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2014 年港灣環境資訊網觀測資料年報 (澎湖海域觀測海氣象資料)



交通部運輸研究所

中華民國 106 年 10 月

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著者：蘇青和、李俊穎、陳明宗、劉清松
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摘要： <p style="text-align: center;">本港灣環境資訊網觀測海氣象資料年報，包括澎湖海域2014年觀測風力、波浪、潮汐及海流等資料之觀測記錄表及逐時資料歷線圖。</p>			
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備註：本研究之結論與建議不代表交通部之意見。			

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KEY WORDS: Harbor Environment Information Website, 2014, Annual Report, Peng-Hu Off-shoe Region, Oceanographical Observation Data			
ABSTRACT: <p style="text-align: center;">This Annual report 2014 of Harbor Environment Information Website(HEIV) covers the observation data of winds, waves, tides and currents near Peng-Hu offshoe region in Taiwan. The contents in this Annual report include the records of observation and the time series of data.</p>			
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2014 年港灣環境資訊網觀測資料年報 (澎湖海域觀測海氣象資料)

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誌 謝

2014 年港灣環境資訊網觀測風力資料，蒐集之澎湖海域風力資料，除本中心自行觀測之外，在澎湖馬公氣象站(測站 E)、七美海上浮標(測站 R)、東吉島氣象站(測站 I)等觀測風力資料，係交通部中央氣象局(CWB)提供。澎湖海上浮標(測站 Y)觀測風力資料，係經濟部水利署(WRA)提供。澎湖馬公港區(測站 H)觀測風力資料，係港務公司(TIPC)提供，謹致謝忱。

2014 年港灣環境資訊網觀測波浪資料，蒐集之澎湖海域波浪資料，除本中心自行觀測之外，在七美海上浮標(測站 R)、東吉島海上浮標(測站 Z) 等觀測波浪資料，係交通部中央氣象局(CWB)提供。澎湖海上浮標(測站 Y)觀測波浪資料，係經濟部水利署(WRA)提供，謹致謝忱。

2014 年港灣海氣象觀測潮汐資料，蒐集之澎湖海域潮汐觀測資料，除本中心自行觀測之外，在馬公港(測站 F)觀測潮汐資料，係經濟部水利署提供，謹致謝忱。

2014 年港灣環境資訊網觀測海流資料，蒐集之澎湖海域海流資料，除本中心自行觀測之外，在東吉島海上浮標(測站 Z)、七美海上浮標(測站 R) 等，係交通部中央氣象局(CWB)提供。澎湖海上浮標(測站 Y)觀測海流資料，係經濟部水利署(WRA)提供，謹致謝忱。

第一章 2014 年澎湖海域觀測風力資料

澎湖海域風之觀測係 2009 年 12 月本中心(IHMT)安裝 Young Brand 風速計於馬公港區辦事處大樓樓頂澎湖港(測站 W)，位置如圖 1。另於 2011 年 12 月於龍門港區安裝 Young Brand 風速計(稱測站 B)。

測站 Y(澎湖外海浮標站)之風速儀屬水利署(WRA)所有，姑婆嶼北北西方約 1 公里處，水深 26.6 公尺之浮標上。測站 E(馬公港區)及測站 I(東吉島)之風速儀屬中央氣象局所有。測站 H 之風速儀屬港務公司(TIPC)所有，也設置於馬公港區。各觀測站歷年觀測風資料蒐集概況如表 1。

本中心測站風資料之蒐集係採取每小時測定十分鐘之風速、風向數據加以平均，而得出該小時之平均風速、平均風向、最大陣風風速、最大陣風風向、最大陣風之發生時間。本中心之風力資料以取平均風速及平均風向為主。其他測站觀測風速、風向資料也是平均風速(m/s)及風向(度)。

本風力年報以取經檢核或修補後之 Y 站資料作為**主要觀測站**，2014 年主要觀測站修補前(後)每月觀測之風資料記錄期間統計表，如表 1.1a，2014 年風力**次要觀測站**資料(未補餘)記錄統計表，如表 1.1b，**主要觀測站修補前後**每月風力歷線比較圖，如圖 1.1，**主要觀測站與次要觀測站(或其他觀測站)**每月風力歷線比較圖，如圖 1.2 以後。

表 1 澎湖海域觀測風力資料蒐集概況表(統計時間至 2014 年 11 月)

測站	緯度	經度	觀測期間	觀測單位	備註
W	23°33'46"N	119°33'52"E	2009/12-2014/11(觀測中)	港研中心	馬公港區
B	23°33'30"N	119°40'5.5"E	2009/12-2014/11(觀測中)	港研中心	龍門尖山港區
E	23°34'02"N	119°33'19"E	2001/01-2014/11(觀測中)	中央氣象局	馬公港區
Y	23°43'37"N	119°33'07"E	2006/09-2014/11(觀測中)	水利署	澎湖資料浮標
H	23°33'46"N	119°33'52"E	2001/12 -2014/08	港務公司	馬公港區
I	23°34'02"N	119°33'19"E	2014/08-2014/11(觀測中)	中央氣象局	東吉島



圖 1 澎湖海域風力觀測站位置示意圖

表 1.1a 2014年每月澎湖海域修補前各測站觀測風力資料紀錄統計表

年/月 港區	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域
測站	W	Y	B	R	E	H	I	
2013/12月	744 (100%)	744 (100%)	744 (100%)	*	744 (100%)	*	*	*
2014/ 1月	744 (100%)	744 (100%)	744 (100%)	*	744 (100%)	744 (100%)	*	*
2014/ 2月	672 (100%)	655 (97.5%)	672 (100%)	*	672 (100%)	670 (99.7%)	*	*
2014/ 3月	744 (100%)	744 (100%)	744 (100%)	*	744 (100%)	549 (73.8%)	*	*
2014/ 4月	720 (100%)	711 (98.8%)	720 (100%)	*	720 (100%)	720 (100%)	*	*
2014/ 5月	744 (100%)	716 (96.2%)	744 (100%)	*	744 (100%)	744 (100%)	*	*
2014/ 6月	720 (100%)	651 (90.4%)	720 (100%)	*	720 (100%)	720 (100%)	*	*
2014/ 7月	744 (100%)	702 (94.4%)	729 (98.0%)	*	744 (100%)	744 (100%)	*	*
2014/ 8月	744 (100%)	717 (96.4%)	744 (100%)	*	744 (100%)	744 (100%)	743 (99.9%)	*
2014/ 9月	720 (100%)	679 (94.3%)	720 (100%)	*	720 (100%)	*	720 (100%)	*
2014/10月	744 (100%)	712 (95.7%)	735 (98.8%)	*	744 (100%)	*	744 (100%)	*
2014/11月	720 (100%)	635 (88.2%)	720 (100%)	*	720 (100%)	*	720 (100%)	*
2014/冬季	2160 (100%)	2143 (99.2%)	2160 (100%)	*	2160 (100%)	1414 (65.5%)	*	*
2014/春季	2208 (100%)	2171 (98.3%)	2208 (100%)	*	2208 (100%)	2013 (91.2%)	*	*
2014/夏季	2208 (100%)	2070 (93.8%)	2193 (99.3%)	*	2208 (100%)	2208 (100%)	743 (33.7%)	*
2014/秋季	2184 (100%)	2026 (92.8%)	2175 (99.6%)	*	2184 (100%)	*	2184 (100%)	*
2014/整年	8760 (100%)	8410 (96.0%)	8736 (99.7%)	*	8760 (100%)	5635 (64.3%)	2927 (33.4%)	*
起始年月	2013/12	2013/12	2013/12	*	2013/12	2014/01	2014/08	*
結束年月	2014/11	2014/11	2014/11	*	2014/11	2014/08	2014/11	*

表 1.1b 2014年每月澎湖海域修補後各測站風力資料統計表

年/月 港區	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域
測站	W	Y	B	R	E	H	I	
2013/12月	744 (100%)	744 (100%)	744 (100%)	*	744 (100%)	744 (100%)	*	*
2014/ 1月	744 (100%)	744 (100%)	744 (100%)	*	744 (100%)	744 (100%)	*	*
2014/ 2月	672 (100%)	672 (100%)	672 (100%)	*	672 (100%)	672 (100%)	*	*
2014/ 3月	744 (100%)	744 (100%)	744 (100%)	*	744 (100%)	744 (100%)	*	*
2014/ 4月	720 (100%)	720 (100%)	720 (100%)	*	720 (100%)	720 (100%)	*	*
2014/ 5月	744 (100%)	744 (100%)	744 (100%)	*	744 (100%)	744 (100%)	*	*
2014/ 6月	720 (100%)	720 (100%)	720 (100%)	*	720 (100%)	720 (100%)	*	*
2014/ 7月	744 (100%)	744 (100%)	744 (100%)	*	744 (100%)	744 (100%)	*	*
2014/ 8月	744 (100%)	744 (100%)	744 (100%)	*	744 (100%)	744 (100%)	*	*
2014/ 9月	720 (100%)	720 (100%)	720 (100%)	*	720 (100%)	720 (100%)	*	*
2014/10月	744 (100%)	744 (100%)	744 (100%)	*	744 (100%)	744 (100%)	*	*
2014/11月	720 (100%)	720 (100%)	720 (100%)	*	720 (100%)	720 (100%)	*	*
2014/冬季	*	2160 (100%)	*	*	*	*	*	*
2014/春季	*	2208 (100%)	*	*	*	*	*	*
2014/夏季	*	2208 (100%)	*	*	*	*	*	*
2014/秋季	*	2184 (100%)	*	*	*	*	*	*
2014/整年	*	8760 (100%)	*	*	*	*	*	*
起始年月	*	2013/12	*	*	*	*	*	*
結束年月	*	2014/11	*	*	*	*	*	*

Wind Speed in Peng-Hu Seas of PHY0 at 2014

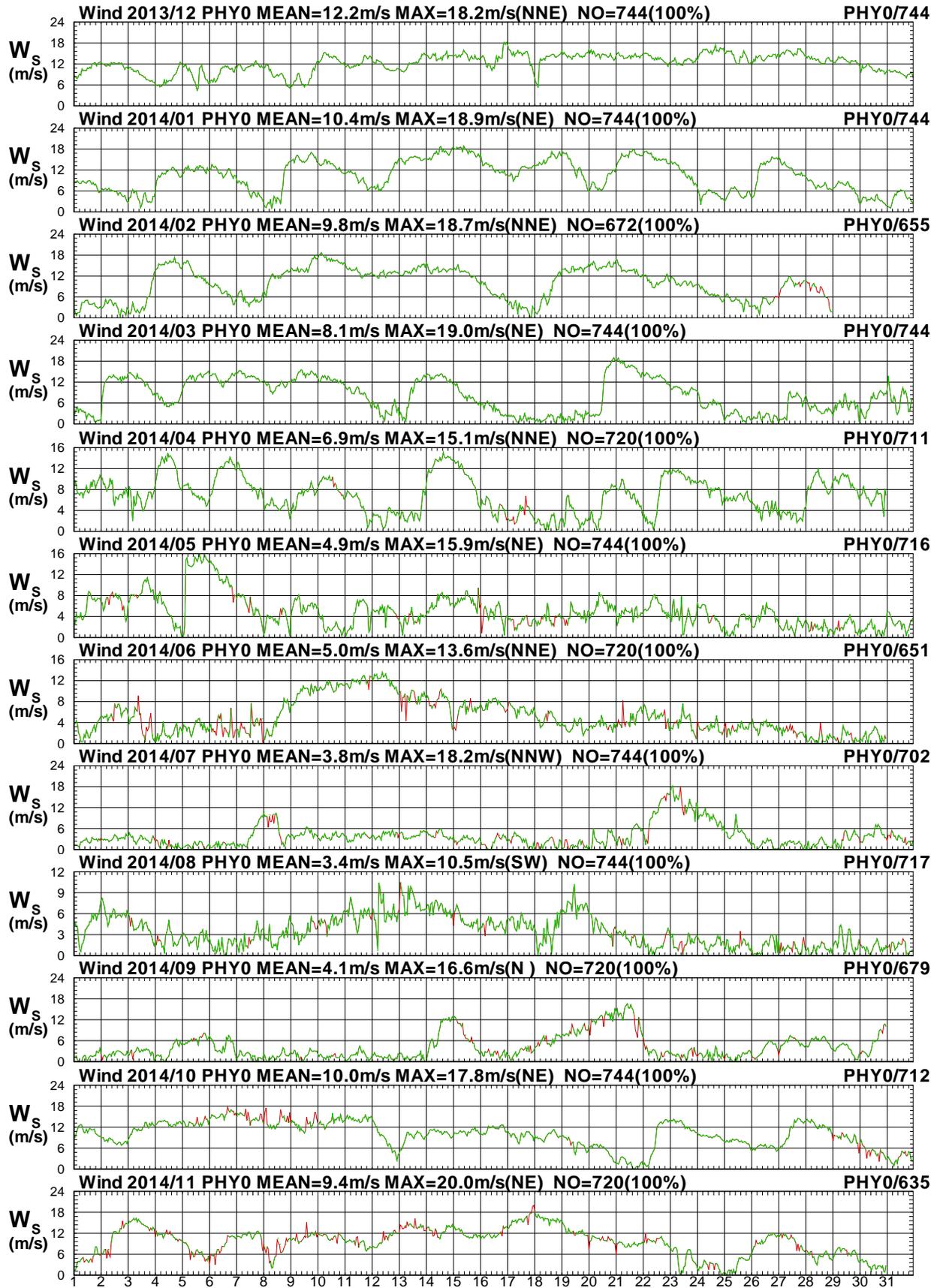


圖 1.1a 2014年每月澎湖海域 Y 站修補前後之風速比較圖

W13CPHY0.1HA W13CPHY0.1HO W141PHY0.1HA W141PHY0.1HO W142PHY0.1HA W142PHY0.1HO
W143PHY0.1HA W143PHY0.1HO W144PHY0.1HA W144PHY0.1HO W145PHY0.1HA W145PHY0.1HO

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Wind Direction in Peng-Hu Seas of PHY0 at 2014

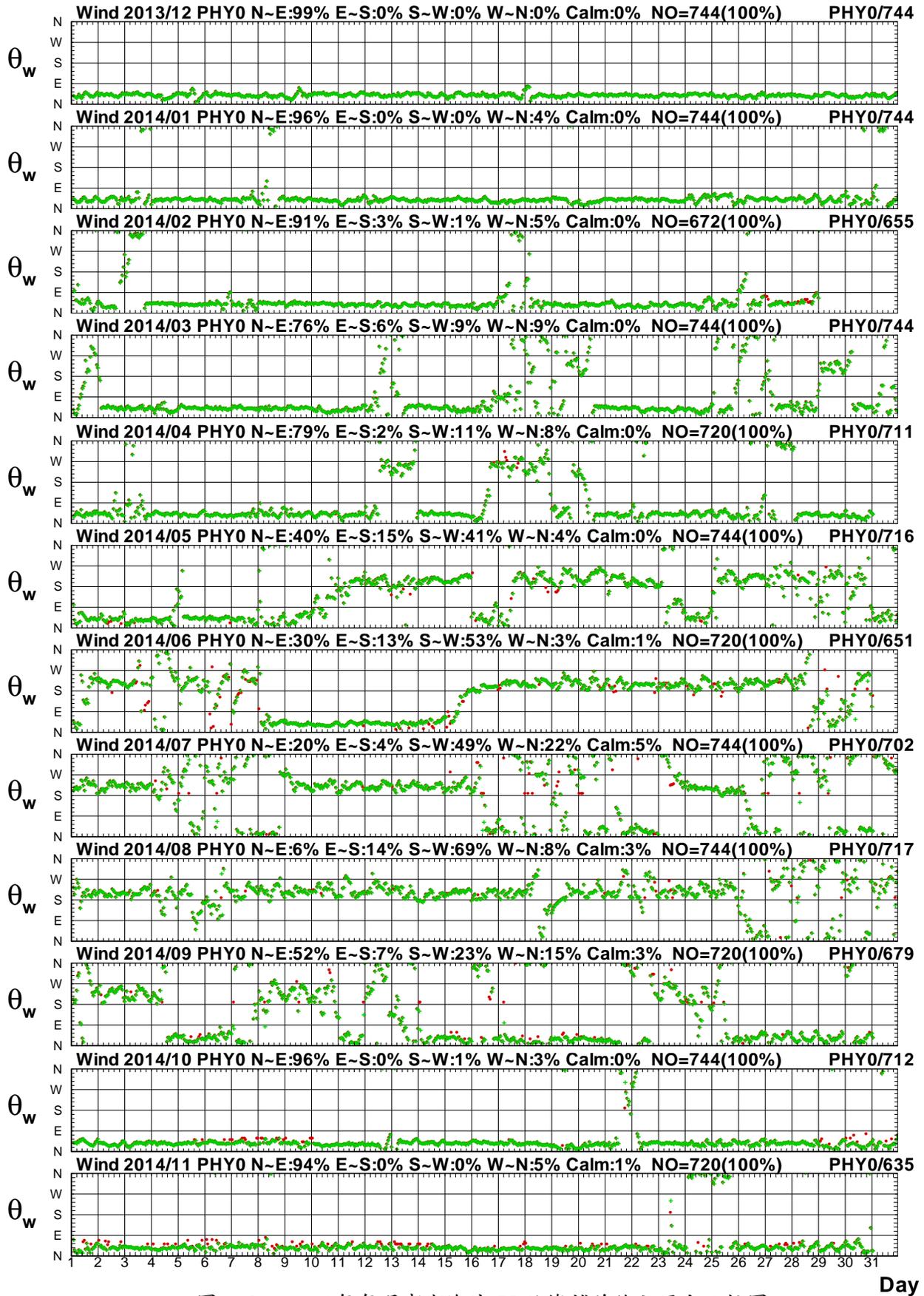


圖 1.1b 2014年每月澎湖海域 Y 站修補前後之風向比較圖

W13CPHY0.1HA W13CPHY0.1H0 W141PHY0.1HA W141PHY0.1H0 W142PHY0.1HA W142PHY0.1H0
 W143PHY0.1HA W143PHY0.1H0 W144PHY0.1HA W144PHY0.1H0 W145PHY0.1HA W145PHY0.1H0

Institute of Harbor & Marine Technology

Wind Speed in Peng-Hu Seas of PHY0 at 2014

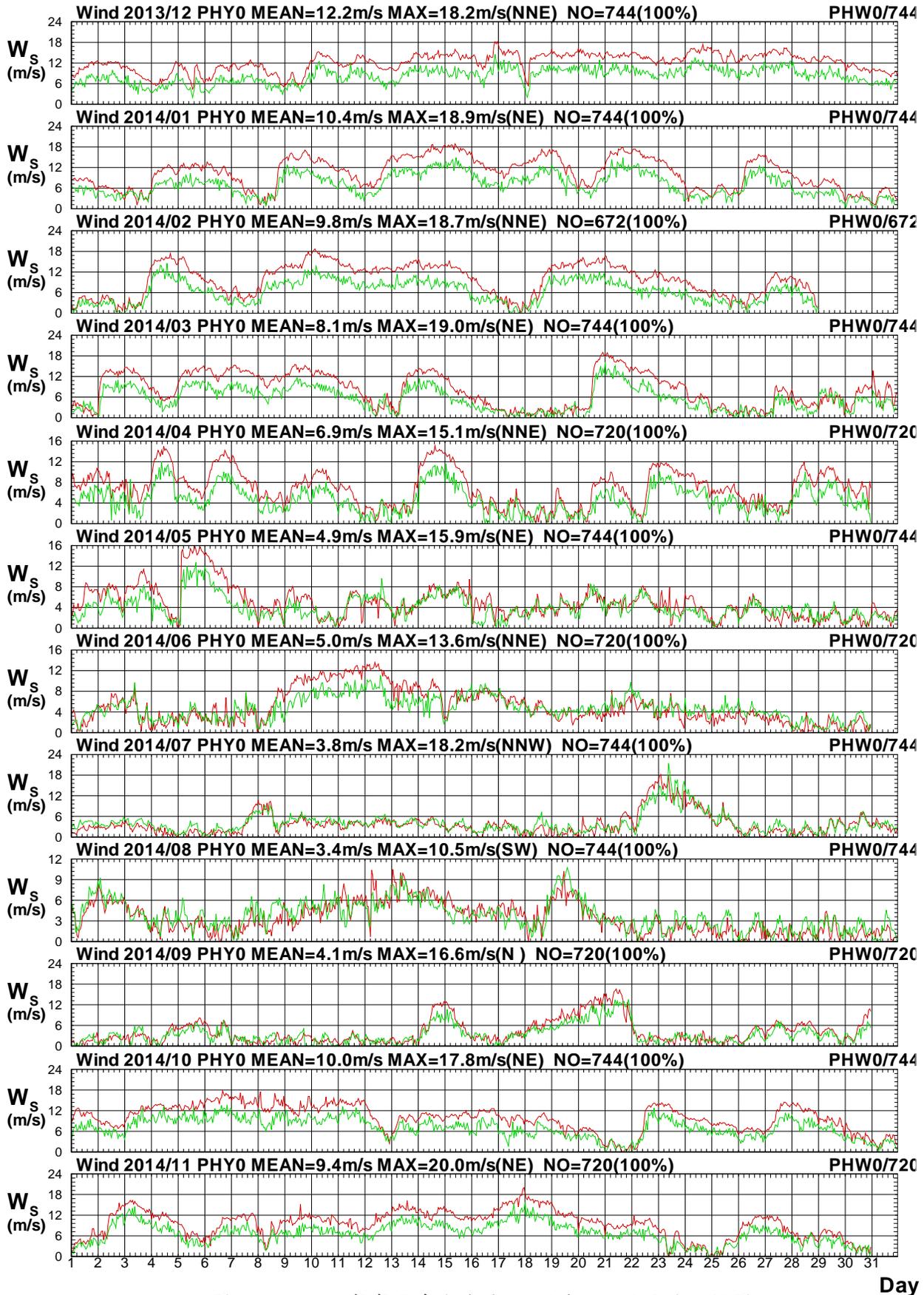


圖 1.2a 2014年每月澎湖海域 Y 站與 W 站風速比較圖

W13CPHY0.1HA W13CPHW0.1HO W141PHY0.1HA W141PHW0.1HO W142PHY0.1HA W142PHW0.1HO
 W143PHY0.1HA W143PHW0.1HO W144PHY0.1HA W144PHW0.1HO W145PHY0.1HA W145PHW0.1HO

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Wind Direction in Peng-Hu Seas of PHY0 at 2014

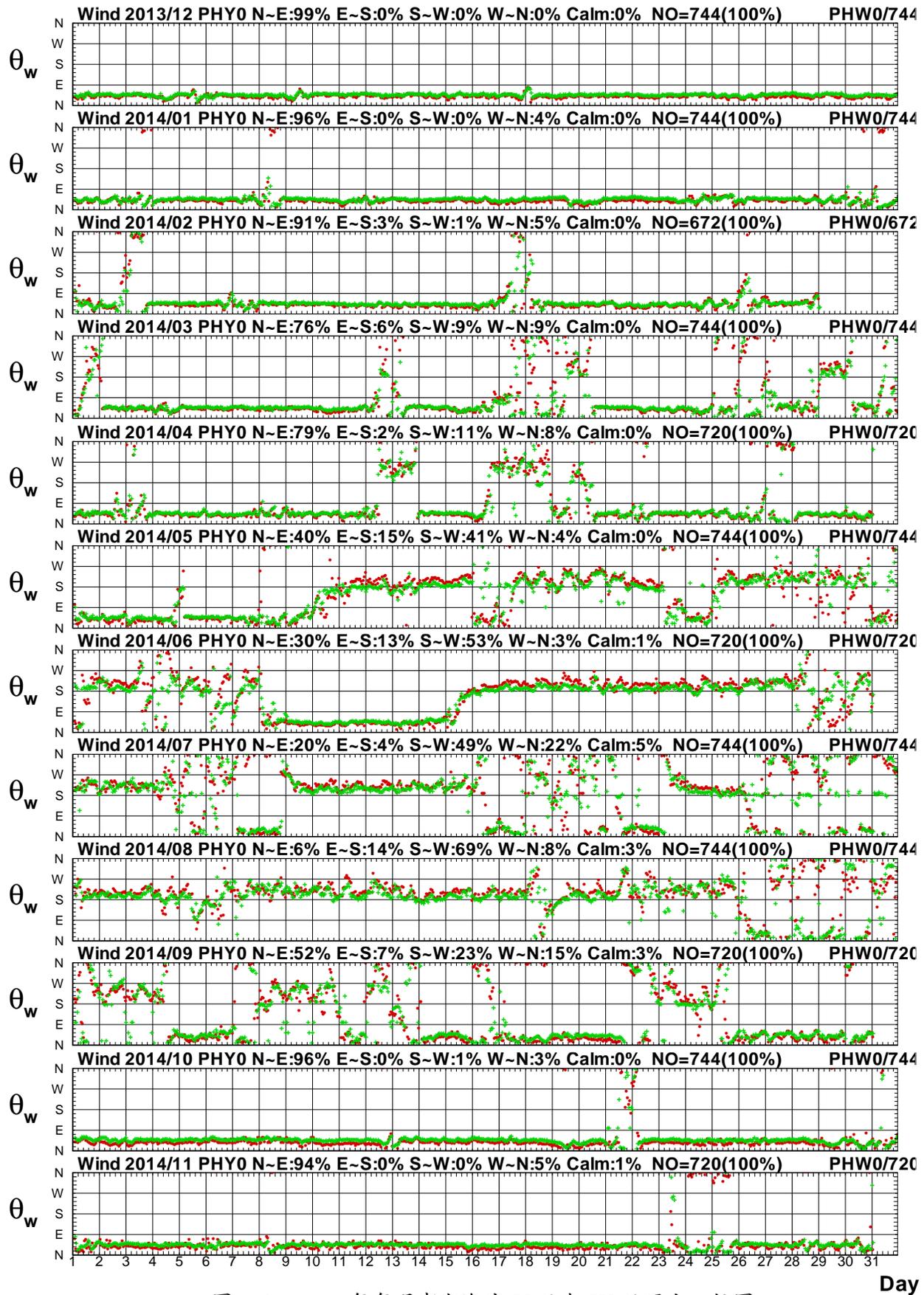


圖 1.2b 2014年每月澎湖海域 Y 站與 W 站風向比較圖

W13CPHY0.1HA W13CPHW0.1HO W141PHY0.1HA W141PHW0.1HO W142PHY0.1HA W142PHW0.1HO
 W143PHY0.1HA W143PHW0.1HO W144PHY0.1HA W144PHW0.1HO W145PHY0.1HA W145PHW0.1HO

Institute of Harbor & Marine Technology

Wind Speed in Peng-Hu Seas of PHY0 at 2014

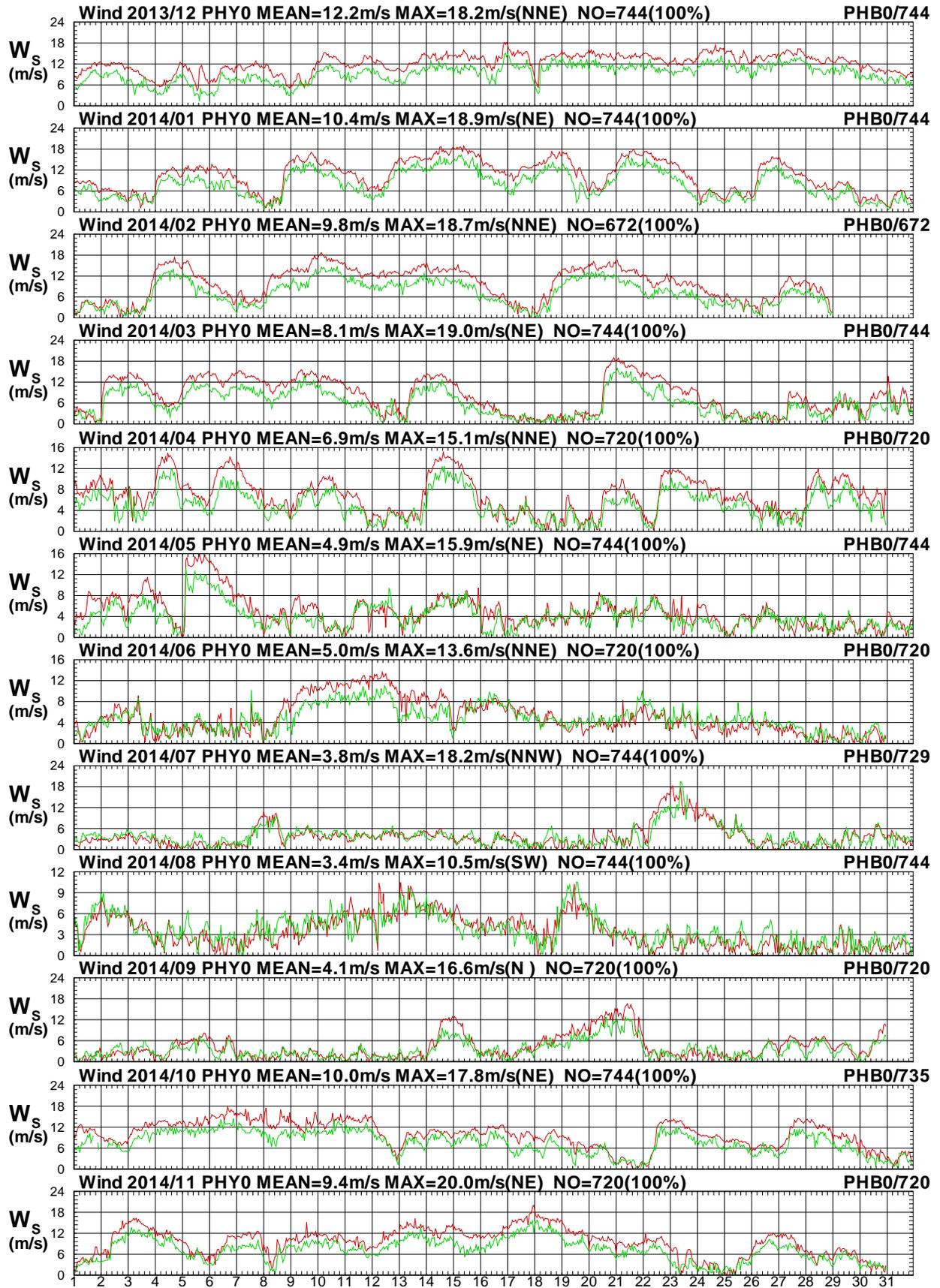


圖 1.3a 2014年每月澎湖海域 Y 站與 B 站風速比較圖

W13CPHY0.1HA W13CPHB0.1HO W141PHY0.1HA W141PHB0.1HO W142PHY0.1HA W142PHB0.1HO
 W143PHY0.1HA W143PHB0.1HO W144PHY0.1HA W144PHB0.1HO W145PHY0.1HA W145PHB0.1HO

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Wind Direction in Peng-Hu Seas of PHY0 at 2014

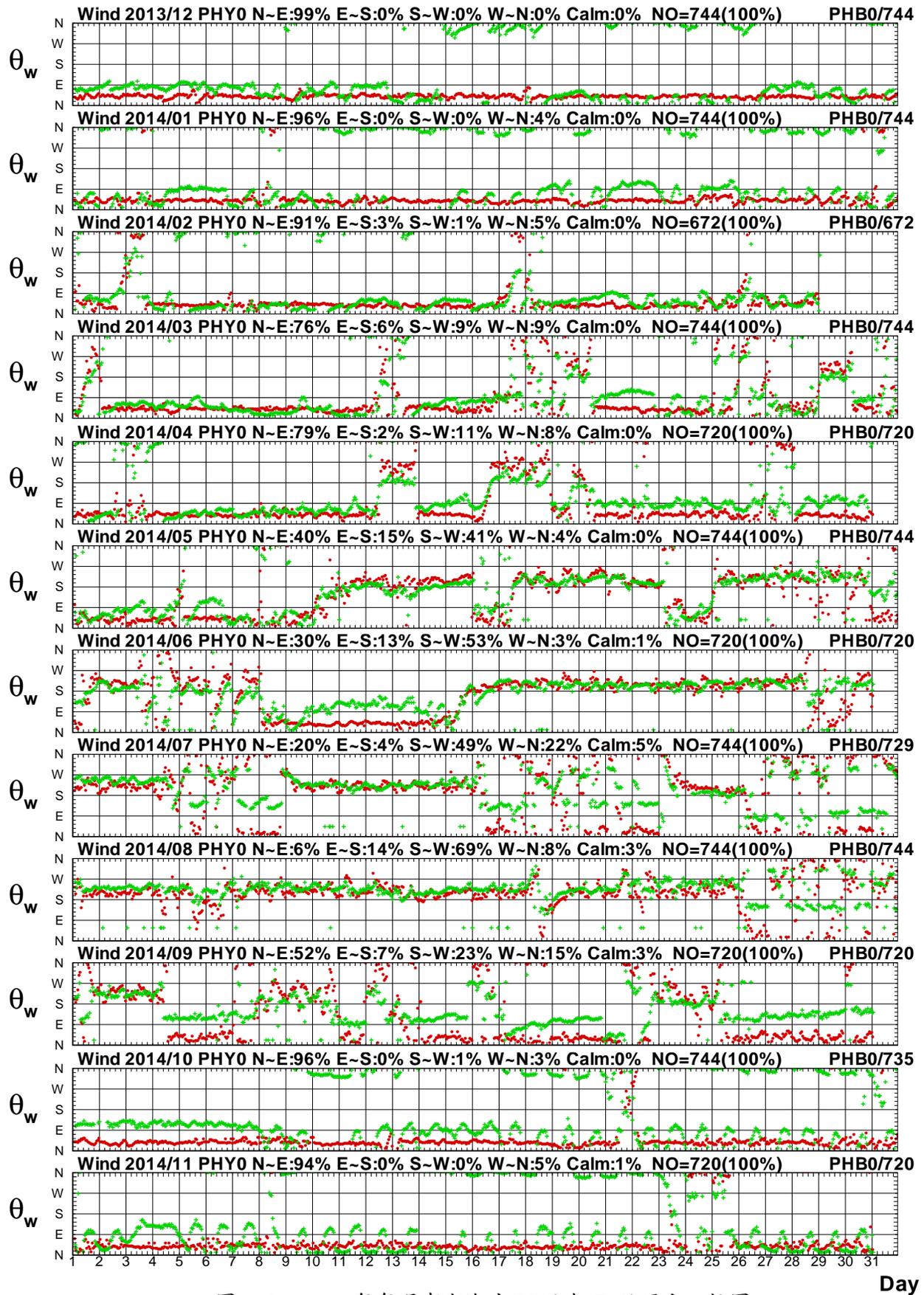


圖 1.3b 2014年每月澎湖海域 Y 站與 B 站風向比較圖

W13CPHY0.1HA W13CPHB0.1HO W141PHY0.1HA W141PHB0.1HO W142PHY0.1HA W142PHB0.1HO
 W143PHY0.1HA W143PHB0.1HO W144PHY0.1HA W144PHB0.1HO W145PHY0.1HA W145PHB0.1HO

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Wind Speed in Peng-Hu Seas of PHY0 at 2014

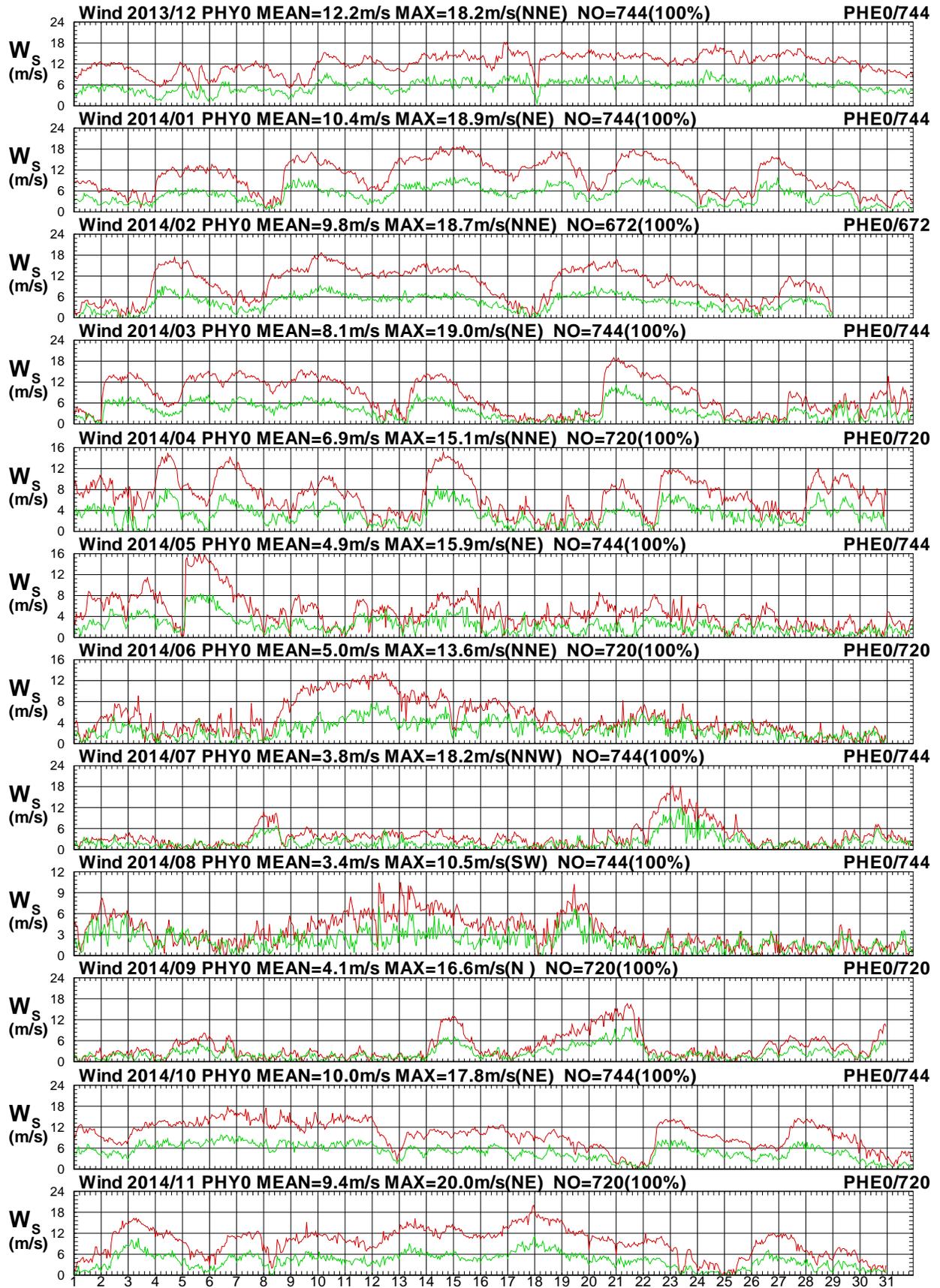


圖 1.4a 2014年每月澎湖海域 Y 站與 E 站風速比較圖

W13CPHY0.1HA W13CPHE0.1HO W141PHY0.1HA W141PHE0.1HO W142PHY0.1HA W142PHE0.1HO
W143PHY0.1HA W143PHE0.1HO W144PHY0.1HA W144PHE0.1HO W145PHY0.1HA W145PHE0.1HO

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Wind Direction in Peng-Hu Seas of PHY0 at 2014

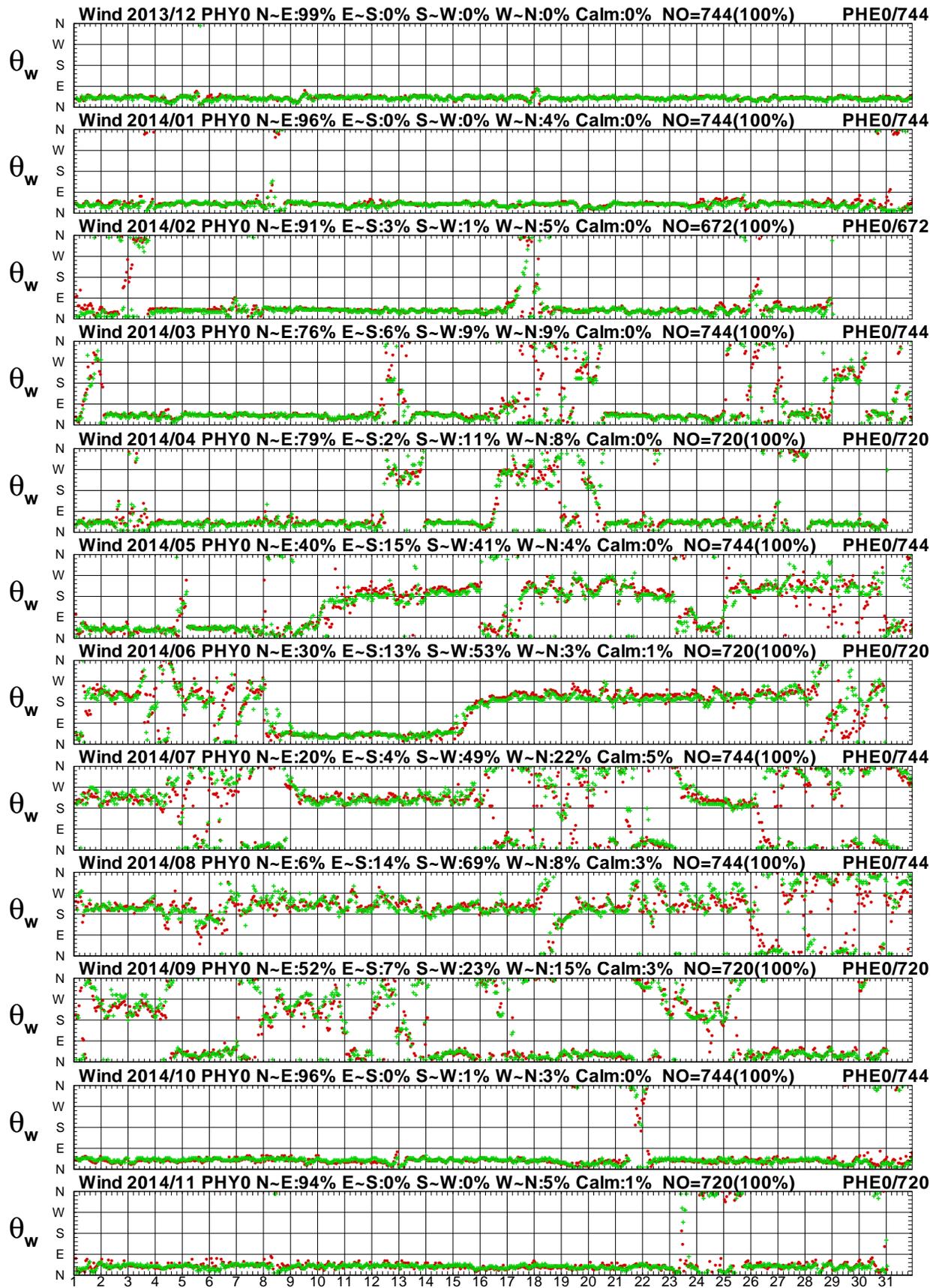


圖 1.4b 2014年每月澎湖海域 Y 站與 E 站風向比較圖

W13CPHY0.1HA W13CPHE0.1HO W141PHY0.1HA W141PHE0.1HO W142PHY0.1HA W142PHE0.1HO
 W143PHY0.1HA W143PHE0.1HO W144PHY0.1HA W144PHE0.1HO W145PHY0.1HA W145PHE0.1HO

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Wind Speed in Peng-Hu Seas of PHY0 at 2014

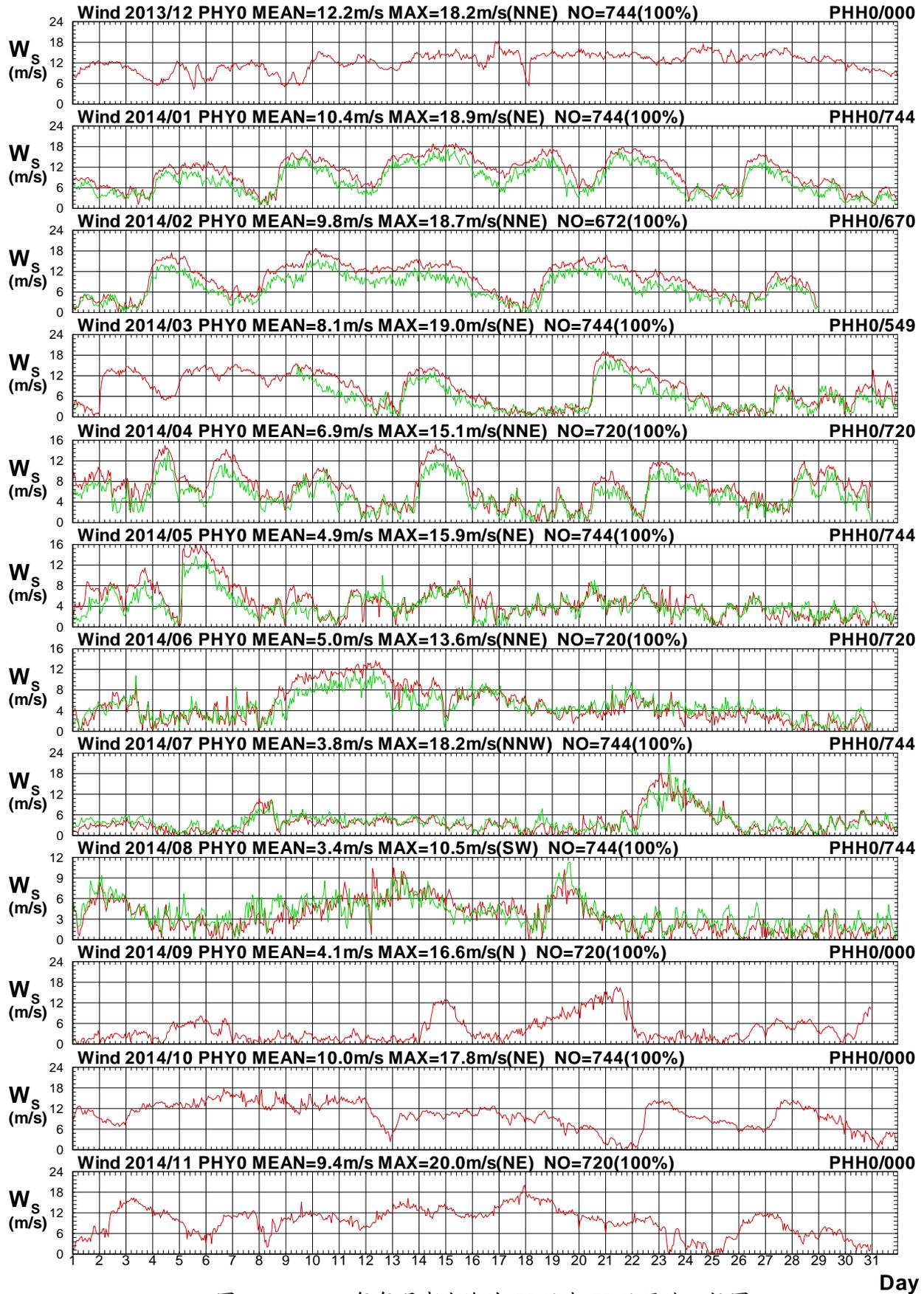


圖 1.5a 2014年每月澎湖海域 Y 站與 H 站風速比較圖

W13CPHY0.1HA W13CPHH0.1HO W141PHY0.1HA W141PHH0.1HO W142PHY0.1HA W142PHH0.1HO
 W143PHY0.1HA W143PHH0.1HO W144PHY0.1HA W144PHH0.1HO W145PHY0.1HA W145PHH0.1HO

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Wind Direction in Peng-Hu Seas of PHY0 at 2014

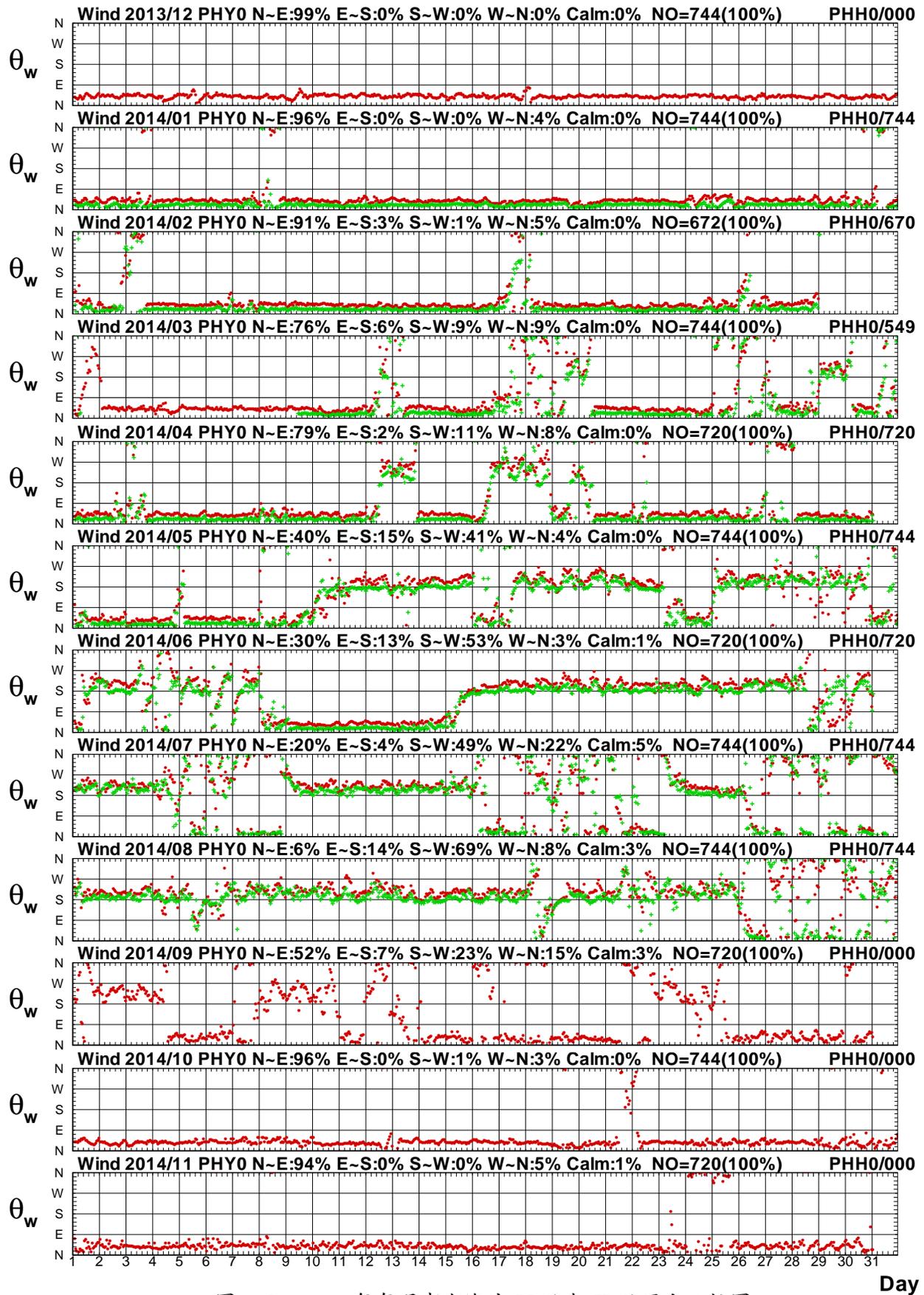


圖 1.5b 2014年每月澎湖海域 Y 站與 H 站風向比較圖

W13CPHY0.1HA W13CPHH0.1HO W141PHY0.1HA W141PHH0.1HO W142PHY0.1HA W142PHH0.1HO
 W143PHY0.1HA W143PHH0.1HO W144PHY0.1HA W144PHH0.1HO W145PHY0.1HA W145PHH0.1HO

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Wind Speed in Peng-Hu Seas of PHY0 at 2014

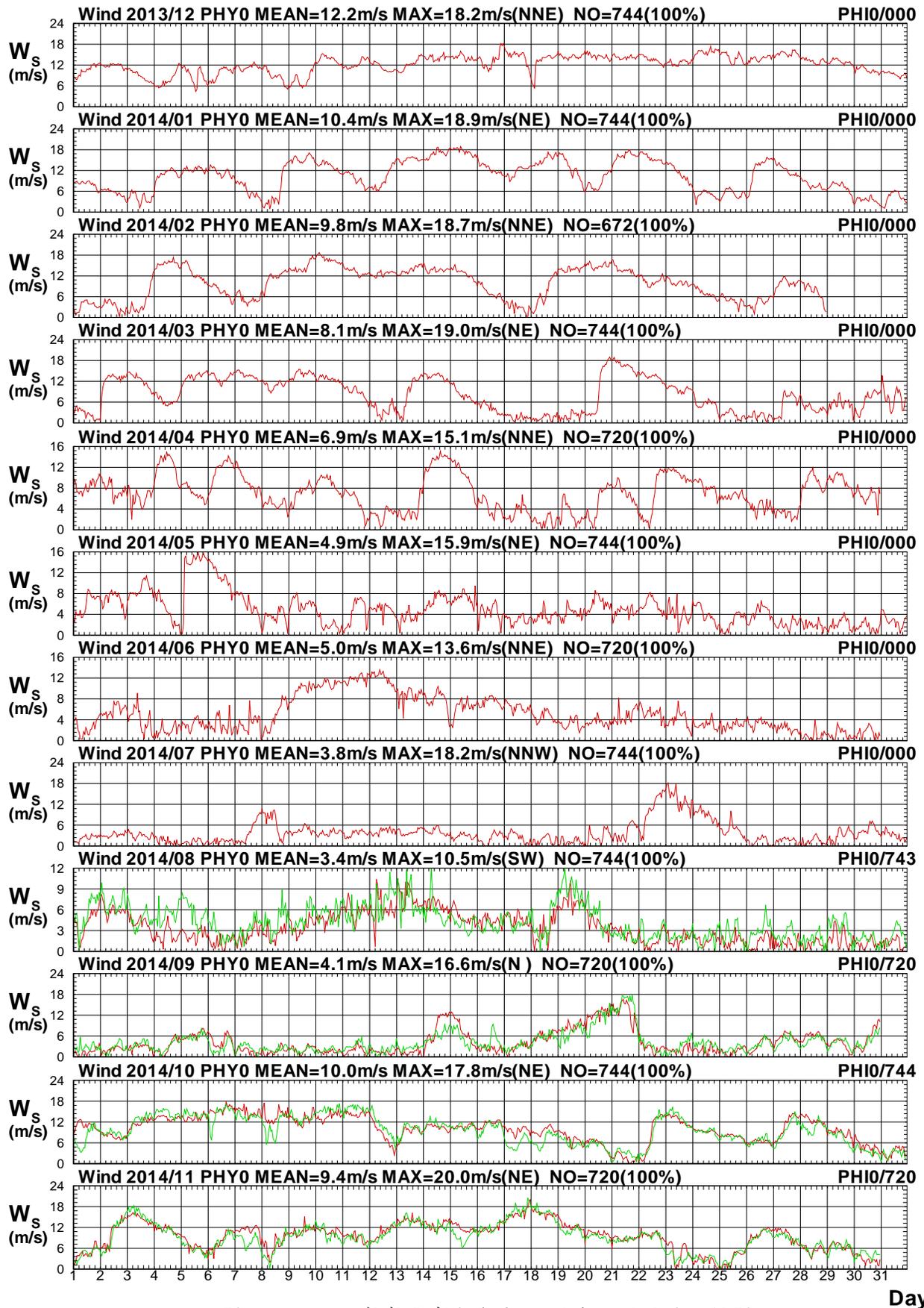


圖 1.6a 2014年每月澎湖海域 Y 站與 I 站風速比較圖

W13CPHY0.1HA W13CPHI0.1H0 W141PHY0.1HA W141PHI0.1H0 W142PHY0.1HA W142PHI0.1H0
W143PHY0.1HA W143PHI0.1H0 W144PHY0.1HA W144PHI0.1H0 W145PHY0.1HA W145PHI0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2014

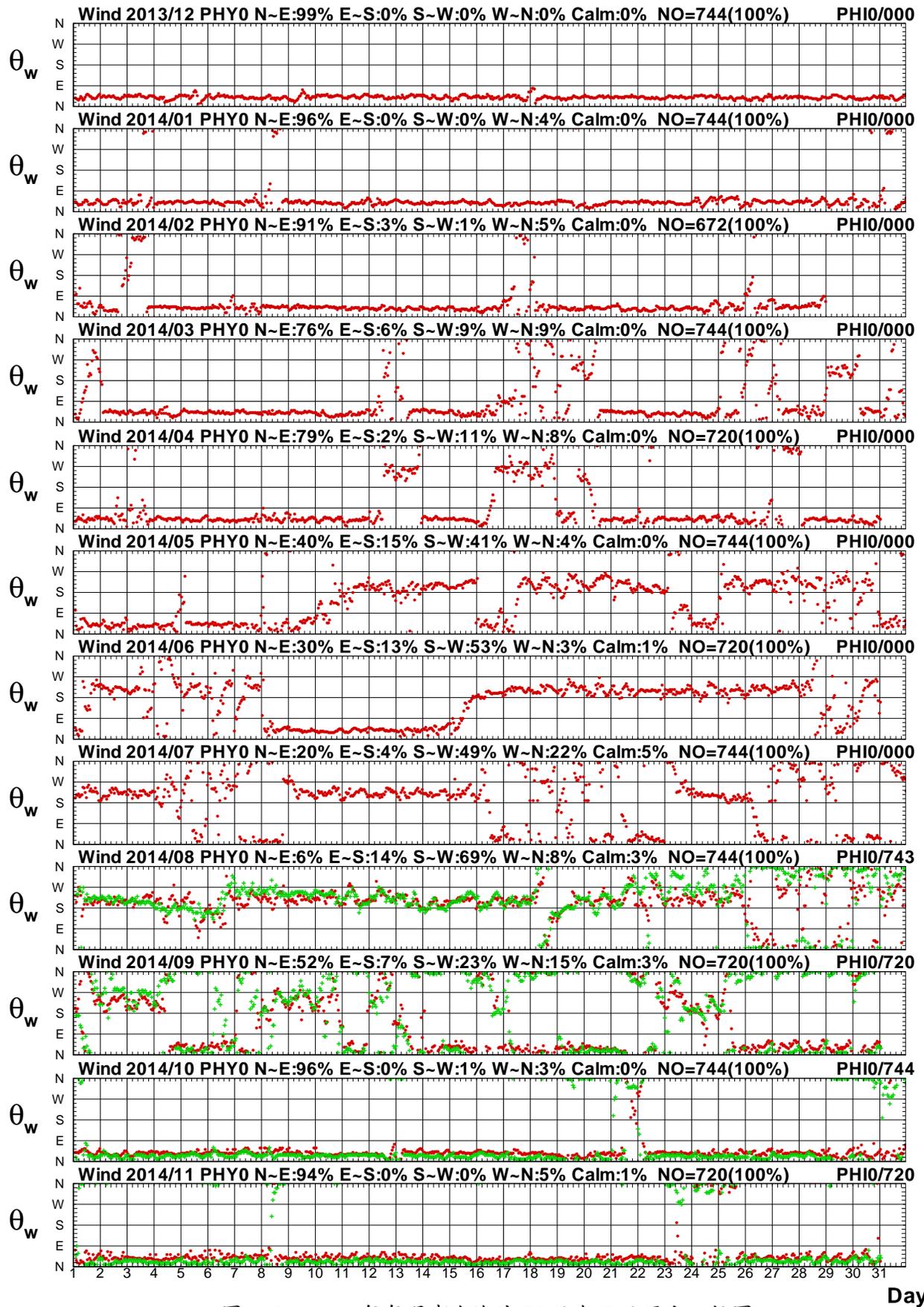


圖 1.6b 2014年每月澎湖海域 Y 站與 I 站風向比較圖

W13CPHY0.1HA W13CPHI0.1H0 W141PHY0.1HA W141PHI0.1H0 W142PHY0.1HA W142PHI0.1H0
 W143PHY0.1HA W143PHI0.1H0 W144PHY0.1HA W144PHI0.1H0 W145PHY0.1HA W145PHI0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2014

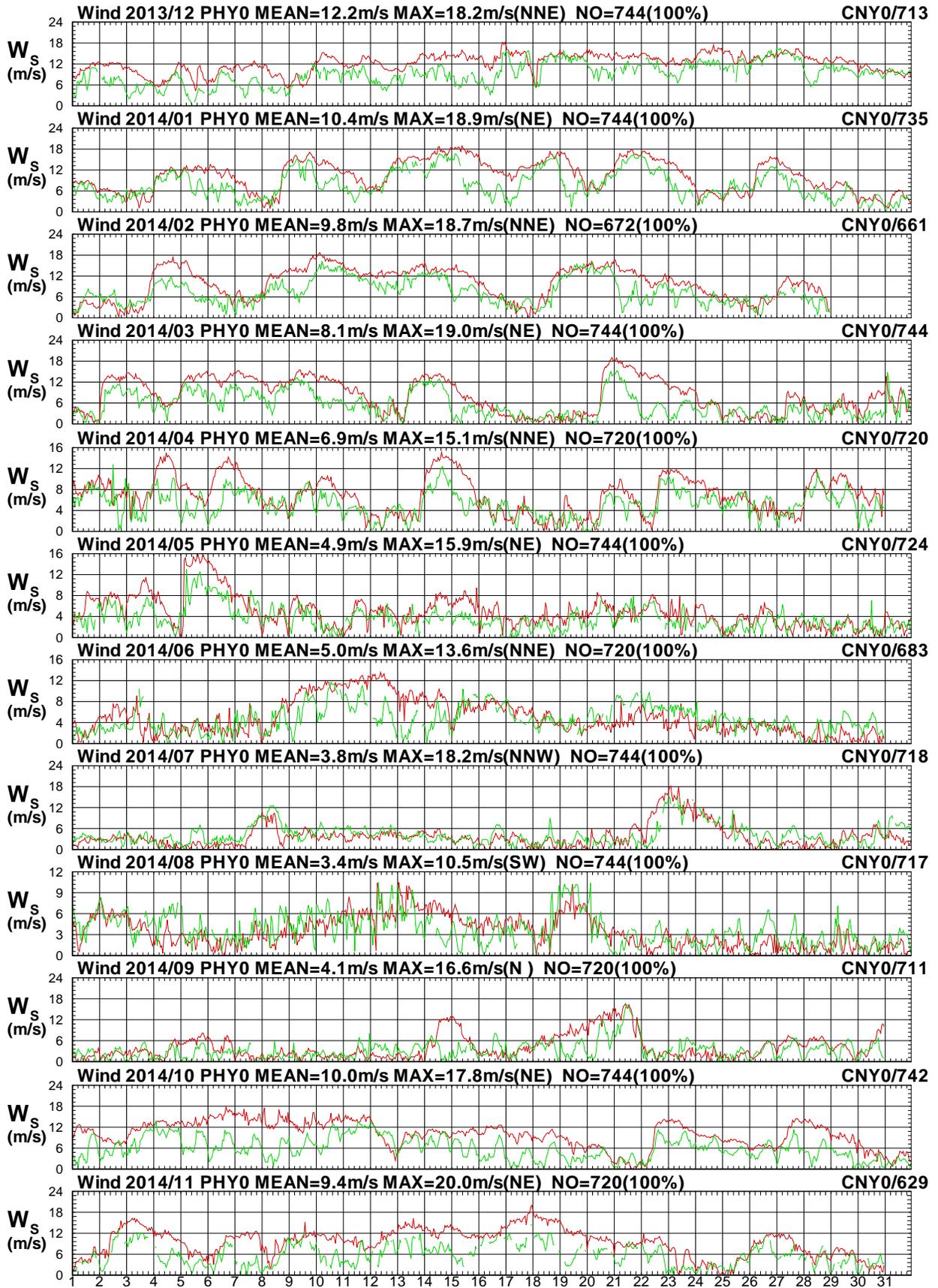


圖 1.7a 2014年每月澎湖海域 Y 站與嘉南海域 Y 站風速圖

W13CPHY0.1HA W13CCNY0.1H0 W141PHY0.1HA W141CNY0.1H0 W142PHY0.1HA W142CNY0.1H0
 W143PHY0.1HA W143CNY0.1H0 W144PHY0.1HA W144CNY0.1H0 W145PHY0.1HA W145CNY0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2014

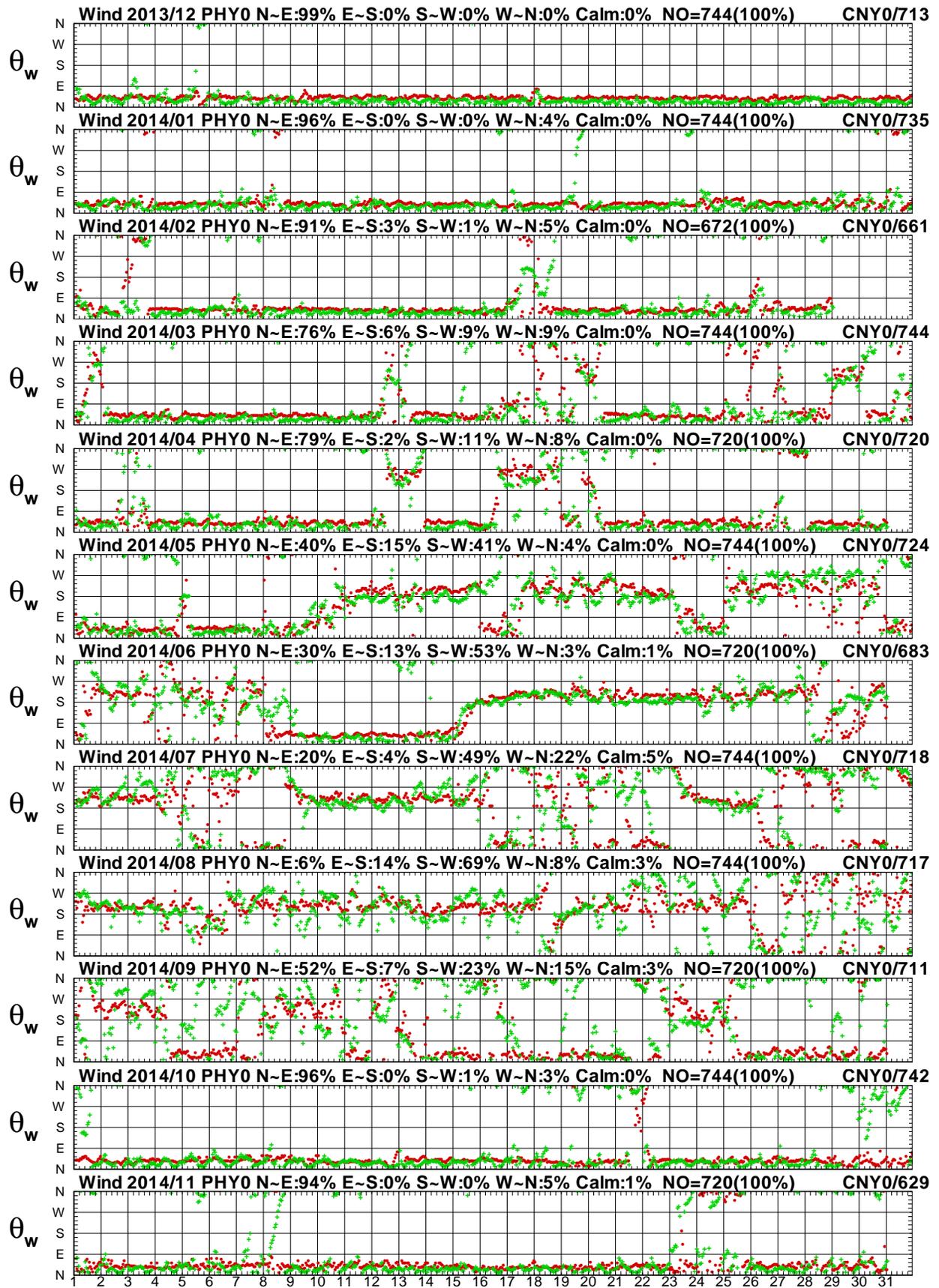


圖 1.7b 2014年每月澎湖海域 Y 站與嘉南海域 Y 站風向圖

W13CPHY0.1HA W13CCNY0.1H0 W141PHY0.1HA W141CNY0.1H0 W142PHY0.1HA W142CNY0.1H0
 W143PHY0.1HA W143CNY0.1H0 W144PHY0.1HA W144CNY0.1H0 W145PHY0.1HA W145CNY0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2014

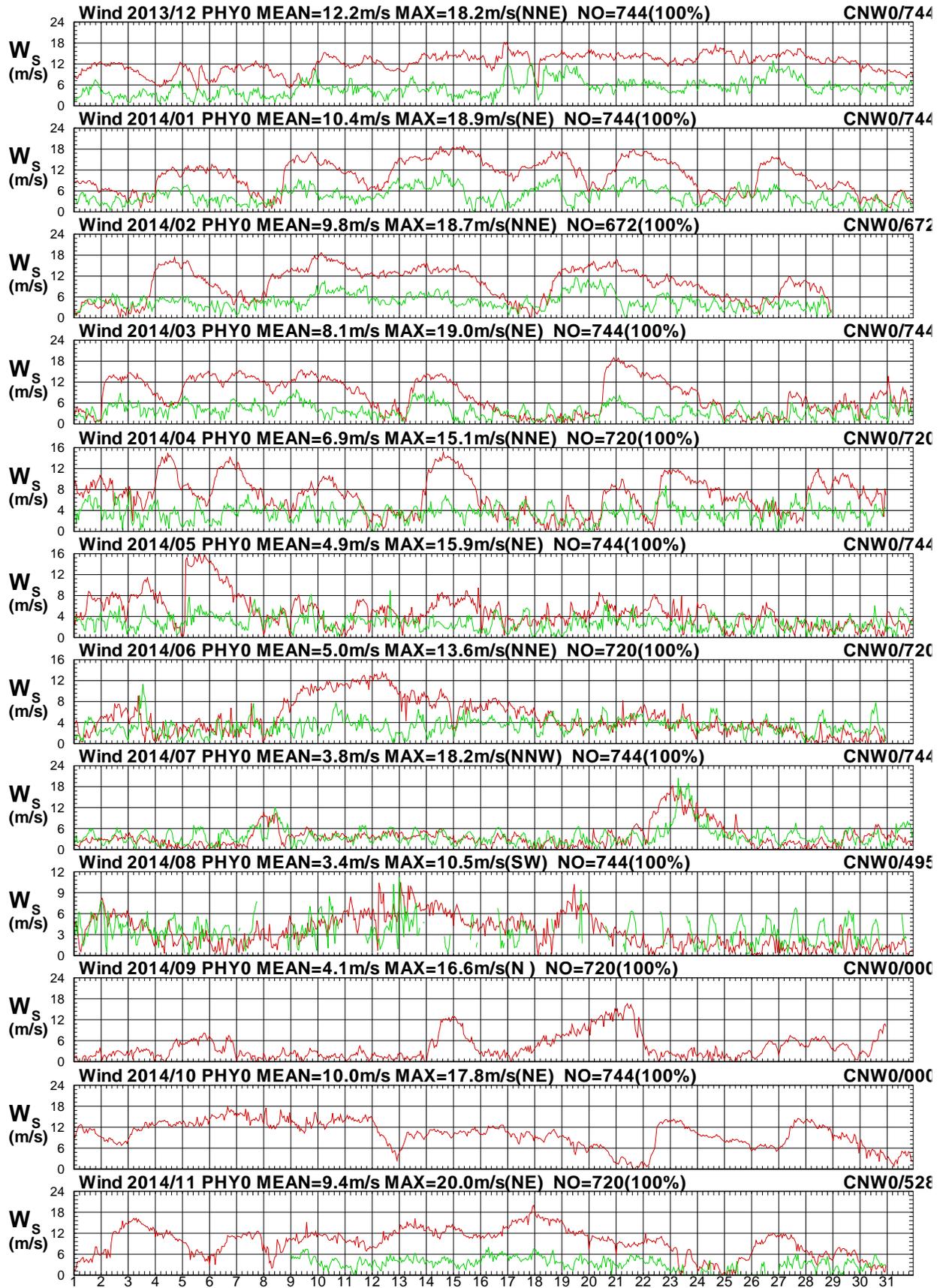


圖 1.8a 2014年每月澎湖海域 Y 站與嘉南海域 W 站風速圖

W13CPHY0.1HA W13CCNW0.1H0 W141PHY0.1HA W141CNW0.1H0 W142PHY0.1HA W142CNW0.1H0
 W143PHY0.1HA W143CNW0.1H0 W144PHY0.1HA W144CNW0.1H0 W145PHY0.1HA W145CNW0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2014

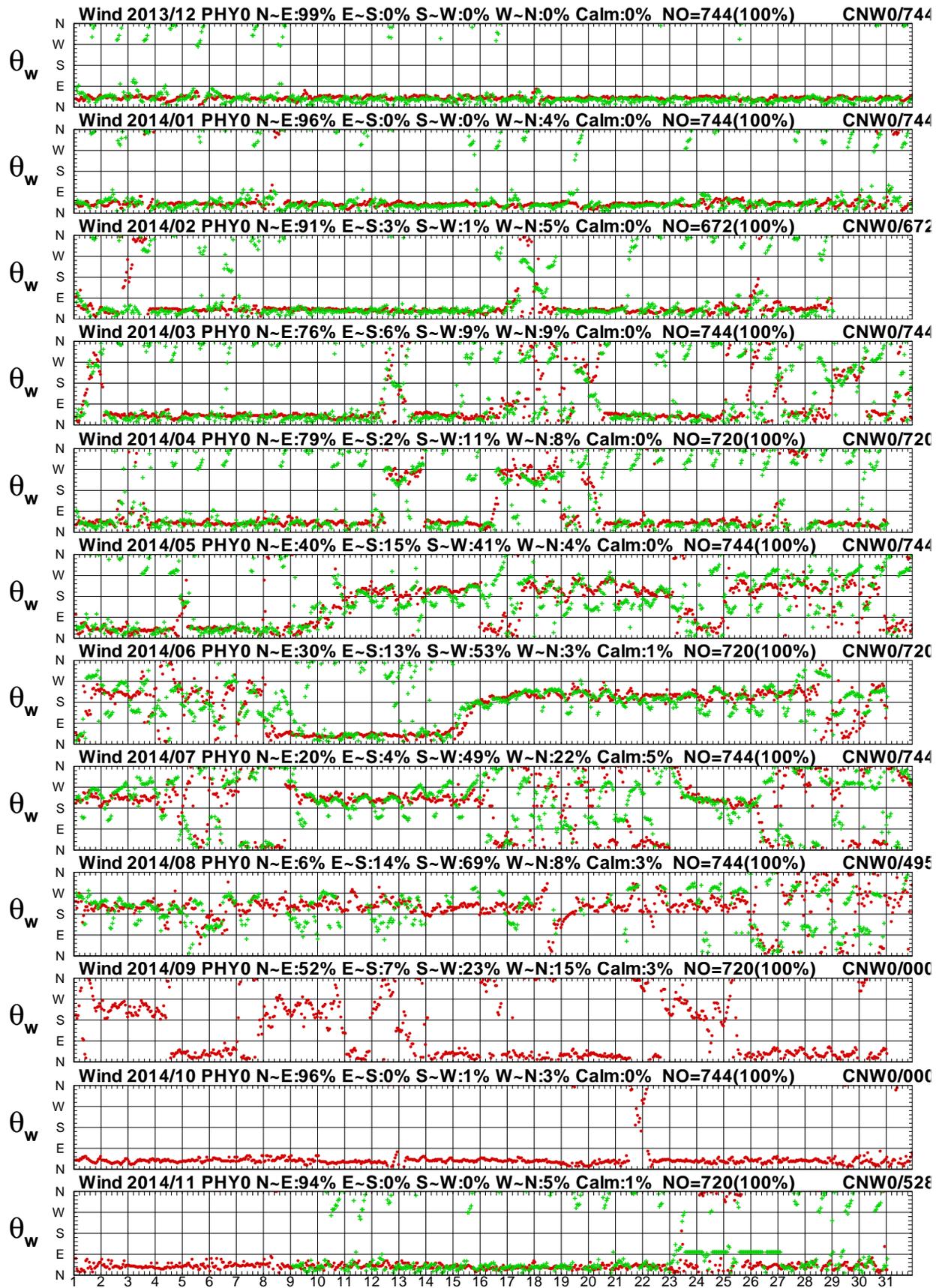


圖 1.8b 2014年每月澎湖海域 Y 站與嘉南海域 W 站風向圖

W13CPHY0.1HA W13CCNW0.1H0 W141PHY0.1HA W141CNW0.1H0 W142PHY0.1HA W142CNW0.1H0
 W143PHY0.1HA W143CNW0.1H0 W144PHY0.1HA W144CNW0.1H0 W145PHY0.1HA W145CNW0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2014

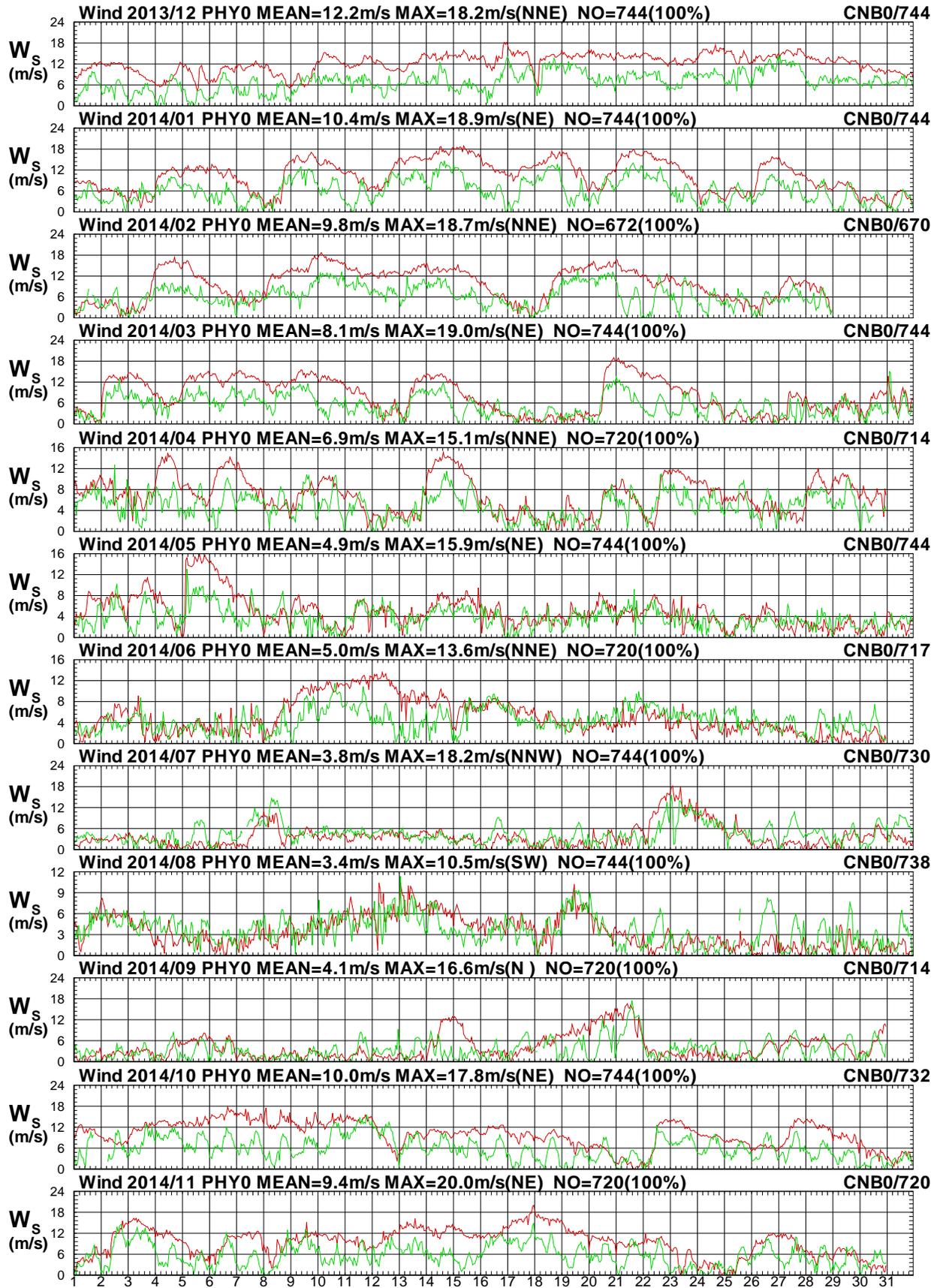


圖 1.9a 2014年每月澎湖海域 Y 站與嘉南海域 B 站風速圖

W13CPHY0.1HA W13CCNB0.1H0 W141PHY0.1HA W141CNB0.1H0 W142PHY0.1HA W142CNB0.1H0
 W143PHY0.1HA W143CNB0.1H0 W144PHY0.1HA W144CNB0.1H0 W145PHY0.1HA W145CNB0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2014

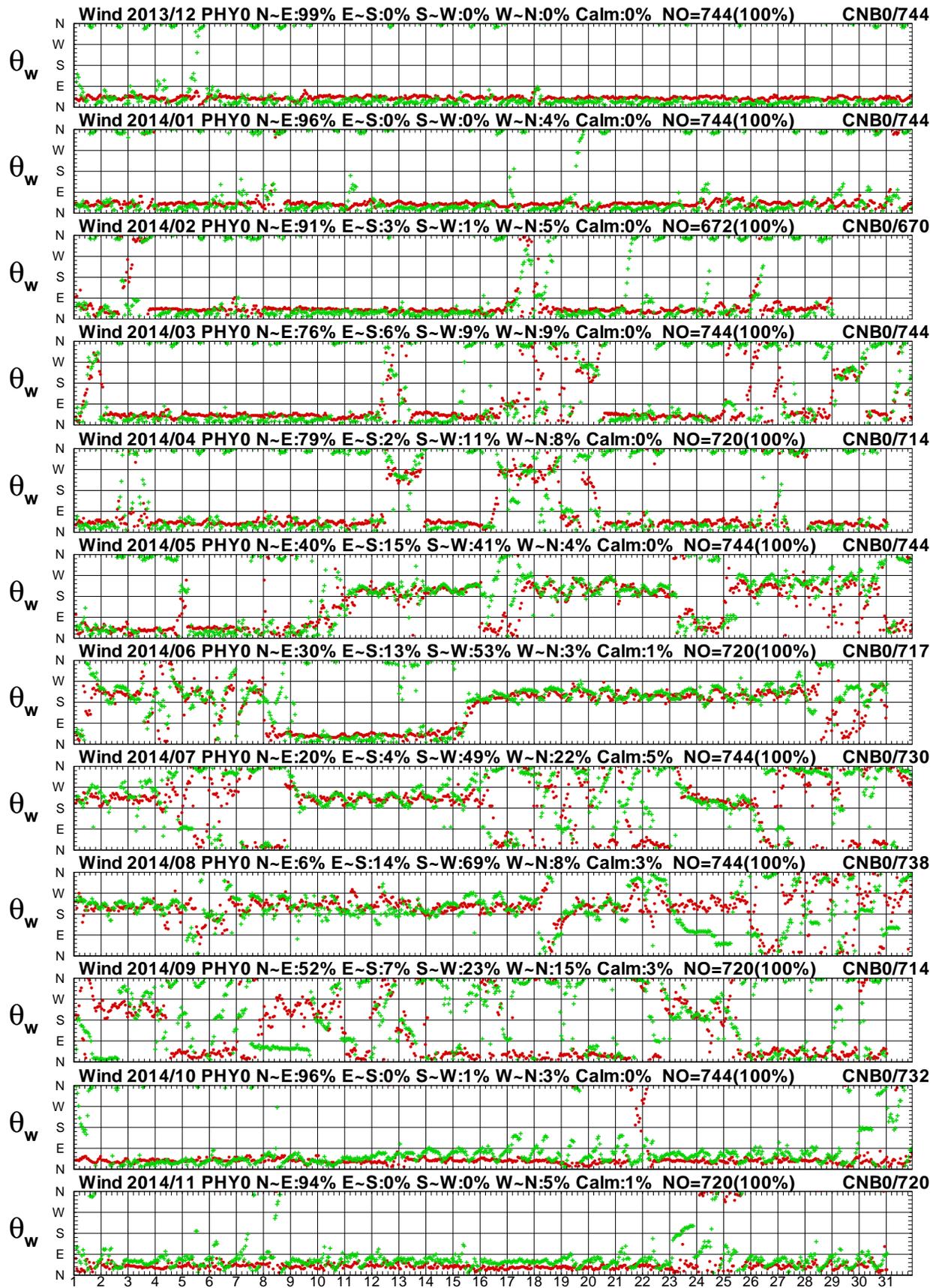


圖 1.9b 2014年每月澎湖海域 Y 站與嘉南海域 B 站風向圖

W13CPHY0.1HA W13CCNB0.1H0 W141PHY0.1HA W141CNB0.1H0 W142PHY0.1HA W142CNB0.1H0
 W143PHY0.1HA W143CNB0.1H0 W144PHY0.1HA W144CNB0.1H0 W145PHY0.1HA W145CNB0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2014

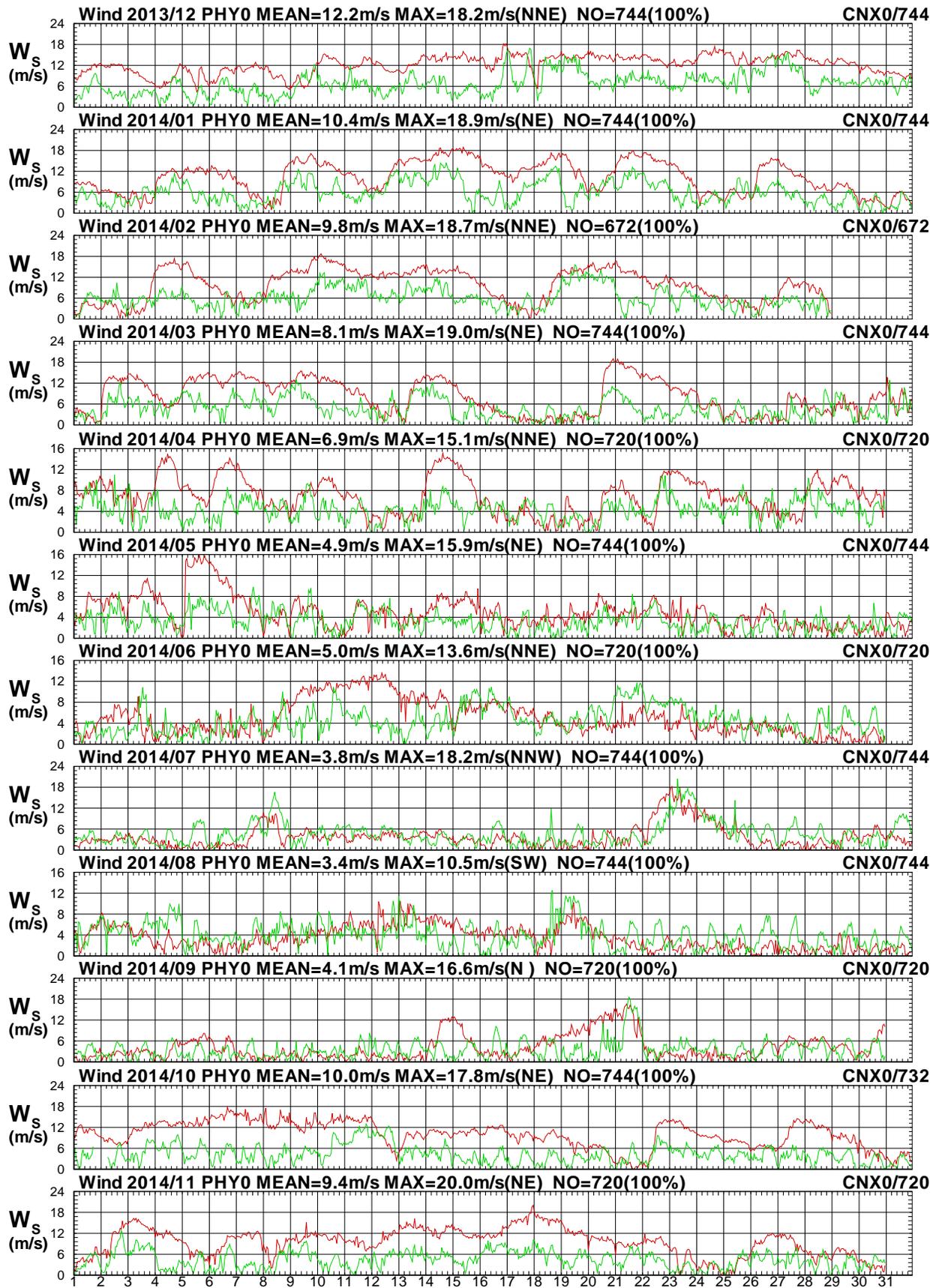


圖 1.10a 2014年每月澎湖海域 Y 站與嘉南海域 X 站風速圖

W13CPHY0.1HA W13CCNX0.1H0 W141PHY0.1HA W141CNX0.1H0 W142PHY0.1HA W142CNX0.1H0
 W143PHY0.1HA W143CNX0.1H0 W144PHY0.1HA W144CNX0.1H0 W145PHY0.1HA W145CNX0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2014

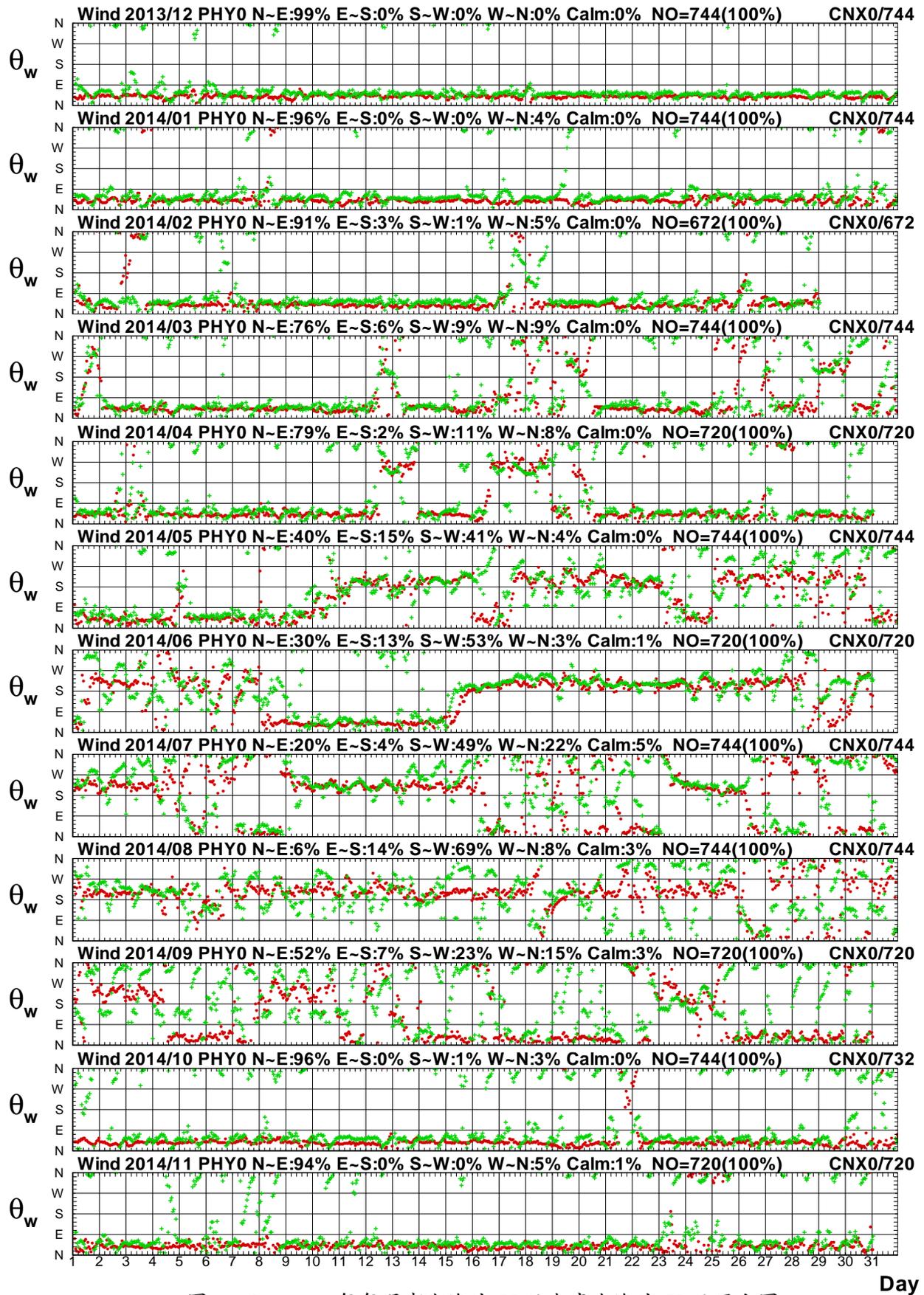


圖 1.10b 2014年每月澎湖海域 Y 站與嘉南海域 X 站風向圖

W13CPHY0.1HA W13CCNX0.1H0 W141PHY0.1HA W141CNX0.1H0 W142PHY0.1HA W142CNX0.1H0
 W143PHY0.1HA W143CNX0.1H0 W144PHY0.1HA W144CNX0.1H0 W145PHY0.1HA W145CNX0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2014

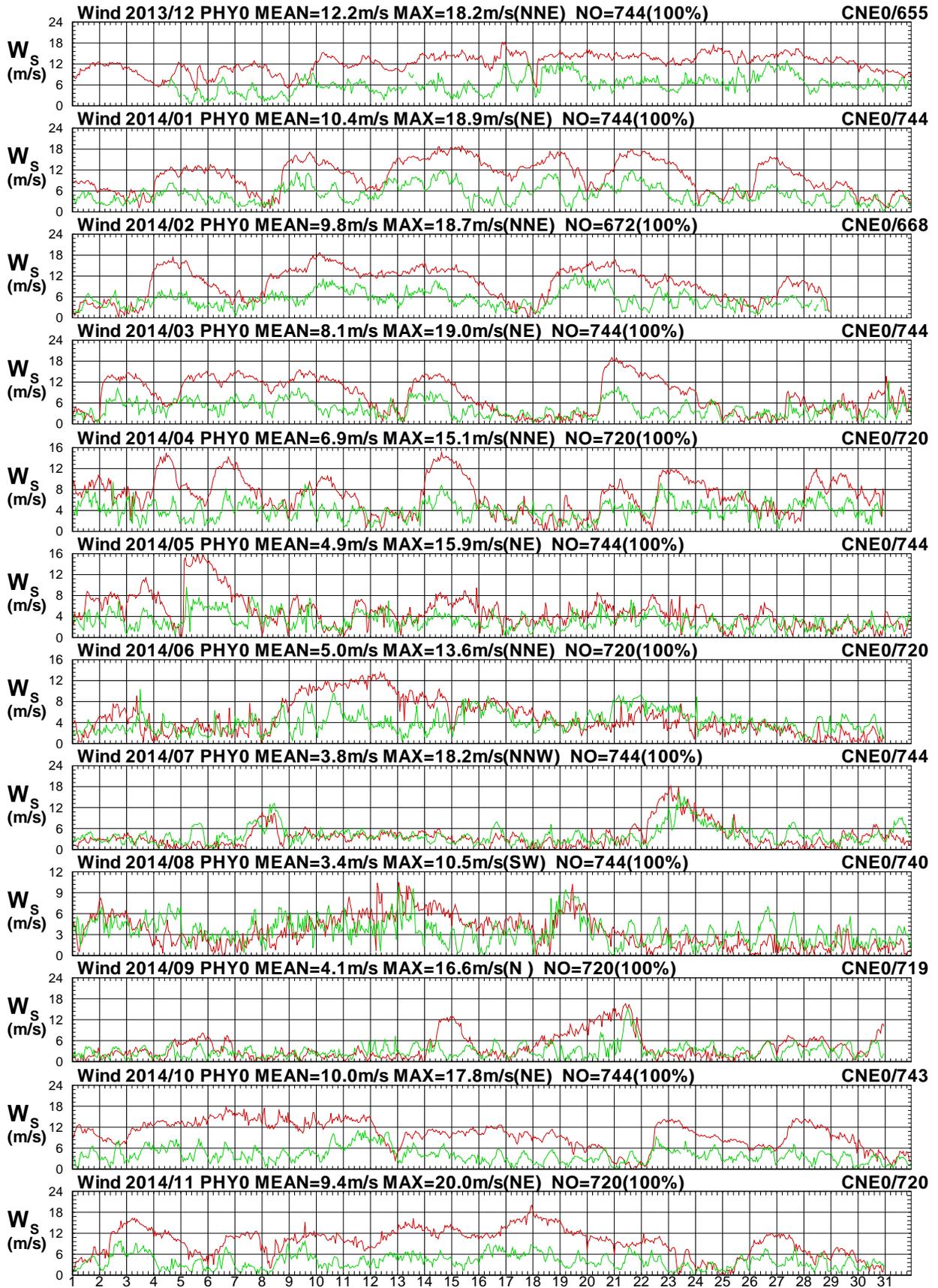


圖 1.11a 2014年每月澎湖海域 Y 站與嘉南海域 E 站風速圖

W13CPHY0.1HA W13CCNE0.1H0 W141PHY0.1HA W141CNE0.1H0 W142PHY0.1HA W142CNE0.1H0
 W143PHY0.1HA W143CNE0.1H0 W144PHY0.1HA W144CNE0.1H0 W145PHY0.1HA W145CNE0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2014

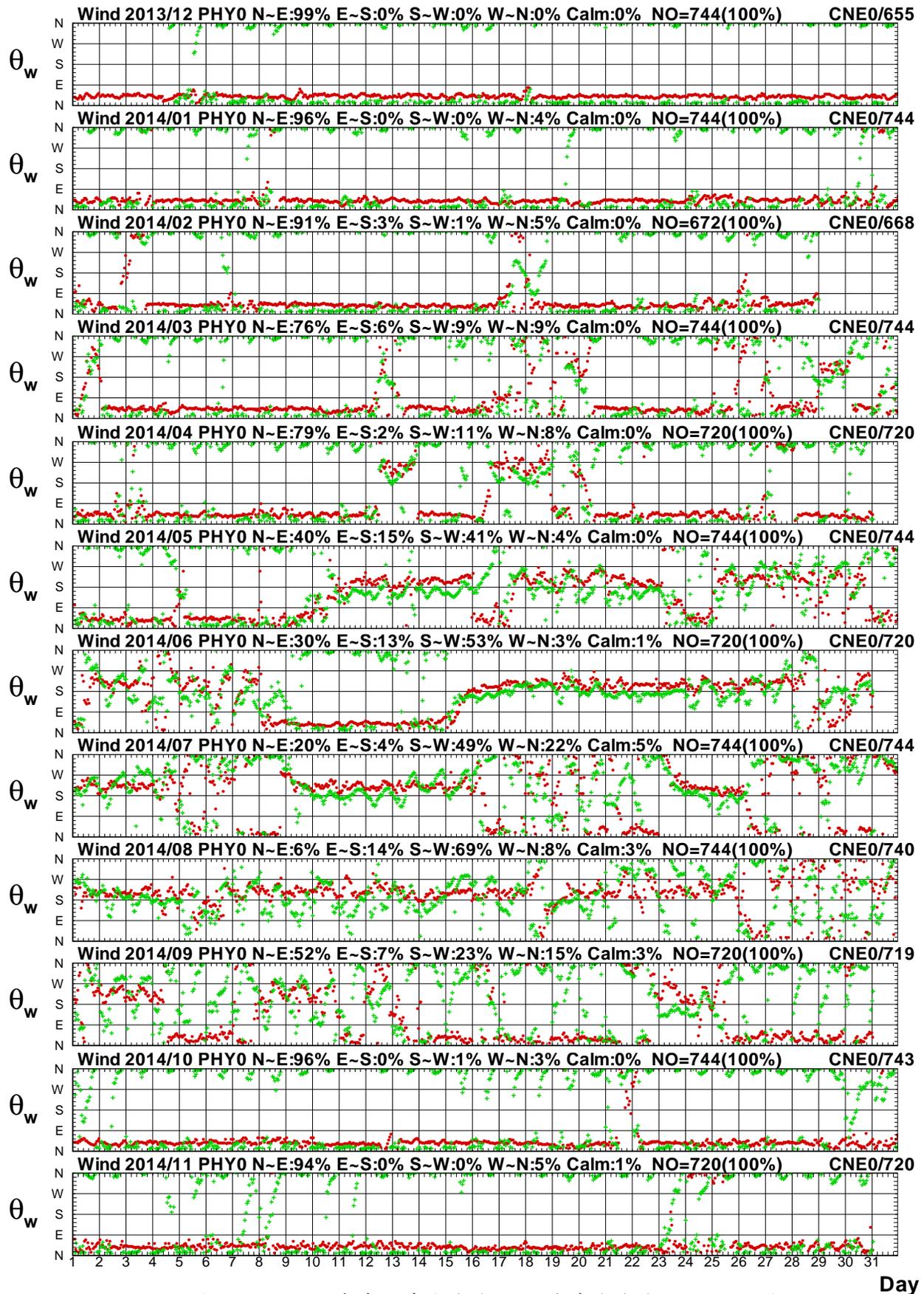


圖 1.11b 2014年每月澎湖海域 Y 站與嘉南海域 E 站風向圖

W13CPHY0.1HA W13CCNE0.1H0 W141PHY0.1HA W141CNE0.1H0 W142PHY0.1HA W142CNE0.1H0
 W143PHY0.1HA W143CNE0.1H0 W144PHY0.1HA W144CNE0.1H0 W145PHY0.1HA W145CNE0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2014

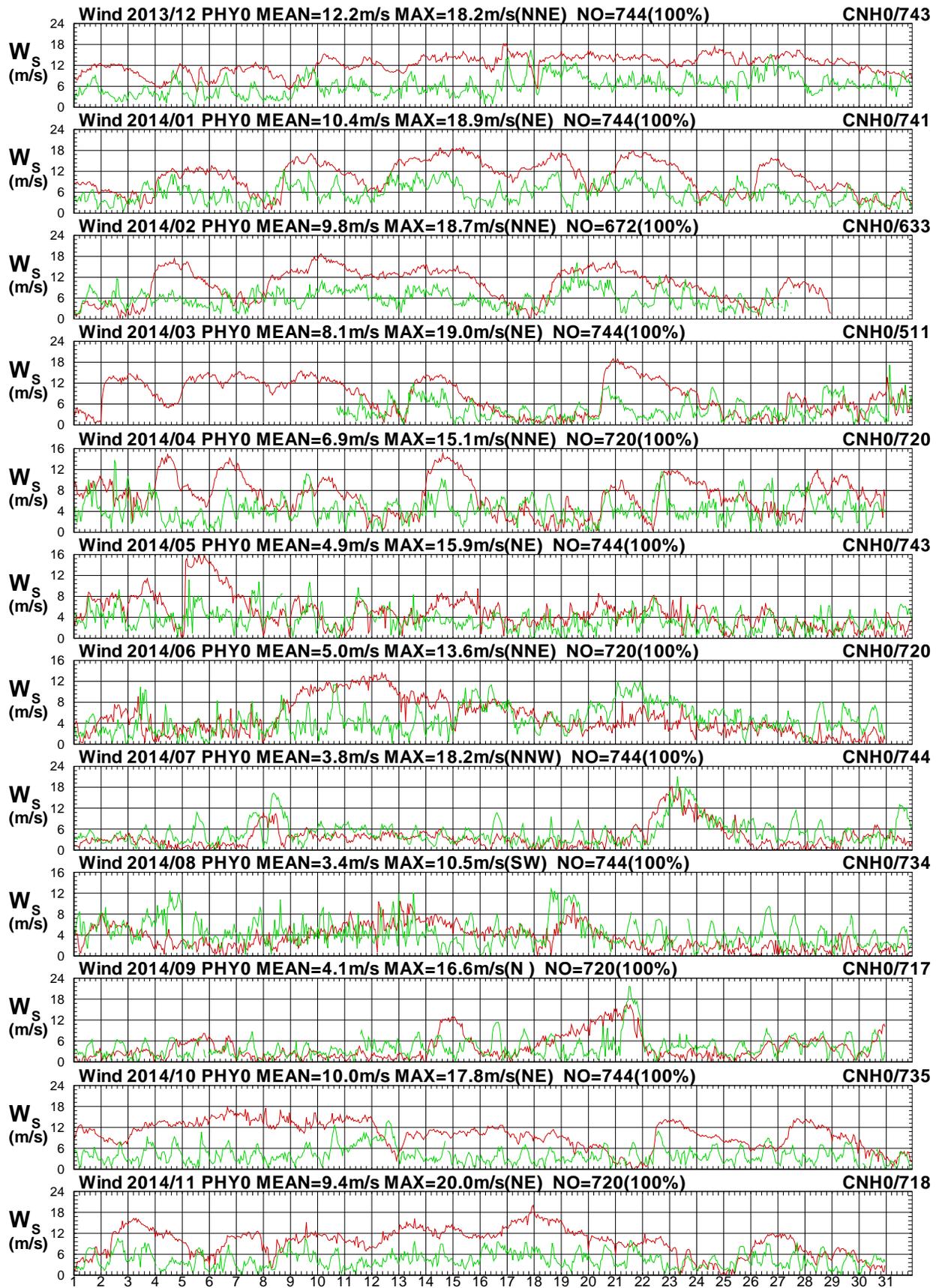


圖 1.12a 2014年每月澎湖海域 Y 站與嘉南海域 H 站風速圖

W13CPHY0.1HA W13CCNH0.1HO W141PHY0.1HA W141CNH0.1HO W142PHY0.1HA W142CNH0.1HO
 W143PHY0.1HA W143CNH0.1HO W144PHY0.1HA W144CNH0.1HO W145PHY0.1HA W145CNH0.1HO

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Wind Direction in Peng-Hu Seas of PHY0 at 2014

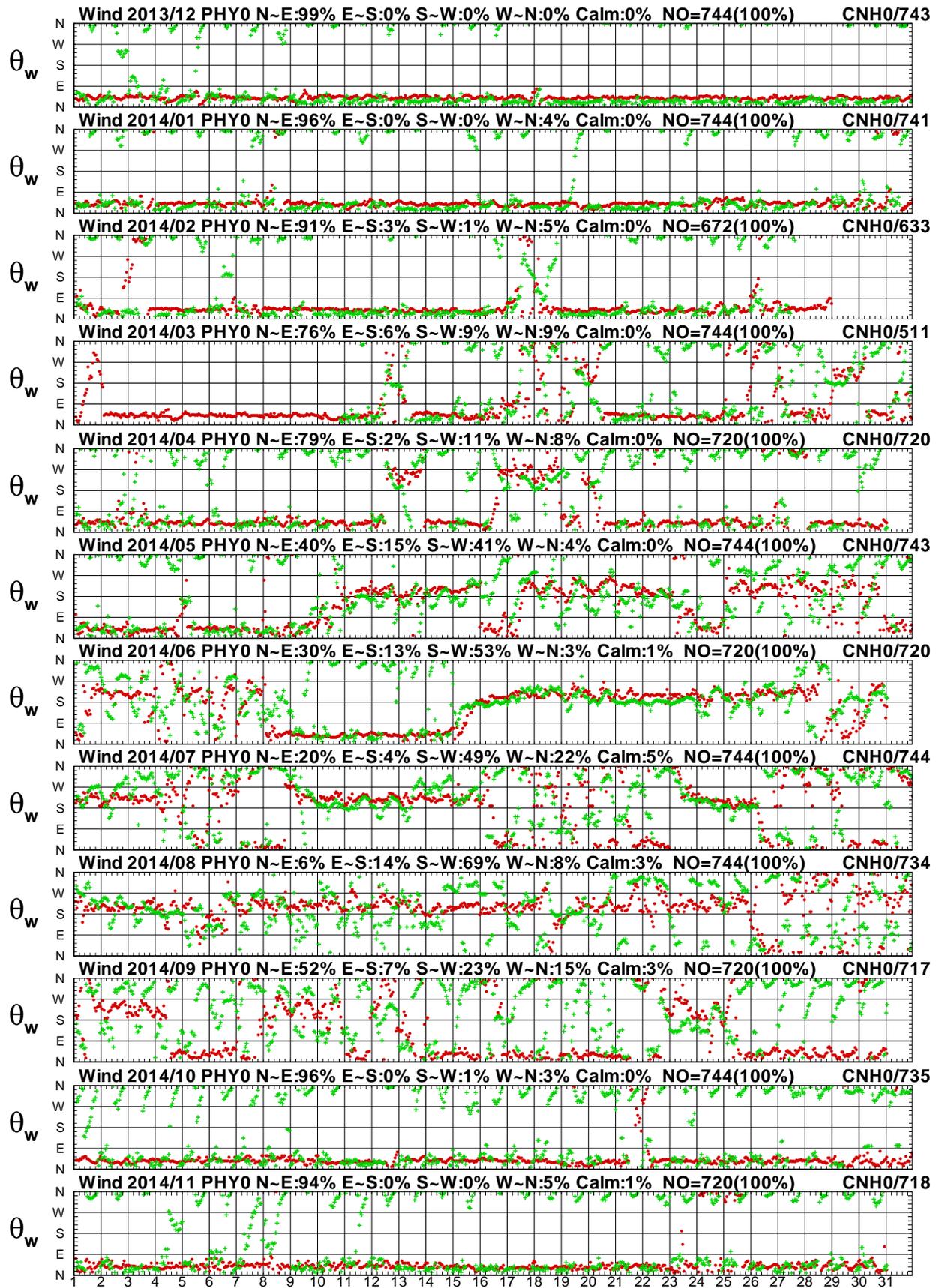


圖 1.12b 2014年每月澎湖海域 Y 站與嘉南海域 H 站風向圖

W13CPHY0.1HA W13CCNH0.1HO W141PHY0.1HA W141CNH0.1HO W142PHY0.1HA W142CNH0.1HO
 W143PHY0.1HA W143CNH0.1HO W144PHY0.1HA W144CNH0.1HO W145PHY0.1HA W145CNH0.1HO

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Wind Speed in Peng-Hu Seas of PHY0 at 2014

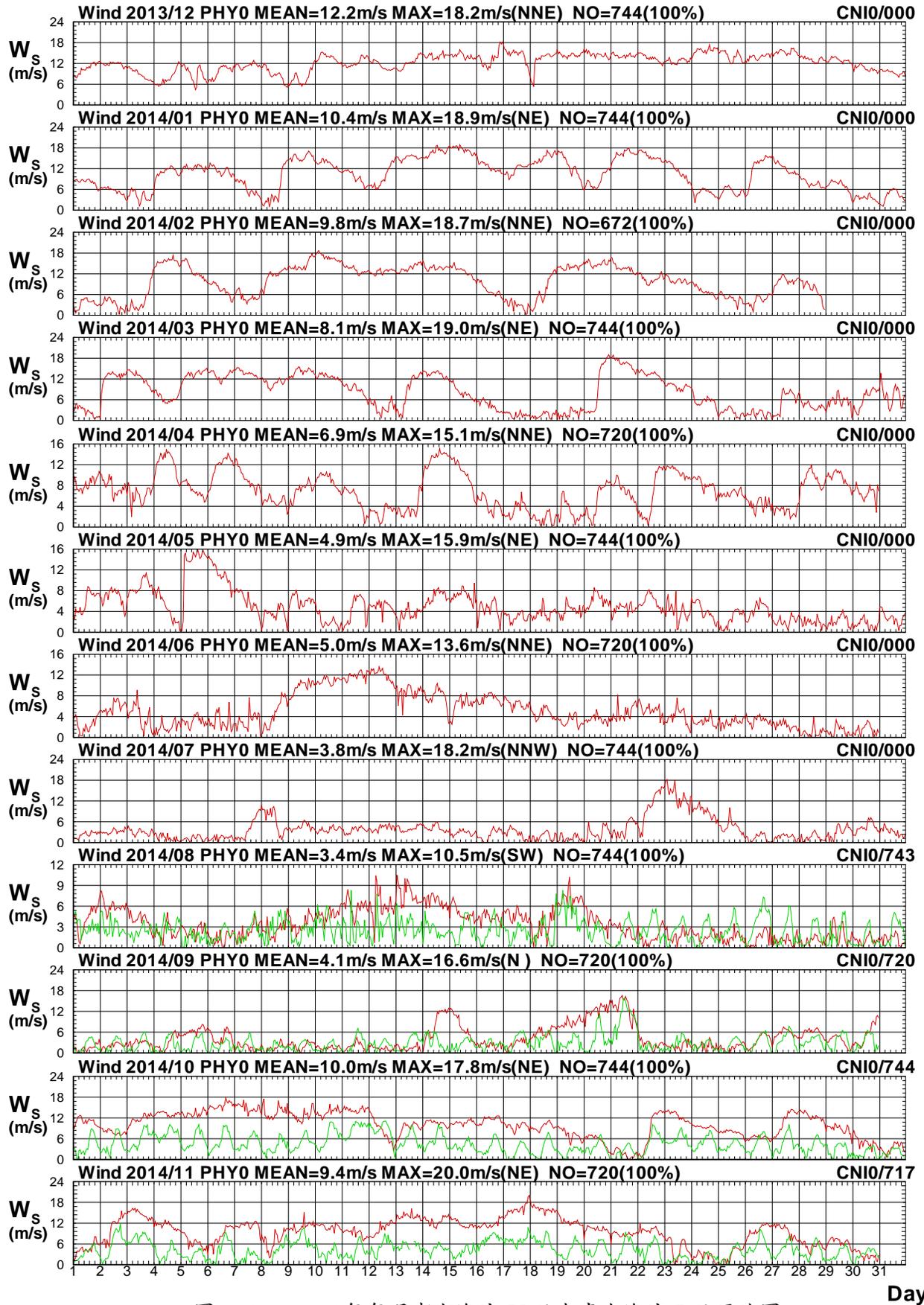


圖 1.13a 2014年每月澎湖海域 Y 站與嘉南海域 I 站風速圖

W13CPHY0.1HA W13CCNI0.1H0 W141PHY0.1HA W141CNI0.1H0 W142PHY0.1HA W142CNI0.1H0
 W143PHY0.1HA W143CNI0.1H0 W144PHY0.1HA W144CNI0.1H0 W145PHY0.1HA W145CNI0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2014

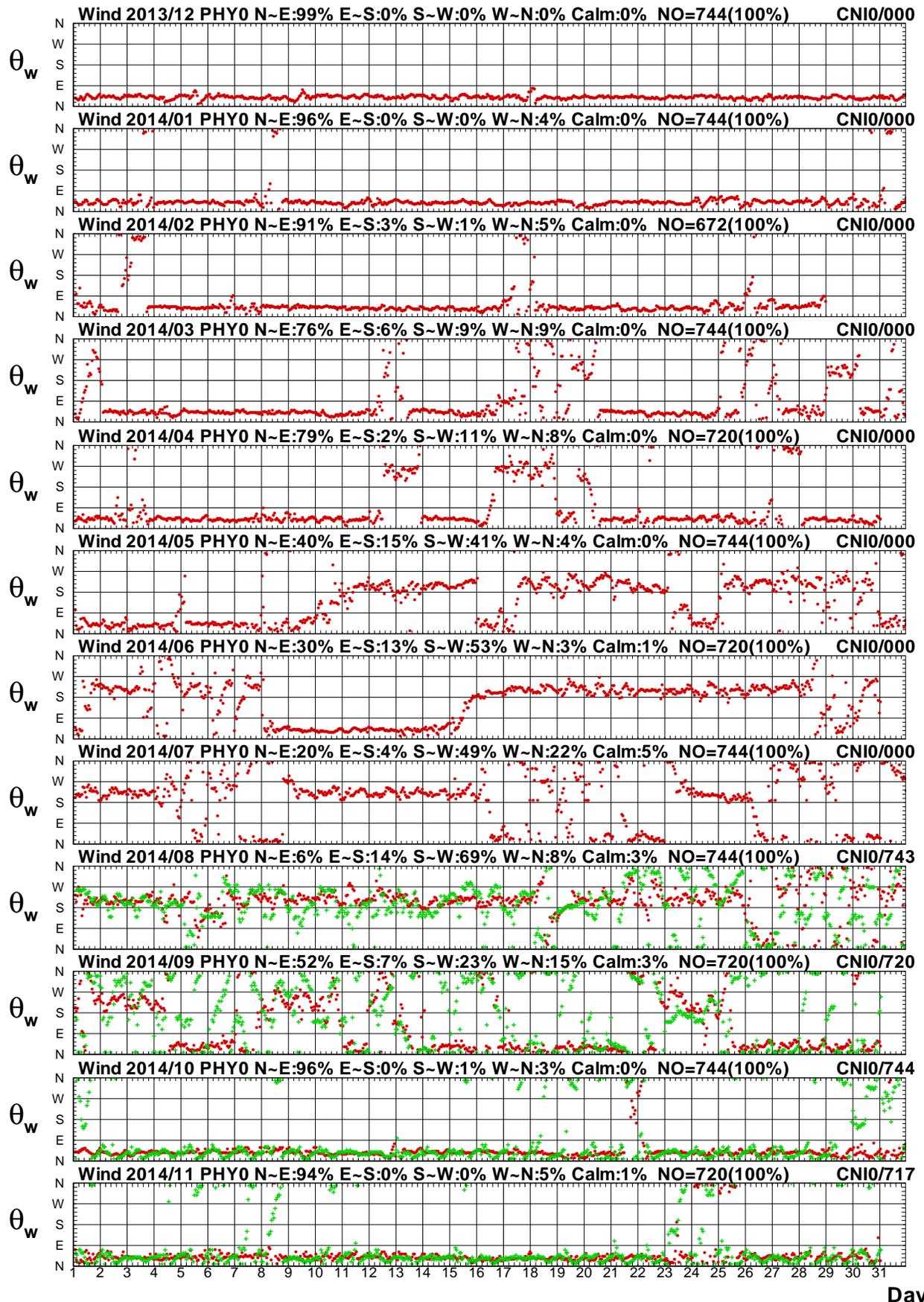


圖 1.13b 2014年每月澎湖海域 Y 站與嘉南海域 I 站風向圖

W13CPHY0.1HA W13CCNI0.1H0 W141PHY0.1HA W141CNI0.1H0 W142PHY0.1HA W142CNI0.1H0
 W143PHY0.1HA W143CNI0.1H0 W144PHY0.1HA W144CNI0.1H0 W145PHY0.1HA W145CNI0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2014

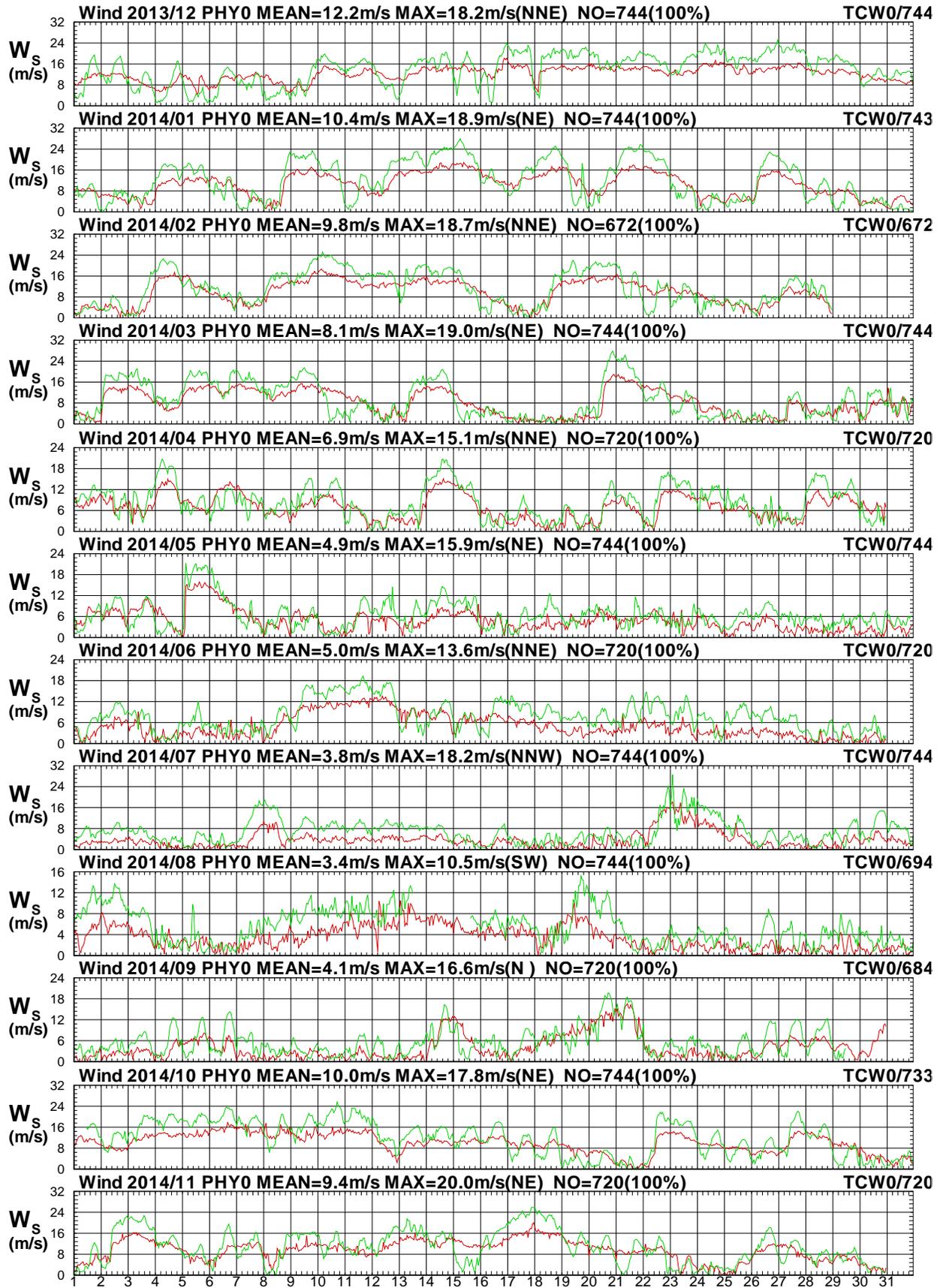


圖 1.14a 2014年每月澎湖海域 Y 站與中雲海域 W 站風速圖

W13CPHY0.1HA W13CTCW0.1H0 W141PHY0.1HA W141TCW0.1H0 W142PHY0.1HA W142TCW0.1H0
 W143PHY0.1HA W143TCW0.1H0 W144PHY0.1HA W144TCW0.1H0 W145PHY0.1HA W145TCW0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2014

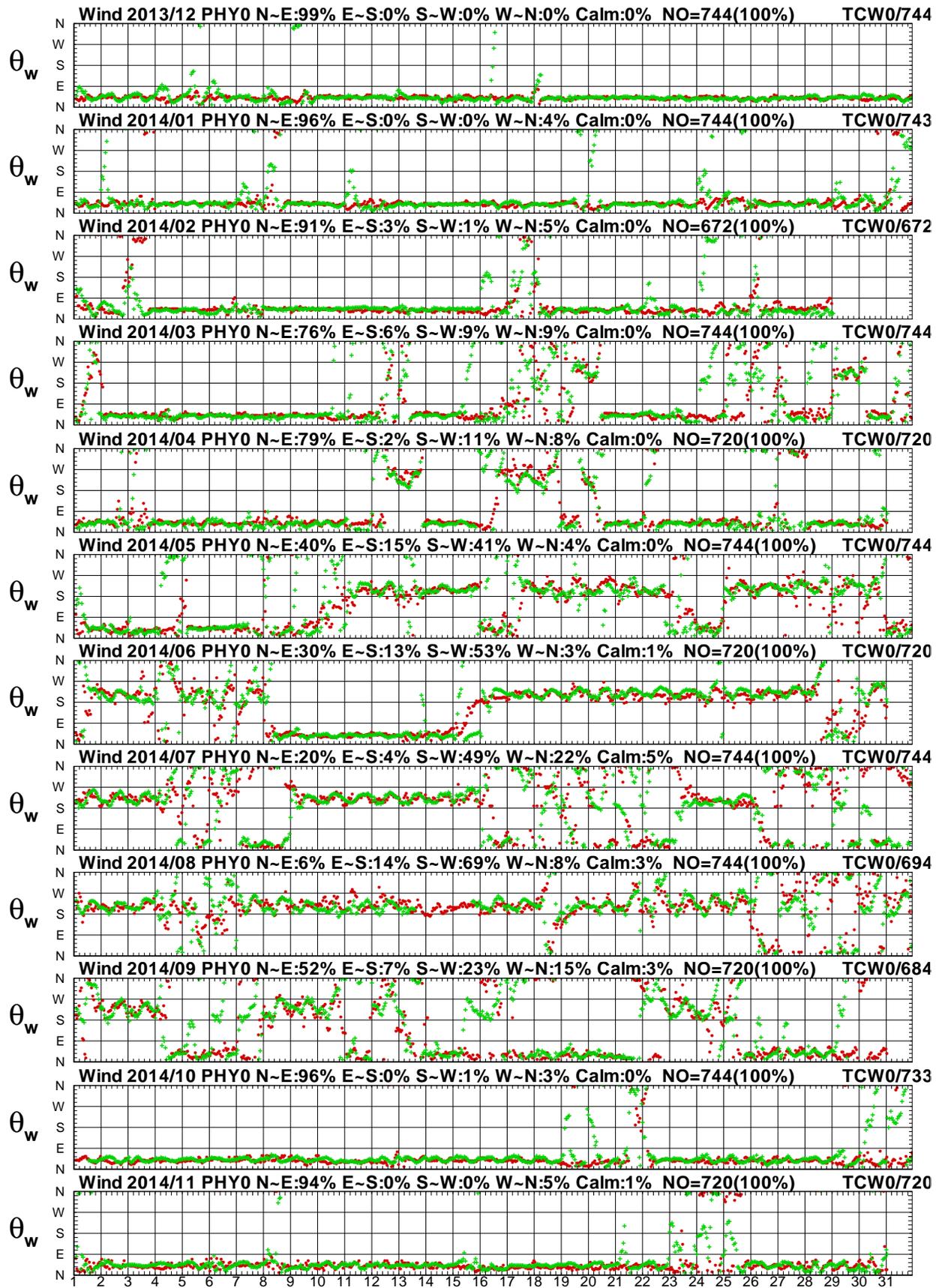


圖 1.14b 2014年每月澎湖海域 Y 站與中雲海域 W 站風向圖

W13CPHY0.1HA W13CTCW0.1H0 W141PHY0.1HA W141TCW0.1H0 W142PHY0.1HA W142TCW0.1H0
 W143PHY0.1HA W143TCW0.1H0 W144PHY0.1HA W144TCW0.1H0 W145PHY0.1HA W145TCW0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2014

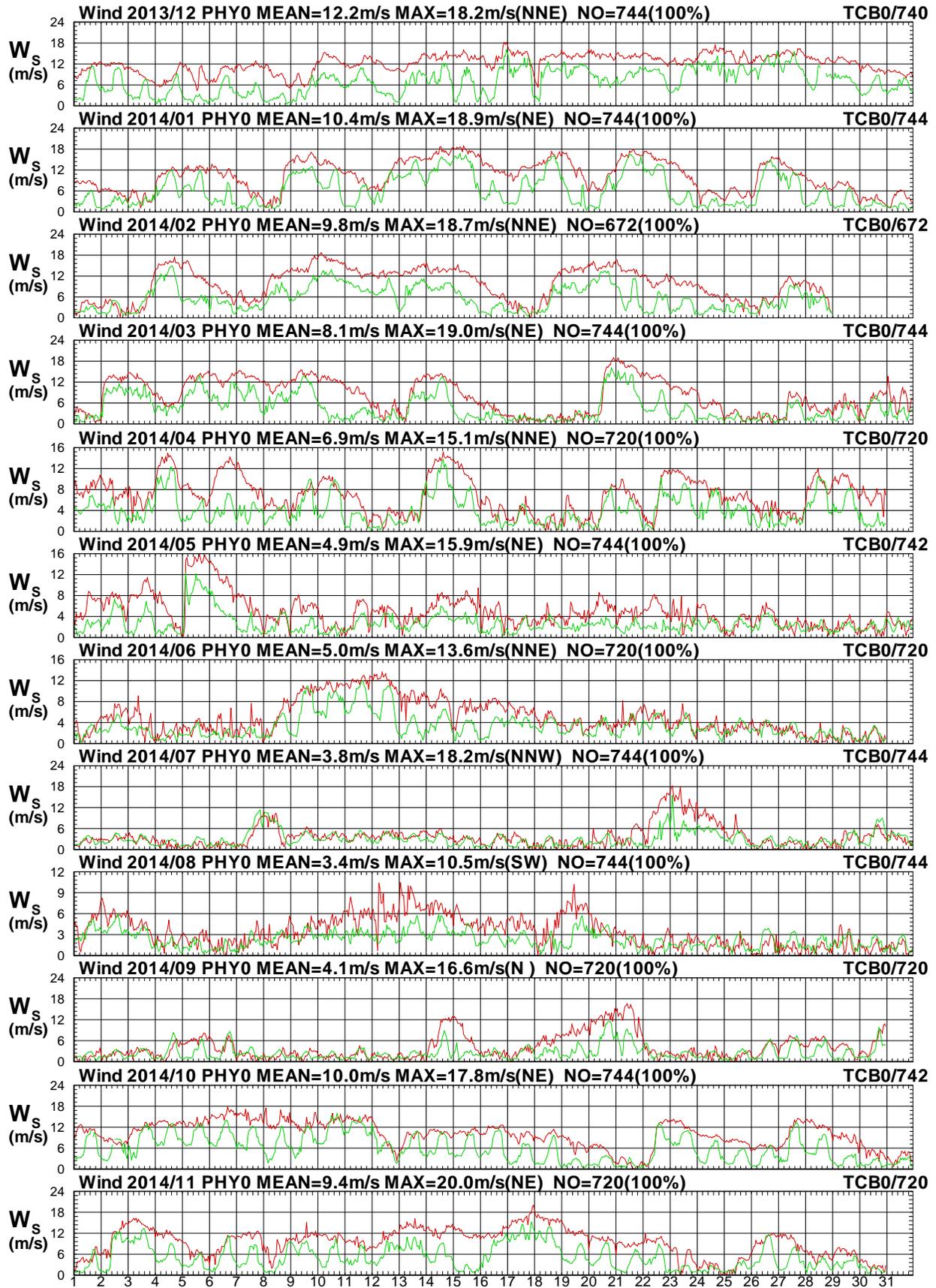


圖 1.15a 2014年每月澎湖海域 Y 站與中雲海域 B 站風速圖

W13CPHY0.1HA W13CTCB0.1H0 W141PHY0.1HA W141TCB0.1H0 W142PHY0.1HA W142TCB0.1H0
 W143PHY0.1HA W143TCB0.1H0 W144PHY0.1HA W144TCB0.1H0 W145PHY0.1HA W145TCB0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2014

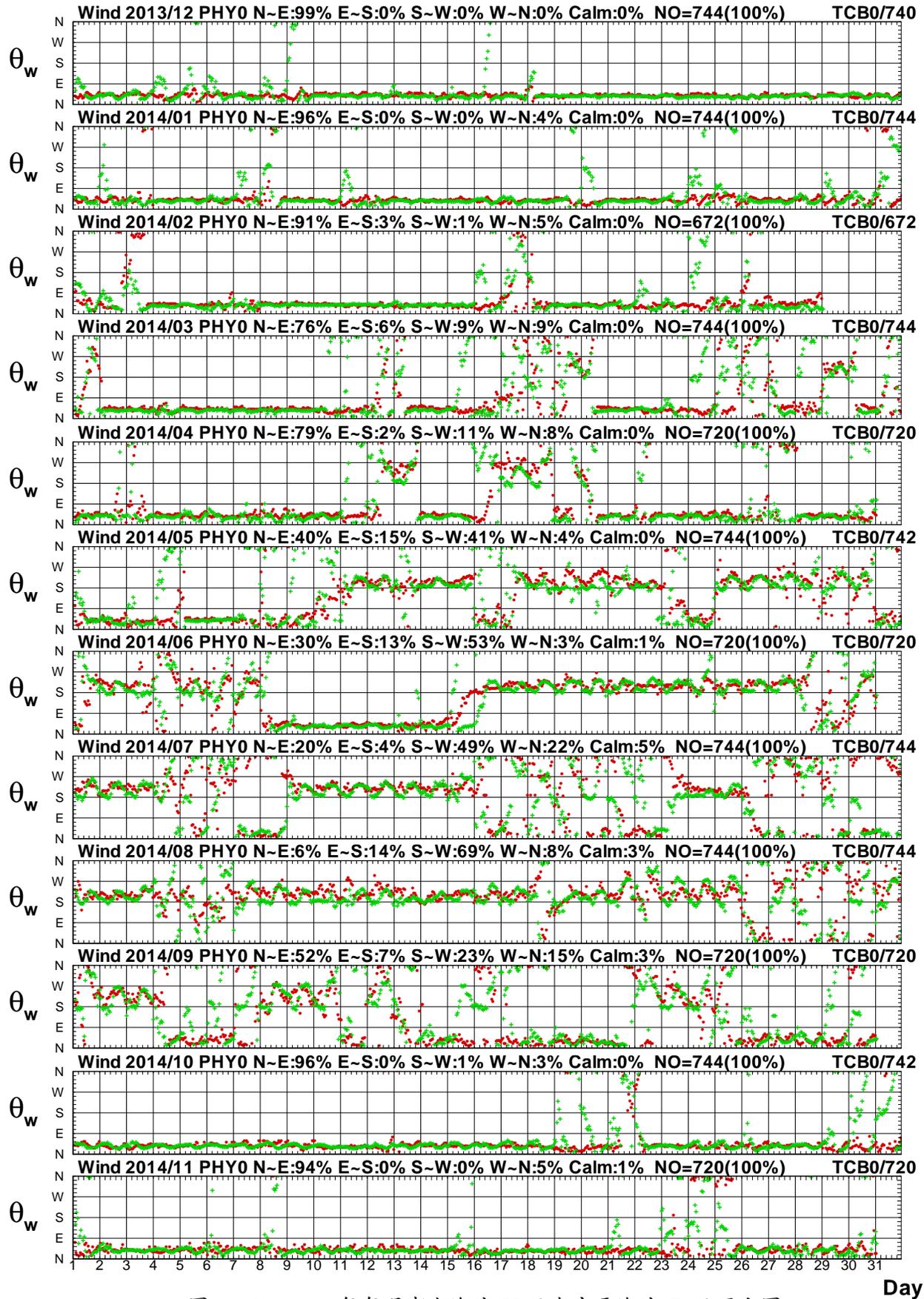


圖 1.15b 2014年每月澎湖海域 Y 站與中雲海域 B 站風向圖

W13CPHY0.1HA W13CTCB0.1H0 W141PHY0.1HA W141TCB0.1H0 W142PHY0.1HA W142TCB0.1H0
 W143PHY0.1HA W143TCB0.1H0 W144PHY0.1HA W144TCB0.1H0 W145PHY0.1HA W145TCB0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2014

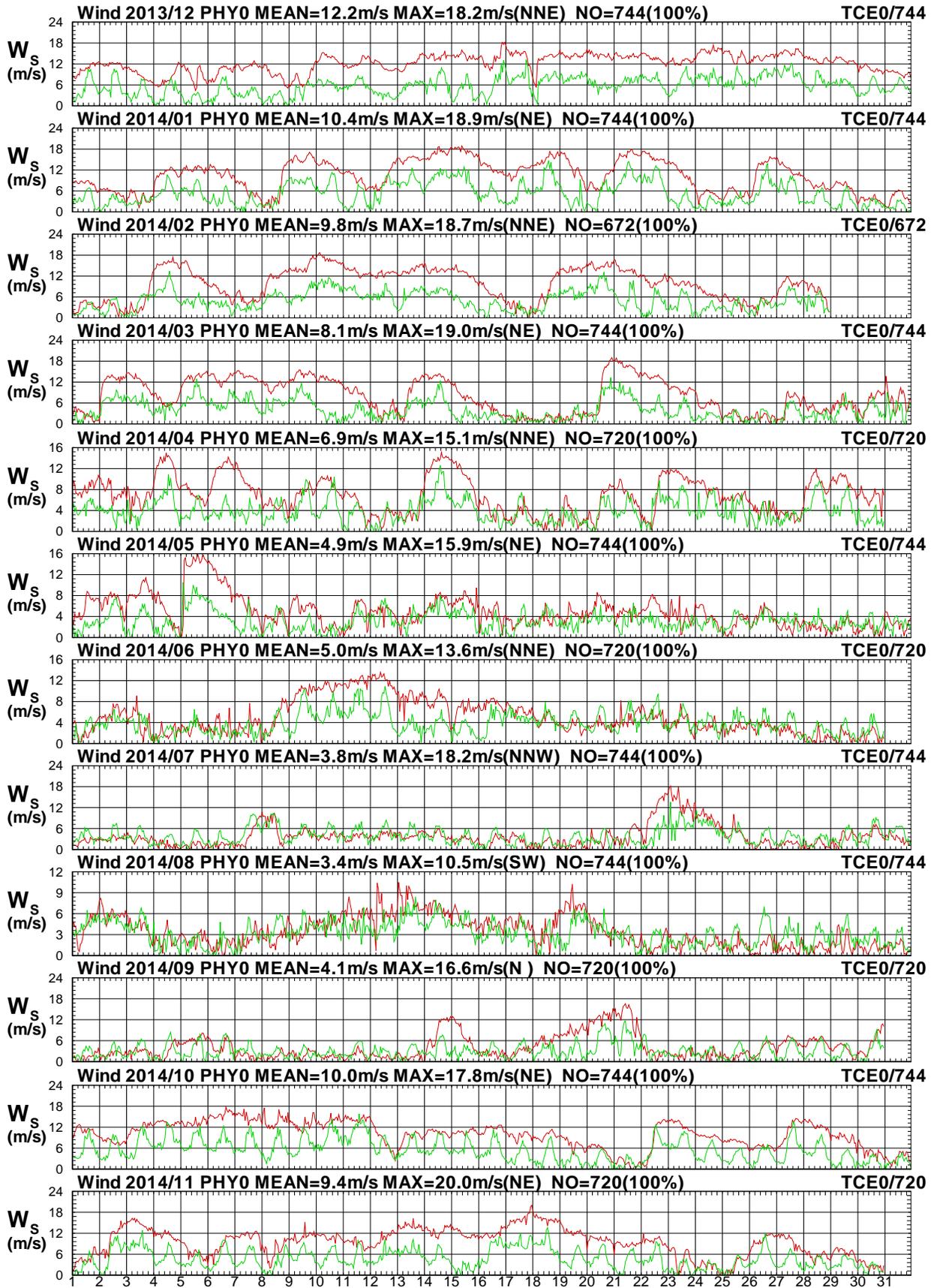


圖 1.16a 2014年每月澎湖海域 Y 站與中雲海域 E 站風速圖

W13CPHY0.1HA W13CTCE0.1H0 W141PHY0.1HA W141TCE0.1H0 W142PHY0.1HA W142TCE0.1H0
W143PHY0.1HA W143TCE0.1H0 W144PHY0.1HA W144TCE0.1H0 W145PHY0.1HA W145TCE0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2014

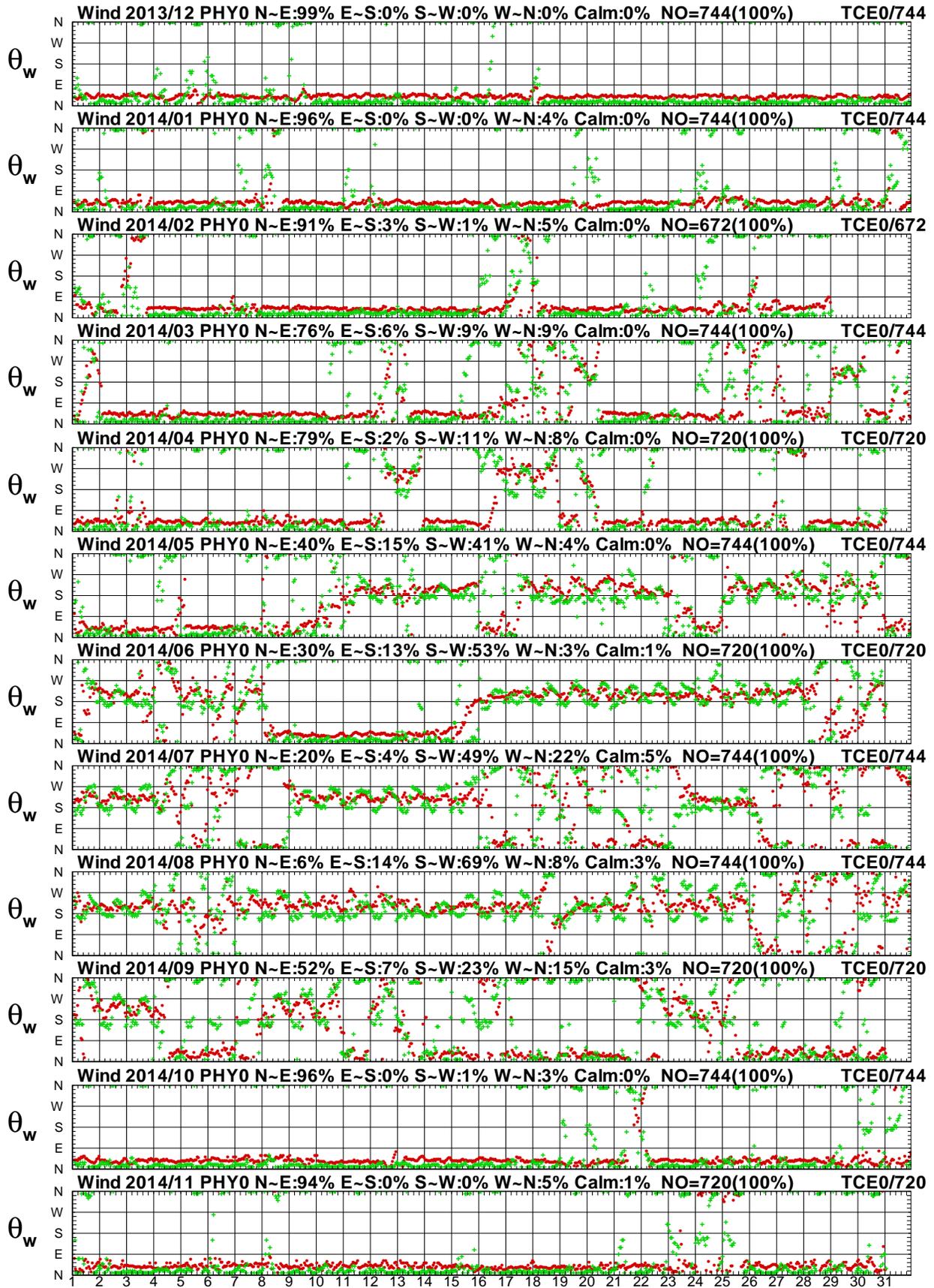


圖 1.16b 2014年每月澎湖海域 Y 站與中雲海域 E 站風向圖

W13CPHY0.1HA W13CTCE0.1H0 W141PHY0.1HA W141TCE0.1H0 W142PHY0.1HA W142TCE0.1H0
 W143PHY0.1HA W143TCE0.1H0 W144PHY0.1HA W144TCE0.1H0 W145PHY0.1HA W145TCE0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2014

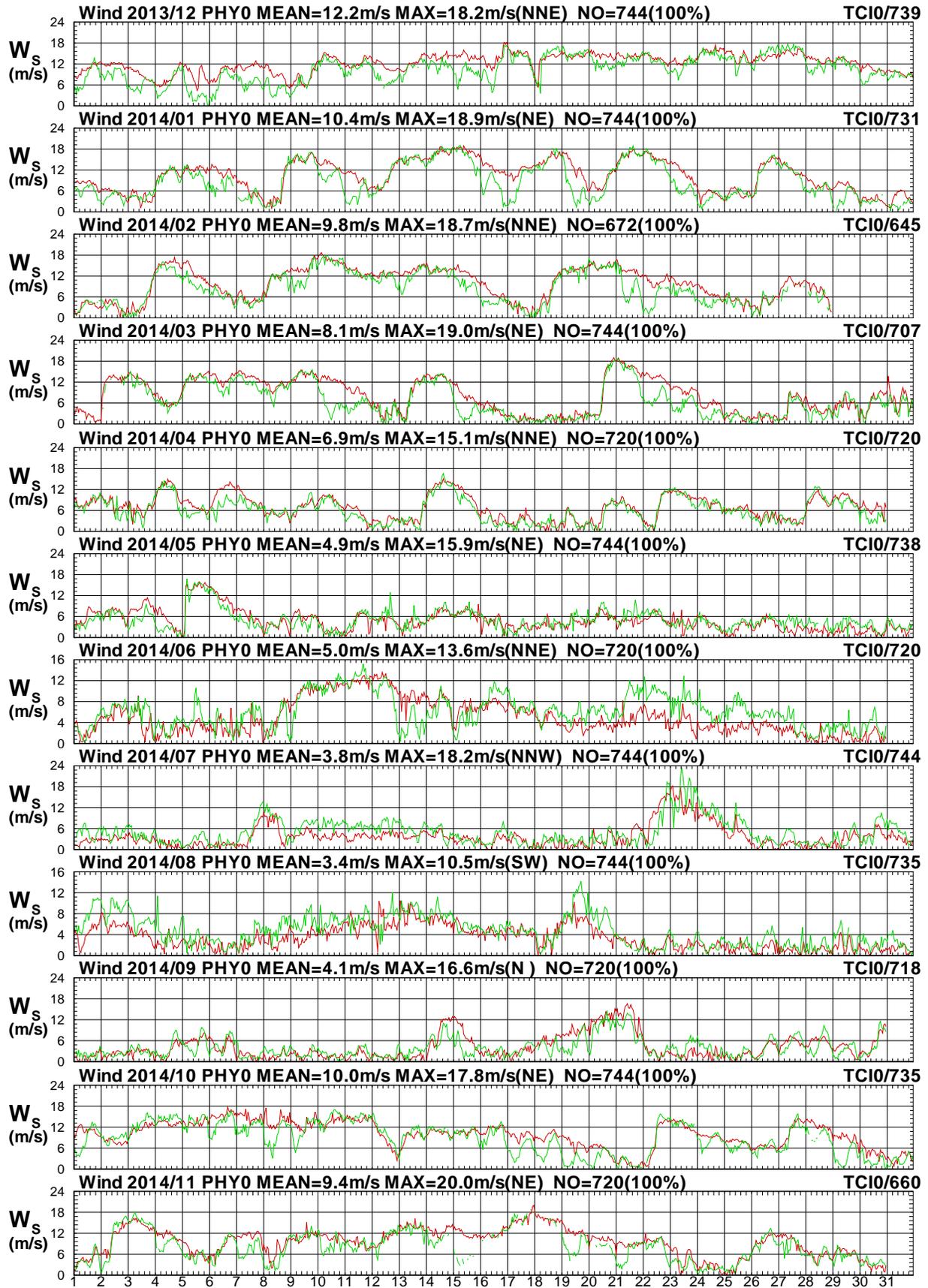


圖 1.17a 2014年每月澎湖海域 Y 站與中雲海域 I 站風速圖

W13CPHY0.1HA W13CTCIO.1HO W141PHY0.1HA W141TCIO.1HO W142PHY0.1HA W142TCIO.1HO
 W143PHY0.1HA W143TCIO.1HO W144PHY0.1HA W144TCIO.1HO W145PHY0.1HA W145TCIO.1HO

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Wind Direction in Peng-Hu Seas of PHY0 at 2014

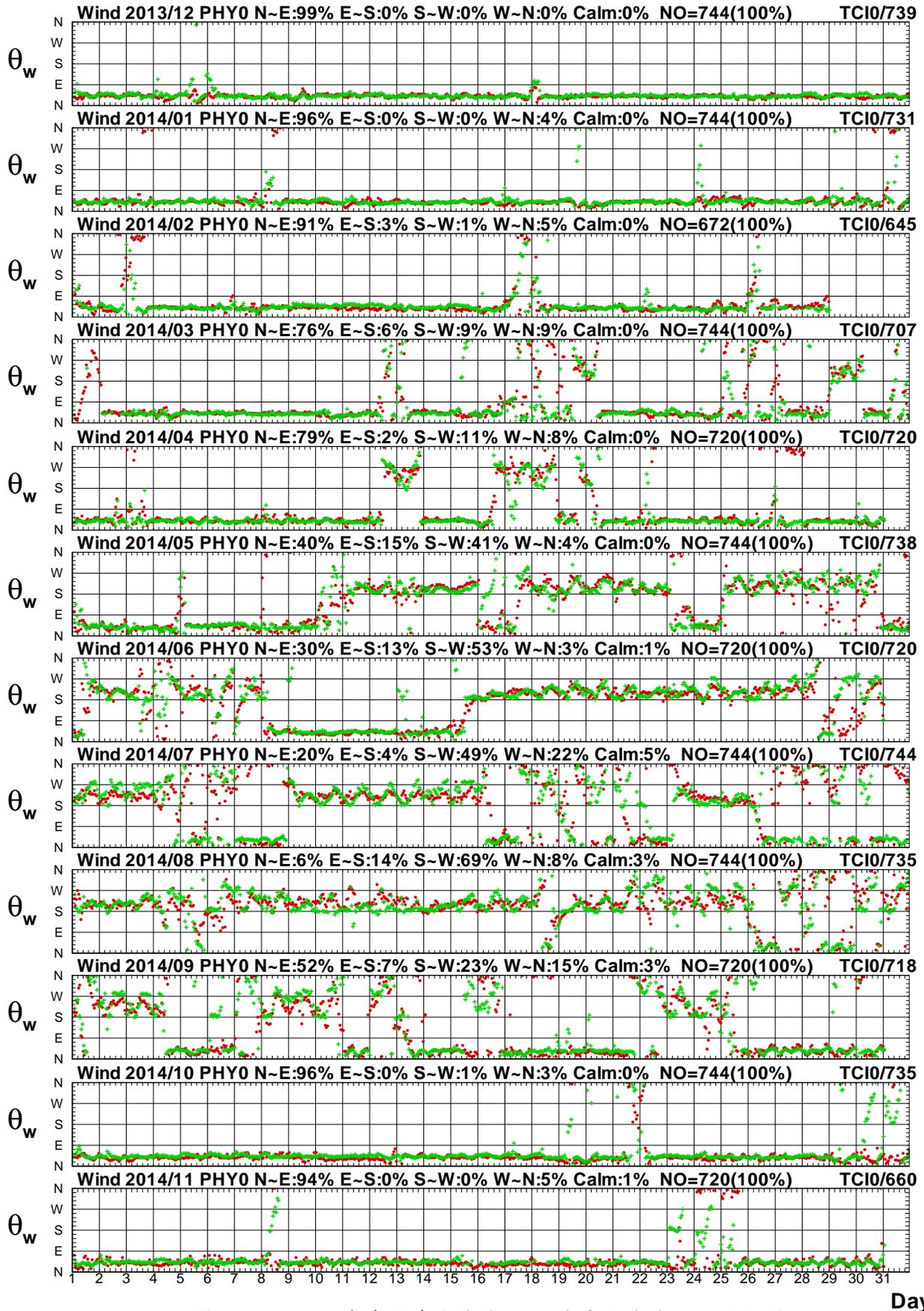


圖 1.17b 2014年每月澎湖海域 Y 站與中雲海域 I 站風向圖

W13CPHY0.1HA W13CTCI0.1H0 W141PHY0.1HA W141TCI0.1H0 W142PHY0.1HA W142TCI0.1H0
 W143PHY0.1HA W143TCI0.1H0 W144PHY0.1HA W144TCI0.1H0 W145PHY0.1HA W145TCI0.1H0

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第二章 2014 年澎湖海域觀測波浪資料

澎湖港波浪之觀測，本中心於(IHMT)2011 年 1 月安置挪威 NORTEK 公司之剖面海流表面波浪與潮汐之監測系統(簡稱 AWCP)，安裝在澎湖港龍門尖山港區波堤堤頭外(測站 X)，如附圖 2。

測站 Y(澎湖外海浮標站)之波浪儀屬水利署(WRA)所有，姑婆嶼北北西方約 1 公里處，水深 26.6 公尺浮標上。測站 Z(東吉島波浪站)之波浪儀屬中央氣象局(CWB)所有。各觀測站歷年觀測波浪資料蒐集概況如表 2。

波浪觀測 AWCP 系統有兩個分離波高量測模式：一個是對平靜波浪時，當資料由傳統式壓力感應器量測時將會因儀器佈放的深度而受很大的影響。此時，表面高度必須用一個聲波式的高度感應器量測波高。AWCP 波向量測範圍：波向的量測從海面下 3 米以上的流向資料與波高資料計算轉換而得。對攪動的海況來說；用於轉換波向的該層深度應該自動被調整為平均水位也就是 $H_{max}/2$ 。量測的參數為：平均波向及波向分佈，波向單位為度。

本波浪年報以取經檢核或修補後之 Y 站資料作為**主要觀測站**，2014 年主要觀測站修補前(後)每月觀測之波浪資料記錄期間統計表，如表 2.1a，2014 年波浪**次要觀測站**資料(未補餘)記錄統計表，如表 2.1b，**主要觀測站修補前後**每月波浪歷線比較圖，如圖 2.1，**主要觀測站與次要觀測站(或其他觀測站)**每月波浪歷線比較圖，如圖 2.2 以後。

表 2 澎湖海域觀測波浪資料蒐集概況表(統計時間至 2014 年 11 月)

測站	緯度	經度	觀測期間	觀測單位	備註
X	23°33'21"N	119°40'31"E	2011/01-2014/11(觀測中)	港研中心	龍門尖山港外海
Y	23°43'37"N	119°33'07"E	2006/09-2014/11(觀測中)	水利署	澎湖資料浮標
Z	23°15'23"N	119°41'2"E	2013/10-2014/11(觀測中)	中央氣象局	東吉島波浪站



圖 2 澎湖海域波浪觀測站位置示意圖

表 2.1a 2014年每月澎湖海域修補前各測站觀測波浪資料紀錄統計表

年/月 港區	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域
測站	Y	X	Z	R				
2013/12月	744 (100%)	471 (63.3%)	735 (98.8%)	*	*	*	*	*
2014/ 1月	726 (97.6%)	700 (94.1%)	744 (100%)	*	*	*	*	*
2014/ 2月	652 (97.0%)	574 (85.4%)	672 (100%)	*	*	*	*	*
2014/ 3月	742 (99.7%)	*	744 (100%)	*	*	*	*	*
2014/ 4月	715 (99.3%)	307 (42.6%)	720 (100%)	*	*	*	*	*
2014/ 5月	733 (98.5%)	717 (96.4%)	734 (98.7%)	*	*	*	*	*
2014/ 6月	679 (94.3%)	701 (97.4%)	713 (99.0%)	*	*	*	*	*
2014/ 7月	724 (97.3%)	710 (95.4%)	744 (100%)	*	*	*	*	*
2014/ 8月	739 (99.3%)	736 (98.9%)	742 (99.7%)	*	*	*	*	*
2014/ 9月	701 (97.4%)	718 (99.7%)	720 (100%)	*	*	*	*	*
2014/10月	727 (97.7%)	743 (99.9%)	744 (100%)	*	*	*	*	*
2014/11月	680 (94.4%)	712 (98.9%)	720 (100%)	*	*	*	*	*
2014/冬季	2122 (98.2%)	1745 (80.8%)	2151 (99.6%)	*	*	*	*	*
2014/春季	2190 (99.2%)	1024 (46.4%)	2198 (99.5%)	*	*	*	*	*
2014/夏季	2142 (97.0%)	2147 (97.2%)	2199 (99.6%)	*	*	*	*	*
2014/秋季	2108 (96.5%)	2173 (99.5%)	2184 (100%)	*	*	*	*	*
2014/整年	8562 (97.7%)	7089 (80.9%)	8732 (99.7%)	*	*	*	*	*
起始年月	2013/12	2013/12	2013/12	*	*	*	*	*
結束年月	2014/11	2014/11	2014/11	*	*	*	*	*

表 2.1b 2014年每月澎湖海域修補後各測站波浪資料統計表

年/月 港區	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域
測站	Y	X	Z	R				
2013/12月	744 (100%)	744 (100%)	744 (100%)	*	*	*	*	*
2014/ 1月	744 (100%)	744 (100%)	744 (100%)	*	*	*	*	*
2014/ 2月	672 (100%)	672 (100%)	672 (100%)	*	*	*	*	*
2014/ 3月	744 (100%)	744 (100%)	744 (100%)	*	*	*	*	*
2014/ 4月	720 (100%)	720 (100%)	720 (100%)	*	*	*	*	*
2014/ 5月	744 (100%)	744 (100%)	744 (100%)	*	*	*	*	*
2014/ 6月	720 (100%)	720 (100%)	720 (100%)	*	*	*	*	*
2014/ 7月	744 (100%)	744 (100%)	744 (100%)	*	*	*	*	*
2014/ 8月	744 (100%)	744 (100%)	744 (100%)	*	*	*	*	*
2014/ 9月	720 (100%)	720 (100%)	720 (100%)	*	*	*	*	*
2014/10月	744 (100%)	744 (100%)	744 (100%)	*	*	*	*	*
2014/11月	720 (100%)	720 (100%)	720 (100%)	*	*	*	*	*
2014/冬季	2160 (100%)	*	*	*	*	*	*	*
2014/春季	2208 (100%)	*	*	*	*	*	*	*
2014/夏季	2208 (100%)	*	*	*	*	*	*	*
2014/秋季	2184 (100%)	*	*	*	*	*	*	*
2014/整年	8760 (100%)	*	*	*	*	*	*	*
起始年月	2013/12	*	*	*	*	*	*	*
結束年月	2014/11	*	*	*	*	*	*	*

Wave H_s in Peng-Hu Seas of PHY0 at 2014

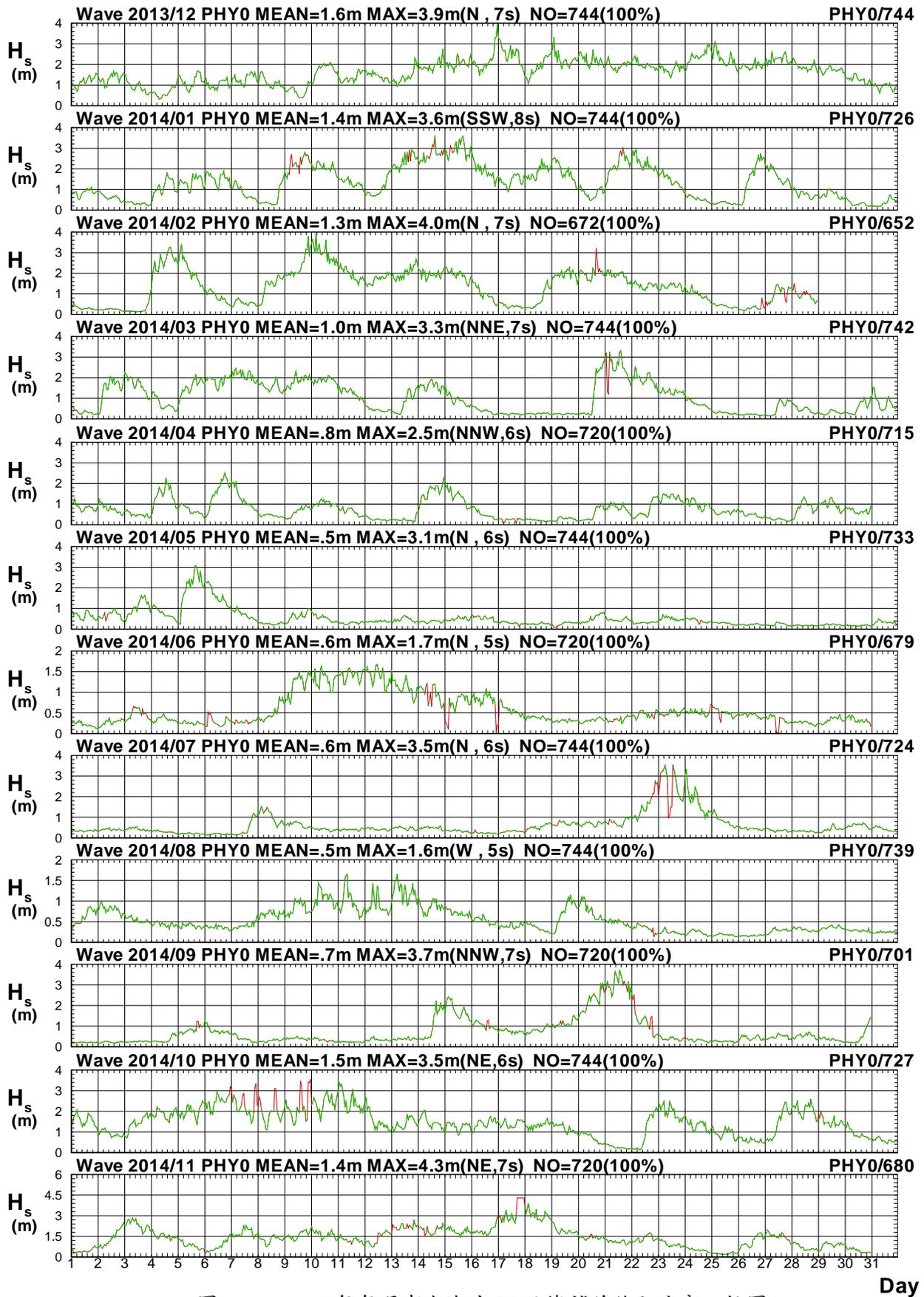


圖 2.1a 2014年每月澎湖海域 Y 站修補前後之波高比較圖

V13CPHY0.1HA V13CPHY0.1HO V141PHY0.1HA V141PHY0.1HO V142PHY0.1HA V142PHY0.1HO
 V143PHY0.1HA V143PHY0.1HO V144PHY0.1HA V144PHY0.1HO V145PHY0.1HA V145PHY0.1HO

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Wave T_p in Peng-Hu Seas of PHY0 at 2014

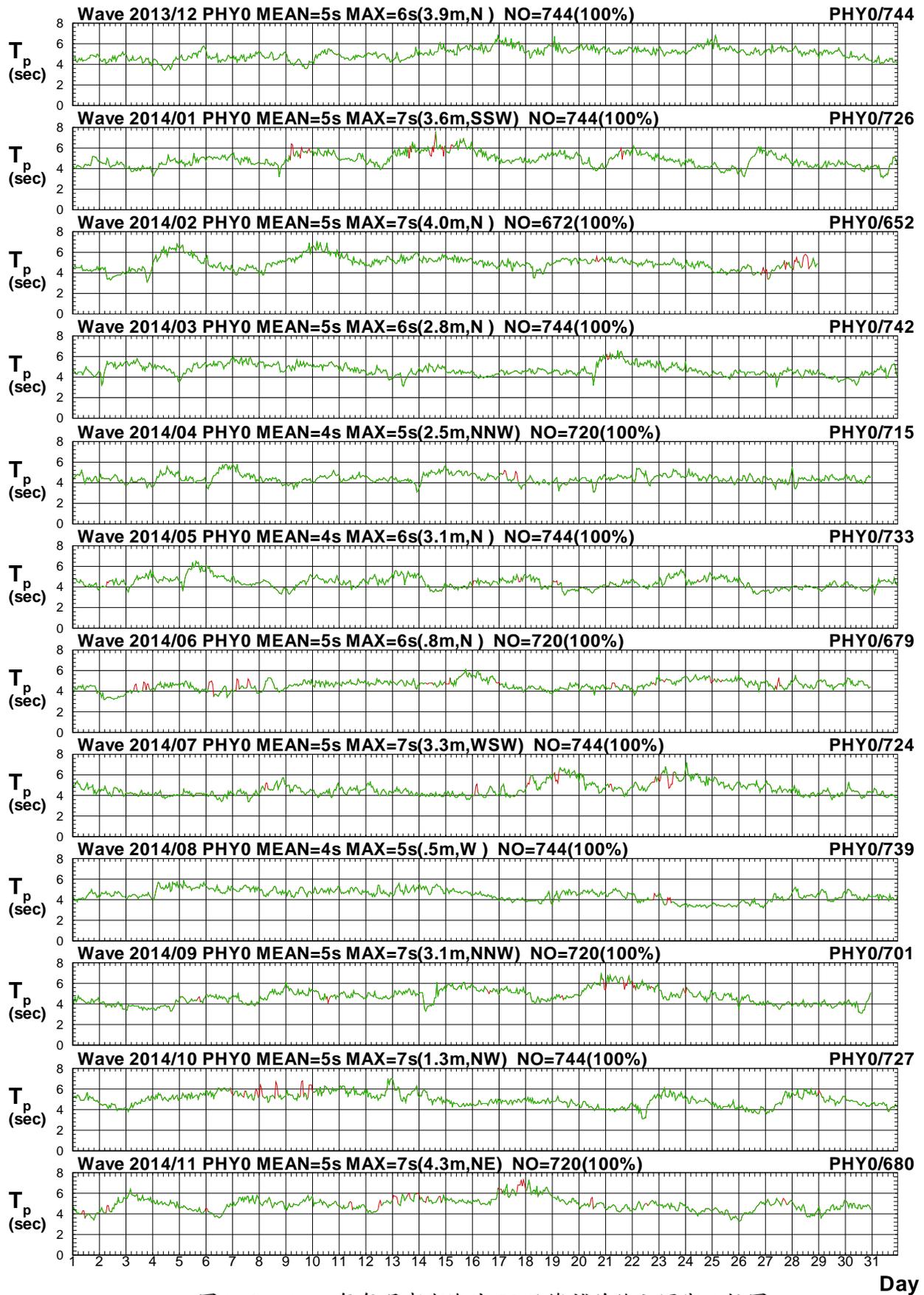


圖 2.1b 2014年每月澎湖海域 Y 站修補前後之週期比較圖

V13CPHY0.1HA V13CPHY0.1HO V141PHY0.1HA V141PHY0.1HO V142PHY0.1HA V142PHY0.1HO
 V143PHY0.1HA V143PHY0.1HO V144PHY0.1HA V144PHY0.1HO V145PHY0.1HA V145PHY0.1HO

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Wave Direction in Peng-Hu Seas of PHY0 at 2014

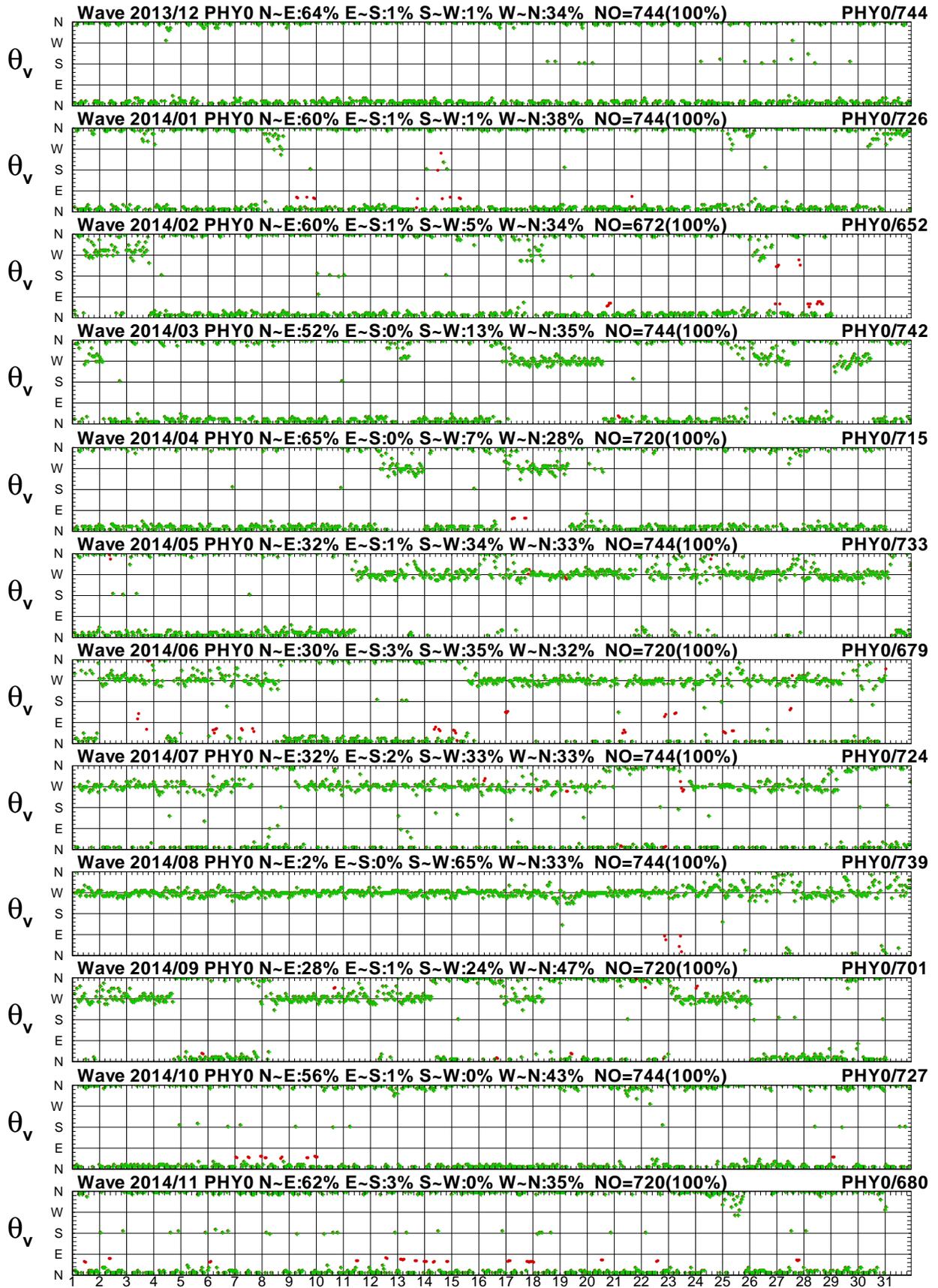


圖 2.1c 2014年每月澎湖海域 Y 站修補前後之波向比較圖

V13CPHY0.1HA V13CPHY0.1HO V141PHY0.1HA V141PHY0.1HO V142PHY0.1HA V142PHY0.1HO
 V143PHY0.1HA V143PHY0.1HO V144PHY0.1HA V144PHY0.1HO V145PHY0.1HA V145PHY0.1HO

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Wave H_s in Peng-Hu Seas of PHY0 at 2014

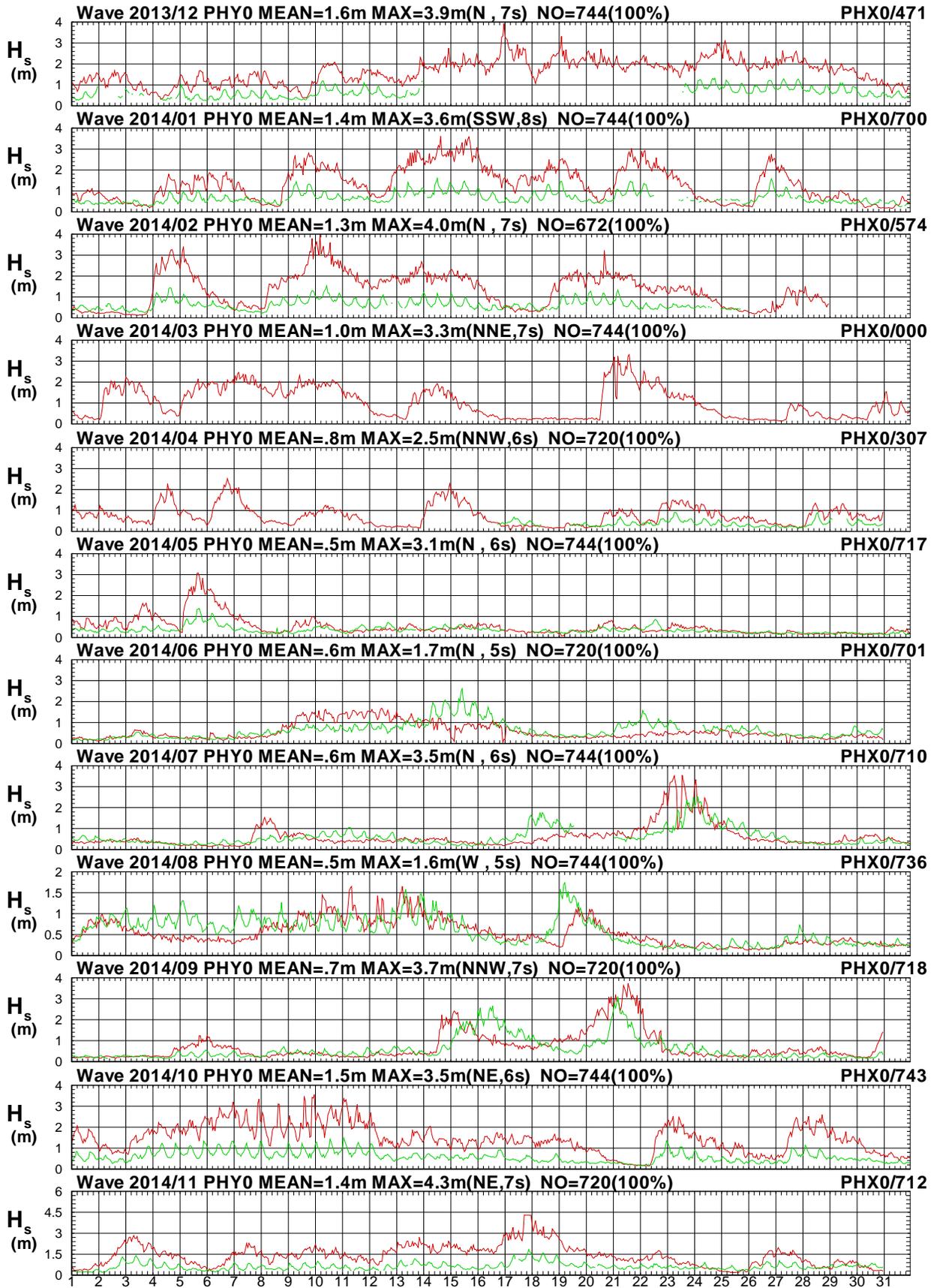


圖 2.2a 2014年每月澎湖海域 Y 站與 X 站波高比較圖

V13CPHY0.1HA V13CPHX0.1HO V141PHY0.1HA V141PHX0.1HO V142PHY0.1HA V142PHX0.1HO
 V143PHY0.1HA V143PHX0.1HO V144PHY0.1HA V144PHX0.1HO V145PHY0.1HA V145PHX0.1HO

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Wave T_p in Peng-Hu Seas of PHY0 at 2014

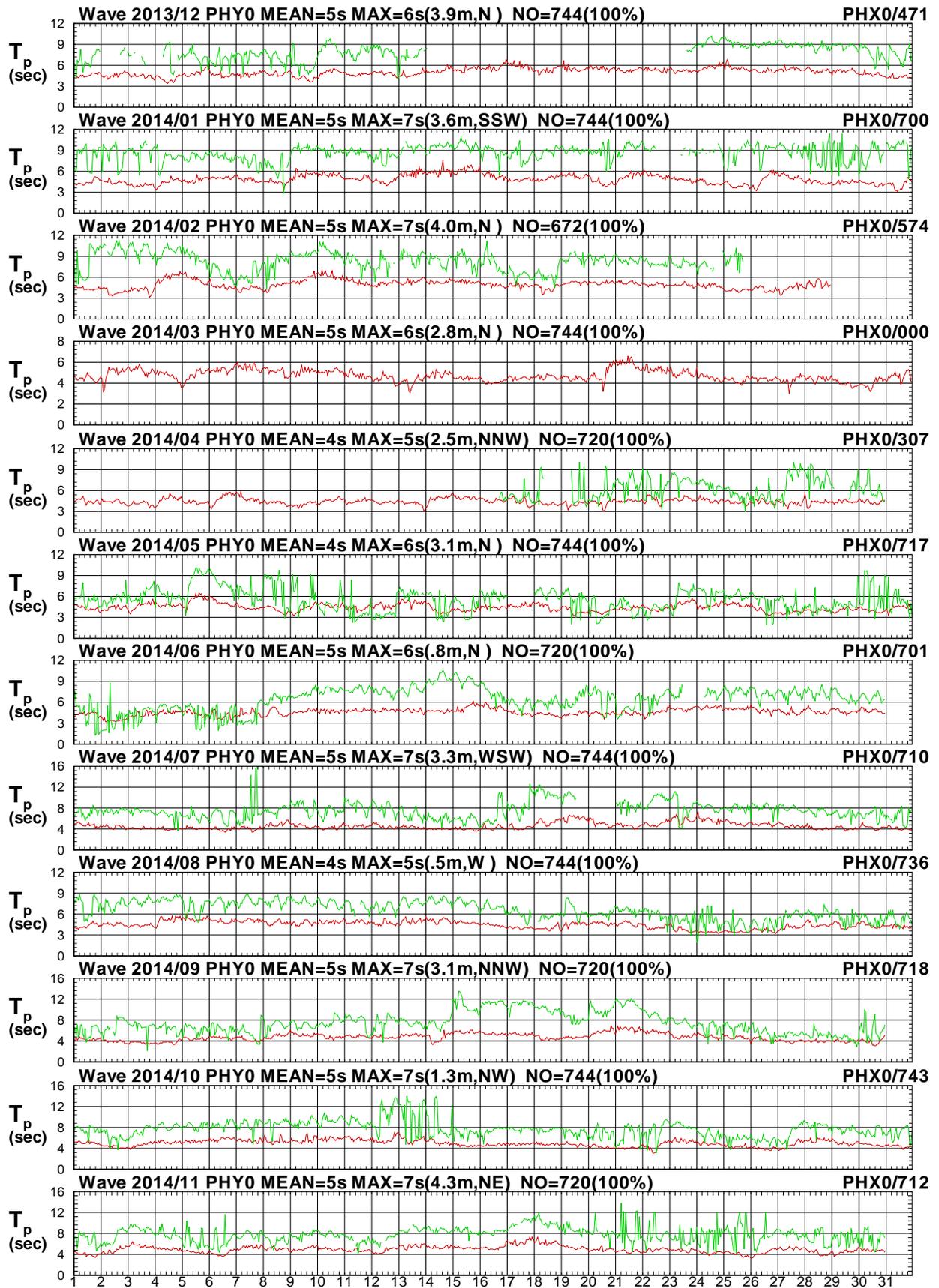


圖 2.2b 2014年每月澎湖海域 Y 站與 X 站週期比較圖

Day

V13CPHY0.1HA V13CPHX0.1HO V141PHY0.1HA V141PHX0.1HO V142PHY0.1HA V142PHX0.1HO
 V143PHY0.1HA V143PHX0.1HO V144PHY0.1HA V144PHX0.1HO V145PHY0.1HA V145PHX0.1HO

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Wave Direction in Peng-Hu Seas of PHY0 at 2014

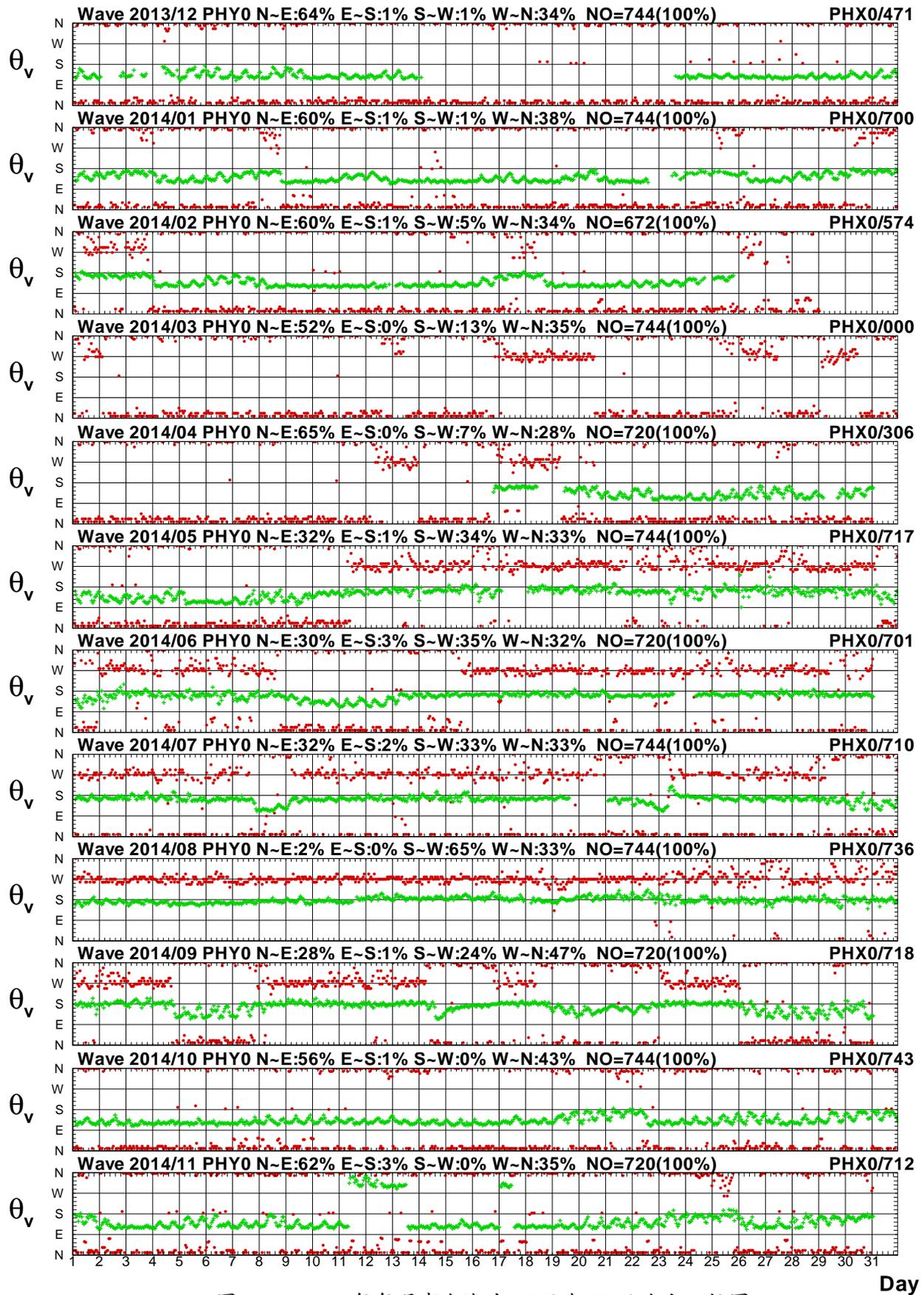


圖 2.2c 2014年每月澎湖海域 Y 站與 X 站波向比較圖

V13CPHY0.1HA V13CPHX0.1H0 V141PHY0.1HA V141PHX0.1H0 V142PHY0.1HA V142PHX0.1H0
 V143PHY0.1HA V143PHX0.1H0 V144PHY0.1HA V144PHX0.1H0 V145PHY0.1HA V145PHX0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2014

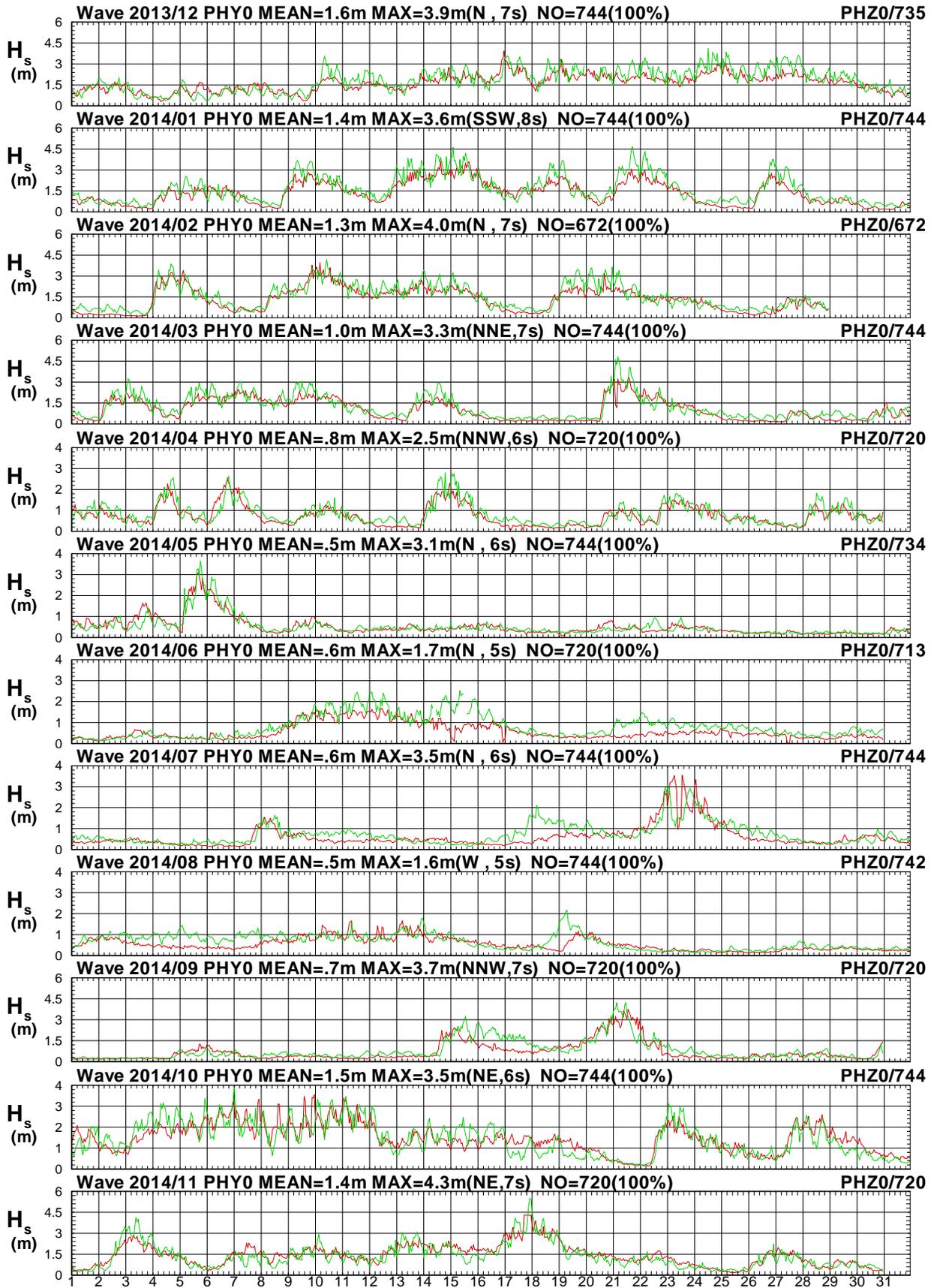


圖 2.3a 2014年每月澎湖海域 Y 站與 Z 站波高比較圖

V13CPHY0.1HA V13CPHZ0.1H0 V141PHY0.1HA V141PHZ0.1H0 V142PHY0.1HA V142PHZ0.1H0
 V143PHY0.1HA V143PHZ0.1H0 V144PHY0.1HA V144PHZ0.1H0 V145PHY0.1HA V145PHZ0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2014

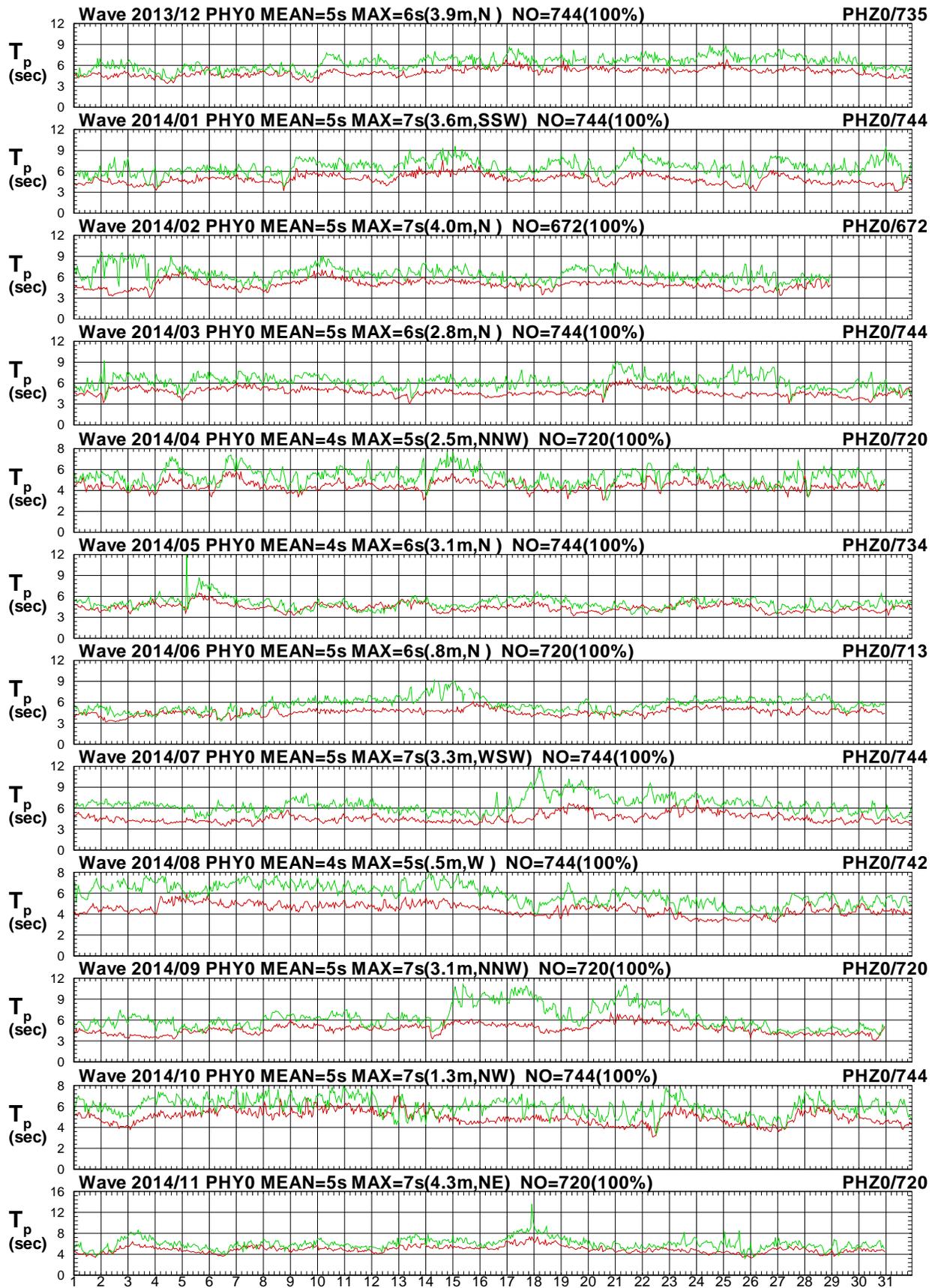


圖 2.3b 2014年每月澎湖海域 Y 站與 Z 站週期比較圖

V13CPHY0.1HA V13CPHZ0.1H0 V141PHY0.1HA V141PHZ0.1H0 V142PHY0.1HA V142PHZ0.1H0
 V143PHY0.1HA V143PHZ0.1H0 V144PHY0.1HA V144PHZ0.1H0 V145PHY0.1HA V145PHZ0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2014

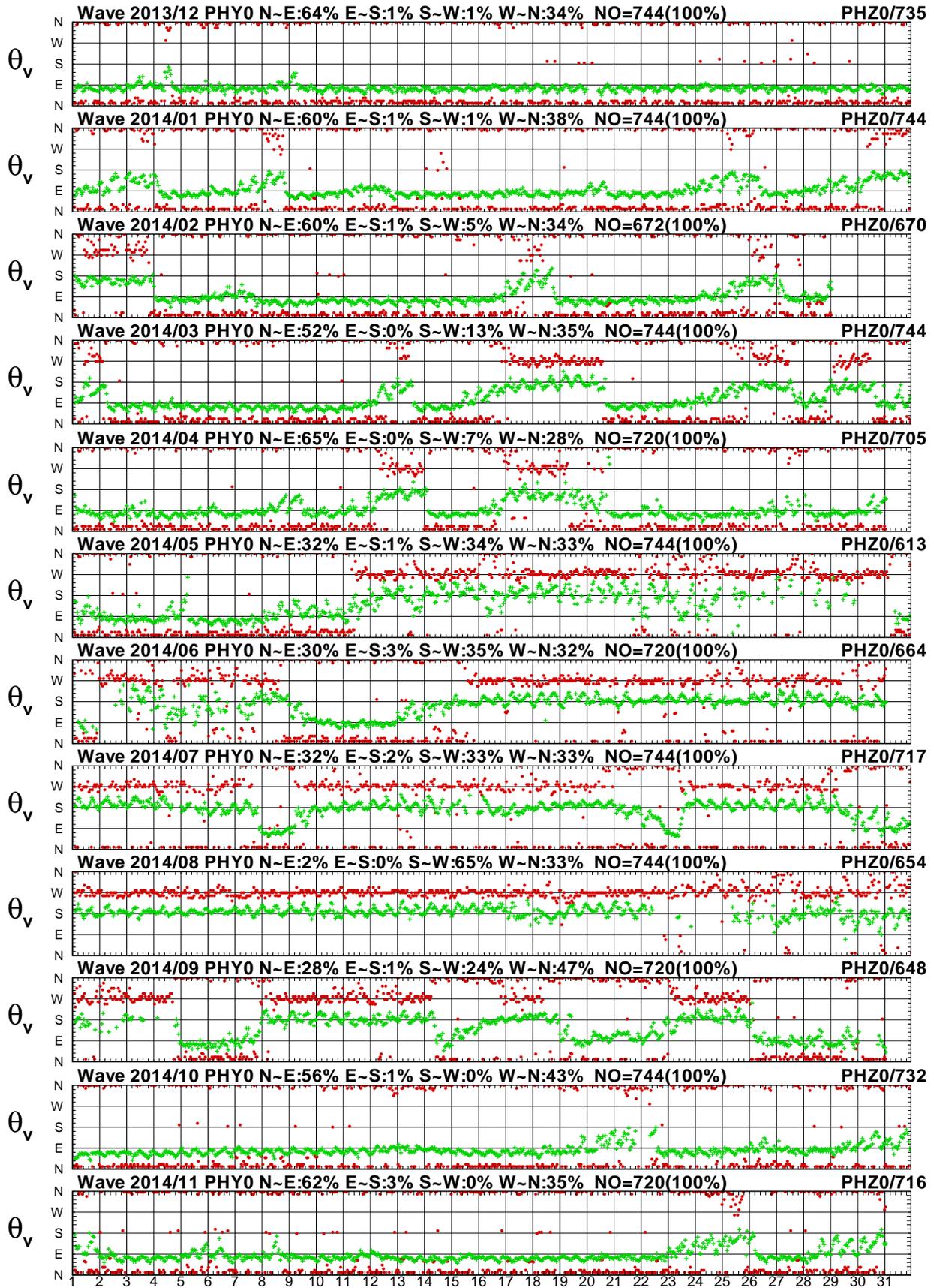


圖 2.3c 2014年每月澎湖海域 Y 站與 Z 站波向比較圖

V13CPHY0.1HA V13CPHZ0.1H0 V141PHY0.1HA V141PHZ0.1H0 V142PHY0.1HA V142PHZ0.1H0
 V143PHY0.1HA V143PHZ0.1H0 V144PHY0.1HA V144PHZ0.1H0 V145PHY0.1HA V145PHZ0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2014

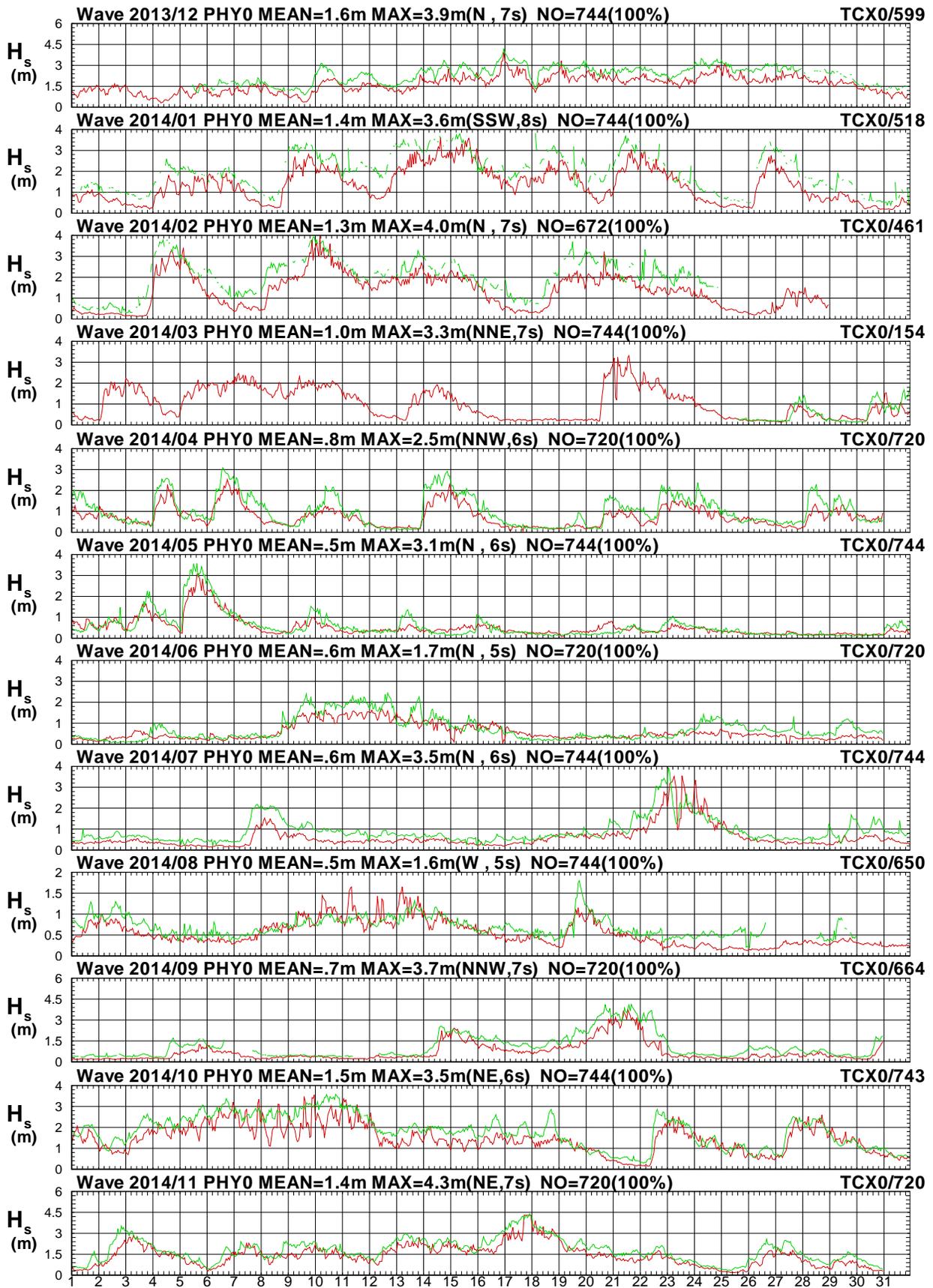


圖 2.4a 2014年每月澎湖海域 Y 站與中雲海域 X 站波高圖

V13CPHY0.1HA V13CTCX0.1H0 V141PHY0.1HA V141TCX0.1H0 V142PHY0.1HA V142TCX0.1H0
 V143PHY0.1HA V143TCX0.1H0 V144PHY0.1HA V144TCX0.1H0 V145PHY0.1HA V145TCX0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2014

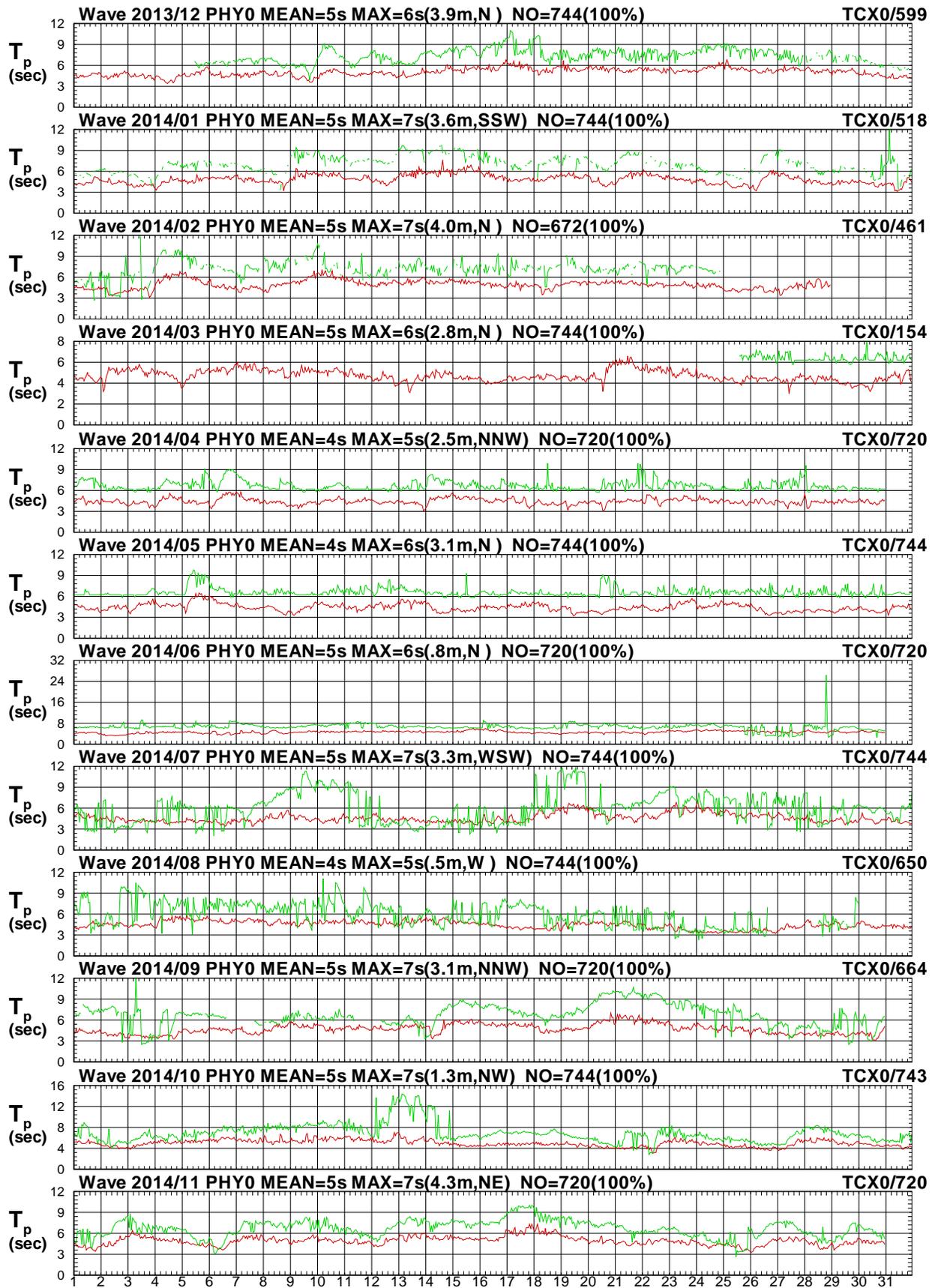


圖 2.4b 2014年每月澎湖海域 Y 站與中雲海域 X 站週期圖

Day

V13CPHY0.1HA V13CTCX0.1H0 V141PHY0.1HA V141TCX0.1H0 V142PHY0.1HA V142TCX0.1H0
 V143PHY0.1HA V143TCX0.1H0 V144PHY0.1HA V144TCX0.1H0 V145PHY0.1HA V145TCX0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2014

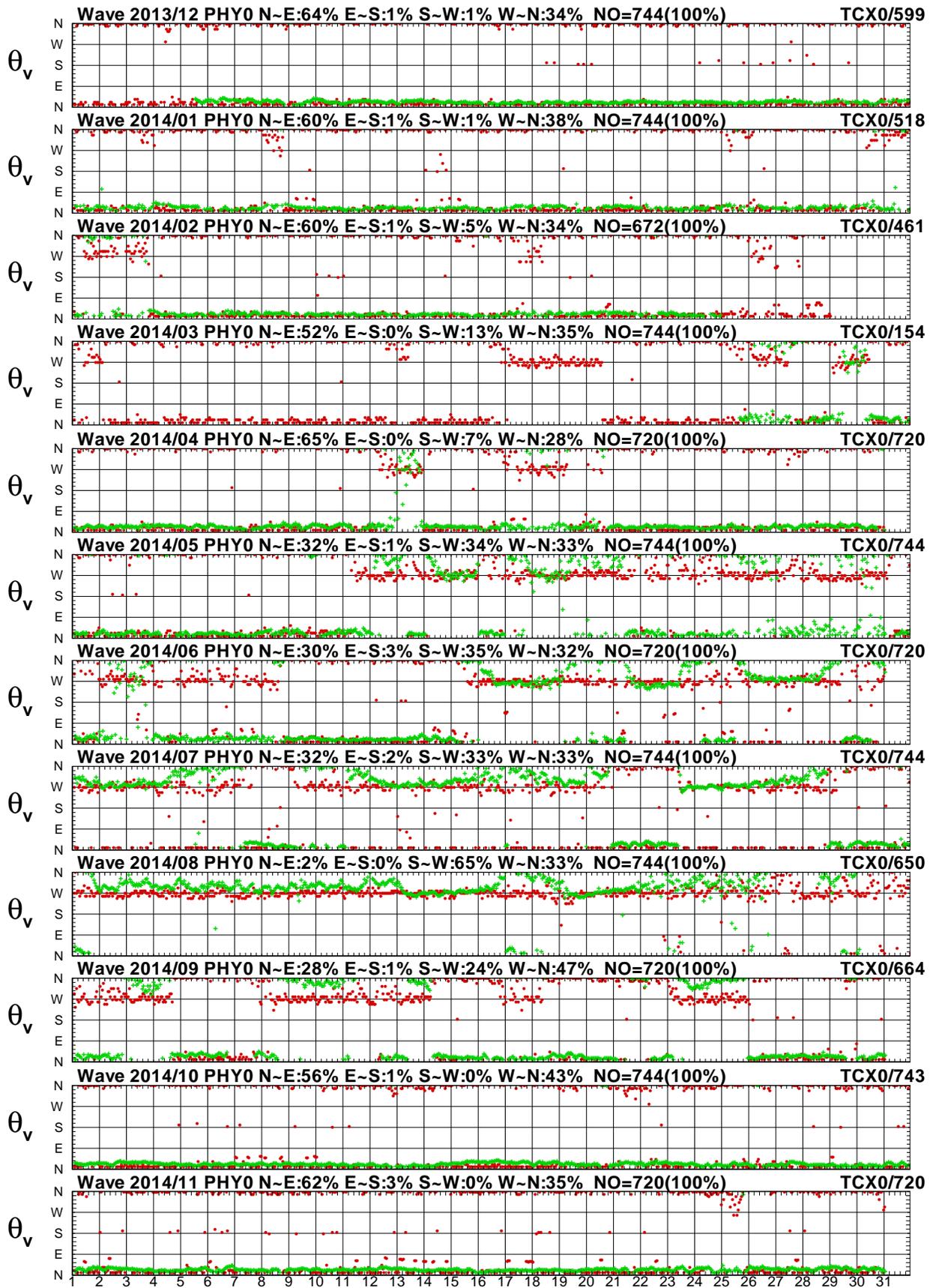


圖 2.4c 2014年每月澎湖海域 Y 站與中雲海域 X 站波向圖

V13CPHY0.1HA V13CTCX0.1H0 V141PHY0.1HA V141TCX0.1H0 V142PHY0.1HA V142TCX0.1H0
 V143PHY0.1HA V143TCX0.1H0 V144PHY0.1HA V144TCX0.1H0 V145PHY0.1HA V145TCX0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2014

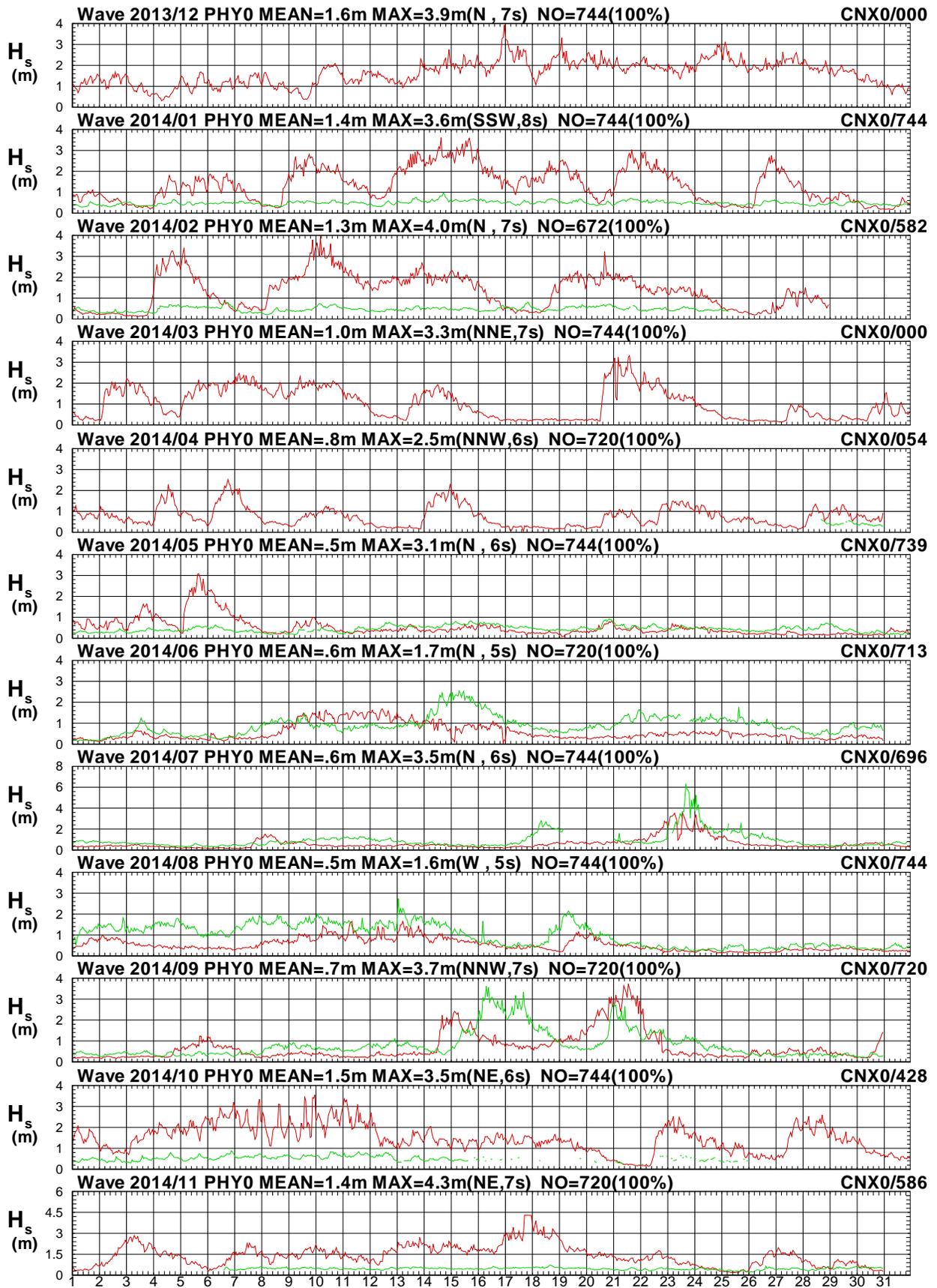


圖 2.5a 2014年每月澎湖海域 Y 站與嘉南海域 X 站波高圖

V13CPHY0.1HA V13CCNX0.1HO V141PHY0.1HA V141CNX0.1HO V142PHY0.1HA V142CNX0.1HO
 V143PHY0.1HA V143CNX0.1HO V144PHY0.1HA V144CNX0.1HO V145PHY0.1HA V145CNX0.1HO

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Wave T_p in Peng-Hu Seas of PHY0 at 2014

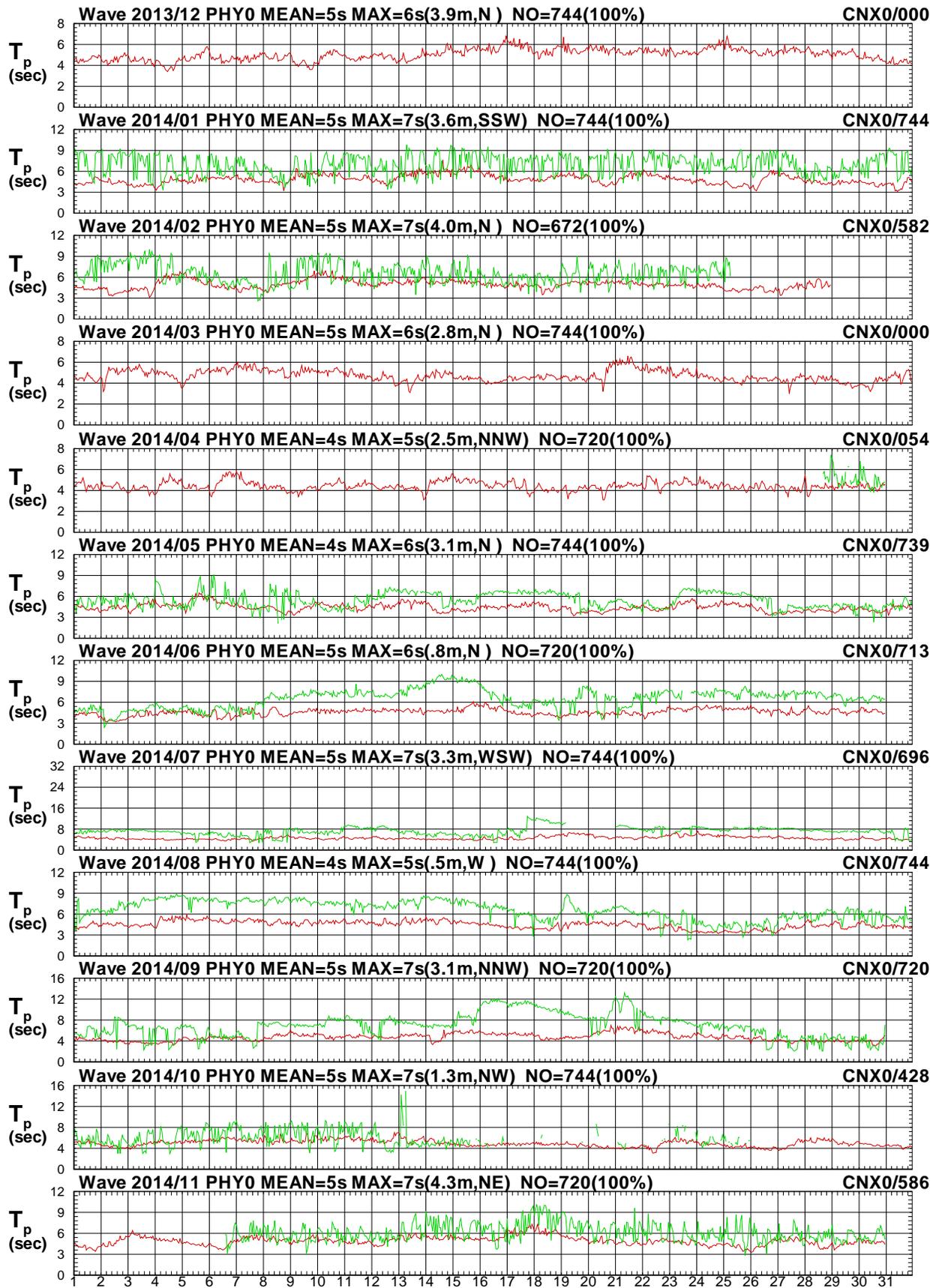


圖 2.5b 2014年每月澎湖海域 Y 站與嘉南海域 X 站週期圖

V13CPHY0.1HA V13CCNX0.1HO V141PHY0.1HA V141CNX0.1HO V142PHY0.1HA V142CNX0.1HO
 V143PHY0.1HA V143CNX0.1HO V144PHY0.1HA V144CNX0.1HO V145PHY0.1HA V145CNX0.1HO

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Wave Direction in Peng-Hu Seas of PHY0 at 2014

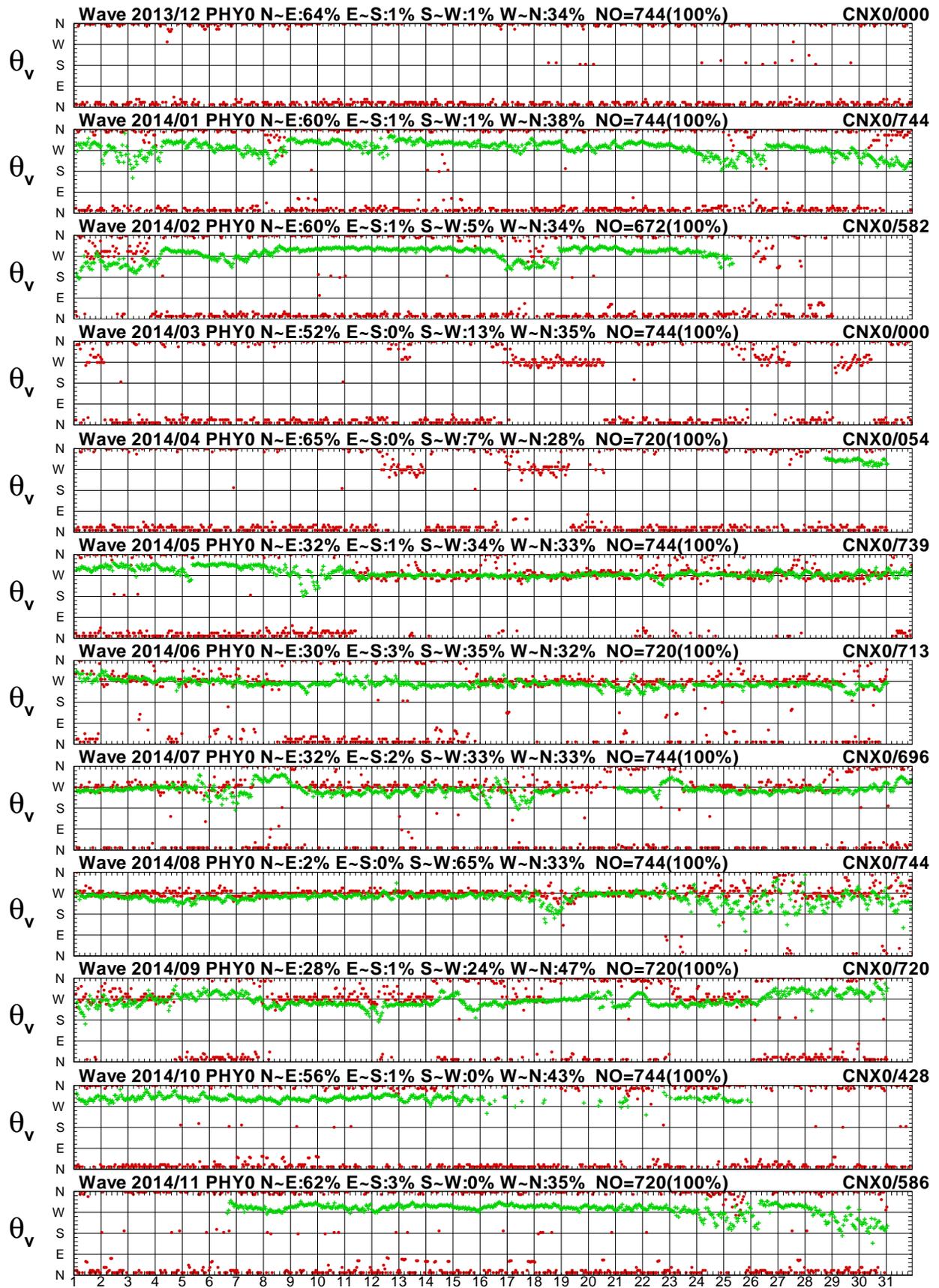


圖 2.5c 2014年每月澎湖海域 Y 站與嘉南海域 X 站波向圖

V13CPHY0.1HA V13CCNX0.1HO V141PHY0.1HA V141CNX0.1HO V142PHY0.1HA V142CNX0.1HO
 V143PHY0.1HA V143CNX0.1HO V144PHY0.1HA V144CNX0.1HO V145PHY0.1HA V145CNX0.1HO

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Wave H_s in Peng-Hu Seas of PHY0 at 2014

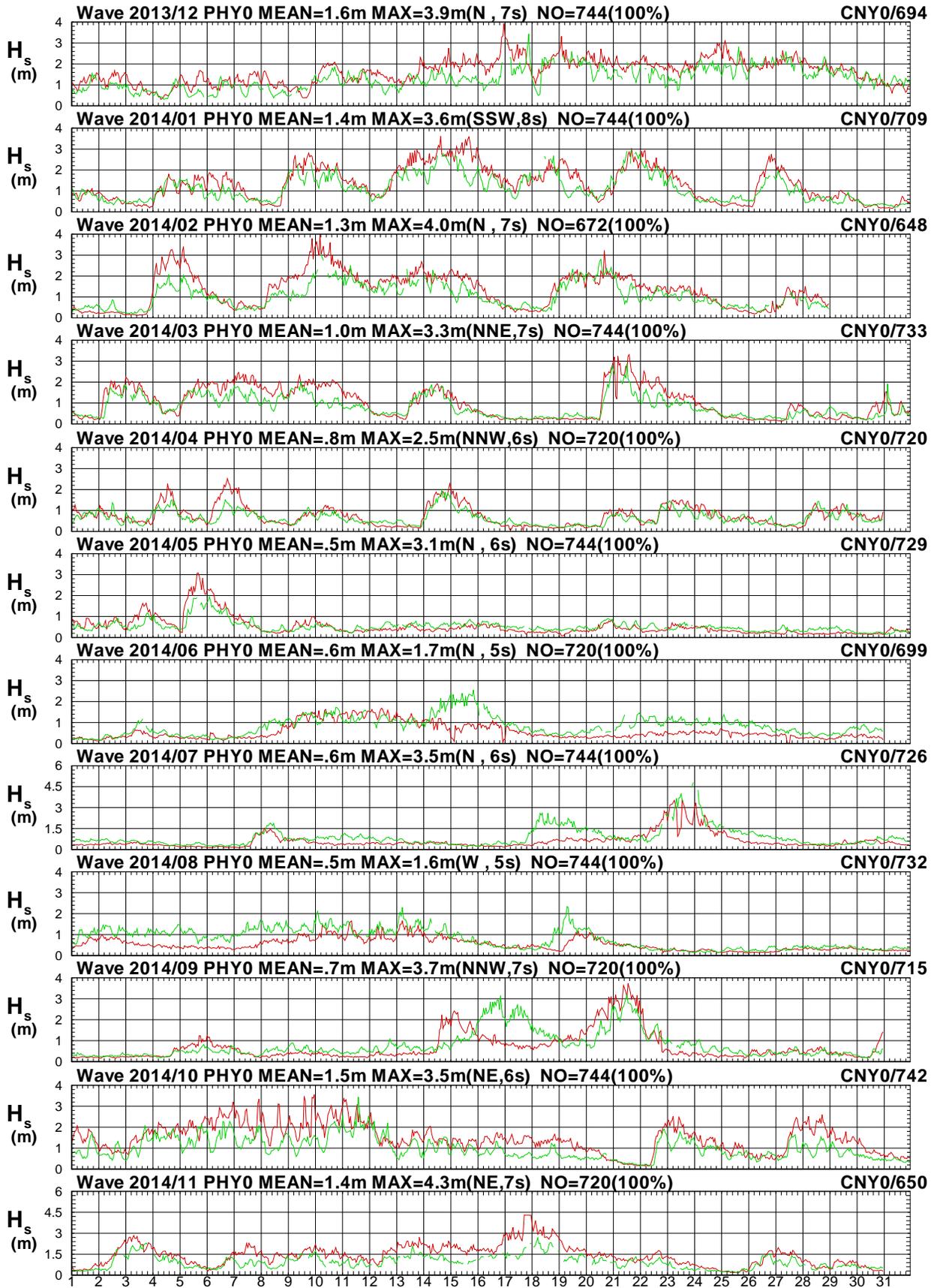


圖 2.6a 2014年每月澎湖海域 Y 站與嘉南海域 Y 站波高圖

V13CPHY0.1HA V13CCNY0.1HO V141PHY0.1HA V141CNY0.1HO V142PHY0.1HA V142CNY0.1HO
 V143PHY0.1HA V143CNY0.1HO V144PHY0.1HA V144CNY0.1HO V145PHY0.1HA V145CNY0.1HO

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Wave T_p in Peng-Hu Seas of PHY0 at 2014

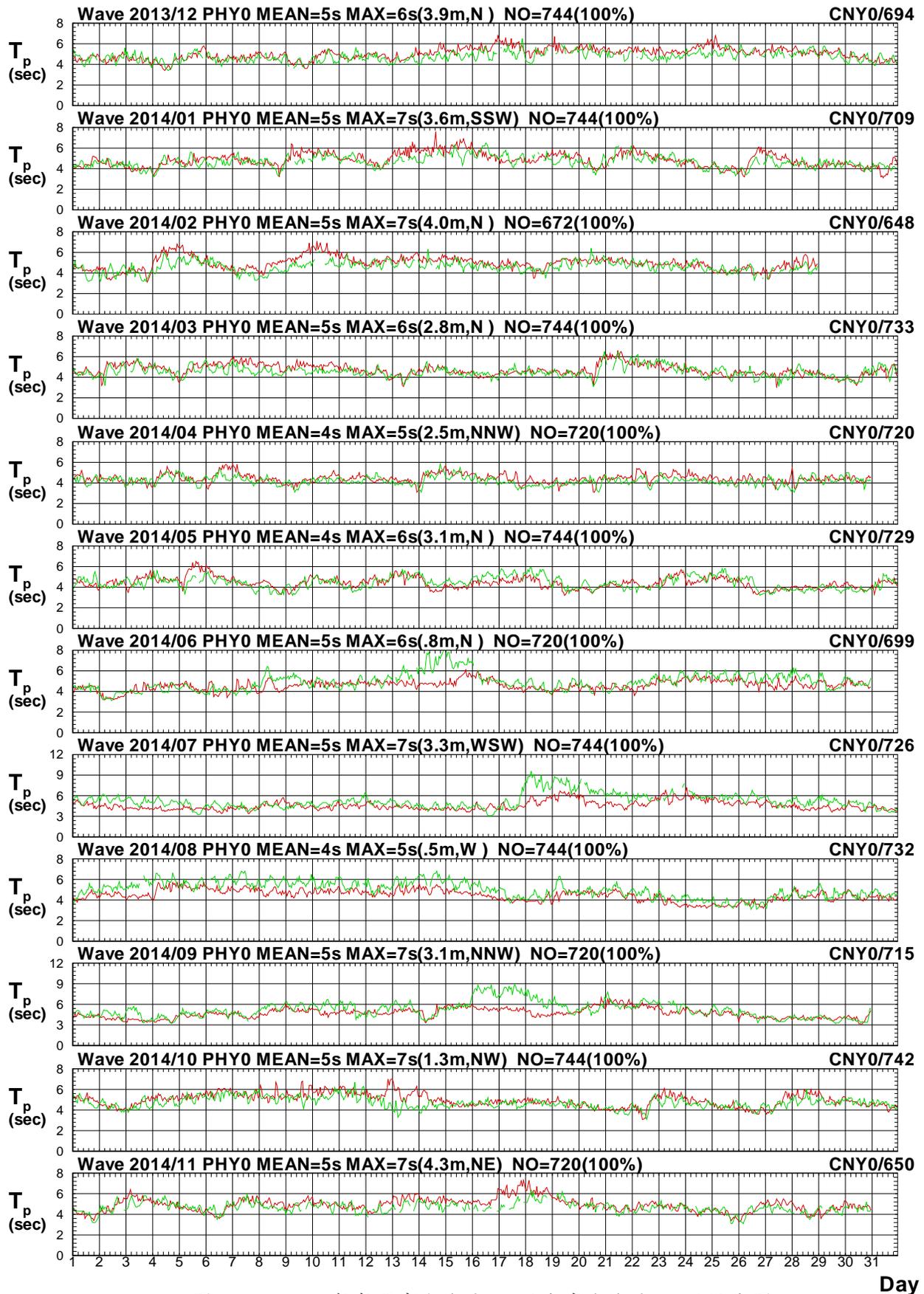


圖 2.6b 2014年每月澎湖海域 Y 站與嘉南海域 Y 站週期圖

V13CPHY0.1HA V13CCNY0.1H0 V141PHY0.1HA V141CNY0.1H0 V142PHY0.1HA V142CNY0.1H0
 V143PHY0.1HA V143CNY0.1H0 V144PHY0.1HA V144CNY0.1H0 V145PHY0.1HA V145CNY0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2014

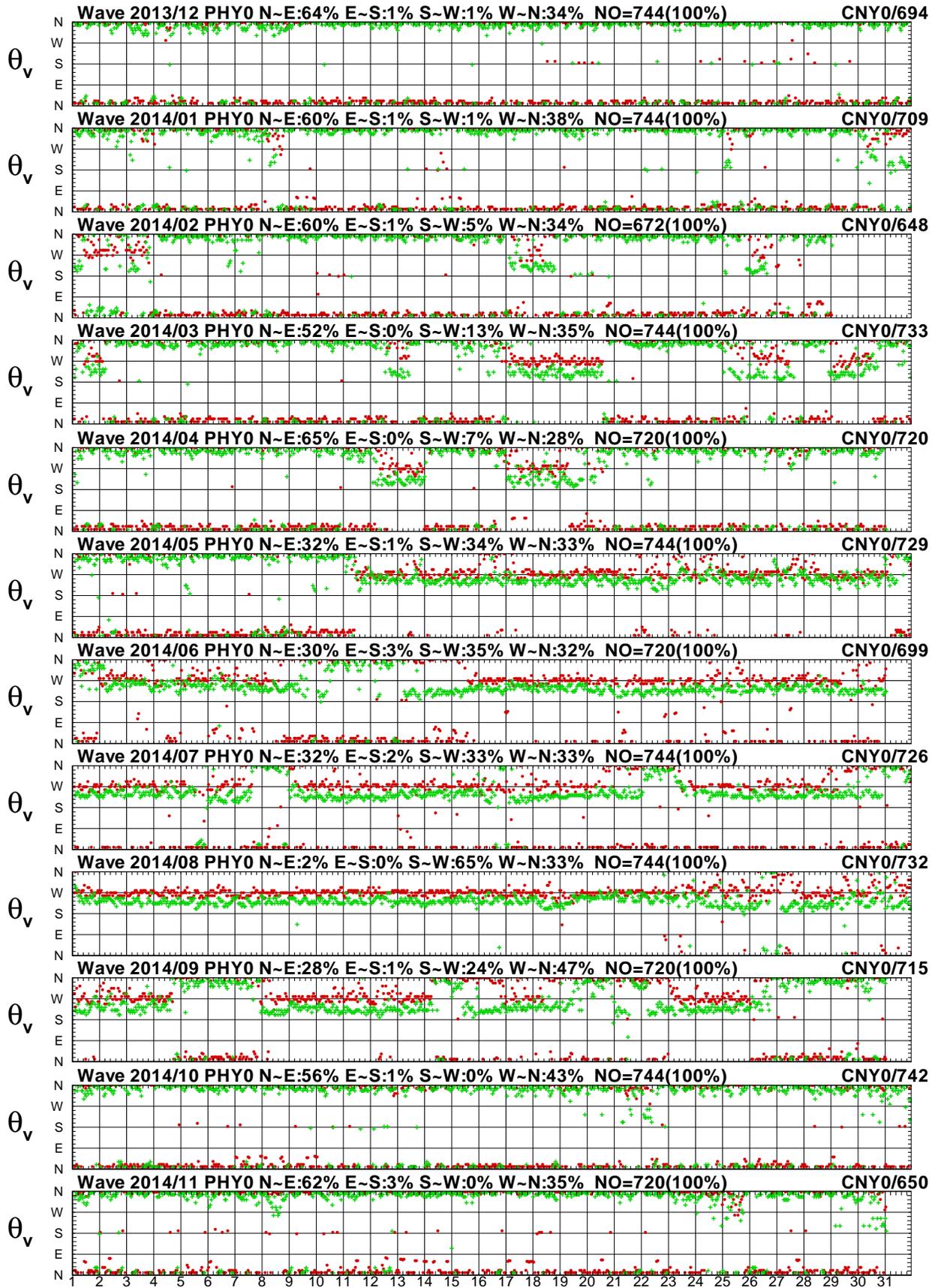


圖 2.6c 2014年每月澎湖海域 Y 站與嘉南海域 Y 站波向圖

V13CPHY0.1HA V13CCNY0.1H0 V141PHY0.1HA V141CNY0.1H0 V142PHY0.1HA V142CNY0.1H0
 V143PHY0.1HA V143CNY0.1H0 V144PHY0.1HA V144CNY0.1H0 V145PHY0.1HA V145CNY0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2014

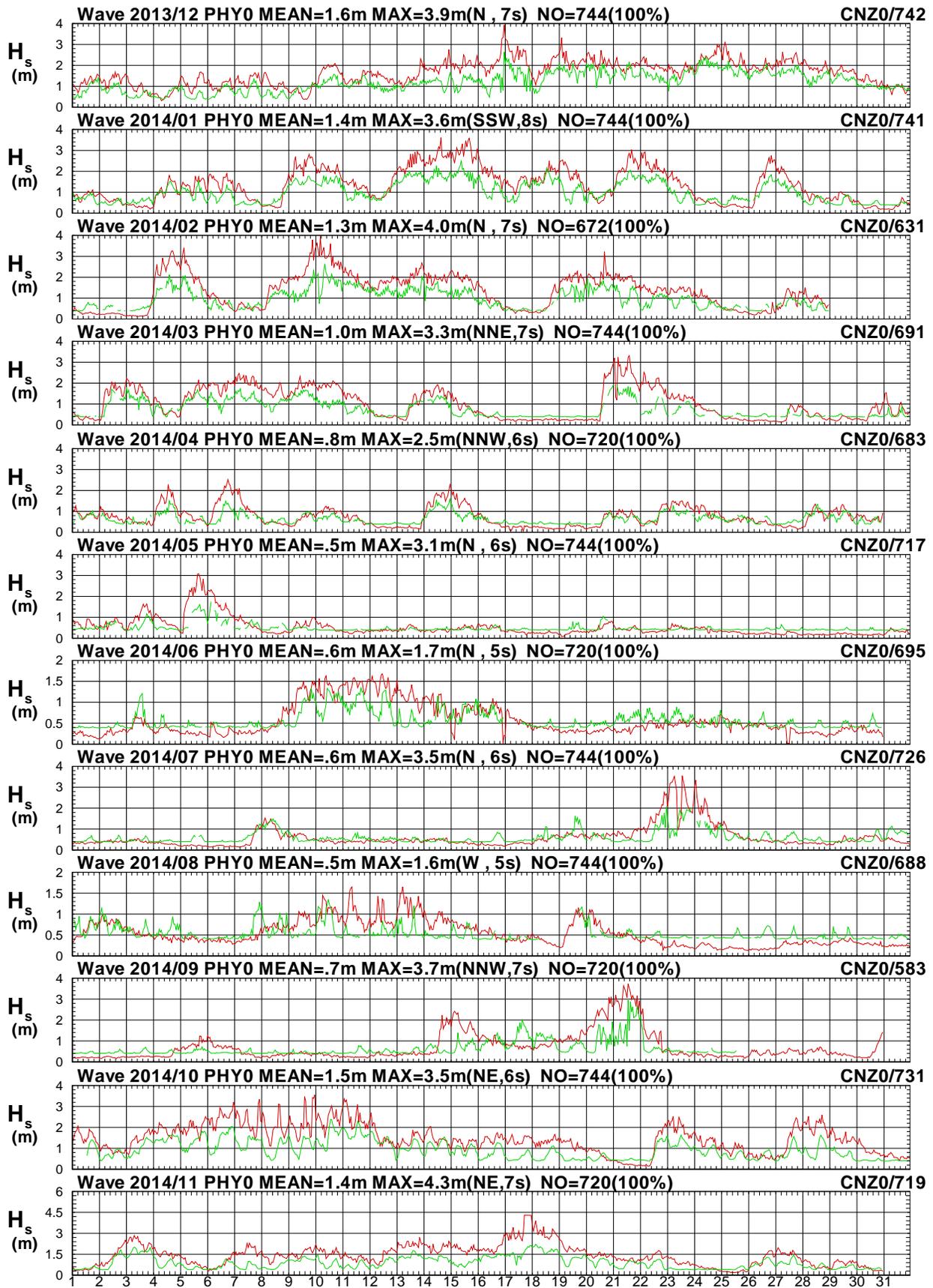


圖 2.7a 2014年每月澎湖海域 Y 站與嘉南海域 Z 站波高圖

V13CPHY0.1HA V13CCNZ0.1H0 V141PHY0.1HA V141CNZ0.1H0 V142PHY0.1HA V142CNZ0.1H0
 V143PHY0.1HA V143CNZ0.1H0 V144PHY0.1HA V144CNZ0.1H0 V145PHY0.1HA V145CNZ0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2014

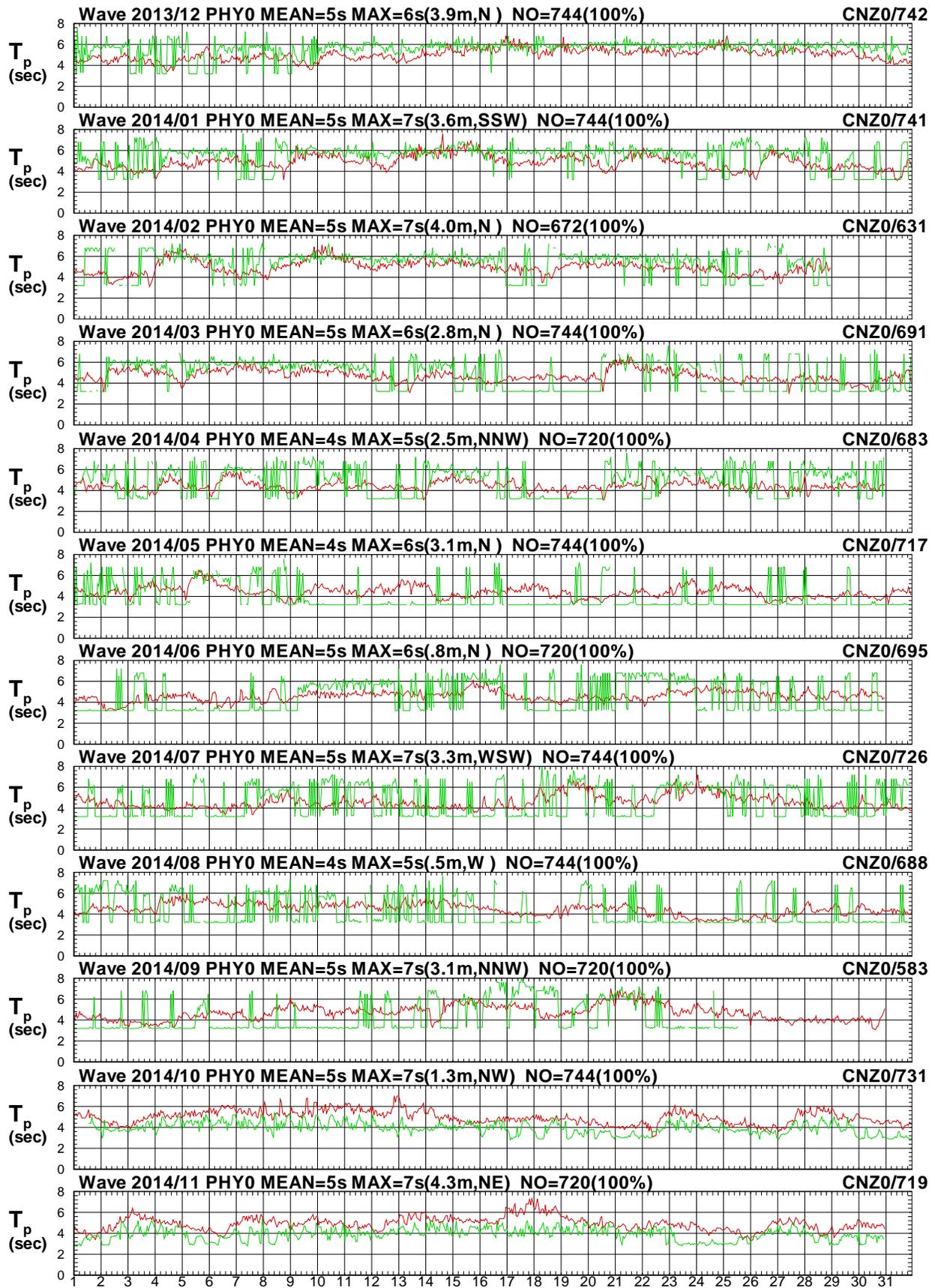


圖 2.7b 2014年每月澎湖海域 Y 站與嘉南海域 Z 站週期圖

Day

V13CPHY0.1HA V13CCNZ0.1H0 V141PHY0.1HA V141CNZ0.1H0 V142PHY0.1HA V142CNZ0.1H0
 V143PHY0.1HA V143CNZ0.1H0 V144PHY0.1HA V144CNZ0.1H0 V145PHY0.1HA V145CNZ0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2014

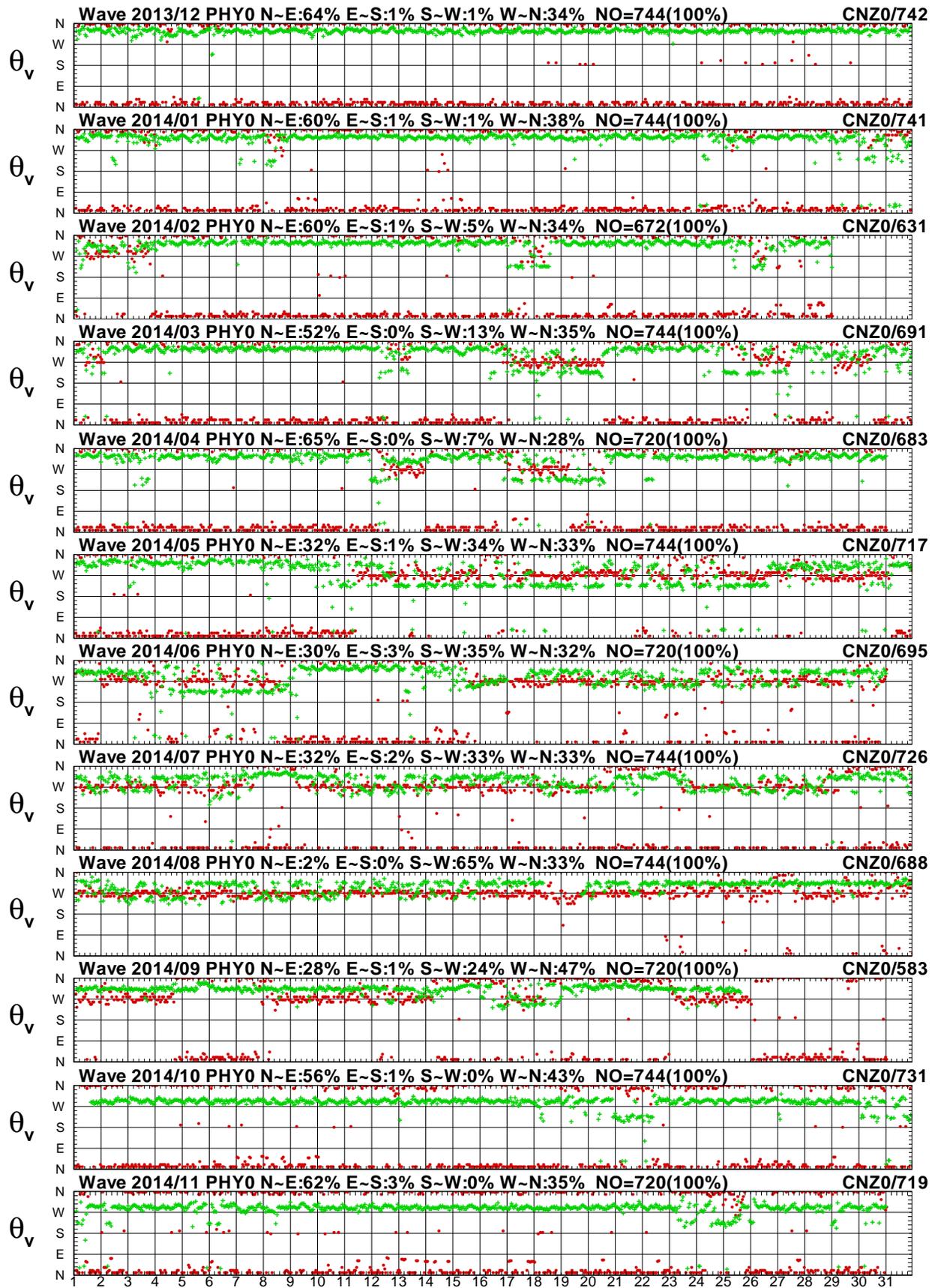


圖 2.7c 2014年每月澎湖海域 Y 站與嘉南海域 Z 站波向圖

V13CPHY0.1HA V13CCNZ0.1H0 V141PHY0.1HA V141CNZ0.1H0 V142PHY0.1HA V142CNZ0.1H0
 V143PHY0.1HA V143CNZ0.1H0 V144PHY0.1HA V144CNZ0.1H0 V145PHY0.1HA V145CNZ0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2014

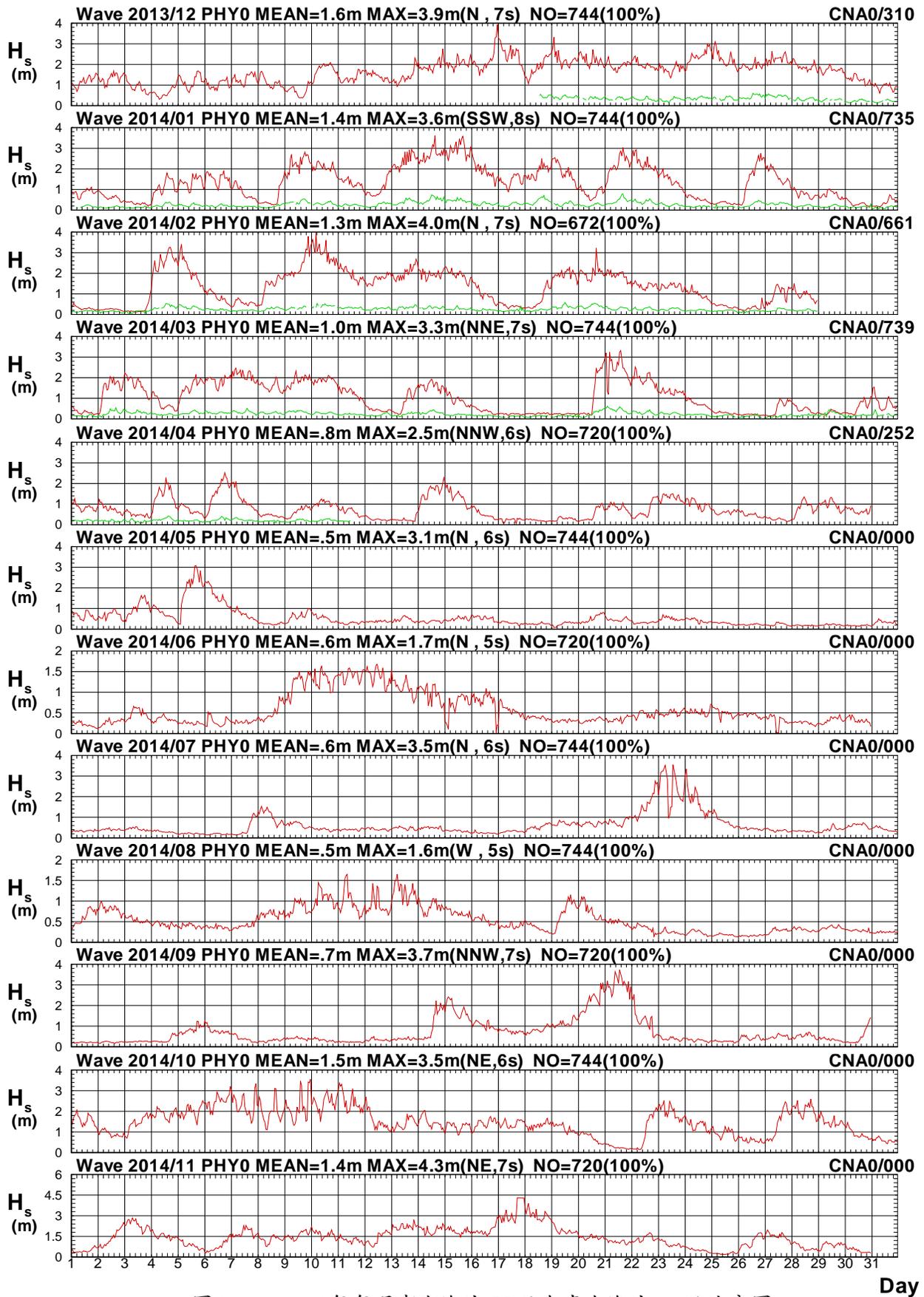


圖 2.8a 2014年每月澎湖海域 Y 站與嘉南海域 A 站波高圖

V13CPHY0.1HA V13CCNA0.1H0 V141PHY0.1HA V141CNA0.1H0 V142PHY0.1HA V142CNA0.1H0
 V143PHY0.1HA V143CNA0.1H0 V144PHY0.1HA V144CNA0.1H0 V145PHY0.1HA V145CNA0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2014

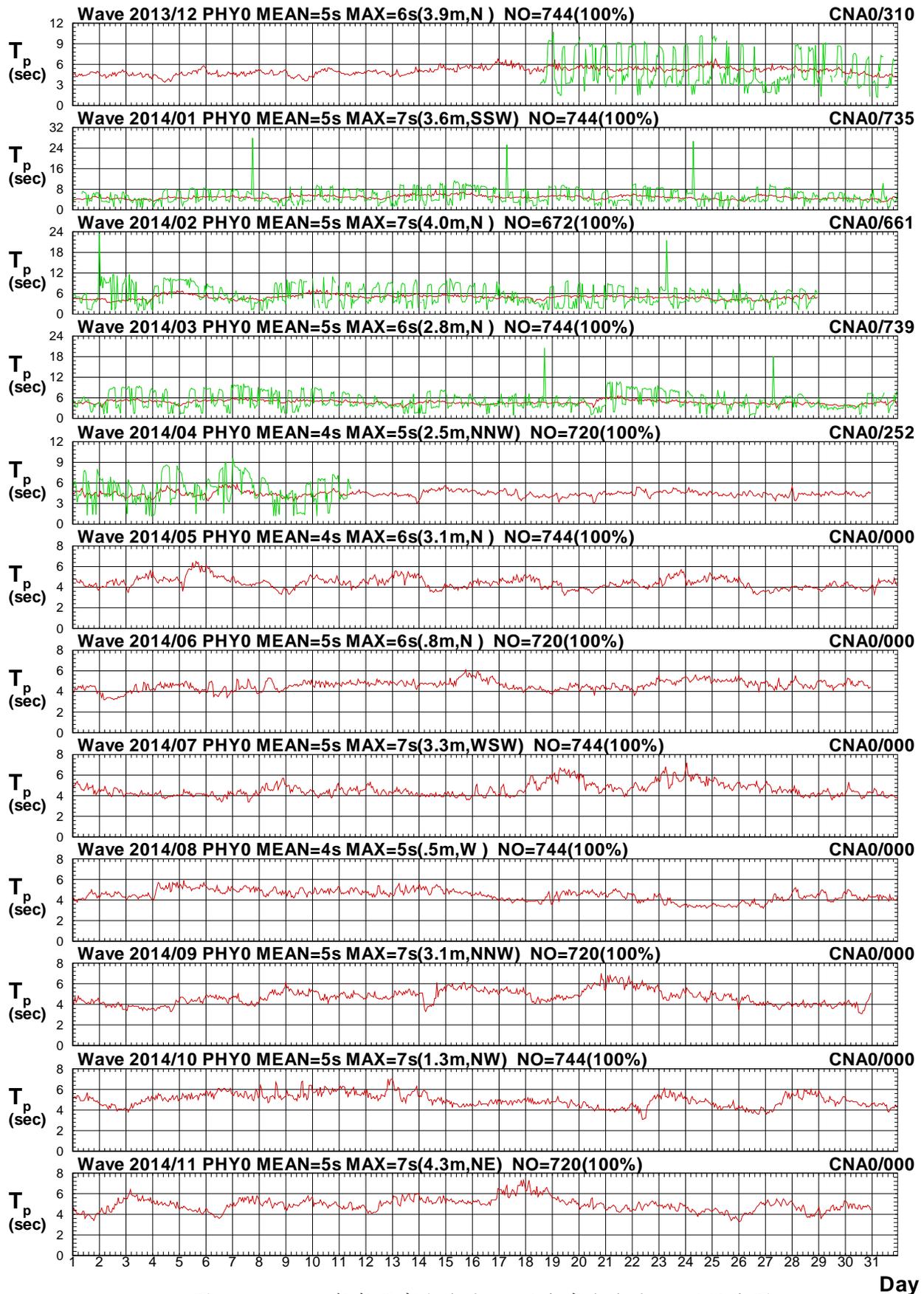


圖 2.8b 2014年每月澎湖海域 Y 站與嘉南海域 A 站週期圖

V13CPHY0.1HA V13CCNA0.1H0 V141PHY0.1HA V141CNA0.1H0 V142PHY0.1HA V142CNA0.1H0
 V143PHY0.1HA V143CNA0.1H0 V144PHY0.1HA V144CNA0.1H0 V145PHY0.1HA V145CNA0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2014

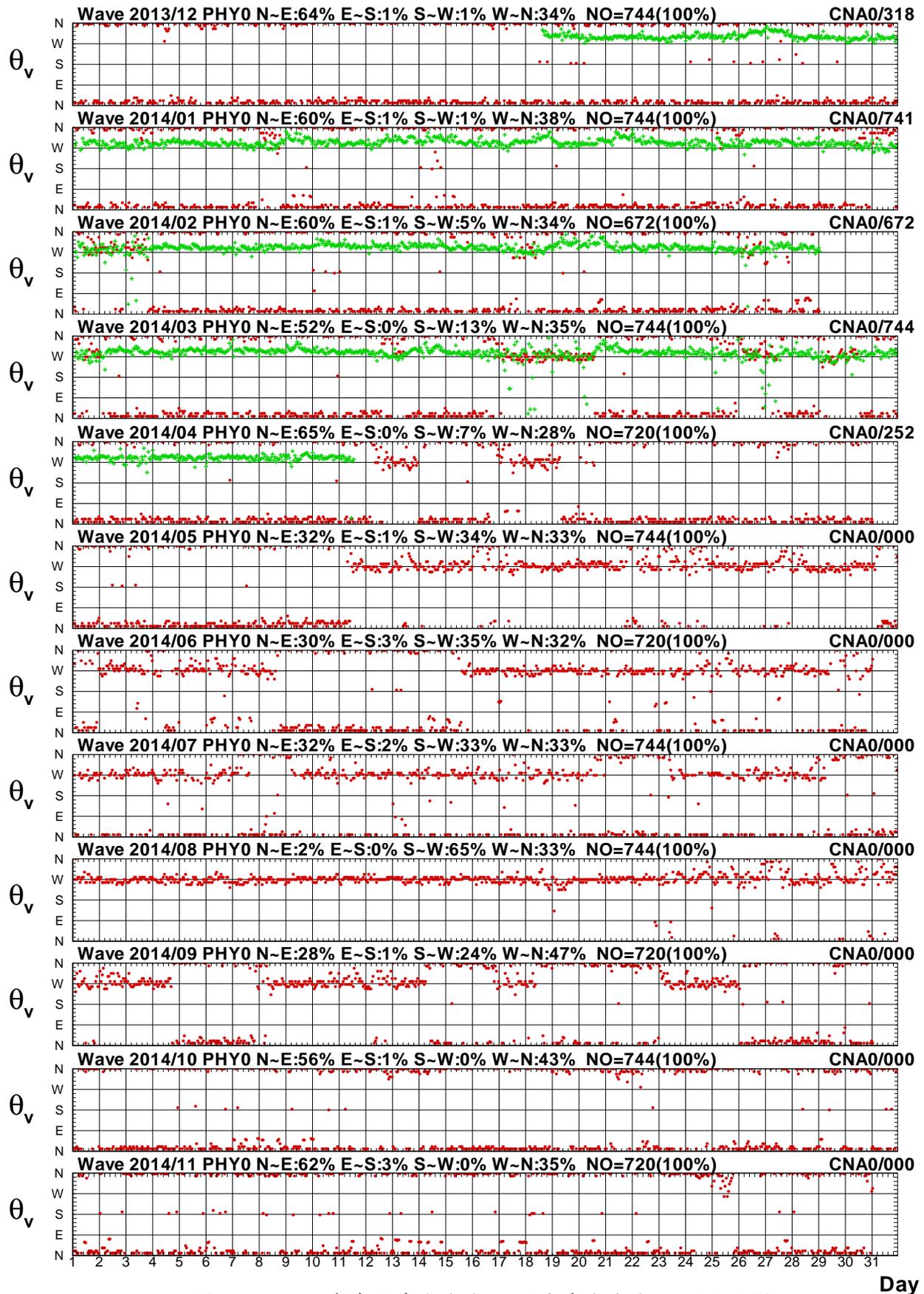


圖 2.8c 2014年每月澎湖海域 Y 站與嘉南海域 A 站波向圖

V13CPHY0.1HA V13CCNA0.1H0 V141PHY0.1HA V141CNA0.1H0 V142PHY0.1HA V142CNA0.1H0
 V143PHY0.1HA V143CNA0.1H0 V144PHY0.1HA V144CNA0.1H0 V145PHY0.1HA V145CNA0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2014

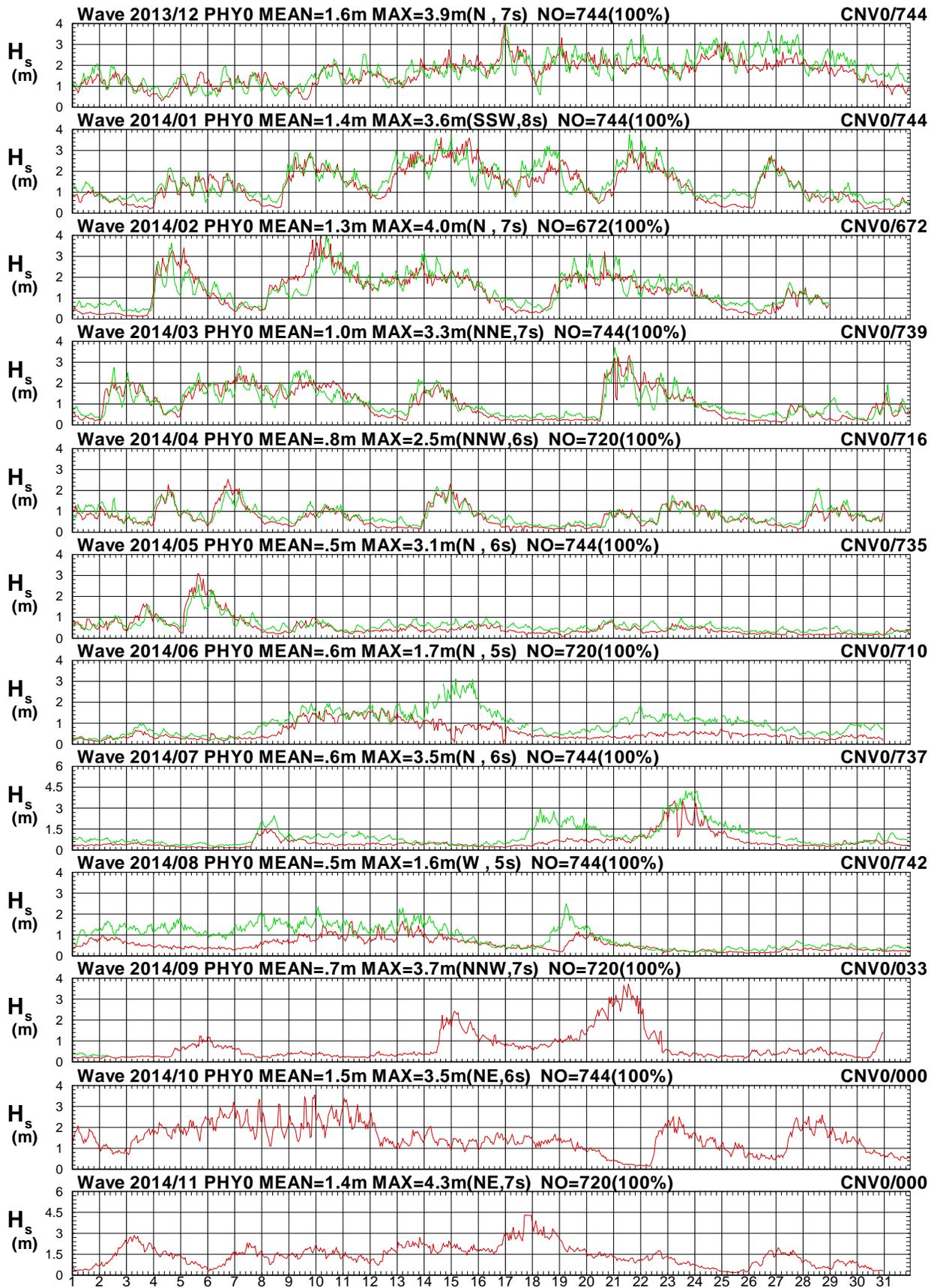


圖 2.9a 2014年每月澎湖海域 Y 站與嘉南海域 V 站波高圖

V13CPHY0.1HA V13CCNV0.1H0 V141PHY0.1HA V141CNV0.1H0 V142PHY0.1HA V142CNV0.1H0
 V143PHY0.1HA V143CNV0.1H0 V144PHY0.1HA V144CNV0.1H0 V145PHY0.1HA V145CNV0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2014

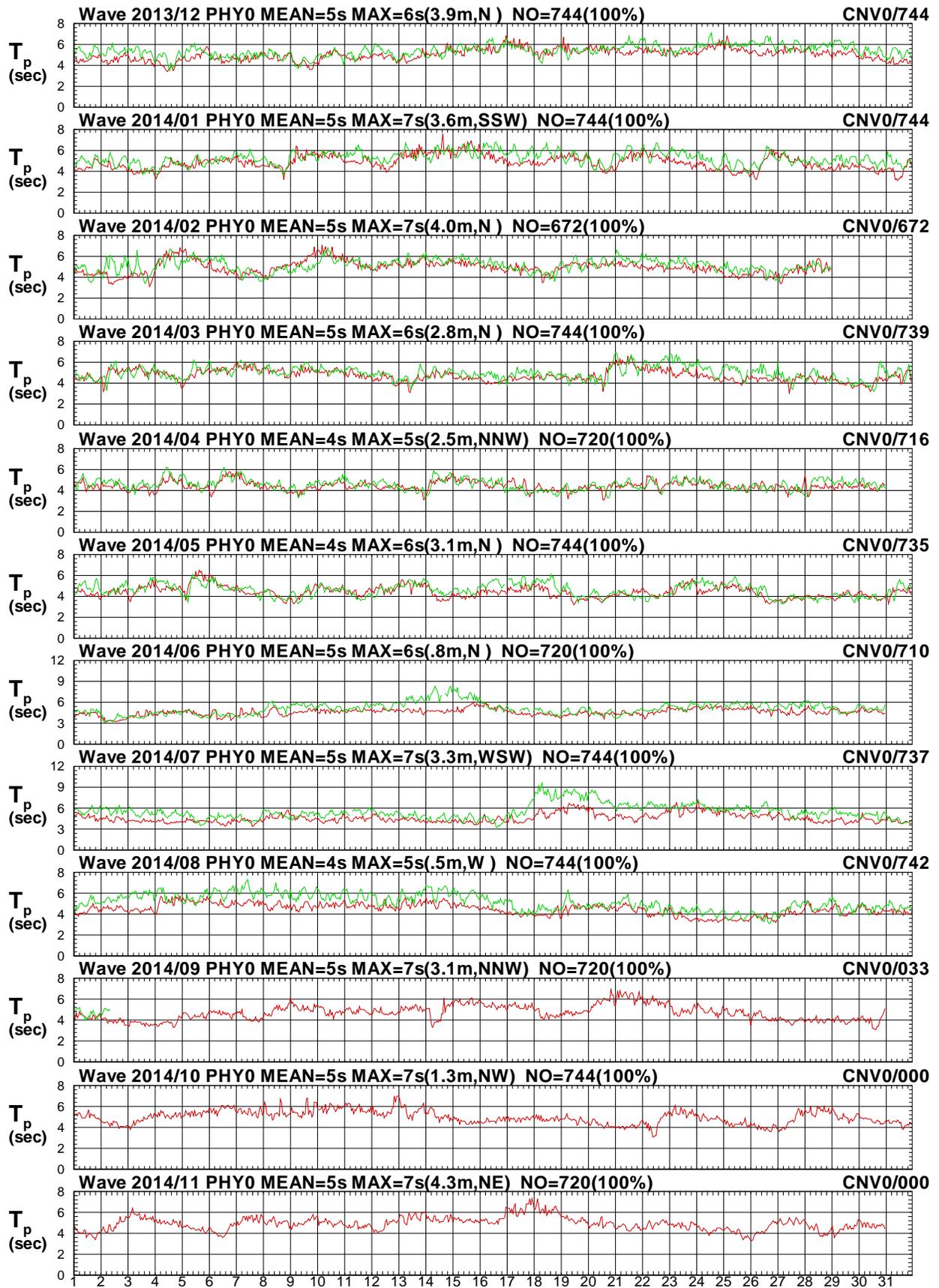


圖 2.9b 2014年每月澎湖海域 Y 站與嘉南海域 V 站週期圖

V13CPHY0.1HA V13CCNV0.1HO V141PHY0.1HA V141CNV0.1HO V142PHY0.1HA V142CNV0.1HO
 V143PHY0.1HA V143CNV0.1HO V144PHY0.1HA V144CNV0.1HO V145PHY0.1HA V145CNV0.1HO

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Wave Direction in Peng-Hu Seas of PHY0 at 2014

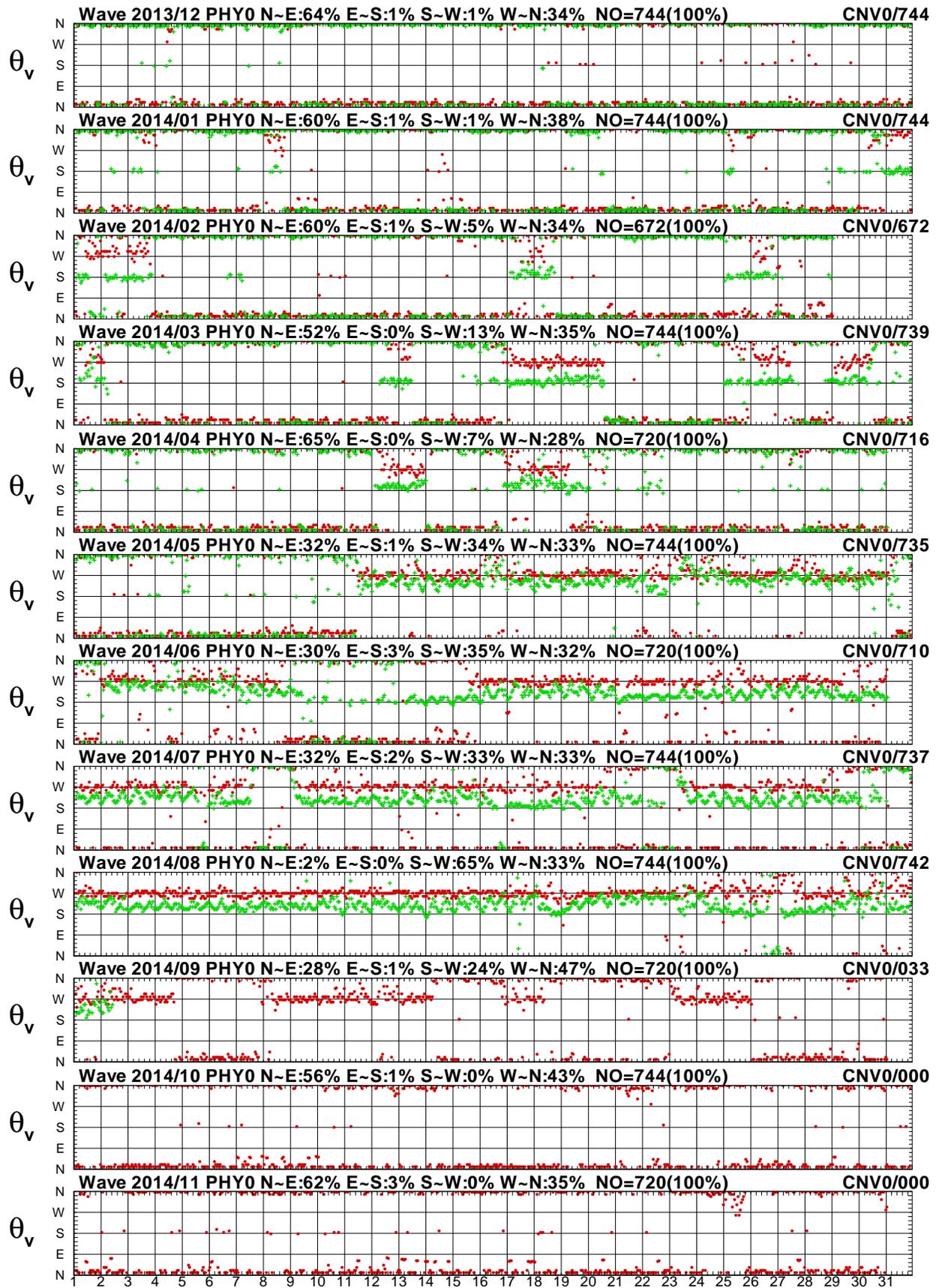


圖 2.9c 2014年每月澎湖海域 Y 站與嘉南海域 V 站波向圖

V13CPHY0.1HA V13CCNV0.1HO V141PHY0.1HA V141CNV0.1HO V142PHY0.1HA V142CNV0.1HO
 V143PHY0.1HA V143CNV0.1HO V144PHY0.1HA V144CNV0.1HO V145PHY0.1HA V145CNV0.1HO

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第三章 2014 年澎湖海域觀測潮汐資料

澎湖海域潮汐之觀測係于 2011 年 1 月由本中心於龍門尖山港區碼頭安裝 Water Log 公司潮位計(稱**測站 T**)，位置如附圖 3，2013 年 6 月本中心於馬公港區碼頭安裝 Water Log 公司潮位計(稱**測站 S**)。另於 2011 年 1 月中旬在澎湖港龍門尖山港區波堤堤頭外(**測站 X**)安置 AWCP，也具量測水位功能。

馬公港區(**測站 F**)及七美漁港(**測站 J**)之潮位計為中央氣象局所有。歷年各站觀測潮汐資料蒐集概況如表 3。

潮位**測站 X**潮波流儀，以壓力感測器測得水壓變化時間序列，取樣方式為每一小時取前 10 分鐘之水位變化，取樣頻率為 2Hz，然後加以平均得出該小時之平均水位值。潮位資料之平均水位以觀測水位資料之平均值為基準，未經高程量測，與一般固定式潮位計不同。**測站 T**潮位資料取樣方式為每 6 分鐘量測一次水位變化。**測站 F**資料由中央氣象局提供。

本潮汐年報以取經檢核或修補後之 **T 站**資料作為**主要觀測站**，2014 年各觀測站修補前每月觀測潮汐資料記錄期間統計表，如表 3.1a，2014 年各觀測站修補後每月觀測潮汐資料記錄期間統計表，如表 3.1b，**主要觀測站修補前後**每月潮汐歷線比較圖，如圖 3.1.1，**主要觀測站與調和分析計算潮位**每月潮汐歷線比較圖，如圖 3.1.2，**主要觀測站與次要觀測站**每月潮汐歷線比較圖，如圖 3.1.3 以後。

表 3 澎湖海域觀測潮汐資料蒐集概況表(統計時間至 2014 年 11 月)

測站	緯度	經度	觀測期間	觀測單位	備註
T	23°33'37"N	119°40'05"E	2011/01-2014/11(觀測中)	港研中心	龍門尖山港區
S	23°33'30"N	119°40'06"E	2013/06-2014/11(觀測中)	港研中心	馬公港區潮位計
X	23°33'21"N	119°40'31"E	2011/01-2014/11(觀測中)	港研中心	龍門尖山港區外海
F	23°33'42"N	119°34'41"E	2009/01-2014/11(觀測中)	中央氣象局	七美漁港

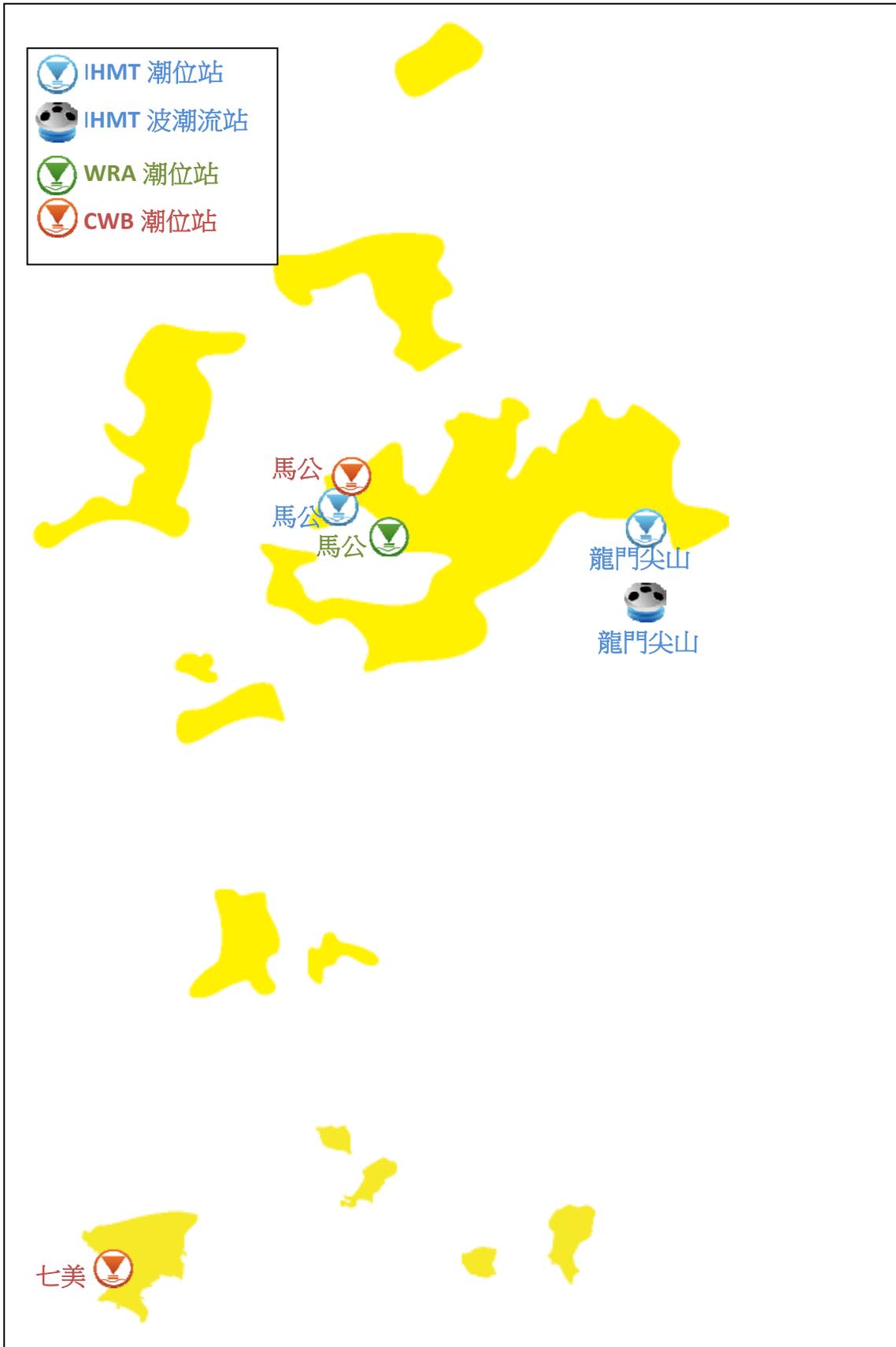


圖 3 澎湖海域潮汐觀測站位置示意圖

表 3.1a 2014年每月澎湖海域修補前各測站觀測潮汐資料紀錄統計表

年/月 港區	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域
測站	T	X	F	S				
2013/12月	637 (85.6%)	*	635 (85.3%)	744 (100%)	*	*	*	*
2014/ 1月	702 (94.4%)	*	703 (94.5%)	744 (100%)	*	*	*	*
2014/ 2月	481 (71.6%)	*	*	638 (94.9%)	*	*	*	*
2014/ 3月	*	*	729 (98.0%)	662 (89.0%)	*	*	*	*
2014/ 4月	329 (45.7%)	298 (41.4%)	718 (99.7%)	720 (100%)	*	*	*	*
2014/ 5月	725 (97.4%)	718 (96.5%)	711 (95.6%)	744 (100%)	*	*	*	*
2014/ 6月	611 (84.9%)	701 (97.4%)	708 (98.3%)	645 (89.6%)	*	*	*	*
2014/ 7月	516 (69.4%)	710 (95.4%)	733 (98.5%)	705 (94.8%)	*	*	*	*
2014/ 8月	609 (81.9%)	736 (98.9%)	741 (99.6%)	744 (100%)	*	*	*	*
2014/ 9月	720 (100%)	718 (99.7%)	561 (77.9%)	720 (100%)	*	*	*	*
2014/10月	744 (100%)	743 (99.9%)	630 (84.7%)	744 (100%)	*	*	*	*
2014/11月	720 (100%)	712 (98.9%)	720 (100%)	720 (100%)	*	*	*	*
2014/冬季	1820 (84.3%)	*	1338 (61.9%)	2126 (98.4%)	*	*	*	*
2014/春季	1054 (47.7%)	1016 (46.0%)	2158 (97.7%)	2126 (96.3%)	*	*	*	*
2014/夏季	1736 (78.6%)	2147 (97.2%)	2182 (98.8%)	2094 (94.8%)	*	*	*	*
2014/秋季	2184 (100%)	2173 (99.5%)	1911 (87.5%)	2184 (100%)	*	*	*	*
2014/整年	6794 (77.6%)	5336 (60.9%)	7589 (86.6%)	8530 (97.4%)	*	*	*	*
起始年月	2013/12	2014/04	2013/12	2013/12	*	*	*	*
結束年月	2014/11	2014/11	2014/11	2014/11	*	*	*	*

表3.1b 2014年每月澎湖海域修補後各測站潮汐資料統計表

年/月 港區	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域
測站	T	X	F	S				
2013/12月	744 (100%)	*	744 (100%)	744 (100%)	*	*	*	*
2014/ 1月	744 (100%)	*	744 (100%)	744 (100%)	*	*	*	*
2014/ 2月	672 (100%)	*	*	672 (100%)	*	*	*	*
2014/ 3月	744 (100%)	*	744 (100%)	744 (100%)	*	*	*	*
2014/ 4月	720 (100%)	720 (100%)	720 (100%)	720 (100%)	*	*	*	*
2014/ 5月	744 (100%)	744 (100%)	744 (100%)	744 (100%)	*	*	*	*
2014/ 6月	720 (100%)	720 (100%)	720 (100%)	720 (100%)	*	*	*	*
2014/ 7月	744 (100%)	744 (100%)	744 (100%)	744 (100%)	*	*	*	*
2014/ 8月	744 (100%)	744 (100%)	744 (100%)	744 (100%)	*	*	*	*
2014/ 9月	720 (100%)	720 (100%)	720 (100%)	720 (100%)	*	*	*	*
2014/10月	744 (100%)	744 (100%)	744 (100%)	744 (100%)	*	*	*	*
2014/11月	720 (100%)	720 (100%)	720 (100%)	720 (100%)	*	*	*	*
2014/冬季	2160 (100%)	*	*	*	*	*	*	*
2014/春季	2208 (100%)	*	*	*	*	*	*	*
2014/夏季	2208 (100%)	*	*	*	*	*	*	*
2014/秋季	2184 (100%)	*	*	*	*	*	*	*
2014/整年	8760 (100%)	*	*	*	*	*	*	*
起始年月	2013/12	*	*	*	*	*	*	*
結束年月	2014/11	*	*	*	*	*	*	*

Tidal Level in Peng-Hu Seas of PHT0 at 2014

1 ○ 8 ● 15 ● 22 ●

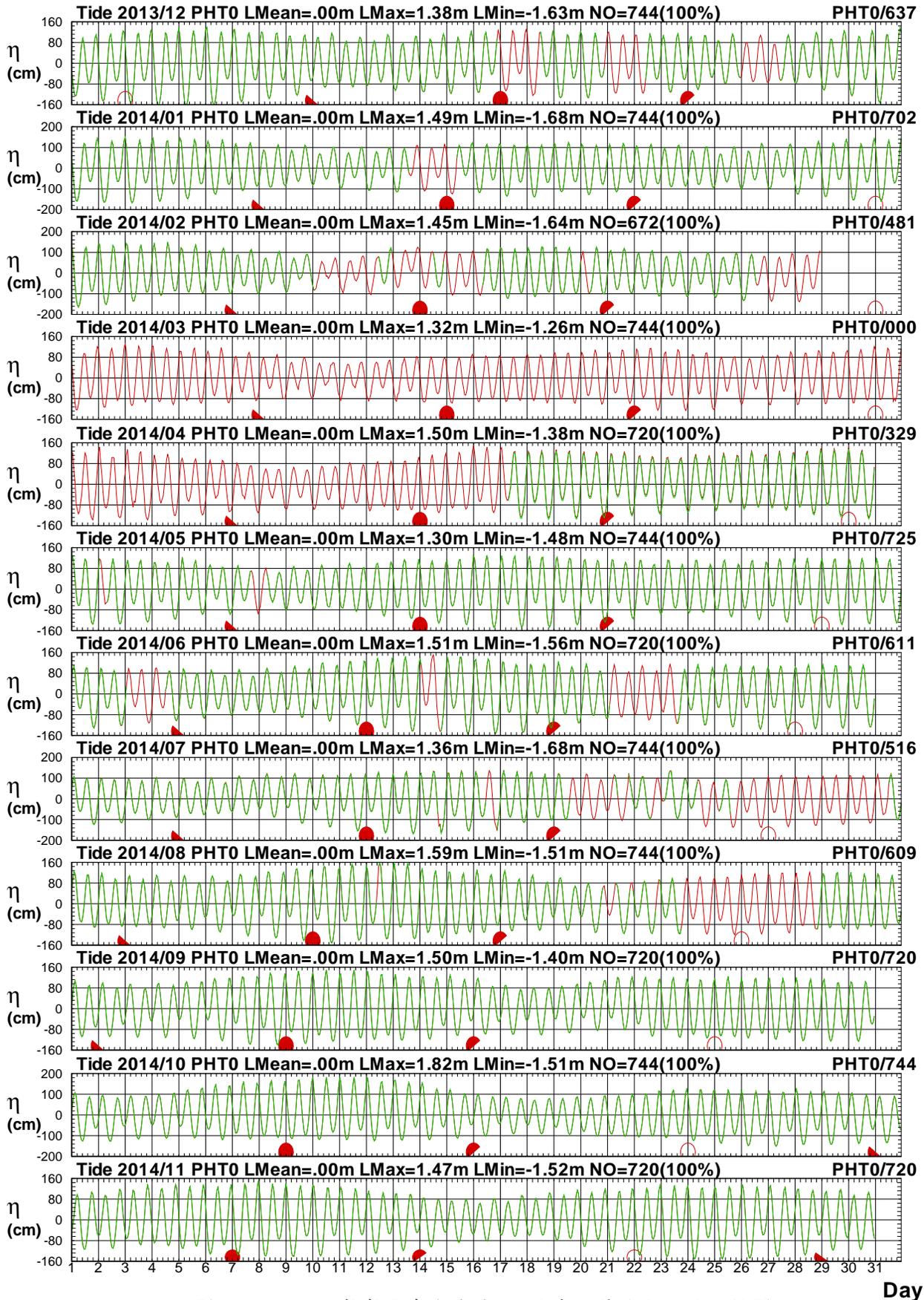


圖 3.1.1 2014年每月澎湖海域 T 站修補前後之潮位比較圖

T13CPHT0.1HA T13CPHT0.1H0 T141PHT0.1HA T141PHT0.1H0 T142PHT0.1HA T142PHT0.1H0
 T143PHT0.1HA T143PHT0.1H0 T144PHT0.1HA T144PHT0.1H0 T145PHT0.1HA T145PHT0.1H0

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Tidal Level in Peng-Hu Seas of PHT0 at 2014

1 ○ 8 ● 15 ● 22 ●

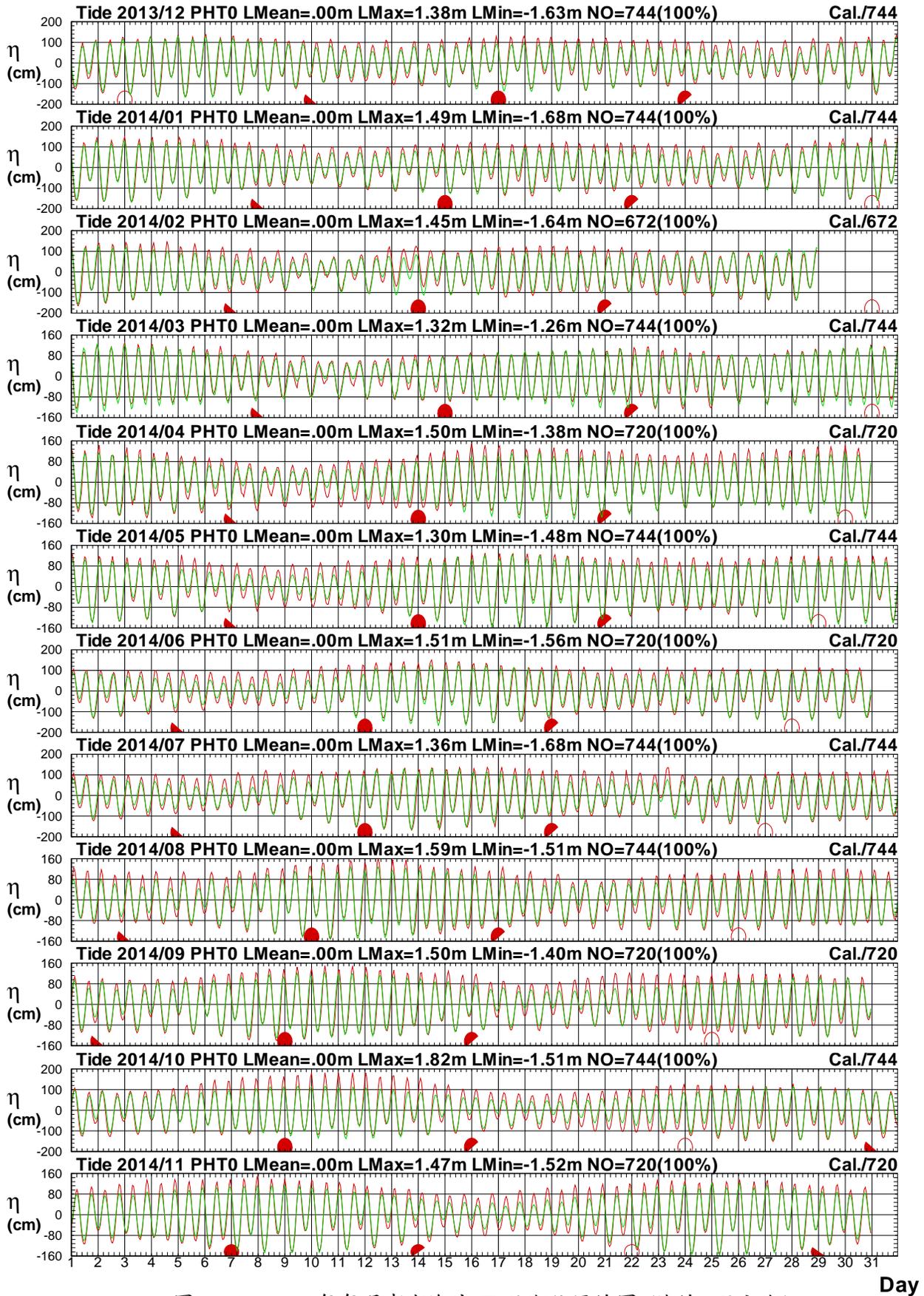


圖 3.1.2 2014年每月澎湖海域 T 站潮位歷線圖 (綠線: 天文潮)

T13CPHT0.1HA T13CPHT0.1HC T141PHT0.1HA T141PHT0.1HC T142PHT0.1HA T142PHT0.1HC
T143PHT0.1HA T143PHT0.1HC T144PHT0.1HA T144PHT0.1HC T145PHT0.1HA T145PHT0.1HC

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Tidal Level in Peng-Hu Seas of PHT0 at 2014

1 ○ 8 ● 15 ● 22 ●

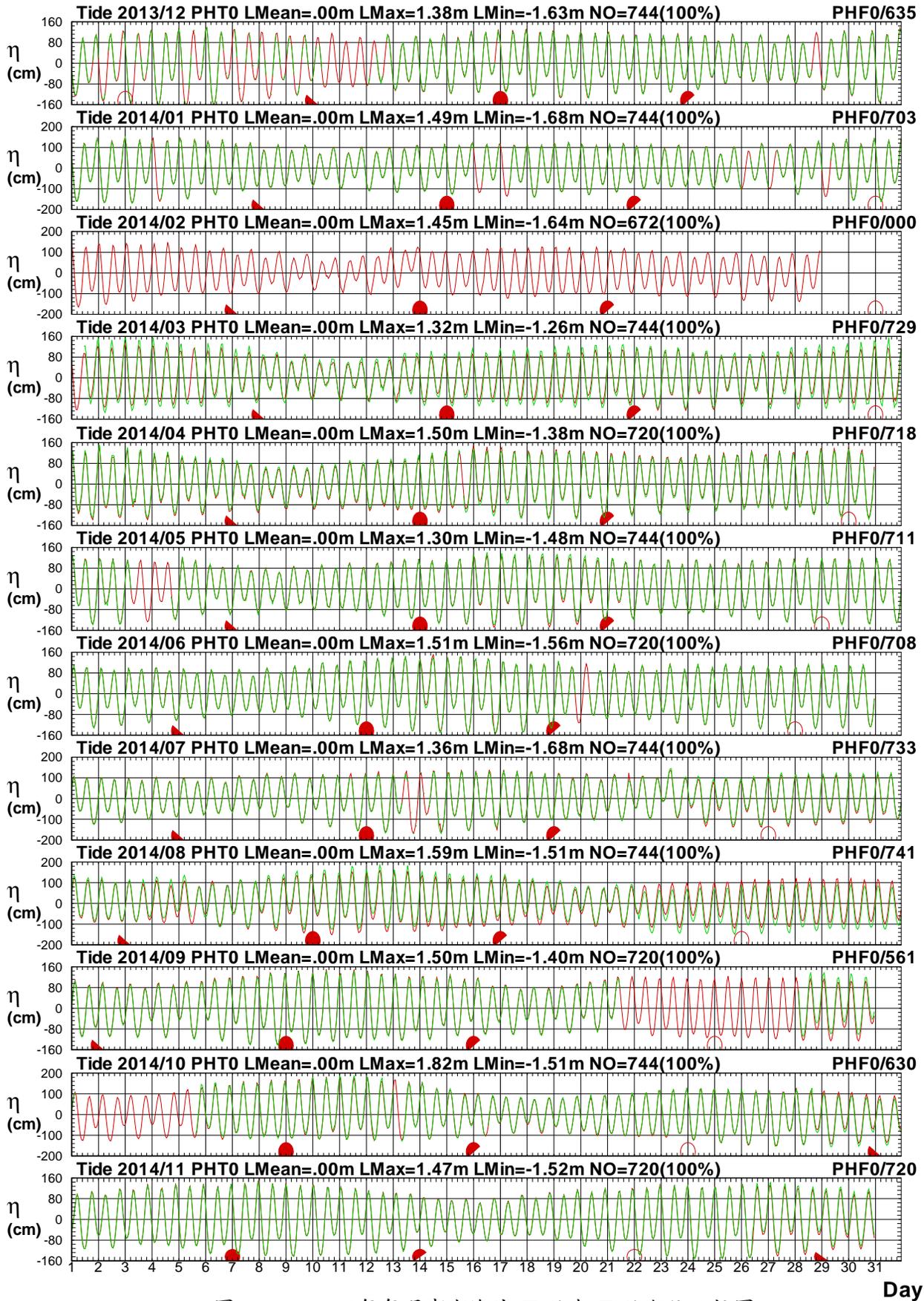


圖 3.1.3 2014年每月澎湖海域 T 站與 F 站潮位比較圖

T13CPHT0.1HA T13CPHF0.1H0 T141PHT0.1HA T141PHF0.1H0 T142PHT0.1HA T142PHF0.1H0
 T143PHT0.1HA T143PHF0.1H0 T144PHT0.1HA T144PHF0.1H0 T145PHT0.1HA T145PHF0.1H0

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Tidal Level in Peng-Hu Seas of PHT0 at 2014

1 ○ 8 ● 15 ● 22 ●

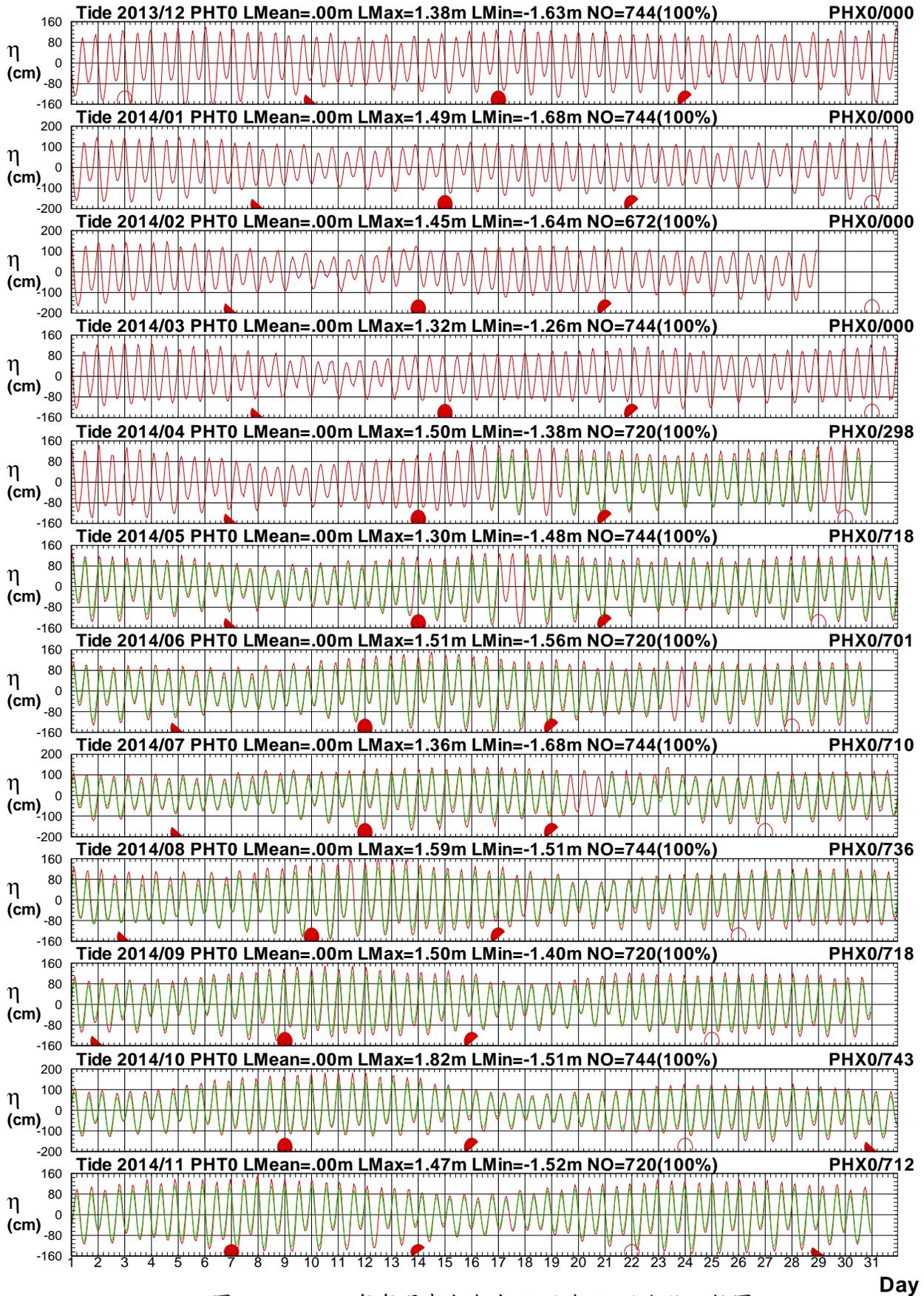


圖 3.1.4 2014年每月澎湖海域 T 站與 X 站潮位比較圖

T13CPHT0.1HA T13CPHX0.1H0 T141PHT0.1HA T141PHX0.1H0 T142PHT0.1HA T142PHX0.1H0
 T143PHT0.1HA T143PHX0.1H0 T144PHT0.1HA T144PHX0.1H0 T145PHT0.1HA T145PHX0.1H0

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Tidal Level in Peng-Hu Seas of PHT0 at 2014

1 ○ 8 ● 15 ● 22 ●

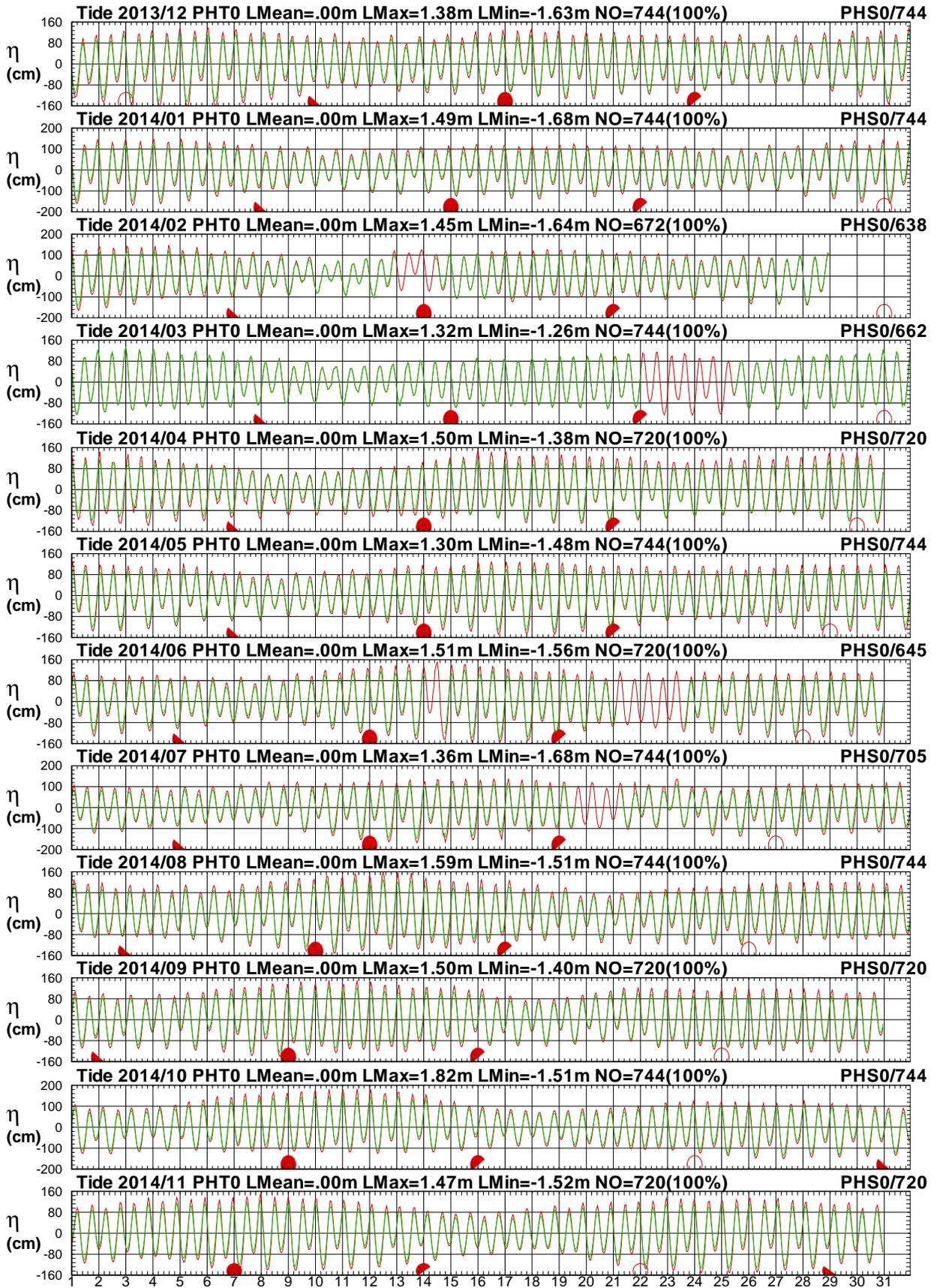


圖 3.1.5 2014年每月澎湖海域 T 站與 S 站潮位比較圖

T13CPHT0.1HA T13CPHS0.1H0 T141PHT0.1HA T141PHS0.1H0 T142PHT0.1HA T142PHS0.1H0
 T143PHT0.1HA T143PHS0.1H0 T144PHT0.1HA T144PHS0.1H0 T145PHT0.1HA T145PHS0.1H0

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第四章 2014 年澎湖海域觀測海流資料

澎湖港海流之觀測，本中心(IHMT)於 2011 年 1 月安置挪威 NORTEK 公司之剖面海流表面波浪與潮汐之監測系統(簡稱 AWCP)，安裝在澎湖港龍門尖山港區波堤堤頭外(測站 X)，如附圖 4。

測站 Y(澎湖外海浮標站)之海流儀屬水利署(WRA)所有，姑婆嶼北北西方約 1 公里處，水深 26.6 公尺浮標上。測站 Z(東吉島海流站)之海流儀屬中央氣象局(CWB)所有。各觀測站歷年觀測海流資料蒐集概況如表 4。

剖面海流流速的量測可以依照使用在不同水深即自固定在海床上之儀器位置到水表面來設定量測不同的間距，澎湖港觀測站水深間距設定為 2 公尺；每小時連續量測 600 秒，再將總和平均代表其數樣每一間距層之海流流速、流向等資料，記錄在感應器內，並每隔 1 小時經由海底電纜傳訊回接收站之電腦中儲存。

本海流年報 2014 年各觀測站每月觀測海流資料記錄期間統計表，如表 4.1a，2014 年各觀測站每月計算潮流資料統計表，如表 4.1b。2014 年各觀測站觀測海流與計算潮流(殘餘流)歷線比較圖，各觀測站觀測海流與其他測站觀測海流歷線比較圖，如圖 4.1 以後。

表 4 澎湖海域觀測海流資料蒐集概況表(統計時間至 2014 年 11 月)

測站	緯度	經度	觀測期間	觀測單位	備註
X	23°33'21"N	119°40'31"E	2011/01-2014/11(觀測中)	港研中心	龍門尖山港外海
Y	23°43'37"N	119°33'07"E	2010/07-2014/11(觀測中)	水利署	澎湖資料浮標
Z	23°15'23"N	119°41'2"E	2013/10-2014/11(觀測中)	中央氣象局	東吉島資料浮標



圖 4 澎湖海域海流觀測站位置示意圖

表 4.1a 2014年每月澎湖海域各測站觀測海流資料紀錄統計表

年/月 港區	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域
測站	X	Y	Z	R				
2013/12月	479 (64.4%)	744 (100%)	733 (98.5%)	*	*	*	*	*
2014/ 1月	723 (97.2%)	744 (100%)	743 (99.9%)	*	*	*	*	*
2014/ 2月	582 (86.6%)	663 (98.7%)	672 (100%)	*	*	*	*	*
2014/ 3月	*	744 (100%)	743 (99.9%)	*	*	*	*	*
2014/ 4月	308 (42.8%)	720 (100%)	720 (100%)	*	*	*	*	*
2014/ 5月	721 (96.9%)	744 (100%)	733 (98.5%)	*	*	*	*	*
2014/ 6月	701 (97.4%)	712 (98.9%)	714 (99.2%)	*	*	*	*	*
2014/ 7月	710 (95.4%)	715 (96.1%)	744 (100%)	*	*	*	*	*
2014/ 8月	739 (99.3%)	744 (100%)	744 (100%)	*	*	*	*	*
2014/ 9月	720 (100%)	720 (100%)	720 (100%)	*	*	*	*	*
2014/10月	744 (100%)	738 (99.2%)	744 (100%)	*	*	*	*	*
2014/11月	720 (100%)	716 (99.4%)	720 (100%)	*	*	*	*	*
2014/冬季	1784 (82.6%)	2151 (99.6%)	2148 (99.4%)	*	*	*	*	*
2014/春季	1029 (46.6%)	2208 (100%)	2196 (99.5%)	*	*	*	*	*
2014/夏季	2150 (97.4%)	2171 (98.3%)	2202 (99.7%)	*	*	*	*	*
2014/秋季	2184 (100%)	2174 (99.5%)	2184 (100%)	*	*	*	*	*
2014/整年	7147 (81.6%)	8704 (99.4%)	8730 (99.7%)	*	*	*	*	*
起始年月	2013/12	2013/12	2013/12	*	*	*	*	*
結束年月	2014/11	2014/11	2014/11	*	*	*	*	*

ST-X: 港灣技術研究中心觀測 X 站流速資料

表 4.1b 2014年每月澎湖海域計算潮流各測站資料統計表

年/月 港區	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域	澎湖海域
測站	X	Y	Z	R				
2013/12月	744 (100%)	744 (100%)	744 (100%)	*	*	*	*	*
2014/ 1月	744 (100%)	744 (100%)	744 (100%)	*	*	*	*	*
2014/ 2月	672 (100%)	672 (100%)	672 (100%)	*	*	*	*	*
2014/ 3月	744 (100%)	744 (100%)	744 (100%)	*	*	*	*	*
2014/ 4月	720 (100%)	720 (100%)	720 (100%)	*	*	*	*	*
2014/ 5月	744 (100%)	744 (100%)	744 (100%)	*	*	*	*	*
2014/ 6月	720 (100%)	720 (100%)	720 (100%)	*	*	*	*	*
2014/ 7月	744 (100%)	744 (100%)	744 (100%)	*	*	*	*	*
2014/ 8月	744 (100%)	744 (100%)	744 (100%)	*	*	*	*	*
2014/ 9月	720 (100%)	720 (100%)	720 (100%)	*	*	*	*	*
2014/10月	744 (100%)	744 (100%)	744 (100%)	*	*	*	*	*
2014/11月	720 (100%)	720 (100%)	720 (100%)	*	*	*	*	*
2014/冬季	*	*	*	*	*	*	*	*
2014/春季	*	*	*	*	*	*	*	*
2014/夏季	*	*	*	*	*	*	*	*
2014/秋季	*	*	*	*	*	*	*	*
2014/整年	*	*	*	*	*	*	*	*
起始年月	*	*	*	*	*	*	*	*
結束年月	*	*	*	*	*	*	*	*

Cal.X: 港灣技術研究中心潮流 X 站計算資料

Current Speed in Peng-Hu Seas of PHY0 at 2014

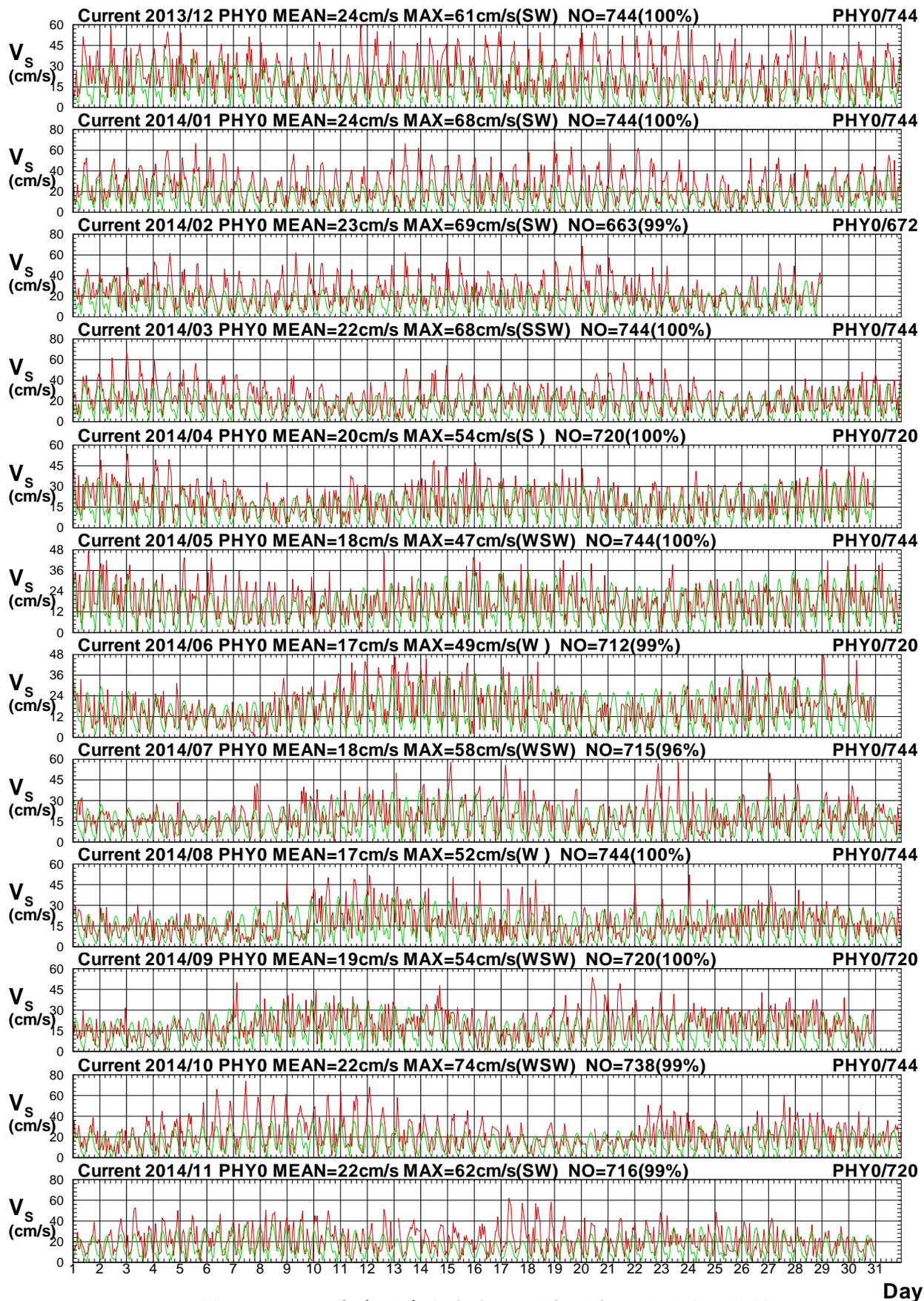


圖 4.1a 2014年每月澎湖海域 Y 站觀測與潮流流速比較圖

C13CPHY0.1H0 C13CPHY0.1HD C141PHY0.1H0 C141PHY0.1HD C142PHY0.1H0 C142PHY0.1HD
 C143PHY0.1H0 C143PHY0.1HD C144PHY0.1H0 C144PHY0.1HD C145PHY0.1H0 C145PHY0.1HD

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Current Direction in Peng-Hu Seas of PHY0 at 2014

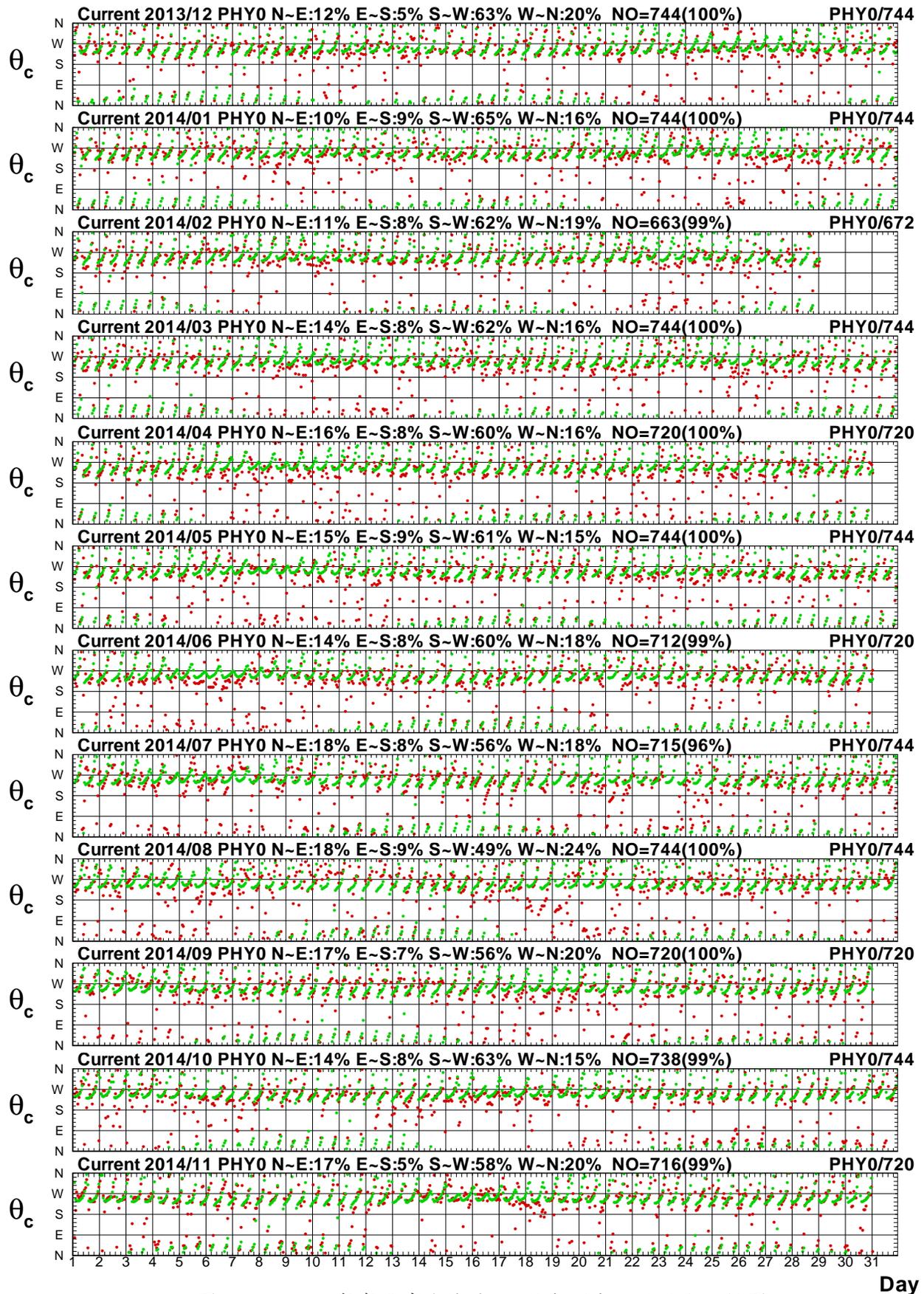


圖 4.1b 2014年每月澎湖海域 Y 站觀測與潮流流向比較圖

C13CPHY0.1H0 C13CPHY0.1HD C141PHY0.1H0 C141PHY0.1HD C142PHY0.1H0 C142PHY0.1HD
 C143PHY0.1H0 C143PHY0.1HD C144PHY0.1H0 C144PHY0.1HD C145PHY0.1H0 C145PHY0.1HD

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Current Speed in Peng-Hu Seas of PHY0 at 2014

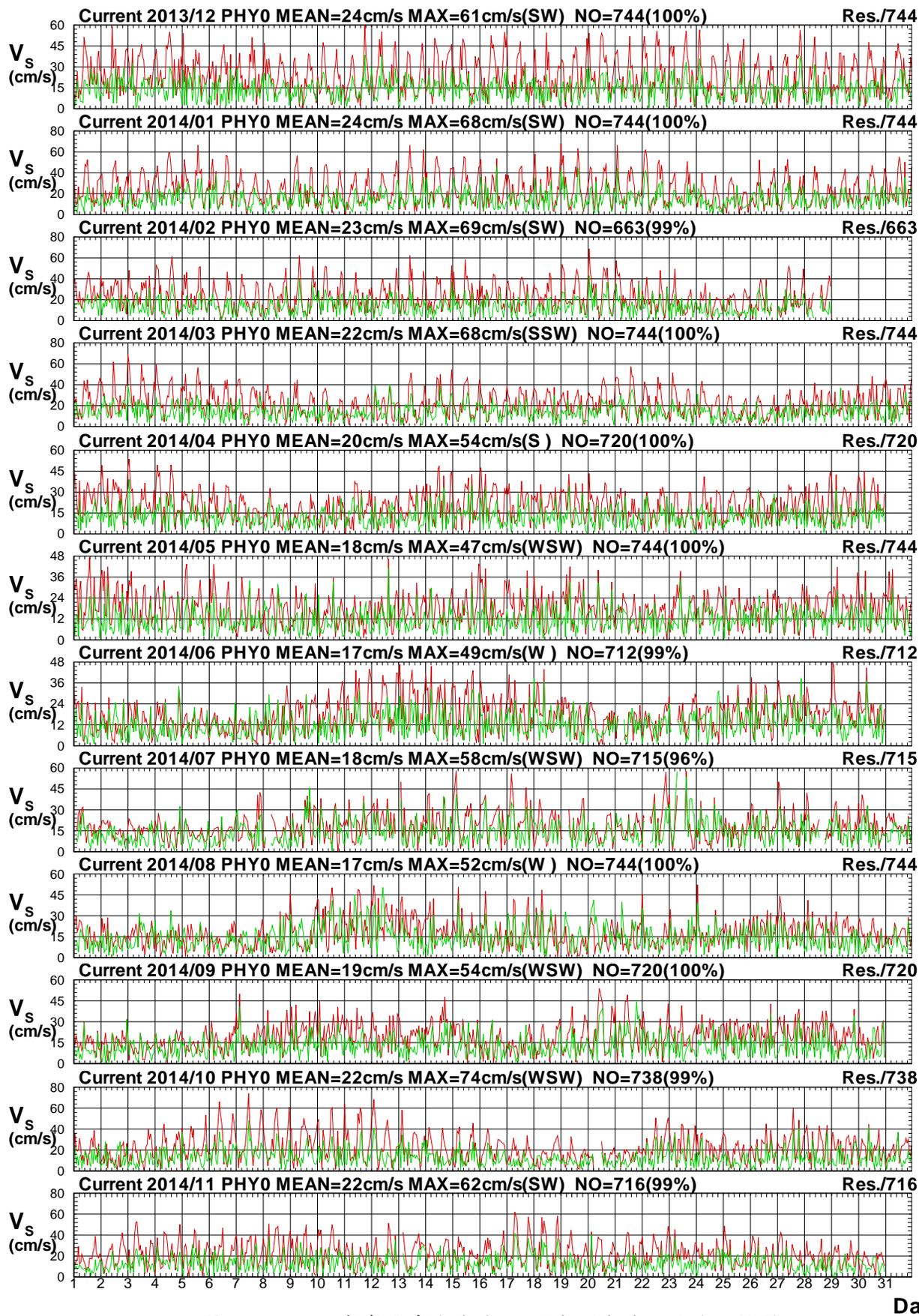


圖 4.2a 2014年每月澎湖海域 Y 站觀測與非潮流速比較圖

C13CPHY0.1H0 C13CPHY0.1HR C141PHY0.1H0 C141PHY0.1HR C142PHY0.1H0 C142PHY0.1HR
 C143PHY0.1H0 C143PHY0.1HR C144PHY0.1H0 C144PHY0.1HR C145PHY0.1H0 C145PHY0.1HR

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Current Direction in Peng-Hu Seas of PHY0 at 2014

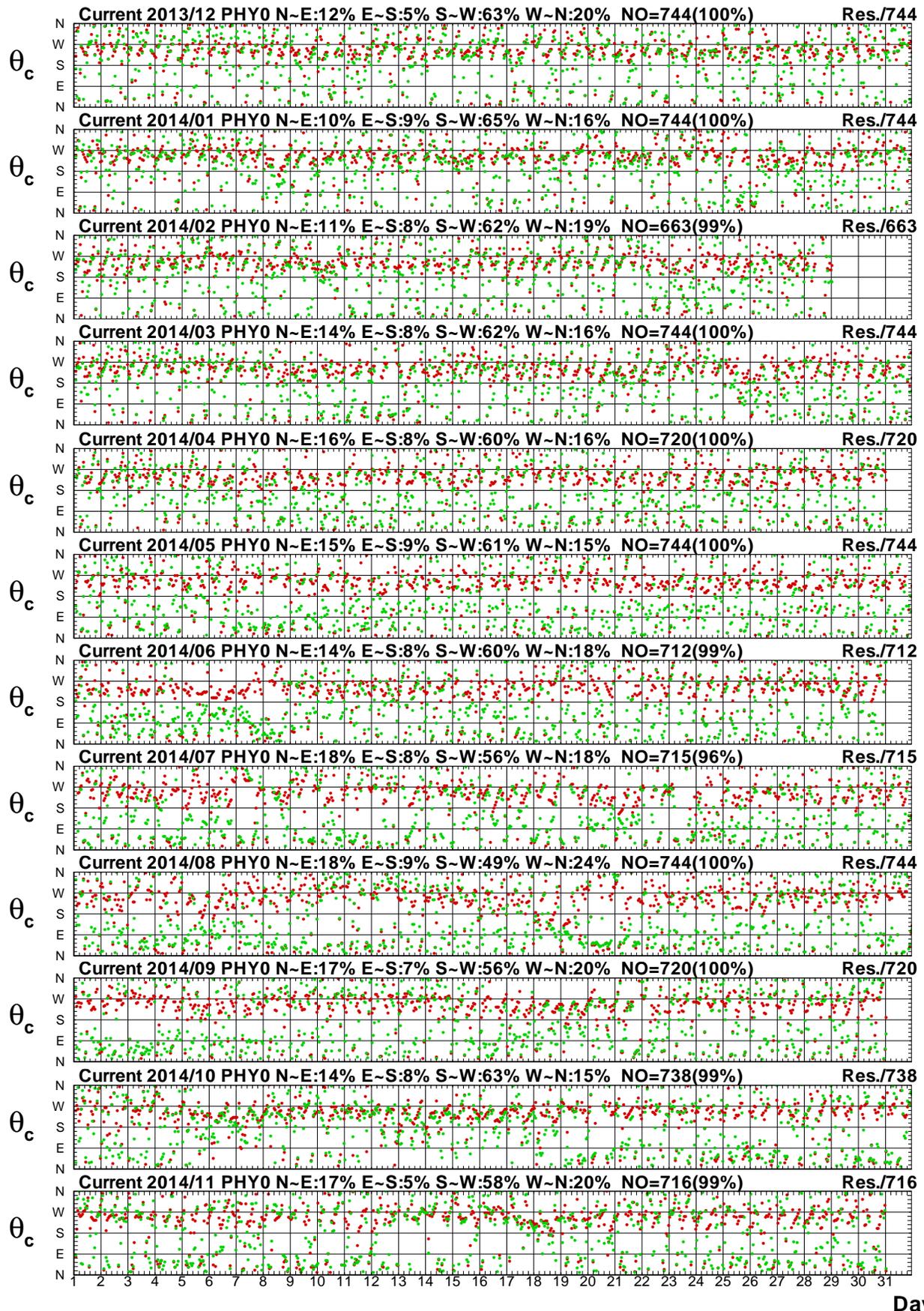


圖 4.2b 2014年每月澎湖海域 Y 站觀測與非潮流向比較圖

C13CPHY0.1H0 C13CPHY0.1HR C141PHY0.1H0 C141PHY0.1HR C142PHY0.1H0 C142PHY0.1HR
 C143PHY0.1H0 C143PHY0.1HR C144PHY0.1H0 C144PHY0.1HR C145PHY0.1H0 C145PHY0.1HR

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Current Speed in Peng-Hu Seas of PHX0 at 2014

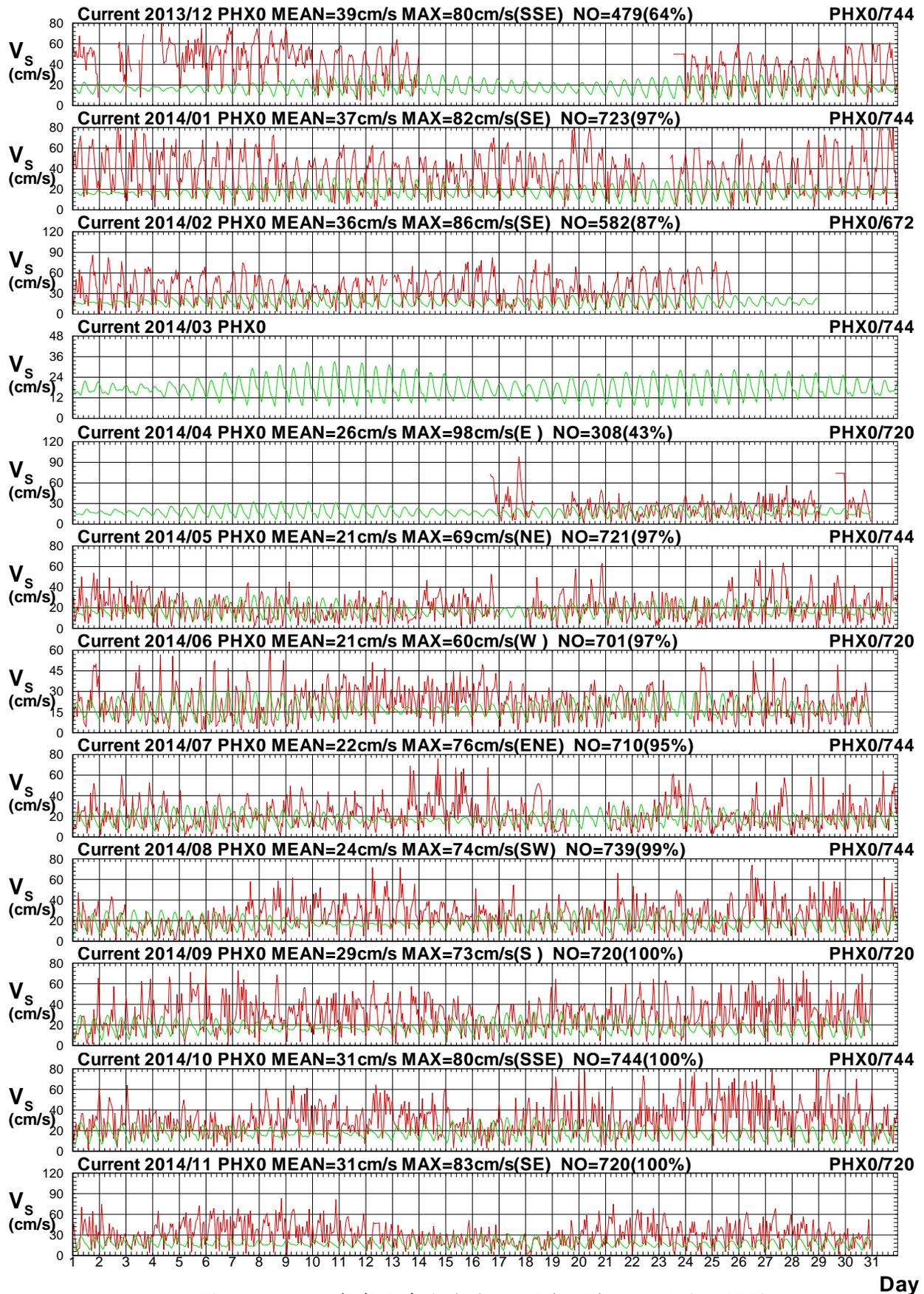


圖 4.3a 2014年每月澎湖海域 X 站觀測與潮流流速比較圖

C13CPHX0.1H0 C13CPHX0.1HD C141PHX0.1H0 C141PHX0.1HD C142PHX0.1H0 C142PHX0.1HD
 C143PHX0.1H0 C143PHX0.1HD C144PHX0.1H0 C144PHX0.1HD C145PHX0.1H0 C145PHX0.1HD

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Current Direction in Peng-Hu Seas of PHX0 at 2014

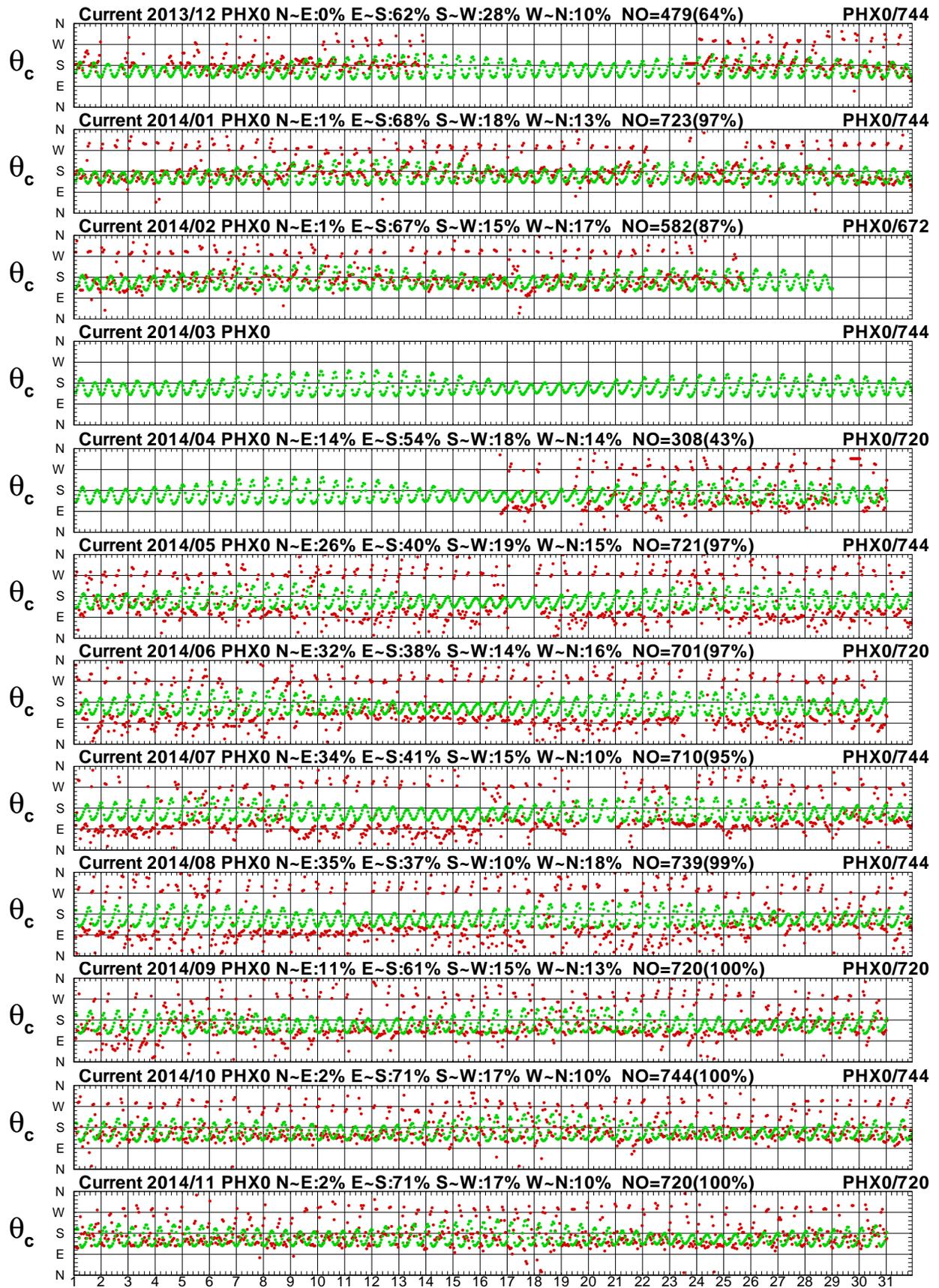


圖 4.3b 2014年每月澎湖海域 X 站觀測與潮流流向比較圖

C13CPHX0.1H0 C13CPHX0.1HD C141PHX0.1H0 C141PHX0.1HD C142PHX0.1H0 C142PHX0.1HD
 C143PHX0.1H0 C143PHX0.1HD C144PHX0.1H0 C144PHX0.1HD C145PHX0.1H0 C145PHX0.1HD

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Current Speed in Peng-Hu Seas of PHX0 at 2014

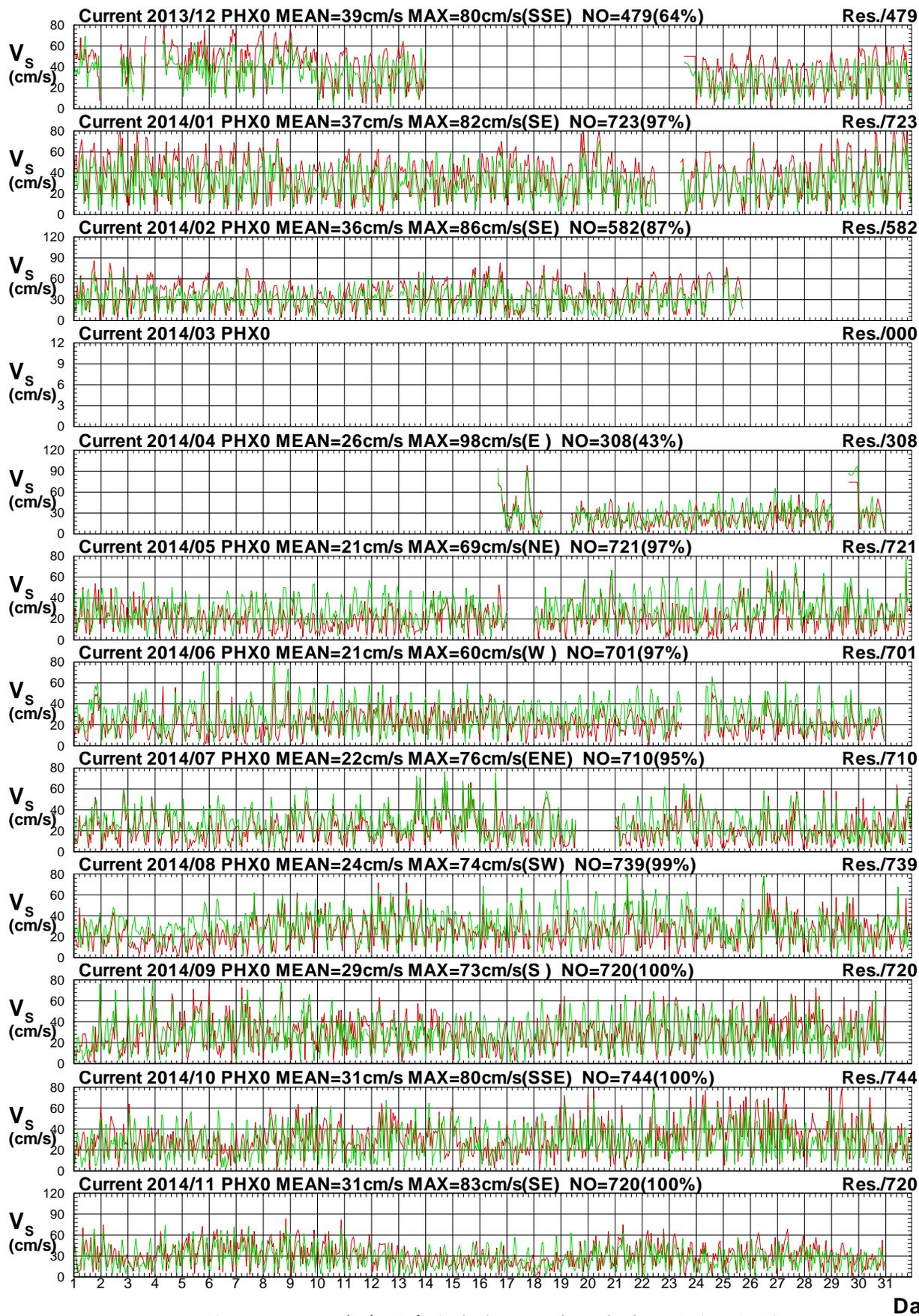


圖 4.4a 2014年每月澎湖海域 X 站觀測與非潮流速比較圖

C13CPHX0.1H0 C13CPHX0.1HR C141PHX0.1H0 C141PHX0.1HR C142PHX0.1H0 C142PHX0.1HR
 C143PHX0.1H0 C143PHX0.1HR C144PHX0.1H0 C144PHX0.1HR C145PHX0.1H0 C145PHX0.1HR

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Current Direction in Peng-Hu Seas of PHX0 at 2014

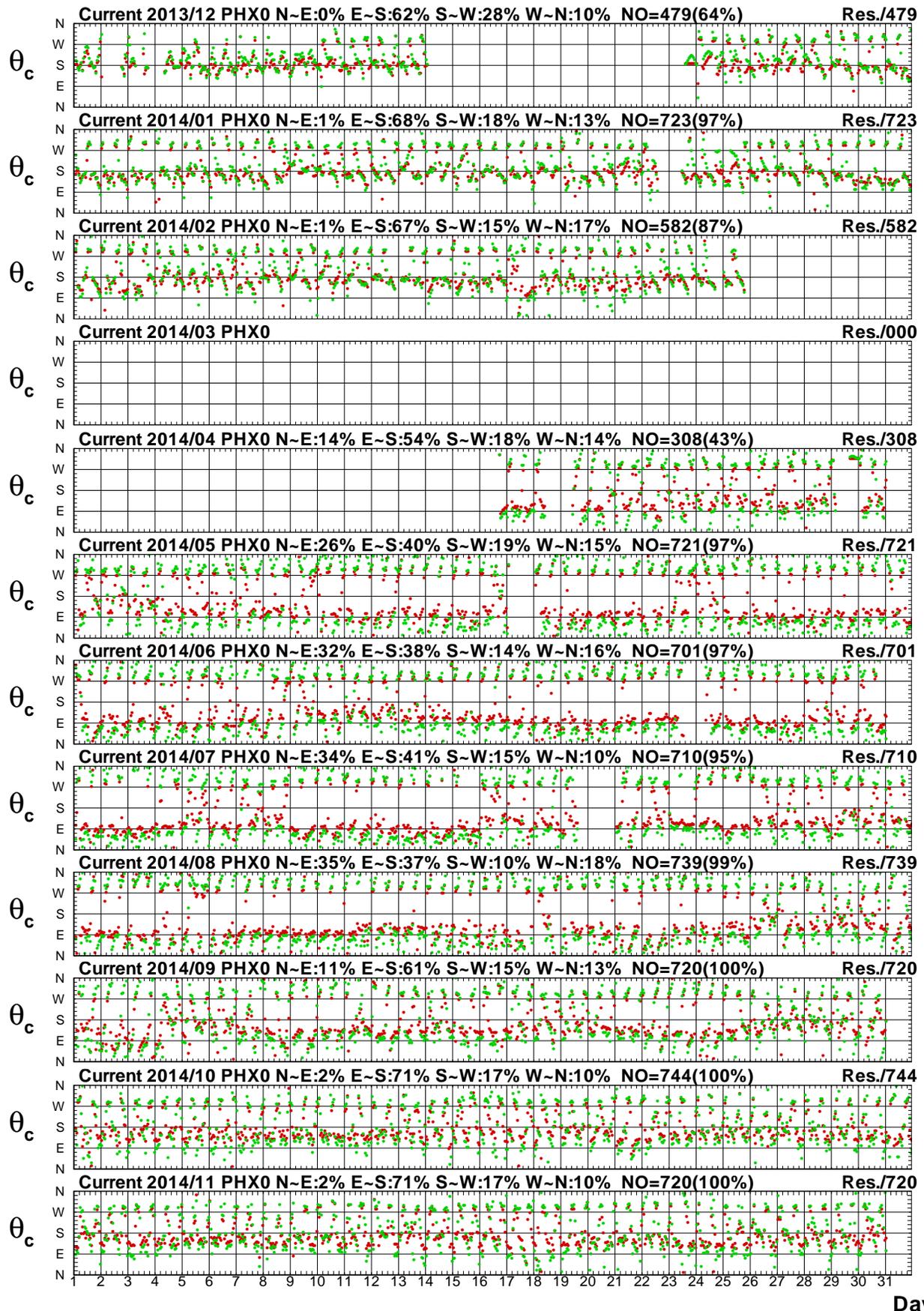


圖 4.4b 2014年每月澎湖海域 X 站觀測與非潮流向比較圖

C13CPHX0.1H0 C13CPHX0.1HR C141PHX0.1H0 C141PHX0.1HR C142PHX0.1H0 C142PHX0.1HR
 C143PHX0.1H0 C143PHX0.1HR C144PHX0.1H0 C144PHX0.1HR C145PHX0.1H0 C145PHX0.1HR

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Current Speed in Peng-Hu Seas of PHZ0 at 2014

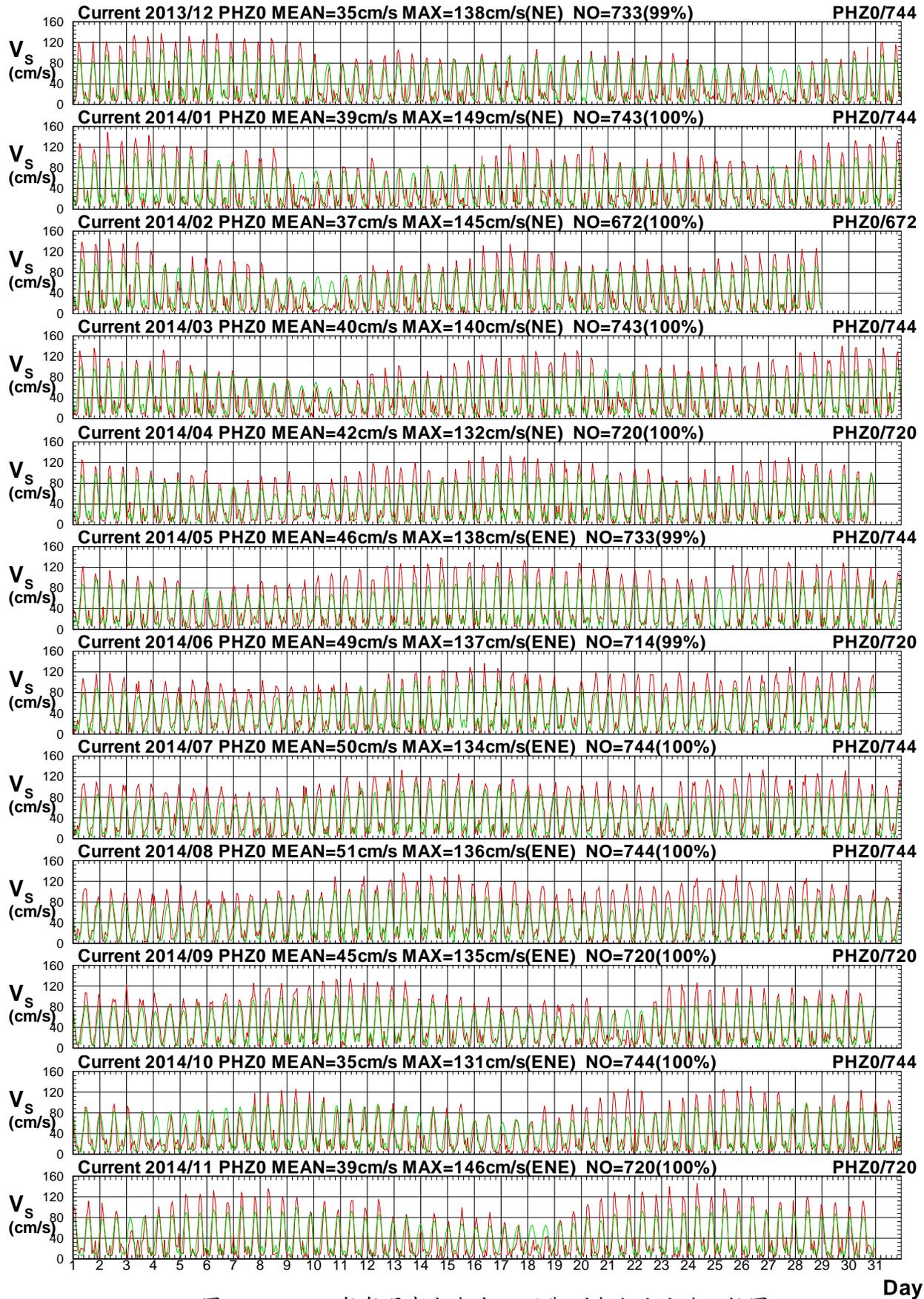


圖 4.5a 2014年每月澎湖海域 Z 站觀測與潮流流速比較圖

C13CPHZ0.1H0 C13CPHZ0.1HD C141PHZ0.1H0 C141PHZ0.1HD C142PHZ0.1H0 C142PHZ0.1HD
 C143PHZ0.1H0 C143PHZ0.1HD C144PHZ0.1H0 C144PHZ0.1HD C145PHZ0.1H0 C145PHZ0.1HD

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Current Direction in Peng-Hu Seas of PHZ0 at 2014

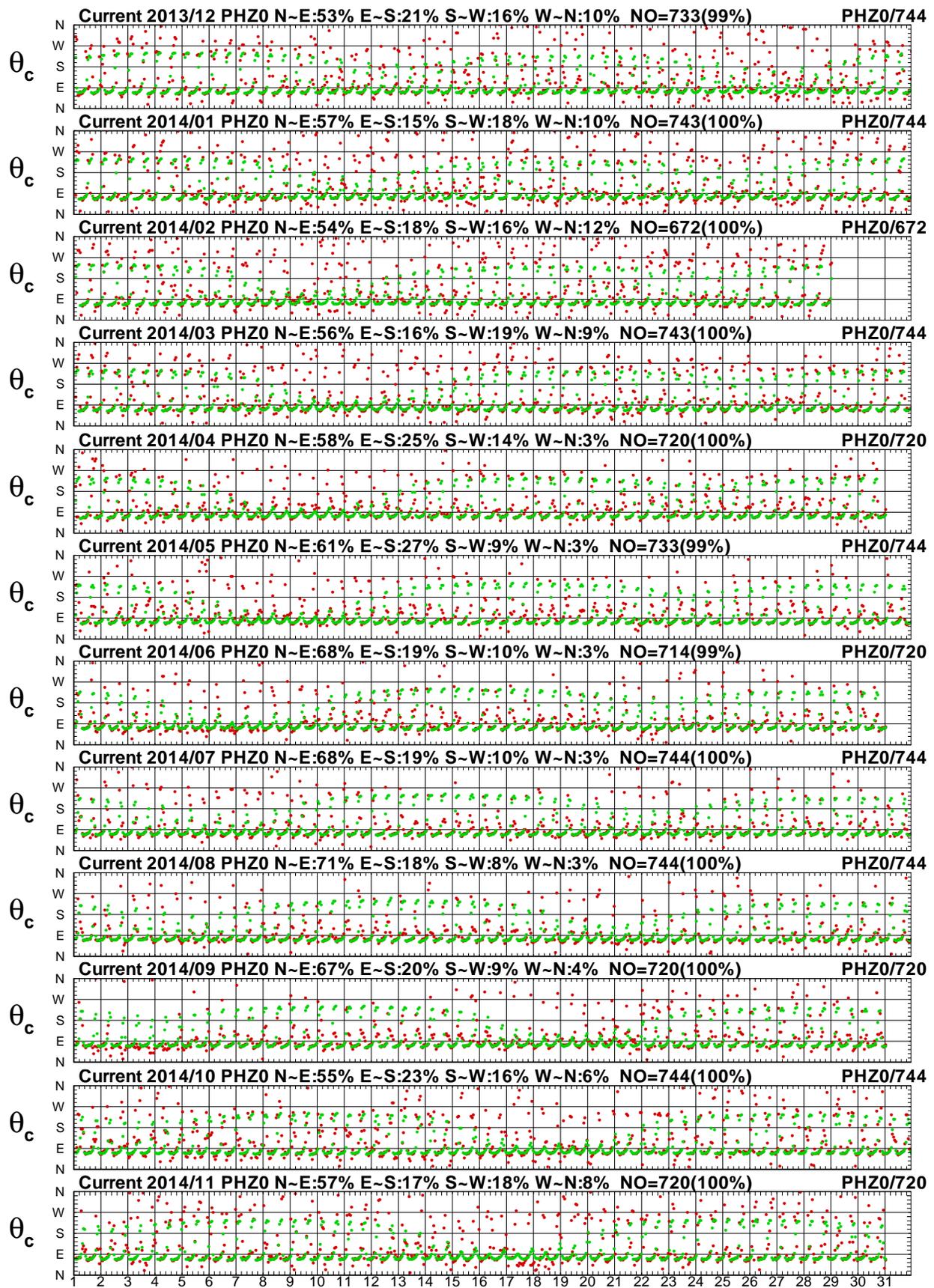


圖 4.5b 2014年每月澎湖海域 Z 站觀測與潮流流向比較圖

Day

C13CPHZ0.1H0 C13CPHZ0.1HD C141PHZ0.1H0 C141PHZ0.1HD C142PHZ0.1H0 C142PHZ0.1HD
 C143PHZ0.1H0 C143PHZ0.1HD C144PHZ0.1H0 C144PHZ0.1HD C145PHZ0.1H0 C145PHZ0.1HD

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Current Speed in Peng-Hu Seas of PHZ0 at 2014

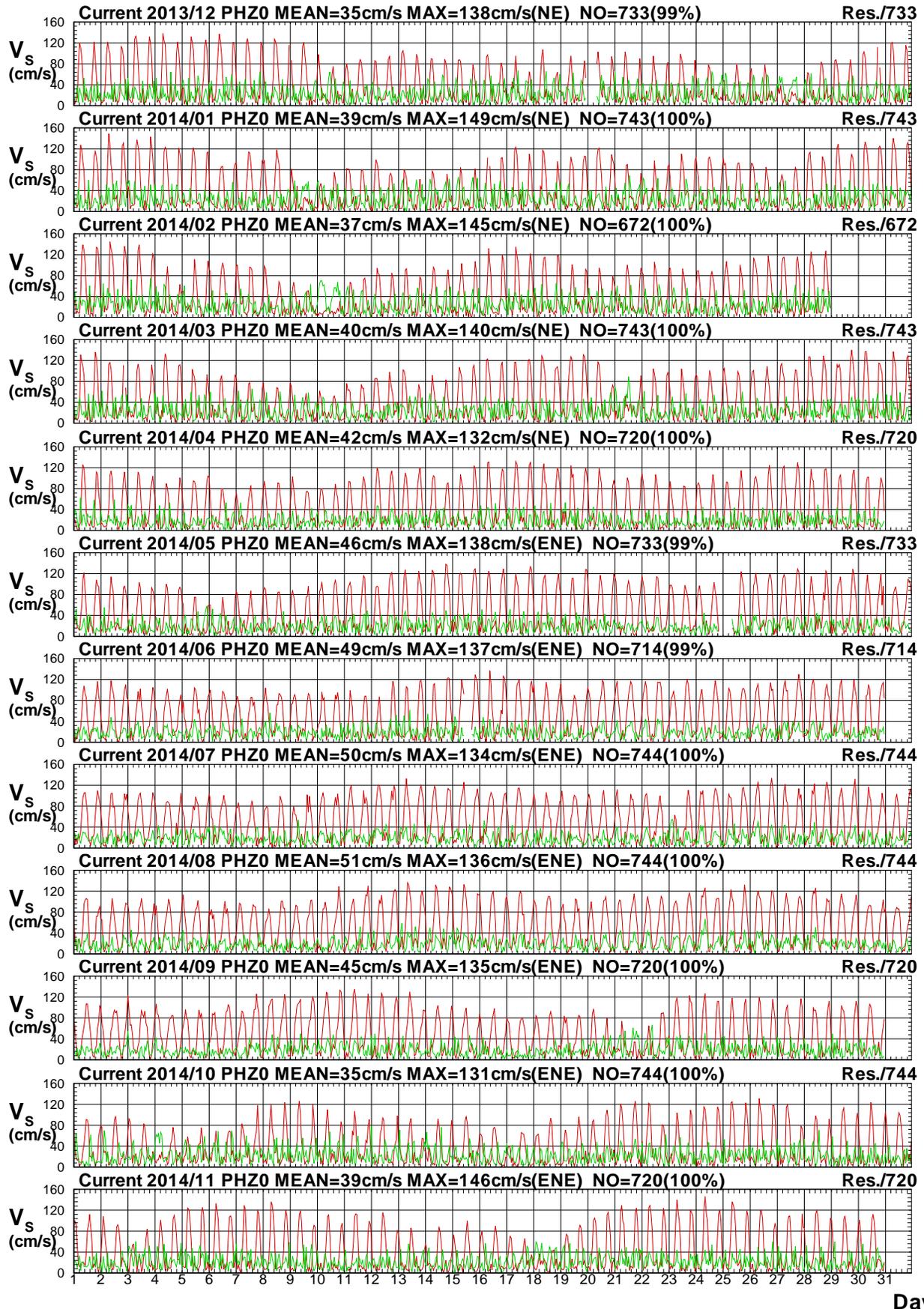


圖 4.6a 2014年每月澎湖海域 Z 站觀測與非潮流速比較圖

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 C143PHZ0.1H0 C143PHZ0.1HR C144PHZ0.1H0 C144PHZ0.1HR C145PHZ0.1H0 C145PHZ0.1HR

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Current Direction in Peng-Hu Seas of PHZ0 at 2014

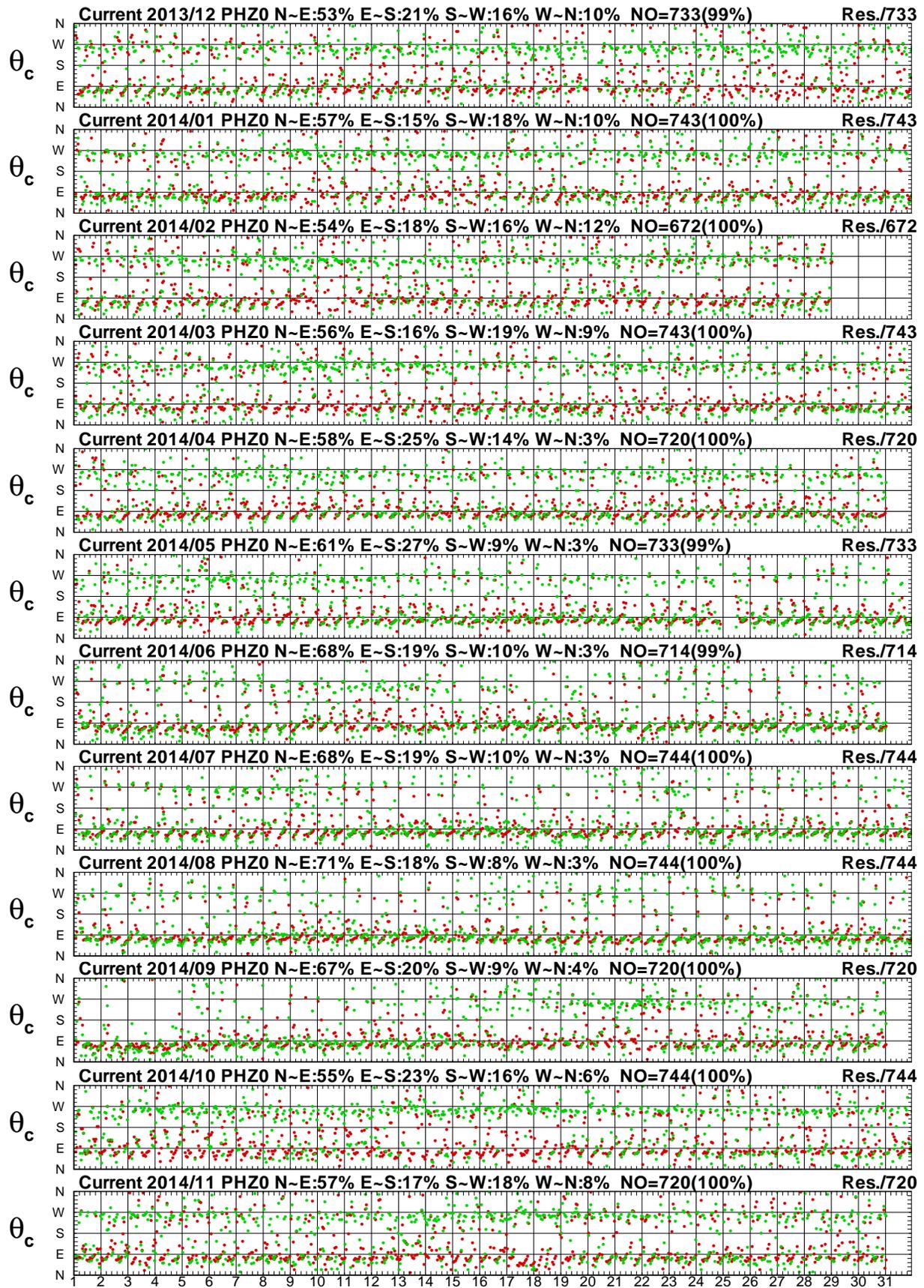


圖 4.6b 2014年每月澎湖海域 Z 站觀測與非潮流向比較圖

C13CPHZ0.1H0 C13CPHZ0.1HR C141PHZ0.1H0 C141PHZ0.1HR C142PHZ0.1H0 C142PHZ0.1HR
 C143PHZ0.1H0 C143PHZ0.1HR C144PHZ0.1H0 C144PHZ0.1HR C145PHZ0.1H0 C145PHZ0.1HR

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Current Speed in Peng-Hu Seas of PHY0 at 2014

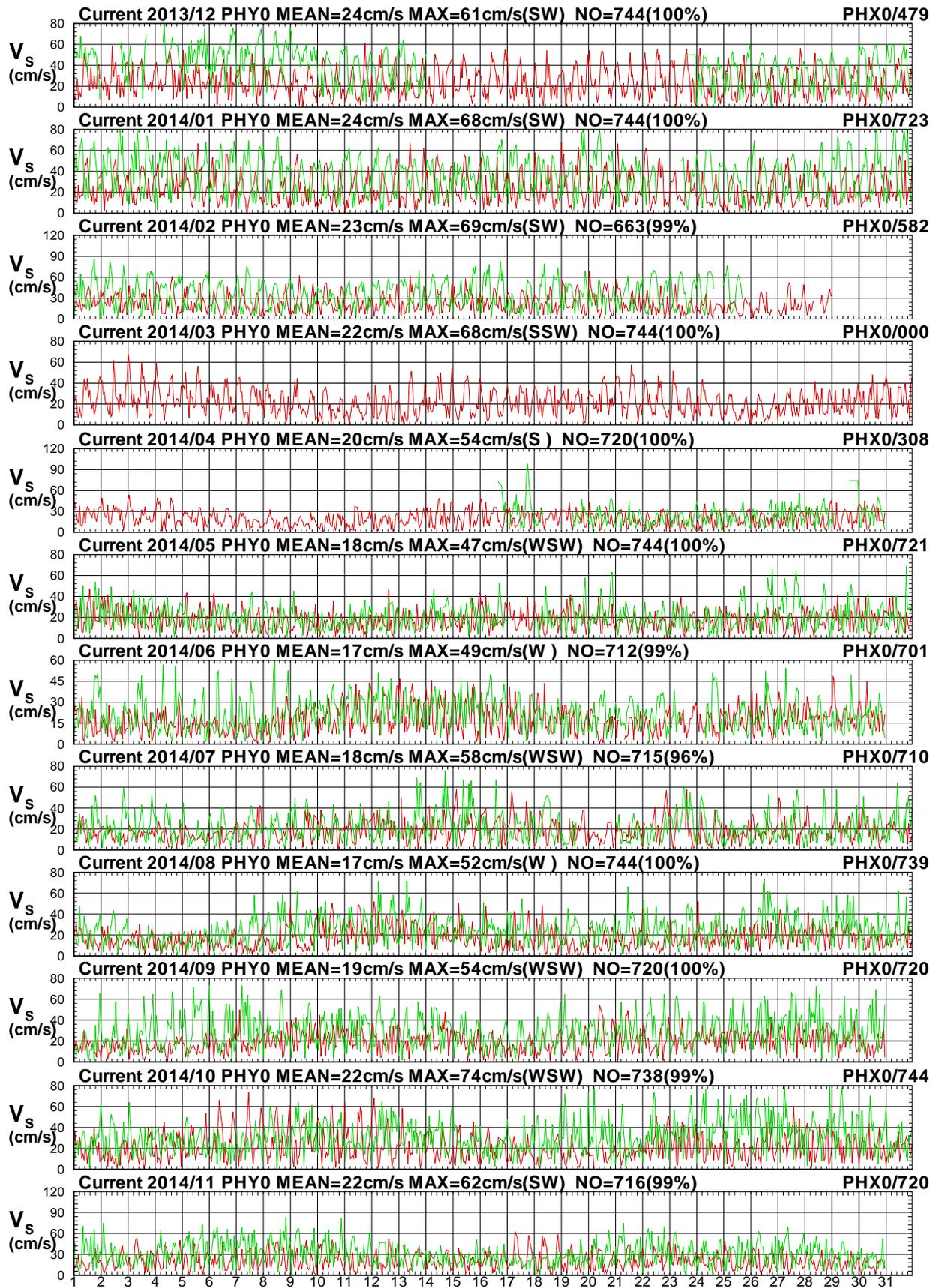


圖 4.7a 2014年每月澎湖海域 Y 站與 X 站流速比較圖

C13CPHY0.1H0 C13CPHX0.1H0 C141PHY0.1H0 C141PHX0.1H0 C142PHY0.1H0 C142PHX0.1H0
 C143PHY0.1H0 C143PHX0.1H0 C144PHY0.1H0 C144PHX0.1H0 C145PHY0.1H0 C145PHX0.1H0

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Current Direction in Peng-Hu Seas of PHY0 at 2014

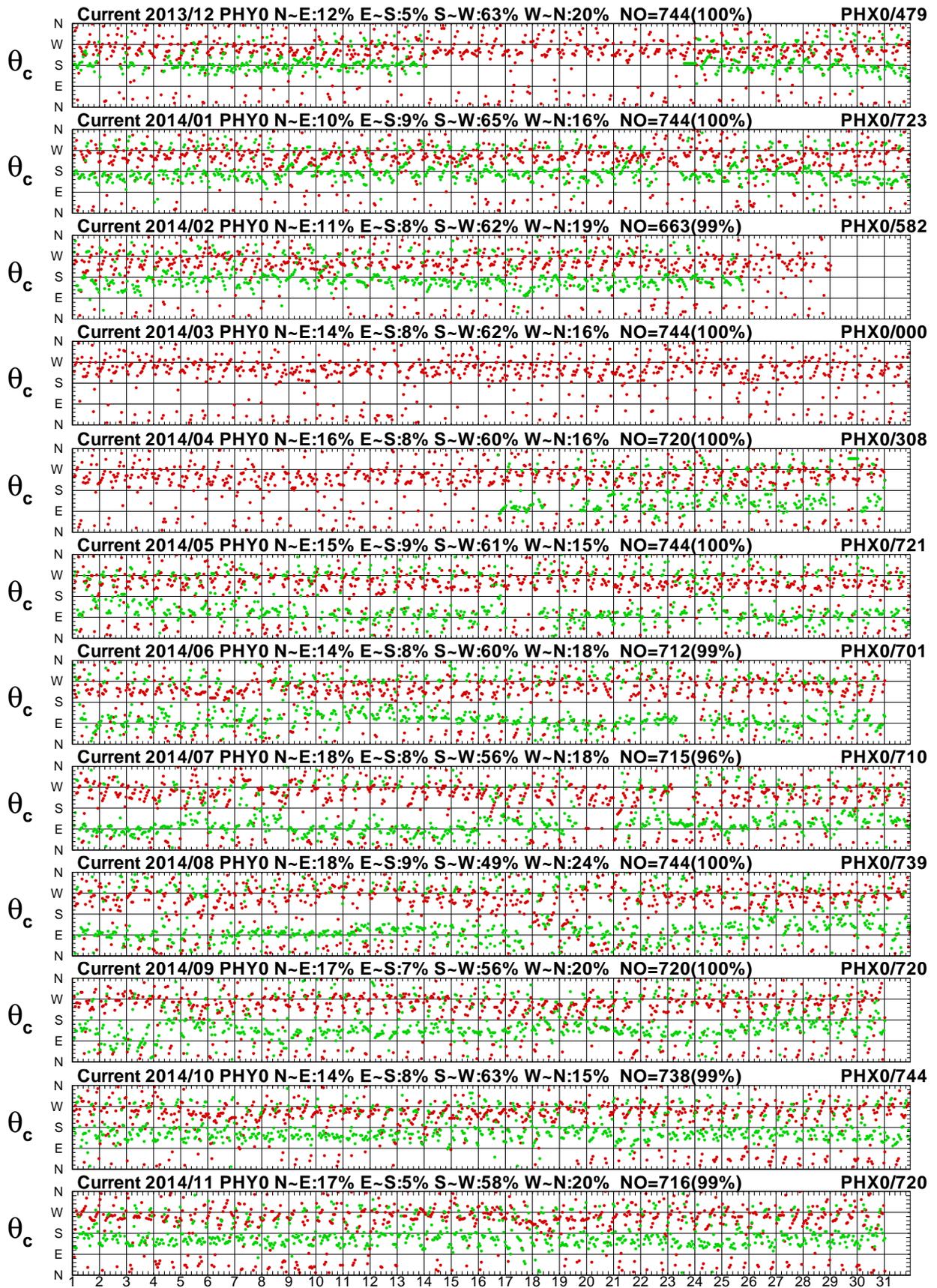


圖 4.7b 2014年每月澎湖海域 Y 站與 X 站流向比較圖

C13CPHY0.1H0 C13CPHX0.1H0 C141PHY0.1H0 C141PHX0.1H0 C142PHY0.1H0 C142PHX0.1H0
 C143PHY0.1H0 C143PHX0.1H0 C144PHY0.1H0 C144PHX0.1H0 C145PHY0.1H0 C145PHX0.1H0

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Current Speed in Peng-Hu Seas of PHY0 at 2014

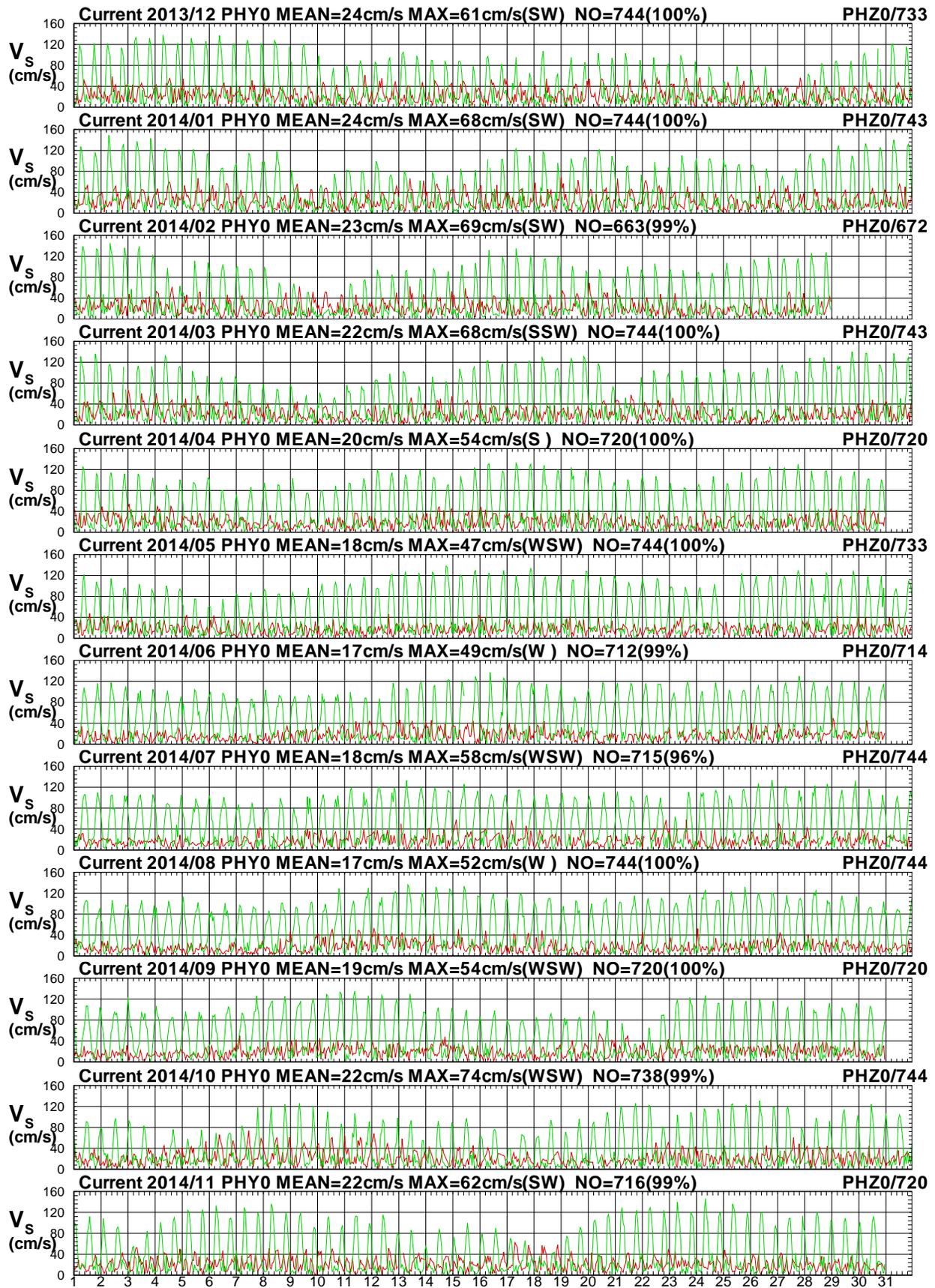


圖 4.8a 2014年每月澎湖海域 Y 站與 Z 站流速比較圖

C13CPHY0.1H0 C13CPHZ0.1H0 C141PHY0.1H0 C141PHZ0.1H0 C142PHY0.1H0 C142PHZ0.1H0
 C143PHY0.1H0 C143PHZ0.1H0 C144PHY0.1H0 C144PHZ0.1H0 C145PHY0.1H0 C145PHZ0.1H0

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Current Direction in Peng-Hu Seas of PHY0 at 2014

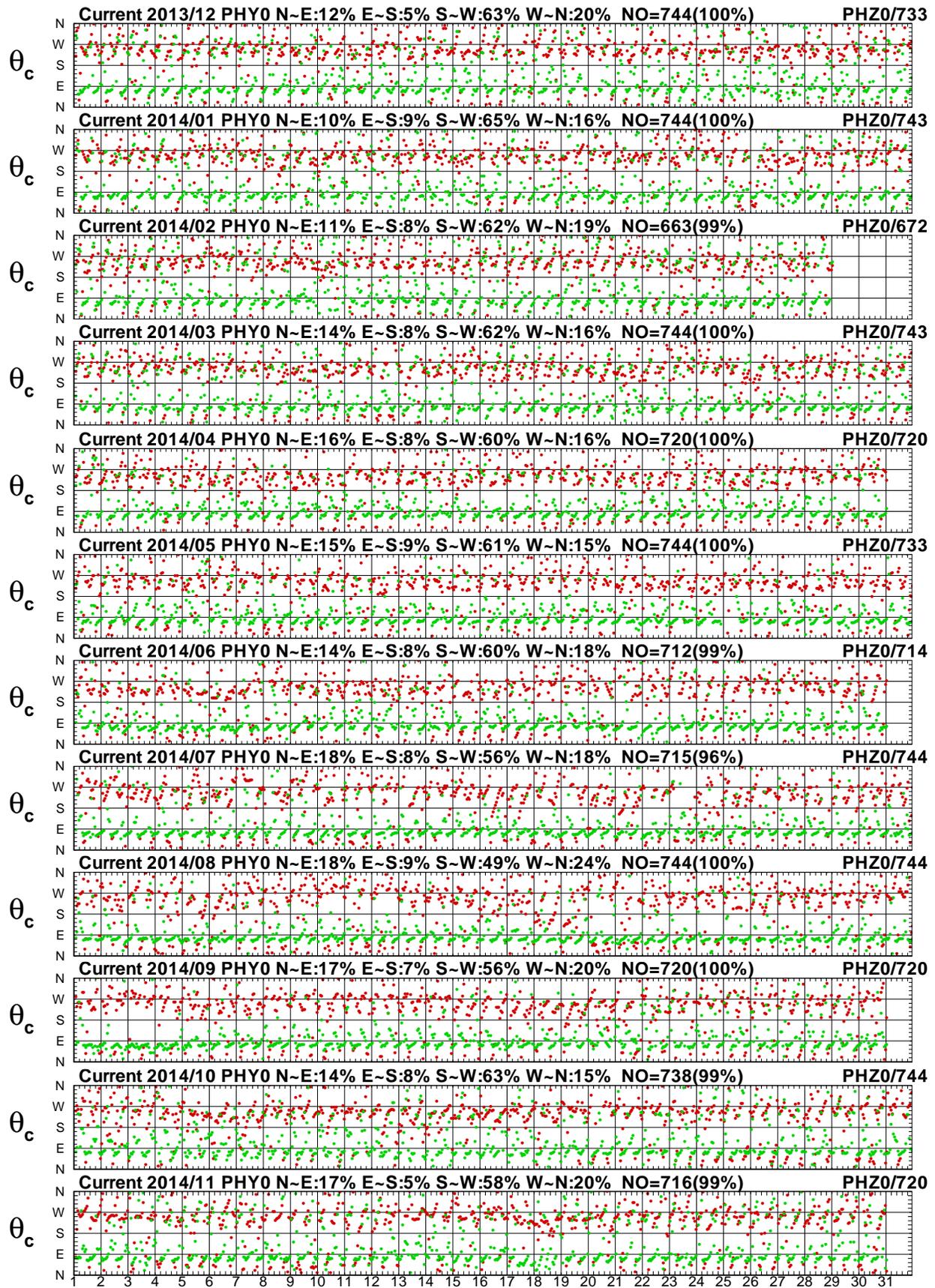


圖 4.8b 2014年每月澎湖海域 Y 站與 Z 站流向比較圖

C13CPHY0.1H0 C13CPHZ0.1H0 C141PHY0.1H0 C141PHZ0.1H0 C142PHY0.1H0 C142PHZ0.1H0
 C143PHY0.1H0 C143PHZ0.1H0 C144PHY0.1H0 C144PHZ0.1H0 C145PHY0.1H0 C145PHZ0.1H0

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