	-0.000	-0.008	-0.020

NO2

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

	p.pv	mv2	mv3	mv4	mv5	mv6	mv7
1	0.042	0.075	0.931	0.998	0.687	0.729	0.999
2	0.009	0.775	0.858	0.360	0.588	0.464	0.530
3	0.774	0.036	0.557	0.960	0.350	0.501	0.537
4	0.039	0.252	0.041	0.404	0.661	0.189	0.313
5	0.843	0.163	0.434	0.111	0.480	0.601	0.218
6	0.448	0.673	0.848	0.917	0.473	0.974	0.774
7	0.023	0.085	0.416	0.166	0.247	0.069	0.245
8	0.942	0.077	0.087	0.338	0.209	0.335	0.137

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	0.016	0.017	-0.001	-0.000	-0.005	-0.005	0.000
2	-0.021	-0.003	0.002	-0.011	-0.007	-0.010	-0.009
3	-0.002	-0.020	-0.006	-0.001	-0.012	-0.009	-0.009
4	-0.017	-0.011	-0.022	-0.010	-0.006	-0.018	-0.014
5	-0.002	-0.014	-0.008	-0.019	-0.009	-0.007	-0.018
6	-0.006	0.004	-0.002	0.001	-0.009	0.000	0.004
7	-0.019	-0.017	-0.009	-0.016	-0.015	-0.025	-0.016
8	0.001	-0.017	-0.018	-0.011	-0.016	-0.013	-0.021