

# 臺灣地區梅雨季鋒面位置伴隨之降雨的時空分佈

## 結案報告

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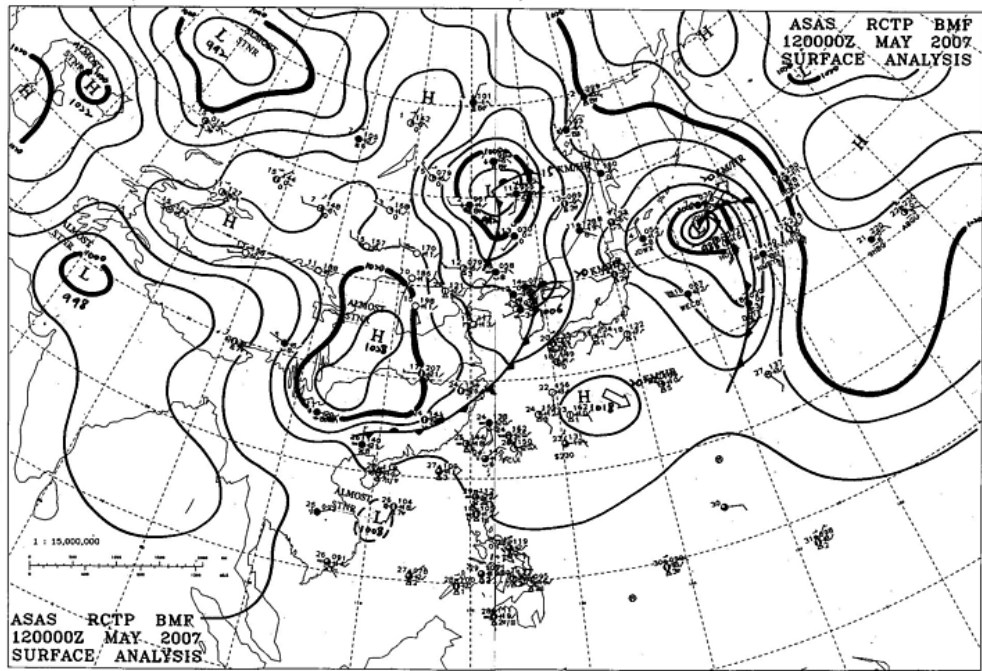
### 摘要：

本研究乃探討臺灣地區梅雨季鋒面位置伴隨之降雨的時空分佈，當鋒面位置靠近台灣時所伴隨之降雨時空分佈資料庫，由於現今之氣象資料庫中的鋒面位置都是畫在地面天氣圖上，並無鋒面位置數據之數據資料，因此要知道測站位置距離鋒面位置有多遠只能有圖上量得，而且針對每一個測站，甚至自動氣象、雨量站均要做，相當耗費人力而且誤差很大，由於計畫執行的需要而調整第一年度(目前正在執行中)的工作是將梅雨鋒面位置數據化，利用中央氣象局地面分析圖，首先將地面分析圖變成電腦圖檔，近幾年已經有電腦圖檔，而較早的年份則利用微縮影片或是掃圖將地面圖變成電腦圖檔，然後利用電腦點圖的方式訂出全圖範圍及點出鋒面位置，再利用程式算出鋒面位置之經緯度，每一張圖的位置都有不同程度的傾斜，較早年份的地面圖品質較為不理想，而且投影區域不同，因此處理起來格外費力耗時。

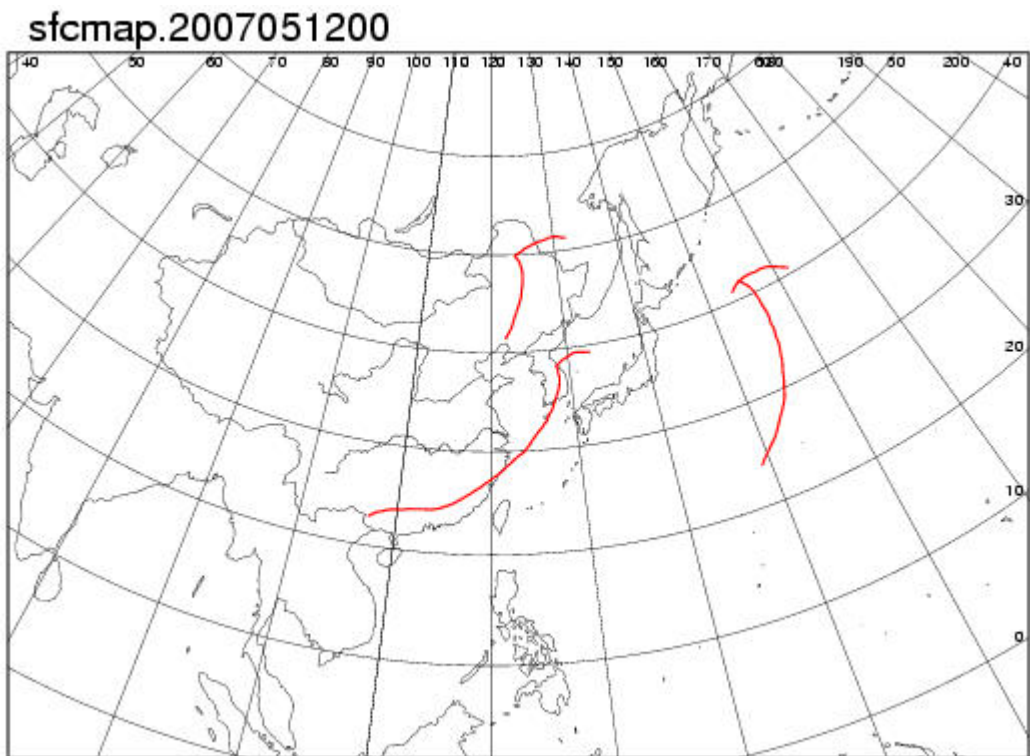
本年度工作已超前原先之規劃項目，已經完成過去 20 年梅雨季地面天氣圖之收集，並且將這些天氣圖變成電腦圖檔，因此本資料庫中已有過去 1988-2007 年五、六月每天 00Z、06Z、12Z 及 18Z 之地面天氣圖電腦圖檔。然而，如何將圖檔的鋒面位置變成數據資料是一項大的工作，透過個人電腦點圖後，將圖檔轉存為 EPS 檔，然後在工作站將 EPS 檔的位置透過座標轉換為經緯度，再將鋒面位置內差到每 0.2 度距離，利用此鋒面位置吾人可以計算出任何鋒面上的位置到任何測站位置的距離，而且可以找出最靠近測站的鋒面位置，而且可以鎖定鋒面位於測站的方向，而測站位置位於鋒前或鋒後，其降雨特性明顯的不同，因此我們可以區別測站位置是在鋒前還是鋒後，該鋒面是靠近或是遠離，而在未來之雨

量統計，我麼會將區分測站是在鋒前還是鋒後。目前已經將 2000-2007 八年之梅雨鋒面數據化資料，本計畫執行當中同時也收集氣象局所屬之氣象站之時雨量資料及自動雨量站資料，由副熱帶資料庫中我們取得氣象局各站之時雨量，目前正積極收集自動雨量站資料。

鋒面位置的數據化過程以 2007/05/12 00Z 為例，圖一是 05/12 00Z 之地面天氣圖，經過點圖及座標轉換之後，將鋒面位置畫在相同的投影區域，圖二即為 2007/05/12 00Z 數據化鋒面位置，可見兩圖之鋒面位置相當一致，表一為此鋒面位置之數據資料。雖然點圖過程較為耗時，然而是一次性的工作，而得到的鋒面位置除了本計畫應用之外，更可以提供其他相關之研究。



圖一：2007/05/12 00Z 地面天氣圖



圖二：2007/05/12 00Z 數據化鋒面位置

表一：鋒面數據資料緯度、經度、指標，指標=0表示一個鋒面的開始

40.632	161.836	0	38.348	156.480	1	26.160	151.684	1	34.419	127.543	1
40.736	161.636	1	38.190	156.500	1	25.975	151.484	1	34.219	127.458	1
40.832	161.450	1	37.990	156.534	1	25.960	151.468	1	34.194	127.448	1
40.883	161.352	1	37.797	156.567	1	25.775	151.268	1	33.994	127.325	1
40.983	161.152	1	37.597	156.589	1	25.760	151.252	1	33.846	127.234	1
41.083	160.953	1	37.397	156.611	1	25.754	151.245	1	33.647	127.034	1
41.149	160.821	1	37.371	156.614	1	25.603	151.045	1	33.646	127.033	1
41.246	160.621	1	37.171	156.587	1	25.554	150.980	1	33.506	126.893	1
41.342	160.421	1	36.971	156.560	1	25.403	150.780	1	33.306	126.780	1
41.349	160.405	1	36.944	156.557	1	25.373	150.740	1	33.227	126.735	1
41.446	160.205	1	36.744	156.508	1	25.196	150.540	1	33.027	126.642	1
41.449	160.199	1	36.544	156.460	1	25.173	150.514	1	32.875	126.571	1
41.530	159.999	1	36.387	156.421	1	24.996	150.314	1	32.713	126.371	1
41.611	159.799	1	36.187	156.463	1	24.973	150.289	1	32.675	126.325	1
41.642	159.722	1	36.077	156.486	1	24.892	150.198	1	32.573	126.199	1
41.704	159.522	1	35.877	156.472	1	24.728	149.998	1	32.373	126.044	1
41.765	159.322	1	35.677	156.458	1	24.692	149.954	1	32.262	125.958	1
41.784	159.262	1	35.603	156.453	1	24.528	149.754	1	32.098	125.758	1
41.808	159.062	1	35.403	156.389	1	24.527	149.753	1	32.062	125.714	1
41.832	158.862	1	35.203	156.325	1	24.339	149.553	1	31.925	125.546	1
41.856	158.662	1	35.064	156.281	1	24.327	149.539	1	31.725	125.350	1
41.880	158.462	1	34.864	156.275	1	24.147	149.348	1	31.525	125.153	1
41.895	158.333	1	34.664	156.269	1	23.947	149.170	1	31.411	125.042	1
41.878	158.133	1	34.624	156.268	1	23.808	149.045	1	31.211	124.859	1
41.861	157.933	1	34.424	156.237	1	39.275	133.031	0	31.011	124.676	1
41.843	157.733	1	34.224	156.206	1	39.299	132.831	1	30.964	124.633	1
41.834	157.623	1	34.024	156.175	1	39.324	132.631	1	30.764	124.476	1
41.857	157.423	1	33.941	156.162	1	39.326	132.608	1	30.617	124.360	1
41.881	157.223	1	33.741	156.077	1	39.336	132.408	1	30.417	124.161	1
41.905	157.023	1	33.541	155.993	1	39.345	132.208	1	30.307	124.051	1
41.929	156.823	1	33.341	155.909	1	39.351	132.084	1	30.107	123.856	1
41.932	156.802	1	33.321	155.901	1	39.374	131.884	1	29.907	123.661	1
41.919	156.602	1	33.121	155.850	1	39.396	131.684	1	29.859	123.614	1
41.906	156.402	1	32.921	155.799	1	39.410	131.566	1	29.753	123.414	1
41.894	156.226	1	32.721	155.748	1	39.431	131.366	1	29.659	123.238	1
41.880	156.026	1	32.558	155.707	1	39.451	131.188	1	29.553	123.038	1
41.866	155.826	1	32.358	155.609	1	39.452	130.988	1	29.523	122.982	1
41.854	155.649	1	32.158	155.511	1	39.454	130.804	1	29.373	122.782	1
41.800	155.449	1	31.958	155.414	1	39.371	130.604	1	29.323	122.716	1
41.746	155.249	1	31.890	155.381	1	39.305	130.442	1	29.173	122.516	1
41.712	155.122	1	31.690	155.294	1	39.230	130.242	1	29.145	122.478	1
41.657	154.923	1	31.490	155.207	1	39.156	130.042	1	28.990	122.278	1
41.602	154.723	1	31.484	155.204	1	39.105	129.906	1	28.945	122.219	1
41.549	154.533	1	31.284	155.128	1	39.039	129.731	1	28.790	122.019	1
41.438	154.333	1	31.084	155.053	1	38.969	129.531	1	28.745	121.961	1
41.349	154.173	1	30.932	154.996	1	38.899	129.331	1	28.695	121.896	1
41.323	154.125	1	30.732	154.908	1	38.863	129.228	1	28.554	121.696	1
41.192	153.925	1	30.532	154.820	1	38.738	129.028	1	28.495	121.613	1
41.123	153.819	1	30.462	154.789	1	38.663	128.908	1	28.354	121.413	1
40.992	153.619	1	30.262	154.683	1	38.603	128.812	1	28.348	121.404	1
40.923	153.513	1	30.062	154.577	1	38.489	128.613	1	28.157	121.204	1
40.923	153.513	1	29.974	154.530	1	38.403	128.461	1	28.148	121.195	1
41.723	154.857	0	29.774	154.445	1	38.312	128.302	1	27.997	121.037	1
41.715	155.057	1	29.574	154.359	1	38.112	128.411	1	27.855	120.837	1
41.712	155.122	1	29.504	154.329	1	37.965	128.492	1	27.797	120.756	1
41.512	155.298	1	29.304	154.225	1	37.765	128.488	1	27.682	120.594	1
41.312	155.473	1	29.104	154.122	1	37.565	128.485	1	27.564	120.394	1
41.241	155.535	1	29.050	154.094	1	37.560	128.485	1	27.482	120.254	1
41.048	155.735	1	28.850	153.949	1	37.360	128.547	1	27.470	120.235	1
41.041	155.743	1	28.650	153.805	1	37.160	128.610	1	27.336	120.035	1
40.916	155.872	1	28.625	153.787	1	37.144	128.615	1	27.270	119.937	1
40.716	155.986	1	28.425	153.626	1	36.944	128.589	1	27.136	119.737	1
40.555	156.077	1	28.225	153.466	1	36.780	128.568	1	27.070	119.639	1
40.355	156.168	1	28.181	153.431	1	36.580	128.525	1	27.045	119.601	1
40.162	156.257	1	27.981	153.241	1	36.380	128.482	1	26.932	119.401	1
39.962	156.280	1	27.781	153.051	1	36.238	128.452	1	26.845	119.246	1
39.762	156.304	1	27.700	152.975	1	36.038	128.367	1	26.758	119.091	1
39.734	156.307	1	27.500	152.803	1	35.838	128.283	1	26.594	118.891	1
39.534	156.358	1	27.300	152.631	1	35.777	128.257	1	26.558	118.848	1
39.334	156.408	1	27.237	152.576	1	35.577	128.158	1	26.472	118.743	1
39.192	156.444	1	27.037	152.407	1	35.377	128.059	1	26.366	118.543	1
38.992	156.437	1	26.837	152.238	1	35.178	127.960	1	26.272	118.366	1
38.792	156.430	1	26.657	152.086	1	34.978	127.841	1	26.166	118.166	1
38.748	156.429	1	26.457	151.924	1	34.778	127.722	1	26.143	118.124	1
38.548	156.454	1	26.257	151.762	1	34.619	127.628	1	26.011	117.924	1

25.943	117.822	1	23.845	110.665	1	51.393	128.983	1	48.517	124.562	1
25.815	117.627	1	23.816	110.521	1	51.355	128.783	1	48.317	124.620	1
25.710	117.427	1	23.803	110.321	1	51.349	128.753	1	48.268	124.635	1
25.615	117.245	1	23.790	110.121	1	51.322	128.553	1	48.068	124.641	1
25.516	117.057	1	23.777	109.921	1	51.294	128.353	1	47.868	124.648	1
25.385	116.857	1	23.772	109.841	1	51.274	128.208	1	47.786	124.650	1
25.316	116.753	1	23.748	109.641	1	51.240	128.008	1	47.586	124.634	1
25.294	116.718	1	23.723	109.441	1	51.207	127.808	1	47.386	124.617	1
25.186	116.518	1	23.698	109.241	1	51.192	127.722	1	47.232	124.605	1
25.094	116.347	1	23.694	109.204	1	51.168	127.522	1	47.032	124.562	1
24.990	116.155	1	23.619	109.004	1	51.145	127.322	1	46.832	124.519	1
24.878	115.955	1	23.545	108.804	1	51.142	127.302	1	46.827	124.518	1
24.790	115.798	1	23.494	108.667	1	51.092	127.102	1	46.627	124.464	1
24.761	115.746	1	23.479	108.628	1	51.042	126.902	1	46.427	124.409	1
24.688	115.546	1	23.418	108.428	1	50.991	126.702	1	46.277	124.368	1
24.615	115.346	1	23.356	108.228	1	50.942	126.506	1	46.077	124.334	1
24.561	115.196	1	23.295	108.028	1	50.928	126.450	1	45.877	124.300	1
24.556	115.184	1	23.290	108.012	1	50.871	126.250	1	45.724	124.274	1
24.478	114.984	1	23.200	107.812	1	50.814	126.050	1	45.524	124.187	1
24.399	114.784	1	23.111	107.612	1	50.756	125.850	1	45.324	124.101	1
24.356	114.677	1	23.090	107.565	1	50.737	125.784	1	45.286	124.084	1
24.351	114.663	1	23.084	107.553	1	50.678	125.584	1	45.086	123.975	1
24.296	114.463	1	22.935	107.353	1	50.618	125.384	1	44.886	123.865	1
24.241	114.263	1	22.884	107.285	1	50.575	125.243	1	44.849	123.845	1
24.186	114.063	1	22.735	107.085	1	50.479	125.043	1	44.649	123.747	1
24.167	113.991	1	22.735	107.084	1	50.383	124.843	1	44.485	123.666	1
24.140	113.791	1	51.234	132.055	0	50.375	124.828	1	44.285	123.560	1
24.114	113.591	1	51.252	131.855	1	50.370	124.817	1	44.085	123.454	1
24.087	113.391	1	51.270	131.655	1	50.302	124.617	1	43.938	123.376	1
24.087	113.388	1	51.271	131.647	1	50.235	124.417	1	43.738	123.264	1
24.081	113.188	1	51.315	131.447	1	50.170	124.225	1	43.538	123.151	1
24.076	112.988	1	51.359	131.247	1	50.169	124.222	1	43.537	123.150	1
24.070	112.788	1	51.395	131.080	1	50.075	124.022	1	43.337	123.061	1
24.069	112.741	1	51.438	130.880	1	49.982	123.822	1	43.137	122.972	1
24.051	112.541	1	51.480	130.680	1	49.969	123.793	1	43.025	122.922	1
24.033	112.341	1	51.517	130.510	1	49.891	123.627	1	42.825	122.829	1
24.022	112.212	1	51.532	130.310	1	49.702	123.785	1	42.625	122.735	1
24.003	112.012	1	51.548	130.110	1	49.531	123.985	1	42.549	122.700	1
23.984	111.812	1	51.554	130.040	1	49.502	124.019	1	42.349	122.554	1
23.976	111.722	1	51.532	129.840	1	49.472	124.054	1	42.149	122.409	1
23.971	111.522	1	51.510	129.640	1	49.272	124.205	1	42.112	122.382	1
23.966	111.322	1	51.489	129.440	1	49.131	124.312	1	41.912	122.212	1
23.965	111.265	1	51.488	129.431	1	48.931	124.405	1	41.748	122.072	1
23.925	111.065	1	51.442	129.231	1	48.731	124.498	1	41.548	121.931	1
23.885	110.865	1	51.431	129.183	1	48.717	124.504	1	41.383	121.815	1