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	0.012	0.023	0.394	0.859	0.672	0.763	0.438
2	0.321	0.338	0.217	0.741	0.997	0.774	0.784
3	0.616	0.204	0.886	0.495	0.937	0.916	0.758
4	0.586	0.725	0.833	0.402	0.242	0.679	0.858
5	0.910	0.739	0.702	0.965	0.432	0.338	0.771
6	0.375	0.621	0.329	0.326	0.596	0.169	0.084
7	0.949	0.818	0.679	0.583	0.663	0.967	0.513
8	0.973	0.449	0.289	0.744	0.899	0.772	0.999

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	0.770	0.832	0.357	0.084	0.226	0.180	0.509
2	-0.313	0.351	0.511	0.156	0.002	0.172	0.179
3	-0.156	-0.474	0.060	0.321	0.042	-0.063	0.202
4	0.169	0.130	-0.088	0.394	0.621	0.246	0.117
5	0.035	0.124	0.160	-0.021	0.419	0.573	0.191
6	-0.283	0.185	0.406	0.460	0.281	0.818	1.128
7	-0.021	-0.088	0.176	0.259	0.230	-0.024	0.428
8	0.011	-0.287	-0.451	-0.155	0.067	0.173	-0.001

SO2

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

	p.pv	mv2	mv3	mv4	mv5	mv6	mv7
1	0.137	0.060	0.845	0.859	0.909	0.571	0.354
2	0.565	0.681	0.033	0.392	0.368	0.457	0.955
3	0.000	0.001	0.048	0.000	0.011	0.012	0.010
4	0.016	0.313	0.269	0.583	0.020	0.179	0.149
5	0.181	0.442	0.150	0.164	0.314	0.011	0.074
6	0.698	0.162	0.923	0.066	0.064	0.162	0.006
7	0.011	0.078	0.508	0.087	0.969	0.974	0.678
8	0.236	0.527	0.811	0.698	0.591	0.319	0.231

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	-0.042	0.066	0.008	0.009	0.006	-0.032	-0.055
2	0.014	-0.015	0.091	0.042	0.047	0.042	0.003
3	0.077	0.105	0.083	0.175	0.132	0.142	0.155
4	-0.071	0.036	0.047	0.027	0.122	0.076	0.087
5	0.032	-0.028	0.061	0.067	0.053	0.143	0.107
6	0.010	0.049	-0.004	0.088	0.097	0.079	0.164
7	-0.076	-0.068	-0.029	-0.085	-0.002	0.002	-0.025
8	0.028	-0.023	-0.010	0.019	-0.028	0.056	0.072

O3

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

	p.pv	mv2	mv3	mv4	mv5	mv6	mv7
1	0.825	0.692	0.442	0.445	0.501	0.431	0.401
2	0.909	0.813	0.894	0.260	0.224	0.247	0.170
3	0.851	0.969	0.741	0.706	0.208	0.144	0.148
4	0.011	0.308	0.376	0.343	0.386	0.109	0.077
5	0.521	0.463	0.811	0.747	0.644	0.619	0.242
6	0.503	0.423	0.789	0.932	0.917	0.936	0.873
7	0.560	0.421	0.268	0.672	0.492	0.465	0.472
8	0.082	0.453	0.457	0.388	0.876	0.736	0.759

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

PM2.5

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

	p.pv	mv2	mv3	mv4	mv5	mv6	mv7
1	0.006	0.038	0.890	0.281	0.794	0.588	0.212
2	0.004	0.812	0.998	0.141	0.956	0.464	0.818
3	0.003	0.851	0.288	0.282	0.847	0.290	0.735
4	0.443	0.176	0.667	0.479	0.439	0.678	0.442
5	0.700	0.388	0.437	0.525	0.676	0.683	0.458
6	0.378	0.716	0.659	0.311	0.867	0.461	0.429
7	0.440	0.436	0.597	0.461	0.737	0.467	0.895
8	0.857	0.521	0.352	0.462	0.466	0.678	0.649

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

PM10

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

	p.pv	mv2	mv3	mv4	mv5	mv6	mv7
1	0.001	0.015	0.912	0.175	0.491	0.333	0.081
2	0.045	0.396	0.340	0.524	0.477	0.920	0.563
3	0.000	0.370	0.018	0.023	0.359	0.029	0.101
4	0.473	0.066	0.652	0.070	0.065	0.559	0.082
5	0.908	0.522	0.204	0.805	0.130	0.123	0.667
6	0.490	0.869	0.943	0.090	0.432	0.068	0.066
7	0.011	0.048	0.221	0.199	0.983	0.436	0.833
8	0.723	0.148	0.140	0.361	0.433	0.533	0.968

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

NO

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

	p.pv	mv2	mv3	mv4	mv5	mv6	mv7
1	0.351	0.075	0.189	0.905	0.874	0.770	0.987
2	0.152	0.740	0.704	0.925	0.455	0.589	0.589
3	0.124	0.030	0.200	0.655	0.625	0.218	0.375
4	0.864	0.441	0.163	0.419	0.768	0.642	0.261
5	0.408	0.575	0.878	0.667	0.943	0.787	0.824
6	0.368	0.431	0.368	0.603	0.987	0.644	0.352
7	0.639	0.990	0.375	0.413	0.689	0.988	0.744
8	0.556	0.443	0.280	0.912	0.890	0.939	0.674

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	0.039	0.034	0.003	0.005	0.010	-0.001
2	-0.028	-0.008	0.010	0.003	-0.023	-0.018	-0.019
3	-0.029	-0.050	-0.033	-0.013	-0.015	-0.041	-0.031
4	-0.003	-0.018	-0.037	-0.023	-0.009	-0.015	-0.040
5	0.014	0.012	0.004	-0.012	-0.002	0.009	0.008
6	-0.017	0.018	0.023	0.015	0.000	0.015	0.033
7	0.009	-0.000	0.023	0.023	0.012	0.000	0.012
8	-0.011	-0.018	-0.029	-0.003	0.004	-0.003	-0.015

NO2

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

	p.pv	mv2	mv3	mv4	mv5	mv6	mv7
1	0.004	0.005	0.520	0.472	0.763	0.954	0.701
2	0.018	0.764	0.335	0.704	0.993	0.857	0.723
3	0.756	0.138	0.821	0.342	0.926	0.845	0.814
4	0.051	0.505	0.136	0.945	0.594	0.633	0.874
5	0.825	0.310	0.857	0.353	0.893	0.626	0.742
6	0.351	0.517	0.949	0.580	0.842	0.461	0.244
7	0.036	0.090	0.527	0.239	0.435	0.171	0.556
8	0.730	0.112	0.087	0.420	0.295	0.568	0.308

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