0602 中油會議報告

Edit by: Judge Wu, Albert Tsai

前 **4** 項 **PC** 可解釋變異的累積比例
[1] 0.3913206 [2] 0.5554369 [3] 0.6643437 [4] 0.7568795

PCA 各變數影響各 **PC** 之比例

```
              PC1          PC2          PC3
temp    0.4115566  -0.35344501   0.25610330
sal     0.3086957   0.36254181  -0.04345491
pH      0.3099117  -0.02251260   0.72048536
DO     -0.1677525   0.62936312   0.33800419
Turb   -0.2526436  -0.29207364   0.14519405
NO2    -0.3923048   0.15704868   0.36408179
NO3    -0.4786047   0.07873658  -0.10739328
NH3    -0.2464610  -0.43784228   0.05709070
PO43   -0.3218767  -0.19788557   0.36158991
```

G3 樣區 低潮位僅有一筆 **DATA** 在 **SP** 所以其他都會 **NA**

PC1：生物代謝物
TukeyHSD(aov_pc)
    Tukey multiple comparisons of means
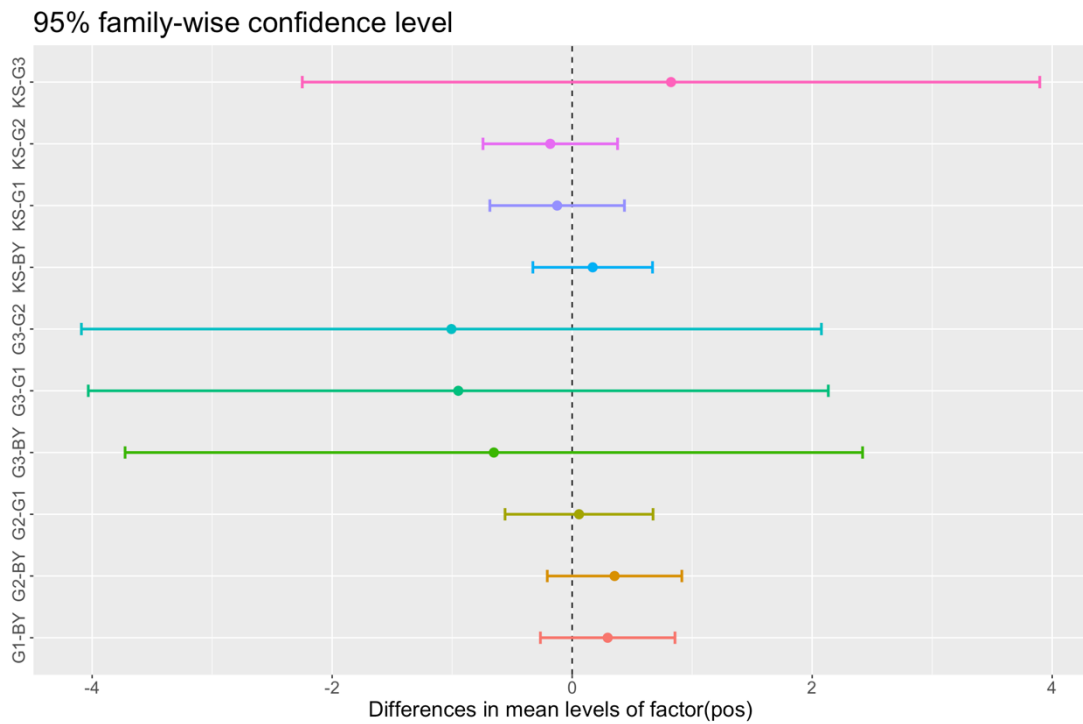   95% family-wise confidence level
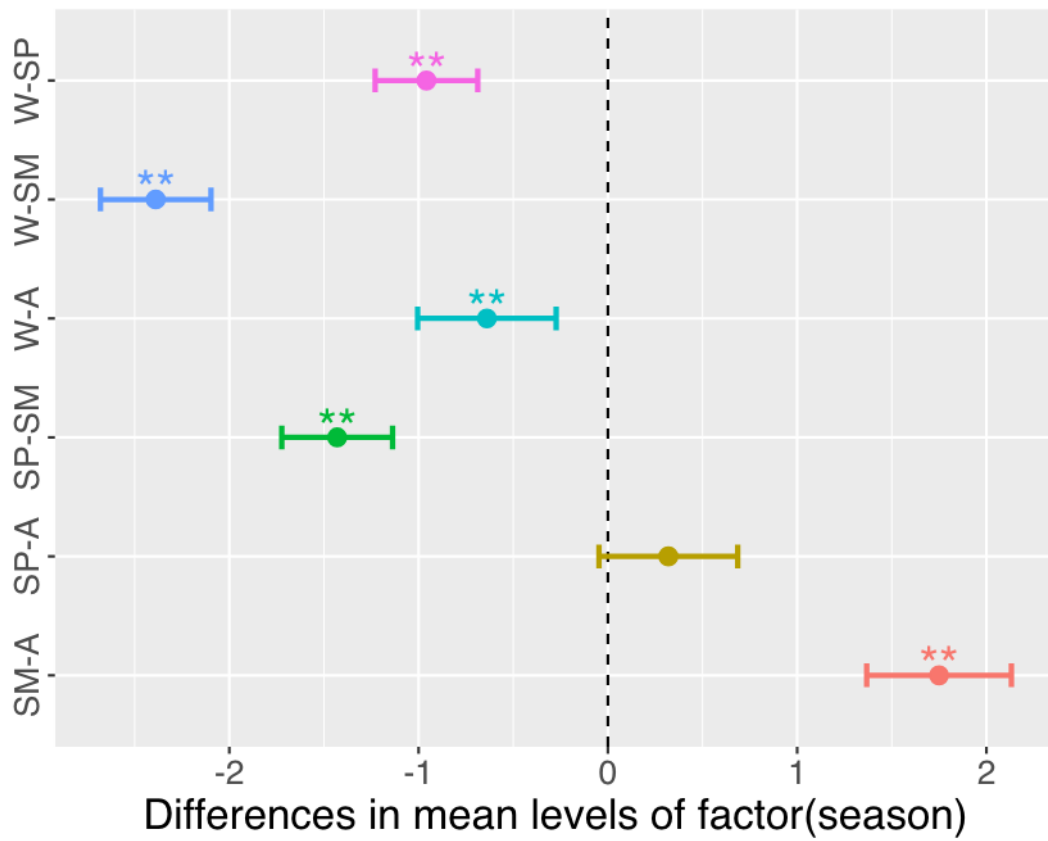Fit: aov(formula = 生物代謝物 ~ factor(year) + factor(season), data = PC_score)

$`factor(year)`

	diff	lwr	upr	p adj
2020-2019	-0.3921262	-0.6788814	-0.10537101	0.0027095
2021-2019	-0.2650056	-0.5517608	0.02174958	0.0815572
2022-2019	-1.0945395	-1.6799547	-0.50912436	0.0000139
2021-2020	0.1271206	-0.1280668	0.38230795	0.5710176
2022-2020	-0.7024133	-1.2730296	-0.13179702	0.0088514
2022-2021	-0.8295339	-1.4001502	-0.25891760	0.0012099

$`factor(season)`

	diff	lwr	upr	p adj
SM-A	1.7496875	1.36690642	2.1324685	0.0000000
SP-A	0.3499987	-0.01711831	0.7171157	0.0678735
W-A	-0.4749285	-0.84141347	-0.1084436	0.0051126
SP-SM	-1.3996888	-1.69283457	-1.1065430	0.0000000
W-SM	-2.2246160	-2.51696985	-1.9322621	0.0000000
W-SP	-0.8249272	-1.09644948	-0.5534049	0.0000000

95% family-wise confidence level
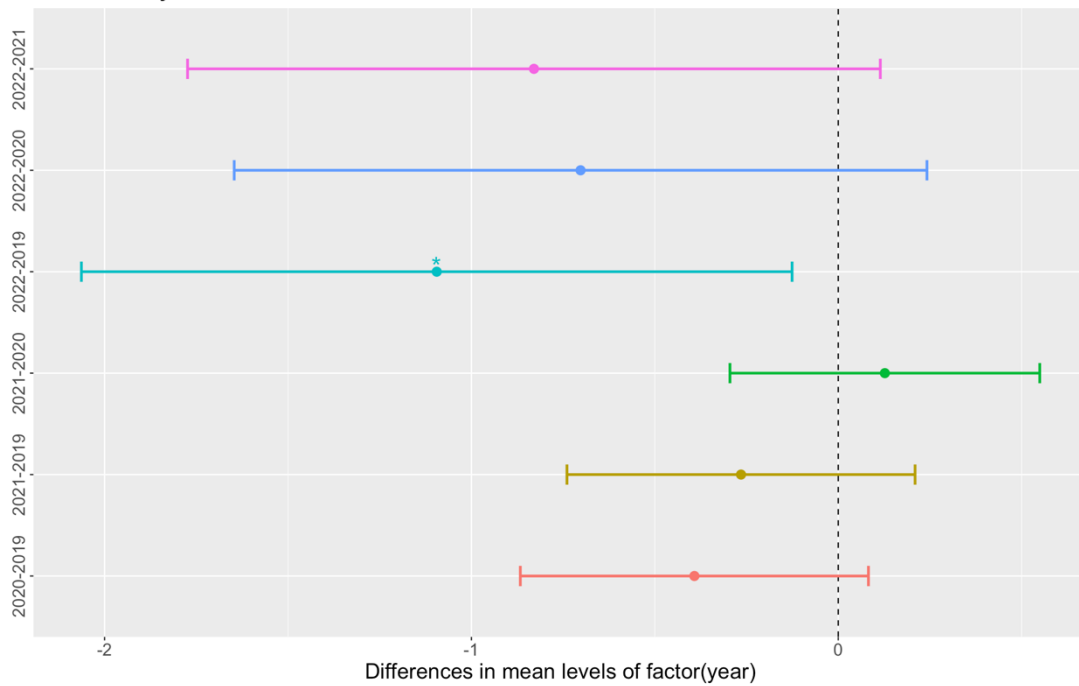
95% family-wise confidence level

Differences in mean levels of factor(season)

95% family-wise confidence level

Differences in mean levels of factor(year)

Tukey multiple comparisons of means
    95% family-wise confidence level

Fit: aov(formula = 生物代謝物 ~ factor(season) + factor(pos) + factor(season) * factor(pos), data = PC_score)

$`factor(season)`

	diff	lwr	upr	p adj
SM-A	1.7496875	1.37148327	2.1278917	0.0000000
SP-A	0.3194989	-0.04322855	0.6822264	0.1058447
W-A	-0.6391264	-1.00122941	-0.2770235	0.0000472
SP-SM	-1.4301886	-1.71982927	-1.1405479	0.0000000
W-SM	-2.3888139	-2.67767216	-2.0999557	0.0000000
W-SP	-0.9586254	-1.22690108	-0.6903496	0.0000000

$`factor(pos)`

	diff	lwr	upr	p adj
G1-BY	0.29620463	-0.03388498	0.6262942	0.1017948
G2-BY	0.35356889	0.02347928	0.6836585	0.0290290
G3-BY	-0.65448190	-2.46342894	1.1544651	0.8575493
KS-BY	0.17114972	-0.12230024	0.4645997	0.4966456
G2-G1	0.05736426	-0.30568591	0.4204144	0.9925541
G3-G1	-0.95068653	-2.76593739	0.8645643	0.6025398
KS-G1	-0.12505491	-0.45514453	0.2050347	0.8357247
G3-G2	-1.00805080	-2.82330165	0.8072001	0.5461359
KS-G2	-0.18241918	-0.51250879	0.1476704	0.5509314
KS-G3	0.82563162	-0.98331542	2.6345787	0.7190441

$`factor(season):factor(pos)`

	diff	lwr	upr	p adj
SM:BY-A:BY	2.2242277895	1.26748893	3.18096665	0.0000000
SP:BY-A:BY	0.5221577972	-0.39384992	1.43816552	0.8806114
W:BY-A:BY	-0.3427353097	-1.25874303	0.57327241	0.9986460
A:G1-A:BY	0.5991418579	-0.63600270	1.83428642	0.9717821
SM:G1-A:BY	2.1579324999	1.12453642	3.19132858	0.0000000
SP:G1-A:BY	0.9990700333	0.01095439	1.98718568	0.0441372
W:G1-A:BY	-0.0621035031	-1.03857101	0.91436401	1.0000000
A:G2-A:BY	0.7554739614	-0.47967060	1.99061852	0.8016830

SM:G2-A:BY	2.3571912755	1.32379520	3.39058735	0.0000000
SP:G2-A:BY	0.9573209806	-0.03079467	1.94543663	0.0701892
W:G2-A:BY	-0.0553543282	-1.03182184	0.92111318	1.0000000
A:G3-A:BY	NA	NA	NA	NA
SM:G3-A:BY	NA	NA	NA	NA
SP:G3-A:BY	-0.0613973128	-2.53168643	2.40889180	1.0000000
W:G3-A:BY	NA	NA	NA	NA
A:KS-A:BY	0.5981742577	-0.50657262	1.70292113	0.9214277
SM:KS-A:BY	2.0992327555	1.14249390	3.05597162	0.0000000
SP:KS-A:BY	0.7918257690	-0.12418195	1.70783349	0.1915033
W:KS-A:BY	-0.2081294840	-1.12413720	0.70787824	0.9999993
SP:BY-SM:BY	-1.7020699923	-2.43279137	-0.97134862	0.0000000
W:BY-SM:BY	-2.5669630991	-3.29768447	-1.83624172	0.0000000
A:G1-SM:BY	-1.6250859315	-2.72983281	-0.52033905	0.0000551
SM:G1-SM:BY	-0.0662952895	-0.93967438	0.80708380	1.0000000
SP:G1-SM:BY	-1.2251577562	-2.04445997	-0.40585554	0.0000361
W:G1-SM:BY	-2.2863312926	-3.09154703	-1.48111556	0.0000000
A:G2-SM:BY	-1.4687538280	-2.57350070	-0.36400695	0.0005669
SM:G2-SM:BY	0.1329634861	-0.74041561	1.00634258	1.0000000
SP:G2-SM:BY	-1.2669068088	-2.08620902	-0.44760460	0.0000147
W:G2-SM:BY	-2.2795821176	-3.08479785	-1.47436638	0.0000000
A:G3-SM:BY	NA	NA	NA	NA
SM:G3-SM:BY	NA	NA	NA	NA
SP:G3-SM:BY	-2.2856251023	-4.69336510	0.12211489	0.0860649
W:G3-SM:BY	NA	NA	NA	NA
A:KS-SM:BY	-1.6260535317	-2.58279239	-0.66931467	0.0000009
SM:KS-SM:BY	-0.1249950340	-0.90616904	0.65617897	1.0000000
SP:KS-SM:BY	-1.4324020204	-2.16312339	-0.70168065	0.0000000
W:KS-SM:BY	-2.4323572735	-3.16307865	-1.70163590	0.0000000
W:BY-SP:BY	-0.8648931069	-1.54140964	-0.18837657	0.0012454
A:G1-SP:BY	0.0769840607	-0.99268250	1.14665062	1.0000000
SM:G1-SP:BY	1.6357747027	0.80721455	2.46433486	0.0000000
SP:G1-SP:BY	0.4769122361	-0.29443529	1.24825976	0.7871071
W:G1-SP:BY	-0.5842613003	-1.34062978	0.17210718	0.3837574
A:G2-SP:BY	0.2333161642	-0.83635040	1.30298273	0.9999996
SM:G2-SP:BY	1.8350334784	1.00647332	2.66359364	0.0000000
SP:G2-SP:BY	0.4351631834	-0.33618435	1.20651071	0.8899093
W:G2-SP:BY	-0.5775121254	-1.33388061	0.17885636	0.4063258

Comparison	Estimate	Lower	Upper	p-value
A:G3-SP:BY	NA	NA	NA	NA
SM:G3-SP:BY	NA	NA	NA	NA
SP:G3-SP:BY	-0.5835551100	-2.97540226	1.80829204	0.9999977
W:G3-SP:BY	NA	NA	NA	NA
A:KS-SP:BY	0.0760164605	-0.83999126	0.99202418	1.0000000
SM:KS-SP:BY	1.5770749583	0.84635358	2.30779633	0.0000000
SP:KS-SP:BY	0.2696679718	-0.40684856	0.94618451	0.9969502
W:KS-SP:BY	-0.7302872812	-1.40680382	-0.05377075	0.0195536
A:G1-W:BY	0.9418771676	-0.12778940	2.01154373	0.1663739
SM:G1-W:BY	2.5006678096	1.67210765	3.32922797	0.0000000
SP:G1-W:BY	1.3418053429	0.57045781	2.11315287	0.0000004
W:G1-W:BY	0.2806318065	-0.47573667	1.03700029	0.9987883
A:G2-W:BY	1.0982092711	0.02854271	2.16787583	0.0369040
SM:G2-W:BY	2.6999265852	1.87136643	3.52848674	0.0000000
SP:G2-W:BY	1.3000562903	0.52870876	2.07140382	0.0000011
W:G2-W:BY	0.2873809815	-0.46898750	1.04374946	0.9983451
A:G3-W:BY	NA	NA	NA	NA
SM:G3-W:BY	NA	NA	NA	NA
SP:G3-W:BY	0.2813379968	-2.11050915	2.67318515	1.0000000
W:G3-W:BY	NA	NA	NA	NA
A:KS-W:BY	0.9409095674	0.02490185	1.85691729	0.0366898
SM:KS-W:BY	2.4419680651	1.71124669	3.17268944	0.0000000
SP:KS-W:BY	1.1345610787	0.45804454	1.81107761	0.0000013
W:KS-W:BY	0.1346058256	-0.54191071	0.81112236	0.9999999
SM:G1-A:G1	1.5587906420	0.38702963	2.73055165	0.0005598
SP:G1-A:G1	0.3999281754	-0.73210051	1.53195686	0.9993738
W:G1-A:G1	-0.6612453610	-1.78312112	0.46063040	0.8466562
A:G2-A:G1	0.1563321035	-1.19670097	1.50936518	1.0000000
SM:G2-A:G1	1.7580494176	0.58628841	2.92981043	0.0000331
SP:G2-A:G1	0.3581791227	-0.77384956	1.49020781	0.9998689
W:G2-A:G1	-0.6544961861	-1.77637194	0.46737957	0.8577368
A:G3-A:G1	NA	NA	NA	NA
SM:G3-A:G1	NA	NA	NA	NA
SP:G3-A:G1	-0.6605391707	-3.19183226	1.87075392	0.9999932
W:G3-A:G1	NA	NA	NA	NA
A:KS-A:G1	-0.0009676002	-1.23611216	1.23417696	1.0000000
SM:KS-A:G1	1.5000908976	0.39534402	2.60483777	0.0003614
SP:KS-A:G1	0.1926839111	-0.87698265	1.26235048	1.0000000

Comparison	Estimate	Lower	Upper	p-value
W:KS-A:G1	-0.8072713419	-1.87693791	0.26239522	0.4291885
SP:G1-SM:G1	-1.1588624667	-2.06650464	-0.25122029	0.0012772
W:G1-SM:G1	-2.2200360031	-3.11498326	-1.32508875	0.0000000
A:G2-SM:G1	-1.4024585385	-2.57421955	-0.23069753	0.0041049
SM:G2-SM:G1	0.1992587756	-0.75748008	1.15599764	0.9999998
SP:G2-SM:G1	-1.2006115193	-2.10825370	-0.29296934	0.0006298
W:G2-SM:G1	-2.2132868281	-3.10823408	-1.31833957	0.0000000
A:G3-SM:G1	NA	NA	NA	NA
SM:G3-SM:G1	NA	NA	NA	NA
SP:G3-SM:G1	-2.2193298128	-4.65854487	0.21988525	0.1270354
W:G3-SM:G1	NA	NA	NA	NA
A:KS-SM:G1	-1.5597582422	-2.59315432	-0.52636216	0.0000283
SM:KS-SM:G1	-0.0586997445	-0.93207884	0.81467935	1.0000000
SP:KS-SM:G1	-1.3661067309	-2.19466689	-0.53754657	0.0000022
W:KS-SM:G1	-2.3660619840	-3.19462214	-1.53750183	0.0000000
W:G1-SP:G1	-1.0611735364	-1.90342983	-0.21891724	0.0016449
A:G2-SP:G1	-0.2435960718	-1.37562476	0.88843261	0.9999997
SM:G2-SP:G1	1.3581212423	0.45047907	2.26576342	0.0000355
SP:G2-SP:G1	-0.0417490526	-0.89748230	0.81398420	1.0000000
W:G2-SP:G1	-1.0544243615	-1.89668066	-0.21216807	0.0018528
A:G3-SP:G1	NA	NA	NA	NA
SM:G3-SP:G1	NA	NA	NA	NA
SP:G3-SP:G1	-1.0604673461	-3.48084649	1.35991179	0.9905545
W:G3-SP:G1	NA	NA	NA	NA
A:KS-SP:G1	-0.4008957755	-1.38901142	0.58721987	0.9962036
SM:KS-SP:G1	1.1001627222	0.28086051	1.91946493	0.0004594
SP:KS-SP:G1	-0.2072442642	-0.97859179	0.56410326	0.9999891
W:KS-SP:G1	-1.2071995173	-1.97854705	-0.43585199	0.0000105
A:G2-W:G1	0.8175774645	-0.30429829	1.93945322	0.4985596
SM:G2-W:G1	2.4192947787	1.52434752	3.31424203	0.0000000
SP:G2-W:G1	1.0194244838	0.17716819	1.86168078	0.0033907
W:G2-W:G1	0.0067491749	-0.82181098	0.83530933	1.0000000
A:G3-W:G1	NA	NA	NA	NA
SM:G3-W:G1	NA	NA	NA	NA
SP:G3-W:G1	0.0007061903	-2.41494102	2.41635340	1.0000000
W:G3-W:G1	NA	NA	NA	NA
A:KS-W:G1	0.6602777608	-0.31618975	1.63674527	0.6425438
SM:KS-W:G1	2.1613362586	1.35612052	2.96655200	0.0000000

SP:KS-W:G1	0.8539292722	0.09756079	1.61029775	0.0103686
W:KS-W:G1	-0.1460259809	-0.90239446	0.61034250	1.0000000
SM:G2-A:G2	1.6017173141	0.42995630	2.77347833	0.0003123
SP:G2-A:G2	0.2018470192	-0.93018167	1.33387570	1.0000000
W:G2-A:G2	-0.8108282896	-1.93270405	0.31104747	0.5149954
A:G3-A:G2	NA	NA	NA	NA
SM:G3-A:G2	NA	NA	NA	NA
SP:G3-A:G2	-0.8168712743	-3.34816437	1.71442182	0.9998253
W:G3-A:G2	NA	NA	NA	NA
A:KS-A:G2	-0.1572997037	-1.39244426	1.07784485	1.0000000
SM:KS-A:G2	1.3437587940	0.23901192	2.44850567	0.0031115
SP:KS-A:G2	0.0363518076	-1.03331476	1.10601837	1.0000000
W:KS-A:G2	-0.9636034454	-2.03327001	0.10606312	0.1382686
SP:G2-SM:G2	-1.3998702949	-2.30751247	-0.49222812	0.0000158
W:G2-SM:G2	-2.4125456037	-3.30749286	-1.51759835	0.0000000
A:G3-SM:G2	NA	NA	NA	NA
SM:G3-SM:G2	NA	NA	NA	NA
SP:G3-SM:G2	-2.4185885884	-4.85780365	0.02062647	0.0549123
W:G3-SM:G2	NA	NA	NA	NA
A:KS-SM:G2	-1.7590170178	-2.79241310	-0.72562094	0.0000008
SM:KS-SM:G2	-0.2579585201	-1.13133761	0.61542057	0.9999530
SP:KS-SM:G2	-1.5653655065	-2.39392566	-0.73680535	0.0000000
W:KS-SM:G2	-2.5653207596	-3.39388092	-1.73676060	0.0000000
W:G2-SP:G2	-1.0126753088	-1.85493160	-0.17041901	0.0038002
A:G3-SP:G2	NA	NA	NA	NA
SM:G3-SP:G2	NA	NA	NA	NA
SP:G3-SP:G2	-1.0187182935	-3.43909743	1.40166085	0.9940821
W:G3-SP:G2	NA	NA	NA	NA
A:KS-SP:G2	-0.3591467229	-1.34726237	0.62896892	0.9990792
SM:KS-SP:G2	1.1419117748	0.32260956	1.96121399	0.0002019
SP:KS-SP:G2	-0.1654952116	-0.93684274	0.60585232	0.9999997
W:KS-SP:G2	-1.1654504647	-1.93679799	-0.39410294	0.0000275
A:G3-W:G2	NA	NA	NA	NA
SM:G3-W:G2	NA	NA	NA	NA
SP:G3-W:G2	-0.0060429846	-2.42169020	2.40960423	1.0000000
W:G3-W:G2	NA	NA	NA	NA
A:KS-W:G2	0.6535285859	-0.32293892	1.62999610	0.6610400
SM:KS-W:G2	2.1545870837	1.34937135	2.95980282	0.0000000

SP:KS-W:G2	0.8471800972	0.09081162	1.60354858	0.0116556
W:KS-W:G2	-0.1527751558	-0.90914364	0.60359333	0.9999999
SM:G3-A:G3	NA	NA	NA	NA
SP:G3-A:G3	NA	NA	NA	NA
W:G3-A:G3	NA	NA	NA	NA
A:KS-A:G3	NA	NA	NA	NA
SM:KS-A:G3	NA	NA	NA	NA
SP:KS-A:G3	NA	NA	NA	NA
W:KS-A:G3	NA	NA	NA	NA
SP:G3-SM:G3	NA	NA	NA	NA
W:G3-SM:G3	NA	NA	NA	NA
A:KS-SM:G3	NA	NA	NA	NA
SM:KS-SM:G3	NA	NA	NA	NA
SP:KS-SM:G3	NA	NA	NA	NA
W:KS-SM:G3	NA	NA	NA	NA
W:G3-SP:G3	NA	NA	NA	NA
A:KS-SP:G3	0.6595715705	-1.81071754	3.12986068	0.9999902
SM:KS-SP:G3	2.1606300683	-0.24710993	4.56837007	0.1428019
SP:KS-SP:G3	0.8532230819	-1.53862407	3.24507023	0.9992853
W:KS-SP:G3	-0.1467321712	-2.53857932	2.24511498	1.0000000
A:KS-W:G3	NA	NA	NA	NA
SM:KS-W:G3	NA	NA	NA	NA
SP:KS-W:G3	NA	NA	NA	NA
W:KS-W:G3	NA	NA	NA	NA
SM:KS-A:KS	1.5010584978	0.54431964	2.45779736	0.0000098
SP:KS-A:KS	0.1936515113	-0.72235621	1.10965923	0.9999998
W:KS-A:KS	-0.8063037417	-1.72231146	0.10970398	0.1668137
SP:KS-SM:KS	-1.3074069864	-2.03812836	-0.57668561	0.0000001
W:KS-SM:KS	-2.3073622395	-3.03808361	-1.57664087	0.0000000
W:KS-SP:KS	-0.9999552531	-1.67647179	-0.32343872	0.0000488

PC2 :氮循環
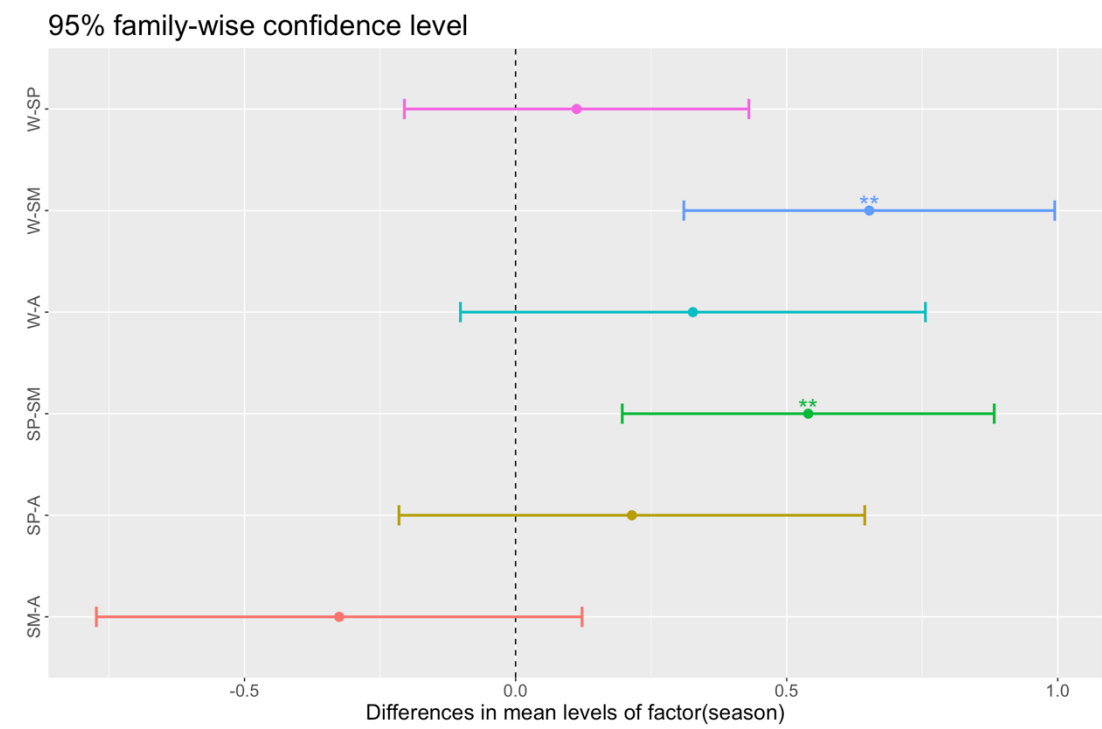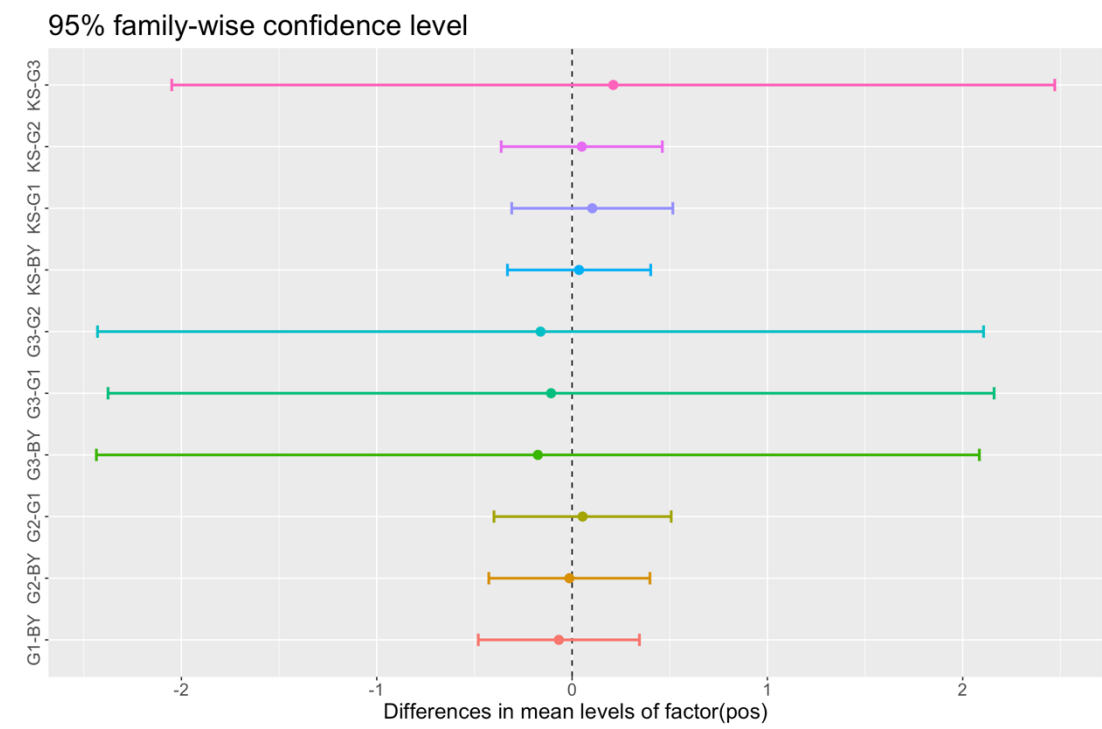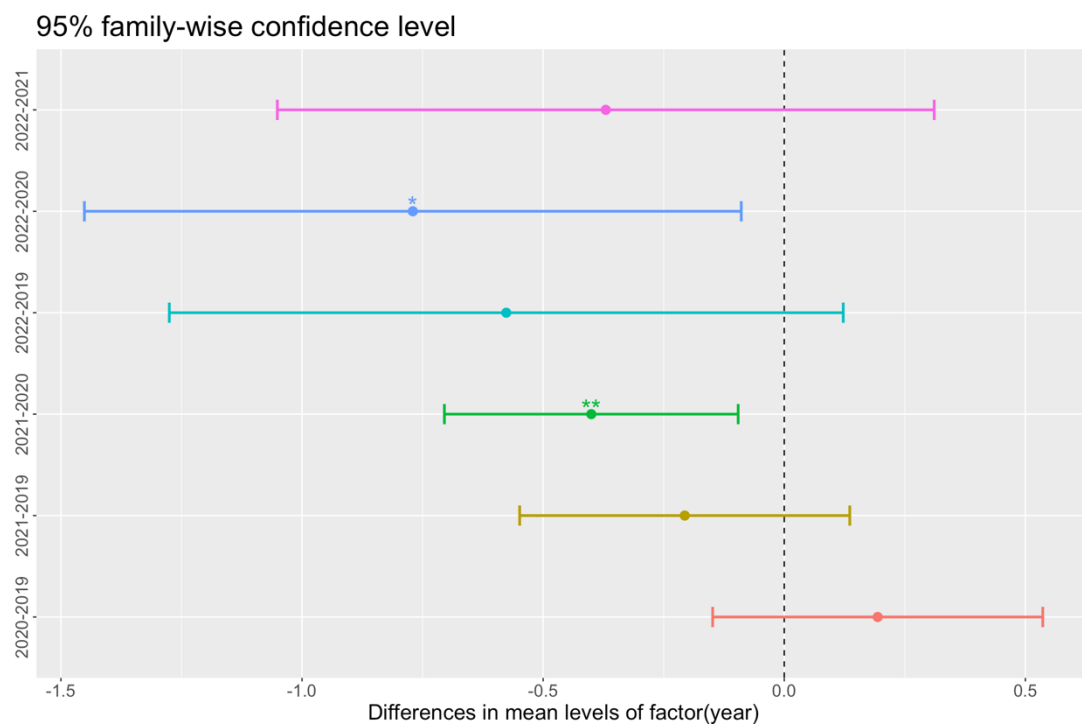
95% family-wise confidence level

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Tukey multiple comparisons of means
      95% family-wise confidence level

Fit: aov(formula = 氮循環 ~ factor(year) + factor(season), data = PC_score)

$`factor(year)`

	diff	lwr	upr	p adj
2020-2019	0.1937822	-0.1263709	0.51393525	0.4001422
2021-2019	-0.2063761	-0.5265291	0.11377699	0.3431361
2022-2019	-0.5764542	-1.2300516	0.07714327	0.1051738
2021-2020	-0.4001583	-0.6850668	-0.11524968	0.0019269
2022-2020	-0.7702363	-1.4073113	-0.13316138	0.0105928
2022-2021	-0.3700781	-1.0071530	0.26699688	0.4374051

$`factor(season)`

	diff	lwr	upr	p adj
SM-A	-0.3252924	-0.752655274	0.1020705	0.2026101
SP-A	0.2150558	-0.194818629	0.6249303	0.5273980
W-A	0.3996489	-0.009519925	0.8088177	0.0583483
SP-SM	0.5403482	0.213060284	0.8676362	0.0001634
W-SM	0.7249413	0.398537487	1.0513451	0.0000002
W-SP	0.1845930	-0.118552944	0.4877390	0.3946891

Tukey multiple comparisons of means
    95% family-wise confidence level

Fit: aov(formula = 氮循環 ~ factor(season) + factor(pos) + factor(season) * factor(pos), data = PC_score)

$`factor(season)`

	diff	lwr	upr	p adj
SM-A	-0.3252924	-0.7722459	0.1216611	0.2380201
SP-A	0.2144713	-0.2141921	0.6431347	0.5672159
W-A	0.3270674	-0.1008580	0.7549927	0.1993518
SP-SM	0.5397637	0.1974727	0.8820548	0.0003581
W-SM	0.6523598	0.3109934	0.9937261	0.0000087
W-SP	0.1125960	-0.2044464	0.4296385	0.7947128

$`factor(pos)`

	diff	lwr	upr	p adj
G1-BY	-0.06516158	-0.4552543	0.3249311	0.9907953
G2-BY	-0.01129068	-0.4013834	0.3788020	0.9999909
G3-BY	-0.29426648	-2.4320406	1.8435077	0.9956188
KS-BY	0.03591278	-0.3108800	0.3827055	0.9985549
G2-G1	0.05387090	-0.3751739	0.4829157	0.9969325
G3-G1	-0.22910490	-2.3743288	1.9161190	0.9983693
KS-G1	0.10107435	-0.2890184	0.4911671	0.9535269
G3-G2	-0.28297580	-2.4281997	1.8622481	0.9962849
KS-G2	0.04720346	-0.3428892	0.4372962	0.9973433
KS-G3	0.33017926	-1.8075949	2.4679534	0.9931754

$`factor(season):factor(pos)`

	diff	lwr	upr	p adj
SM:BY-A:BY	-0.095348864	-1.22600198	1.03530425	1.0000000
SP:BY-A:BY	0.422217679	-0.66030026	1.50473562	0.9976820
W:BY-A:BY	0.488029677	-0.59448826	1.57054762	0.9869874
A:G1-A:BY	0.700616237	-0.75905065	2.16028313	0.9746514
SM:G1-A:BY	-0.158254645	-1.37949958	1.06299029	1.0000000
SP:G1-A:BY	0.033126441	-1.13460707	1.20085995	1.0000000
W:G1-A:BY	0.439854454	-0.71411355	1.59382245	0.9982748
A:G2-A:BY	0.184685193	-1.27498170	1.64435208	1.0000000

SM:G2-A:BY	0.047488236	-1.17375670	1.26873318	1.0000000
SP:G2-A:BY	0.191127514	-0.97660600	1.35886103	1.0000000
W:G2-A:BY	0.495875049	-0.65809295	1.64984305	0.9924478
A:G3-A:BY	NA	NA	NA	NA
SM:G3-A:BY	NA	NA	NA	NA
SP:G3-A:BY	0.093378061	-2.82595572	3.01271184	1.0000000
W:G3-A:BY	NA	NA	NA	NA
A:KS-A:BY	-0.030988582	-1.33655434	1.27457718	1.0000000
SM:KS-A:BY	-0.355902482	-1.48655559	0.77475063	0.9998785
SP:KS-A:BY	0.691923142	-0.39059480	1.77444108	0.7381460
W:KS-A:BY	0.537587572	-0.54493037	1.62010551	0.9643735
SP:BY-SM:BY	0.517566543	-0.34598404	1.38111712	0.8273238
W:BY-SM:BY	0.583378542	-0.28017204	1.44692912	0.6442445
A:G1-SM:BY	0.795965101	-0.50960066	2.10153086	0.8059281
SM:G1-SM:BY	-0.062905781	-1.09504614	0.96923458	1.0000000
SP:G1-SM:BY	0.128475305	-0.83975817	1.09670878	1.0000000
W:G1-SM:BY	0.535203318	-0.41638307	1.48678971	0.8925523
A:G2-SM:BY	0.280034057	-1.02553170	1.58559981	0.9999997
SM:G2-SM:BY	0.142837100	-0.88930326	1.17497746	1.0000000
SP:G2-SM:BY	0.286476378	-0.68175710	1.25470986	0.9999517
W:G2-SM:BY	0.591223913	-0.36036248	1.54281030	0.7803126
A:G3-SM:BY	NA	NA	NA	NA
SM:G3-SM:BY	NA	NA	NA	NA
SP:G3-SM:BY	0.188726925	-2.65668767	3.03414152	1.0000000
W:G3-SM:BY	NA	NA	NA	NA
A:KS-SM:BY	0.064360283	-1.06629283	1.19501339	1.0000000
SM:KS-SM:BY	-0.260553618	-1.18372802	0.66262078	0.9999766
SP:KS-SM:BY	0.787272006	-0.07627857	1.65082258	0.1248616
W:KS-SM:BY	0.632936436	-0.23061414	1.49648701	0.4871786
W:BY-SP:BY	0.065811999	-0.73368048	0.86530448	1.0000000
A:G1-SP:BY	0.278398558	-0.98571005	1.54250717	0.9999996
SM:G1-SP:BY	-0.580472324	-1.55964664	0.39870199	0.8401693
SP:G1-SP:BY	-0.389091238	-1.30065292	0.52247044	0.9930166
W:G1-SP:BY	0.017636775	-0.87622299	0.91149654	1.0000000
A:G2-SP:BY	-0.237532486	-1.50164109	1.02657612	1.0000000
SM:G2-SP:BY	-0.374729443	-1.35390376	0.60444487	0.9981829
SP:G2-SP:BY	-0.231090165	-1.14265185	0.68047152	0.9999957
W:G2-SP:BY	0.073657370	-0.82020240	0.96751714	1.0000000

A:G3-SP:BY	NA	NA	NA	NA
SM:G3-SP:BY	NA	NA	NA	NA
SP:G3-SP:BY	-0.328839618	-3.15547240	2.49779316	1.0000000
W:G3-SP:BY	NA	NA	NA	NA
A:KS-SP:BY	-0.453206260	-1.53572420	0.62931168	0.9944453
SM:KS-SP:BY	-0.778120161	-1.64167074	0.08543042	0.1379777
SP:KS-SP:BY	0.269705463	-0.52978702	1.06919795	0.9996706
W:KS-SP:BY	0.115369893	-0.68412259	0.91486238	1.0000000
A:G1-W:BY	0.212586559	-1.05152205	1.47669517	1.0000000
SM:G1-W:BY	-0.646284322	-1.62545864	0.33289000	0.6853961
SP:G1-W:BY	-0.454903236	-1.36646492	0.45665844	0.9626418
W:G1-W:BY	-0.048175223	-0.94203499	0.84568455	1.0000000
A:G2-W:BY	-0.303344485	-1.56745309	0.96076412	0.9999982
SM:G2-W:BY	-0.440541442	-1.41971576	0.53863288	0.9872772
SP:G2-W:BY	-0.296902164	-1.20846384	0.61465952	0.9998004
W:G2-W:BY	0.007845372	-0.88601440	0.90170514	1.0000000
A:G3-W:BY	NA	NA	NA	NA
SM:G3-W:BY	NA	NA	NA	NA
SP:G3-W:BY	-0.394651617	-3.22128440	2.43198116	1.0000000
W:G3-W:BY	NA	NA	NA	NA
A:KS-W:BY	-0.519018259	-1.60153620	0.56349968	0.9749359
SM:KS-W:BY	-0.843932160	-1.70748274	0.01961842	0.0641333
SP:KS-W:BY	0.203893464	-0.59559902	1.00338595	0.9999953
W:KS-W:BY	0.049557895	-0.74993459	0.84905038	1.0000000
SM:G1-A:G1	-0.858870882	-2.24363248	0.52589072	0.7827397
SP:G1-A:G1	-0.667489796	-2.00529660	0.67031701	0.9627099
W:G1-A:G1	-0.260761783	-1.58657008	1.06504651	0.9999999
A:G2-A:G1	-0.515931044	-2.11491601	1.08305392	0.9998257
SM:G2-A:G1	-0.653128001	-2.03788960	0.73163360	0.9788505
SP:G2-A:G1	-0.509488723	-1.84729553	0.82831808	0.9982940
W:G2-A:G1	-0.204741188	-1.53054948	1.12106711	1.0000000
A:G3-A:G1	NA	NA	NA	NA
SM:G3-A:G1	NA	NA	NA	NA
SP:G3-A:G1	-0.607238176	-3.59866513	2.38418878	0.9999999
W:G3-A:G1	NA	NA	NA	NA
A:KS-A:G1	-0.731604819	-2.19127171	0.72806207	0.9610373
SM:KS-A:G1	-1.056518719	-2.36208448	0.24904704	0.2973216
SP:KS-A:G1	-0.008693095	-1.27280170	1.25541551	1.0000000

W:KS-A:G1	-0.163028665	-1.42713727	1.10107994	1.0000000
SP:G1-SM:G1	0.191381086	-0.88125064	1.26401281	1.0000000
W:G1-SM:G1	0.598109099	-0.45952004	1.65573824	0.8878009
A:G2-SM:G1	0.342939838	-1.04182176	1.72770144	0.9999970
SM:G2-SM:G1	0.205742881	-0.92491023	1.33639599	1.0000000
SP:G2-SM:G1	0.349382159	-0.72324956	1.42201388	0.9998002
W:G2-SM:G1	0.654129694	-0.40349945	1.71175884	0.7866549
A:G3-SM:G1	NA	NA	NA	NA
SM:G3-SM:G1	NA	NA	NA	NA
SP:G3-SM:G1	0.251632706	-2.63097843	3.13424385	1.0000000
W:G3-SM:G1	NA	NA	NA	NA
A:KS-SM:G1	0.127266063	-1.09397888	1.34851100	1.0000000
SM:KS-SM:G1	-0.197647837	-1.22978819	0.83449252	1.0000000
SP:KS-SM:G1	0.850177787	-0.12899653	1.82935210	0.1852951
W:KS-SM:G1	0.695842217	-0.28333210	1.67501653	0.5482561
W:G1-SP:G1	0.406728013	-0.58863210	1.40208813	0.9958565
A:G2-SP:G1	0.151558752	-1.18624805	1.48936555	1.0000000
SM:G2-SP:G1	0.014361795	-1.05826993	1.08699352	1.0000000
SP:G2-SP:G1	0.158001073	-0.85328581	1.16928796	1.0000000
W:G2-SP:G1	0.462748608	-0.53261151	1.45810872	0.9818350
A:G3-SP:G1	NA	NA	NA	NA
SM:G3-SP:G1	NA	NA	NA	NA
SP:G3-SP:G1	0.060251620	-2.80009964	2.92060288	1.0000000
W:G3-SP:G1	NA	NA	NA	NA
A:KS-SP:G1	-0.064115023	-1.23184854	1.10361849	1.0000000
SM:KS-SP:G1	-0.389028923	-1.35726240	0.57920456	0.9966331
SP:KS-SP:G1	0.658796701	-0.25276498	1.57035838	0.5150809
W:KS-SP:G1	0.504461131	-0.40710055	1.41602281	0.9057105
A:G2-W:G1	-0.255169261	-1.58097755	1.07063903	1.0000000
SM:G2-W:G1	-0.392366218	-1.44999536	0.66526292	0.9987900
SP:G2-W:G1	-0.248726940	-1.24408705	0.74663317	0.9999966
W:G2-W:G1	0.056020595	-0.92315372	1.03519491	1.0000000
A:G3-W:G1	NA	NA	NA	NA
SM:G3-W:G1	NA	NA	NA	NA
SP:G3-W:G1	-0.346476393	-3.20123556	2.50828278	1.0000000
W:G3-W:G1	NA	NA	NA	NA
A:KS-W:G1	-0.470843036	-1.62481104	0.68312496	0.9959306
SM:KS-W:G1	-0.795756936	-1.74734333	0.15582945	0.2417558

SP:KS-W:G1	0.252068688	-0.64179108	1.14592846	0.9999769
W:KS-W:G1	0.097733118	-0.79612665	0.99159289	1.0000000
SM:G2-A:G2	-0.137196957	-1.52195856	1.24756464	1.0000000
SP:G2-A:G2	0.006442321	-1.33136448	1.34424912	1.0000000
W:G2-A:G2	0.311189856	-1.01461844	1.63699815	0.9999988
A:G3-A:G2	NA	NA	NA	NA
SM:G3-A:G2	NA	NA	NA	NA
SP:G3-A:G2	-0.091307132	-3.08273408	2.90011982	1.0000000
W:G3-A:G2	NA	NA	NA	NA
A:KS-A:G2	-0.215673774	-1.67534067	1.24399312	1.0000000
SM:KS-A:G2	-0.540587675	-1.84615343	0.76497808	0.9951346
SP:KS-A:G2	0.507237949	-0.75687066	1.77134656	0.9966880
W:KS-A:G2	0.352902379	-0.91120623	1.61701099	0.9999802
SP:G2-SM:G2	0.143639278	-0.92899244	1.21627100	1.0000000
W:G2-SM:G2	0.448386814	-0.60924233	1.50601596	0.9935518
A:G3-SM:G2	NA	NA	NA	NA
SM:G3-SM:G2	NA	NA	NA	NA
SP:G3-SM:G2	0.045889825	-2.83672131	2.92850096	1.0000000
W:G3-SM:G2	NA	NA	NA	NA
A:KS-SM:G2	-0.078476817	-1.29972176	1.14276812	1.0000000
SM:KS-SM:G2	-0.403390718	-1.43553107	0.62874964	0.9976211
SP:KS-SM:G2	0.644434906	-0.33473941	1.62360922	0.6903063
W:KS-SM:G2	0.490099337	-0.48907498	1.46927365	0.9615518
W:G2-SP:G2	0.304747535	-0.69061258	1.30010765	0.9999194
A:G3-SP:G2	NA	NA	NA	NA
SM:G3-SP:G2	NA	NA	NA	NA
SP:G3-SP:G2	-0.097749453	-2.95810071	2.76260181	1.0000000
W:G3-SP:G2	NA	NA	NA	NA
A:KS-SP:G2	-0.222116095	-1.38984961	0.94561742	1.0000000
SM:KS-SP:G2	-0.547029996	-1.51526347	0.42120348	0.8886438
SP:KS-SP:G2	0.500795628	-0.41076605	1.41235731	0.9112150
W:KS-SP:G2	0.346460058	-0.56510162	1.25802174	0.9983380
A:G3-W:G2	NA	NA	NA	NA
SM:G3-W:G2	NA	NA	NA	NA
SP:G3-W:G2	-0.402496988	-3.25725616	2.45226218	1.0000000
W:G3-W:G2	NA	NA	NA	NA
A:KS-W:G2	-0.526863631	-1.68083163	0.62710437	0.9850516
SM:KS-W:G2	-0.851777531	-1.80336392	0.09980886	0.1458034

SP:KS-W:G2	0.196048093	-0.69781168	1.08990786	0.9999996
W:KS-W:G2	0.041712523	-0.85214725	0.93557229	1.0000000
SM:G3-A:G3	NA	NA	NA	NA
SP:G3-A:G3	NA	NA	NA	NA
W:G3-A:G3	NA	NA	NA	NA
A:KS-A:G3	NA	NA	NA	NA
SM:KS-A:G3	NA	NA	NA	NA
SP:KS-A:G3	NA	NA	NA	NA
W:KS-A:G3	NA	NA	NA	NA
SP:G3-SM:G3	NA	NA	NA	NA
W:G3-SM:G3	NA	NA	NA	NA
A:KS-SM:G3	NA	NA	NA	NA
SM:KS-SM:G3	NA	NA	NA	NA
SP:KS-SM:G3	NA	NA	NA	NA
W:KS-SM:G3	NA	NA	NA	NA
W:G3-SP:G3	NA	NA	NA	NA
A:KS-SP:G3	-0.124366642	-3.04370042	2.79496714	1.0000000
SM:KS-SP:G3	-0.449280543	-3.29469514	2.39613406	1.0000000
SP:KS-SP:G3	0.598545081	-2.22808770	3.42517786	0.9999998
W:KS-SP:G3	0.444209511	-2.38242327	3.27084229	1.0000000
A:KS-W:G3	NA	NA	NA	NA
SM:KS-W:G3	NA	NA	NA	NA
SP:KS-W:G3	NA	NA	NA	NA
W:KS-W:G3	NA	NA	NA	NA
SM:KS-A:KS	-0.324913901	-1.45556701	0.80573921	0.9999691
SP:KS-A:KS	0.722911724	-0.35960622	1.80542966	0.6649504
W:KS-A:KS	0.568576154	-0.51394178	1.65109409	0.9397774
SP:KS-SM:KS	1.047825624	0.18427505	1.91137620	0.0032463
W:KS-SM:KS	0.893490054	0.02993948	1.75704063	0.0336197
W:KS-SP:KS	-0.154335570	-0.95382805	0.64515691	1.0000000
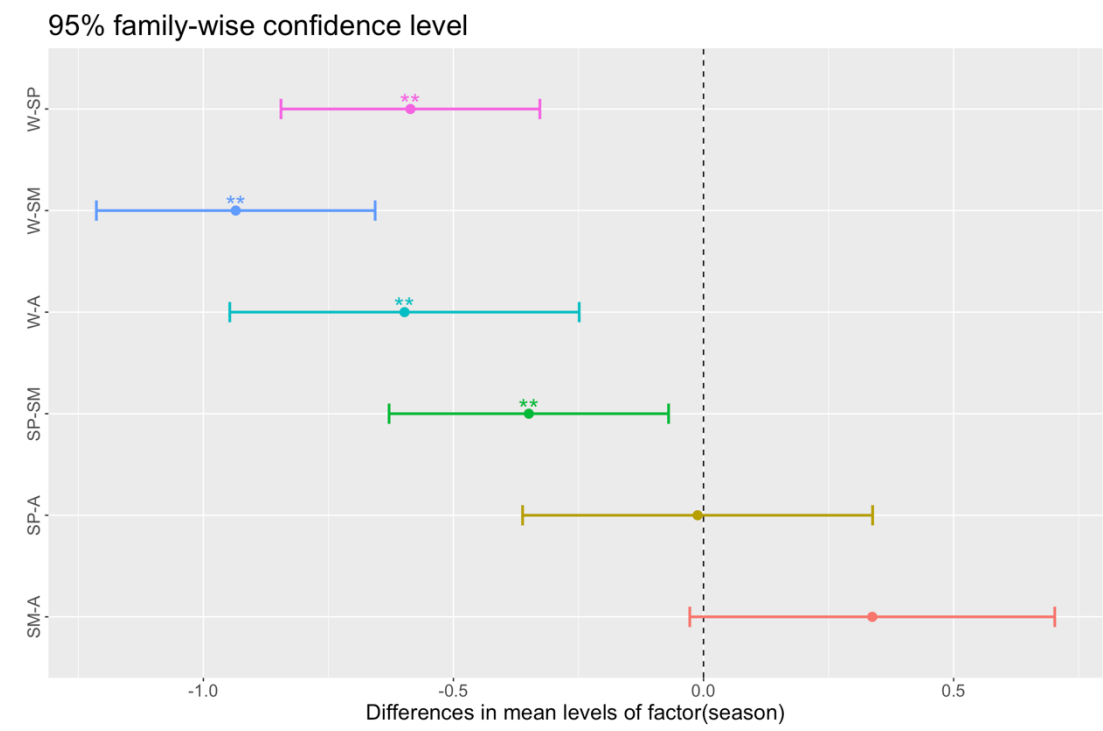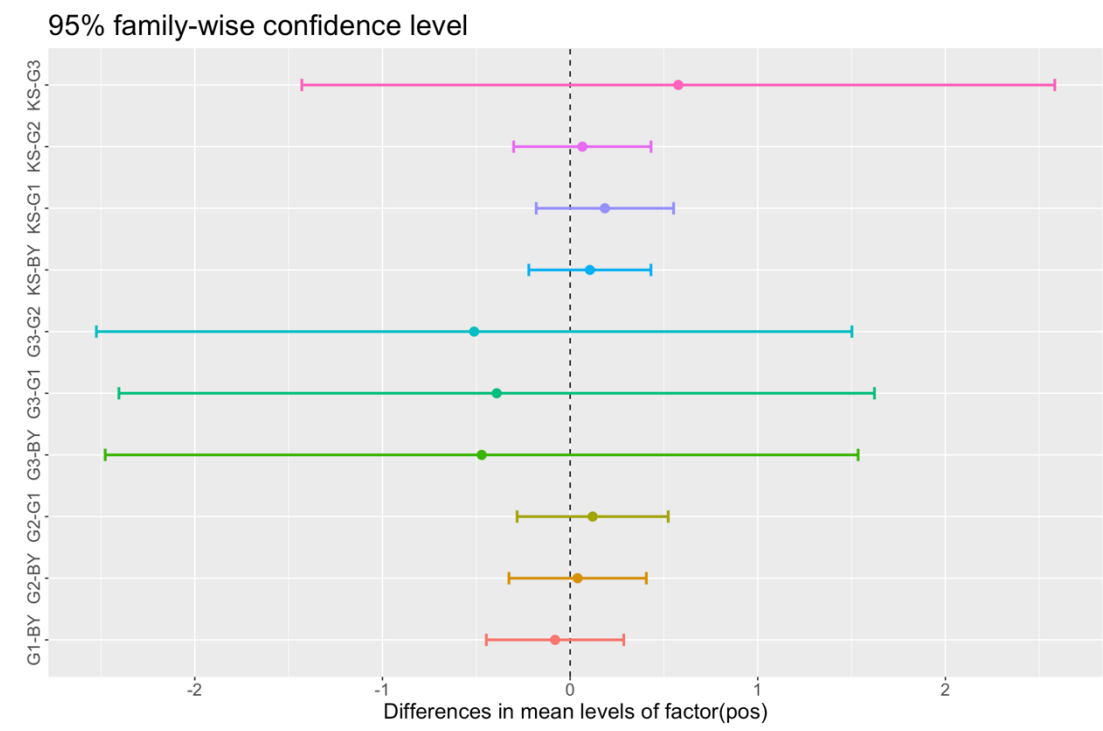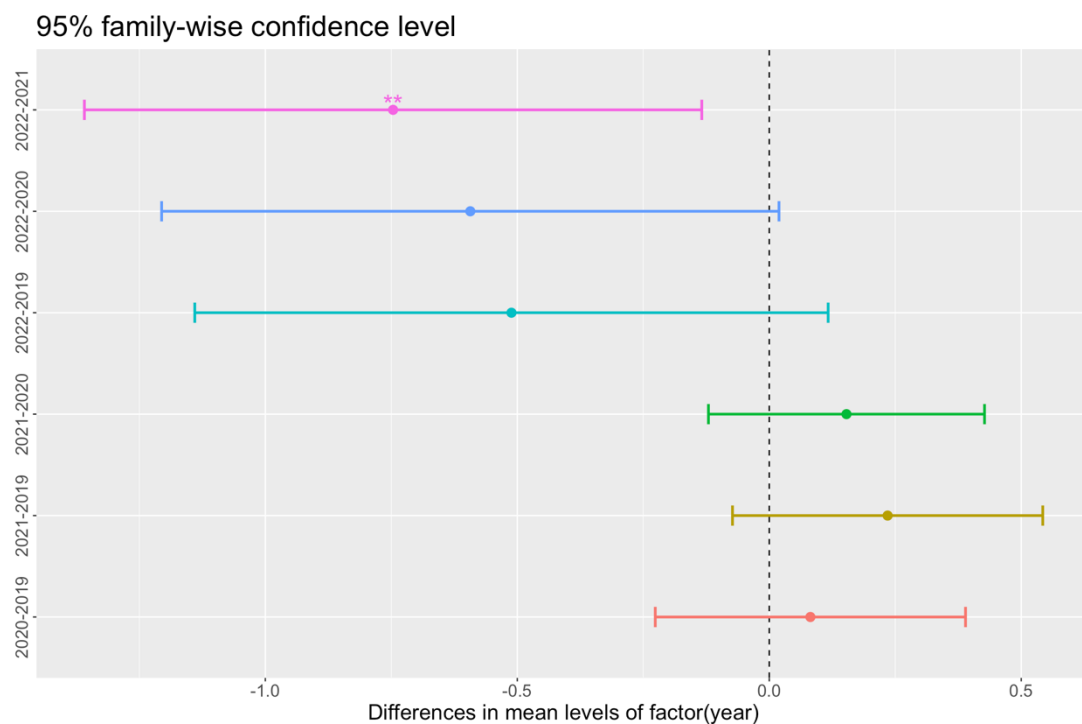
PC3：酸鹼度

95% family-wise confidence level

95% family-wise confidence level

Tukey multiple comparisons of means
    95% family-wise confidence level

Fit: aov(formula = 酸鹼度 ~ factor(year) + factor(season), data = PC_score)

$`factor(year)`

	diff	lwr	upr	p adj
2020-2019	0.08165062	-0.18598382	0.34928506	0.8593012
2021-2019	0.23488860	-0.03274584	0.50252304	0.1078728
2022-2019	-0.51156217	-1.05794200	0.03481766	0.0756292
2021-2020	0.15323798	-0.08493356	0.39140952	0.3448444
2022-2020	-0.59321279	-1.12578054	-0.06064504	0.0222565
2022-2021	-0.74645077	-1.27901852	-0.21388302	0.0019797

$`factor(season)`

	diff	lwr	upr	p adj
SM-A	0.33738328	-0.01987403	0.69464059	0.0718707
SP-A	-0.02652728	-0.36916502	0.31611046	0.9971490
W-A	-0.54706678	-0.88911461	-0.20501895	0.0002817
SP-SM	-0.36391056	-0.63750946	-0.09031166	0.0037896
W-SM	-0.88445006	-1.15730984	-0.61159029	0.0000000
W-SP	-0.52053950	-0.77395673	-0.26712227	0.0000015

Tukey multiple comparisons of means
      95% family-wise confidence level

Fit: aov(formula = 酸鹼度 ~ factor(season) + factor(pos) + factor(season) * factor(pos), data = PC_score)

$`factor(season)`

	diff	lwr	upr	p adj
SM-A	0.33738328	-0.02105724	0.69582380	0.0732834
SP-A	-0.01183559	-0.35560812	0.33193695	0.9997460
W-A	-0.59782292	-0.94100359	-0.25464225	0.0000611
SP-SM	-0.34921887	-0.62372391	-0.07471383	0.0062804
W-SM	-0.93520620	-1.20896967	-0.66144273	0.0000000
W-SP	-0.58598733	-0.84024386	-0.33173080	0.0000001

$`factor(pos)`

	diff	lwr	upr	p adj
G1-BY	-0.07798010	-0.3908203	0.2348601	0.9595007
G2-BY	0.04223566	-0.2706046	0.3550759	0.9959355
G3-BY	-0.57352890	-2.2879464	1.1408886	0.8890837
KS-BY	0.10534462	-0.1727706	0.3834599	0.8358187
G2-G1	0.12021575	-0.2238626	0.4642941	0.8724369
G3-G1	-0.49554880	-2.2159407	1.2248431	0.9327689
KS-G1	0.18332471	-0.1295155	0.4961649	0.4917828
G3-G2	-0.61576455	-2.3361565	1.1046274	0.8622961
KS-G2	0.06310896	-0.2497313	0.3759492	0.9812819
KS-G3	0.67887351	-1.0355440	2.3932910	0.8122676

$`factor(season):factor(pos)`

	diff	lwr	upr	p adj
SM:BY-A:BY	0.579187621	-0.32755526	1.48593050	0.7391799
SP:BY-A:BY	0.253881569	-0.61425864	1.12202178	0.9999596
W:BY-A:BY	-0.400626415	-1.26876663	0.46751380	0.9832182
A:G1-A:BY	0.376601817	-0.79399821	1.54720184	0.9998329
SM:G1-A:BY	0.602562906	-0.37683134	1.58195715	0.7938555
SP:G1-A:BY	-0.145446219	-1.08192624	0.79103380	1.0000000
W:G1-A:BY	-0.420105819	-1.34554640	0.50533476	0.9859604
A:G2-A:BY	0.127265441	-1.04333458	1.29786547	1.0000000

SM:G2-A:BY	0.812940473	-0.16645378	1.79233472	0.2538781
SP:G2-A:BY	0.016622425	-0.91985760	0.95310245	1.0000000
W:G2-A:BY	-0.268166466	-1.19360704	0.65727411	0.9999649
A:G3-A:BY	NA	NA	NA	NA
SM:G3-A:BY	NA	NA	NA	NA
SP:G3-A:BY	-0.379199070	-2.72039912	1.96200098	1.0000000
W:G3-A:BY	NA	NA	NA	NA
A:KS-A:BY	0.425949641	-0.62106685	1.47296613	0.9960747
SM:KS-A:BY	0.363615547	-0.54312733	1.27035843	0.9967134
SP:KS-A:BY	0.555812336	-0.31232788	1.42395255	0.7355640
W:KS-A:BY	-0.371407309	-1.23954752	0.49673291	0.9928269
SP:BY-SM:BY	-0.325306052	-1.01784237	0.36723026	0.9797373
W:BY-SM:BY	-0.979814036	-1.67235035	-0.28727772	0.0001425
A:G1-SM:BY	-0.202585805	-1.24960230	0.84443069	1.0000000
SM:G1-SM:BY	0.023375285	-0.80436393	0.85111450	1.0000000
SP:G1-SM:BY	-0.724633840	-1.50112205	0.05185437	0.1012217
W:G1-SM:BY	-0.999293441	-1.76243129	-0.23615559	0.0007749
A:G2-SM:BY	-0.451922180	-1.49893867	0.59509431	0.9920477
SM:G2-SM:BY	0.233752852	-0.59398636	1.06149207	0.9999763
SP:G2-SM:BY	-0.562565196	-1.33905341	0.21392302	0.5101891
W:G2-SM:BY	-0.847354087	-1.61049194	-0.08421624	0.0132205
A:G3-SM:BY	NA	NA	NA	NA
SM:G3-SM:BY	NA	NA	NA	NA
SP:G3-SM:BY	-0.958386692	-3.24030623	1.32353285	0.9942309
W:G3-SM:BY	NA	NA	NA	NA
A:KS-SM:BY	-0.153237981	-1.05998086	0.75350490	1.0000000
SM:KS-SM:BY	-0.215572074	-0.95592454	0.52478039	0.9999622
SP:KS-SM:BY	-0.023375285	-0.71591160	0.66916103	1.0000000
W:KS-SM:BY	-0.950594930	-1.64313124	-0.25805862	0.0002849
W:BY-SP:BY	-0.654507985	-1.29567202	-0.01334394	0.0394950
A:G1-SP:BY	0.122720247	-0.89104911	1.13648961	1.0000000
SM:G1-SP:BY	0.348681337	-0.43658103	1.13394371	0.9890133
SP:G1-SP:BY	-0.399327788	-1.13036727	0.33171169	0.9153563
W:G1-SP:BY	-0.673987389	-1.39083058	0.04285580	0.0943730
A:G2-SP:BY	-0.126616128	-1.14038549	0.88715323	1.0000000
SM:G2-SP:BY	0.559058903	-0.22620347	1.34432127	0.5446832
SP:G2-SP:BY	-0.237259144	-0.96829863	0.49378034	0.9998103
W:G2-SP:BY	-0.522048035	-1.23889122	0.19479515	0.4999211

A:G3-SP:BY	NA	NA	NA	NA
SM:G3-SP:BY	NA	NA	NA	NA
SP:G3-SP:BY	-0.633080640	-2.89993784	1.63377656	0.9999801
W:G3-SP:BY	NA	NA	NA	NA
A:KS-SP:BY	0.172068071	-0.69607214	1.04020829	0.9999999
SM:KS-SP:BY	0.109733978	-0.58280234	0.80227029	1.0000000
SP:KS-SP:BY	0.301930767	-0.33923327	0.94309481	0.9791970
W:KS-SP:BY	-0.625288878	-1.26645292	0.01587516	0.0655550
A:G1-W:BY	0.777228232	-0.23654113	1.79099759	0.3983250
SM:G1-W:BY	1.003189322	0.21792695	1.78845169	0.0012631
SP:G1-W:BY	0.255180196	-0.47585929	0.98621968	0.9994692
W:G1-W:BY	-0.019479404	-0.73632259	0.69736378	1.0000000
A:G2-W:BY	0.527891857	-0.48587750	1.54166122	0.9442912
SM:G2-W:BY	1.213566888	0.42830452	1.99882926	0.0000149
SP:G2-W:BY	0.417248840	-0.31379064	1.14828832	0.8794325
W:G2-W:BY	0.132459949	-0.58438324	0.84930314	1.0000000
A:G3-W:BY	NA	NA	NA	NA
SM:G3-W:BY	NA	NA	NA	NA
SP:G3-W:BY	0.021427345	-2.24542986	2.28828455	1.0000000
W:G3-W:BY	NA	NA	NA	NA
A:KS-W:BY	0.826576056	-0.04156416	1.69471627	0.0835893
SM:KS-W:BY	0.764241962	0.07170565	1.45677828	0.0144310
SP:KS-W:BY	0.956438751	0.31527471	1.59760279	0.0000385
W:KS-W:BY	0.029219106	-0.61194493	0.67038315	1.0000000
SM:G1-A:G1	0.225961090	-0.88456760	1.33648978	0.9999999
SP:G1-A:G1	-0.522048035	-1.59492068	0.55082461	0.9708851
W:G1-A:G1	-0.796707636	-1.85995791	0.26654264	0.4433286
A:G2-A:G1	-0.249336375	-1.53166445	1.03299170	0.9999999
SM:G2-A:G1	0.436338656	-0.67419004	1.54686735	0.9974554
SP:G2-A:G1	-0.359979392	-1.43285204	0.71289325	0.9996948
W:G2-A:G1	-0.644768282	-1.70801856	0.41848199	0.8128207
A:G3-A:G1	NA	NA	NA	NA
SM:G3-A:G1	NA	NA	NA	NA
SP:G3-A:G1	-0.755800887	-3.15481705	1.64321528	0.9998770
W:G3-A:G1	NA	NA	NA	NA
A:KS-A:G1	0.049347824	-1.12125220	1.21994785	1.0000000
SM:KS-A:G1	-0.012986270	-1.06000276	1.03403022	1.0000000
SP:KS-A:G1	0.179210520	-0.83455884	1.19297988	1.0000000

W:KS-A:G1	-0.748009125	-1.76177848	0.26576023	0.4739270
SP:G1-SM:G1	-0.748009125	-1.60822095	0.11220270	0.1832140
W:G1-SM:G1	-1.022668726	-1.87084903	-0.17448843	0.0036219
A:G2-SM:G1	-0.475297465	-1.58582616	0.63523123	0.9927930
SM:G2-SM:G1	0.210377566	-0.69636531	1.11712045	0.9999990
SP:G2-SM:G1	-0.585940481	-1.44615231	0.27427135	0.6291221
W:G2-SM:G1	-0.870729372	-1.71890967	-0.02254907	0.0369462
A:G3-SM:G1	NA	NA	NA	NA
SM:G3-SM:G1	NA	NA	NA	NA
SP:G3-SM:G1	-0.981761977	-3.29351180	1.32998784	0.9934200
W:G3-SM:G1	NA	NA	NA	NA
A:KS-SM:G1	-0.176613266	-1.15600751	0.80278098	1.0000000
SM:KS-SM:G1	-0.238947359	-1.06668658	0.58879186	0.9999668
SP:KS-SM:G1	-0.046750570	-0.83201294	0.73851180	1.0000000
W:KS-SM:G1	-0.973970215	-1.75923258	-0.18870785	0.0021978
W:G1-SP:G1	-0.274659601	-1.07290239	0.52358319	0.9995653
A:G2-SP:G1	0.272711660	-0.80016098	1.34558431	0.9999955
SM:G2-SP:G1	0.958386692	0.09817487	1.81859852	0.0125907
SP:G2-SP:G1	0.162068644	-0.64894684	0.97308413	0.9999999
W:G2-SP:G1	-0.122720247	-0.92096304	0.67552254	1.0000000
A:G3-SP:G1	NA	NA	NA	NA
SM:G3-SP:G1	NA	NA	NA	NA
SP:G3-SP:G1	-0.233752852	-2.52765106	2.06014535	1.0000000
W:G3-SP:G1	NA	NA	NA	NA
A:KS-SP:G1	0.571395860	-0.36508416	1.50787588	0.8048974
SM:KS-SP:G1	0.509061766	-0.26742645	1.28554998	0.6968880
SP:KS-SP:G1	0.701258555	-0.02978093	1.43229804	0.0776258
W:KS-SP:G1	-0.225961090	-0.95700057	0.50507839	0.9999071
A:G2-W:G1	0.547371261	-0.51587901	1.61062154	0.9498313
SM:G2-W:G1	1.233046292	0.38486599	2.08122659	0.0000740
SP:G2-W:G1	0.436728244	-0.36151455	1.23497104	0.9142263
W:G2-W:G1	0.151939354	-0.63332302	0.93720172	1.0000000
A:G3-W:G1	NA	NA	NA	NA
SM:G3-W:G1	NA	NA	NA	NA
SP:G3-W:G1	0.040906749	-2.24850680	2.33032030	1.0000000
W:G3-W:G1	NA	NA	NA	NA
A:KS-W:G1	0.846055460	-0.07938512	1.77149604	0.1218556
SM:KS-W:G1	0.783721366	0.02058352	1.54685922	0.0367806

SP:KS-W:G1	0.975918156	0.25907497	1.69276134	0.0003414
W:KS-W:G1	0.048698511	-0.66814468	0.76554170	1.0000000
SM:G2-A:G2	0.685675031	-0.42485366	1.79620372	0.7890093
SP:G2-A:G2	-0.110643016	-1.18351566	0.96222963	1.0000000
W:G2-A:G2	-0.395431907	-1.45868218	0.66781837	0.9987496
A:G3-A:G2	NA	NA	NA	NA
SM:G3-A:G2	NA	NA	NA	NA
SP:G3-A:G2	-0.506464512	-2.90548068	1.89255165	0.9999998
W:G3-A:G2	NA	NA	NA	NA
A:KS-A:G2	0.298684199	-0.87191583	1.46928422	0.9999952
SM:KS-A:G2	0.236350106	-0.81066639	1.28336660	0.9999994
SP:KS-A:G2	0.428546895	-0.58522247	1.44231625	0.9937691
W:KS-A:G2	-0.498672750	-1.51244211	0.51509661	0.9675580
SP:G2-SM:G2	-0.796318048	-1.65652987	0.06389378	0.1089991
W:G2-SM:G2	-1.081106939	-1.92928724	-0.23292664	0.0013196
A:G3-SM:G2	NA	NA	NA	NA
SM:G3-SM:G2	NA	NA	NA	NA
SP:G3-SM:G2	-1.192139543	-3.50388936	1.11961028	0.9490352
W:G3-SM:G2	NA	NA	NA	NA
A:KS-SM:G2	-0.386990832	-1.36638508	0.59240342	0.9972678
SM:KS-SM:G2	-0.449324926	-1.27706414	0.37841429	0.9197145
SP:KS-SM:G2	-0.257128137	-1.04239051	0.52813423	0.9997845
W:KS-SM:G2	-1.184347782	-1.96961015	-0.39908541	0.0000289
W:G2-SP:G2	-0.284788891	-1.08303168	0.51345390	0.9992840
A:G3-SP:G2	NA	NA	NA	NA
SM:G3-SP:G2	NA	NA	NA	NA
SP:G3-SP:G2	-0.395821495	-2.68971970	1.89807671	1.0000000
W:G3-SP:G2	NA	NA	NA	NA
A:KS-SP:G2	0.409327216	-0.52715280	1.34580724	0.9908096
SM:KS-SP:G2	0.346993122	-0.42949509	1.12348133	0.9881994
SP:KS-SP:G2	0.539189911	-0.19184957	1.27022939	0.4746905
W:KS-SP:G2	-0.388029734	-1.11906922	0.34300975	0.9338716
A:G3-W:G2	NA	NA	NA	NA
SM:G3-W:G2	NA	NA	NA	NA
SP:G3-W:G2	-0.111032605	-2.40044615	2.17838095	1.0000000
W:G3-W:G2	NA	NA	NA	NA
A:KS-W:G2	0.694116107	-0.23132447	1.61955668	0.4414140
SM:KS-W:G2	0.631782013	-0.13135584	1.39491986	0.2582127

SP:KS-W:G2	0.823978802	0.10713561	1.54082199	0.0078941
W:KS-W:G2	-0.103240843	-0.82008403	0.61360235	1.0000000
SM:G3-A:G3	NA	NA	NA	NA
SP:G3-A:G3	NA	NA	NA	NA
W:G3-A:G3	NA	NA	NA	NA
A:KS-A:G3	NA	NA	NA	NA
SM:KS-A:G3	NA	NA	NA	NA
SP:KS-A:G3	NA	NA	NA	NA
W:KS-A:G3	NA	NA	NA	NA
SP:G3-SM:G3	NA	NA	NA	NA
W:G3-SM:G3	NA	NA	NA	NA
A:KS-SM:G3	NA	NA	NA	NA
SM:KS-SM:G3	NA	NA	NA	NA
SP:KS-SM:G3	NA	NA	NA	NA
W:KS-SM:G3	NA	NA	NA	NA
W:G3-SP:G3	NA	NA	NA	NA
A:KS-SP:G3	0.805148711	-1.53605134	3.14634876	0.9995684
SM:KS-SP:G3	0.742814617	-1.53910492	3.02473416	0.9998020
SP:KS-SP:G3	0.935011407	-1.33184580	3.20186861	0.9953562
W:KS-SP:G3	0.007791762	-2.25906544	2.27464896	1.0000000
A:KS-W:G3	NA	NA	NA	NA
SM:KS-W:G3	NA	NA	NA	NA
SP:KS-W:G3	NA	NA	NA	NA
W:KS-W:G3	NA	NA	NA	NA
SM:KS-A:KS	-0.062334094	-0.96907697	0.84440879	1.0000000
SP:KS-A:KS	0.129862695	-0.73827752	0.99800291	1.0000000
W:KS-A:KS	-0.797356949	-1.66549716	0.07078326	0.1169772
SP:KS-SM:KS	0.192196789	-0.50033953	0.88473310	0.9999819
W:KS-SM:KS	-0.735022856	-1.42755917	-0.04248654	0.0244412
W:KS-SP:KS	-0.927219645	-1.56838368	-0.28605561	0.0000842