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2015 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 9 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： 本港灣環境資訊網觀測海氣象資料年報，包括澎湖海域2015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。			
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ABSTRACT: This Annual report 2015 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.			
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2015 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

2015 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。

2015 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。

2015 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。

2015 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 2015 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 R(七美資料浮標站)之風速儀屬中央氣象局(CWB)所有，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，2015 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，2015 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 2015 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	2009/12-2015/11(觀測中)	港研中心	馬公港區
B	23°33'30"N	119°40'5.5"E	2009/12-2015/11(觀測中)	港研中心	龍門尖山港區
E	23°34'02"N	119°33'19"E	2001/01-2015/11(觀測中)	中央氣象局	馬公港區
Y	23°43'37"N	119°33'07"E	2006/09-2015/11(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
R	22°45'16"N	119°25'42"E	2015/07-2015/11(觀測中)	中央氣象局	七美資料浮標
I	23°34'02"N	119°33'19"E	2014/08-2015/11(觀測中)	中央氣象局	東吉島

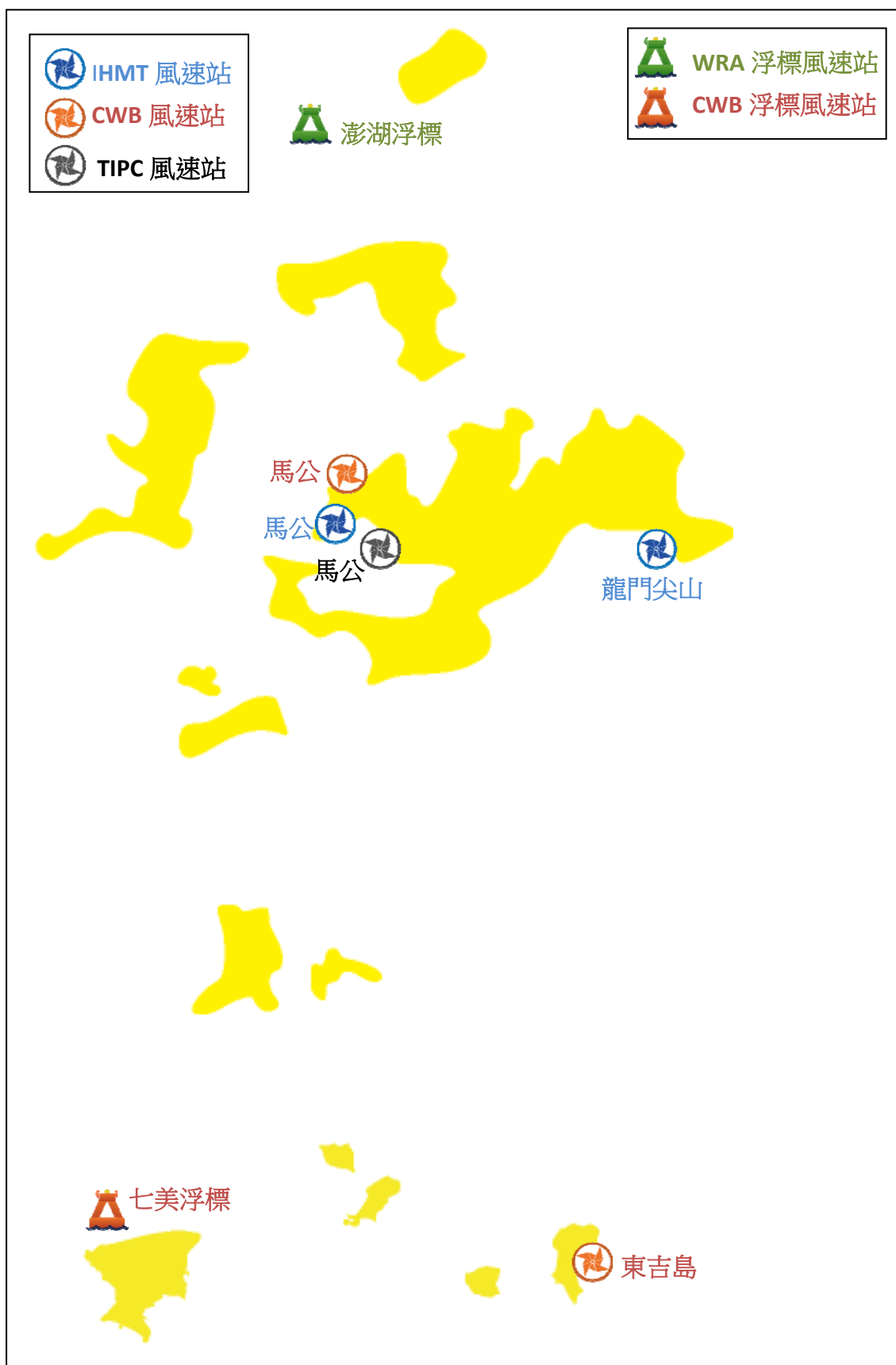


圖 1 澎湖海域風力觀測站位置示意圖

表 1.1a 2015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	
2014/12	月	744 (100%)	655 (88.0%)	743 (99.9%)	*	744 (100%)	*	744 (100%)	*
2015/	1 月	744 (100%)	662 (89.0%)	744 (100%)	*	743 (99.9%)	*	743 (99.9%)	*
2015/	2 月	672 (100%)	618 (92.0%)	672 (100%)	*	672 (100%)	*	672 (100%)	*
2015/	3 月	744 (100%)	692 (93.0%)	744 (100%)	*	744 (100%)	*	744 (100%)	*
2015/	4 月	720 (100%)	634 (88.1%)	720 (100%)	*	720 (100%)	*	720 (100%)	*
2015/	5 月	744 (100%)	698 (93.8%)	744 (100%)	*	744 (100%)	*	744 (100%)	*
2015/	6 月	720 (100%)	706 (98.1%)	719 (99.9%)	*	720 (100%)	*	720 (100%)	*
2015/	7 月	744 (100%)	706 (94.9%)	744 (100%)	365 (49.1%)	744 (100%)	*	744 (100%)	*
2015/	8 月	744 (100%)	710 (95.4%)	744 (100%)	718 (96.5%)	744 (100%)	*	744 (100%)	*
2015/	9 月	720 (100%)	691 (96.0%)	716 (99.4%)	700 (97.2%)	720 (100%)	*	720 (100%)	*
2015/10	月	744 (100%)	711 (95.6%)	744 (100%)	718 (96.5%)	744 (100%)	*	744 (100%)	*
2015/11	月	720 (100%)	699 (97.1%)	720 (100%)	688 (95.6%)	720 (100%)	*	720 (100%)	*
2015/	冬季	2160 (100%)	1935 (89.6%)	2159 (100.0%)	*	2159 (100.0%)	*	2159 (100.0%)	*
2015/	春季	2208 (100%)	2024 (91.7%)	2208 (100%)	*	2208 (100%)	*	2208 (100%)	*
2015/	夏季	2208 (100%)	2122 (96.1%)	2207 (100.0%)	1083 (49.0%)	2208 (100%)	*	2208 (100%)	*
2015/	秋季	2184 (100%)	2101 (96.2%)	2180 (99.8%)	2106 (96.4%)	2184 (100%)	*	2184 (100%)	*
2015/	整年	8760 (100%)	8182 (93.4%)	8754 (99.9%)	3189 (36.4%)	8759 (100.0%)	*	8759 (100.0%)	*
起始年月		2014/12	2014/12	2014/12	2015/07	2014/12	*	2014/12	*
結束年月		2015/11	2015/11	2015/11	2015/11	2015/11	*	2015/11	*

表 1.1b 2015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	
測站	W	Y	B	R	E	H	I					
2014/12 月	744 (100%)	744 (100%)	744 (100%)	*	744 (100%)	*	744 (100%)	*				*
2015/ 1 月	744 (100%)	744 (100%)	744 (100%)	*	744 (100%)	*	744 (100%)	*				*
2015/ 2 月	672 (100%)	672 (100%)	672 (100%)	*	672 (100%)	*	672 (100%)	*				*
2015/ 3 月	744 (100%)	744 (100%)	744 (100%)	*	744 (100%)	*	744 (100%)	*				*
2015/ 4 月	720 (100%)	720 (100%)	720 (100%)	*	720 (100%)	*	720 (100%)	*				*
2015/ 5 月	744 (100%)	744 (100%)	744 (100%)	*	744 (100%)	*	744 (100%)	*				*
2015/ 6 月	720 (100%)	720 (100%)	720 (100%)	*	720 (100%)	*	720 (100%)	*				*
2015/ 7 月	744 (100%)	744 (100%)	744 (100%)	744 (100%)	744 (100%)	*	744 (100%)	*				*
2015/ 8 月	744 (100%)	744 (100%)	744 (100%)	744 (100%)	744 (100%)	*	744 (100%)	*				*
2015/ 9 月	720 (100%)	720 (100%)	720 (100%)	720 (100%)	720 (100%)	*	720 (100%)	*				*
2015/10 月	744 (100%)	744 (100%)	744 (100%)	744 (100%)	744 (100%)	*	744 (100%)	*				*
2015/11 月	720 (100%)	720 (100%)	720 (100%)	720 (100%)	720 (100%)	*	720 (100%)	*				*
2015/冬季	2160 (100%)	2160 (100%)	2160 (100%)	*	2160 (100%)	*	2160 (100%)	*				*
2015/春季	2208 (100%)	2208 (100%)	2208 (100%)	*	2208 (100%)	*	2208 (100%)	*				*
2015/夏季	2208 (100%)	2208 (100%)	2208 (100%)	1488 (67.4%)	2208 (100%)	*	2208 (100%)	*				*
2015/秋季	2184 (100%)	2184 (100%)	2184 (100%)	2184 (100%)	2184 (100%)	*	2184 (100%)	*				*
2015/整年	8760 (100%)	8760 (100%)	8760 (100%)	3672 (41.9%)	8760 (100%)	*	8760 (100%)	*				*
起始年月	2014/12	2014/12	2014/12	2015/07	2014/12	*	2014/12	*				*
結束年月	2015/11	2015/11	2015/11	2015/11	2015/11	*	2015/11	*				*

Wind Speed in Peng-Hu Seas of PHY0 at 2015

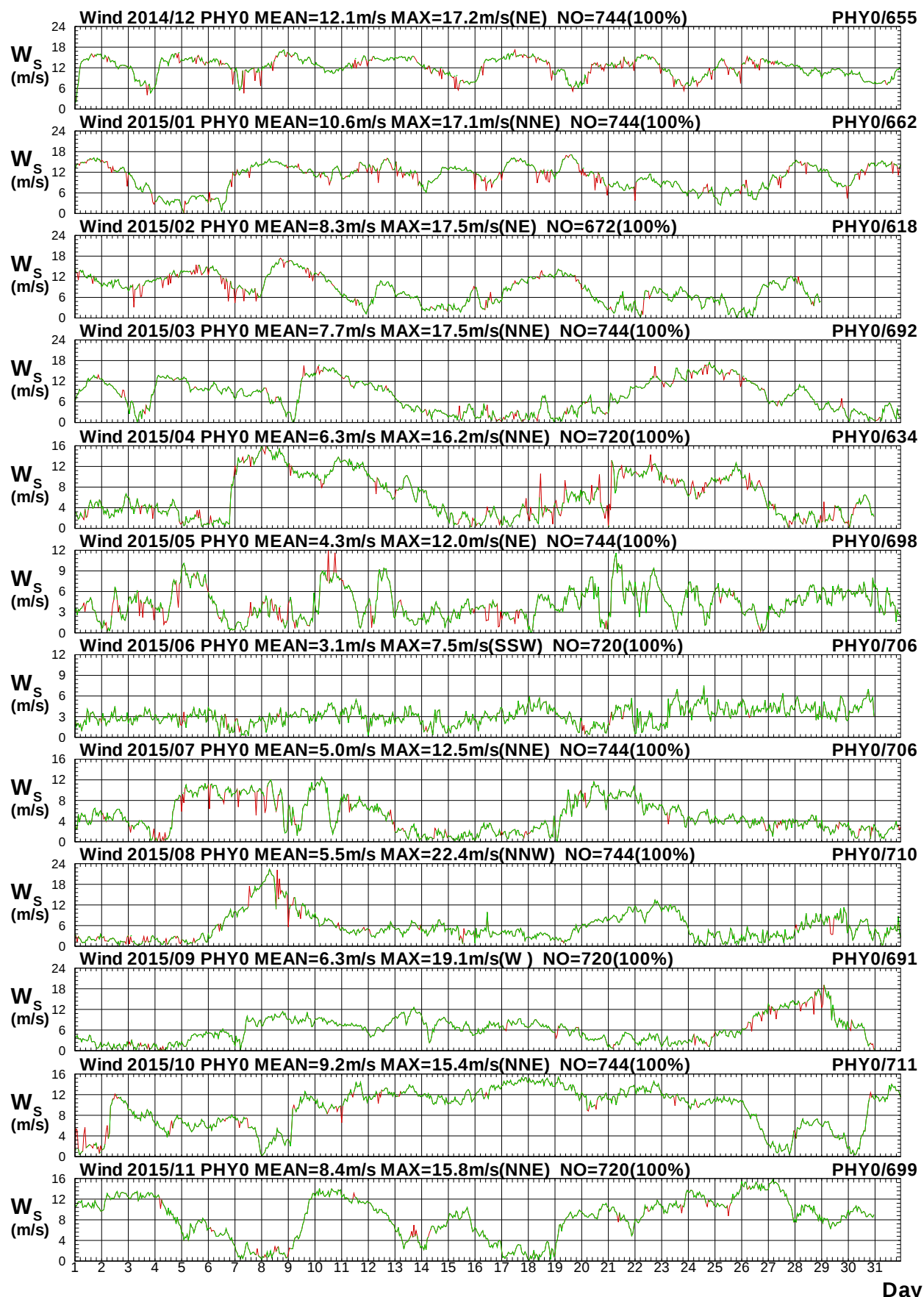


圖 1.1a 2015 年每月澎湖海域 Y 站修補前後之風速比較圖

W14CPHY0.1HA W14CPHY0.1H0 W151PHY0.1HA W151PHY0.1H0 W152PHY0.1HA W152PHY0.1H0
W153PHY0.1HA W153PHY0.1H0 W154PHY0.1HA W154PHY0.1H0 W155PHY0.1HA W155PHY0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2015

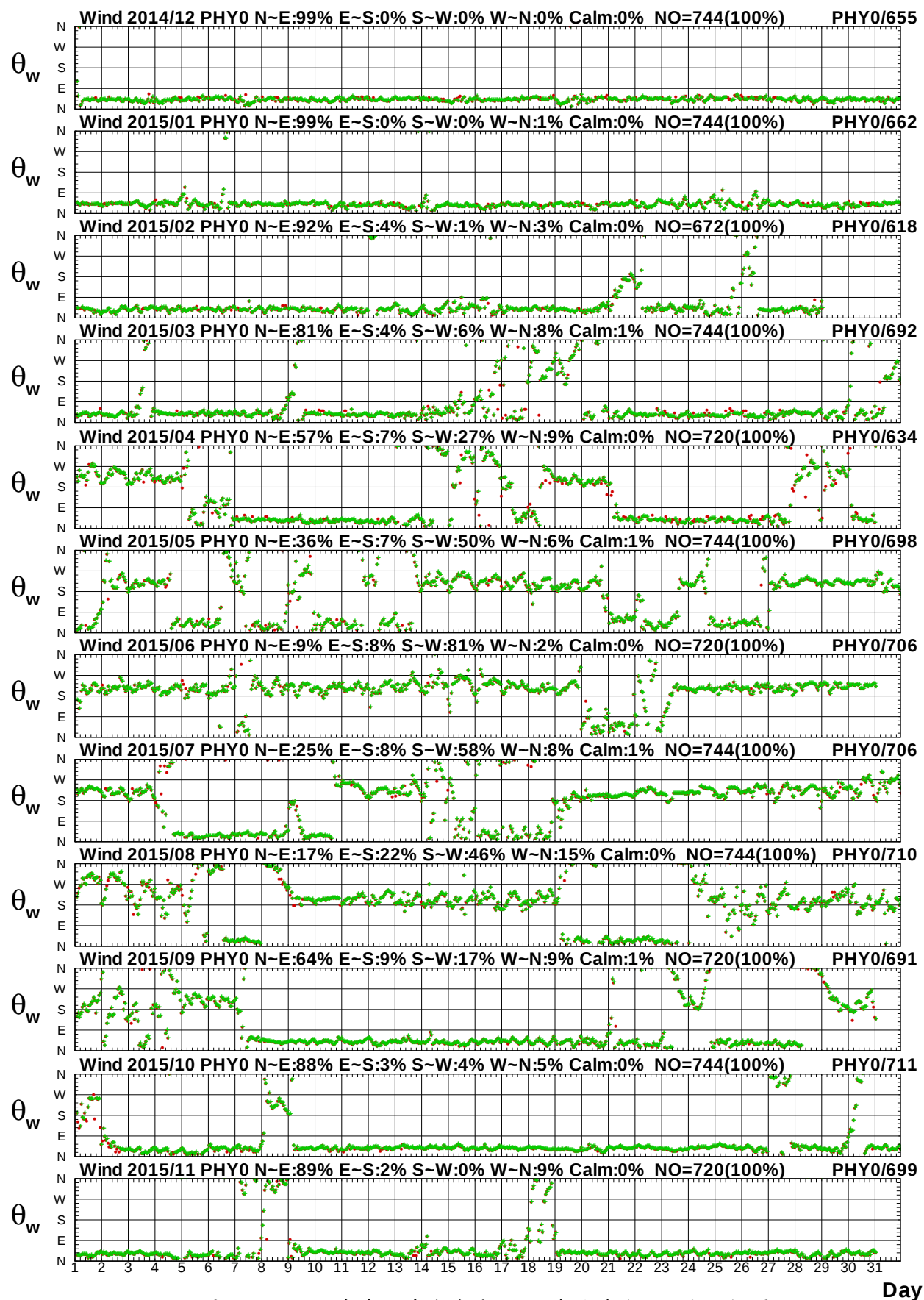


圖 1.1b 2015 年每月澎湖海域 Y 站修補前後之風向比較圖

W14CPHY0.1HA W14CPHY0.1H0 W151PHY0.1HA W151PHY0.1H0 W152PHY0.1HA W152PHY0.1H0
W153PHY0.1HA W153PHY0.1H0 W154PHY0.1HA W154PHY0.1H0 W155PHY0.1HA W155PHY0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2015

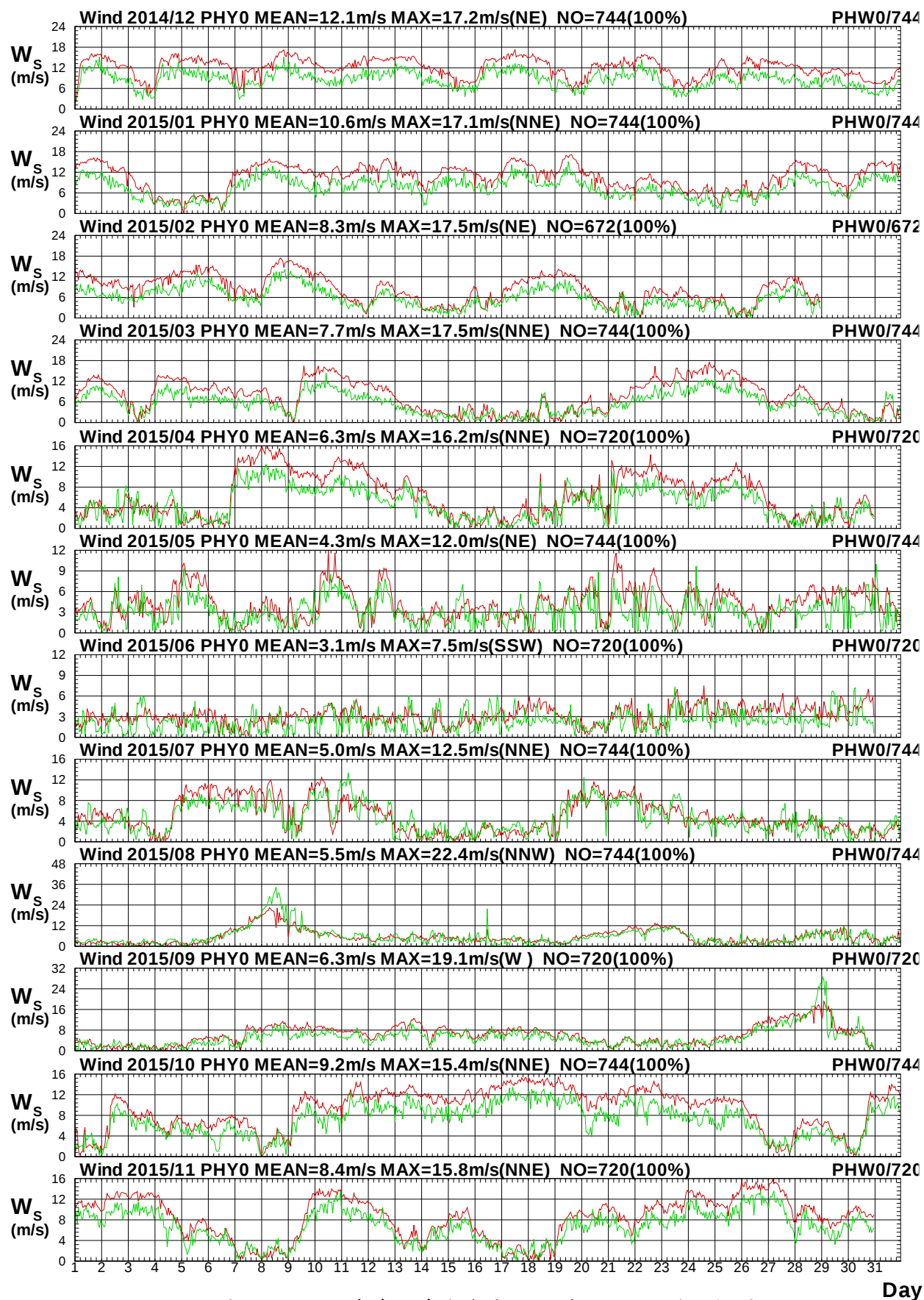


圖 1.2a 2015年每月澎湖海域 Y 站與 W 站風速比較圖

W14CPHY0.1HA W14CPHW0.1H0 W151PHY0.1HA W151PHW0.1H0 W152PHY0.1HA W152PHW0.1H0
W153PHY0.1HA W153PHW0.1H0 W154PHY0.1HA W154PHW0.1H0 W155PHY0.1HA W155PHW0.1H0

Institute of Harbor & Marine Technology

Wind Direction in Peng-Hu Seas of PHY0 at 2015

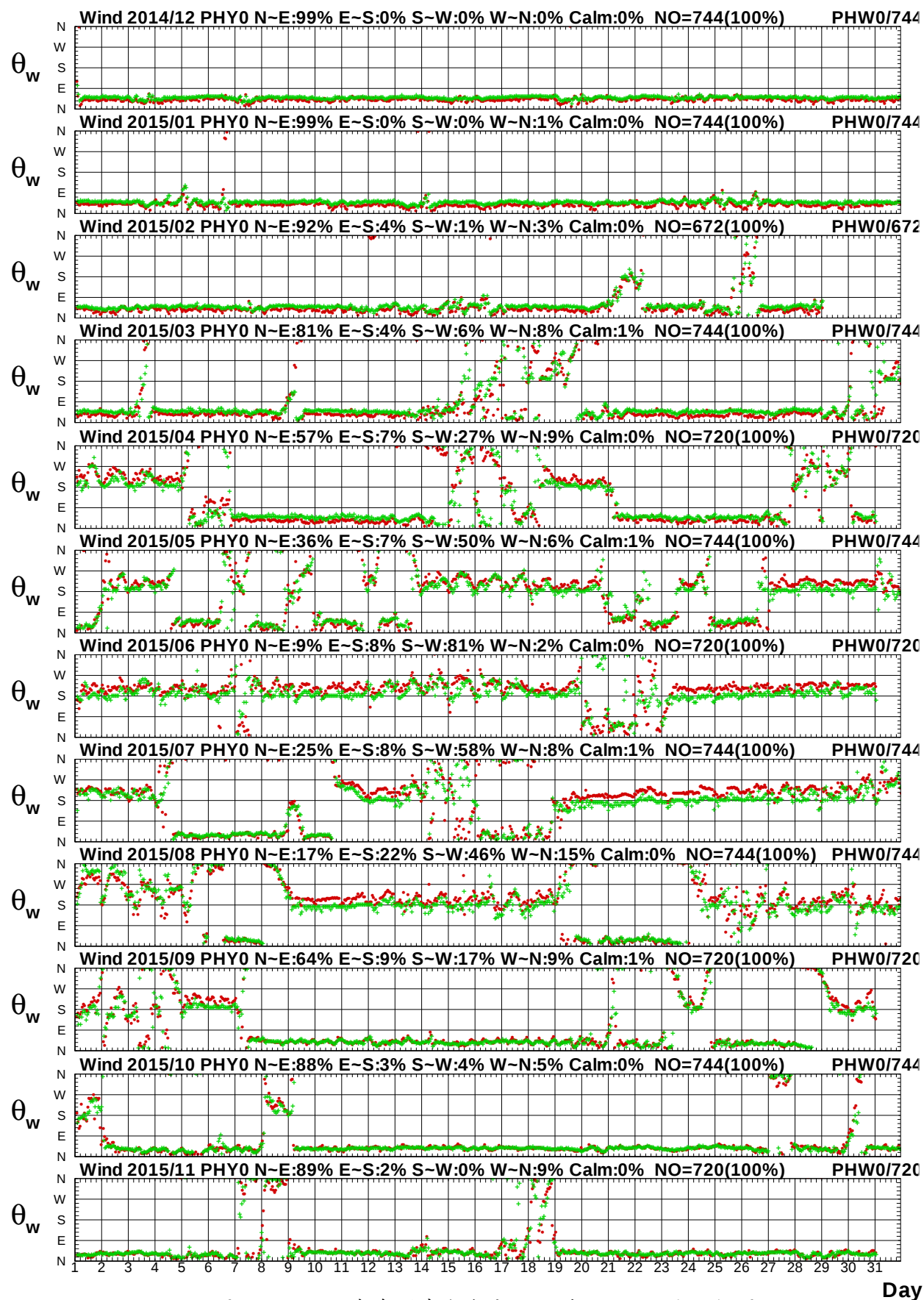


圖 1.2b 2015 年每月澎湖海域 Y 站與 W 站風向比較圖

W14CPHY0.1HA W14CPHW0.1H0 W151PHY0.1HA W151PHW0.1H0 W152PHY0.1HA W152PHW0.1H0
W153PHY0.1HA W153PHW0.1H0 W154PHY0.1HA W154PHW0.1H0 W155PHY0.1HA W155PHW0.1H0

Institute of Harbor & Marine Technology

Wind Speed in Peng-Hu Seas of PHY0 at 2015

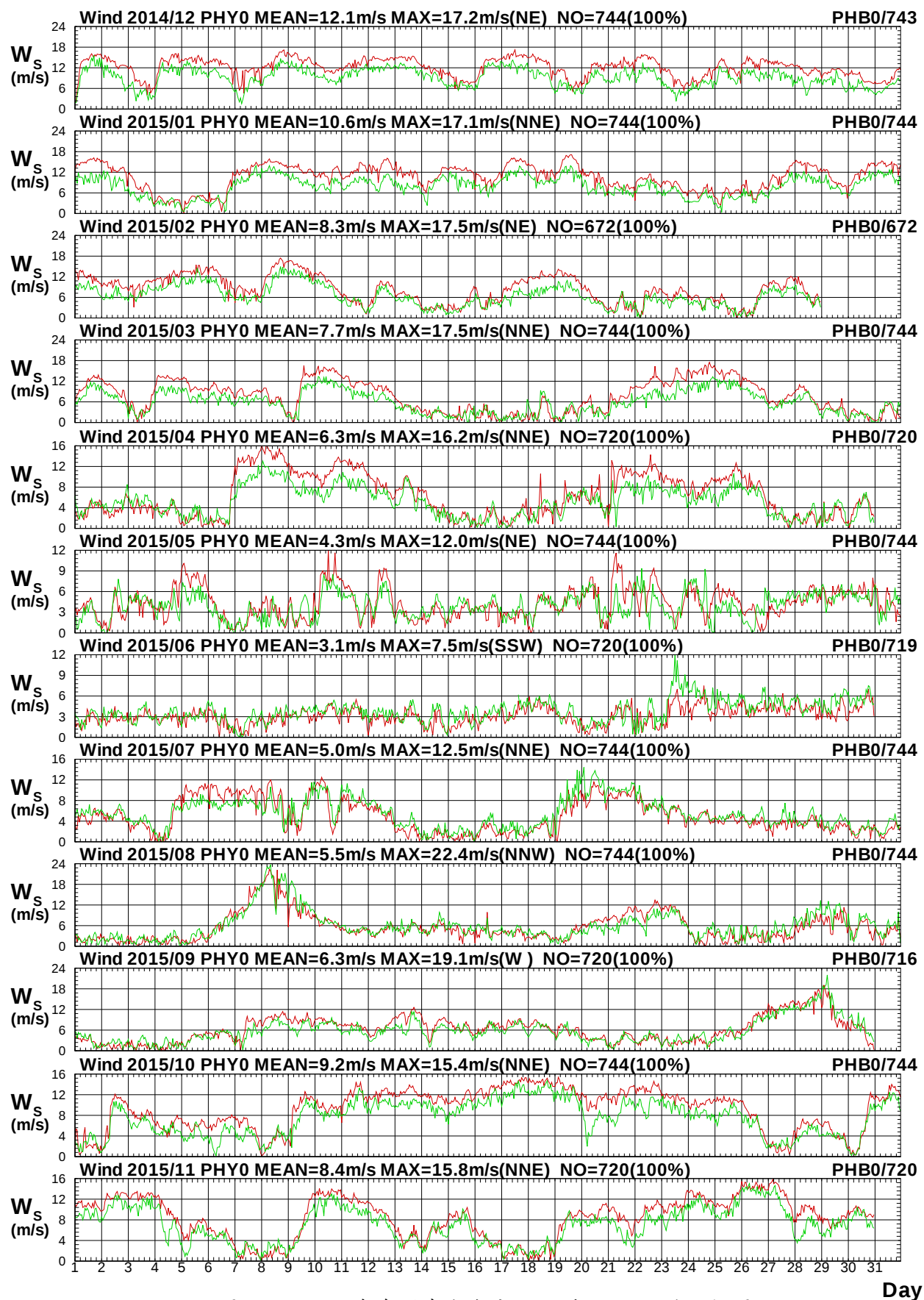


圖 1.3a 2015年每月澎湖海域 Y 站與 B 站風速比較圖

W14CPHY0.1HA W14CPHB0.1H0 W151PHY0.1HA W151PHB0.1H0 W152PHY0.1HA W152PHB0.1H0
W153PHY0.1HA W153PHB0.1H0 W154PHY0.1HA W154PHB0.1H0 W155PHY0.1HA W155PHB0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2015

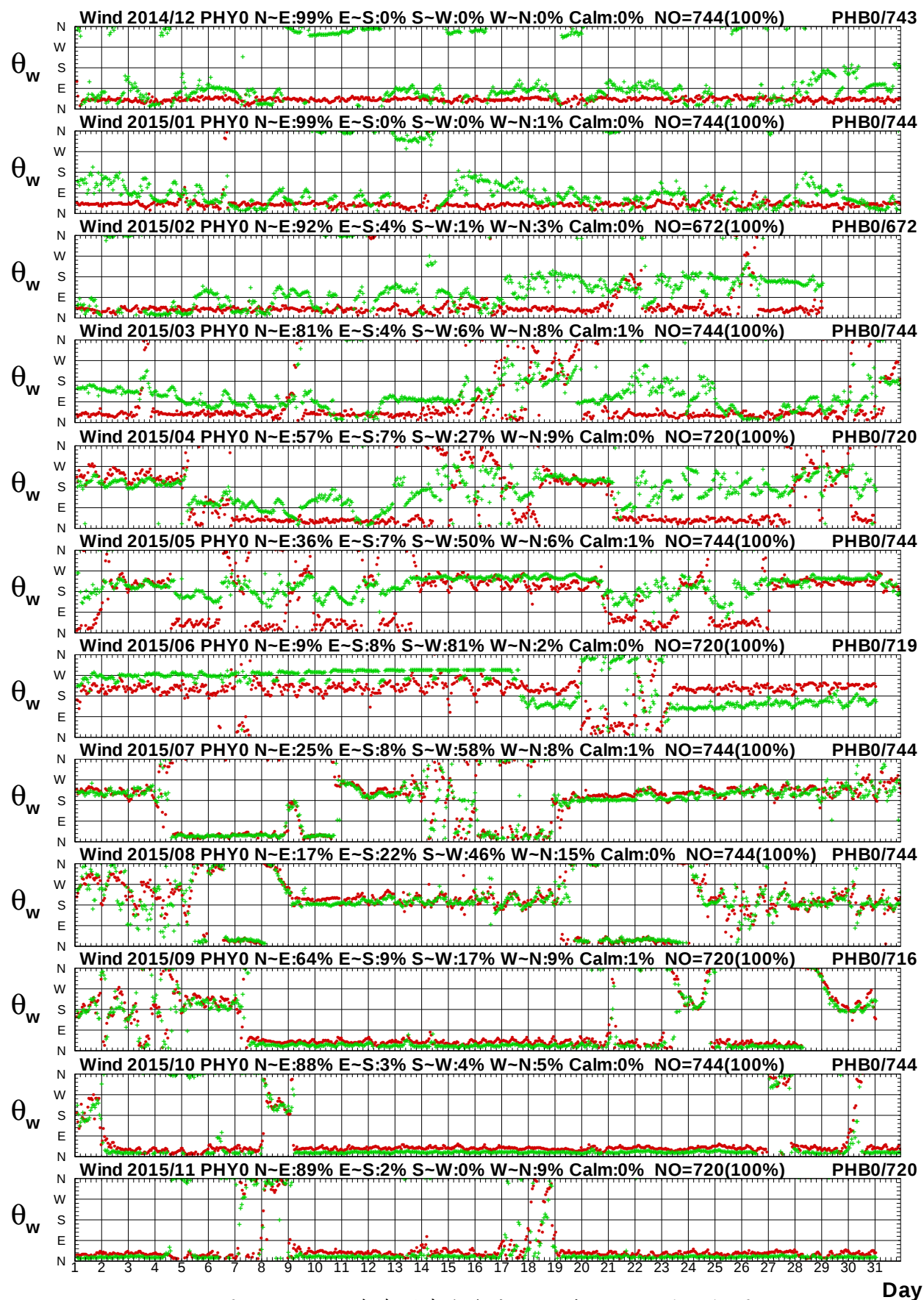


圖 1.3b 2015年每月澎湖海域 Y 站與 B 站風向比較圖

W14CPHY0.1HA W14CPHB0.1H0 W151PHY0.1HA W151PHB0.1H0 W152PHY0.1HA W152PHB0.1H0
W153PHY0.1HA W153PHB0.1H0 W154PHY0.1HA W154PHB0.1H0 W155PHY0.1HA W155PHB0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2015

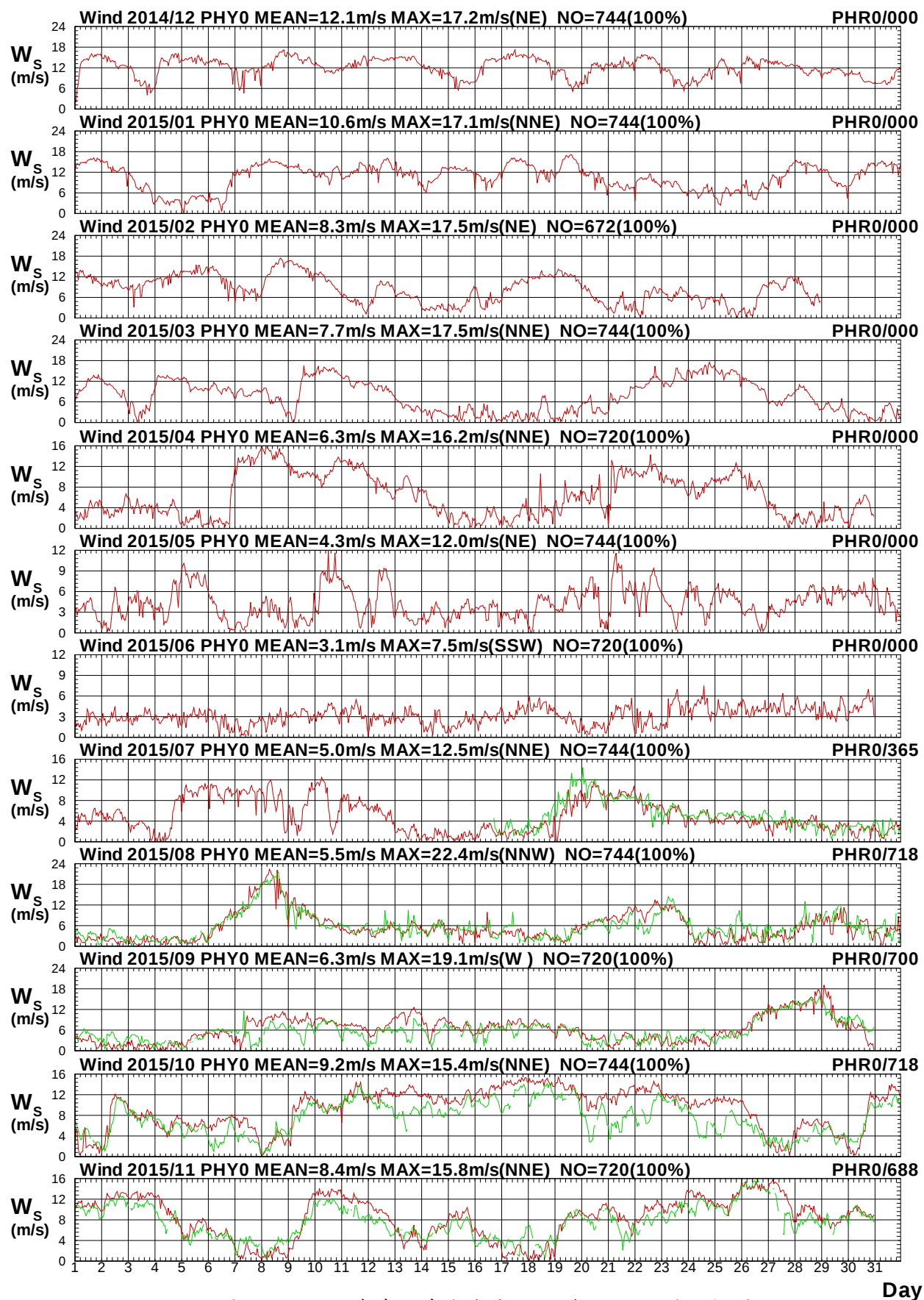


圖 1.4a 2015年每月澎湖海域 Y 站與 R 站風速比較圖

W14CPHY0.1HA W14CPHR0.1H0 W151PHY0.1HA W151PHR0.1H0 W152PHY0.1HA W152PHR0.1H0
W153PHY0.1HA W153PHR0.1H0 W154PHY0.1HA W154PHR0.1H0 W155PHY0.1HA W155PHR0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2015

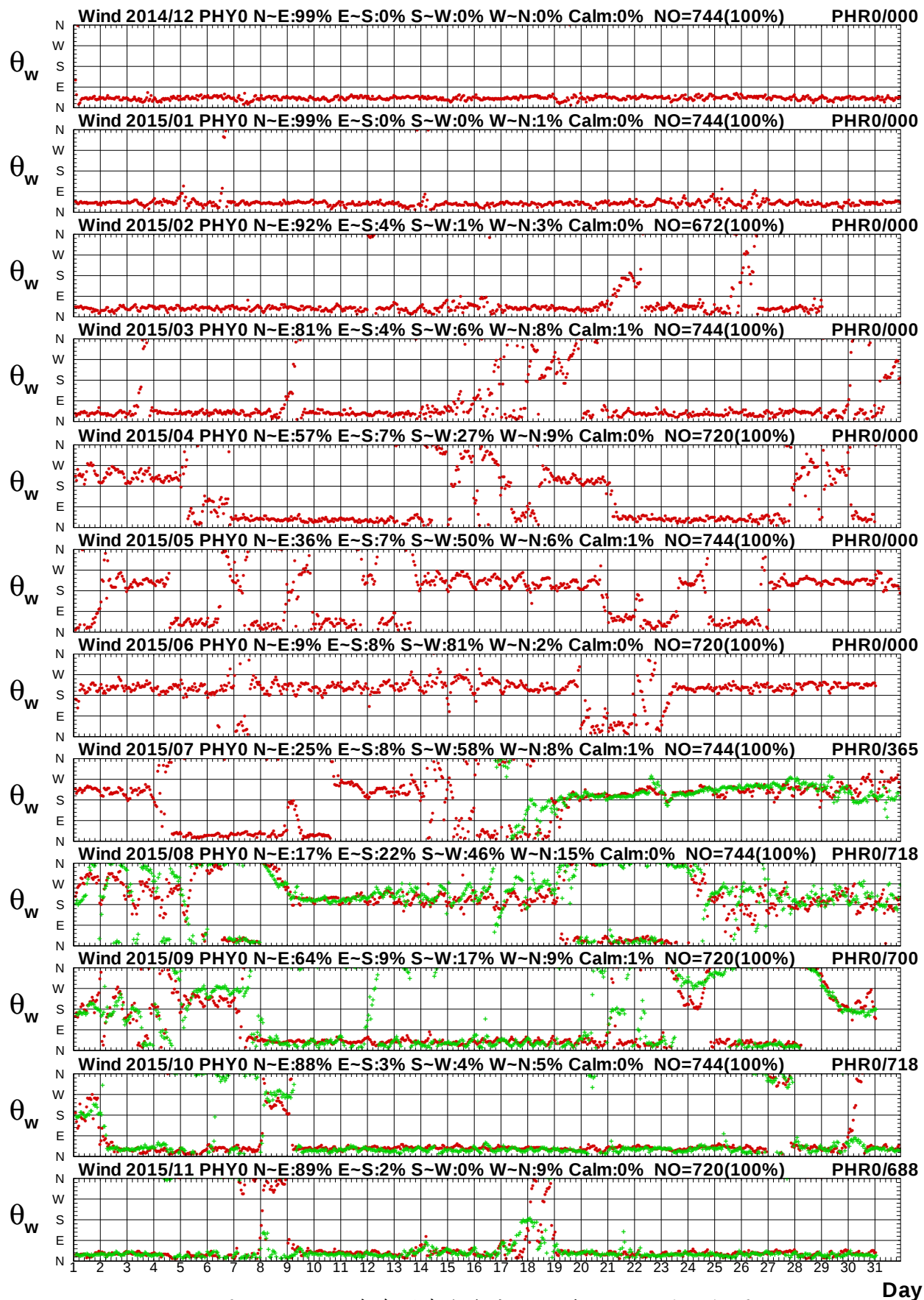


圖 1.4b 2015年每月澎湖海域 Y 站與 R 站風向比較圖

W14CPHY0.1HA W14CPHR0.1H0 W151PHY0.1HA W151PHR0.1H0 W152PHY0.1HA W152PHR0.1H0
W153PHY0.1HA W153PHR0.1H0 W154PHY0.1HA W154PHR0.1H0 W155PHY0.1HA W155PHR0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2015

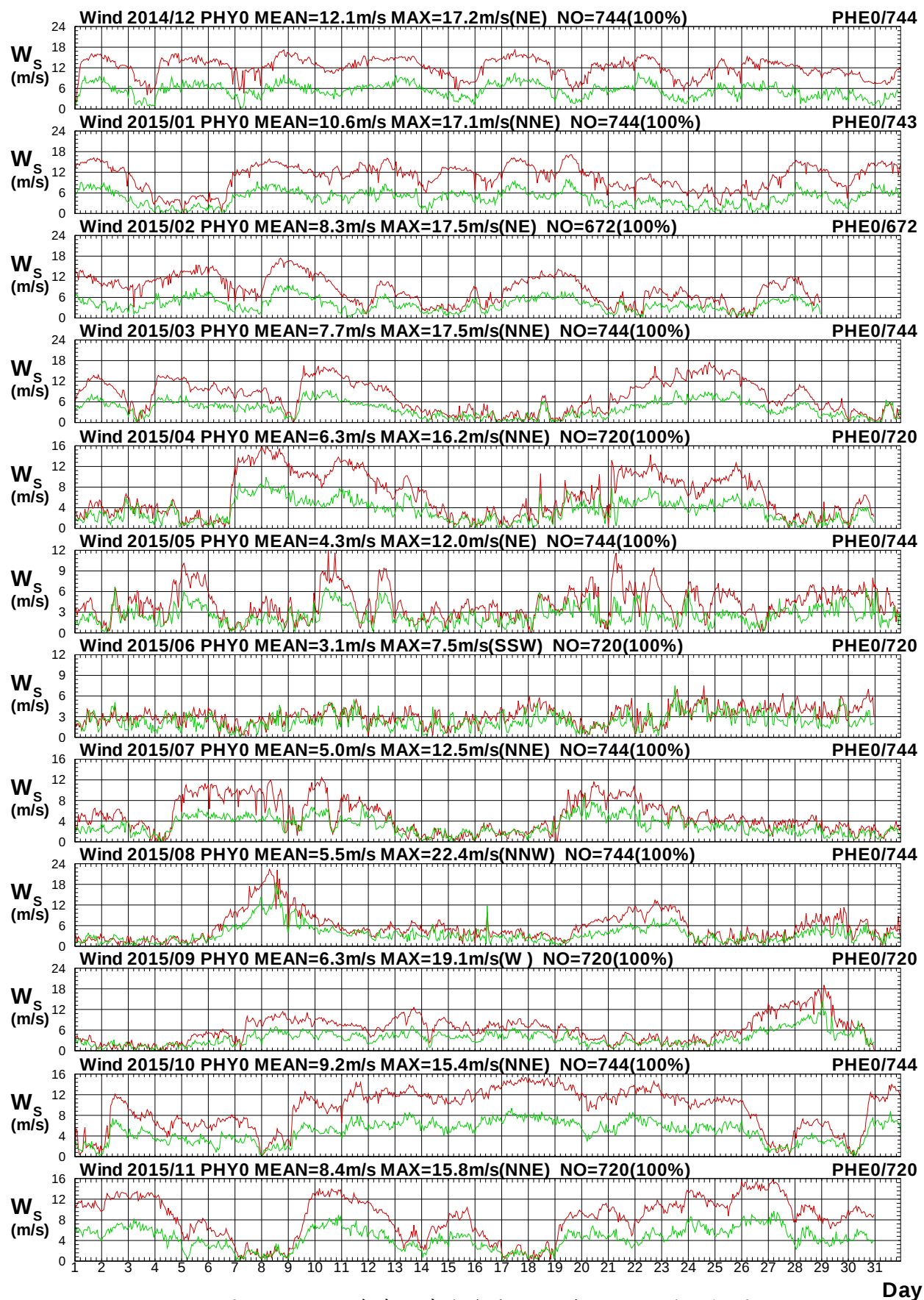


圖 1.5a 2015年每月澎湖海域 Y 站與 E 站風速比較圖

W14CPHY0.1HA W14CPHE0.1H0 W151PHY0.1HA W151PHE0.1H0 W152PHY0.1HA W152PHE0.1H0
W153PHY0.1HA W153PHE0.1H0 W154PHY0.1HA W154PHE0.1H0 W155PHY0.1HA W155PHE0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2015

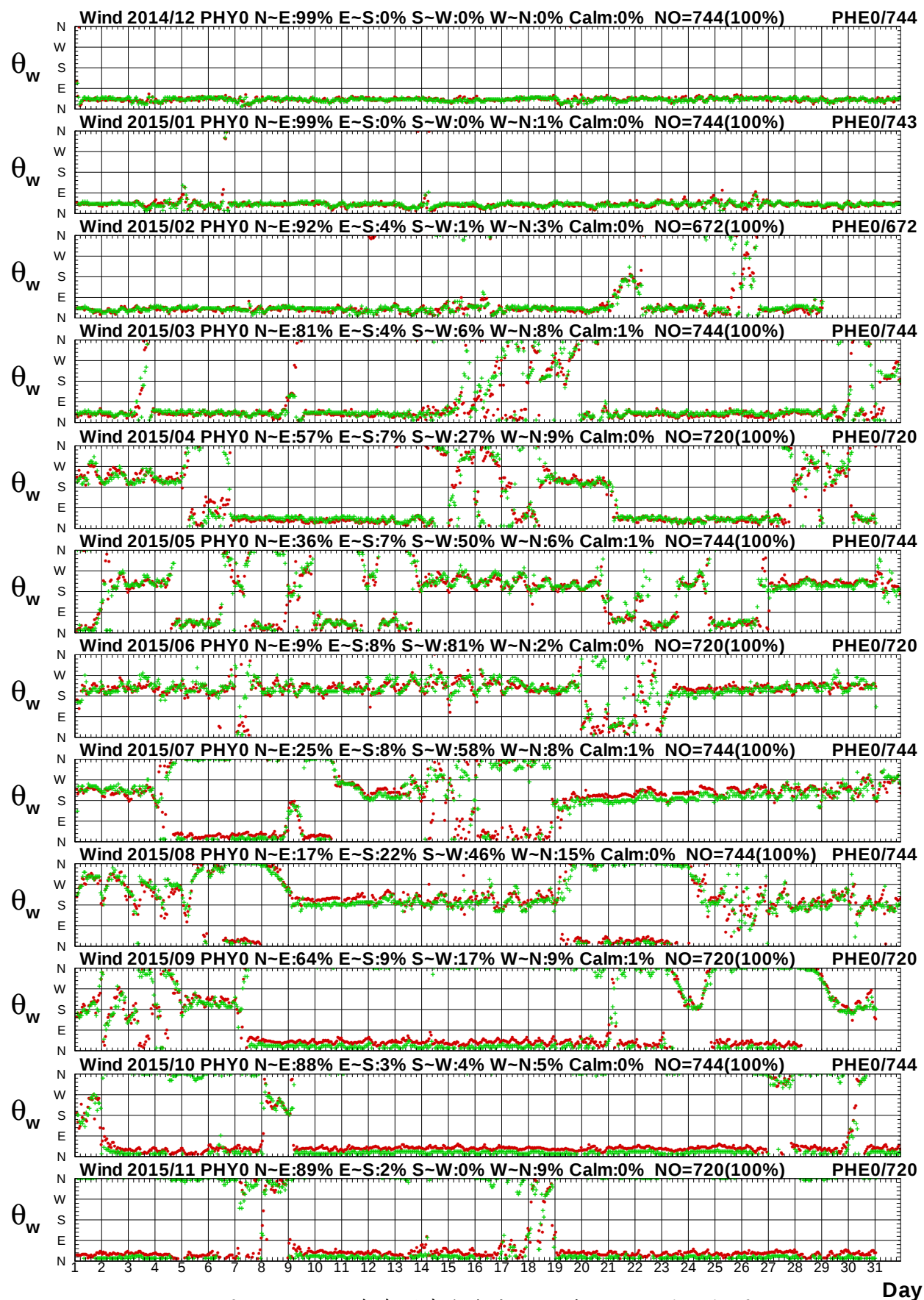


圖 1.5b 2015年每月澎湖海域 Y 站與 E 站風向比較圖

W14CPHY0.1HA W14CPHE0.1H0 W151PHY0.1HA W151PHE0.1H0 W152PHY0.1HA W152PHE0.1H0
W153PHY0.1HA W153PHE0.1H0 W154PHY0.1HA W154PHE0.1H0 W155PHY0.1HA W155PHE0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2015

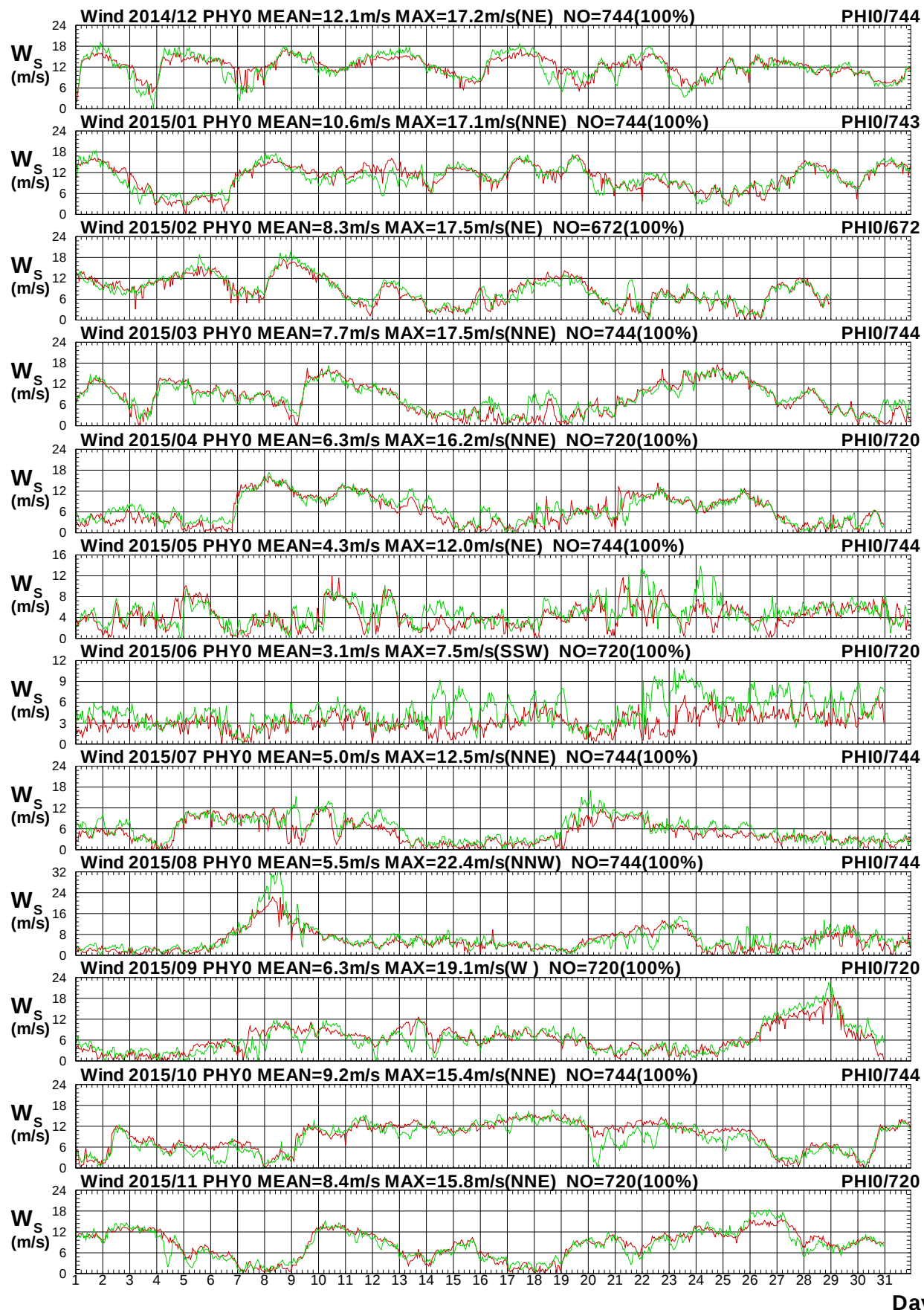


圖 1.6a 2015年每月澎湖海域 Y 站與 I 站風速比較圖

W14CPHY0.1HA W14CPHI0.1H0 W151PHY0.1HA W151PHI0.1H0 W152PHY0.1HA W152PHI0.1H0
W153PHY0.1HA W153PHI0.1H0 W154PHY0.1HA W154PHI0.1H0 W155PHY0.1HA W155PHI0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2015

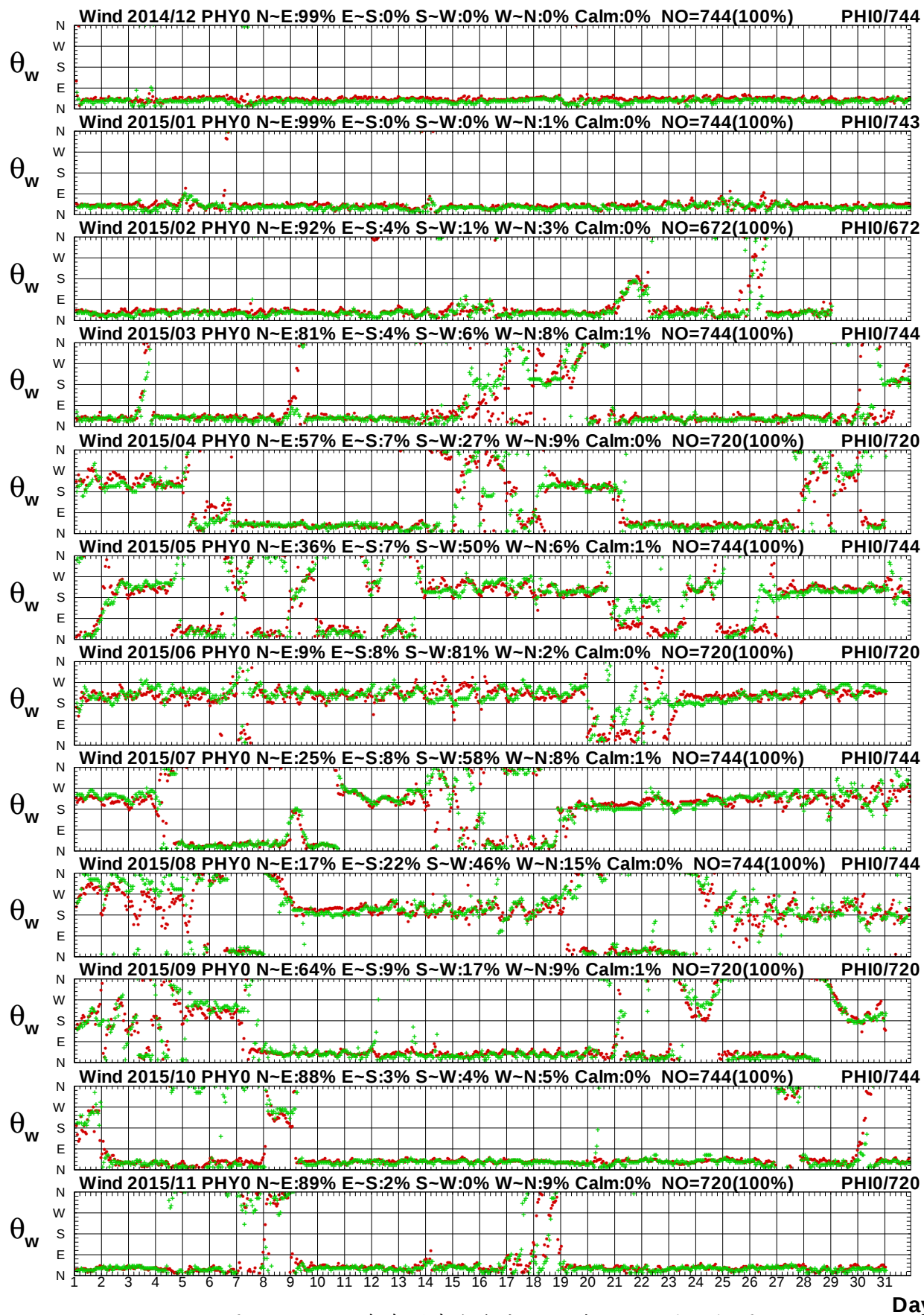


圖 1.6b 2015 年每月澎湖海域 Y 站與 I 站風向比較圖

W14CPHY0.1HA W14CPHI0.1H0 W151PHY0.1HA W151PHI0.1H0 W152PHY0.1HA W152PHI0.1H0
W153PHY0.1HA W153PHI0.1H0 W154PHY0.1HA W154PHI0.1H0 W155PHY0.1HA W155PHI0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2015

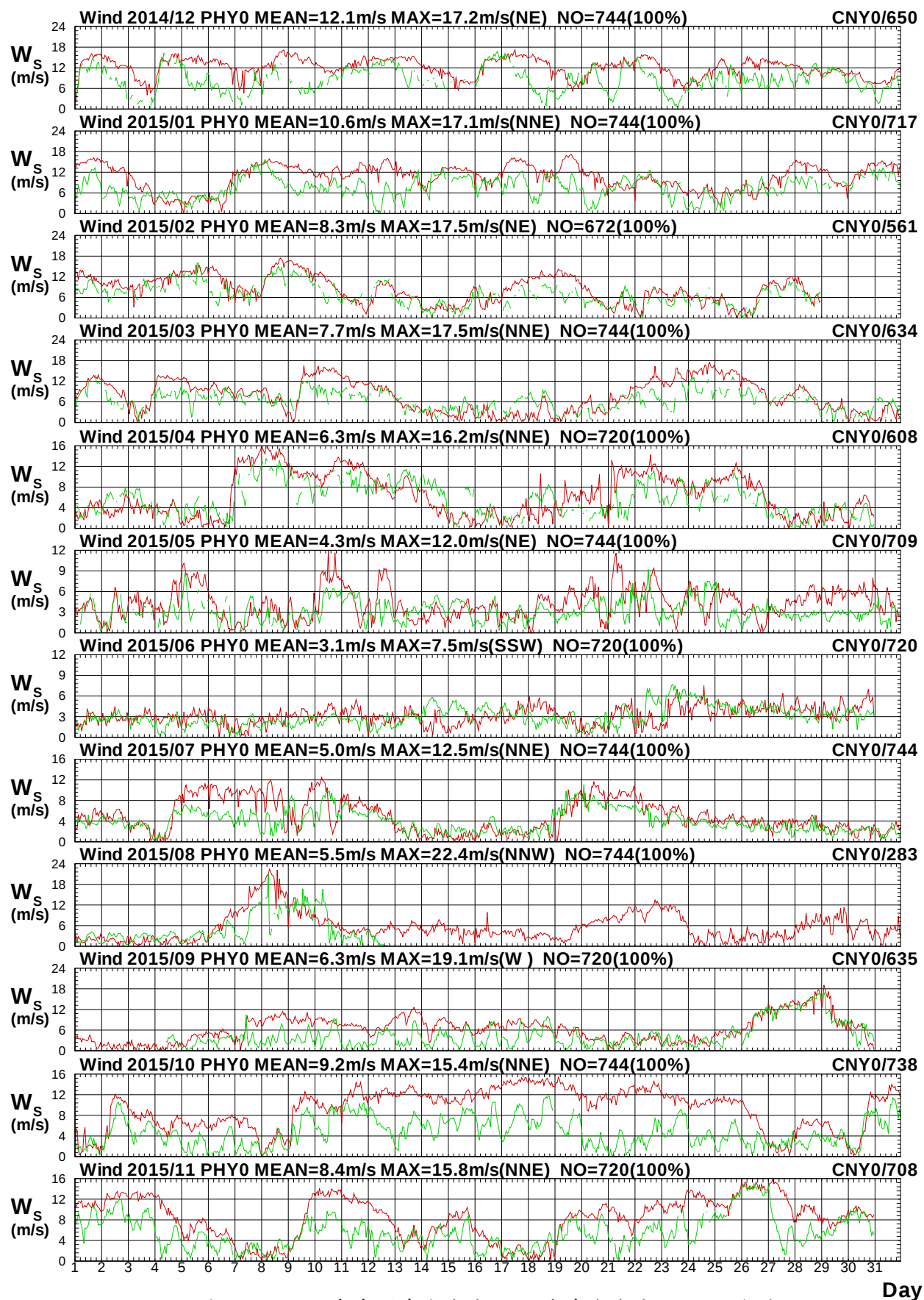


圖 1.7a 2015年每月澎湖海域 Y 站與嘉南海域 Y 站風速圖

W14CPHY0.1HA W14CCNY0.1H0 W151PHY0.1HA W151CNY0.1H0 W152PHY0.1HA W152CNY0.1H0
W153PHY0.1HA W153CNY0.1H0 W154PHY0.1HA W154CNY0.1H0 W155PHY0.1HA W155CNY0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2015

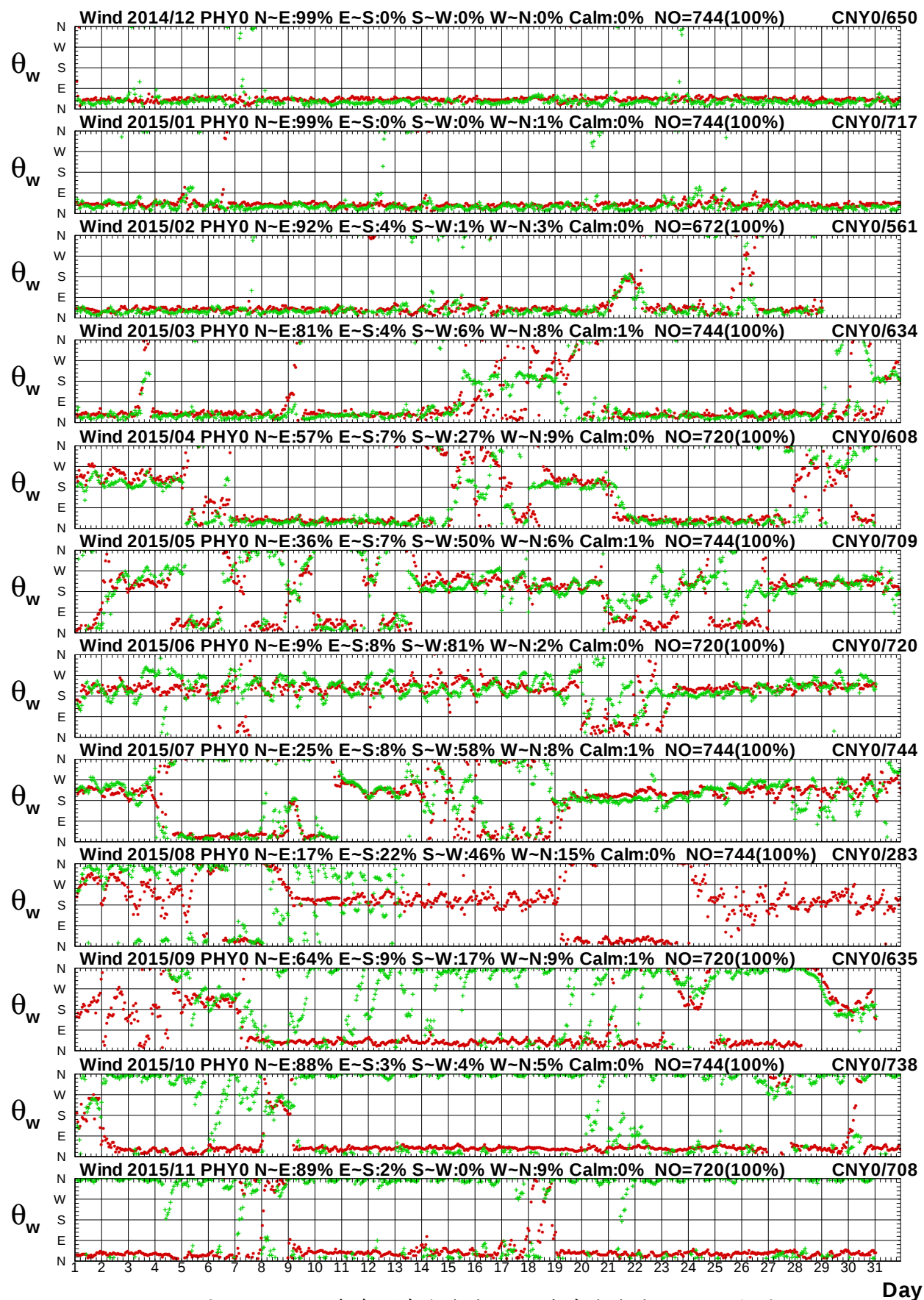


圖 1.7b 2015年每月澎湖海域 Y 站與嘉南海域 Y 站風向圖

W14CPHY0.1HA W14CCNY0.1H0 W151PHY0.1HA W151CNY0.1H0 W152PHY0.1HA W152CNY0.1H0
W153PHY0.1HA W153CNY0.1H0 W154PHY0.1HA W154CNY0.1H0 W155PHY0.1HA W155CNY0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2015

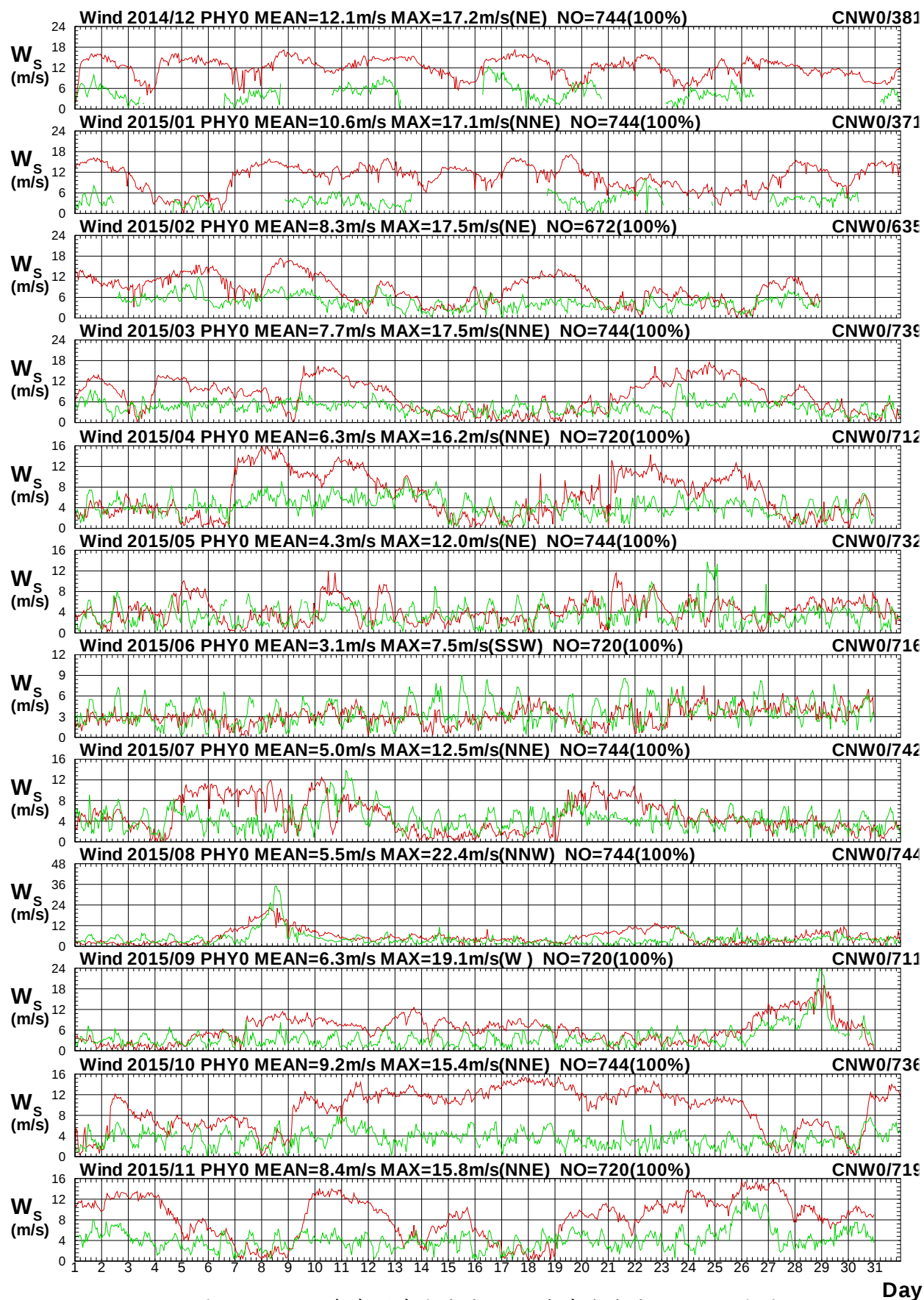


圖 1.8a 2015年每月澎湖海域 Y 站與嘉南海域 W 站風速圖

W14CPHY0.1HA W14CCNW0.1H0 W151PHY0.1HA W151CNW0.1H0 W152PHY0.1HA W152CNW0.1H0
W153PHY0.1HA W153CNW0.1H0 W154PHY0.1HA W154CNW0.1H0 W155PHY0.1HA W155CNW0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2015

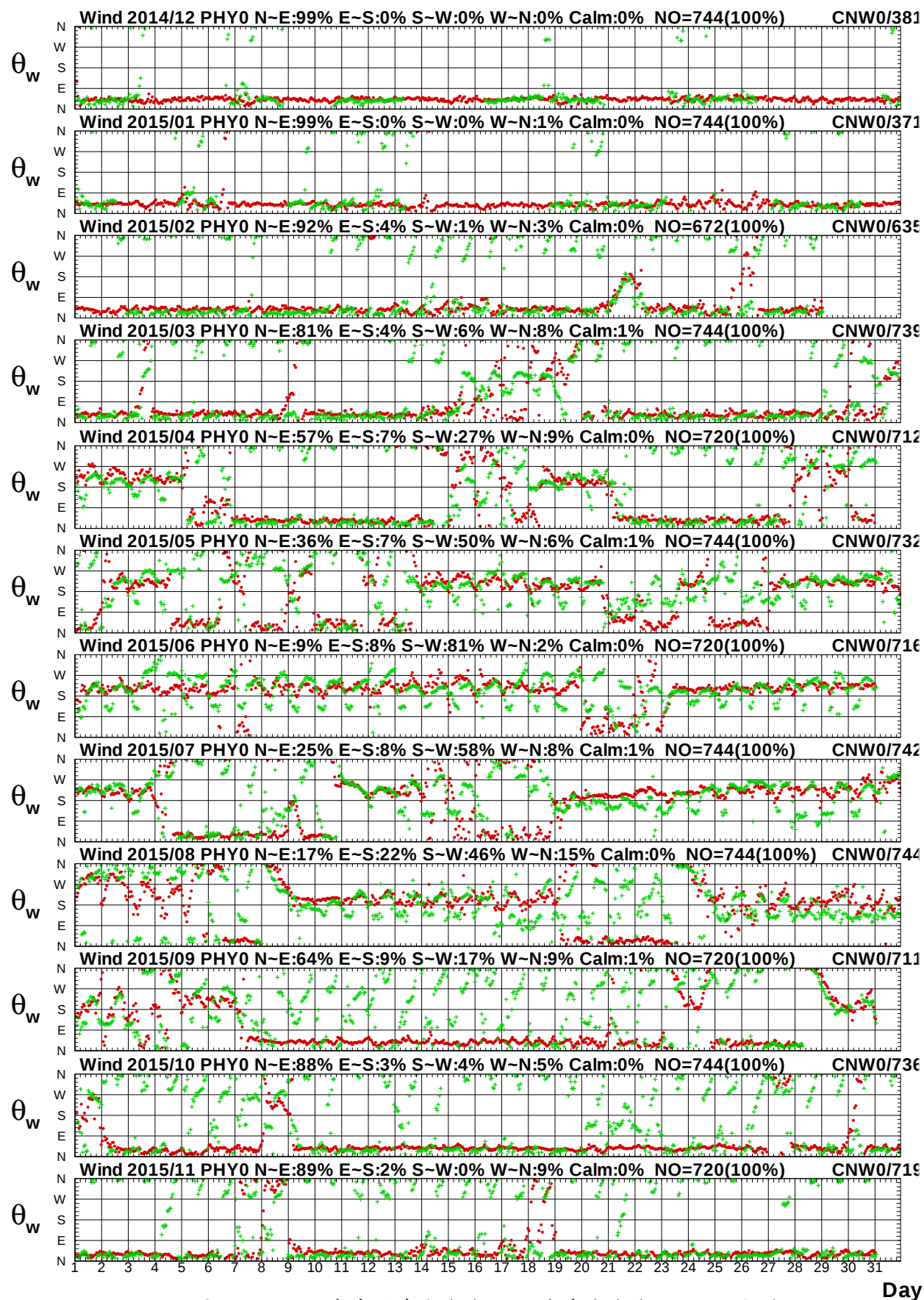


圖 1.8b 2015年每月澎湖海域 Y 站與嘉南海域 W 站風向圖

W14CPHY0.1HA W14CCNW0.1H0 W151PHY0.1HA W151CNW0.1H0 W152PHY0.1HA W152CNW0.1H0
W153PHY0.1HA W153CNW0.1H0 W154PHY0.1HA W154CNW0.1H0 W155PHY0.1HA W155CNW0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2015

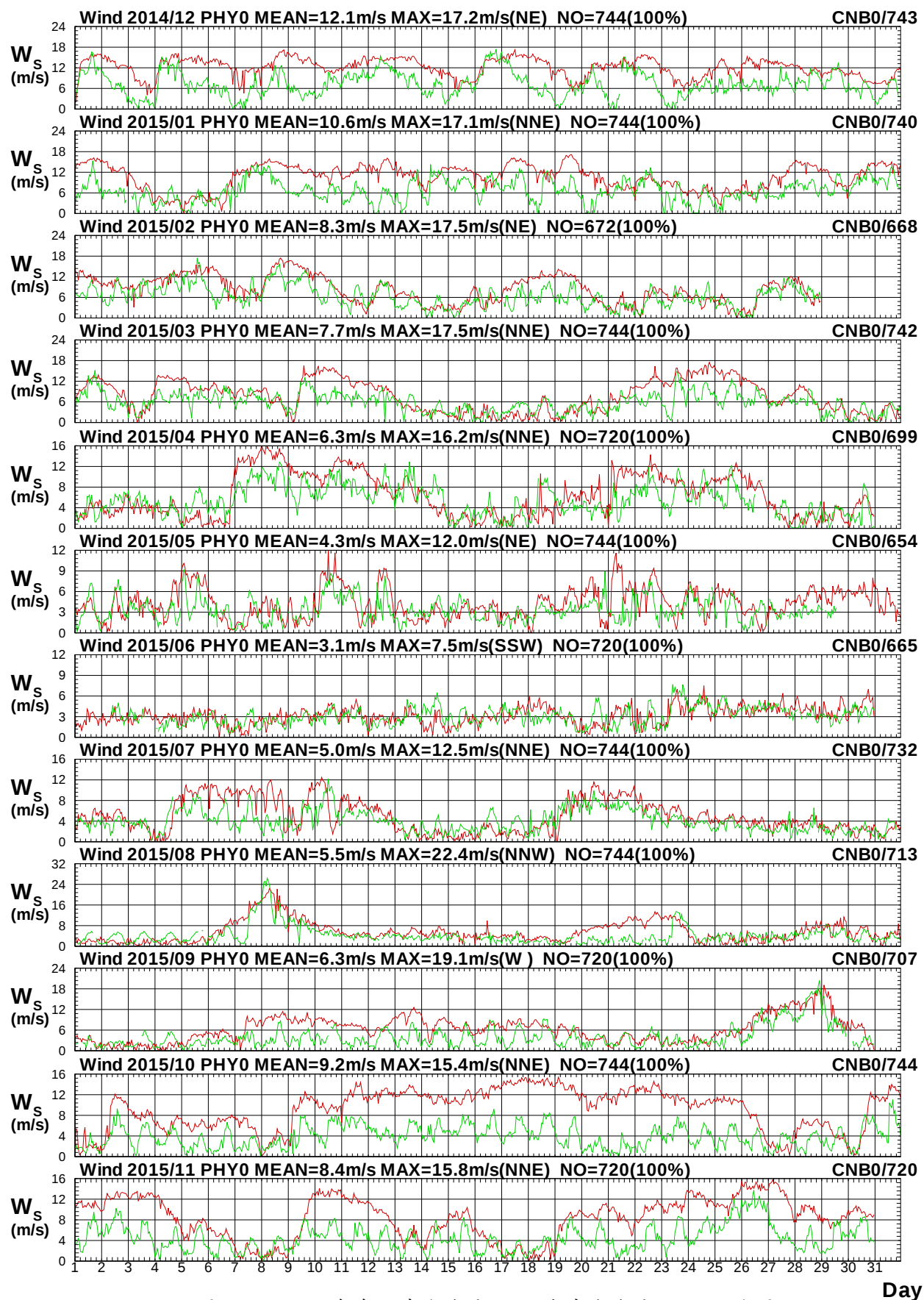


圖 1.9a 2015年每月澎湖海域 Y 站與嘉南海域 B 站風速圖

W14CPHY0.1HA W14CCNB0.1H0 W151PHY0.1HA W151CNB0.1H0 W152PHY0.1HA W152CNB0.1H0
W153PHY0.1HA W153CNB0.1H0 W154PHY0.1HA W154CNB0.1H0 W155PHY0.1HA W155CNB0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2015

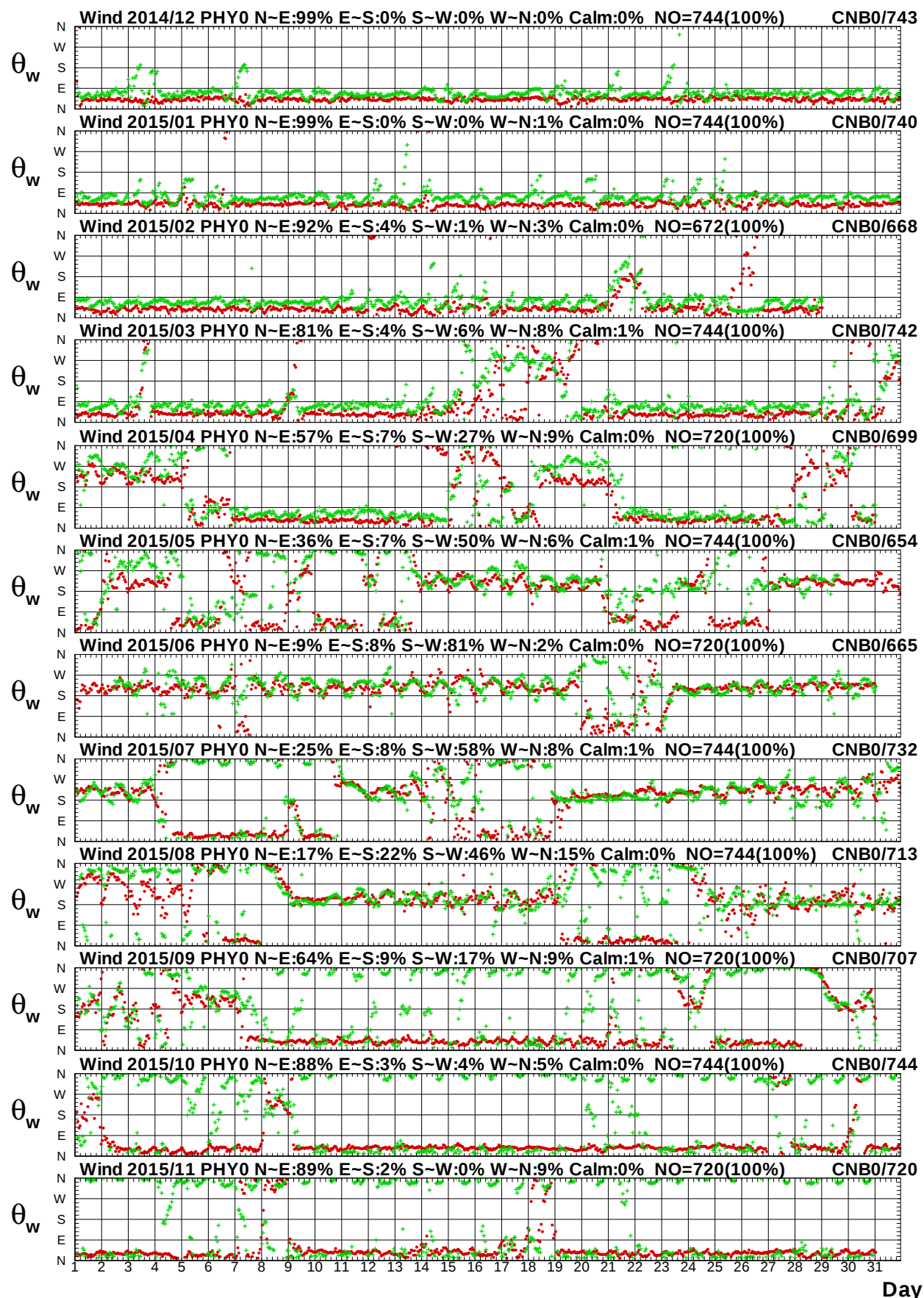


圖 1.9b 2015年每月澎湖海域 Y 站與嘉南海域 B 站風向圖

W14CPHY0.1HA W14CCNB0.1H0 W151PHY0.1HA W151CNB0.1H0 W152PHY0.1HA W152CNB0.1H0
W153PHY0.1HA W153CNB0.1H0 W154PHY0.1HA W154CNB0.1H0 W155PHY0.1HA W155CNB0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2015

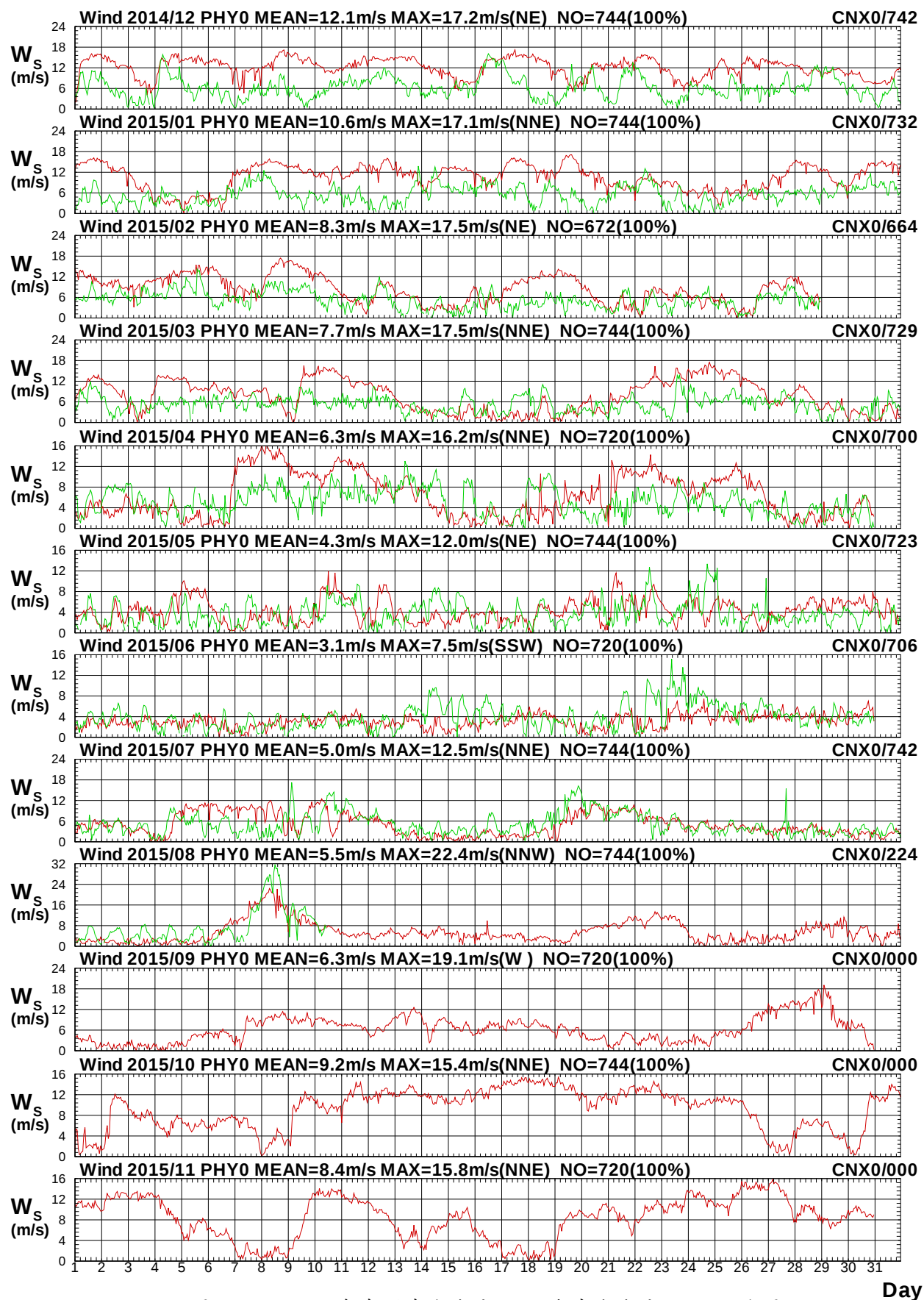


圖 1.10a 2015年每月澎湖海域 Y 站與嘉南海域 X 站風速圖

W14CPHY0.1HA W14CCNX0.1H0 W151PHY0.1HA W151CNX0.1H0 W152PHY0.1HA W152CNX0.1H0
W153PHY0.1HA W153CNX0.1H0 W154PHY0.1HA W154CNX0.1H0 W155PHY0.1HA W155CNX0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2015

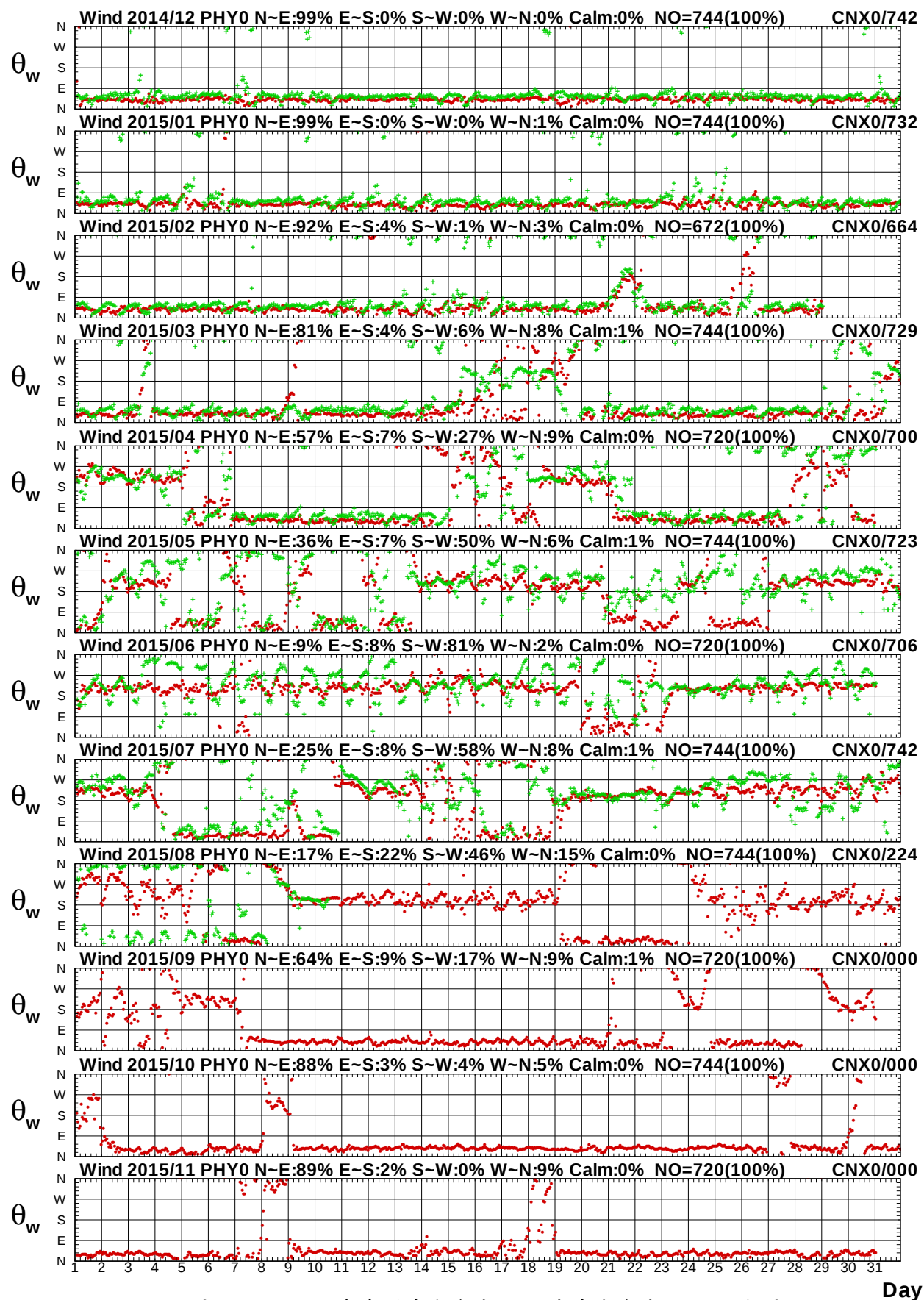


圖 1.10b 2015 年每月澎湖海域 Y 站與嘉南海域 X 站風向圖

W14CPHY0.1HA W14CCNX0.1H0 W151PHY0.1HA W151CNX0.1H0 W152PHY0.1HA W152CNX0.1H0
W153PHY0.1HA W153CNX0.1H0 W154PHY0.1HA W154CNX0.1H0 W155PHY0.1HA W155CNX0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2015

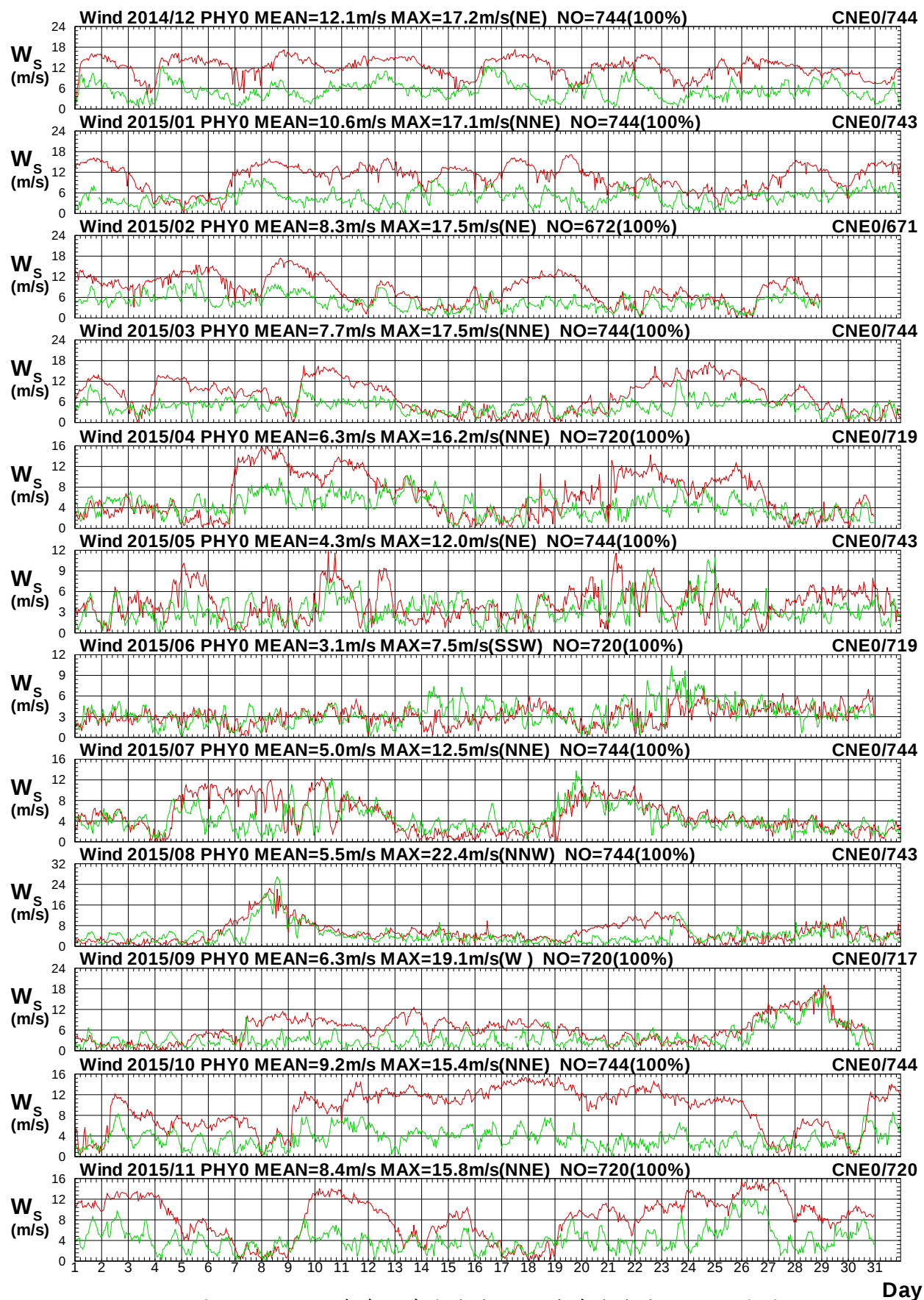


圖 1.11a 2015 年每月澎湖海域 Y 站與嘉南海域 E 站風速圖

W14CPHY0.1HA W14CCNE0.1H0 W151PHY0.1HA W151CNE0.1H0 W152PHY0.1HA W152CNE0.1H0
W153PHY0.1HA W153CNE0.1H0 W154PHY0.1HA W154CNE0.1H0 W155PHY0.1HA W155CNE0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2015

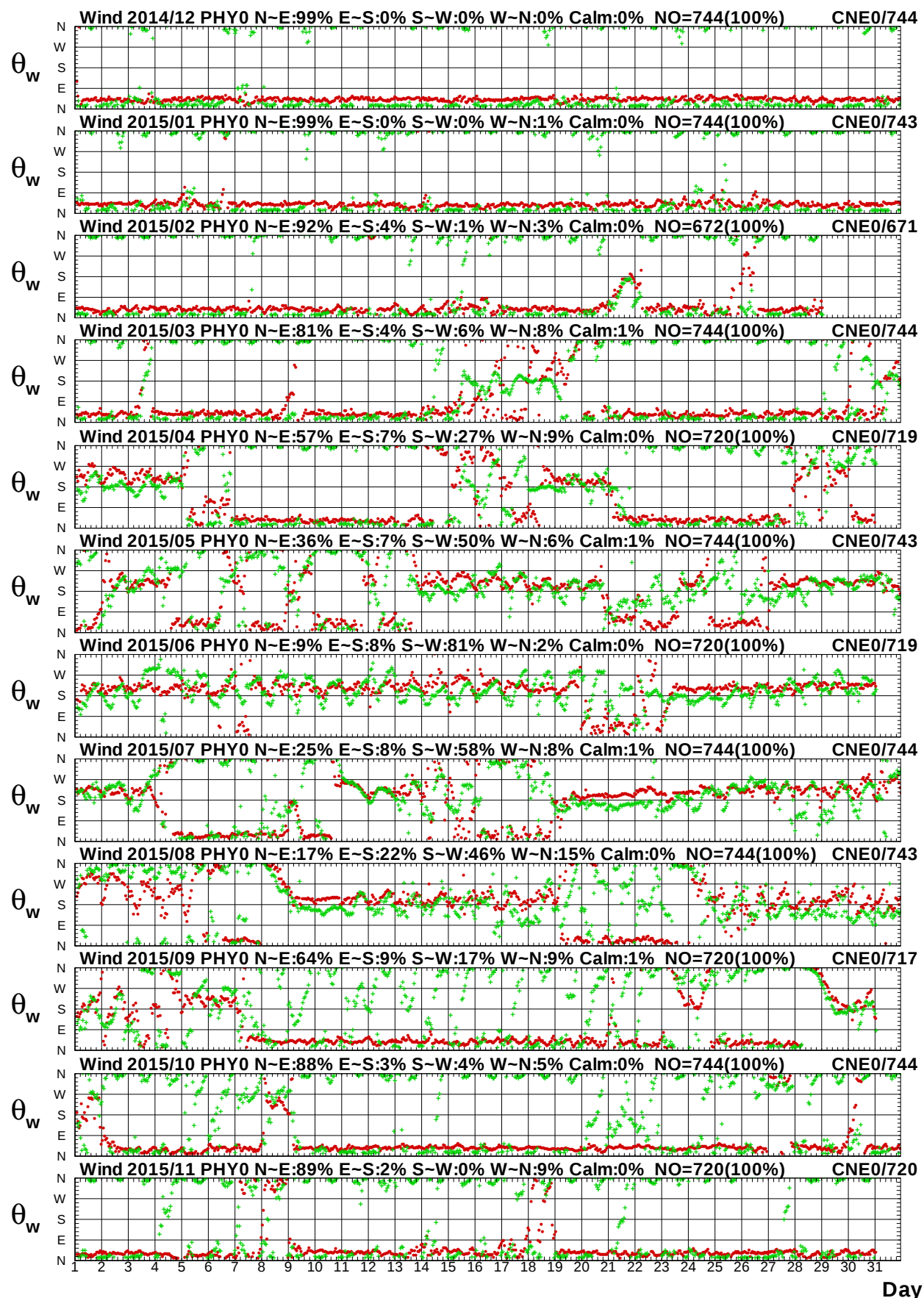


圖 1.11b 2015年每月澎湖海域 Y 站與嘉南海域 E 站風向圖

W14CPHY0.1HA W14CCNE0.1H0 W151PHY0.1HA W151CNE0.1H0 W152PHY0.1HA W152CNE0.1H0
W153PHY0.1HA W153CNE0.1H0 W154PHY0.1HA W154CNE0.1H0 W155PHY0.1HA W155CNE0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2015

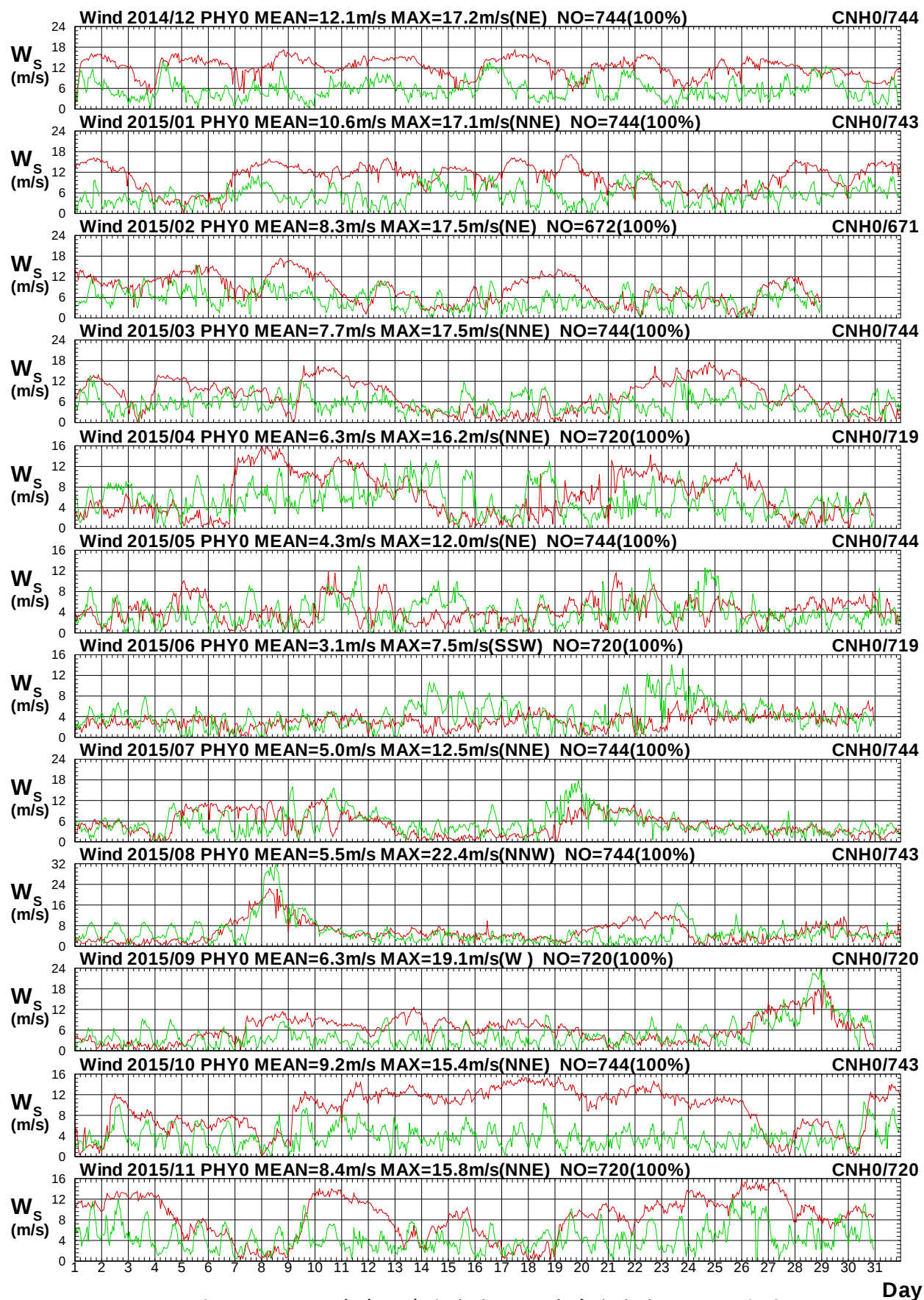


圖 1.12a 2015年每月澎湖海域 Y 站與嘉南海域 H 站風速圖

W14CPHY0.1HA W14CCNH0.1H0 W151PHY0.1HA W151CNH0.1H0 W152PHY0.1HA W152CNH0.1H0
W153PHY0.1HA W153CNH0.1H0 W154PHY0.1HA W154CNH0.1H0 W155PHY0.1HA W155CNH0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2015

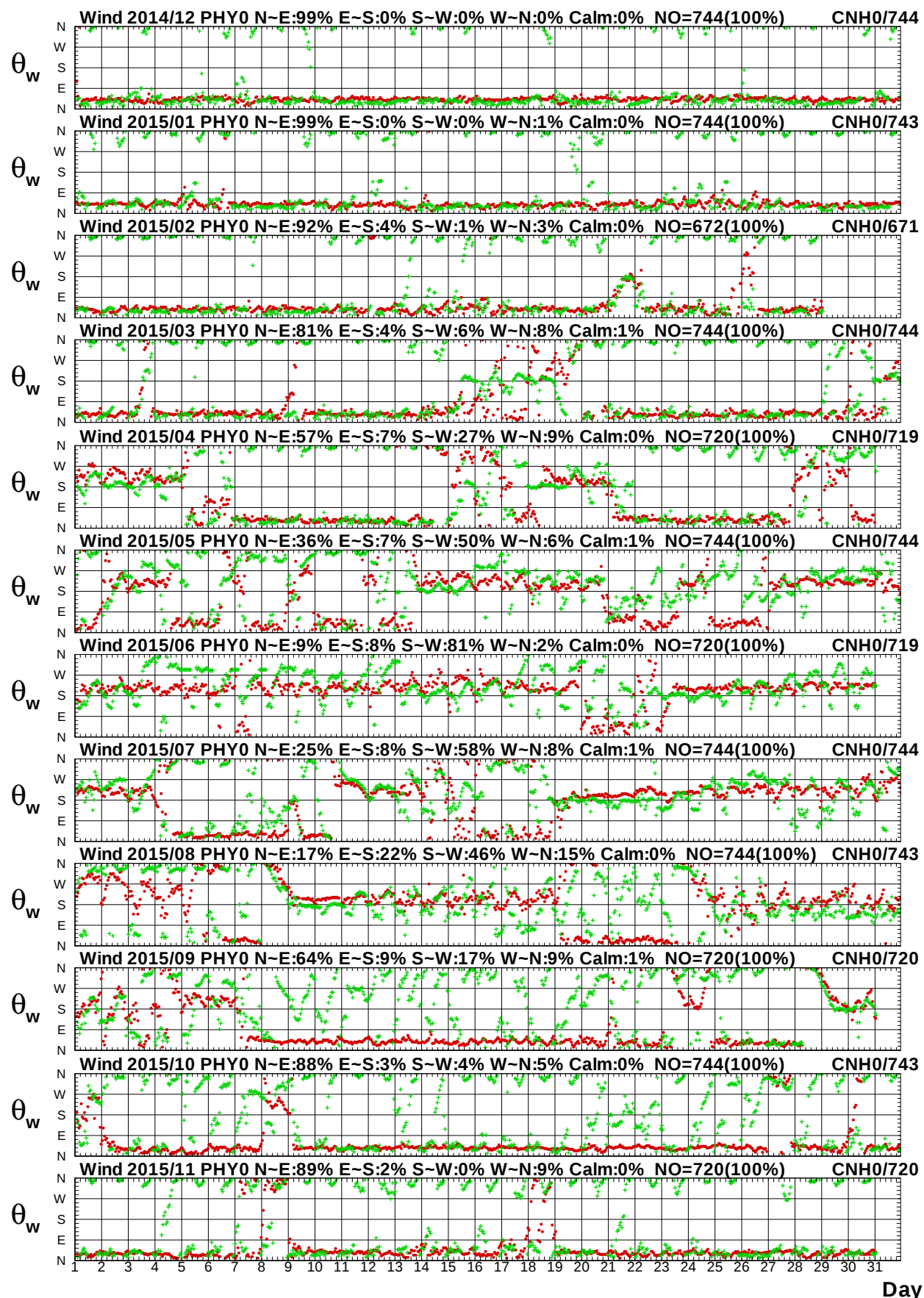


圖 1.12b 2015 年每月澎湖海域 Y 站與嘉南海域 H 站風向圖

W14CPHY0.1HA W14CCNH0.1H0 W151PHY0.1HA W151CNH0.1H0 W152PHY0.1HA W152CNH0.1H0
W153PHY0.1HA W153CNH0.1H0 W154PHY0.1HA W154CNH0.1H0 W155PHY0.1HA W155CNH0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2015

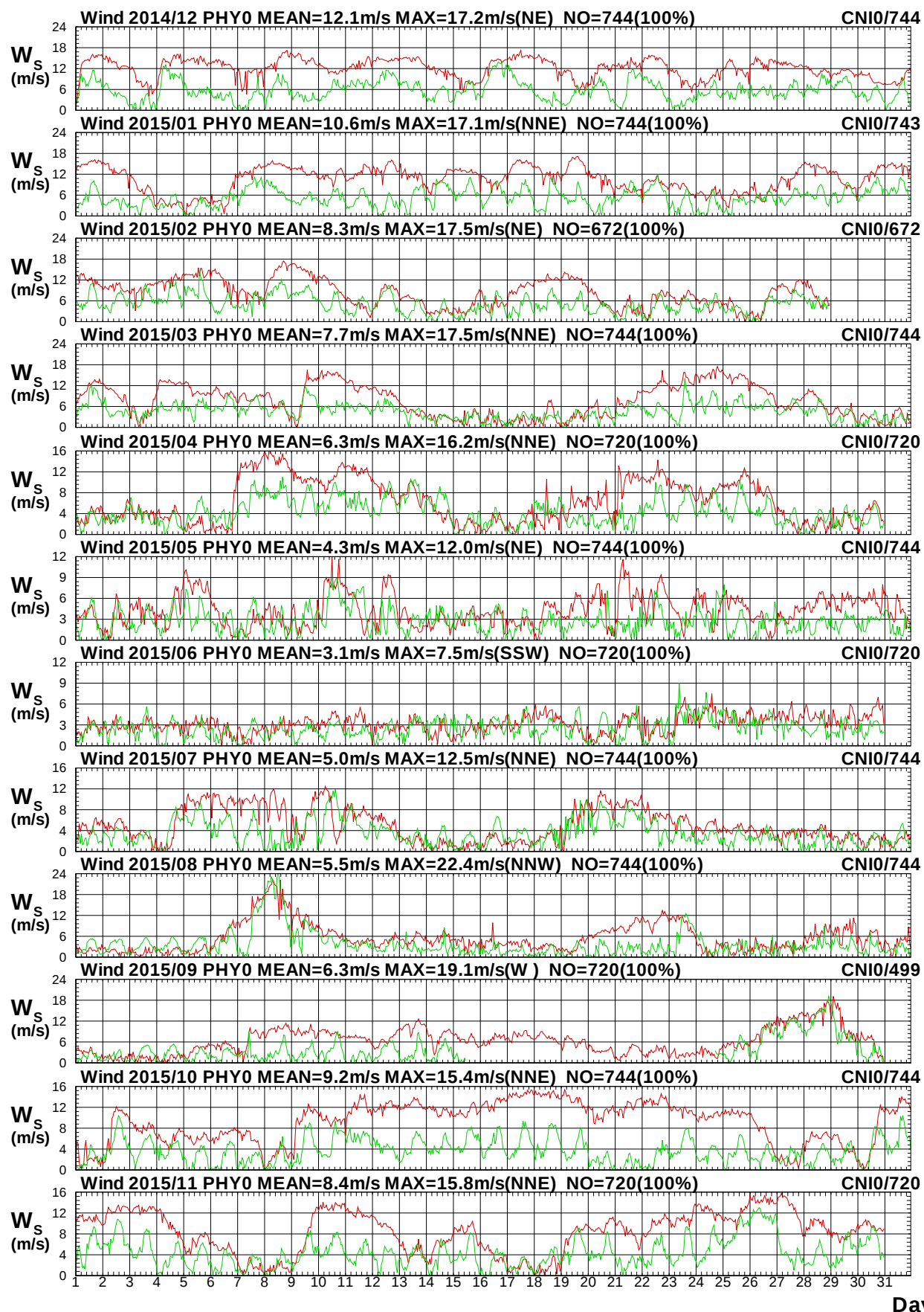


圖 1.13a 2015年每月澎湖海域 Y 站與嘉南海域 I 站風速圖

W14CPHY0.1HA W14CCNI0.1H0 W151PHY0.1HA W151CNI0.1H0 W152PHY0.1HA W152CNI0.1H0
W153PHY0.1HA W153CNI0.1H0 W154PHY0.1HA W154CNI0.1H0 W155PHY0.1HA W155CNI0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2015

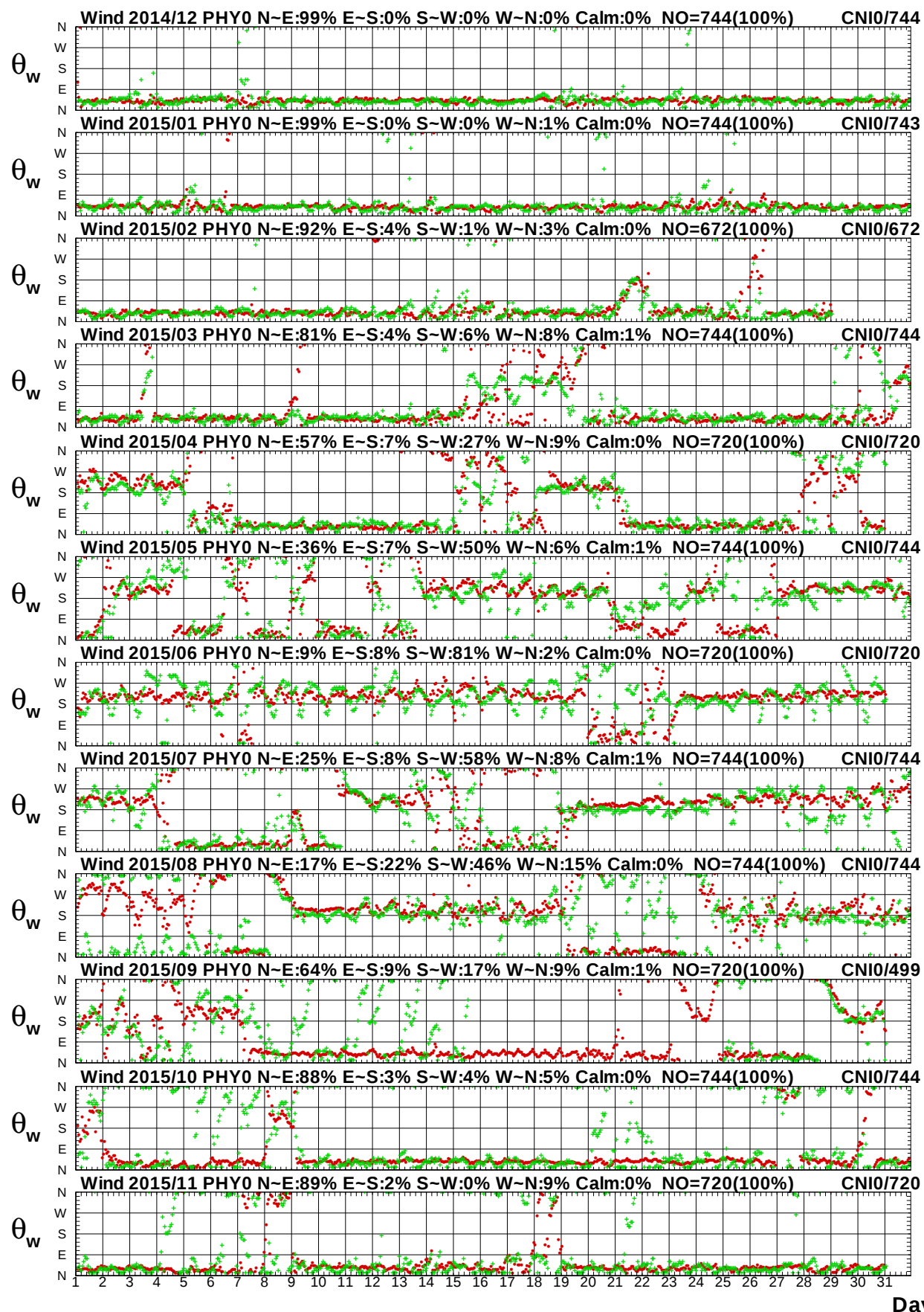


圖 1.13b 2015年每月澎湖海域 Y 站與嘉南海域 I 站風向圖

W14CPHY0.1HA W14CCNI0.1H0 W151PHY0.1HA W151CNI0.1H0 W152PHY0.1HA W152CNI0.1H0
W153PHY0.1HA W153CNI0.1H0 W154PHY0.1HA W154CNI0.1H0 W155PHY0.1HA W155CNI0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2015

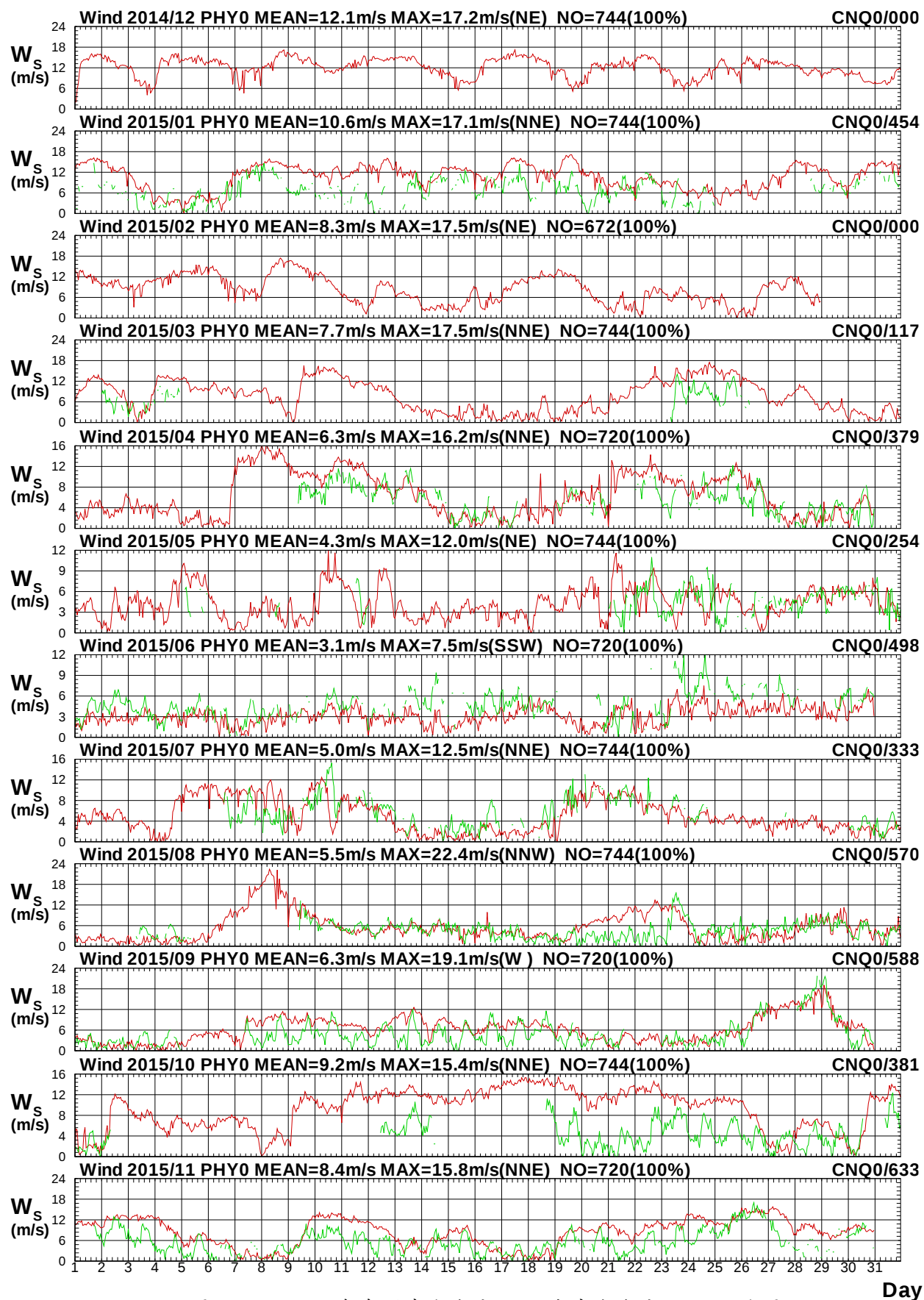


圖 1.14a 2015年每月澎湖海域 Y 站與嘉南海域 Q 站風速圖

W14CPHY0.1HA W14CCNQ0.1H0 W151PHY0.1HA W151CNQ0.1H0 W152PHY0.1HA W152CNQ0.1H0
W153PHY0.1HA W153CNQ0.1H0 W154PHY0.1HA W154CNQ0.1H0 W155PHY0.1HA W155CNQ0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2015

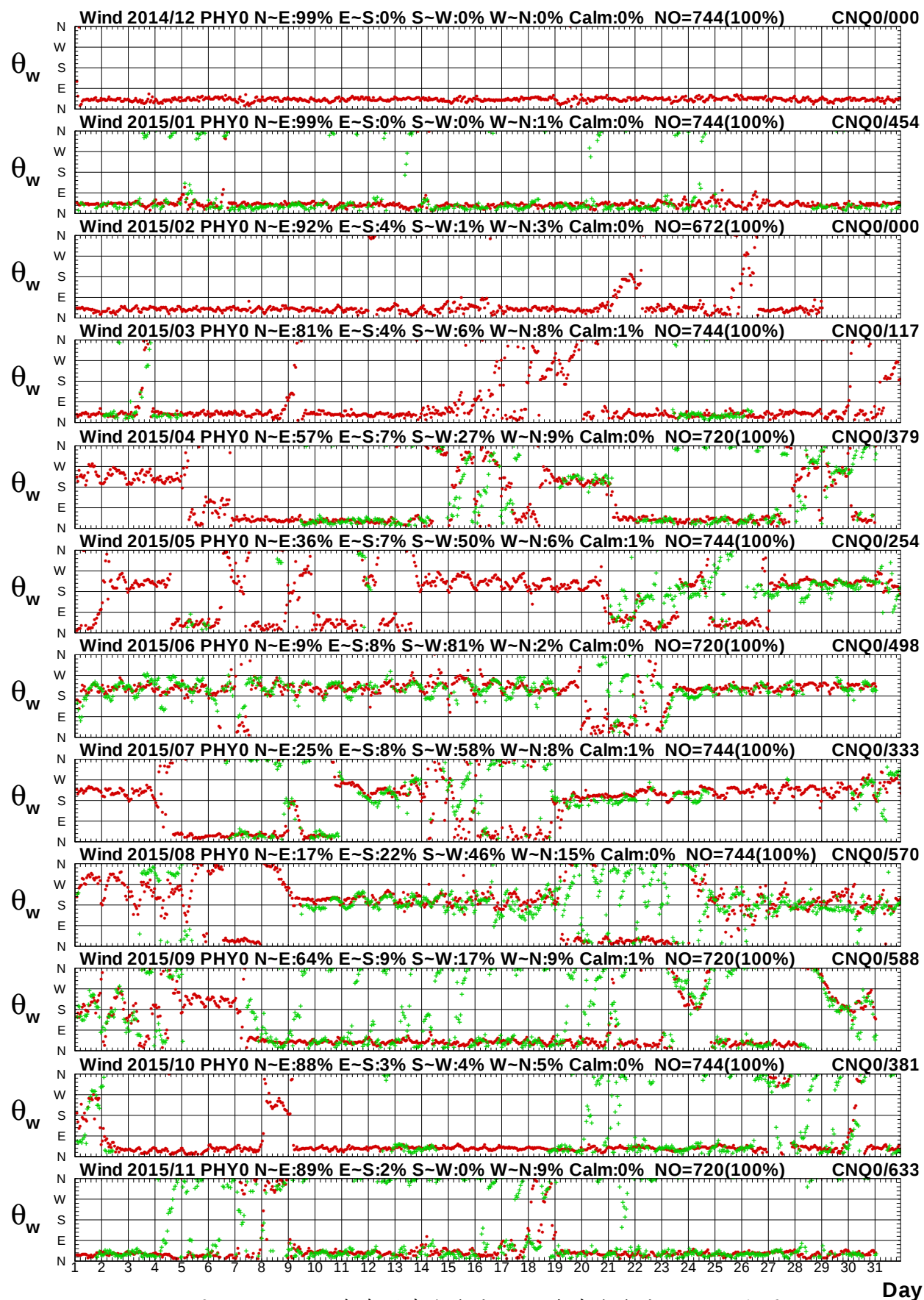


圖 1.14b 2015 年每月澎湖海域 Y 站與嘉南海域 Q 站風向圖

W14CPHY0.1HA W14CCNQ0.1H0 W151PHY0.1HA W151CNQ0.1H0 W152PHY0.1HA W152CNQ0.1H0
W153PHY0.1HA W153CNQ0.1H0 W154PHY0.1HA W154CNQ0.1H0 W155PHY0.1HA W155CNQ0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2015

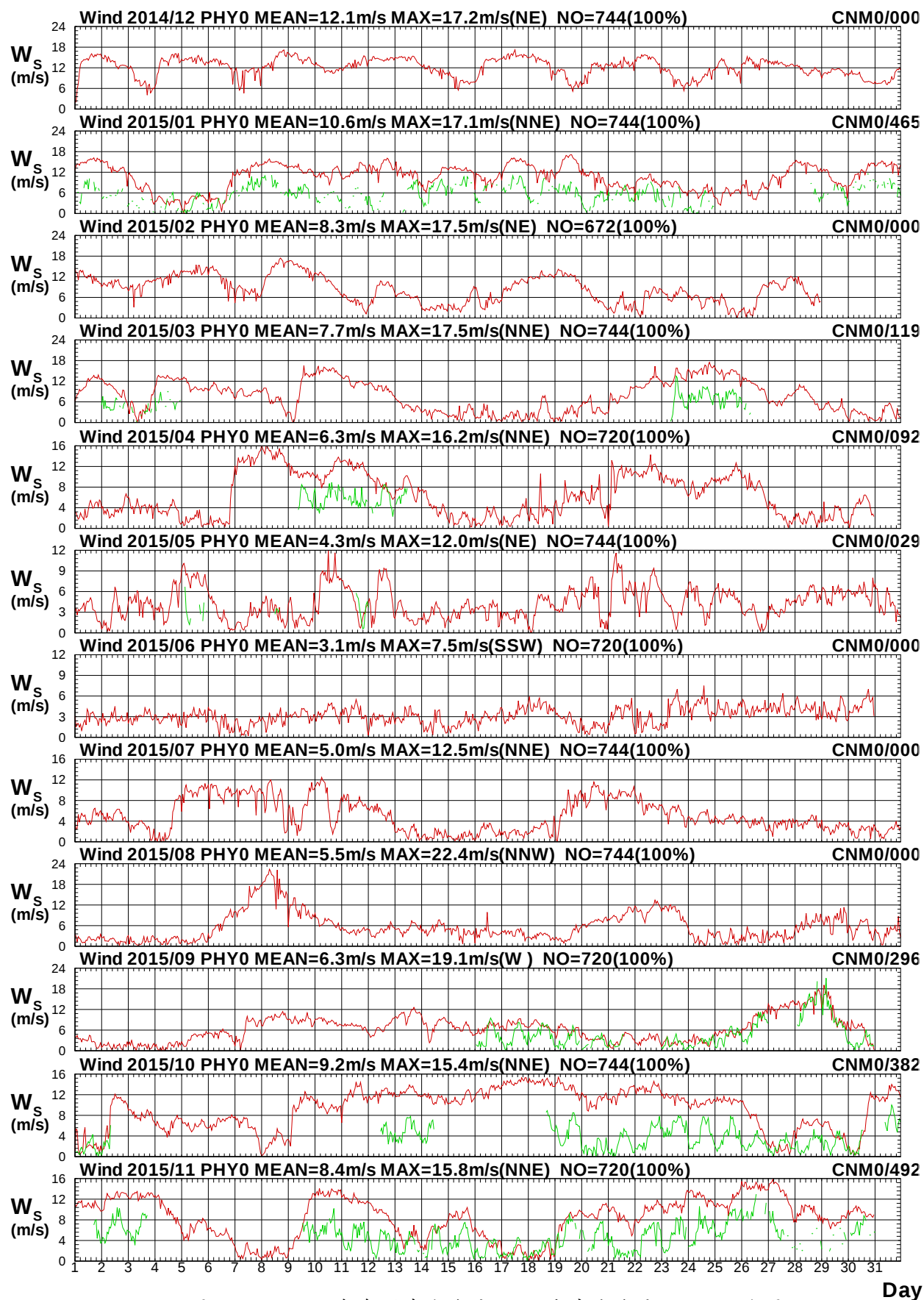


圖 1.15a 2015年每月澎湖海域 Y 站與嘉南海域 M 站風速圖

W14CPHY0.1HA W14CCNM0.1H0 W151PHY0.1HA W151CNM0.1H0 W152PHY0.1HA W152CNM0.1H0

W153PHY0.1HA W153CNM0.1H0 W154PHY0.1HA W154CNM0.1H0 W155PHY0.1HA W155CNM0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2015

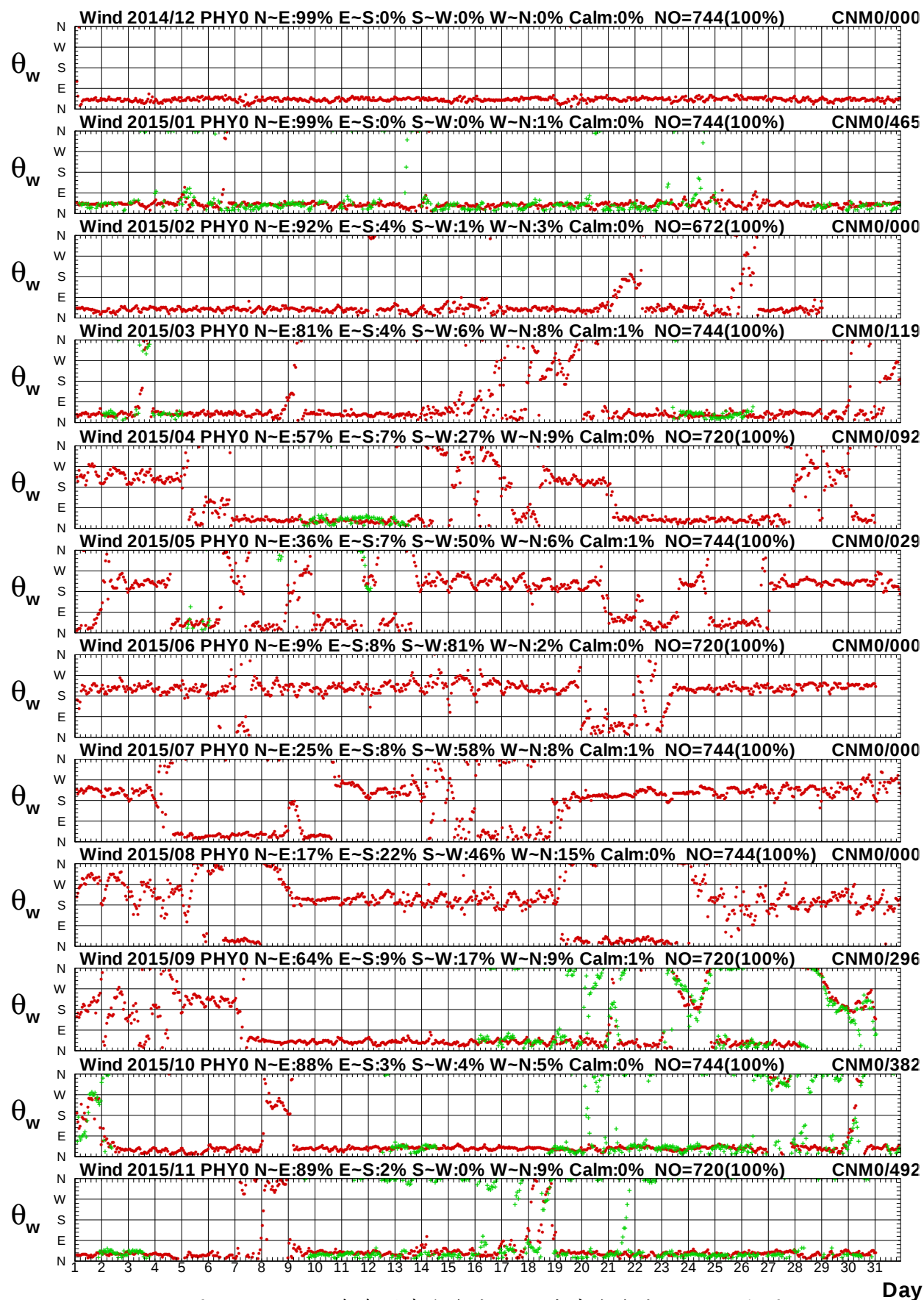


圖 1.15b 2015年每月澎湖海域 Y 站與嘉南海域 M 站風向圖

W14CPHY0.1HA W14CCNM0.1H0 W151PHY0.1HA W151CNM0.1H0 W152PHY0.1HA W152CNM0.1H0

W153PHY0.1HA W153CNM0.1H0 W154PHY0.1HA W154CNM0.1H0 W155PHY0.1HA W155CNM0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2015

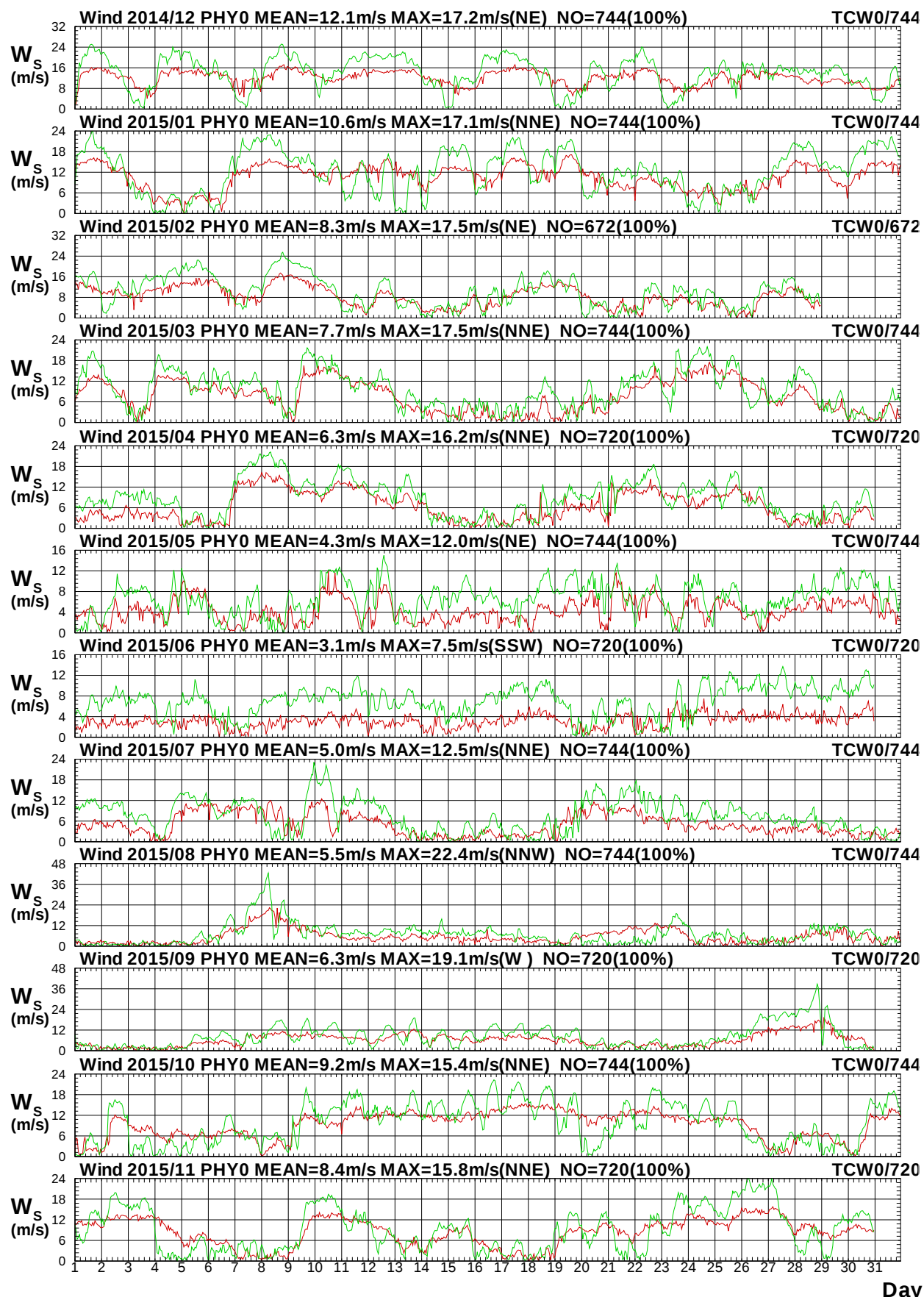


圖 1.16a 2015年每月澎湖海域 Y 站與中雲海域 W 站風速圖

W14CPHY0.1HA W14CTCW0.1H0 W151PHY0.1HA W151TCW0.1H0 W152PHY0.1HA W152TCW0.1H0
W153PHY0.1HA W153TCW0.1H0 W154PHY0.1HA W154TCW0.1H0 W155PHY0.1HA W155TCW0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2015

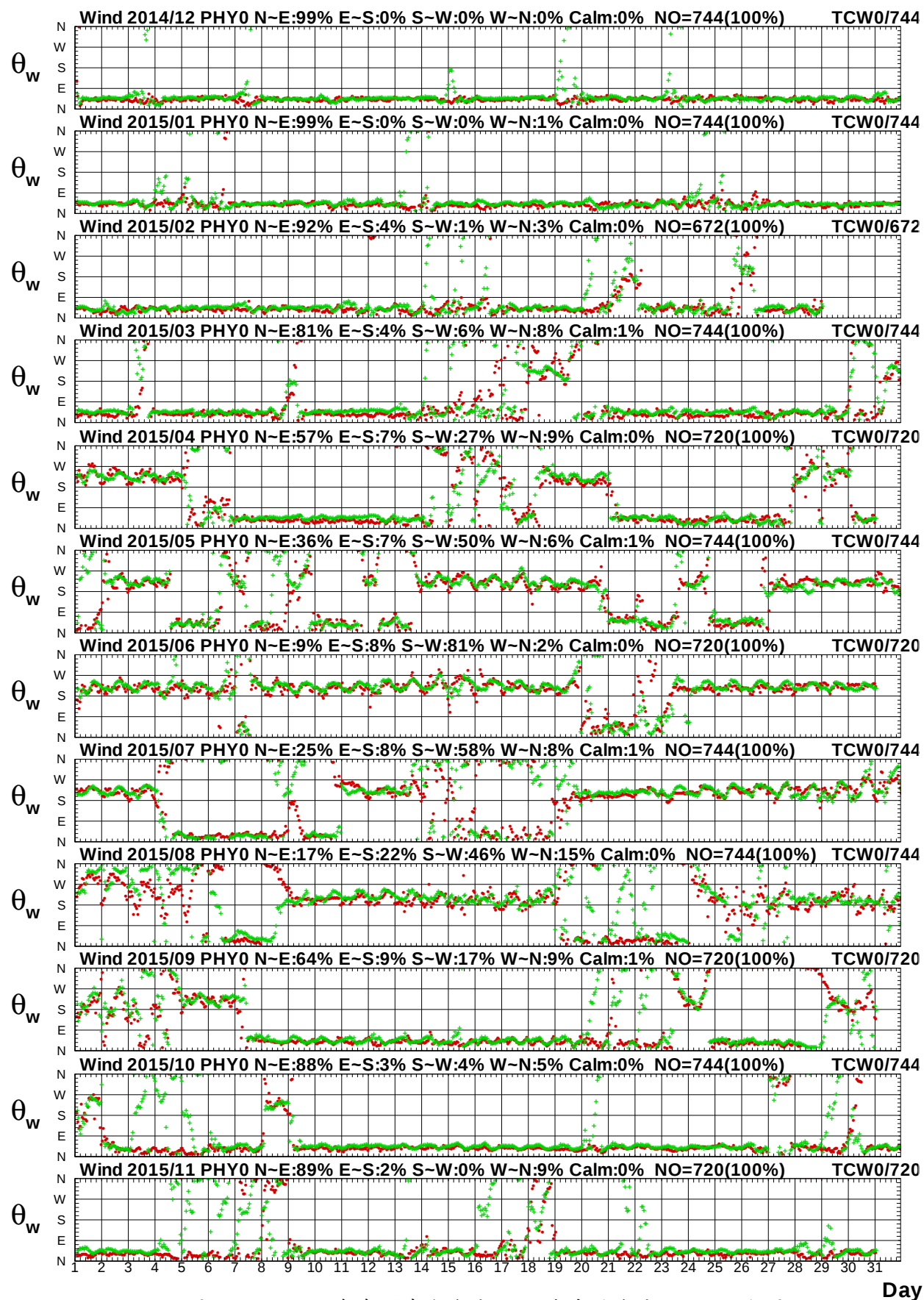


圖 1.16b 2015年每月澎湖海域 Y 站與中雲海域 W 站風向圖

W14CPHY0.1HA W14CTCW0.1H0 W151PHY0.1HA W151TCW0.1H0 W152PHY0.1HA W152TCW0.1H0

W153PHY0.1HA W153TCW0.1H0 W154PHY0.1HA W154TCW0.1H0 W155PHY0.1HA W155TCW0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2015

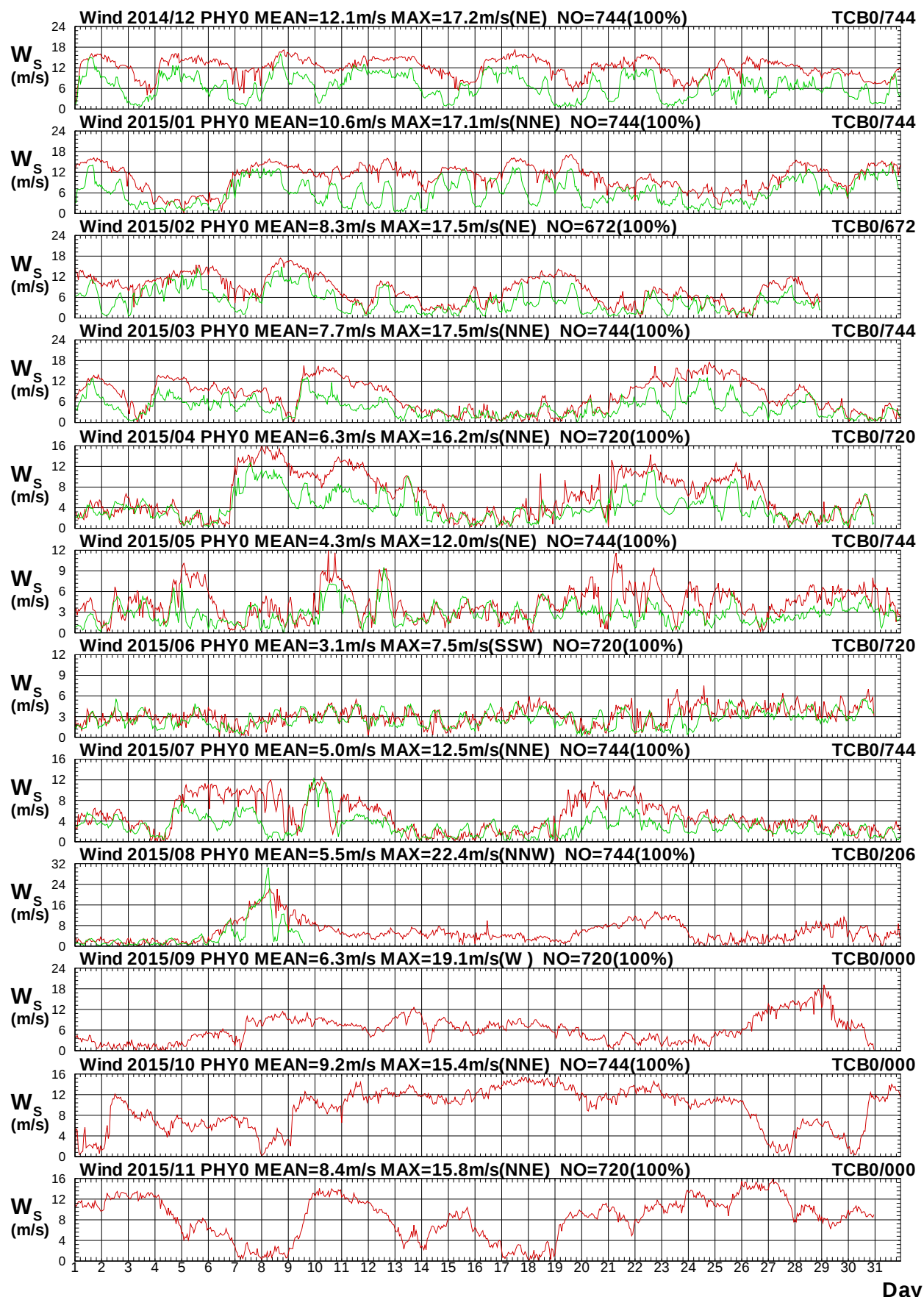


圖 1.17a 2015 年每月澎湖海域 Y 站與中雲海域 B 站風速圖

W14CPHY0.1HA W14CTCB0.1H0 W151PHY0.1HA W151TCB0.1H0 W152PHY0.1HA W152TCB0.1H0
W153PHY0.1HA W153TCB0.1H0 W154PHY0.1HA W154TCB0.1H0 W155PHY0.1HA W155TCB0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2015

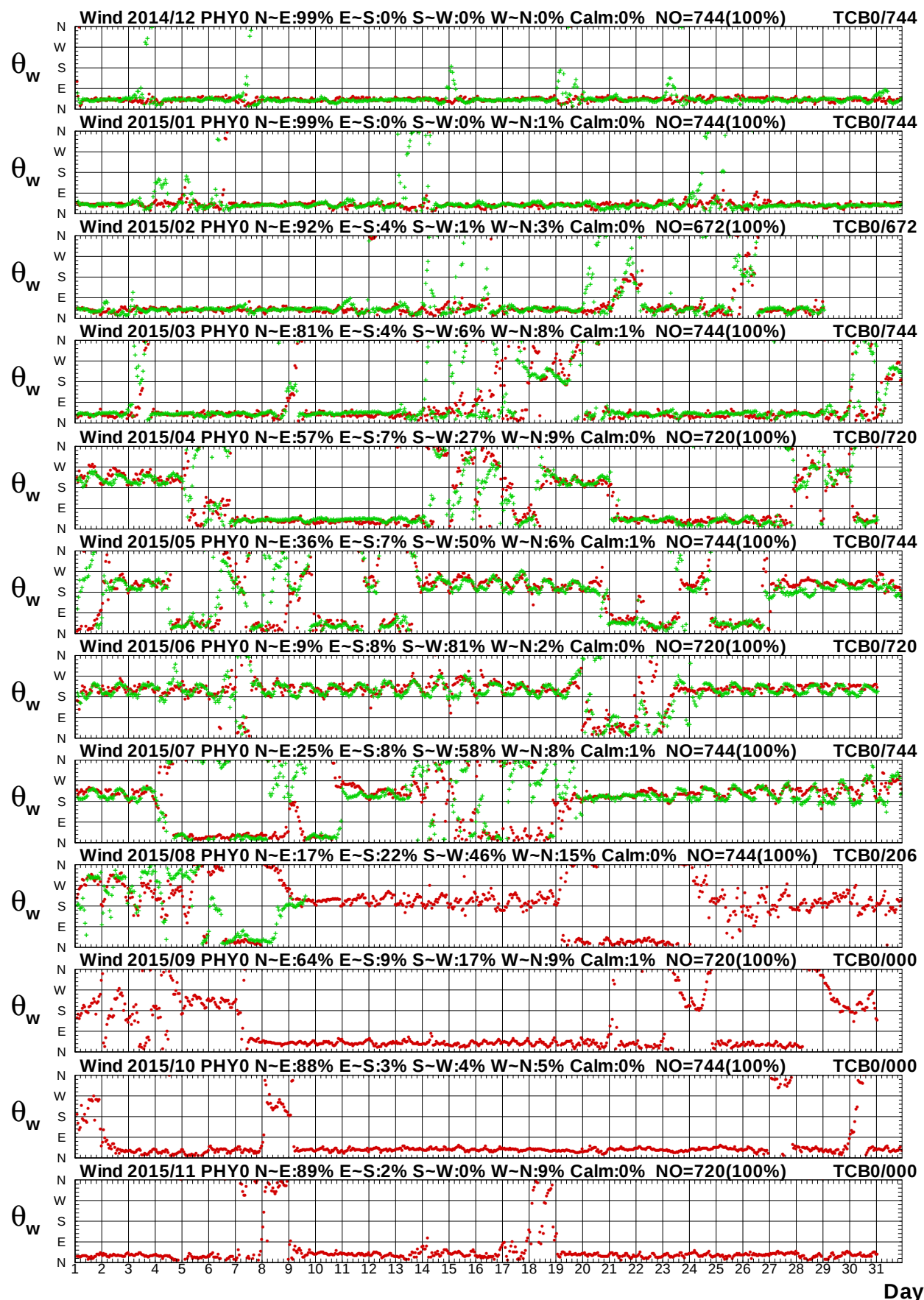


圖 1.17b 2015 年每月澎湖海域 Y 站與中雲海域 B 站風向圖

W14CPHY0.1HA W14CTCB0.1H0 W151PHY0.1HA W151TCB0.1H0 W152PHY0.1HA W152TCB0.1H0
W153PHY0.1HA W153TCB0.1H0 W154PHY0.1HA W154TCB0.1H0 W155PHY0.1HA W155TCB0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2015

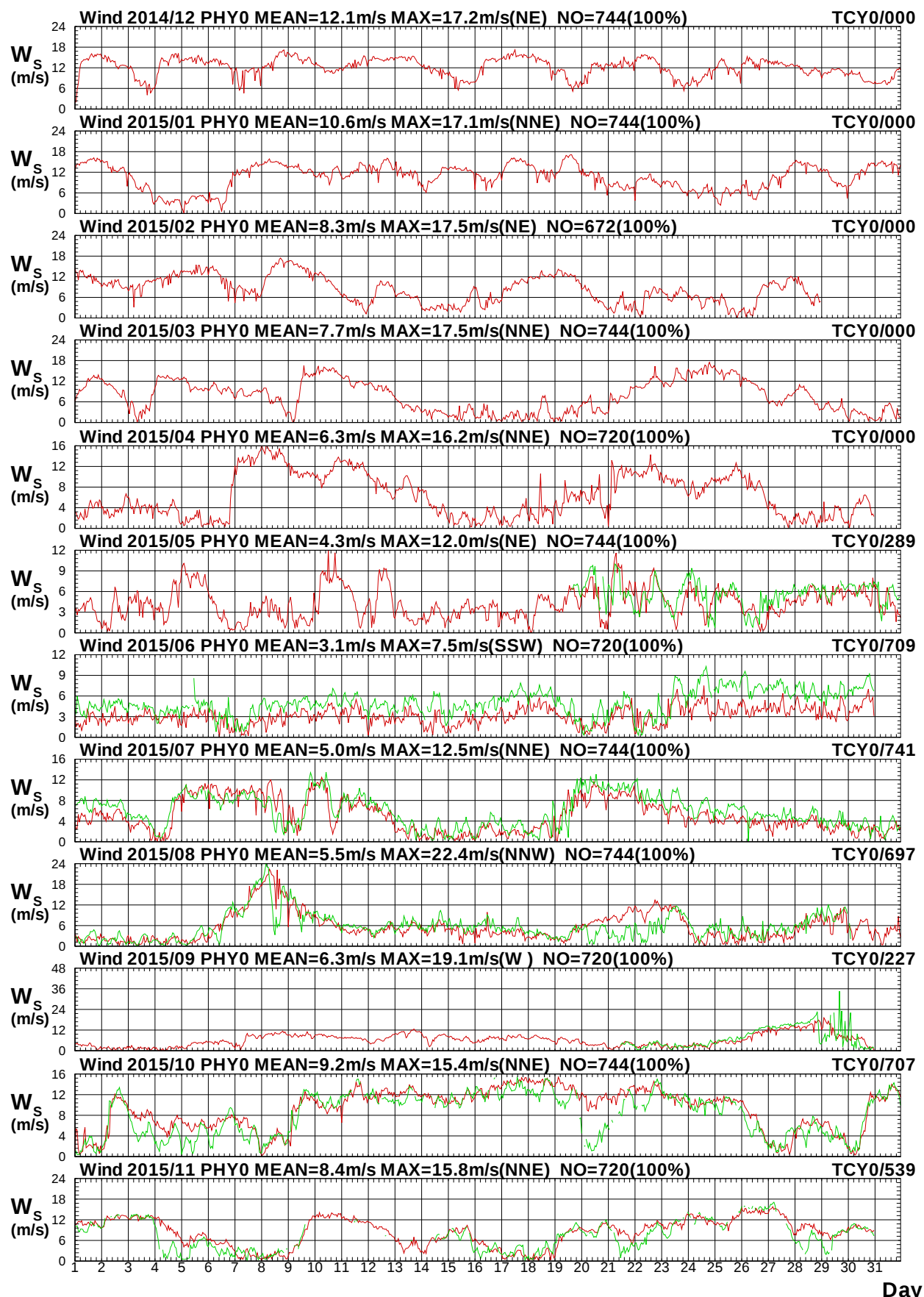


圖 1.18a 2015年每月澎湖海域 Y 站與中雲海域 Y 站風速圖

W14CPHY0.1HA W14CTCY0.1H0 W151PHY0.1HA W151TCY0.1H0 W152PHY0.1HA W152TCY0.1H0
W153PHY0.1HA W153TCY0.1H0 W154PHY0.1HA W154TCY0.1H0 W155PHY0.1HA W155TCY0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2015

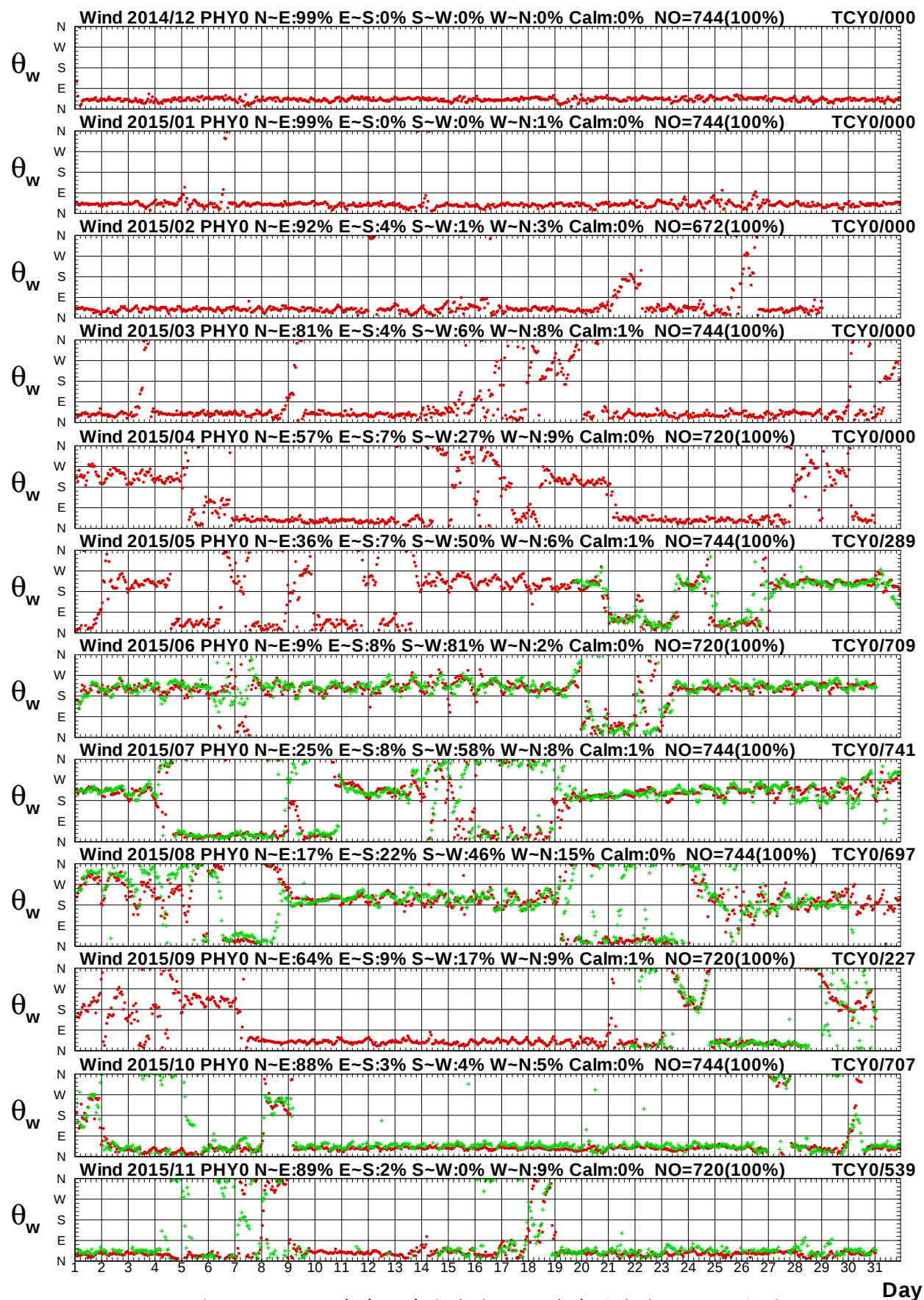


圖 1.18b 2015 年每月澎湖海域 Y 站與中雲海域 Y 站風向圖

W14CPHY0.1HA W14CTCY0.1H0 W151PHY0.1HA W151TCY0.1H0 W152PHY0.1HA W152TCY0.1H0
W153PHY0.1HA W153TCY0.1H0 W154PHY0.1HA W154TCY0.1H0 W155PHY0.1HA W155TCY0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2015

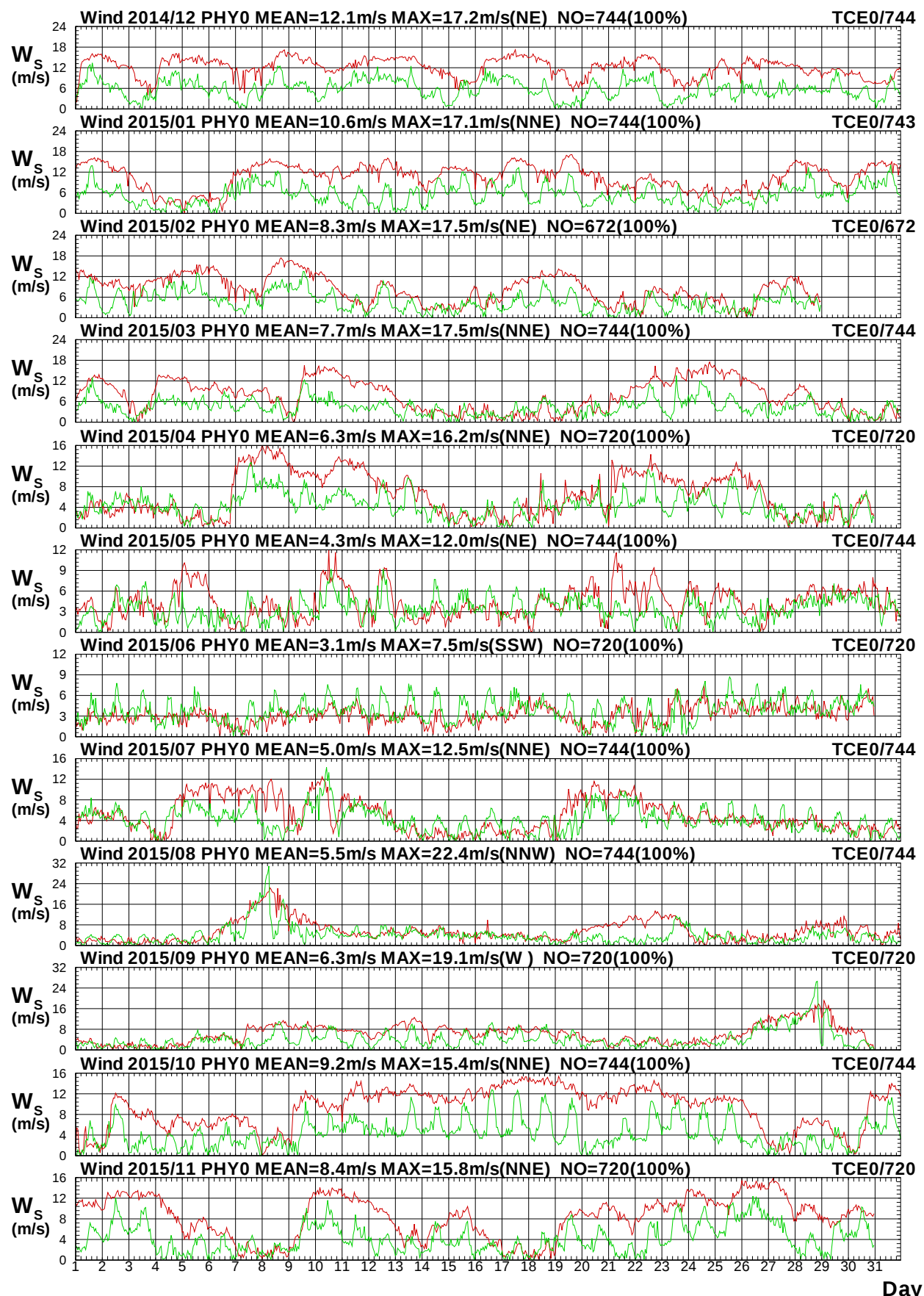


圖 1.19a 2015 年每月澎湖海域 Y 站與中雲海域 E 站風速圖

W14CPHY0.1HA W14CTCE0.1H0 W151PHY0.1HA W151TCE0.1H0 W152PHY0.1HA W152TCE0.1H0
W153PHY0.1HA W153TCE0.1H0 W154PHY0.1HA W154TCE0.1H0 W155PHY0.1HA W155TCE0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2015

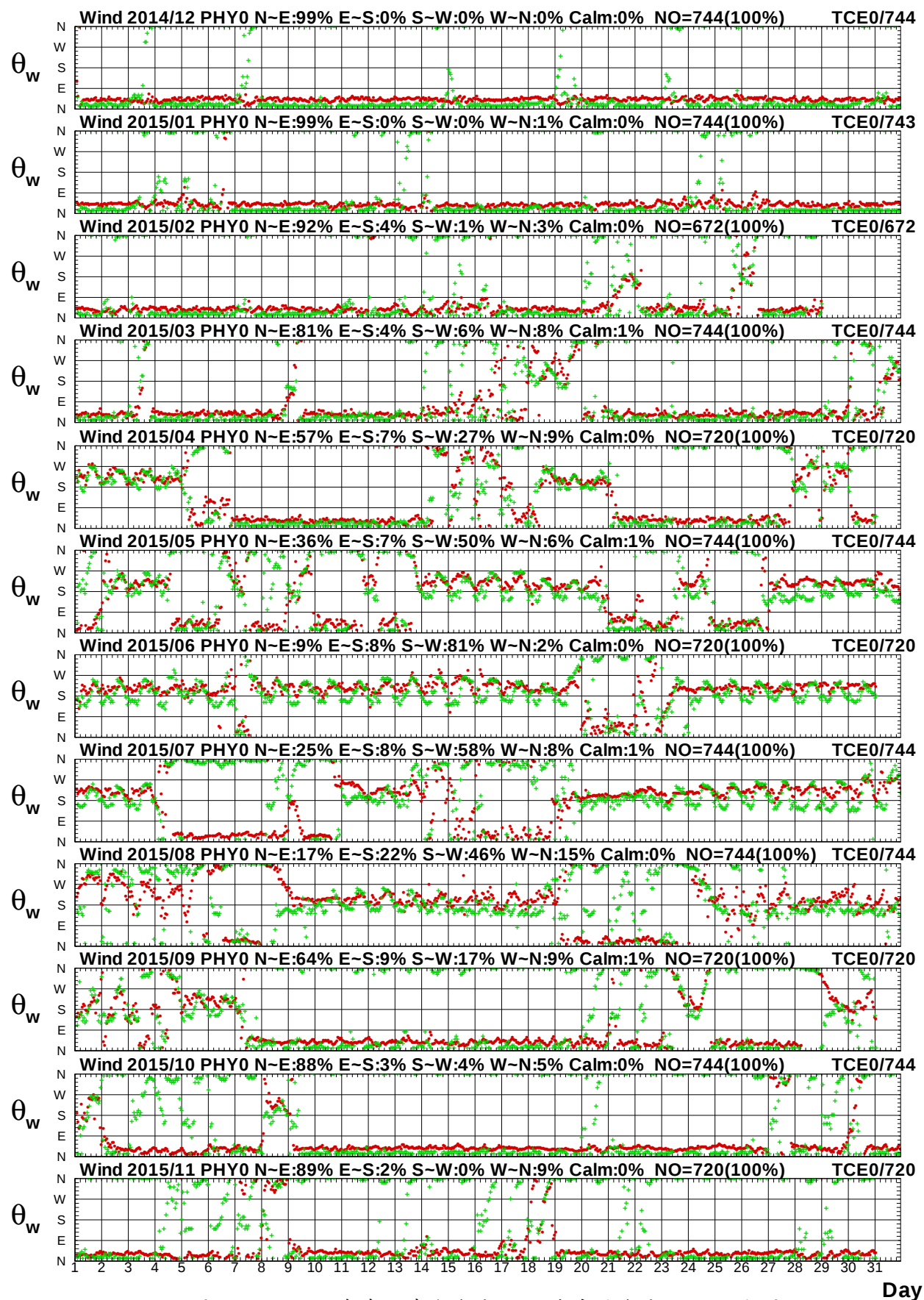


圖 1.19b 2015年每月澎湖海域 Y 站與中雲海域 E 站風向圖

W14CPHY0.1HA W14CTCE0.1H0 W151PHY0.1HA W151TCE0.1H0 W152PHY0.1HA W152TCE0.1H0
W153PHY0.1HA W153TCE0.1H0 W154PHY0.1HA W154TCE0.1H0 W155PHY0.1HA W155TCE0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2015

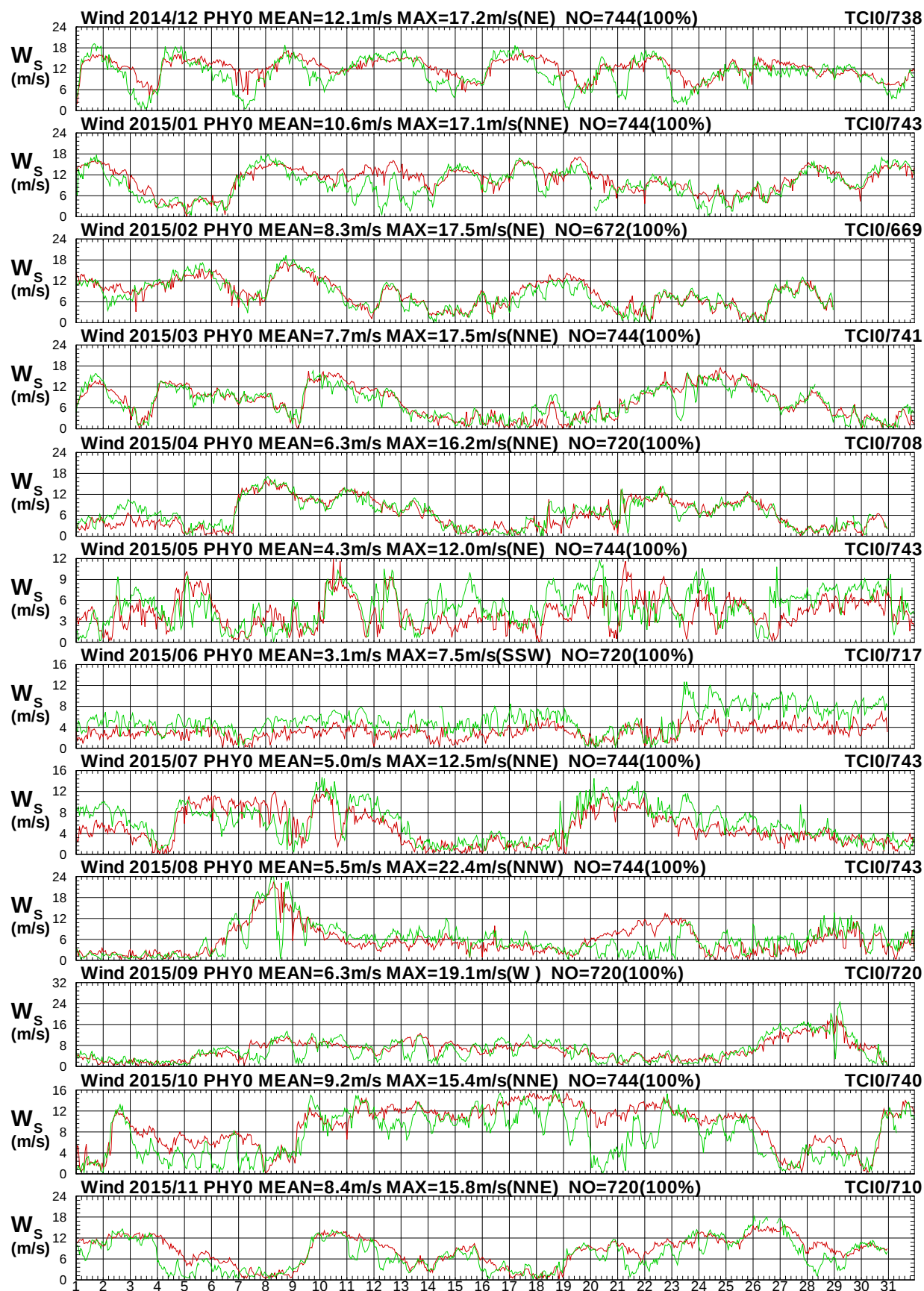


圖 1.20a 2015年每月澎湖海域 Y 站與中雲海域 I 站風速圖

W14CPHY0.1HA W14CTCI0.1H0 W151PHY0.1HA W151TCI0.1H0 W152PHY0.1HA W152TCI0.1H0
W153PHY0.1HA W153TCI0.1H0 W154PHY0.1HA W154TCI0.1H0 W155PHY0.1HA W155TCI0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2015

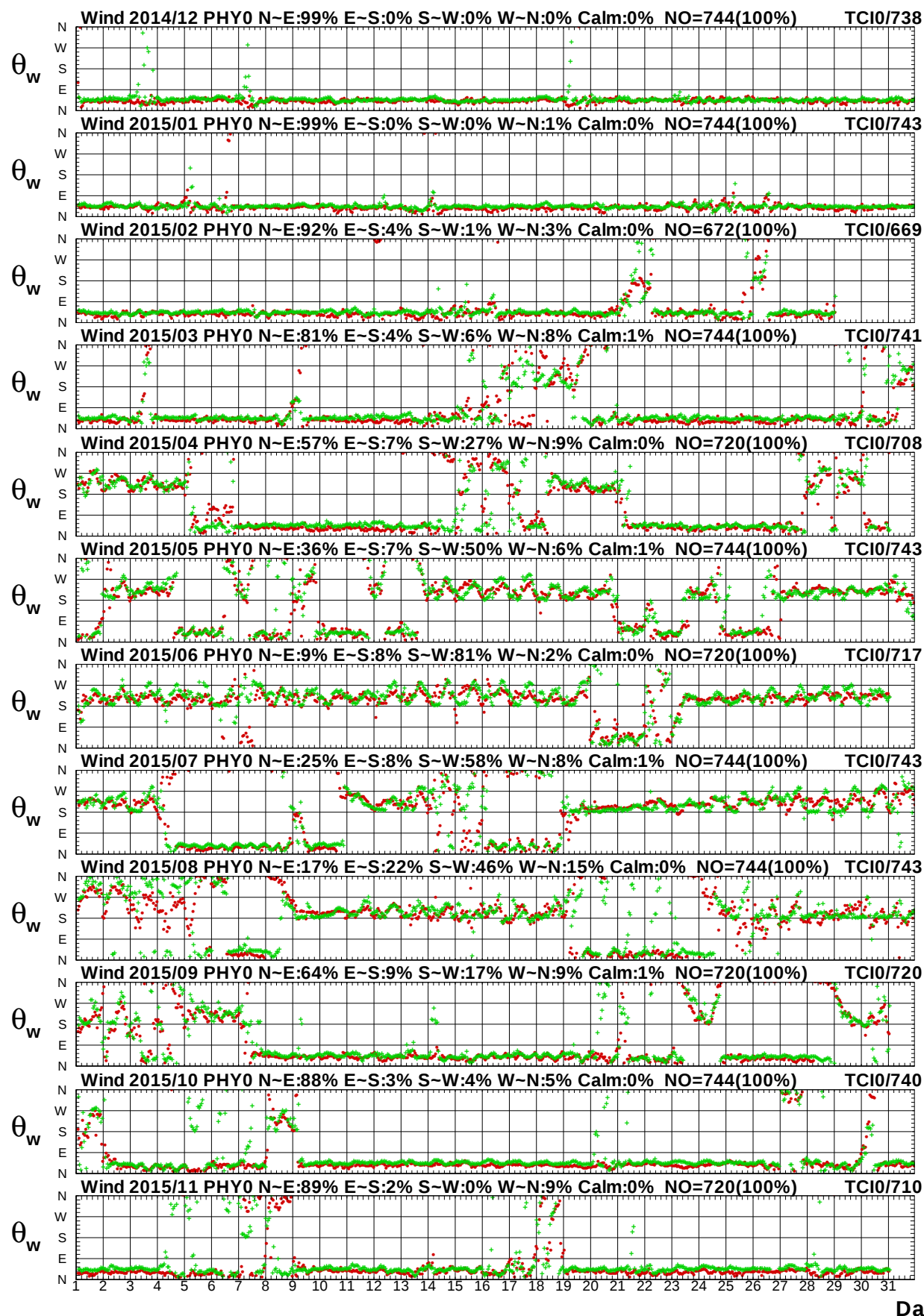


圖 1.20b 2015年每月澎湖海域 Y 站與中雲海域 I 站風向圖

W14CPHY0.1HA W14CTCI0.1H0 W151PHY0.1HA W151TCI0.1H0 W152PHY0.1HA W152TCI0.1H0
W153PHY0.1HA W153TCI0.1H0 W154PHY0.1HA W154TCI0.1H0 W155PHY0.1HA W155TCI0.1H0

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第二章 2015 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)及七美海上浮標(測站 R)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，2015 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，2015 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 2015 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	2011/01-2015/11(觀測中)	港研中心	龍門尖山港外海
Y	23°43'37"N	119°33'07"E	2006/09-2015/11(觀測中)	水利署	澎湖資料浮標
Z	23°15'23"N	119°41'2"E	2013/10-2015/11(觀測中)	中央氣象局	東吉島波浪站
R	22°45'16"N	119°25'42"E	2015/07-2015/11(觀測中)	中央氣象局	七美資料浮標

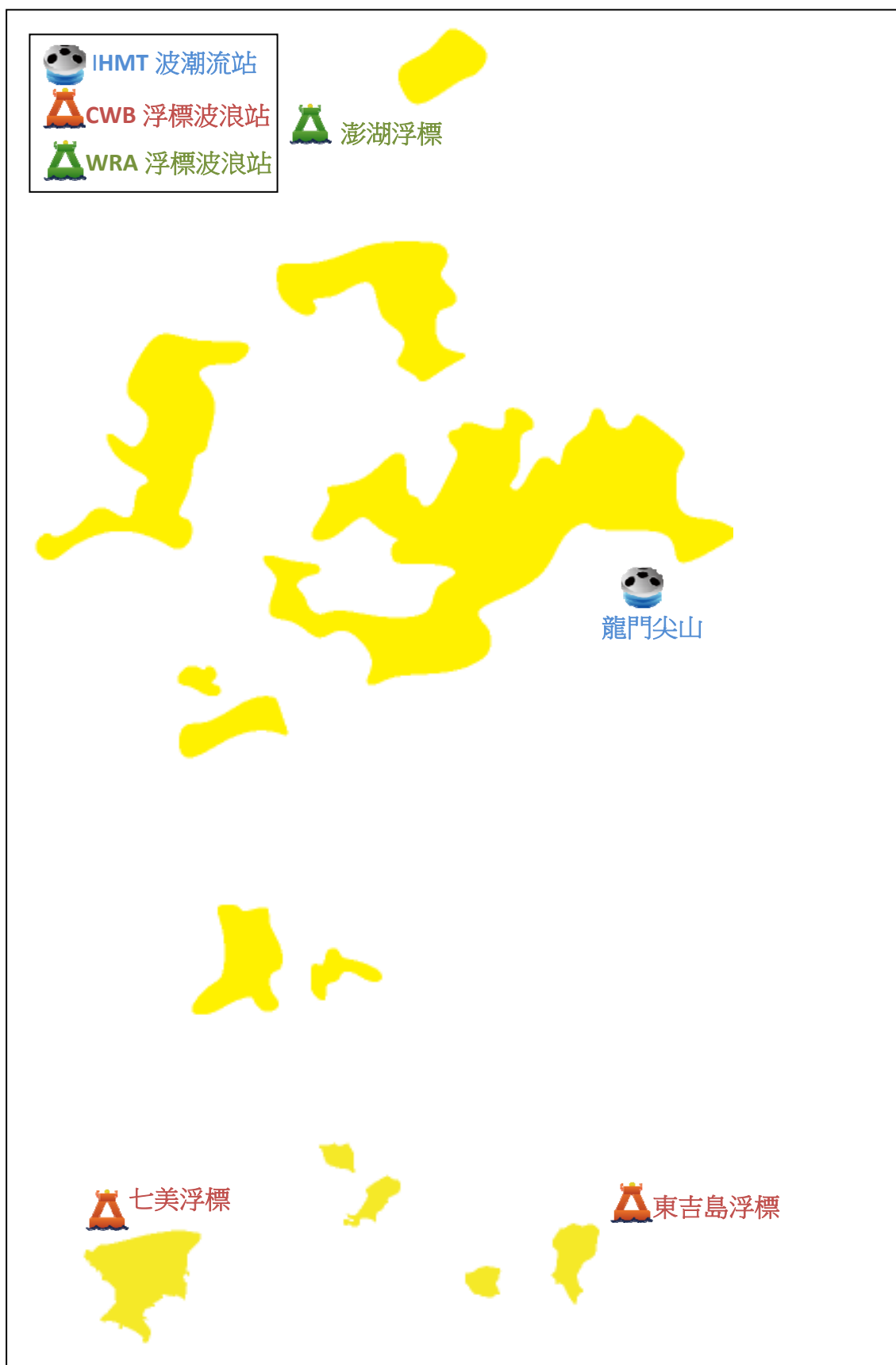


圖 2 澎湖海域波浪觀測站位置示意圖

表 2.1a 2015 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				
2014/12 月	599 (80.5%)	741 (99.6%)	87 (11.7%)	*	*	*	*	*
2015/ 1 月	618 (83.1%)	744 (100%)	*	*	*	*	*	*
2015/ 2 月	605 (90.0%)	672 (100%)	*	*	*	*	*	*
2015/ 3 月	690 (92.7%)	427 (57.4%)	*	*	*	*	*	*
2015/ 4 月	633 (87.9%)	223 (31.0%)	*	*	*	*	*	*
2015/ 5 月	699 (94.0%)	743 (99.9%)	*	*	*	*	*	*
2015/ 6 月	704 (97.8%)	718 (99.7%)	*	*	*	*	*	*
2015/ 7 月	697 (93.7%)	594 (79.8%)	*	360 (48.4%)	*	*	*	*
2015/ 8 月	693 (93.1%)	738 (99.2%)	*	704 (94.6%)	*	*	*	*
2015/ 9 月	664 (92.2%)	720 (100%)	*	685 (95.1%)	*	*	*	*
2015/10 月	641 (86.2%)	191 (25.7%)	*	700 (94.1%)	*	*	*	*
2015/11 月	626 (86.9%)	*	*	653 (90.7%)	*	*	*	*
2015/冬季	1822 (84.4%)	2157 (99.9%)	87 (4.0%)	*	*	*	*	*
2015/春季	2022 (91.6%)	1393 (63.1%)	*	*	*	*	*	*
2015/夏季	2094 (94.8%)	2050 (92.8%)	*	1064 (48.2%)	*	*	*	*
2015/秋季	1931 (88.4%)	911 (41.7%)	*	2038 (93.3%)	*	*	*	*
2015/整年	7869 (89.8%)	6511 (74.3%)	87 (1.0%)	3102 (35.4%)	*	*	*	*
起始年月	2014/12	2014/12	2014/12	2015/07	*	*	*	*
結束年月	2015/11	2015/10	2014/12	2015/11	*	*	*	*

表 2.1b 2015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				
2014/12 月	744 (100%)	*	*	*	*	*	*	*
2015/ 1 月	744 (100%)	*	*	*	*	*	*	*
2015/ 2 月	672 (100%)	*	*	*	*	*	*	*
2015/ 3 月	744 (100%)	*	*	*	*	*	*	*
2015/ 4 月	720 (100%)	*	*	*	*	*	*	*
2015/ 5 月	744 (100%)	*	*	*	*	*	*	*
2015/ 6 月	720 (100%)	*	*	*	*	*	*	*
2015/ 7 月	744 (100%)	*	*	*	*	*	*	*
2015/ 8 月	744 (100%)	*	*	*	*	*	*	*
2015/ 9 月	720 (100%)	*	*	*	*	*	*	*
2015/10 月	744 (100%)	*	*	*	*	*	*	*
2015/11 月	720 (100%)	*	*	*	*	*	*	*
2015/冬季	2160 (100%)	*	*	*	*	*	*	*
2015/春季	2208 (100%)	*	*	*	*	*	*	*
2015/夏季	2208 (100%)	*	*	*	*	*	*	*
2015/秋季	2184 (100%)	*	*	*	*	*	*	*
2015/整年	8760 (100%)	*	*	*	*	*	*	*
起始年月	2014/12	*	*	*	*	*	*	*
結束年月	2015/11	*	*	*	*	*	*	*

Wave H_s in Peng-Hu Seas of PHY0 at 2015

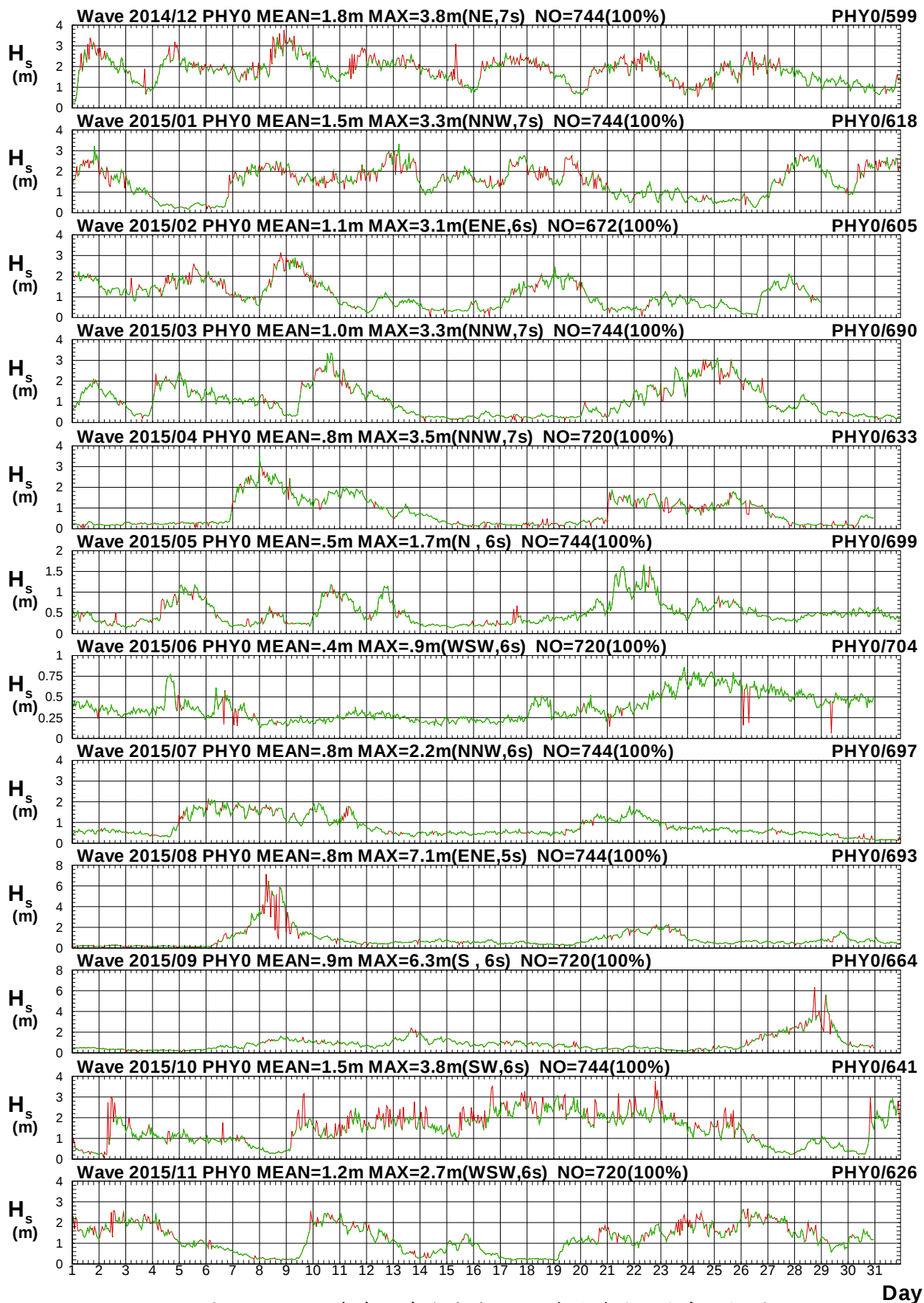


圖 2.1a 2015 年每月澎湖海域 Y 站修補前後之波高比較圖

V14CPHY0.1HA V14CPHY0.1H0 V151PHY0.1HA V151PHY0.1H0 V152PHY0.1HA V152PHY0.1H0
V153PHY0.1HA V153PHY0.1H0 V154PHY0.1HA V154PHY0.1H0 V155PHY0.1HA V155PHY0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2015

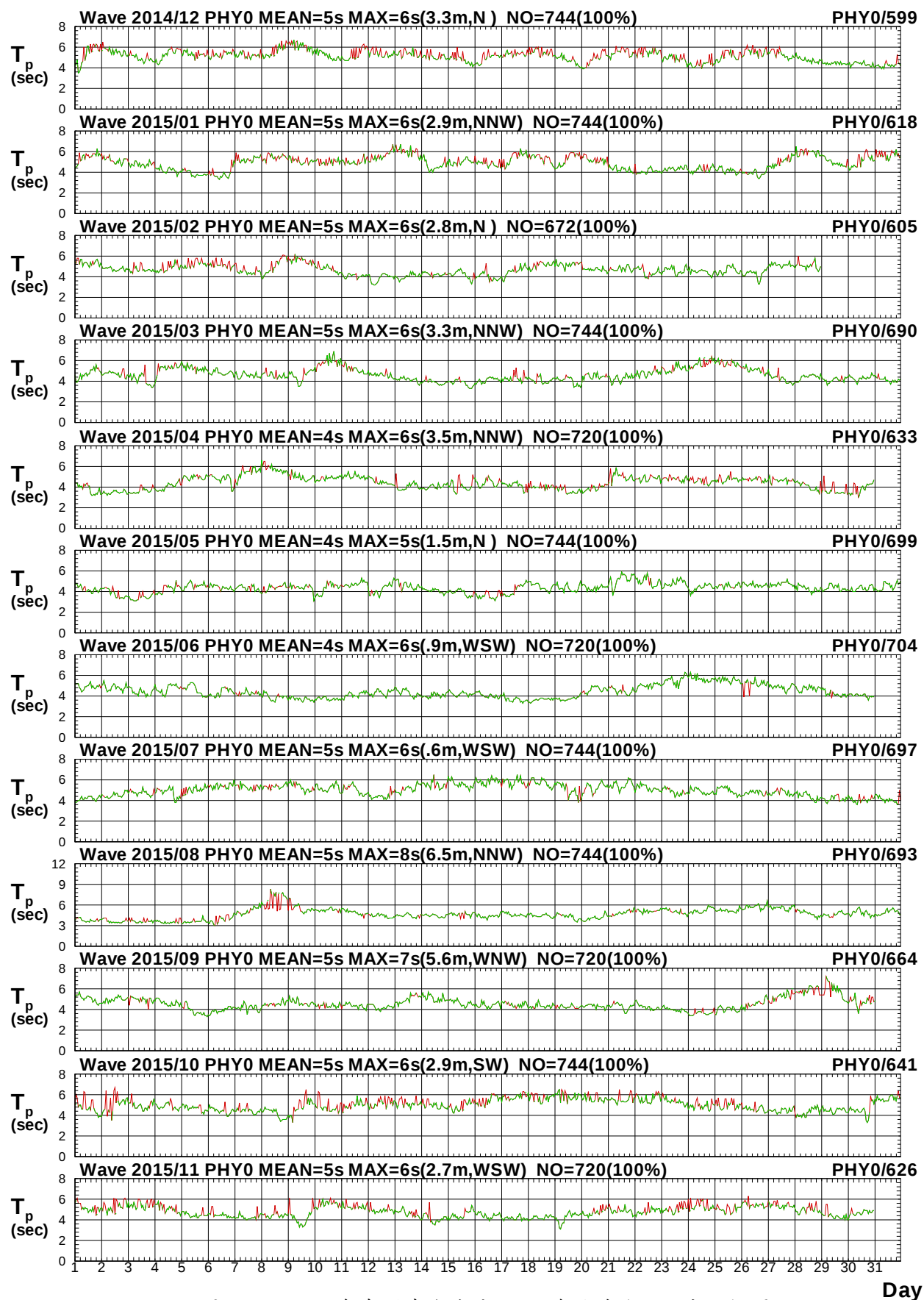


圖 2.1b 2015 年每月澎湖海域 Y 站修補前後之週期比較圖

V14CPHY0.1HA V14CPHY0.1H0 V151PHY0.1HA V151PHY0.1H0 V152PHY0.1HA V152PHY0.1H0
V153PHY0.1HA V153PHY0.1H0 V154PHY0.1HA V154PHY0.1H0 V155PHY0.1HA V155PHY0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2015

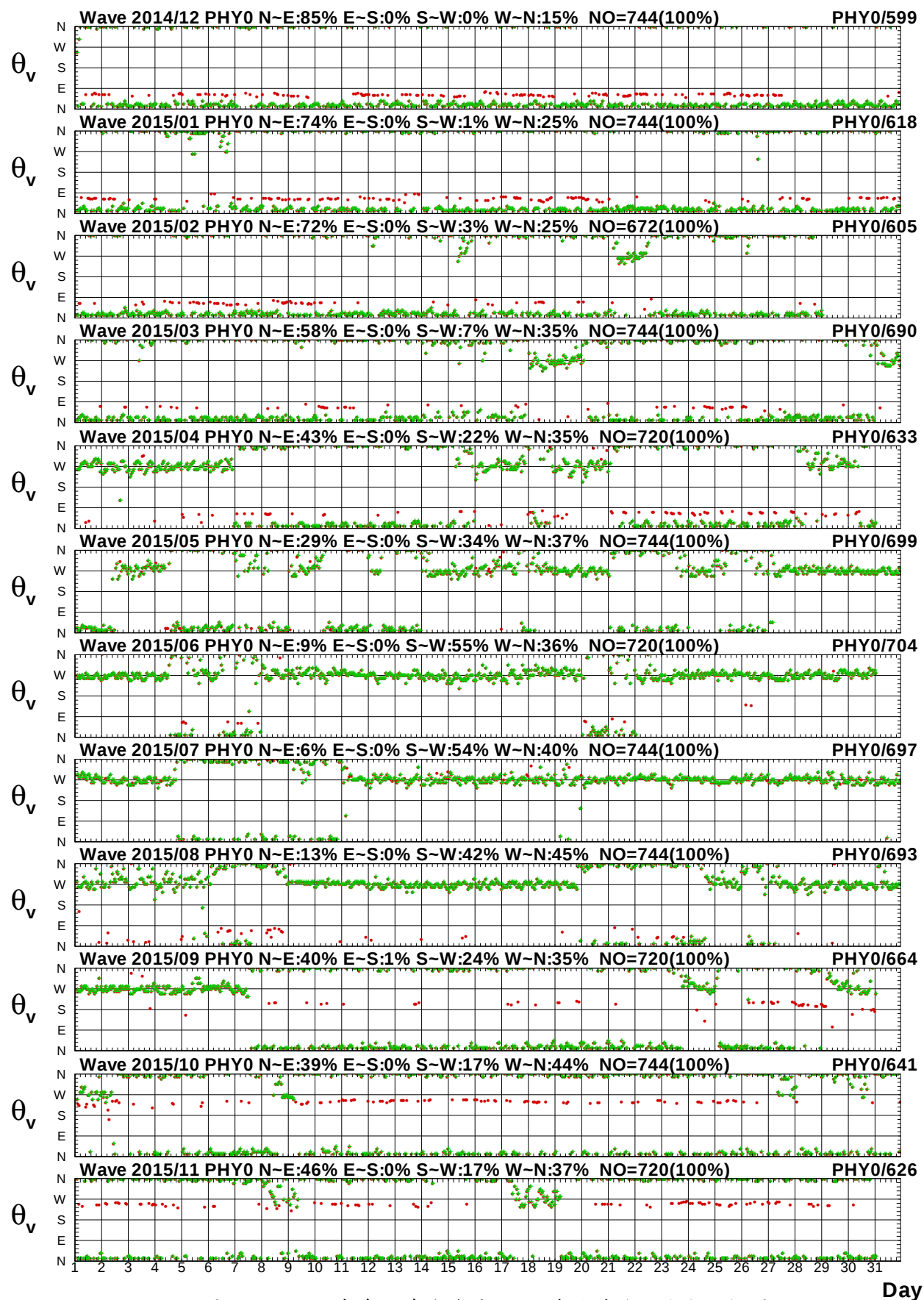


圖 2.1c 2015 年每月澎湖海域 Y 站修補前後之波向比較圖

V14CPHY0.1HA V14CPHY0.1H0 V151PHY0.1HA V151PHY0.1H0 V152PHY0.1HA V152PHY0.1H0
V153PHY0.1HA V153PHY0.1H0 V154PHY0.1HA V154PHY0.1H0 V155PHY0.1HA V155PHY0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2015

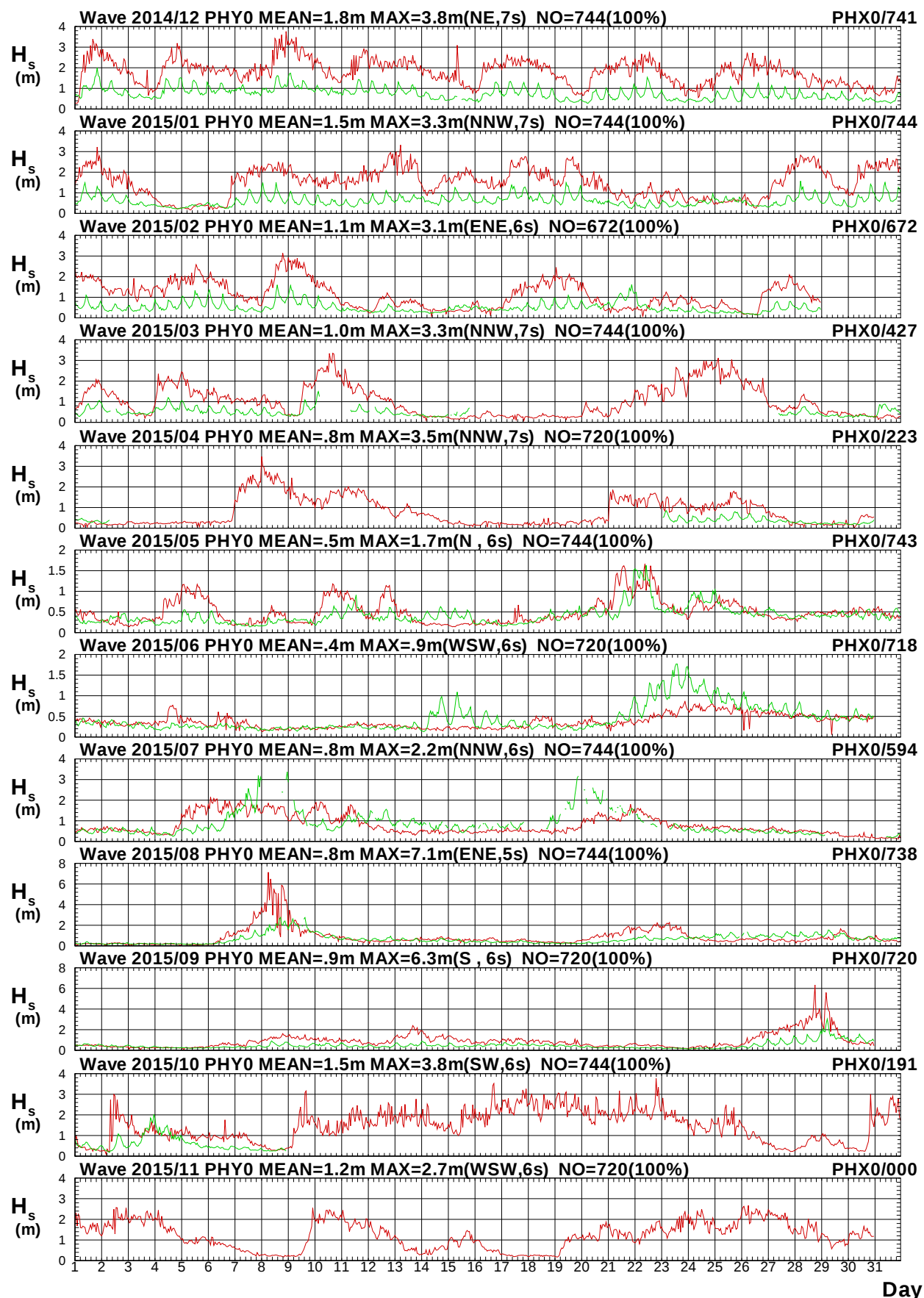


圖 2.2a 2015年每月澎湖海域 Y 站與 X 站波高比較圖

V14CPHY0.1HA V14CPHX0.1H0 V151PHY0.1HA V151PHX0.1H0 V152PHY0.1HA V152PHX0.1H0
V153PHY0.1HA V153PHX0.1H0 V154PHY0.1HA V154PHX0.1H0 V155PHY0.1HA V155PHX0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2015

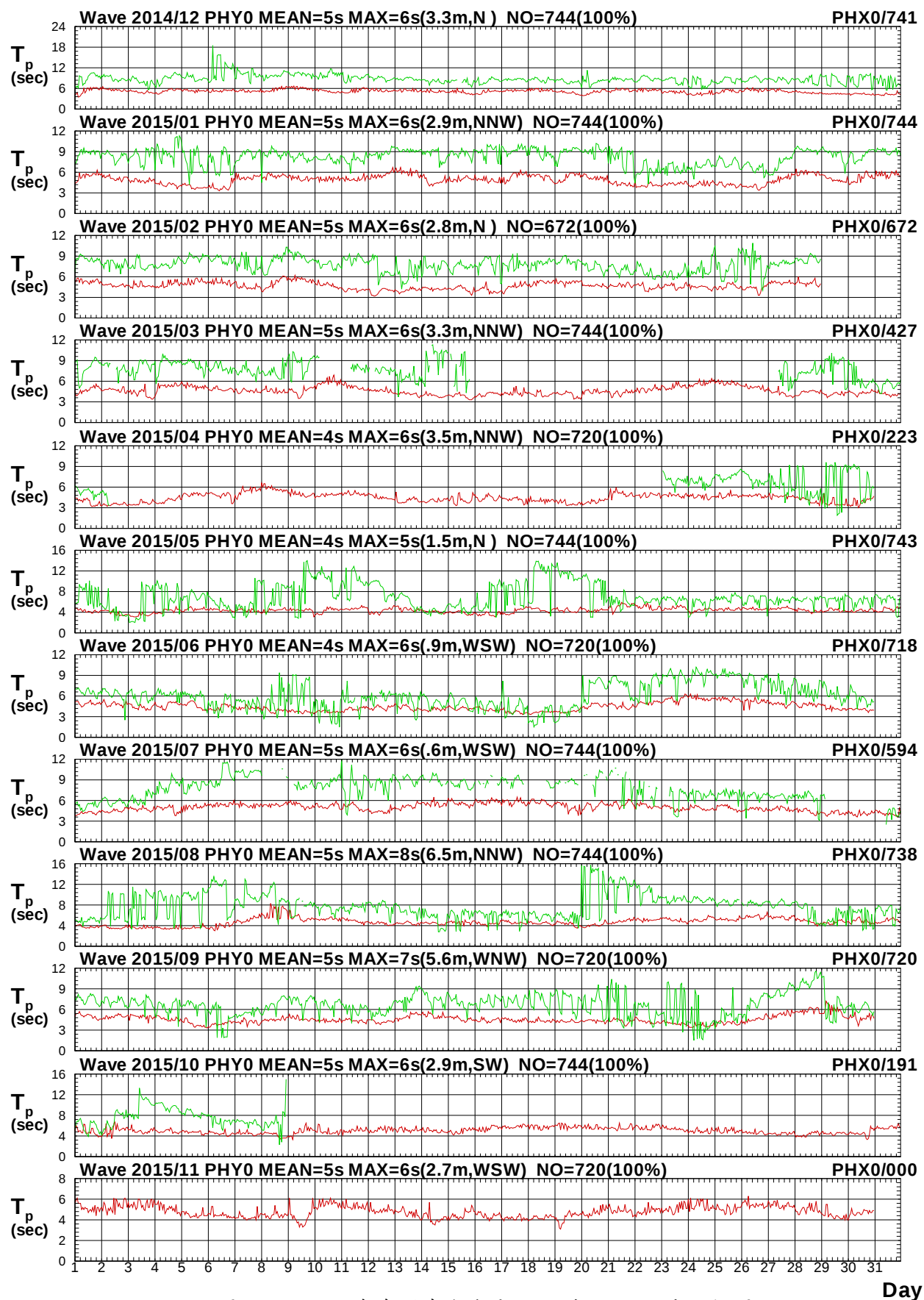


圖 2.2b 2015年每月澎湖海域 Y 站與 X 站週期比較圖

V14CPHY0.1HA V14CPHX0.1H0 V151PHY0.1HA V151PHX0.1H0 V152PHY0.1HA V152PHX0.1H0
V153PHY0.1HA V153PHX0.1H0 V154PHY0.1HA V154PHX0.1H0 V155PHY0.1HA V155PHX0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2015

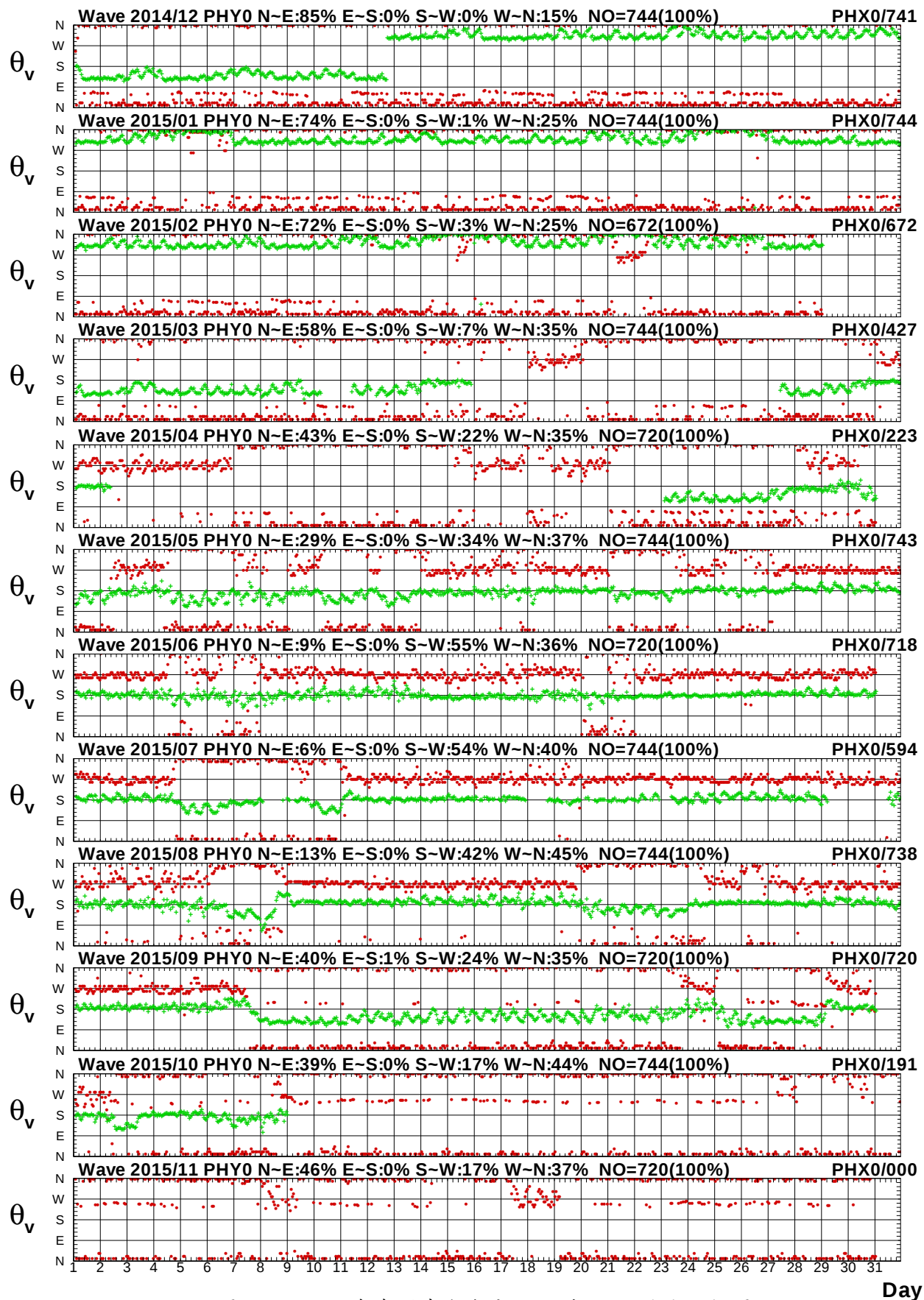


圖 2.2c 2015年每月澎湖海域 Y 站與 X 站波向比較圖

V14CPHY0.1HA V14CPHX0.1H0 V151PHY0.1HA V151PHX0.1H0 V152PHY0.1HA V152PHX0.1H0
V153PHY0.1HA V153PHX0.1H0 V154PHY0.1HA V154PHX0.1H0 V155PHY0.1HA V155PHX0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2015

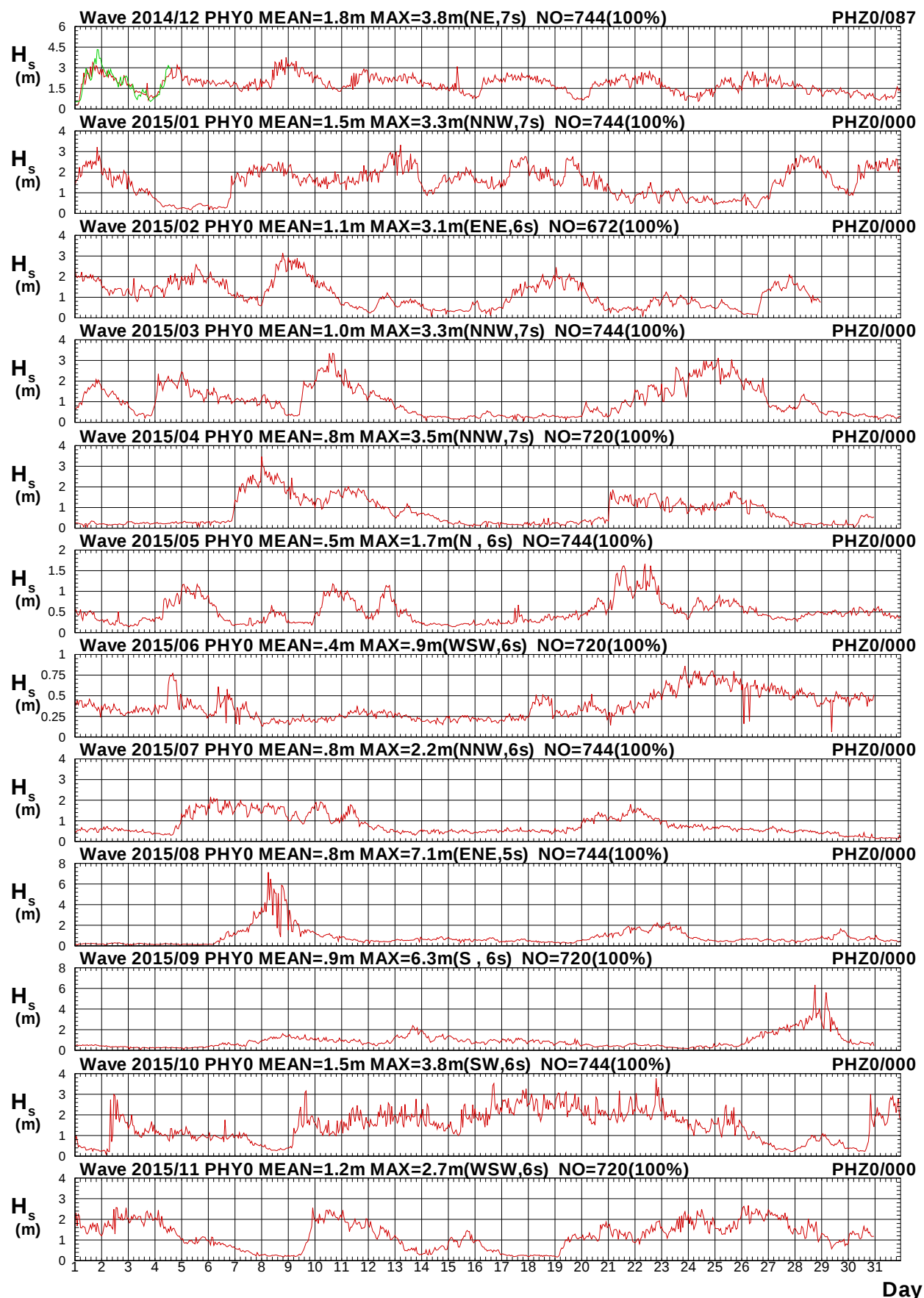


圖 2.3a 2015年每月澎湖海域 Y 站與 Z 站波高比較圖

V14CPHY0.1HA V14CPHZ0.1H0 V151PHY0.1HA V151PHZ0.1H0 V152PHY0.1HA V152PHZ0.1H0
V153PHY0.1HA V153PHZ0.1H0 V154PHY0.1HA V154PHZ0.1H0 V155PHY0.1HA V155PHZ0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2015

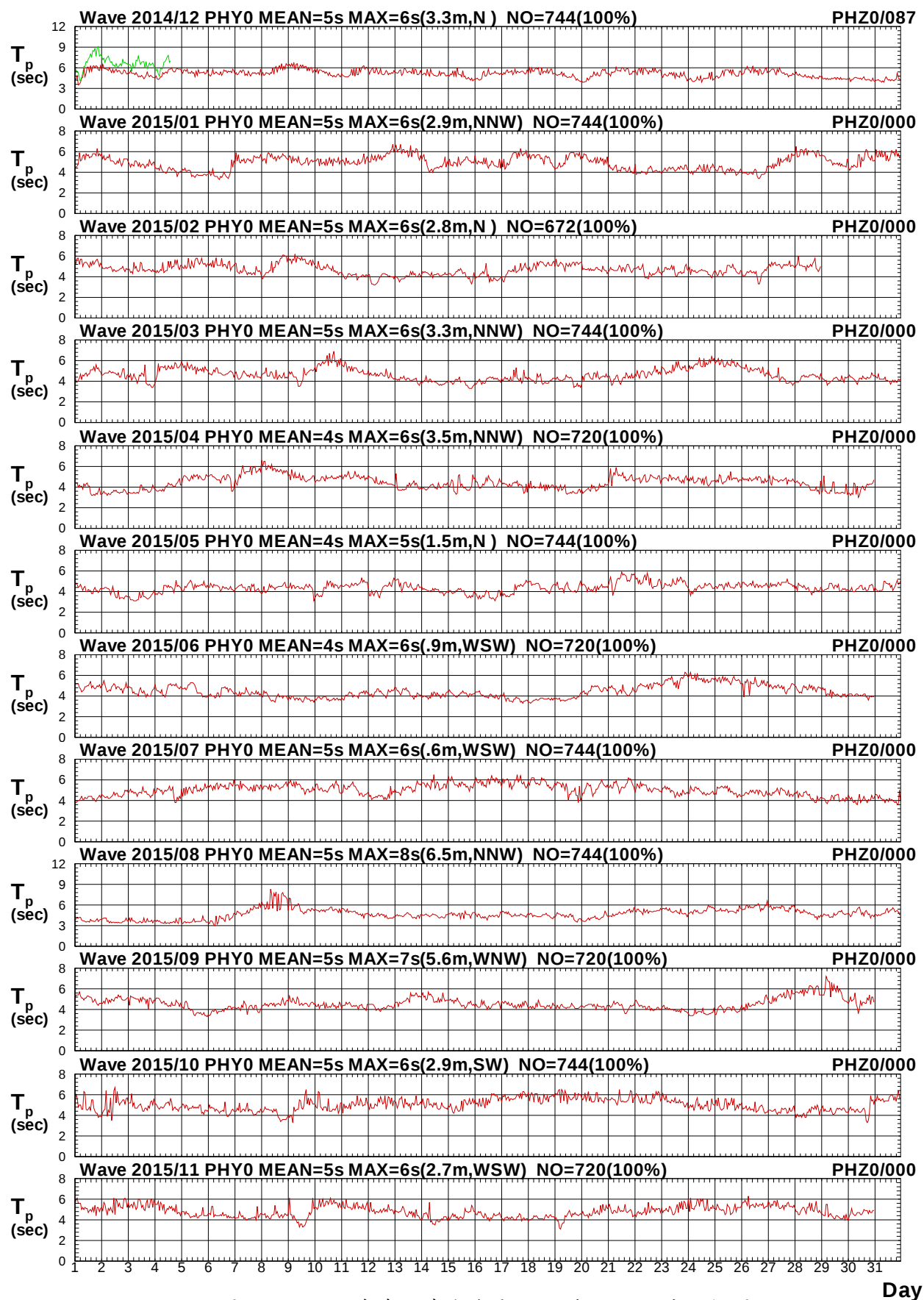


圖 2.3b 2015年每月澎湖海域 Y 站與 Z 站週期比較圖

V14CPHY0.1HA V14CPHZ0.1H0 V151PHY0.1HA V151PHZ0.1H0 V152PHY0.1HA V152PHZ0.1H0
V153PHY0.1HA V153PHZ0.1H0 V154PHY0.1HA V154PHZ0.1H0 V155PHY0.1HA V155PHZ0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2015

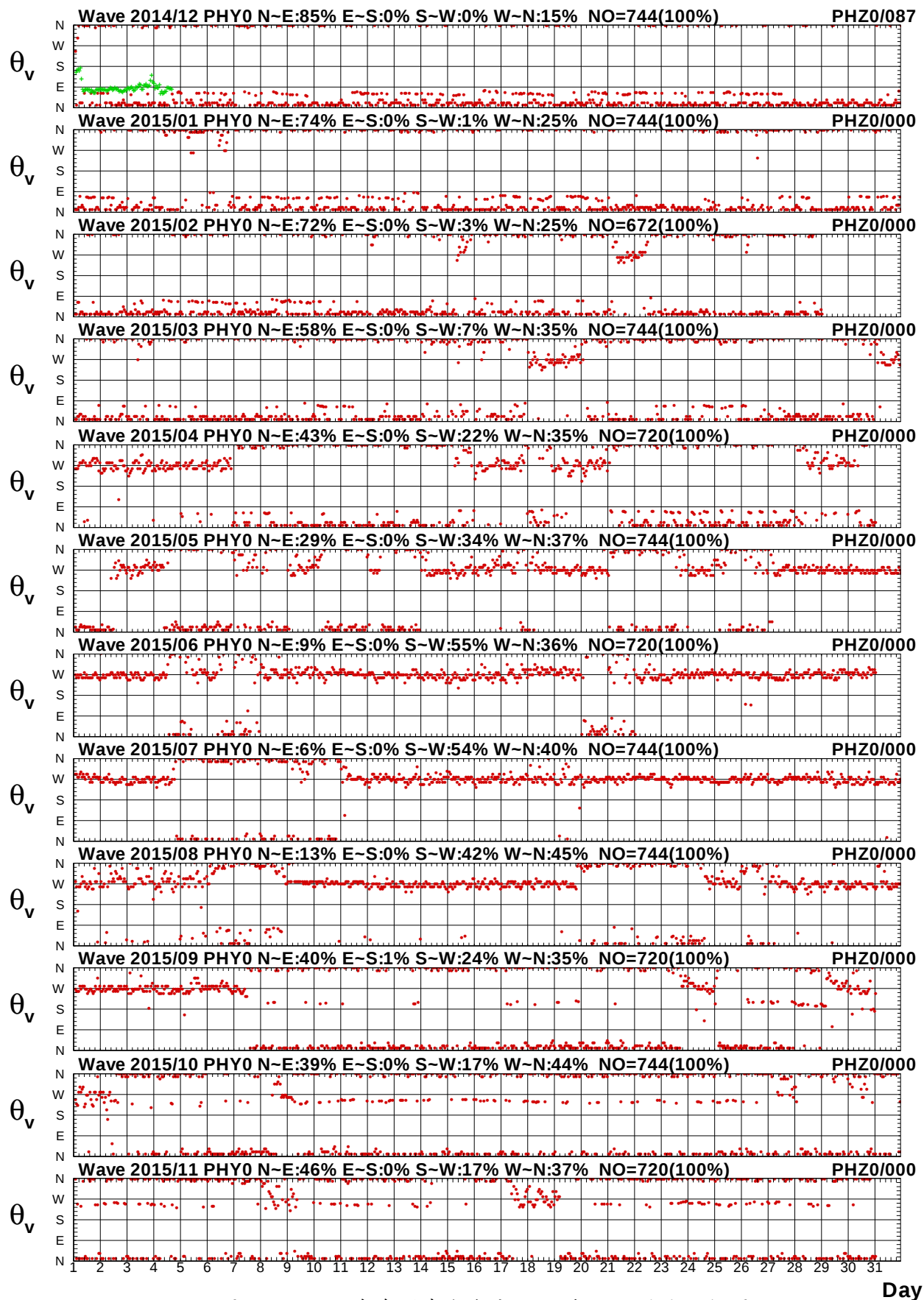


圖 2.3c 2015年每月澎湖海域 Y 站與 Z 站波向比較圖

V14CPHY0.1HA V14CPHZ0.1H0 V151PHY0.1HA V151PHZ0.1H0 V152PHY0.1HA V152PHZ0.1H0
V153PHY0.1HA V153PHZ0.1H0 V154PHY0.1HA V154PHZ0.1H0 V155PHY0.1HA V155PHZ0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2015

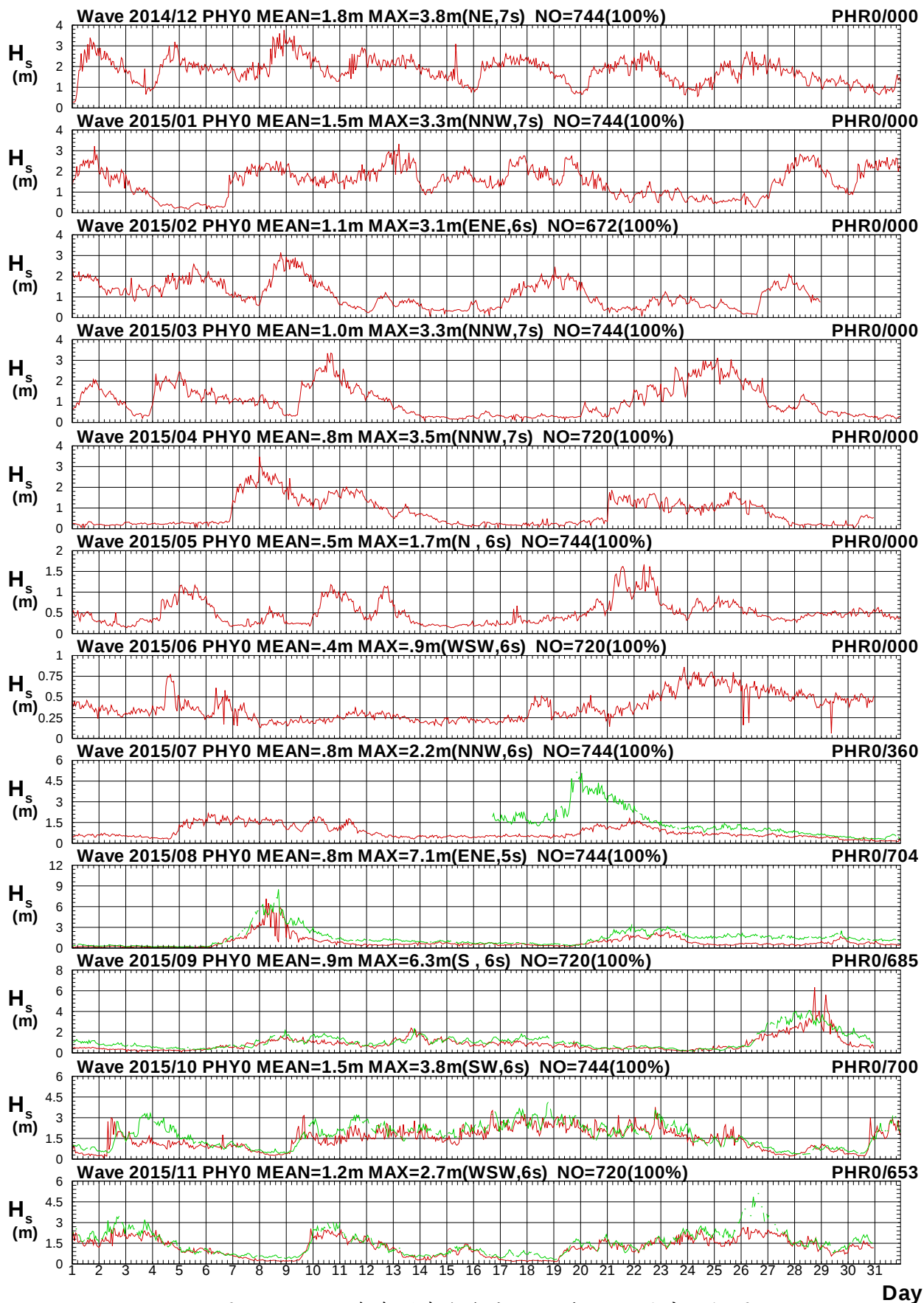


圖 2.4a 2015年每月澎湖海域 Y 站與 R 站波高比較圖

V14CPHY0.1HA V14CPR0.1H0 V151PHY0.1HA V151PHR0.1H0 V152PHY0.1HA V152PHR0.1H0
V153PHY0.1HA V153PHR0.1H0 V154PHY0.1HA V154PHR0.1H0 V155PHY0.1HA V155PHR0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2015

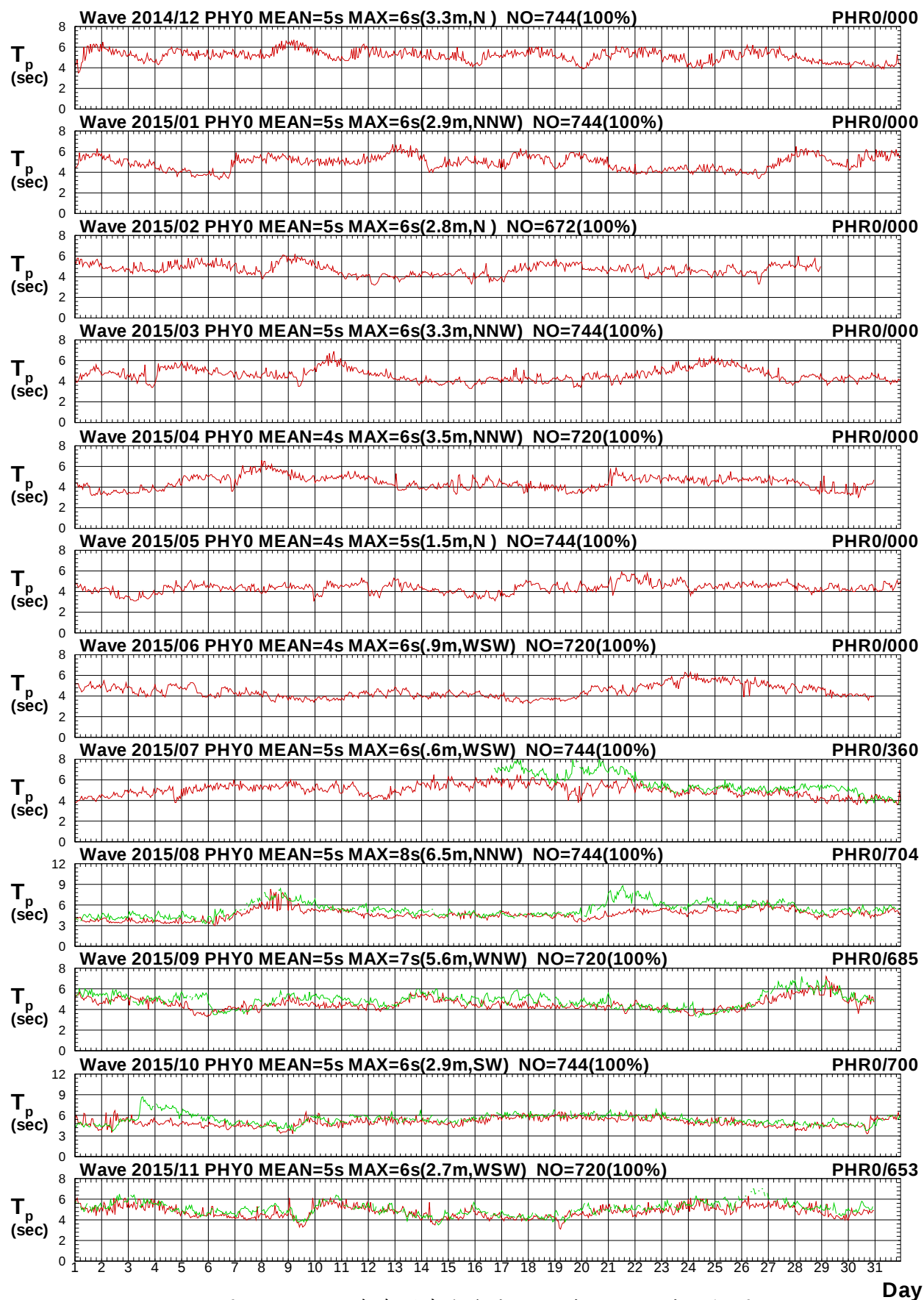


圖 2.4b 2015年每月澎湖海域 Y 站與 R 站週期比較圖

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V153PHY0.1HA V153PHR0.1H0 V154PHY0.1HA V154PHR0.1H0 V155PHY0.1HA V155PHR0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2015

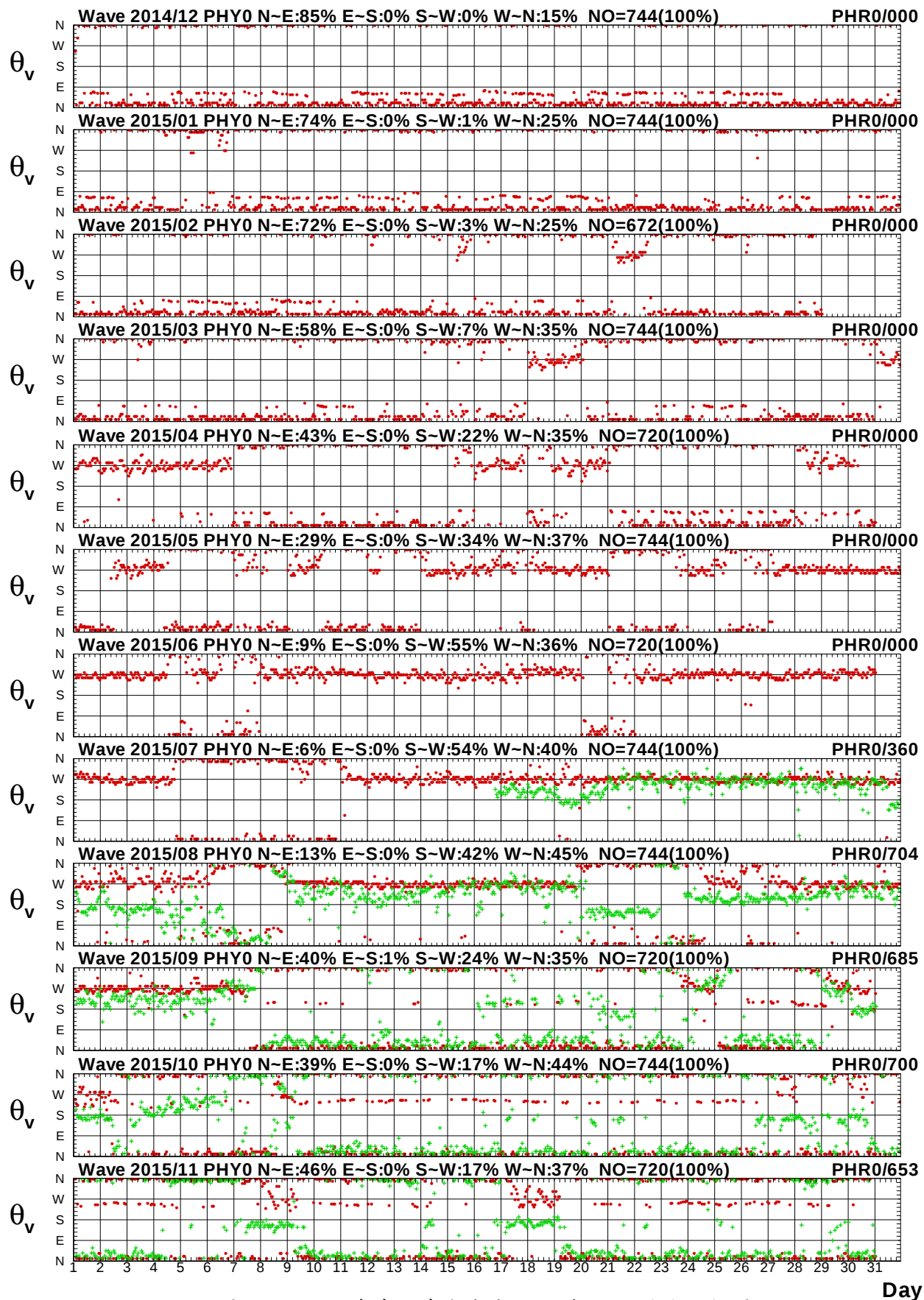


圖 2.4c 2015年每月澎湖海域 Y 站與 R 站波向比較圖

V14CPHY0.1HA V14CPHR0.1H0 V151PHY0.1HA V151PHR0.1H0 V152PHY0.1HA V152PHR0.1H0
V153PHY0.1HA V153PHR0.1H0 V154PHY0.1HA V154PHR0.1H0 V155PHY0.1HA V155PHR0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2015

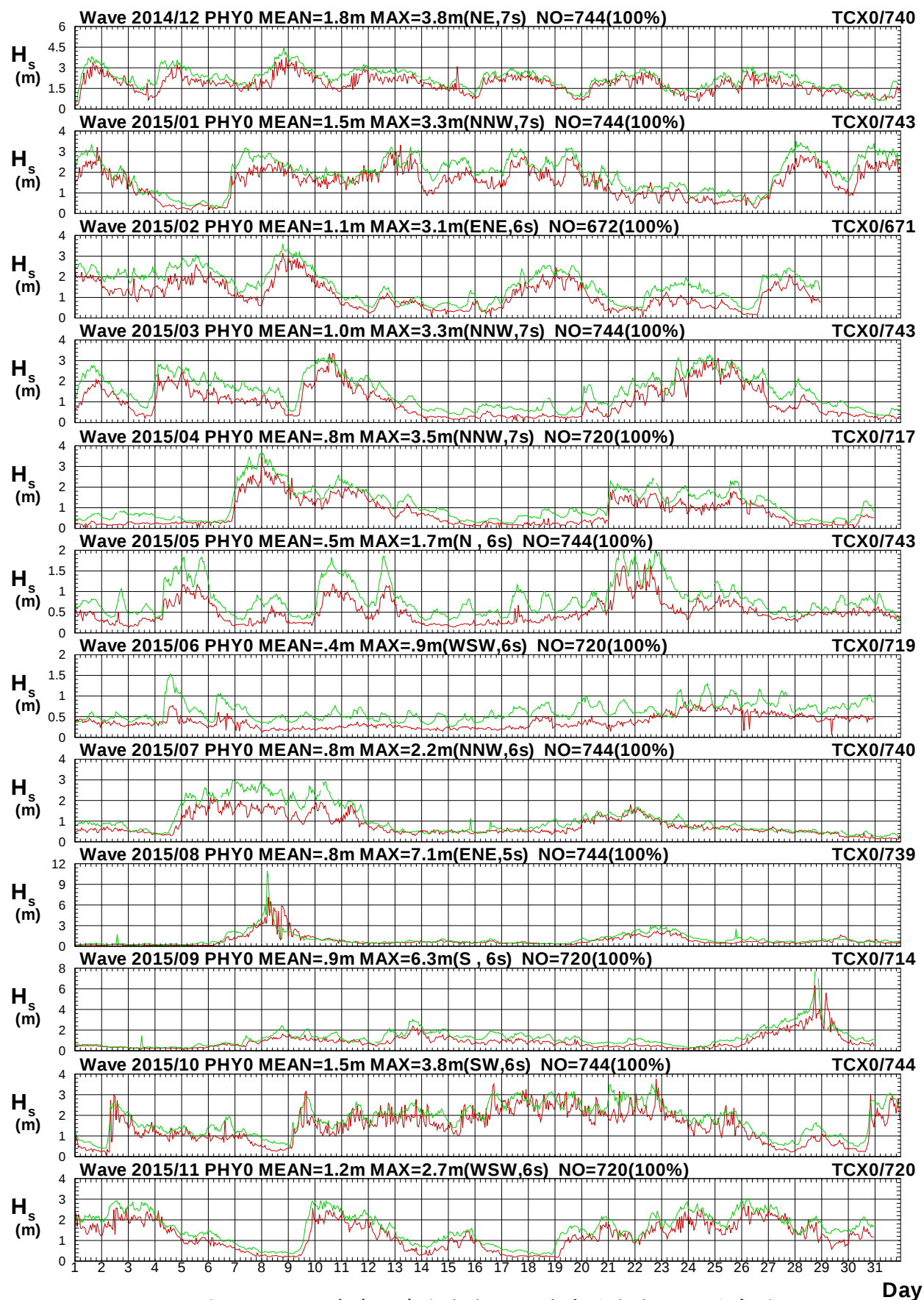


圖 2.5a 2015年每月澎湖海域 Y 站與中雲海域 X 站波高圖

V14CPHY0.1HA V14CTCX0.1H0 V151PHY0.1HA V151TCX0.1H0 V152PHY0.1HA V152TCX0.1H0
V153PHY0.1HA V153TCX0.1H0 V154PHY0.1HA V154TCX0.1H0 V155PHY0.1HA V155TCX0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2015

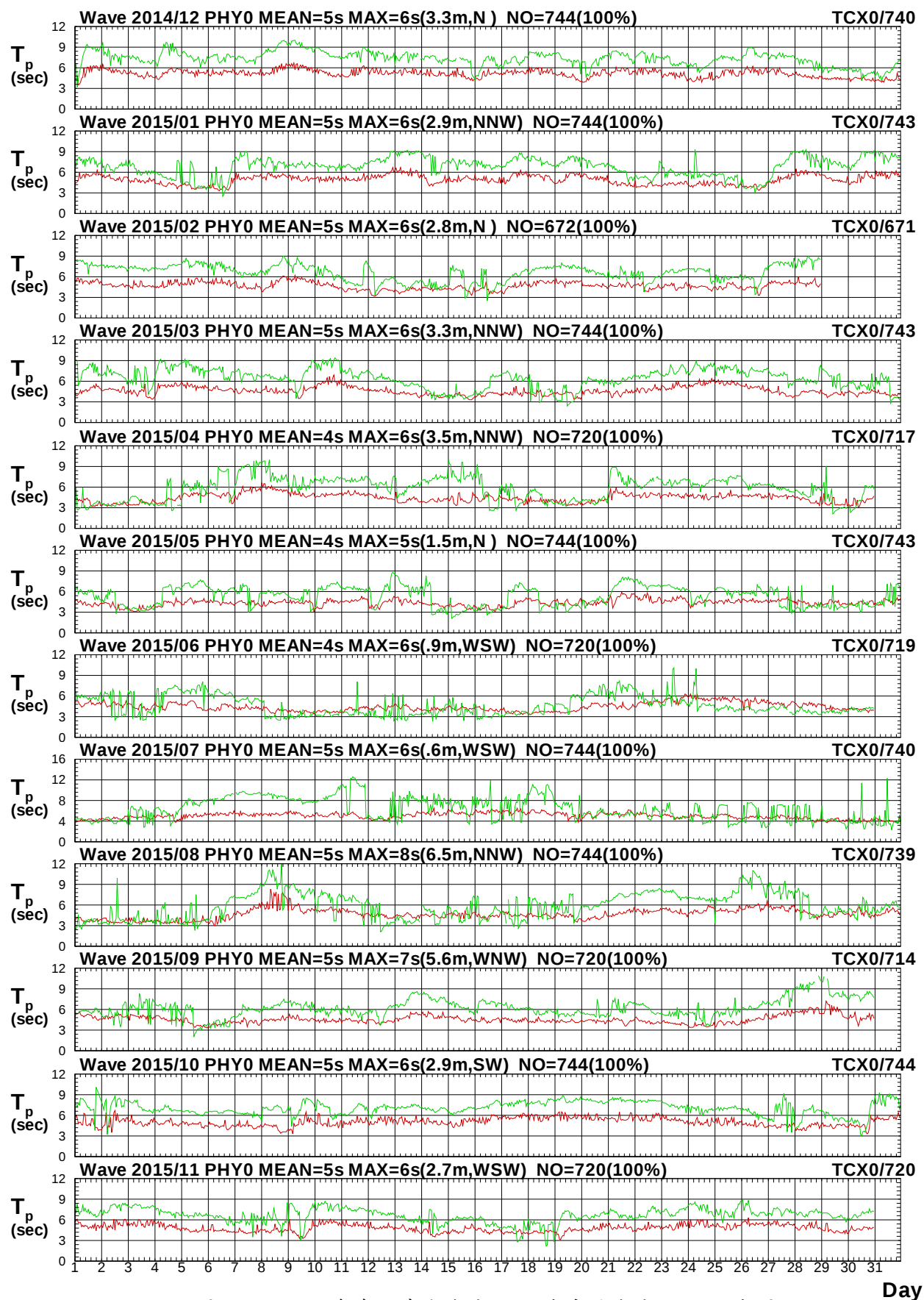


圖 2.5b 2015年每月澎湖海域 Y 站與中雲海域 X 站週期圖

V14CPHY0.1HA V14CTCX0.1H0 V151PHY0.1HA V151TCX0.1H0 V152PHY0.1HA V152TCX0.1H0
V153PHY0.1HA V153TCX0.1H0 V154PHY0.1HA V154TCX0.1H0 V155PHY0.1HA V155TCX0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2015

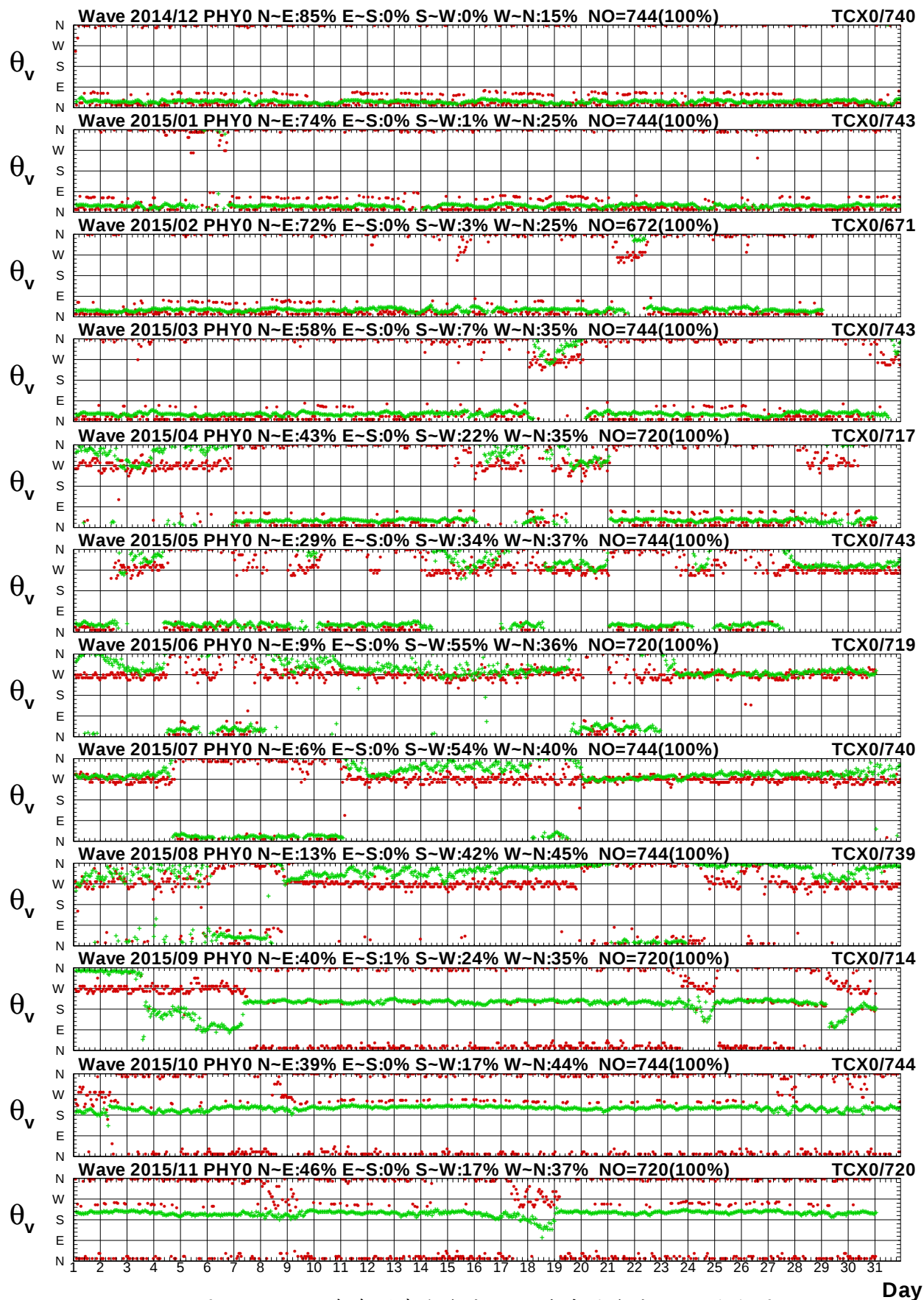


圖 2.5c 2015年每月澎湖海域 Y 站與中雲海域 X 站波向圖

V14CPHY0.1HA V14CTCX0.1H0 V151PHY0.1HA V151TCX0.1H0 V152PHY0.1HA V152TCX0.1H0
V153PHY0.1HA V153TCX0.1H0 V154PHY0.1HA V154TCX0.1H0 V155PHY0.1HA V155TCX0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2015

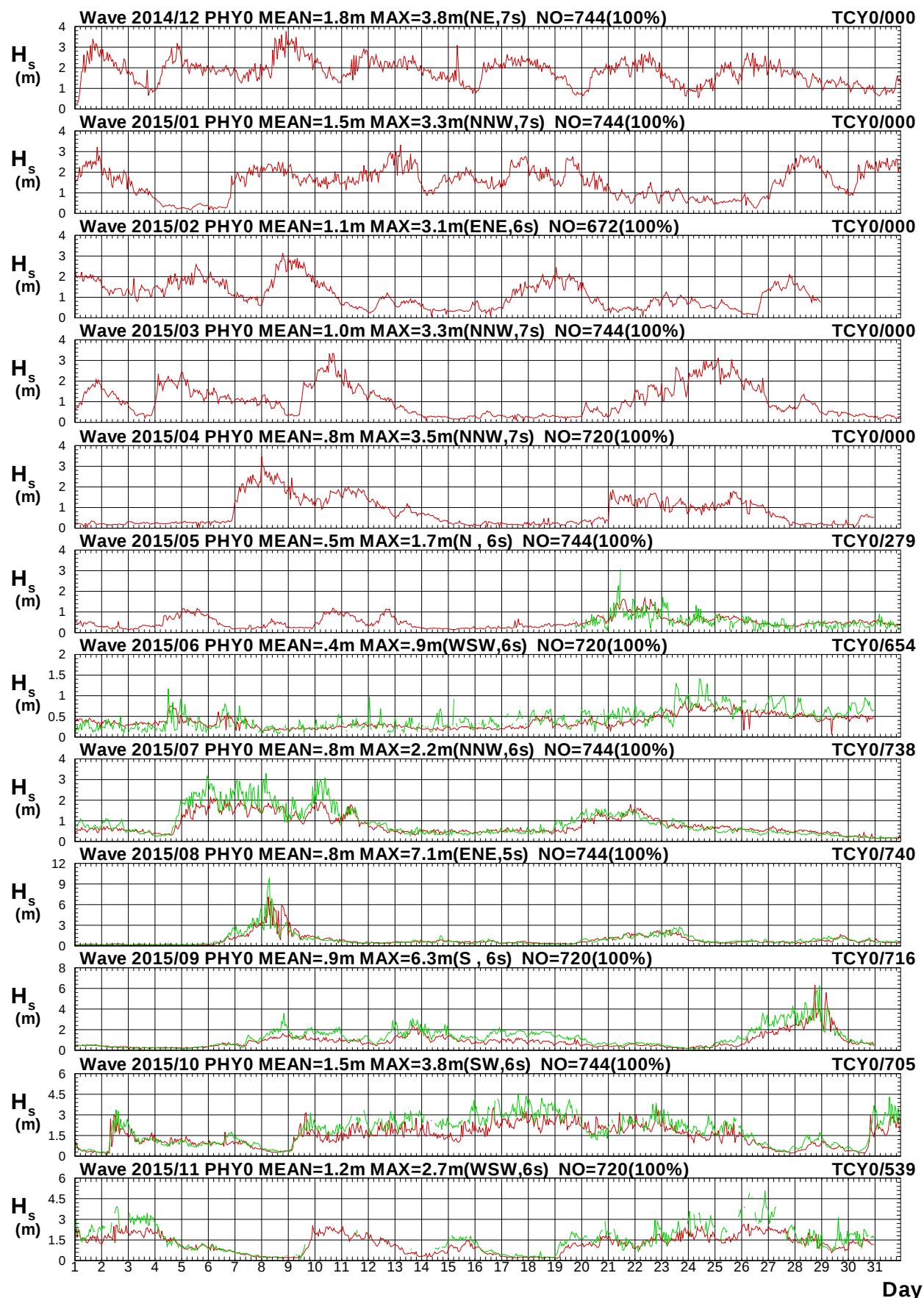


圖 2.6a 2015年每月澎湖海域 Y 站與中雲海域 Y 站波高圖

V14CPHY0.1HA V14CTCY0.1H0 V151PHY0.1HA V151TCY0.1H0 V152PHY0.1HA V152TCY0.1H0
V153PHY0.1HA V153TCY0.1H0 V154PHY0.1HA V154TCY0.1H0 V155PHY0.1HA V155TCY0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2015

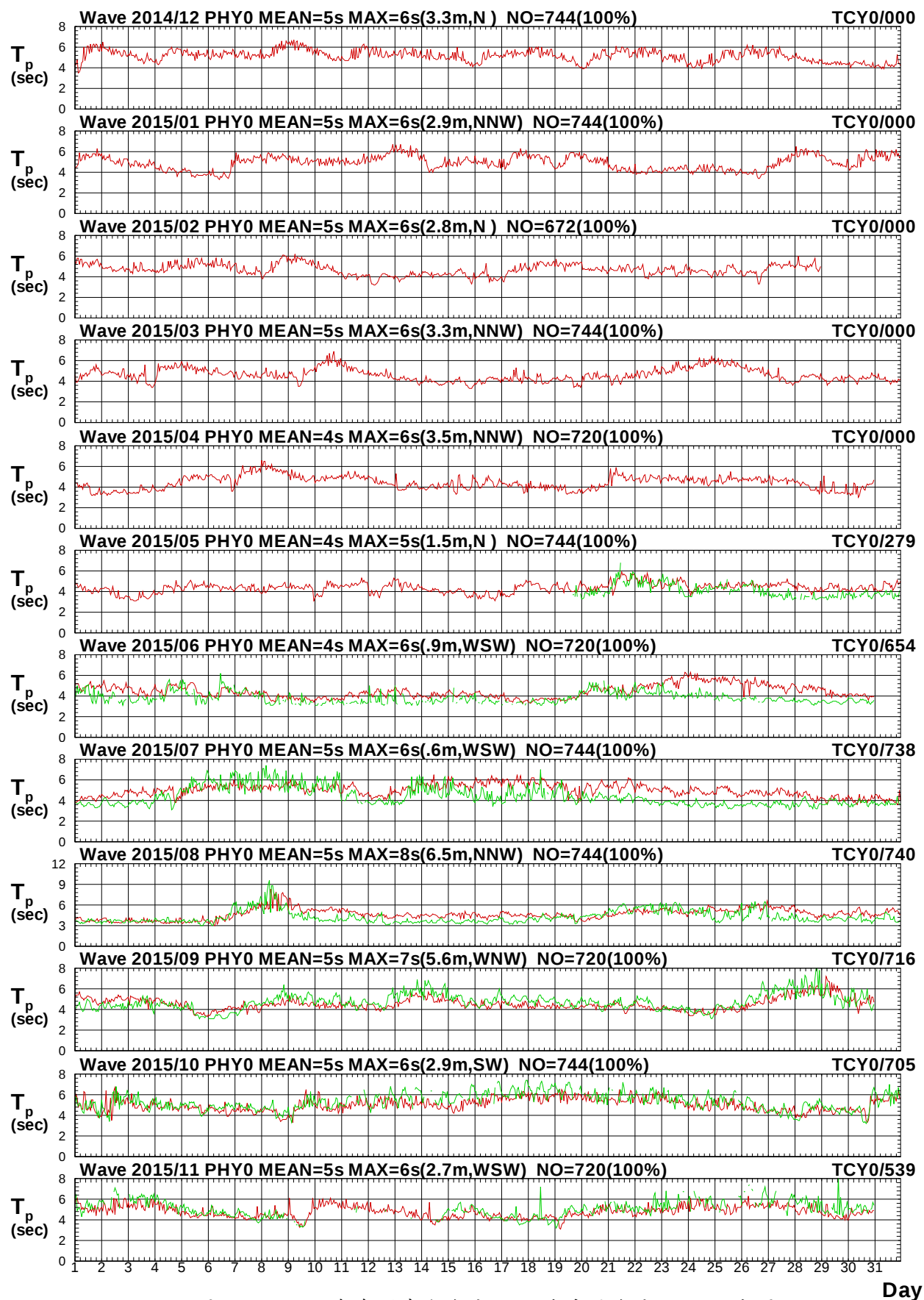


圖 2.6b 2015年每月澎湖海域 Y 站與中雲海域 Y 站週期圖

V14CPHY0.1HA V14CTCY0.1H0 V151PHY0.1HA V151TCY0.1H0 V152PHY0.1HA V152TCY0.1H0
V153PHY0.1HA V153TCY0.1H0 V154PHY0.1HA V154TCY0.1H0 V155PHY0.1HA V155TCY0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2015

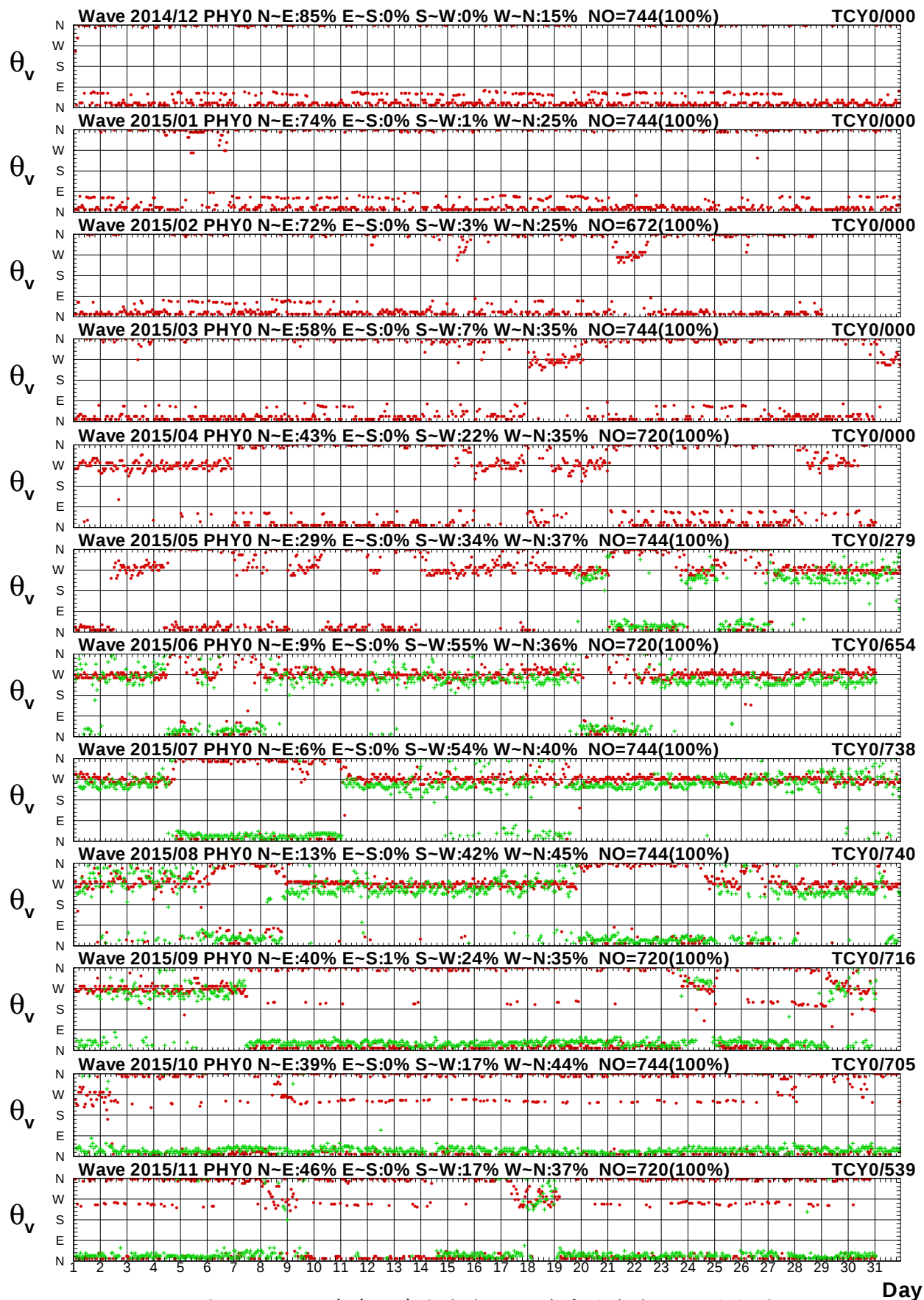


圖 2.6c 2015年每月澎湖海域 Y 站與中雲海域 Y 站波向圖

V14CPHY0.1HA V14CTCY0.1H0 V151PHY0.1HA V151TCY0.1H0 V152PHY0.1HA V152TCY0.1H0
V153PHY0.1HA V153TCY0.1H0 V154PHY0.1HA V154TCY0.1H0 V155PHY0.1HA V155TCY0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2015

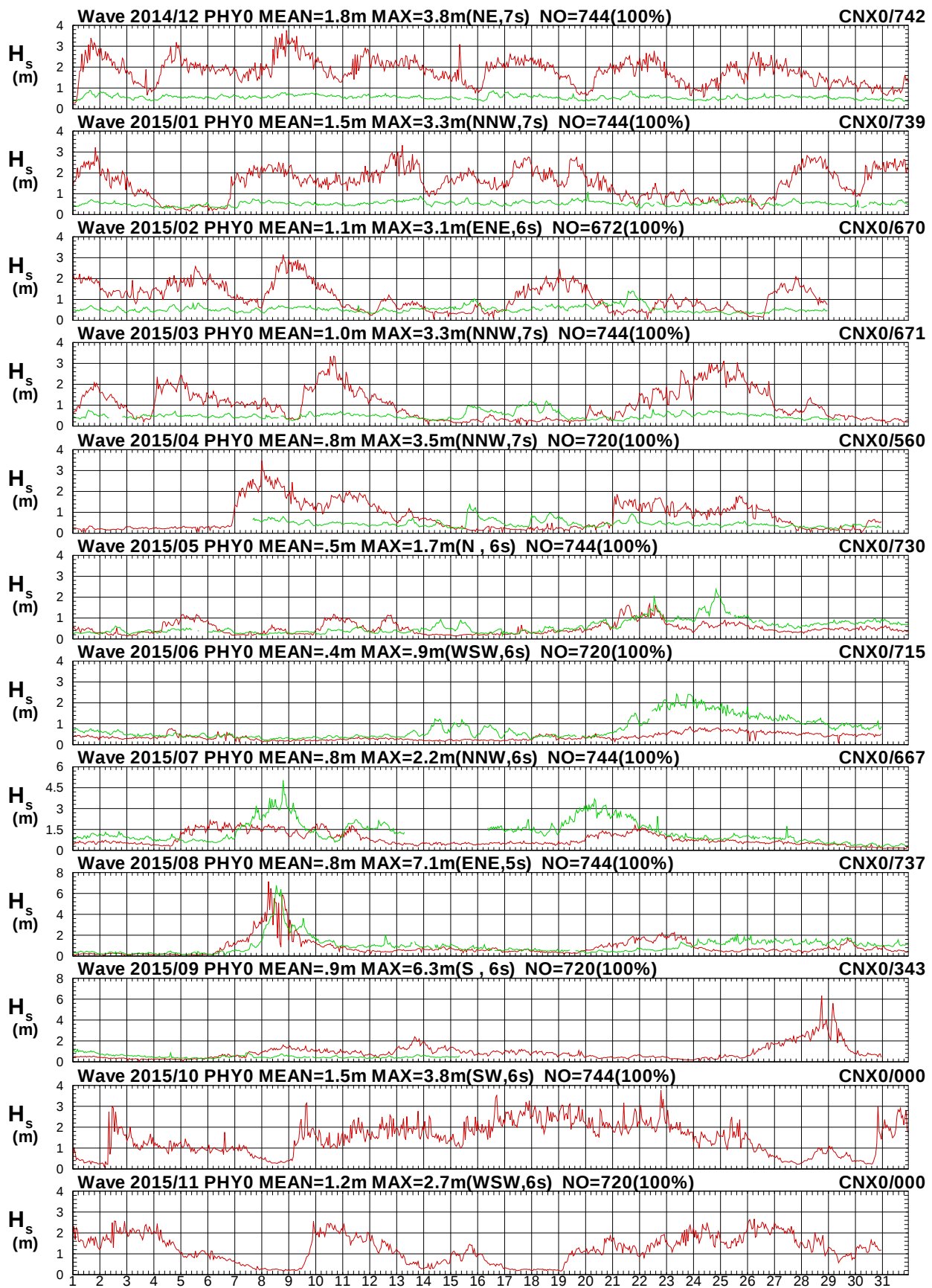


圖 2.7a 2015年每月澎湖海域 Y 站與嘉南海域 X 站波高圖

V14CPHY0.1HA V14CCNX0.1H0 V151PHY0.1HA V151CNX0.1H0 V152PHY0.1HA V152CNX0.1H0
V153PHY0.1HA V153CNX0.1H0 V154PHY0.1HA V154CNX0.1H0 V155PHY0.1HA V155CNX0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2015

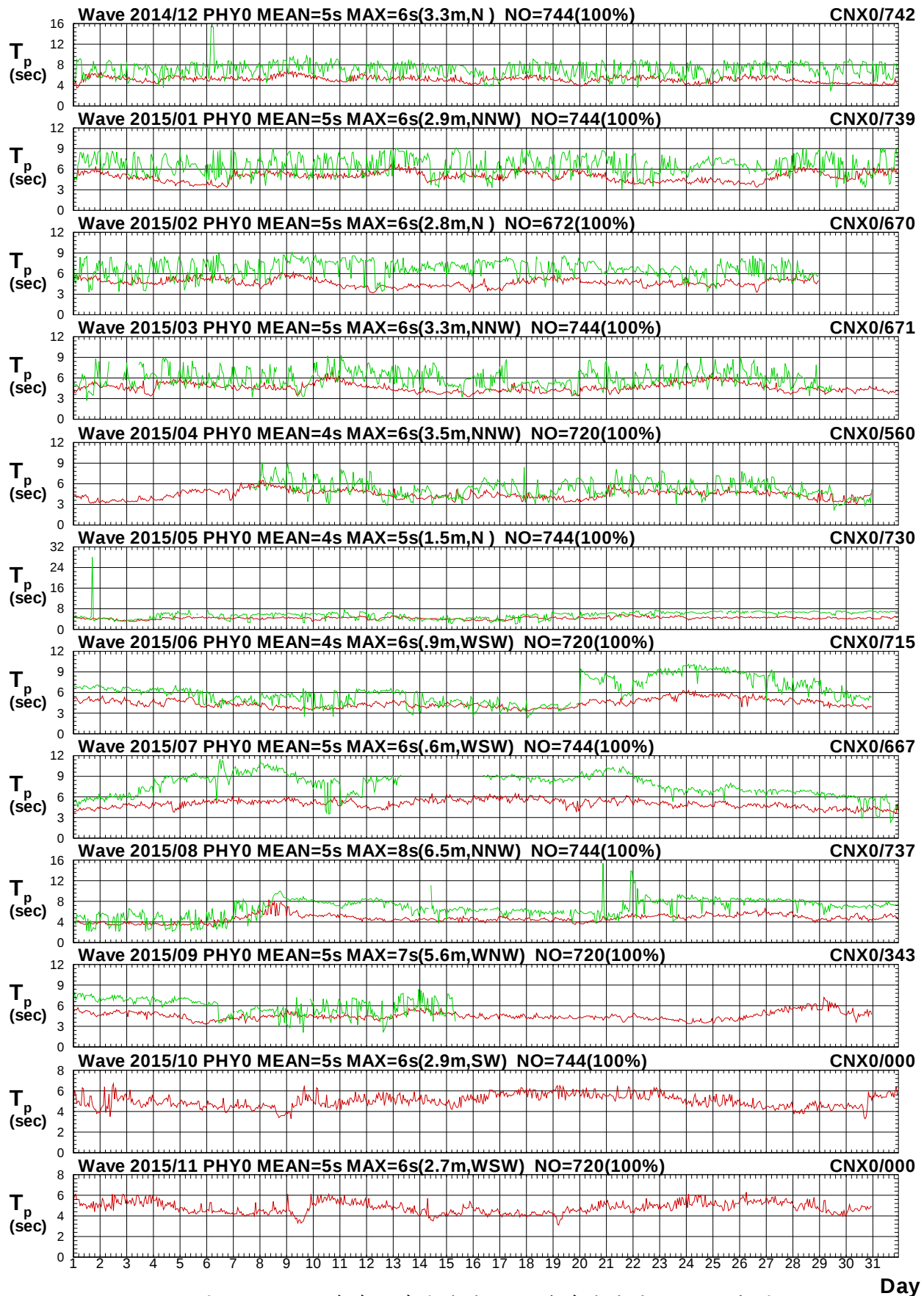


圖 2.7b 2015年每月澎湖海域 Y 站與嘉南海域 X 站週期圖

V14CPHY0.1HA V14CCNX0.1H0 V151PHY0.1HA V151CNX0.1H0 V152PHY0.1HA V152CNX0.1H0
V153PHY0.1HA V153CNX0.1H0 V154PHY0.1HA V154CNX0.1H0 V155PHY0.1HA V155CNX0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2015

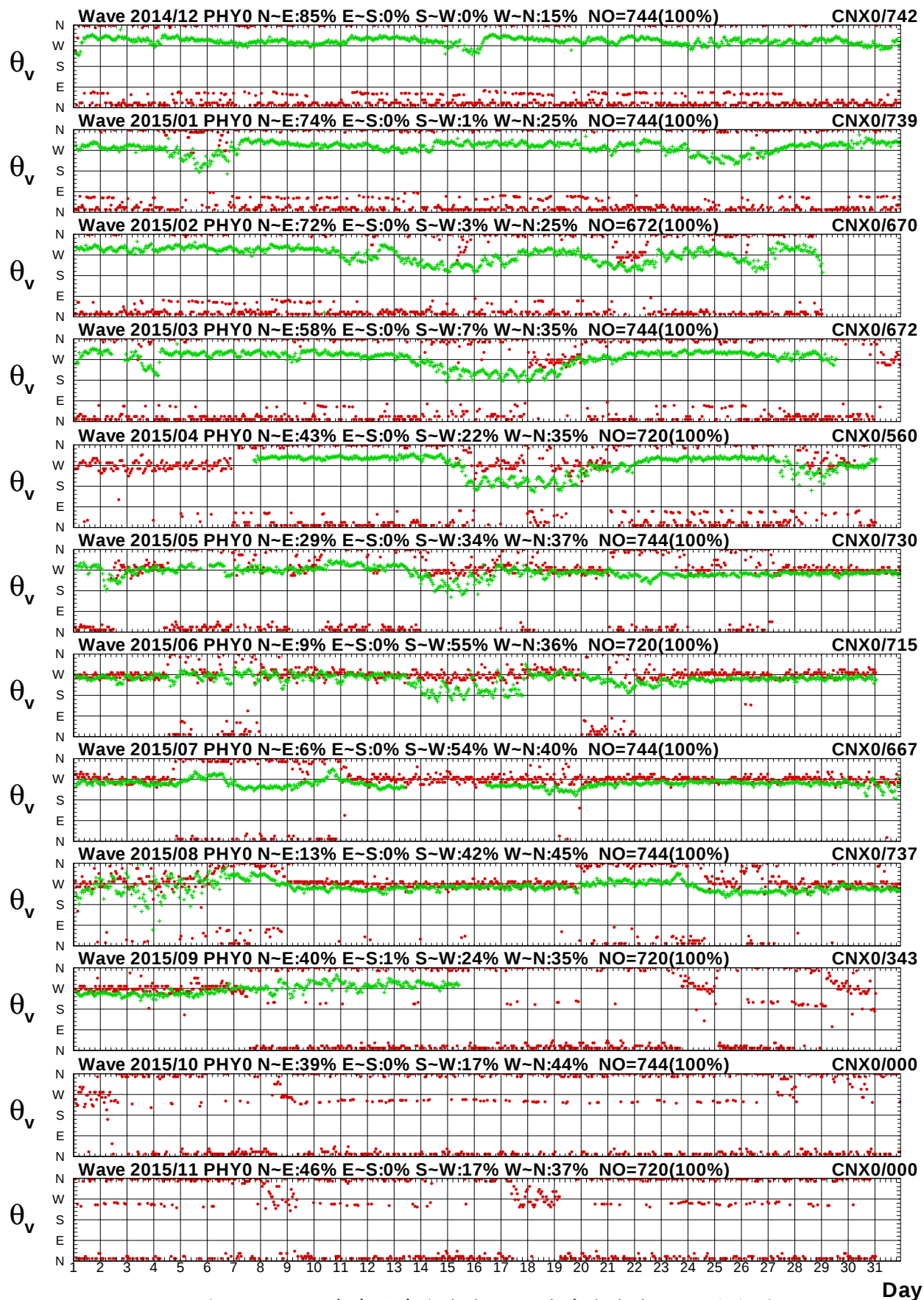


圖 2.7c 2015年每月澎湖海域 Y 站與嘉南海域 X 站波向圖

V14CPHY0.1HA V14CCNX0.1H0 V151PHY0.1HA V151CNX0.1H0 V152PHY0.1HA V152CNX0.1H0
V153PHY0.1HA V153CNX0.1H0 V154PHY0.1HA V154CNX0.1H0 V155PHY0.1HA V155CNX0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2015

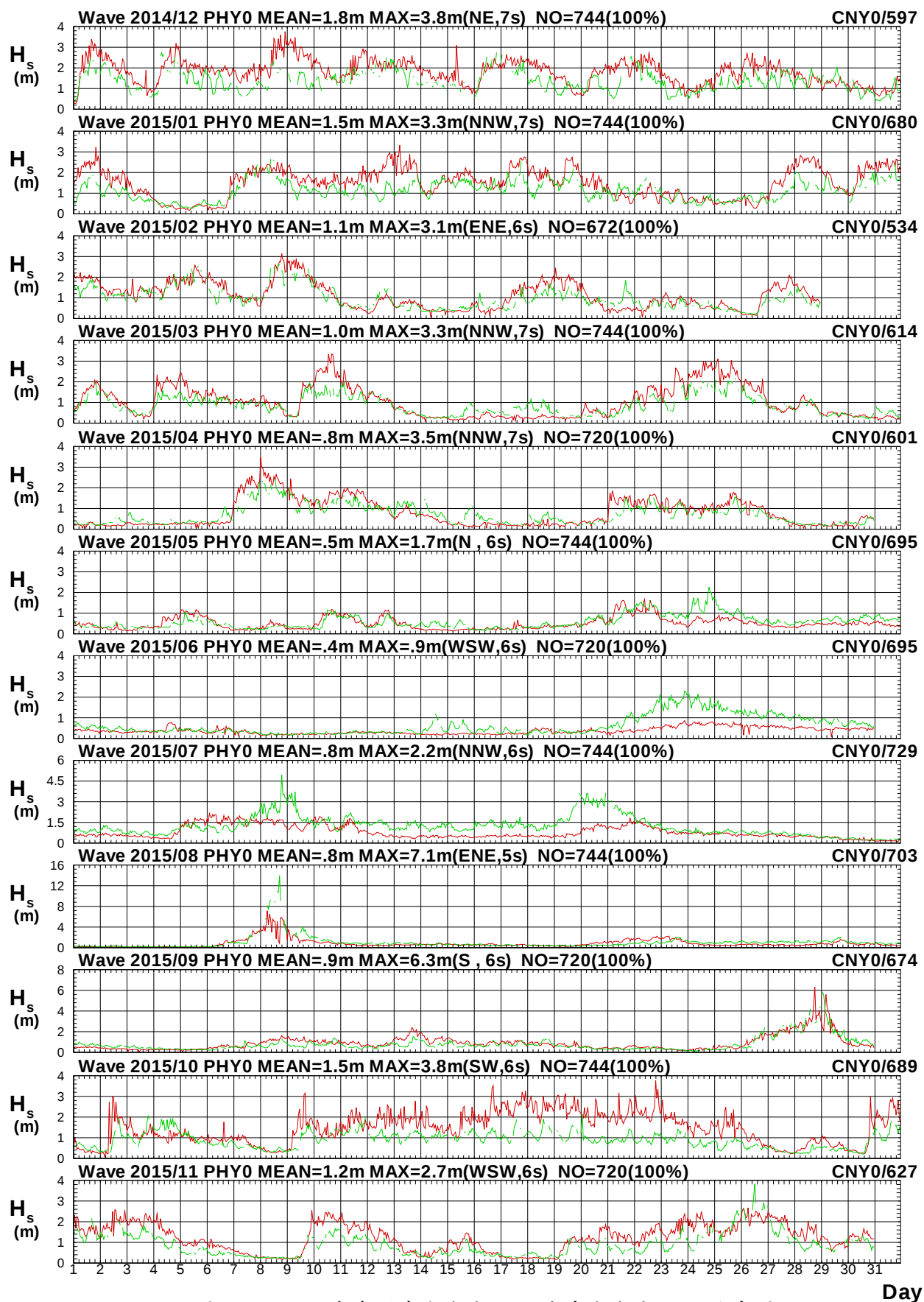


圖 2.8a 2015年每月澎湖海域 Y 站與嘉南海域 Y 站波高圖

V14CPHY0.1HA V14CCNY0.1H0 V151PHY0.1HA V151CNY0.1H0 V152PHY0.1HA V152CNY0.1H0
V153PHY0.1HA V153CNY0.1H0 V154PHY0.1HA V154CNY0.1H0 V155PHY0.1HA V155CNY0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2015

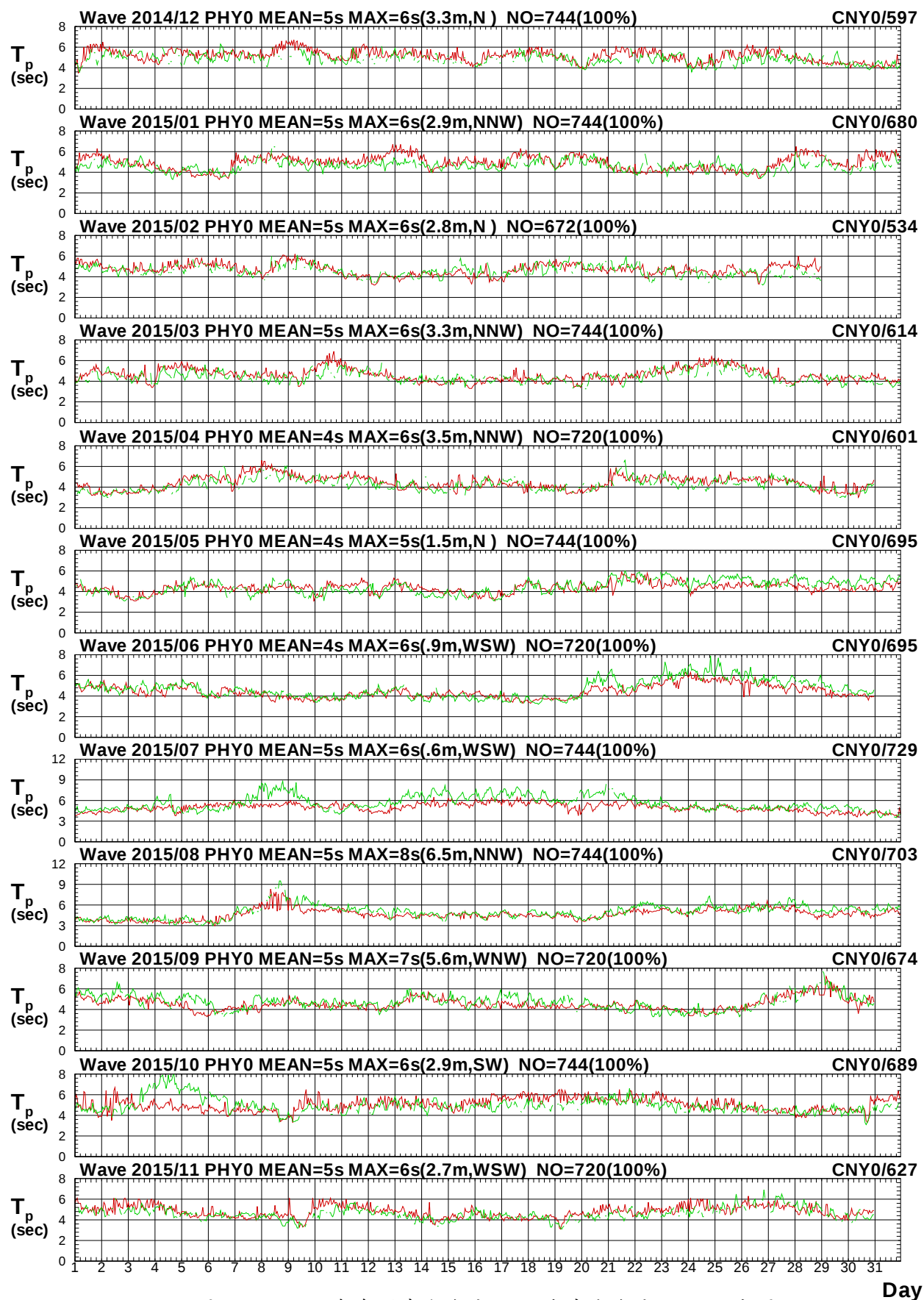


圖 2.8b 2015年每月澎湖海域 Y 站與嘉南海域 Y 站週期圖

V14CPHY0.1HA V14CCNY0.1H0 V151PHY0.1HA V151CNY0.1H0 V152PHY0.1HA V152CNY0.1H0
V153PHY0.1HA V153CNY0.1H0 V154PHY0.1HA V154CNY0.1H0 V155PHY0.1HA V155CNY0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2015

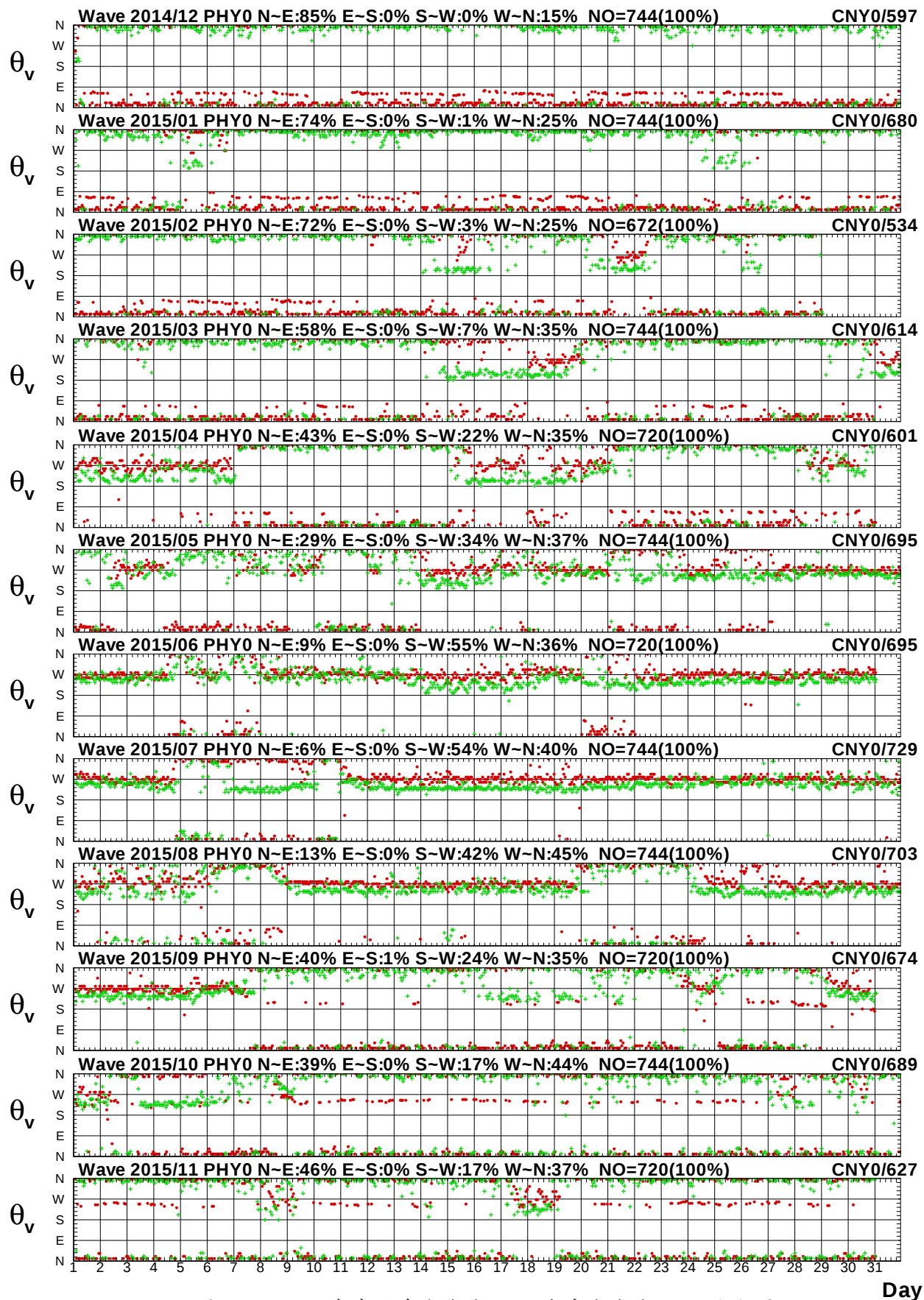


圖 2.8c 2015年每月澎湖海域 Y 站與嘉南海域 Y 站波向圖

V14CPHY0.1HA V14CCNY0.1H0 V151PHY0.1HA V151CNY0.1H0 V152PHY0.1HA V152CNY0.1H0
V153PHY0.1HA V153CNY0.1H0 V154PHY0.1HA V154CNY0.1H0 V155PHY0.1HA V155CNY0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2015

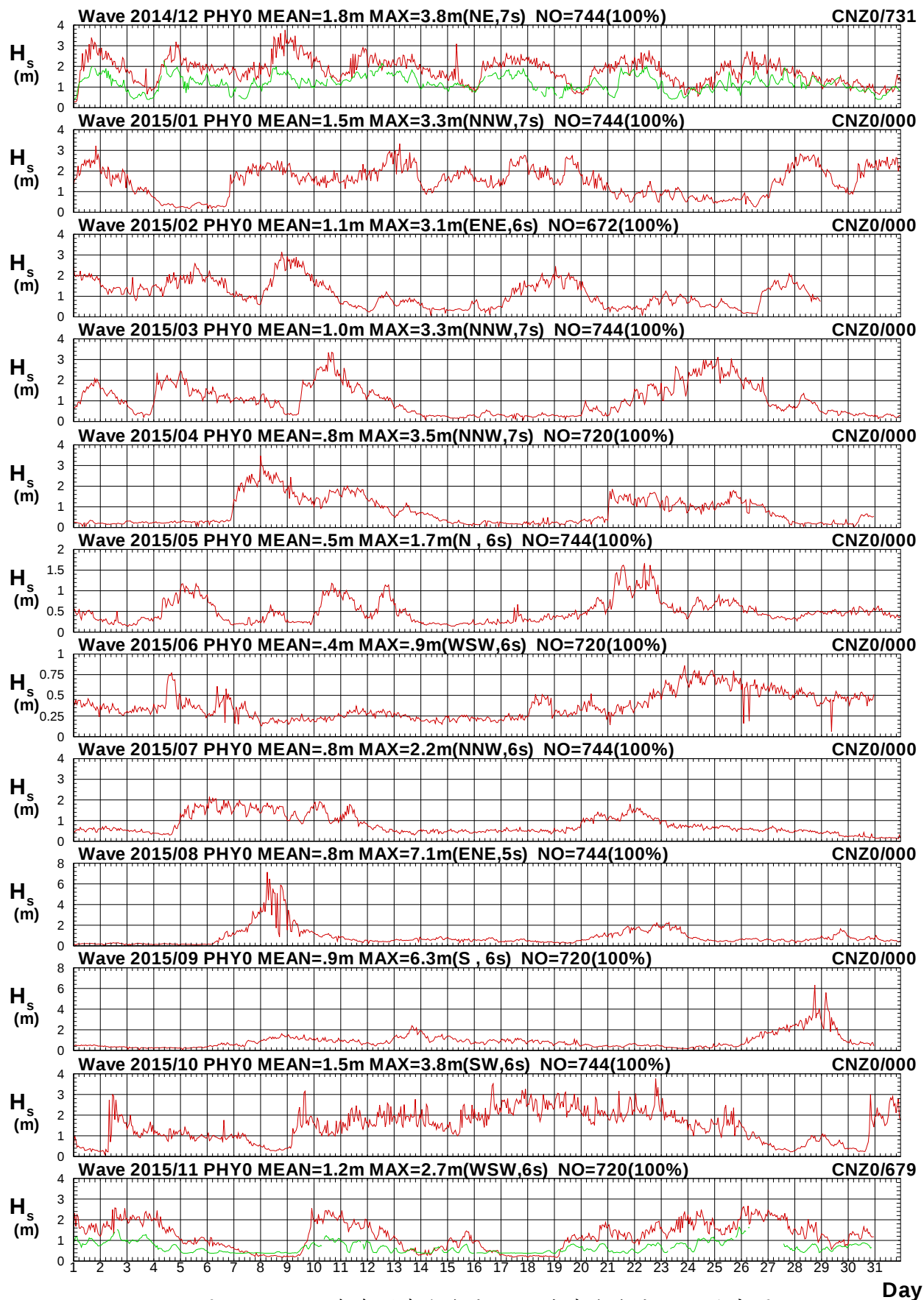


圖 2.9a 2015年每月澎湖海域 Y 站與嘉南海域 Z 站波高圖

V14CPHY0.1HA V14CCNZ0.1H0 V151PHY0.1HA V151CNZ0.1H0 V152PHY0.1HA V152CNZ0.1H0
V153PHY0.1HA V153CNZ0.1H0 V154PHY0.1HA V154CNZ0.1H0 V155PHY0.1HA V155CNZ0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2015

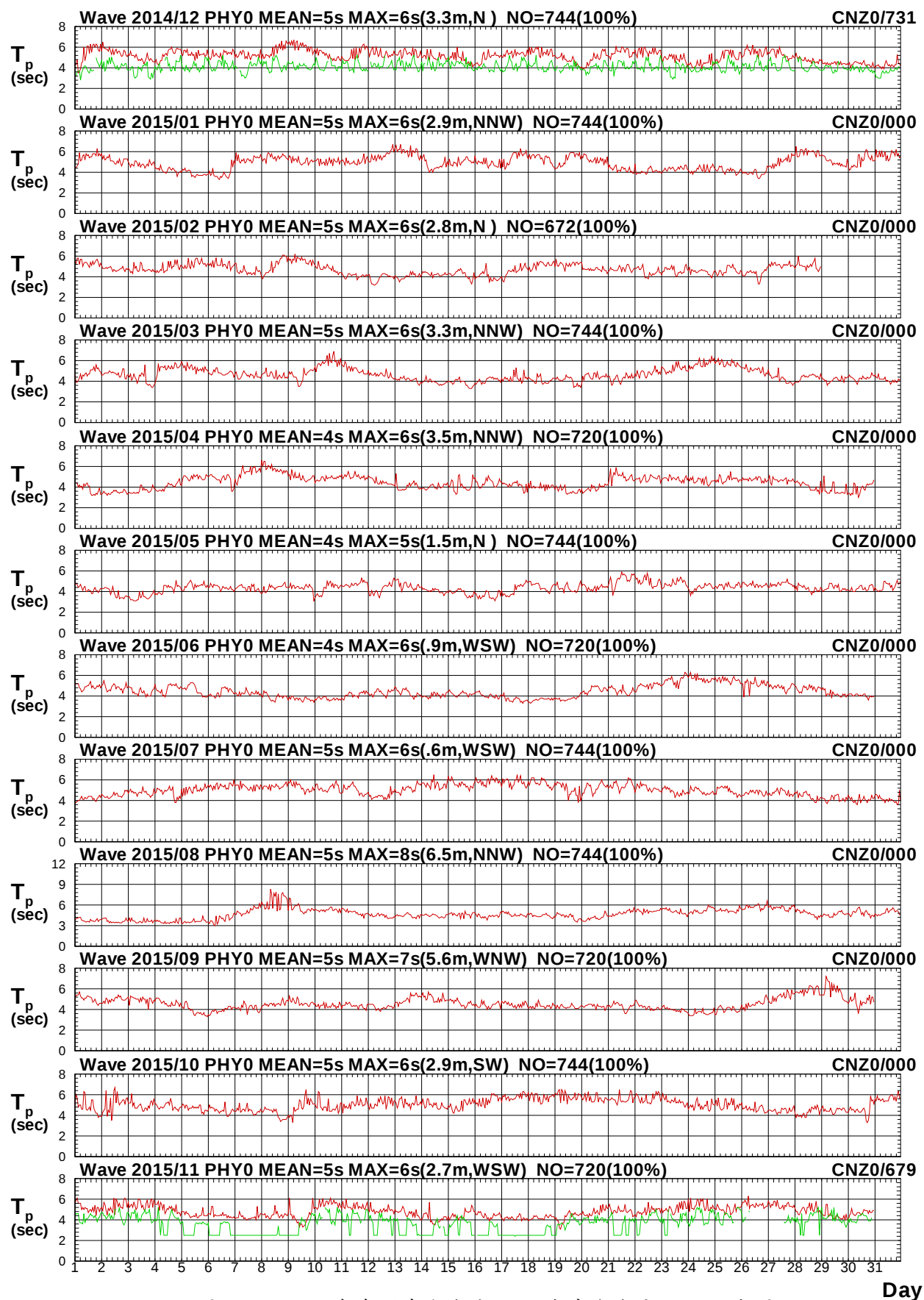


圖 2.9b 2015年每月澎湖海域 Y 站與嘉南海域 Z 站週期圖

V14CPHY0.1HA V14CCNZ0.1H0 V151PHY0.1HA V151CNZ0.1H0 V152PHY0.1HA V152CNZ0.1H0
V153PHY0.1HA V153CNZ0.1H0 V154PHY0.1HA V154CNZ0.1H0 V155PHY0.1HA V155CNZ0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2015

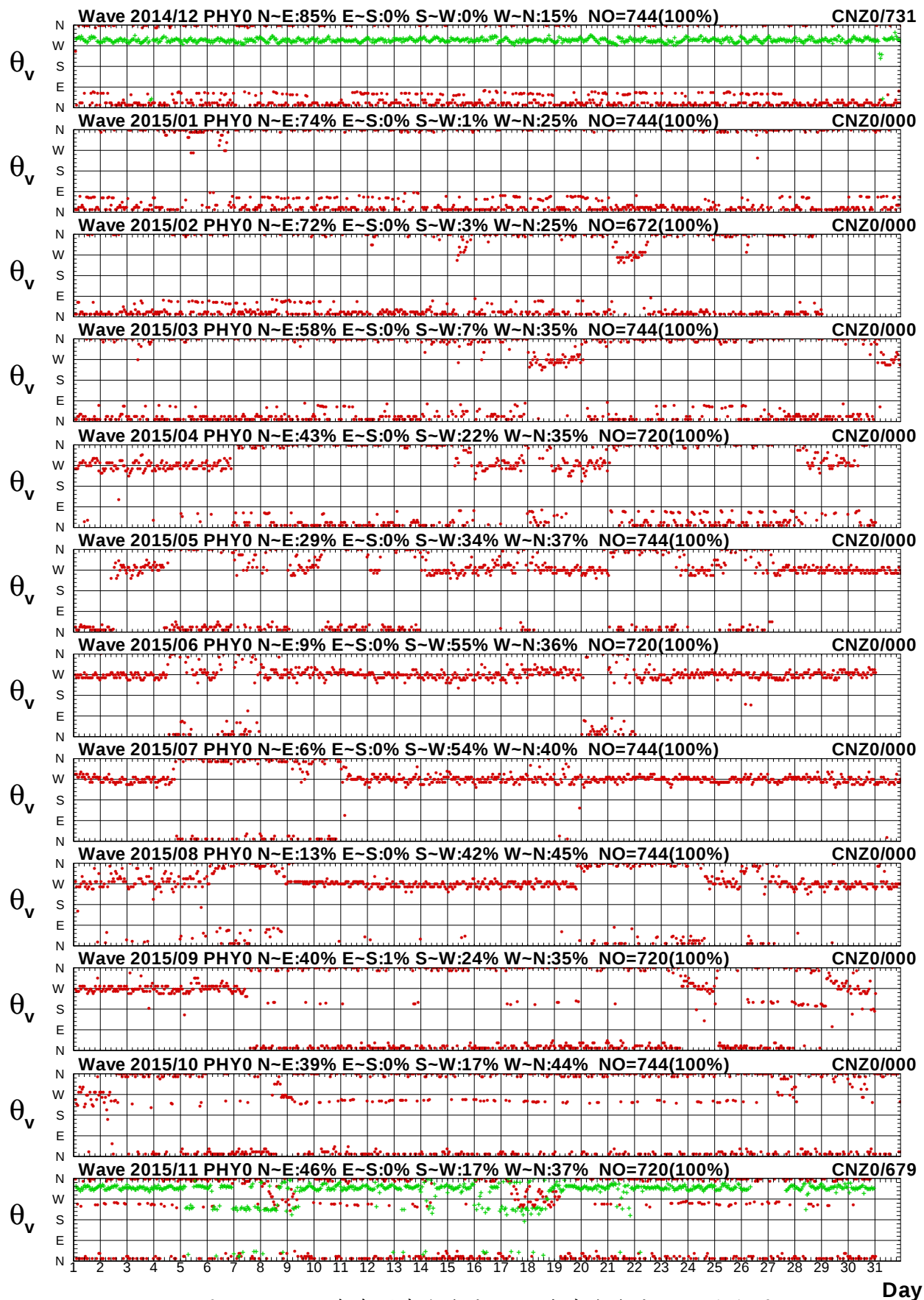


圖 2.9c 2015年每月澎湖海域 Y 站與嘉南海域 Z 站波向圖

V14CPHY0.1HA V14CCNZ0.1H0 V151PHY0.1HA V151CNZ0.1H0 V152PHY0.1HA V152CNZ0.1H0
V153PHY0.1HA V153CNZ0.1H0 V154PHY0.1HA V154CNZ0.1H0 V155PHY0.1HA V155CNZ0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2015

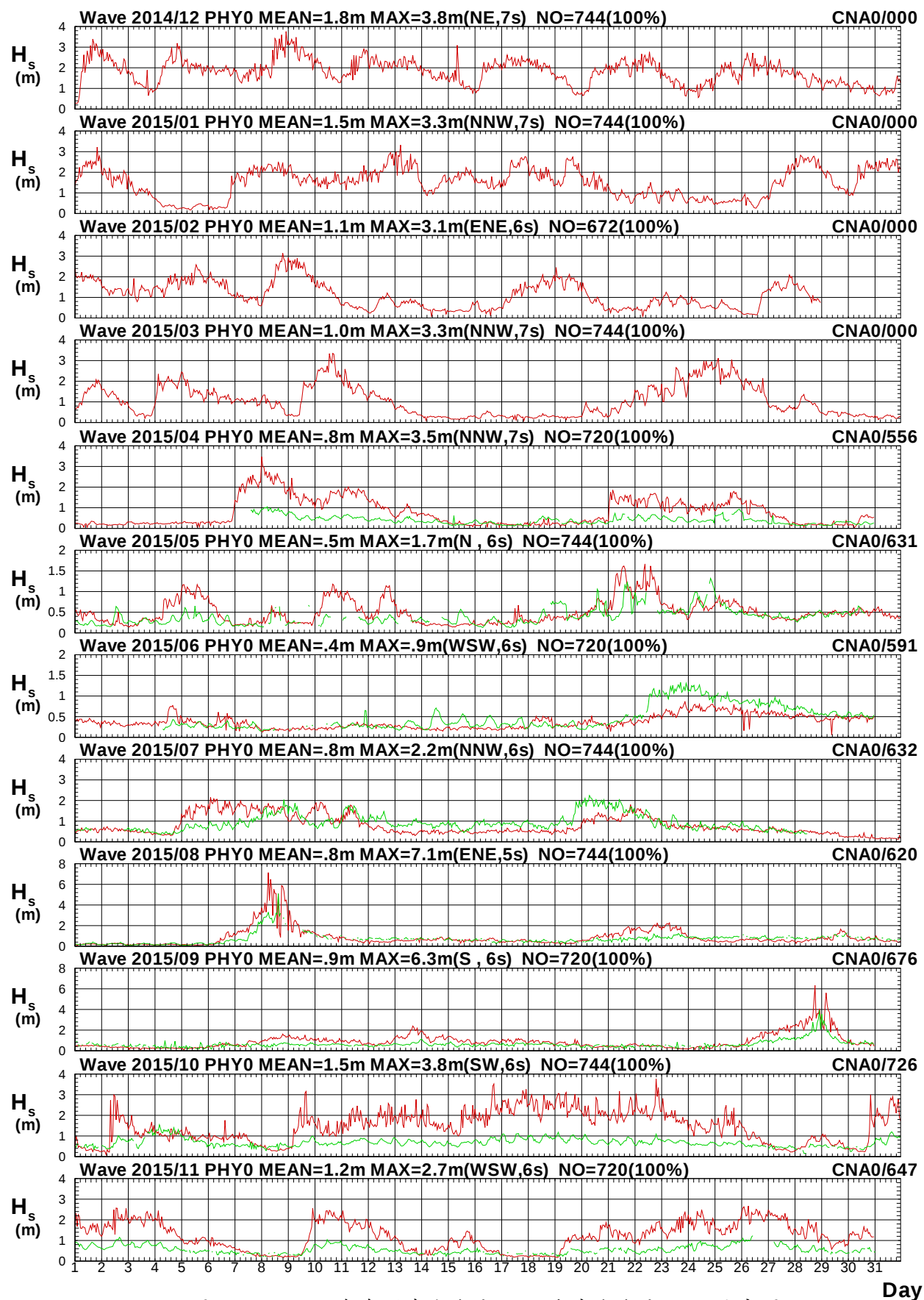


圖 2.10a 2015 年每月澎湖海域 Y 站與嘉南海域 A 站波高圖

V14CPHY0.1HA V14CCNA0.1H0 V151PHY0.1HA V151CNA0.1H0 V152PHY0.1HA V152CNA0.1H0
V153PHY0.1HA V153CNA0.1H0 V154PHY0.1HA V154CNA0.1H0 V155PHY0.1HA V155CNA0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2015

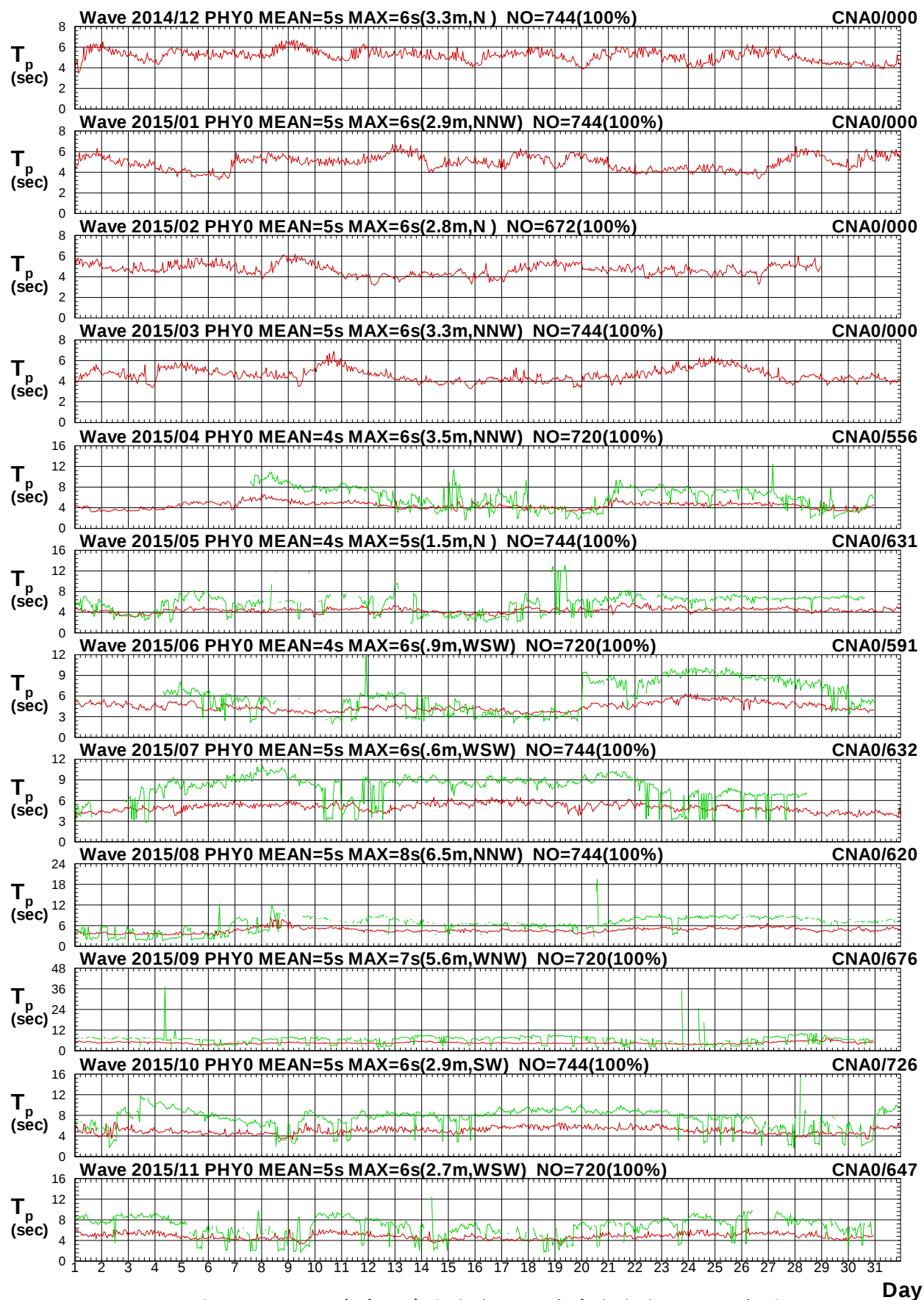


圖 2.10b 2015年每月澎湖海域 Y 站與嘉南海域 A 站週期圖

V14CPHY0.1HA V14CCNA0.1H0 V151PHY0.1HA V151CNA0.1H0 V152PHY0.1HA V152CNA0.1H0
V153PHY0.1HA V153CNA0.1H0 V154PHY0.1HA V154CNA0.1H0 V155PHY0.1HA V155CNA0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2015

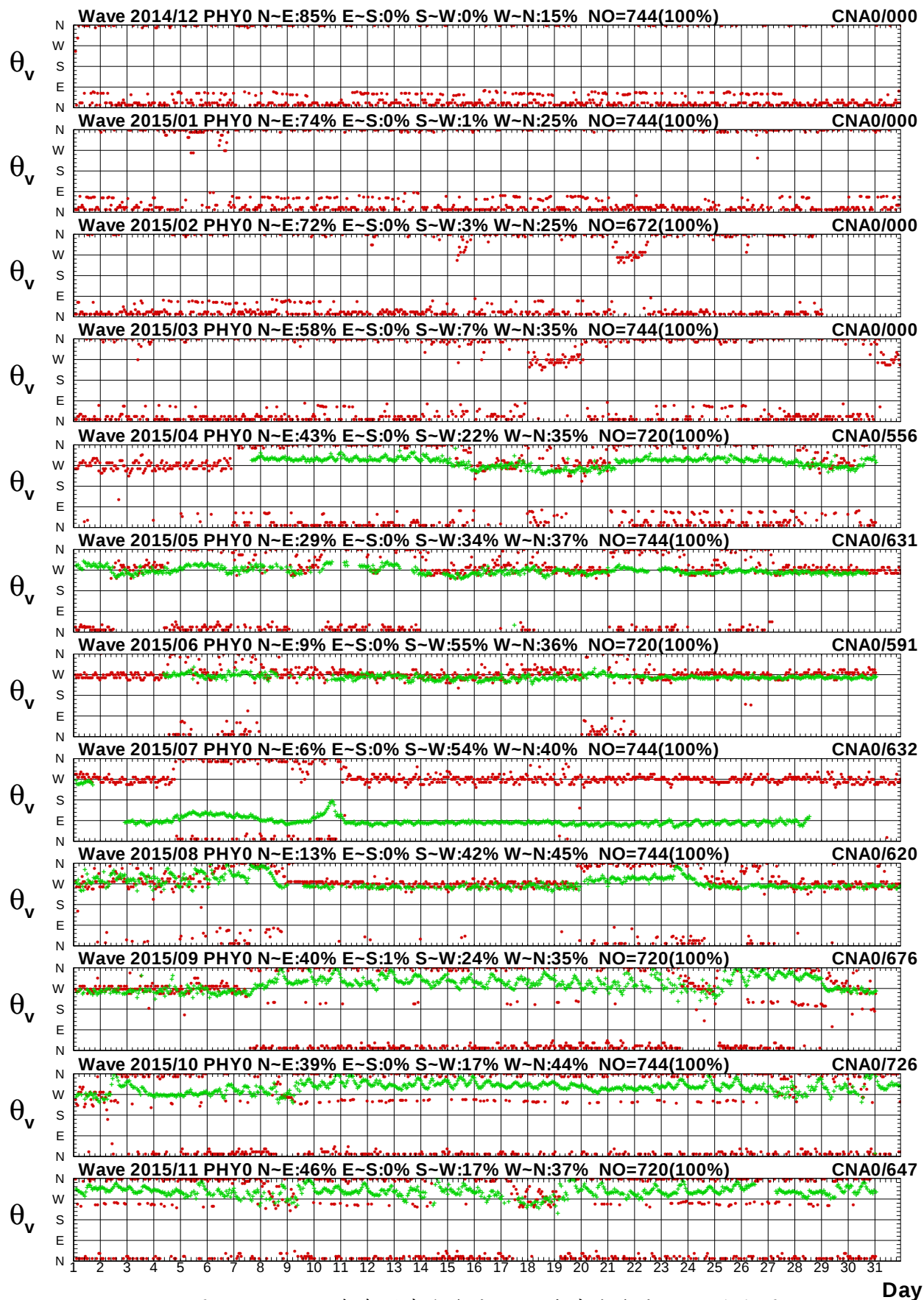


圖 2.10c 2015年每月澎湖海域 Y 站與嘉南海域 A 站波向圖

V14CPHY0.1HA V14CCNA0.1H0 V151PHY0.1HA V151CNA0.1H0 V152PHY0.1HA V152CNA0.1H0
V153PHY0.1HA V153CNA0.1H0 V154PHY0.1HA V154CNA0.1H0 V155PHY0.1HA V155CNA0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2015

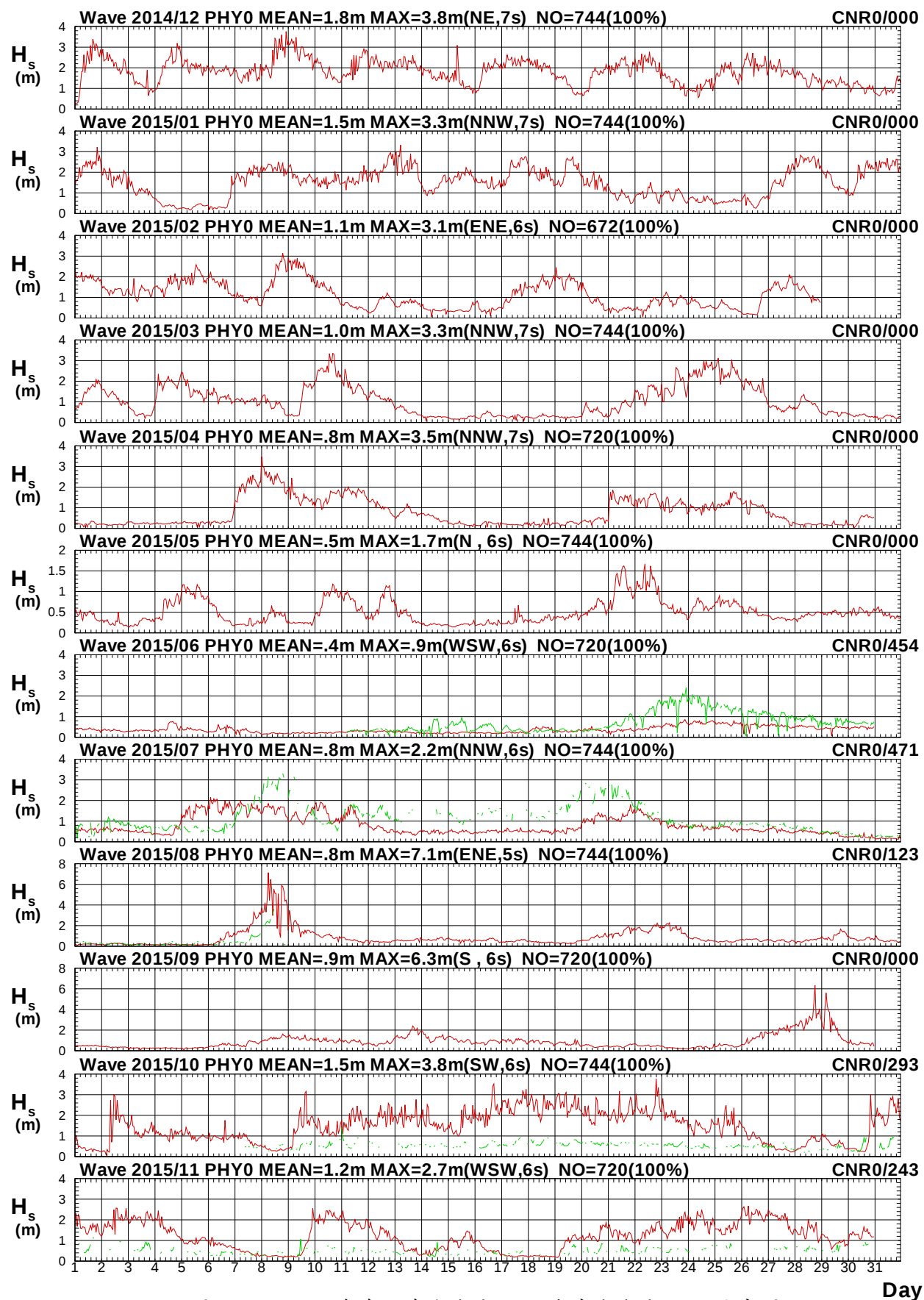


圖 2.11a 2015年每月澎湖海域 Y 站與嘉南海域 R 站波高圖

V14CPHY0.1HA V14CCNR0.1H0 V151PHY0.1HA V151CNR0.1H0 V152PHY0.1HA V152CNR0.1H0
V153PHY0.1HA V153CNR0.1H0 V154PHY0.1HA V154CNR0.1H0 V155PHY0.1HA V155CNR0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2015

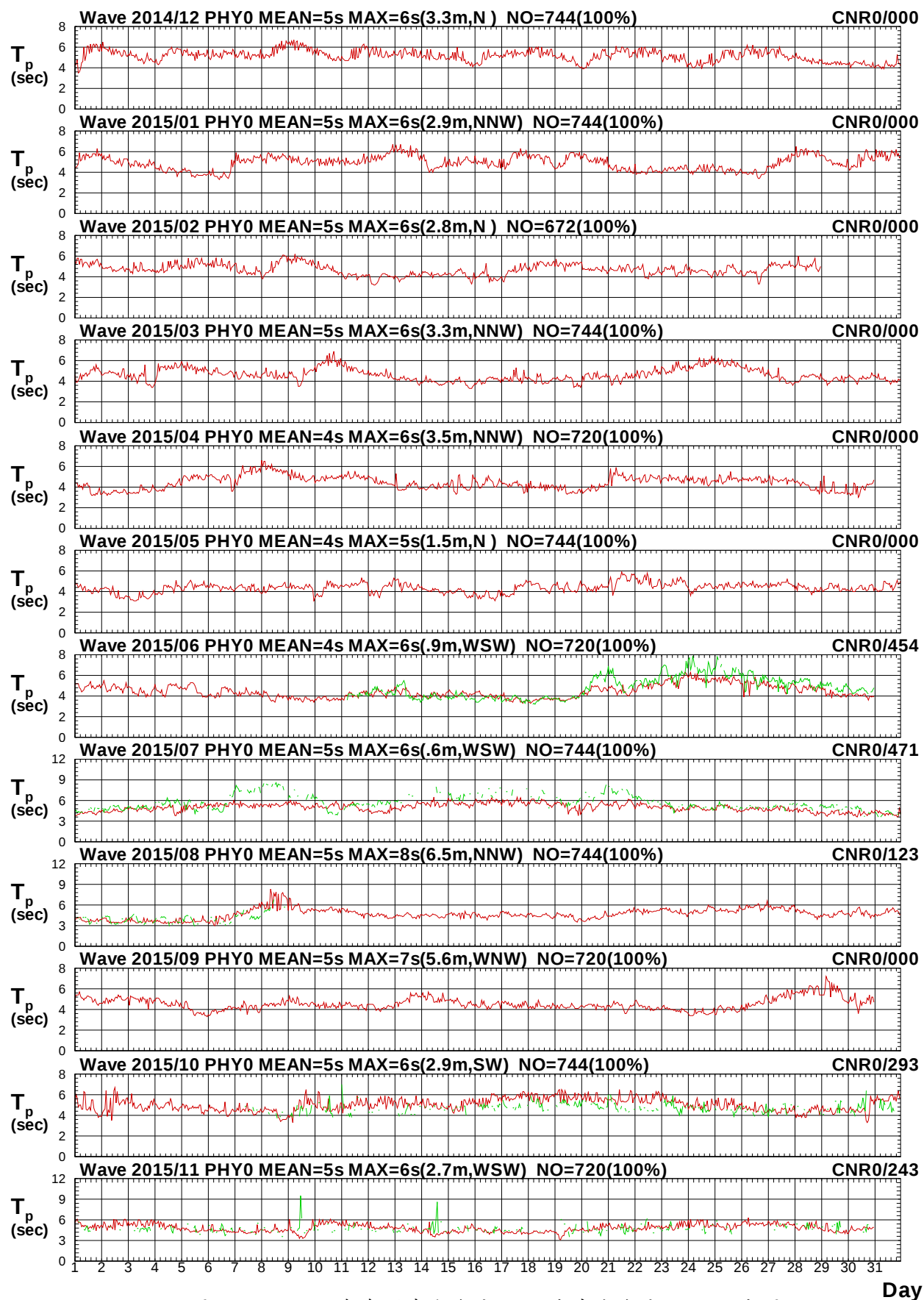


圖 2.11b 2015 年每月澎湖海域 Y 站與嘉南海域 R 站週期圖

V14CPHY0.1HA V14CCNR0.1H0 V151PHY0.1HA V151CNR0.1H0 V152PHY0.1HA V152CNR0.1H0
V153PHY0.1HA V153CNR0.1H0 V154PHY0.1HA V154CNR0.1H0 V155PHY0.1HA V155CNR0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2015

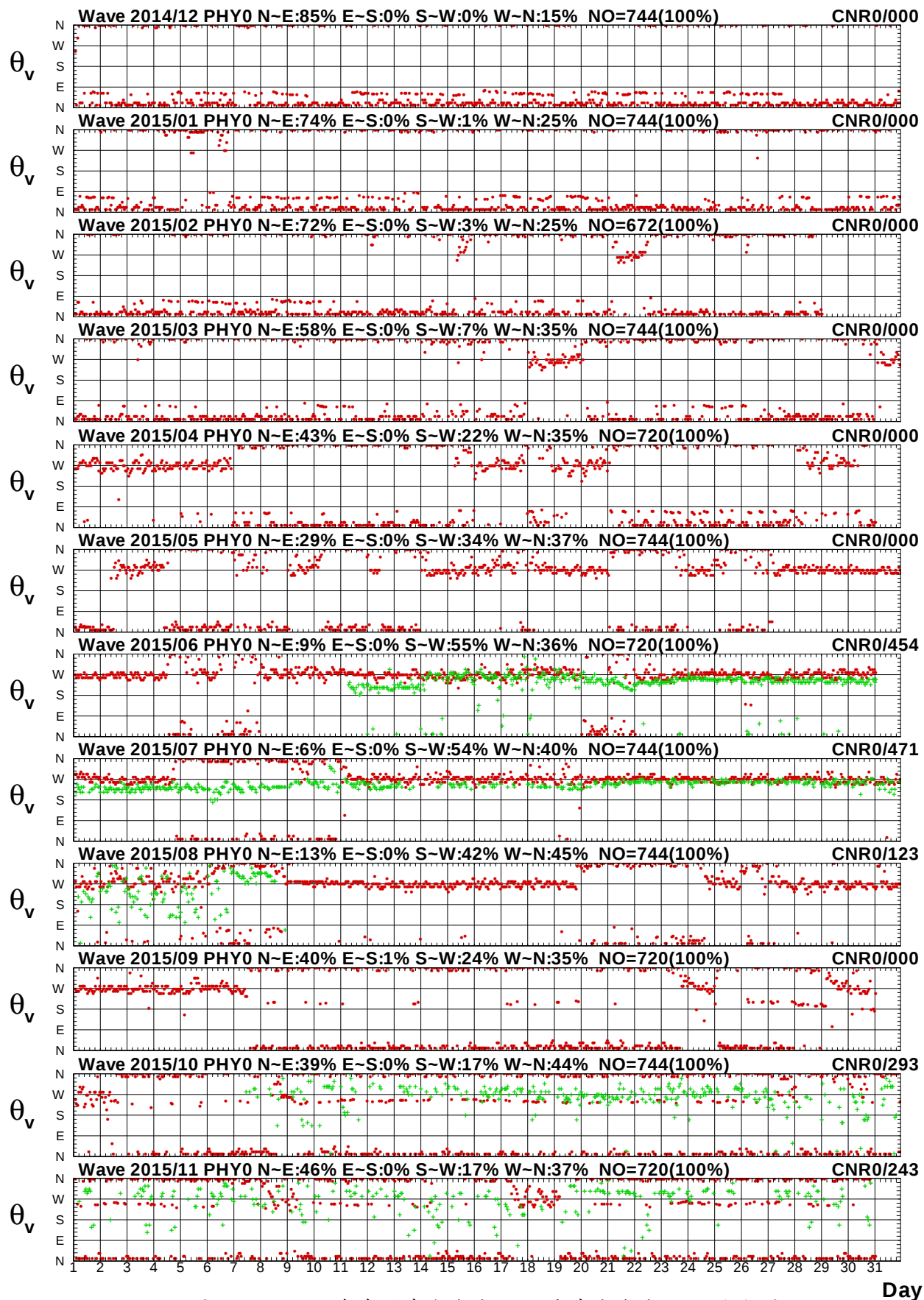


圖 2.11c 2015 年每月澎湖海域 Y 站與嘉南海域 R 站波向圖

V14CPHY0.1HA V14CCNR0.1H0 V151PHY0.1HA V151CNR0.1H0 V152PHY0.1HA V152CNR0.1H0
V153PHY0.1HA V153CNR0.1H0 V154PHY0.1HA V154CNR0.1H0 V155PHY0.1HA V155CNR0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2015

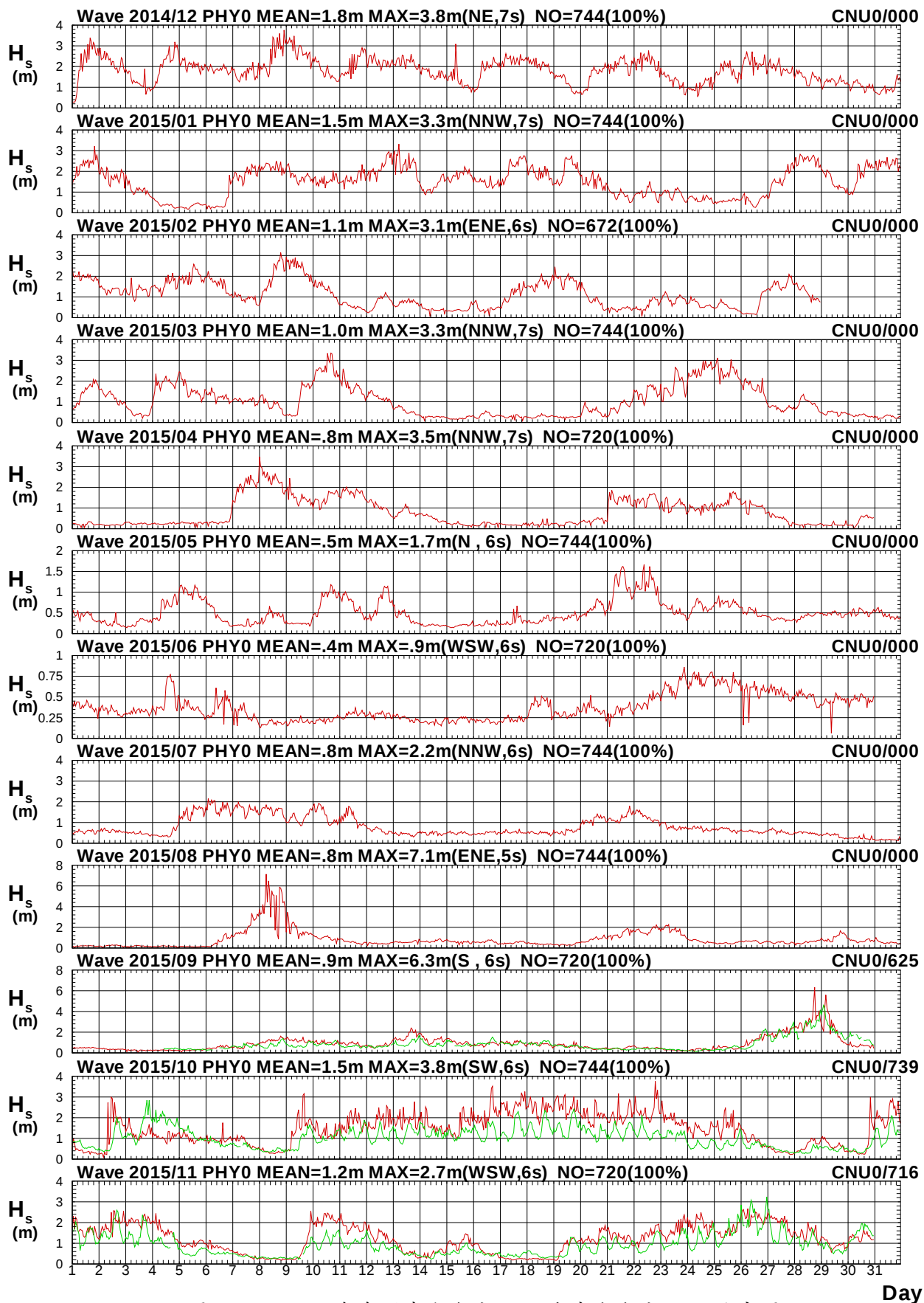


圖 2.12a 2015年每月澎湖海域 Y 站與嘉南海域 U 站波高圖

V14CPHY0.1HA V14CCNU0.1H0 V151PHY0.1HA V151CNU0.1H0 V152PHY0.1HA V152CNU0.1H0
V153PHY0.1HA V153CNU0.1H0 V154PHY0.1HA V154CNU0.1H0 V155PHY0.1HA V155CNU0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2015

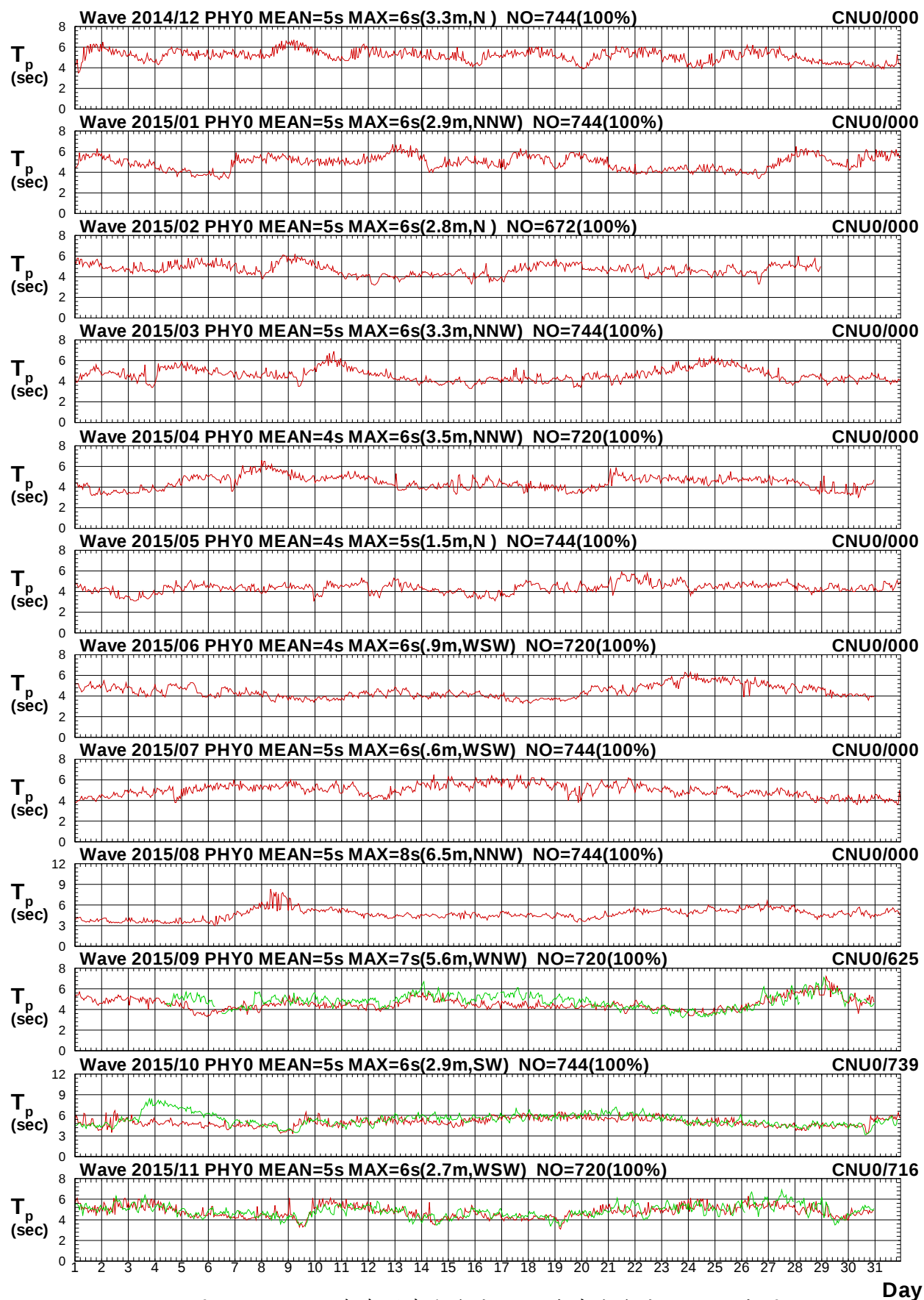


圖 2.12b 2015 年每月澎湖海域 Y 站與嘉南海域 U 站週期圖

V14CPHY0.1HA V14CCNU0.1H0 V151PHY0.1HA V151CNU0.1H0 V152PHY0.1HA V152CNU0.1H0
V153PHY0.1HA V153CNU0.1H0 V154PHY0.1HA V154CNU0.1H0 V155PHY0.1HA V155CNU0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2015

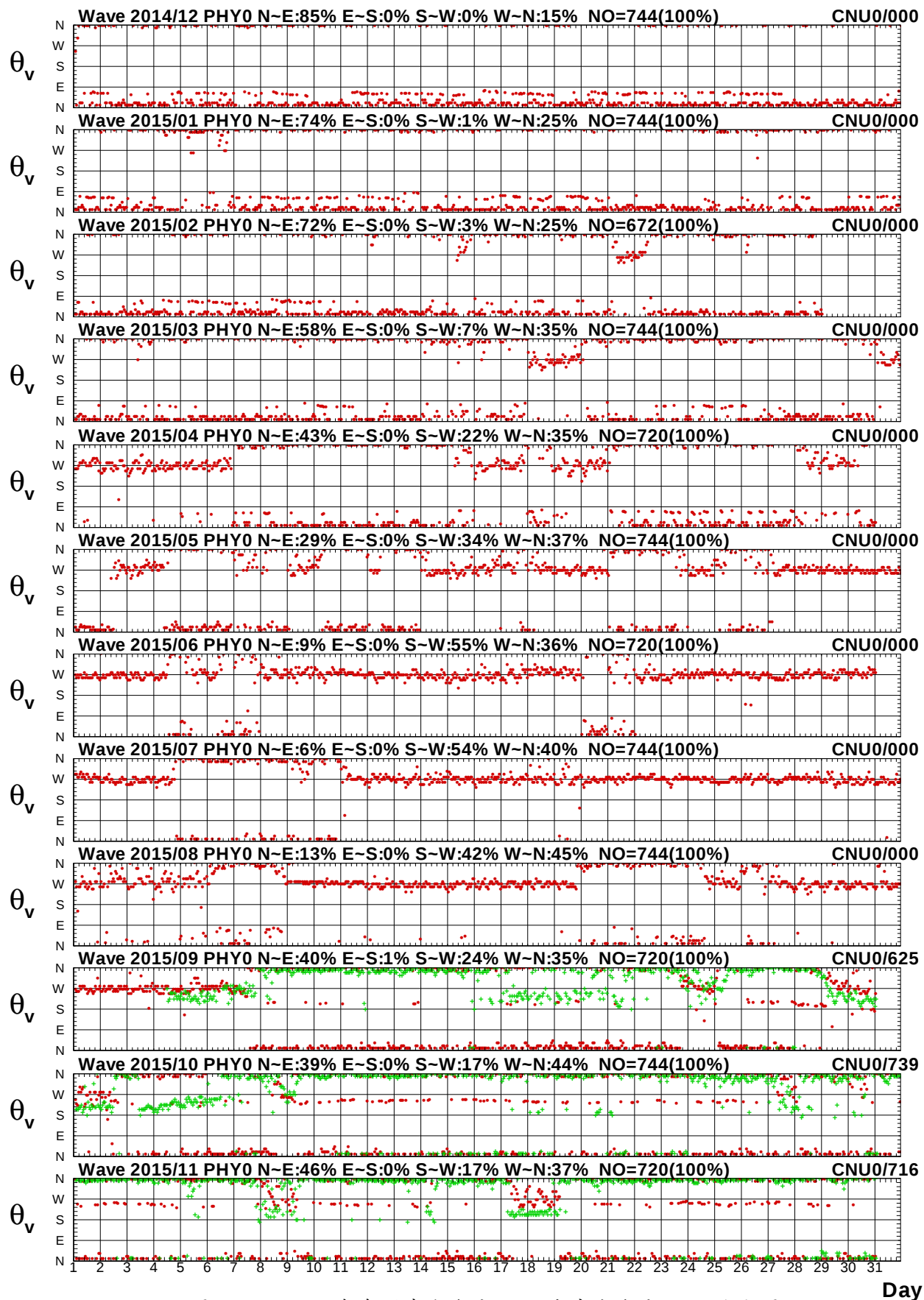


圖 2.12c 2015年每月澎湖海域 Y 站與嘉南海域 U 站波向圖

V14CPHY0.1HA V14CCNU0.1H0 V151PHY0.1HA V151CNU0.1H0 V152PHY0.1HA V152CNU0.1H0
V153PHY0.1HA V153CNU0.1H0 V154PHY0.1HA V154CNU0.1H0 V155PHY0.1HA V155CNU0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2015

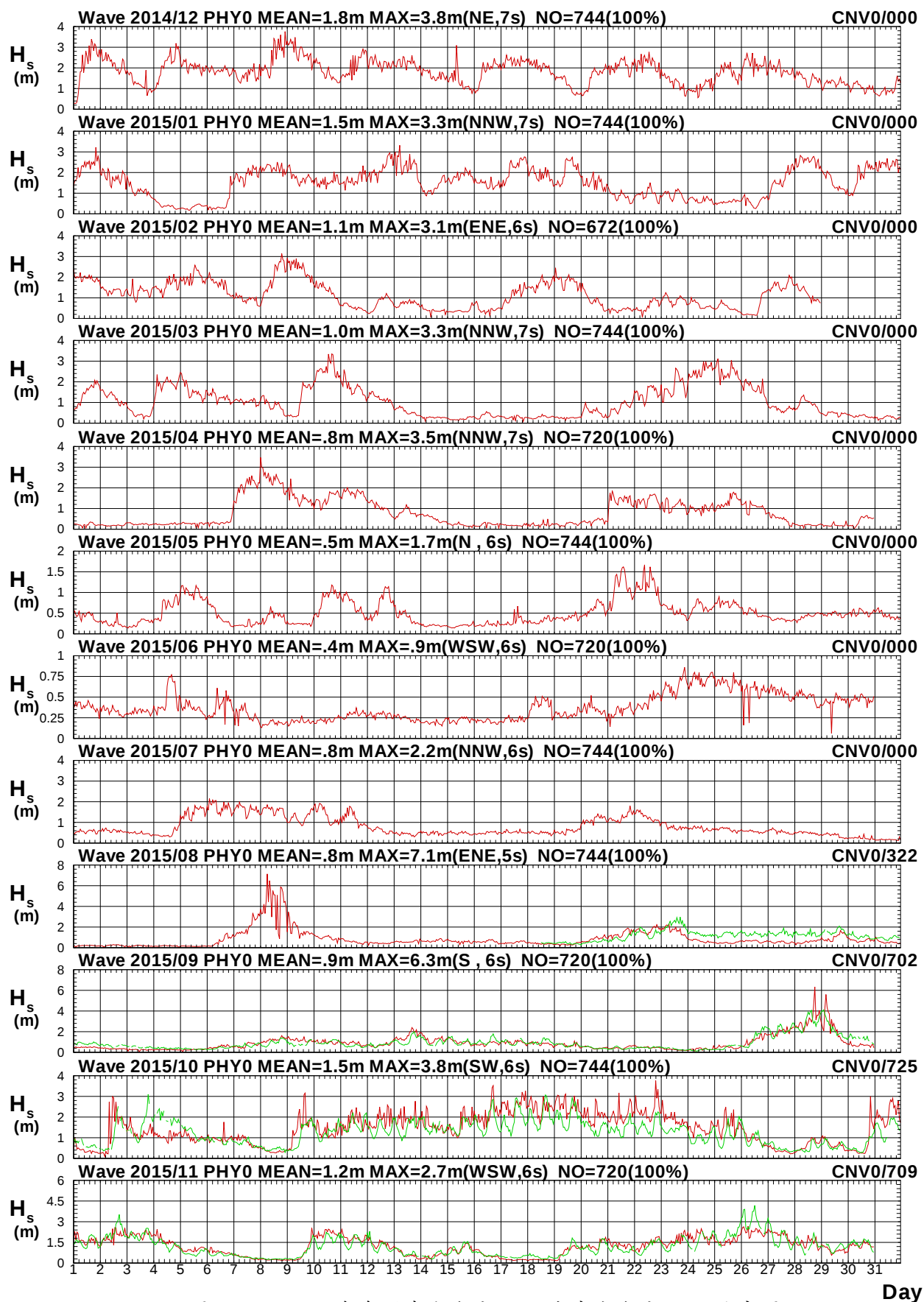


圖 2.13a 2015 年每月澎湖海域 Y 站與嘉南海域 V 站波高圖

V14CPHY0.1HA V14CCNV0.1H0 V151PHY0.1HA V151CNV0.1H0 V152PHY0.1HA V152CNV0.1H0
V153PHY0.1HA V153CNV0.1H0 V154PHY0.1HA V154CNV0.1H0 V155PHY0.1HA V155CNV0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2015

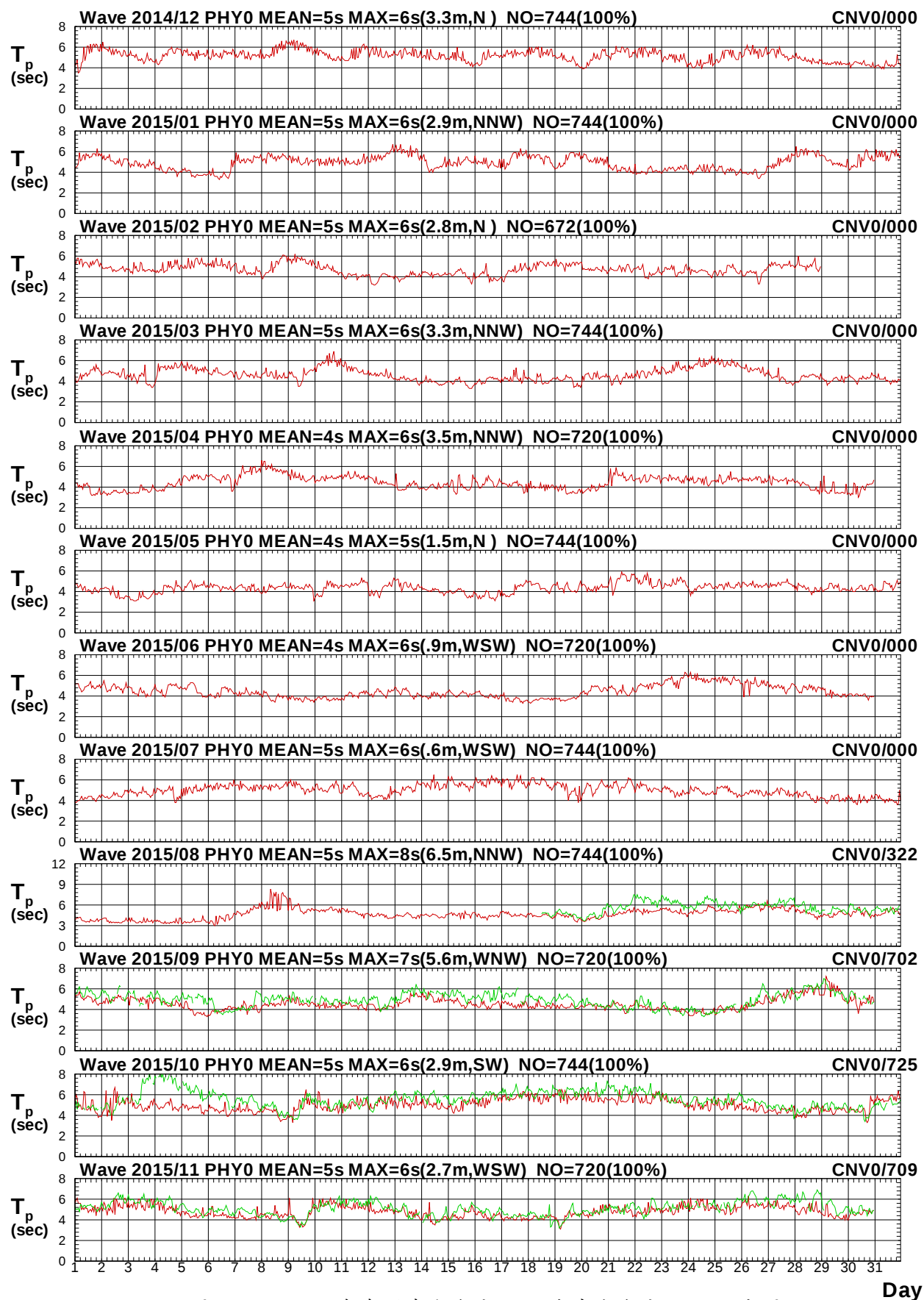


圖 2.13b 2015年每月澎湖海域 Y 站與嘉南海域 V 站週期圖

V14CPHY0.1HA V14CCNV0.1H0 V151PHY0.1HA V151CNV0.1H0 V152PHY0.1HA V152CNV0.1H0
V153PHY0.1HA V153CNV0.1H0 V154PHY0.1HA V154CNV0.1H0 V155PHY0.1HA V155CNV0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2015

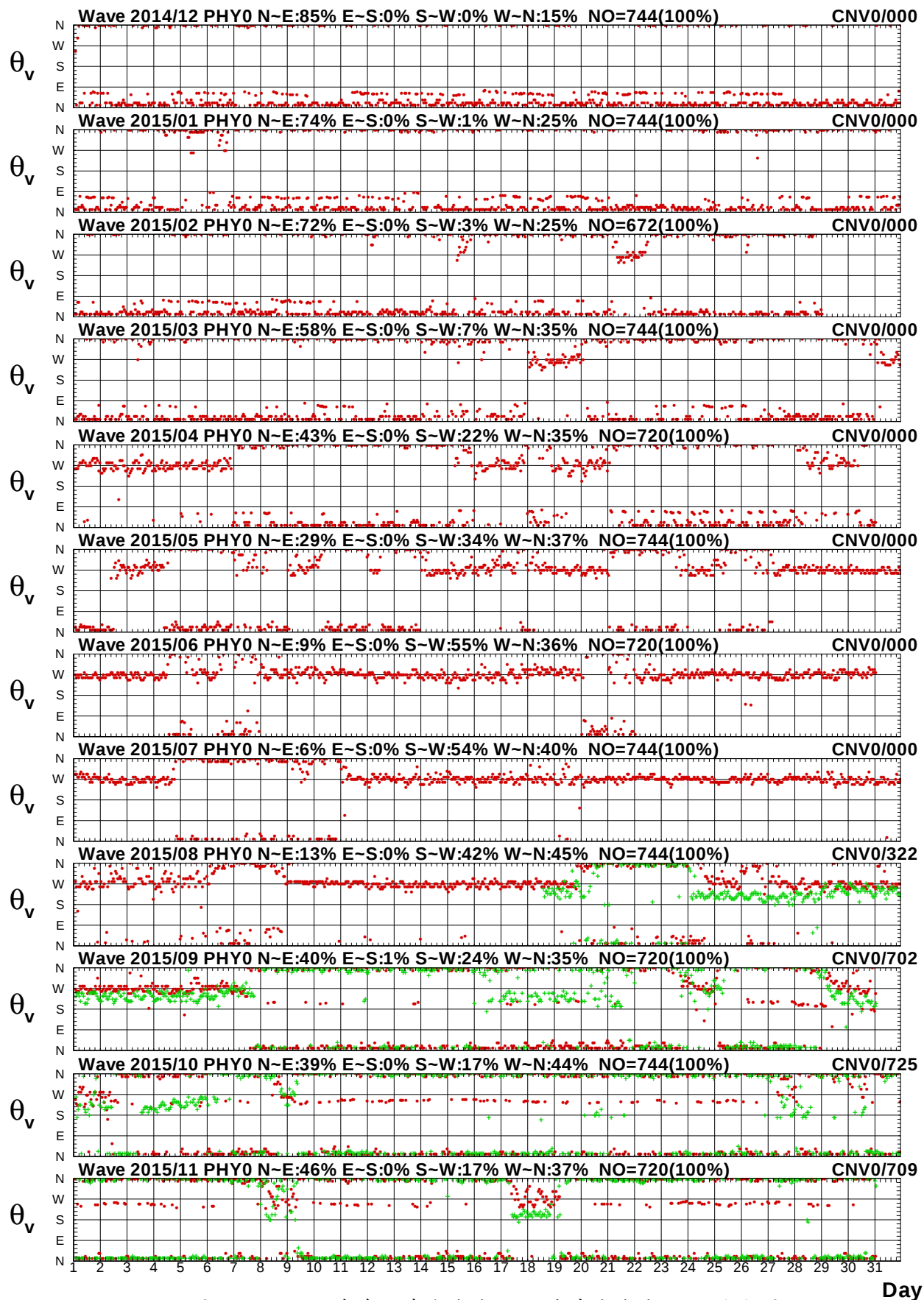


圖 2.13c 2015年每月澎湖海域 Y 站與嘉南海域 V 站波向圖

V14CPHY0.1HA V14CCNV0.1H0 V151PHY0.1HA V151CNV0.1H0 V152PHY0.1HA V152CNV0.1H0
V153PHY0.1HA V153CNV0.1H0 V154PHY0.1HA V154CNV0.1H0 V155PHY0.1HA V155CNV0.1H0

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第三章 2015 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**，2015 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，2015 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 2015 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	2011/01-2015/11(觀測中)	港研中心	龍門尖山港區
S	23°33'30"N	119°40'06"E	2013/06-2015/11(觀測中)	港研中心	馬公港區潮位計
X	23°33'21"N	119°40'31"E	2011/01-2015/11(觀測中)	港研中心	龍門尖山港區外海
F	23°33'42"N	119°34'41"E	2009/01-2015/11(觀測中)	中央氣象局	七美漁港

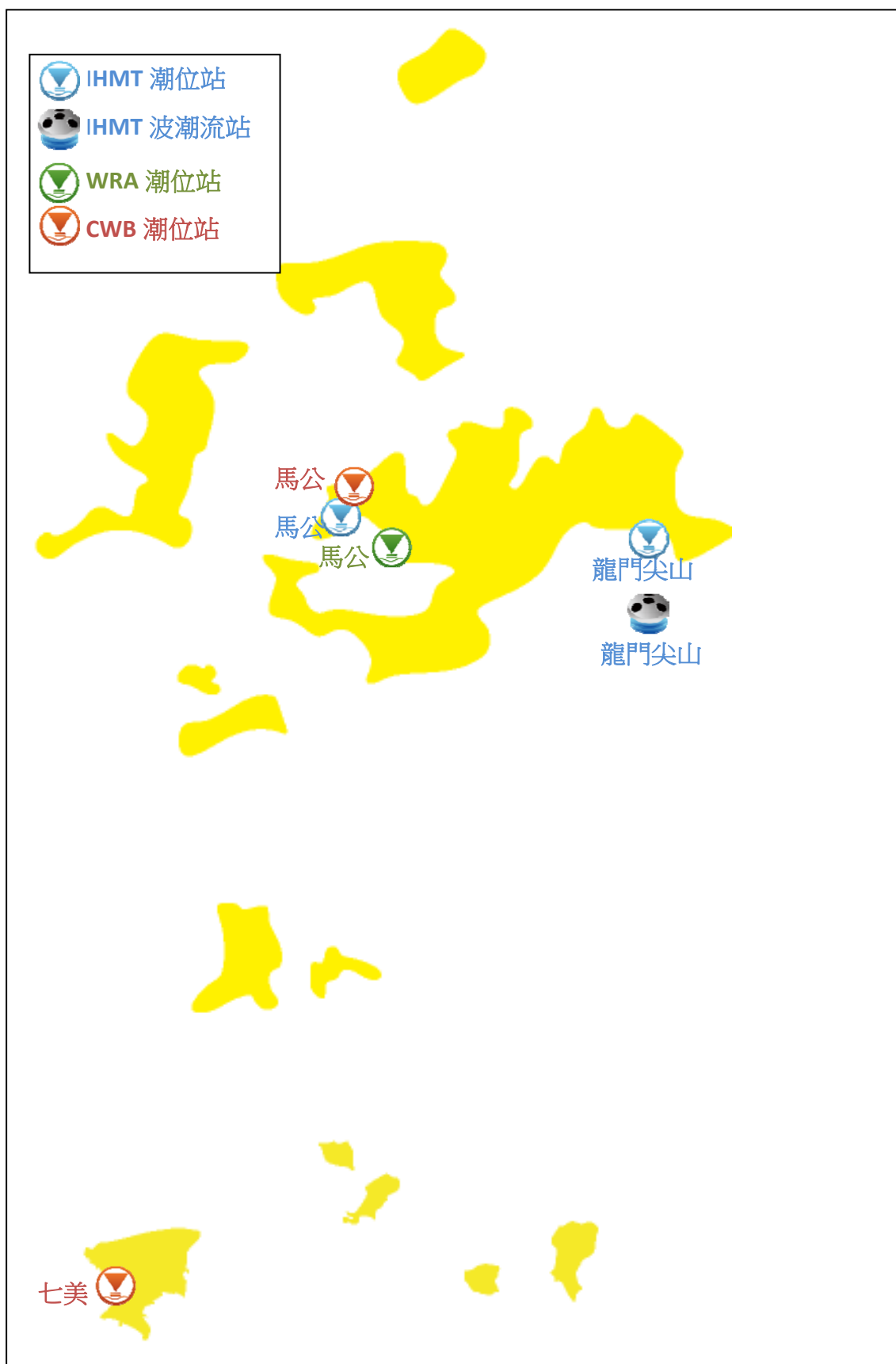


圖 3 澎湖海域潮汐觀測站位置示意圖

表 3.1a 2015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				
2014/12 月	690 (92.7%)	741 (99.6%)	744 (100%)	690 (92.7%)	*	*	*	*
2015/ 1 月	744 (100%)	744 (100%)	524 (70.4%)	744 (100%)	*	*	*	*
2015/ 2 月	671 (99.9%)	672 (100%)	*	613 (91.2%)	*	*	*	*
2015/ 3 月	744 (100%)	428 (57.5%)	136 (18.3%)	744 (100%)	*	*	*	*
2015/ 4 月	720 (100%)	223 (31.0%)	372 (51.7%)	720 (100%)	*	*	*	*
2015/ 5 月	739 (99.3%)	744 (100%)	263 (35.3%)	744 (100%)	*	*	*	*
2015/ 6 月	720 (100%)	720 (100%)	476 (66.1%)	720 (100%)	*	*	*	*
2015/ 7 月	743 (99.9%)	594 (79.8%)	317 (42.6%)	744 (100%)	*	*	*	*
2015/ 8 月	397 (53.4%)	738 (99.2%)	564 (75.8%)	397 (53.4%)	*	*	*	*
2015/ 9 月	*	720 (100%)	598 (83.1%)	*	*	*	*	*
2015/10 月	*	191 (25.7%)	382 (51.3%)	*	*	*	*	*
2015/11 月	*	*	643 (89.3%)	130 (18.1%)	*	*	*	*
2015/冬季	2105 (97.5%)	2157 (99.9%)	1268 (58.7%)	2047 (94.8%)	*	*	*	*
2015/春季	2203 (99.8%)	1395 (63.2%)	771 (34.9%)	2208 (100%)	*	*	*	*
2015/夏季	1860 (84.2%)	2052 (92.9%)	1357 (61.5%)	1861 (84.3%)	*	*	*	*
2015/秋季	*	911 (41.7%)	1623 (74.3%)	130 (6.0%)	*	*	*	*
2015/整年	6168 (70.4%)	6515 (74.4%)	5019 (57.3%)	6246 (71.3%)	*	*	*	*
起始年月	2014/12	2014/12	2014/12	2014/12	*	*	*	*
結束年月	2015/08	2015/10	2015/11	2015/11	*	*	*	*

表 3.1b 2015 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	
測站	T	X	F	S						
2014/12 月	744 (100%)	744 (100%)	744 (100%)	*	*	*	*	*	*	*
2015/ 1 月	744 (100%)	744 (100%)	744 (100%)	*	*	*	*	*	*	*
2015/ 2 月	672 (100%)	672 (100%)	*	*	*	*	*	*	*	*
2015/ 3 月	744 (100%)	744 (100%)	744 (100%)	*	*	*	*	*	*	*
2015/ 4 月	720 (100%)	720 (100%)	720 (100%)	*	*	*	*	*	*	*
2015/ 5 月	744 (100%)	744 (100%)	744 (100%)	*	*	*	*	*	*	*
2015/ 6 月	720 (100%)	720 (100%)	720 (100%)	*	*	*	*	*	*	*
2015/ 7 月	744 (100%)	744 (100%)	744 (100%)	*	*	*	*	*	*	*
2015/ 8 月	744 (100%)	744 (100%)	744 (100%)	*	*	*	*	*	*	*
2015/ 9 月	720 (100%)	720 (100%)	720 (100%)	*	*	*	*	*	*	*
2015/10 月	744 (100%)	744 (100%)	744 (100%)	*	*	*	*	*	*	*
2015/11 月	720 (100%)	*	720 (100%)	*	*	*	*	*	*	*
2015/冬季	2160 (100%)	2160 (100%)	1488 (68.9%)	*	*	*	*	*	*	*
2015/春季	2208 (100%)	2208 (100%)	2208 (100%)	*	*	*	*	*	*	*
2015/夏季	2208 (100%)	2208 (100%)	2208 (100%)	*	*	*	*	*	*	*
2015/秋季	2184 (100%)	1464 (67.0%)	2184 (100%)	*	*	*	*	*	*	*
2015/整年	8760 (100%)	8040 (91.8%)	8088 (92.3%)	*	*	*	*	*	*	*
起始年月	2014/12	2014/12	2014/12	*	*	*	*	*	*	*
結束年月	2015/11	2015/10	2015/11	*	*	*	*	*	*	*

Tidal Level in Peng-Hu Seas of PHT0 at 2015

1 ○ 8 ● 15 ● 22 ●

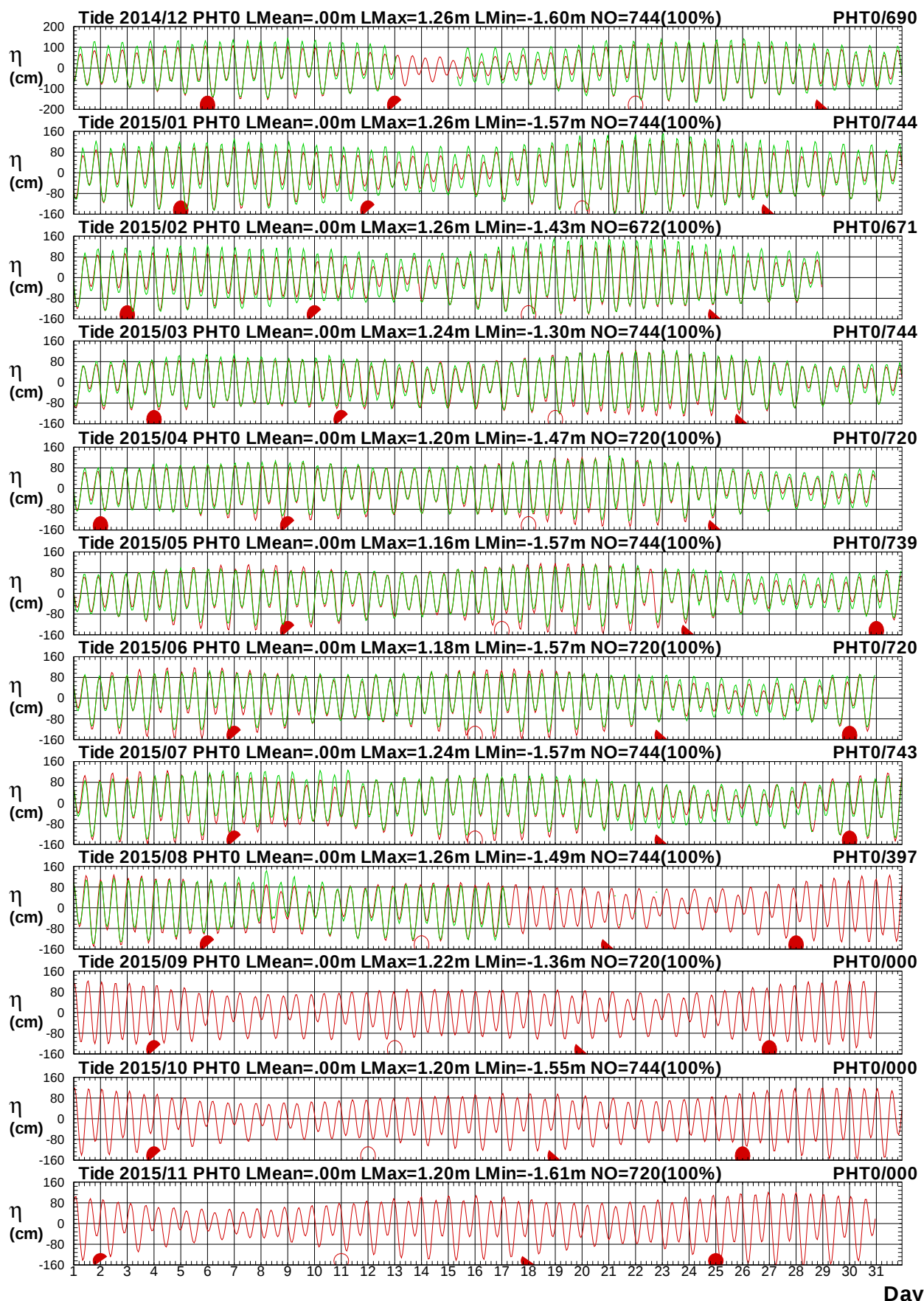


圖 3.1.1 2015 年每月澎湖海域 T 站修補前後之潮位比較圖

T14CPHT0.1HA T14CPHT0.1H0 T151PHT0.1HA T151PHT0.1H0 T152PHT0.1HA T152PHT0.1H0
T153PHT0.1HA T153PHT0.1H0 T154PHT0.1HA T154PHT0.1H0 T155PHT0.1HA T155PHT0.1H0

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Tidal Level in Peng-Hu Seas of PHT0 at 2015

1 8 15 22

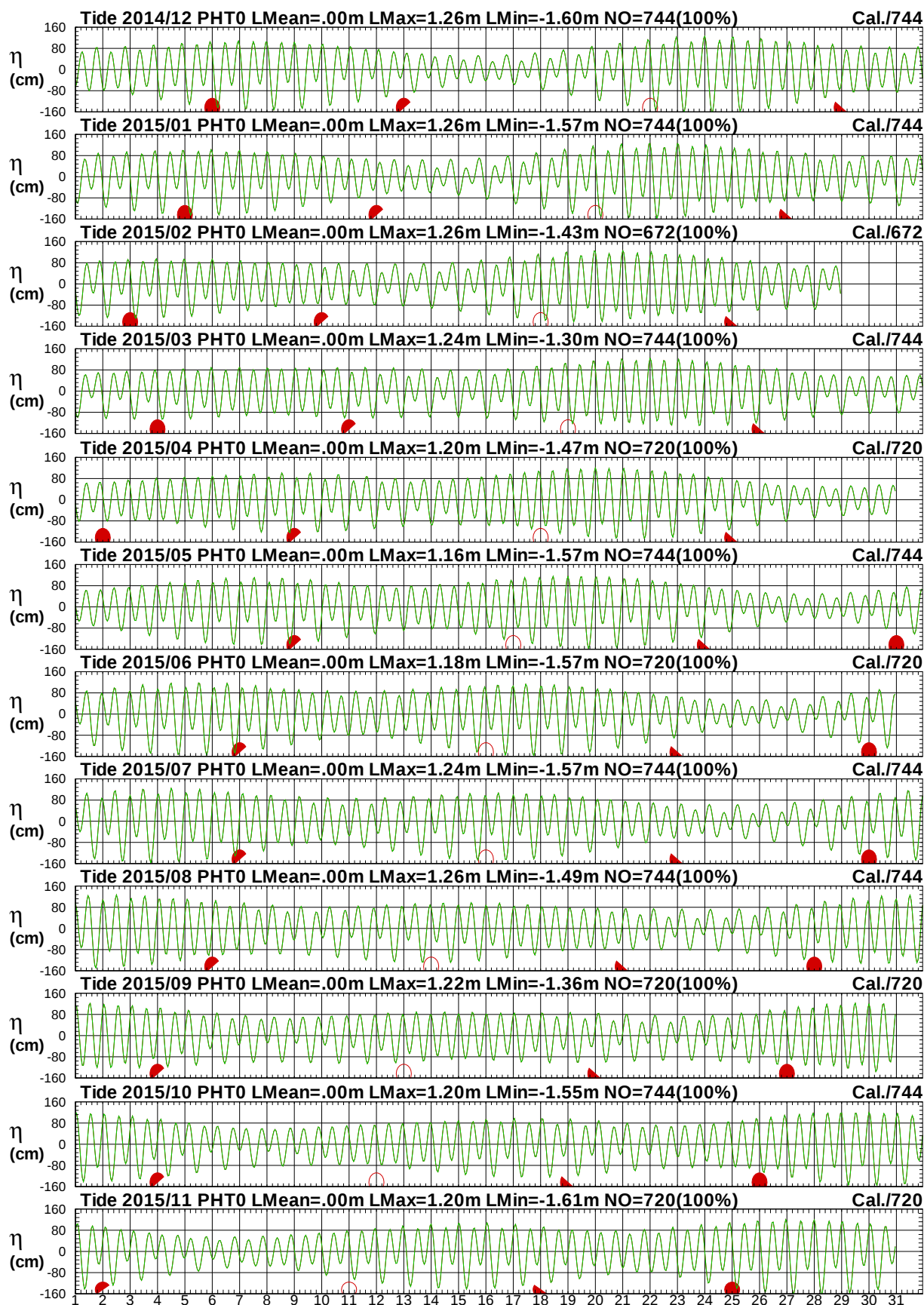


圖 3.1.2 2015 年每月澎湖海域 T 站潮位歷線圖 (綠線: 天文潮)

T14CPHT0.1HA T14CPHT0.1HC T151PHT0.1HA T151PHT0.1HC T152PHT0.1HA T152PHT0.1HC

T153PHT0.1HA T153PHT0.1HC T154PHT0.1HA T154PHT0.1HC T155PHT0.1HA T155PHT0.1HC

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Tidal Level in Peng-Hu Seas of PHT0 at 2015

1 ○ 8 ● 15 ● 22 ●

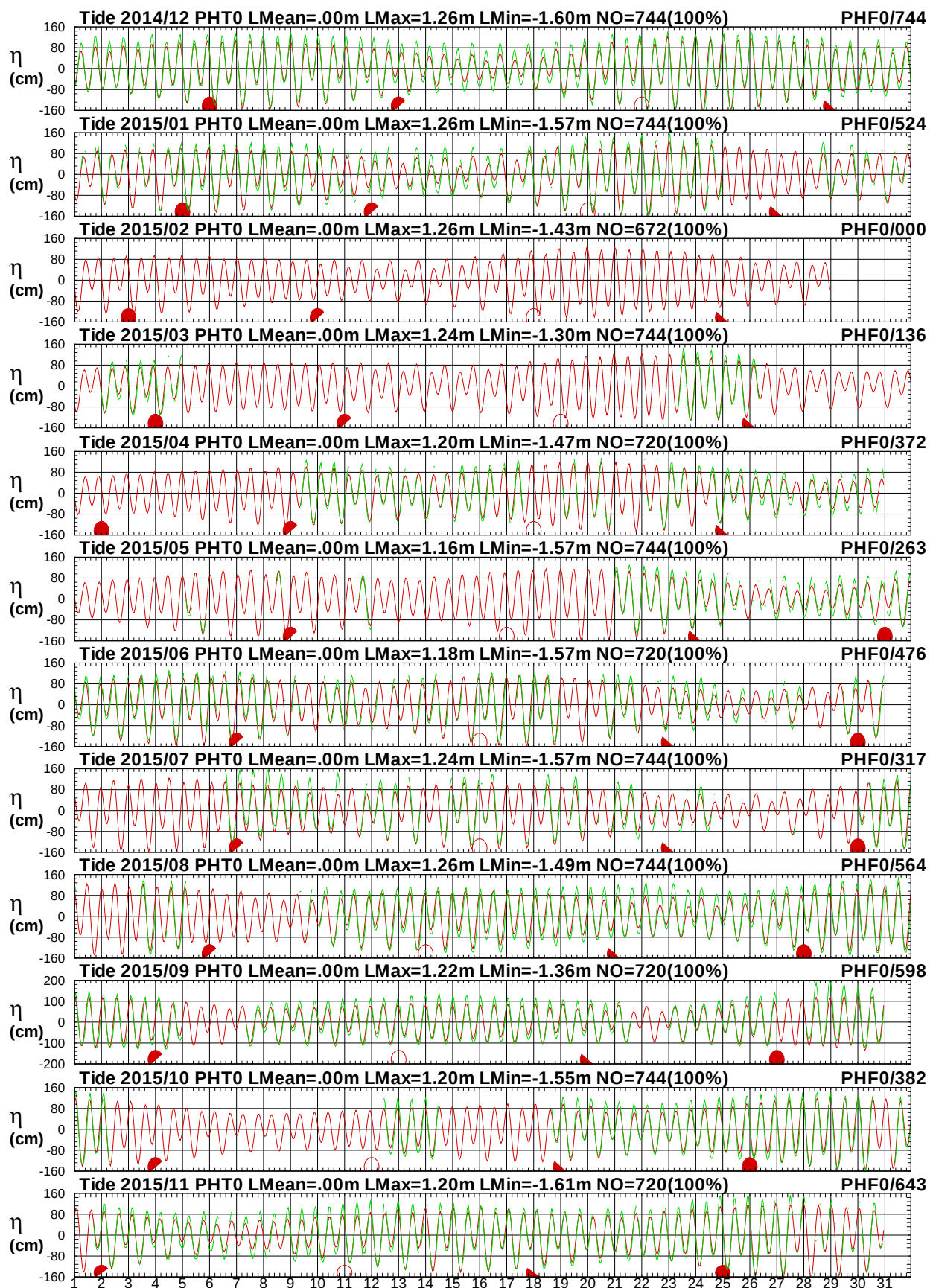


圖 3.1.3 2015 年每月澎湖海域 T 站與 F 站潮位比較圖

T14CPHT0.1HA T14CPHF0.1H0 T151PHT0.1HA T151PHF0.1H0 T152PHT0.1HA T152PHF0.1H0
T153PHT0.1HA T153PHF0.1H0 T154PHT0.1HA T154PHF0.1H0 T155PHT0.1HA T155PHF0.1H0

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Tidal Level in Peng-Hu Seas of PHT0 at 2015

1 ○ 8 ● 15 ● 22 ●

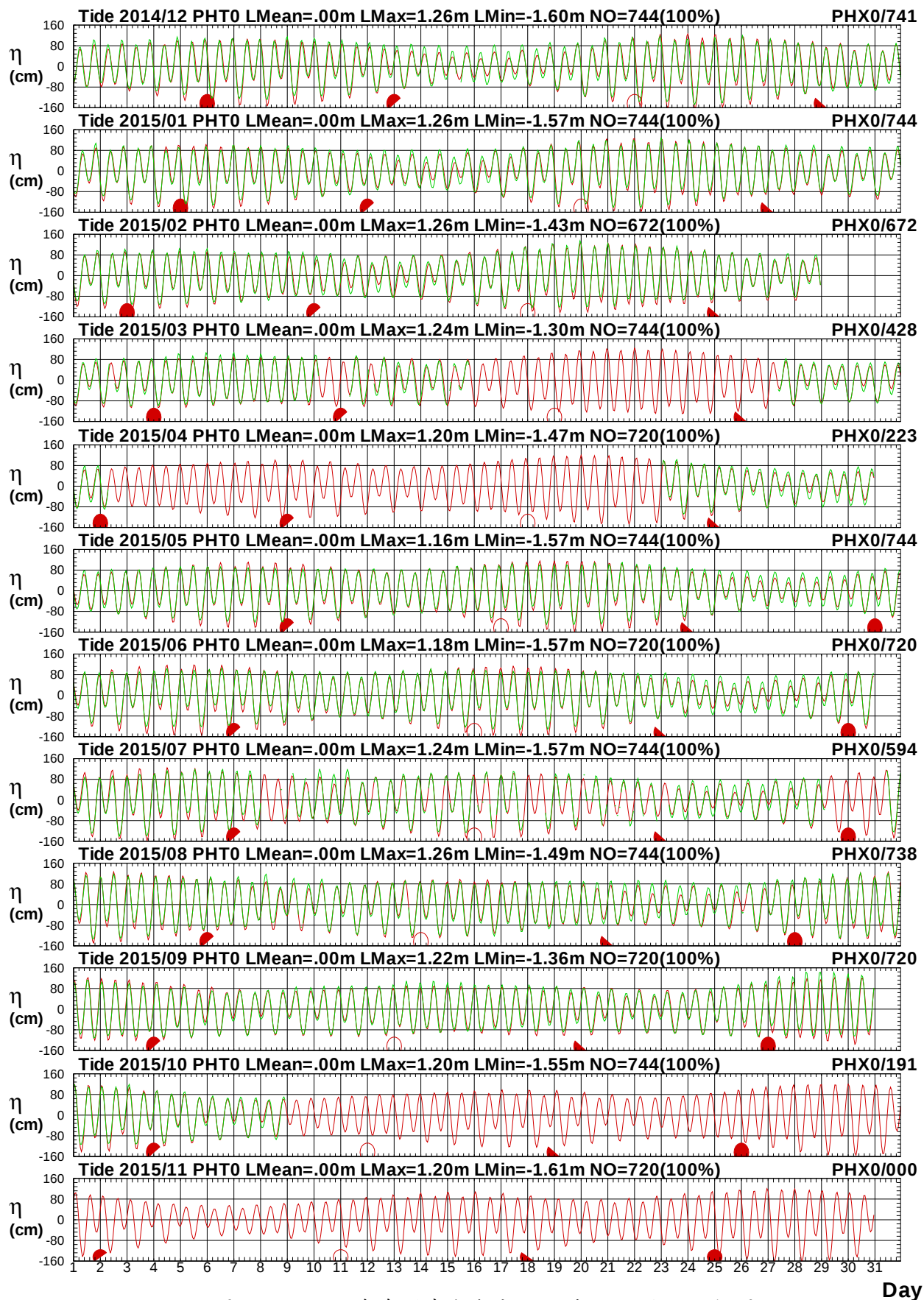


圖 3.1.4 2015 年每月澎湖海域 T 站與 X 站潮位比較圖

T14CPHT0.1HA T14CPHX0.1H0 T151PHT0.1HA T151PHX0.1H0 T152PHT0.1HA T152PHX0.1H0

T153PHT0.1HA T153PHX0.1H0 T154PHT0.1HA T154PHX0.1H0 T155PHT0.1HA T155PHX0.1H0

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Tidal Level in Peng-Hu Seas of PHT0 at 2015

1 ○ 8 ● 15 ● 22 ●

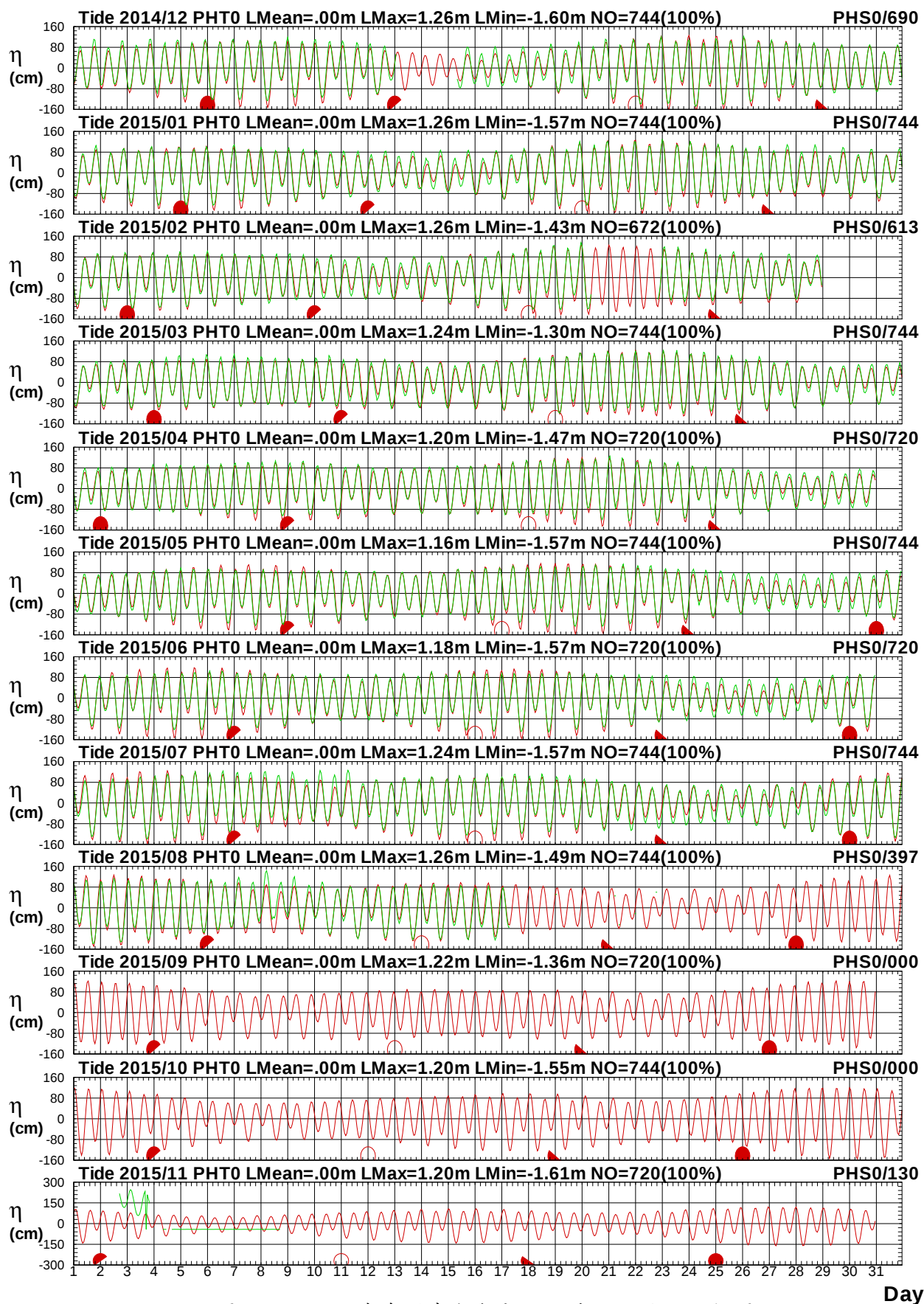


圖 3.1.5 2015年每月澎湖海域 T 站與 S 站潮位比較圖

T14CPHT0.1HA T14CPHS0.1H0 T151PHT0.1HA T151PHS0.1H0 T152PHT0.1HA T152PHS0.1H0
T153PHT0.1HA T153PHS0.1H0 T154PHT0.1HA T154PHS0.1H0 T155PHT0.1HA T155PHS0.1H0

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第四章 2015 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)及七美海上浮標(測站 R)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 2015 年各觀測站每月觀測海流資料記錄期間統計表，如表 4.1a，2015 年各觀測站每月計算潮流資料統計表，如表 4.1b。2015 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 2015 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	2011/01-2015/11(觀測中)	港研中心	龍門尖山港外海
Y	23°43'37"N	119°33'07"E	2010/07-2015/11(觀測中)	水利署	澎湖資料浮標
Z	23°15'23"N	119°41'2"E	2013/10-2015/11(觀測中)	中央氣象局	東吉島資料浮標
R	22°45'16"N	119°25'42"E	2015/07-2015/11(觀測中)	中央氣象局	七美資料浮標

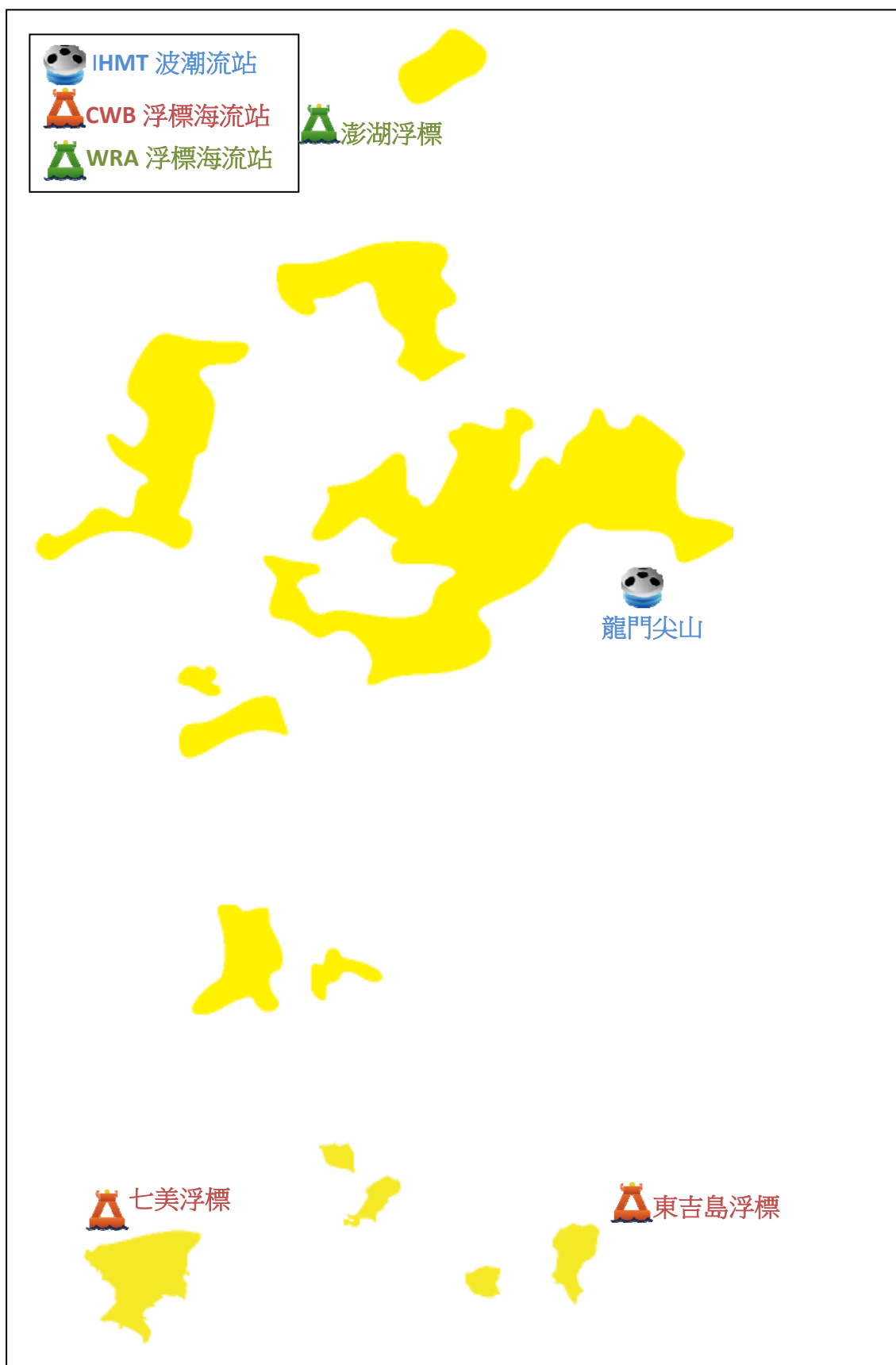


圖 4 澎湖海域海流觀測站位置示意圖

表 4.1a 2015 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				
2014/12 月	741 (99.6%)	641 (86.2%)	739 (99.3%)	*	*	*	*	*
2015/ 1 月	744 (100%)	400 (53.8%)	744 (100%)	*	*	*	*	*
2015/ 2 月	672 (100%)	175 (26.0%)	513 (76.3%)	*	*	*	*	*
2015/ 3 月	428 (57.5%)	583 (78.4%)	609 (81.9%)	*	*	*	*	*
2015/ 4 月	223 (31.0%)	542 (75.3%)	529 (73.5%)	*	*	*	*	*
2015/ 5 月	744 (100%)	590 (79.3%)	721 (96.9%)	*	*	*	*	*
2015/ 6 月	720 (100%)	645 (89.6%)	64 (8.9%)	*	*	*	*	*
2015/ 7 月	594 (79.8%)	564 (75.8%)	*	58 (7.8%)	*	*	*	*
2015/ 8 月	738 (99.2%)	549 (73.8%)	559 (75.1%)	110 (14.8%)	*	*	*	*
2015/ 9 月	720 (100%)	582 (80.8%)	720 (100%)	272 (37.8%)	*	*	*	*
2015/10 月	191 (25.7%)	573 (77.0%)	716 (96.2%)	234 (31.5%)	*	*	*	*
2015/11 月	*	101 (14.0%)	720 (100%)	527 (73.2%)	*	*	*	*
2015/冬季	2157 (99.9%)	1216 (56.3%)	1997 (92.5%)	*	*	*	*	*
2015/春季	1395 (63.2%)	1715 (77.7%)	1861 (84.3%)	*	*	*	*	*
2015/夏季	2052 (92.9%)	1758 (79.6%)	623 (28.2%)	168 (7.6%)	*	*	*	*
2015/秋季	911 (41.7%)	1256 (57.5%)	2156 (98.7%)	1033 (47.3%)	*	*	*	*
2015/整年	6515 (74.4%)	5945 (67.9%)	6637 (75.8%)	1201 (13.7%)	*	*	*	*
起始年月	2014/12	2014/12	2014/12	2015/07	*	*	*	*
結束年月	2015/10	2015/11	2015/11	2015/11	*	*	*	*

ST-X: 港灣技術研究中心觀測 X 站流速資料

表 4.1b 2015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	
測站	X		Y		Z		R					
2014/12 月	744	(100%)	744	(100%)	744	(100%)	744	(100%)	*	*	*	*
2015/ 1 月	744	(100%)	744	(100%)	744	(100%)	744	(100%)	*	*	*	*
2015/ 2 月	672	(100%)	672	(100%)	672	(100%)	672	(100%)	*	*	*	*
2015/ 3 月	744	(100%)	744	(100%)	744	(100%)	744	(100%)	*	*	*	*
2015/ 4 月	720	(100%)	720	(100%)	720	(100%)	720	(100%)	*	*	*	*
2015/ 5 月	744	(100%)	744	(100%)	744	(100%)	744	(100%)	*	*	*	*
2015/ 6 月	720	(100%)	720	(100%)	720	(100%)	720	(100%)	*	*	*	*
2015/ 7 月	744	(100%)	744	(100%)	744	(100%)	744	(100%)	*	*	*	*
2015/ 8 月	744	(100%)	744	(100%)	744	(100%)	744	(100%)	*	*	*	*
2015/ 9 月	720	(100%)	720	(100%)	720	(100%)	720	(100%)	*	*	*	*
2015/10 月	744	(100%)	744	(100%)	744	(100%)	744	(100%)	*	*	*	*
2015/11 月	720	(100%)	720	(100%)	720	(100%)	720	(100%)	*	*	*	*
2015/冬季	*		*		*		*		*	*	*	*
2015/春季	*		*		*		*		*	*	*	*
2015/夏季	*		*		*		*		*	*	*	*
2015/秋季	*		*		*		*		*	*	*	*
2015/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 2015

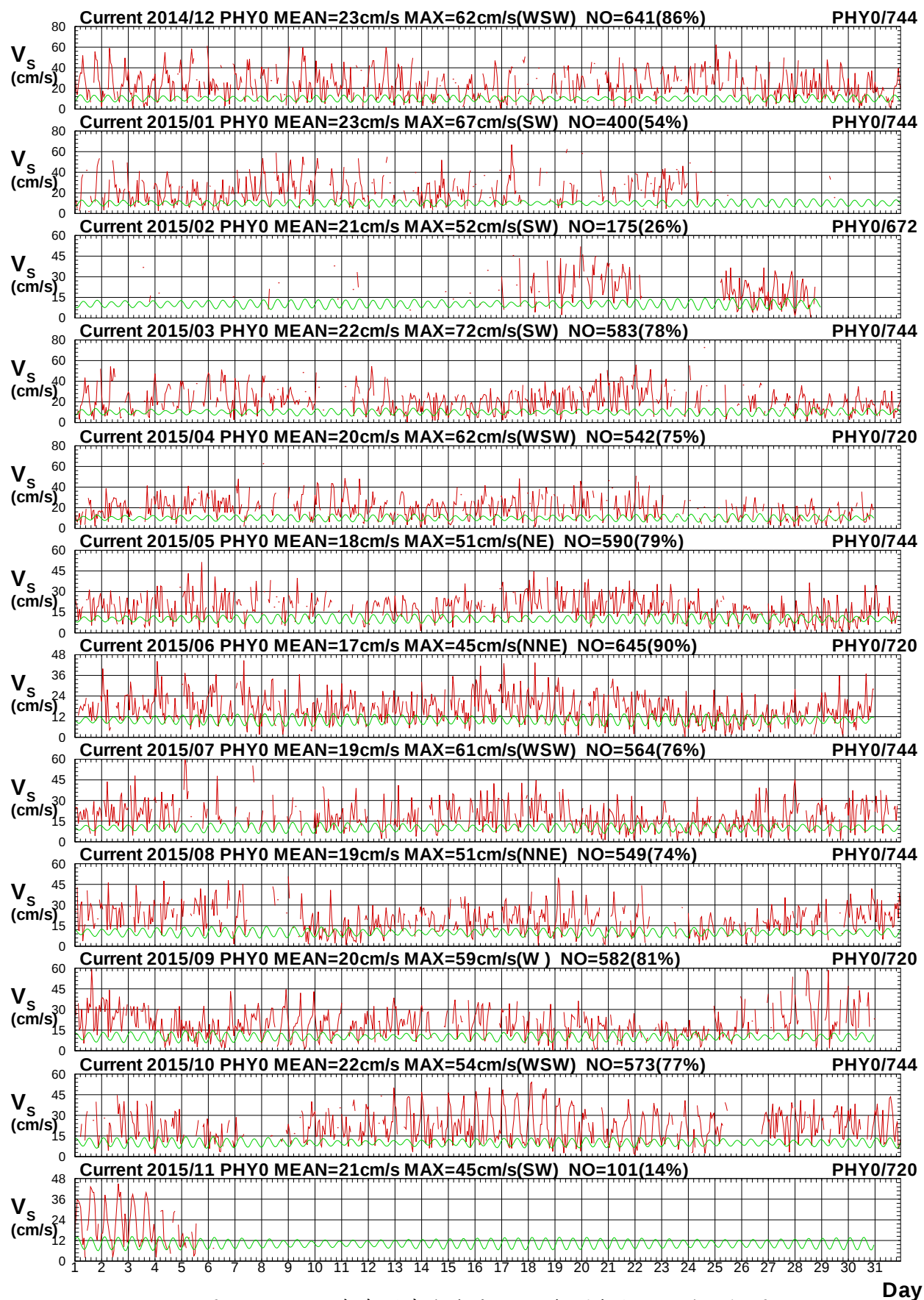


圖 4.1a 2015 年每月澎湖海域 Y 站觀測與潮流流速比較圖

C14CPHY0.1H0 C14CPHY0.1HD C151PHY0.1H0 C151PHY0.1HD C152PHY0.1H0 C152PHY0.1HD
C153PHY0.1H0 C153PHY0.1HD C154PHY0.1H0 C154PHY0.1HD C155PHY0.1H0 C155PHY0.1HD

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Current Direction in Peng-Hu Seas of PHY0 at 2015

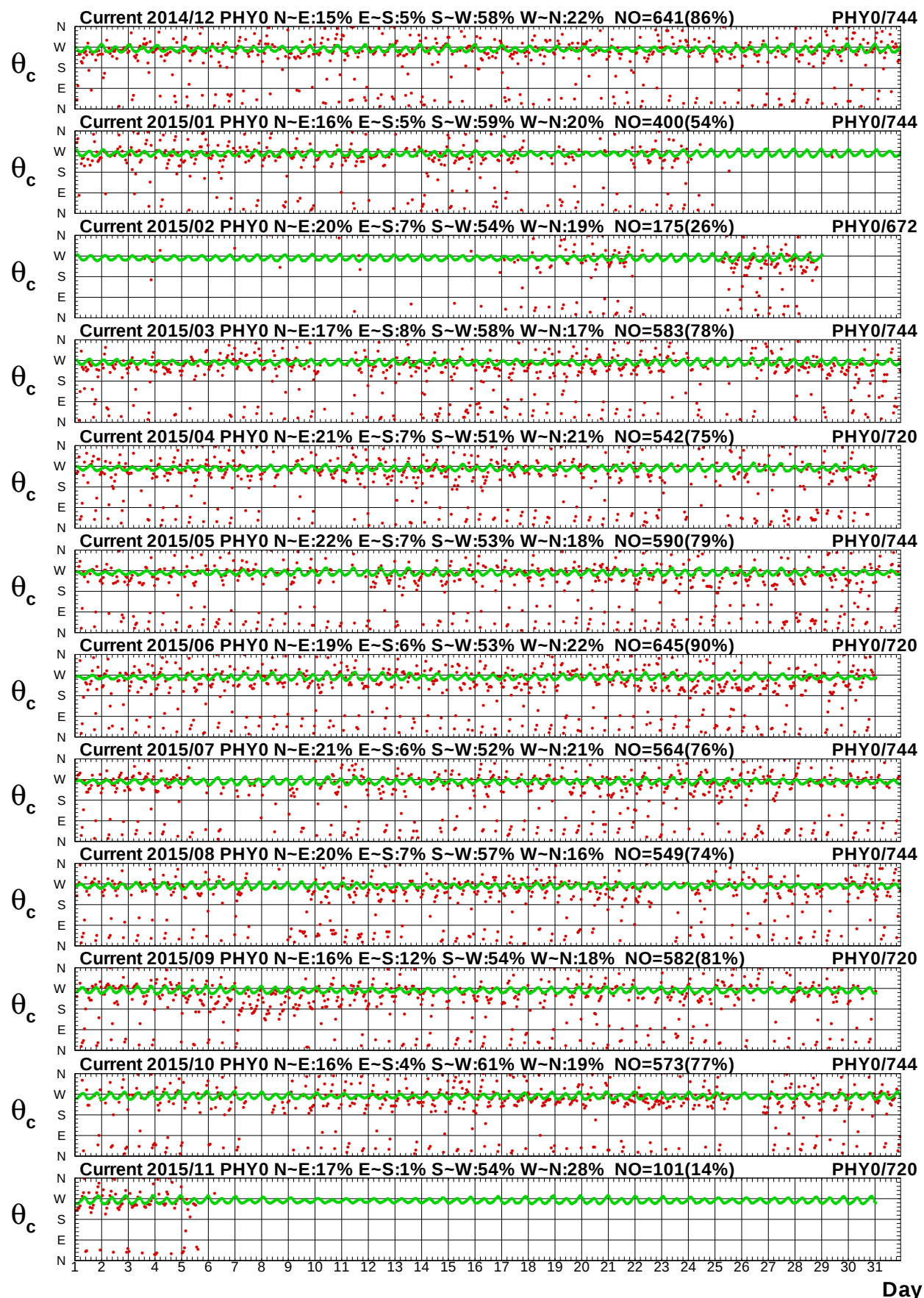


圖 4.1b 2015 年每月澎湖海域 Y 站觀測與潮流流向比較圖

C14CPHY0.1H0 C14CPHY0.1HD C151PHY0.1H0 C151PHY0.1HD C152PHY0.1H0 C152PHY0.1HD
C153PHY0.1H0 C153PHY0.1HD C154PHY0.1H0 C154PHY0.1HD C155PHY0.1H0 C155PHY0.1HD

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Current Speed in Peng-Hu Seas of PHY0 at 2015

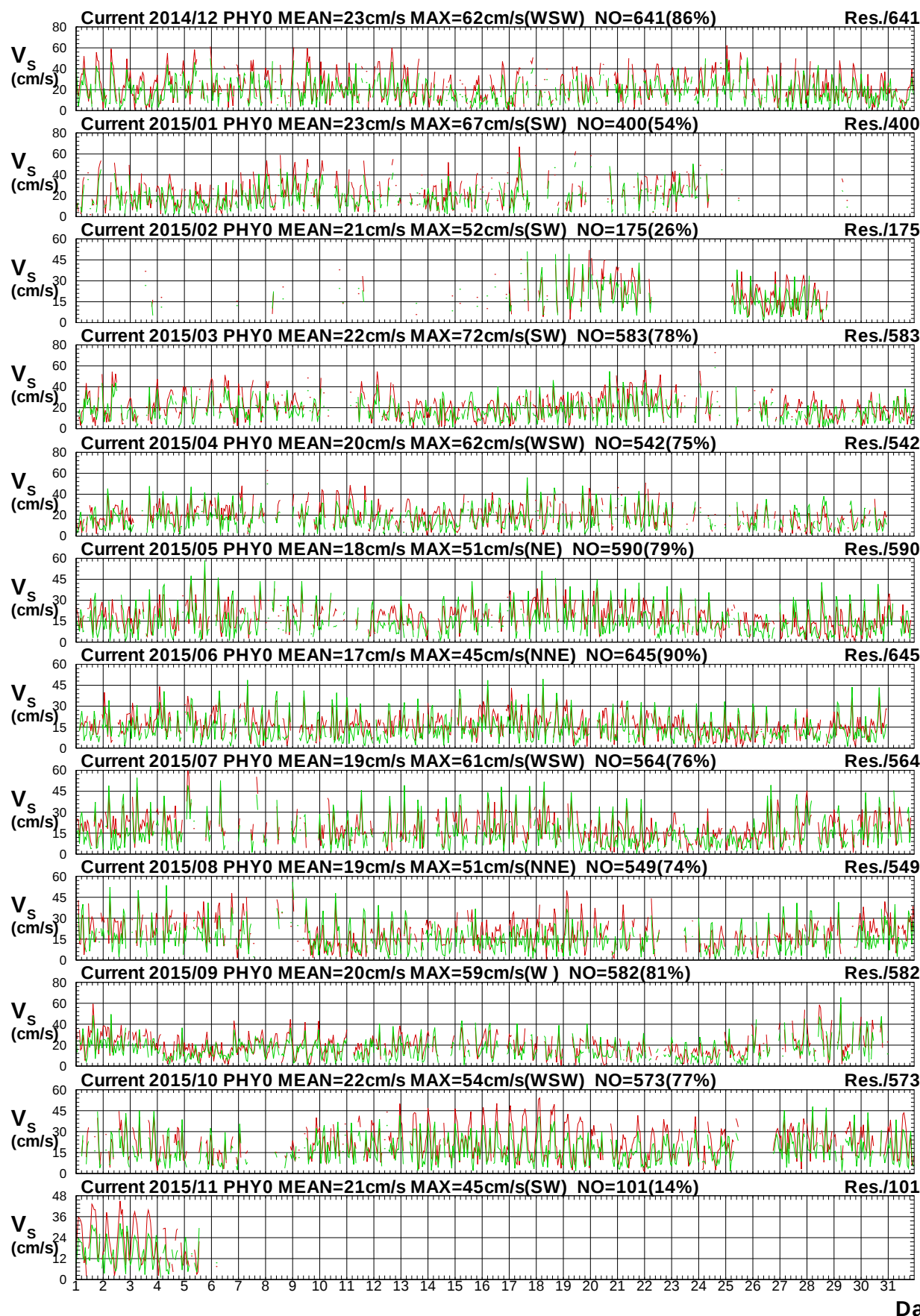


圖 4.2a 2015 年每月澎湖海域 Y 站觀測與非潮流速比較圖

C14CPHY0.1H0 C14CPHY0.1HR C151PHY0.1H0 C151PHY0.1HR C152PHY0.1H0 C152PHY0.1HR
C153PHY0.1H0 C153PHY0.1HR C154PHY0.1H0 C154PHY0.1HR C155PHY0.1H0 C155PHY0.1HR

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Current Direction in Peng-Hu Seas of PHY0 at 2015

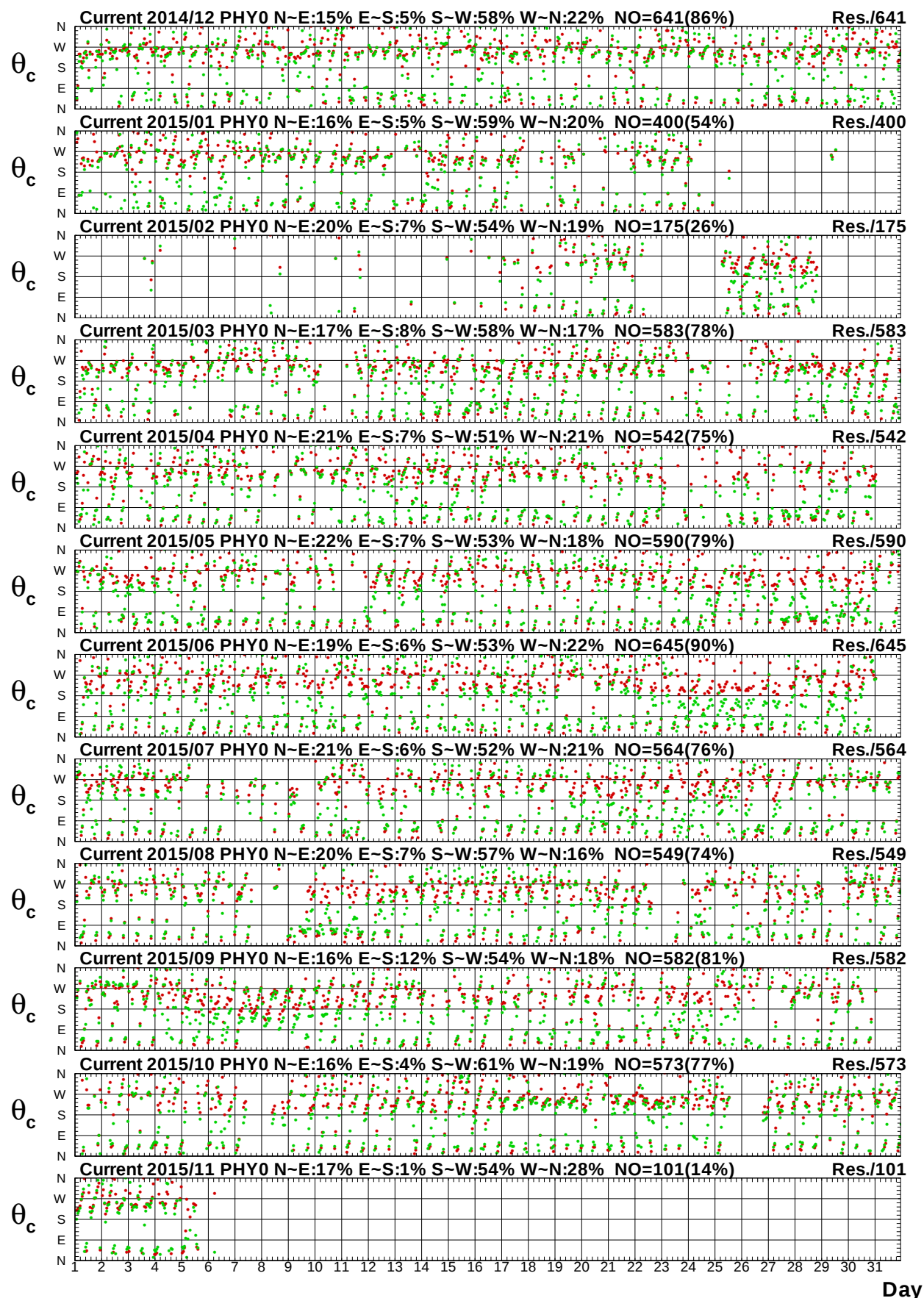


圖 4.2b 2015 年每月澎湖海域 Y 站觀測與非潮流向比較圖

C14CPHY0.1H0 C14CPHY0.1HR C151PHY0.1H0 C151PHY0.1HR C152PHY0.1H0 C152PHY0.1HR
C153PHY0.1H0 C153PHY0.1HR C154PHY0.1H0 C154PHY0.1HR C155PHY0.1H0 C155PHY0.1HR

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Current Speed in Peng-Hu Seas of PHX0 at 2015

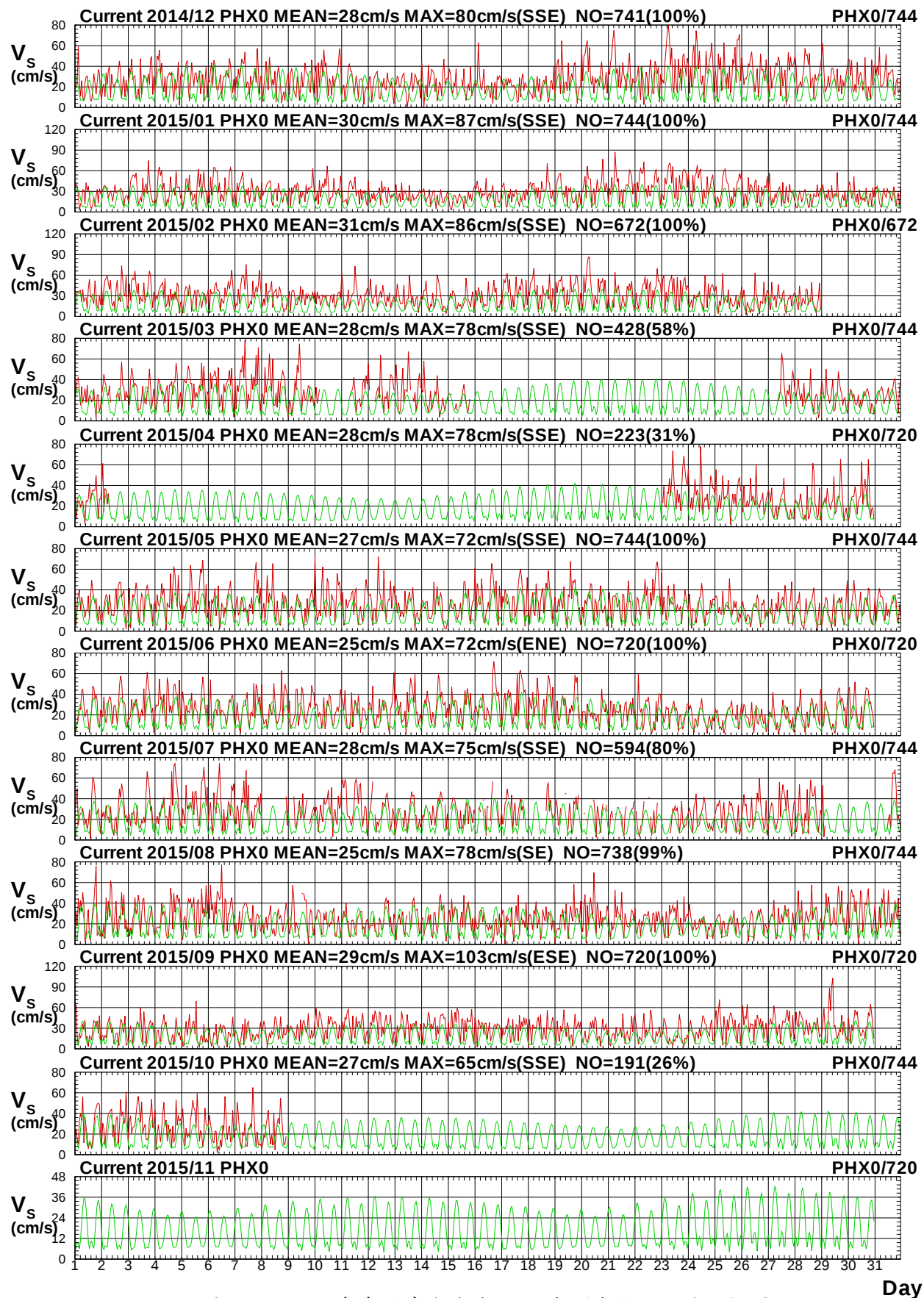


圖 4.3a 2015 年每月澎湖海域 X 站觀測與潮流流速比較圖

C14CPHX0.1H0 C14CPHX0.1HD C151PHX0.1H0 C151PHX0.1HD C152PHX0.1H0 C152PHX0.1HD
C153PHX0.1H0 C153PHX0.1HD C154PHX0.1H0 C154PHX0.1HD C155PHX0.1H0 C155PHX0.1HD

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Current Direction in Peng-Hu Seas of PHX0 at 2015

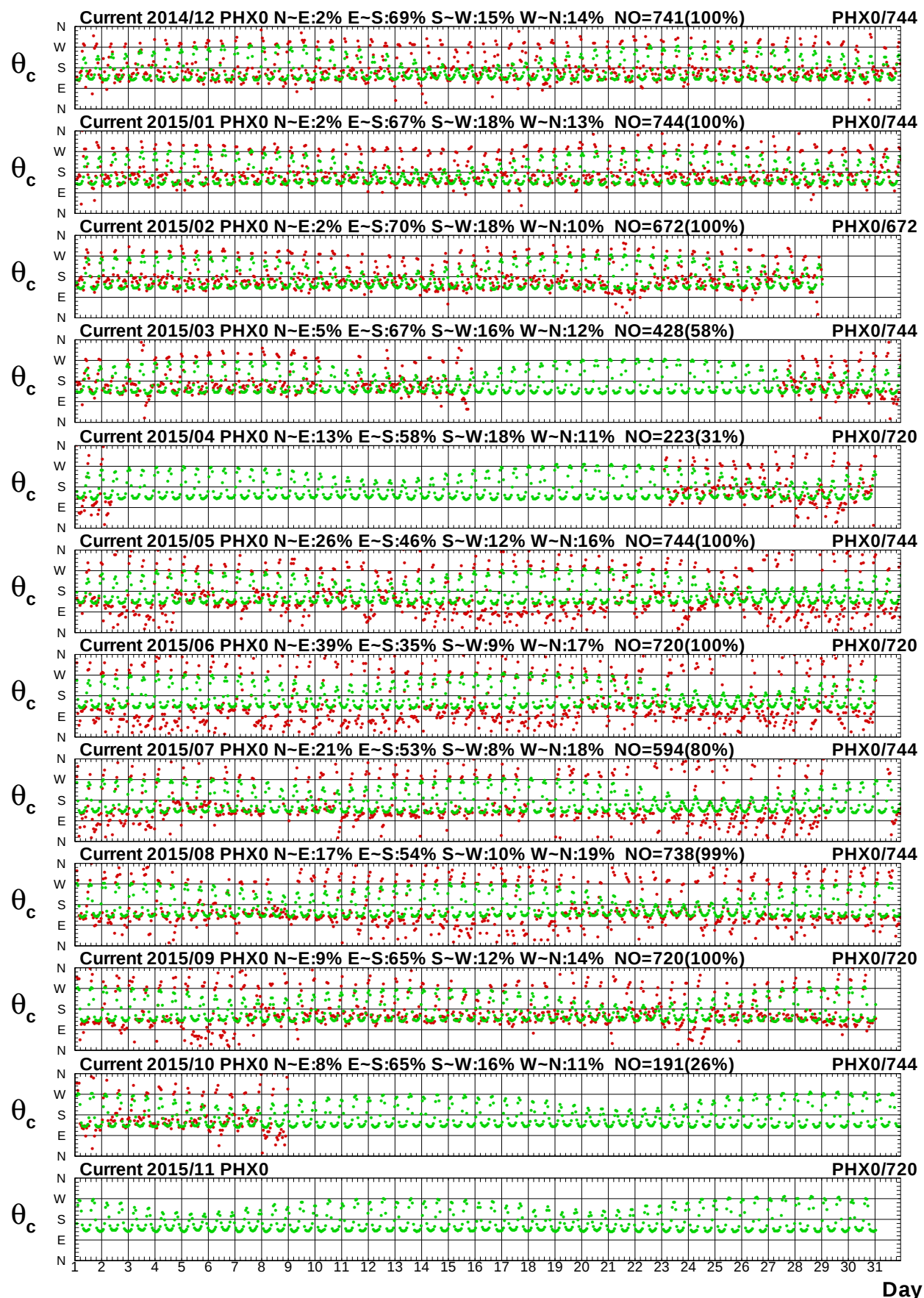


圖 4.3b 2015 年每月澎湖海域 X 站觀測與潮流流向比較圖

C14CPHX0.1H0 C14CPHX0.1HD C151PHX0.1H0 C151PHX0.1HD C152PHX0.1H0 C152PHX0.1HD
C153PHX0.1H0 C153PHX0.1HD C154PHX0.1H0 C154PHX0.1HD C155PHX0.1H0 C155PHX0.1HD

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Current Speed in Peng-Hu Seas of PHX0 at 2015

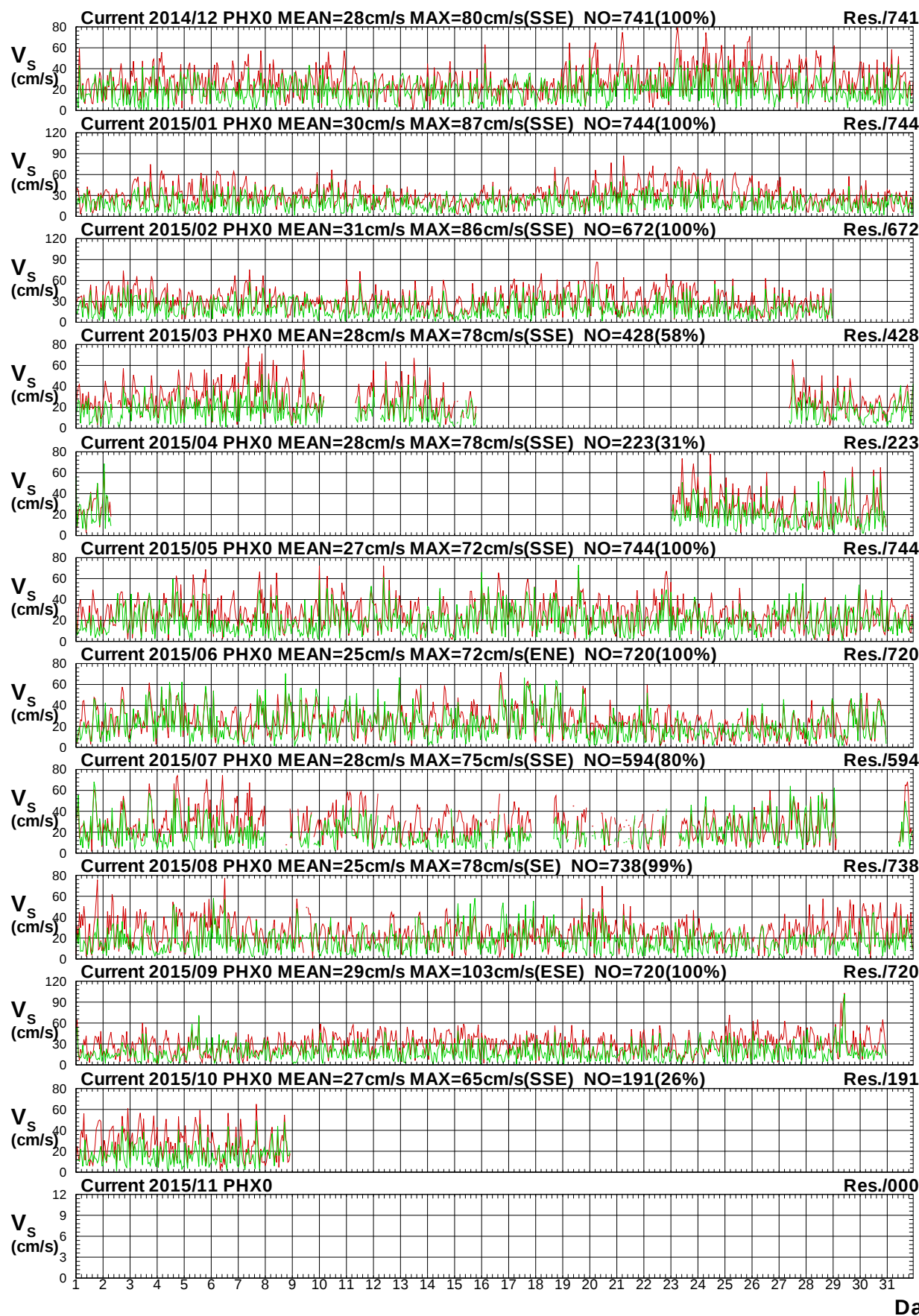


圖 4.4a 2015 年每月澎湖海域 X 站觀測與非潮流速比較圖

C14CPHX0.1H0 C14CPHX0.1HR C151PHX0.1H0 C151PHX0.1HR C152PHX0.1H0 C152PHX0.1HR
C153PHX0.1H0 C153PHX0.1HR C154PHX0.1H0 C154PHX0.1HR C155PHX0.1H0 C155PHX0.1HR

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Current Direction in Peng-Hu Seas of PHX0 at 2015

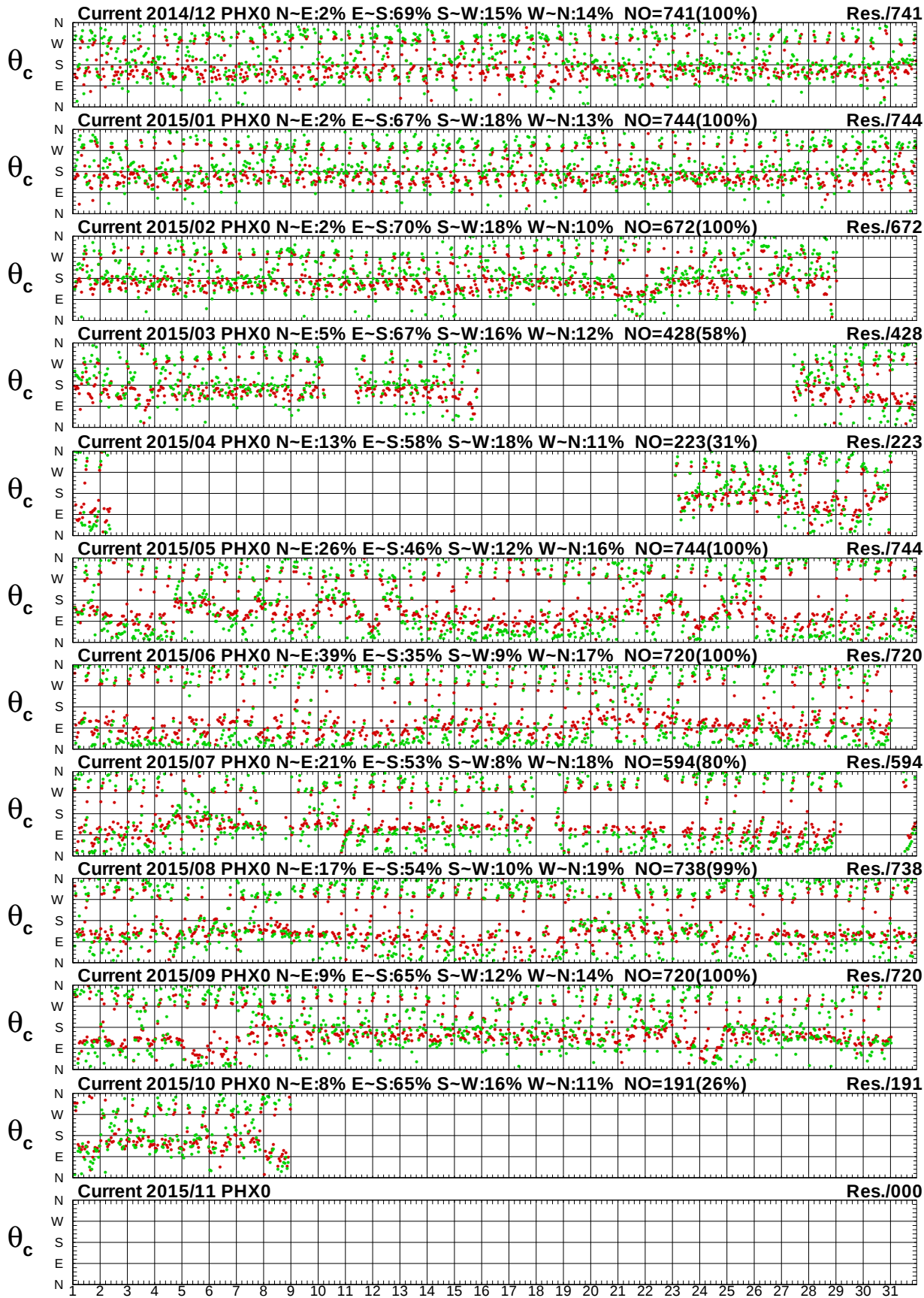


圖 4.4b 2015 年每月澎湖海域 X 站觀測與非潮流向比較圖

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C153PHX0.1H0 C153PHX0.1HR C154PHX0.1H0 C154PHX0.1HR C155PHX0.1H0 C155PHX0.1HR

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Current Speed in Peng-Hu Seas of PHZ0 at 2015

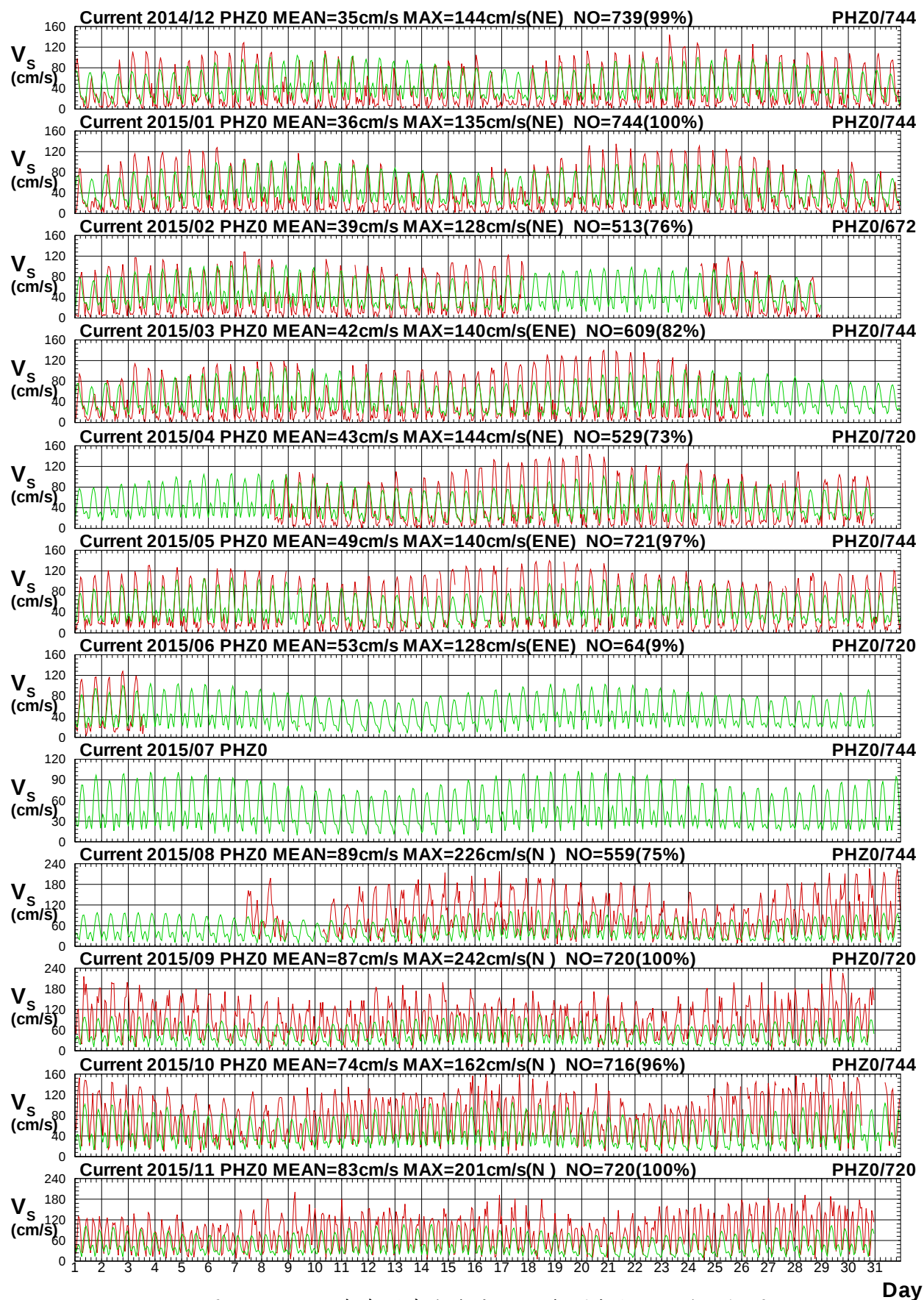


圖 4.5a 2015 年每月澎湖海域 Z 站觀測與潮流流速比較圖

C14CPHZ0.1H0 C14CPHZ0.1HD C151PHZ0.1H0 C151PHZ0.1HD C152PHZ0.1H0 C152PHZ0.1HD
C153PHZ0.1H0 C153PHZ0.1HD C154PHZ0.1H0 C154PHZ0.1HD C155PHZ0.1H0 C155PHZ0.1HD

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Current Direction in Peng-Hu Seas of PHZ0 at 2015

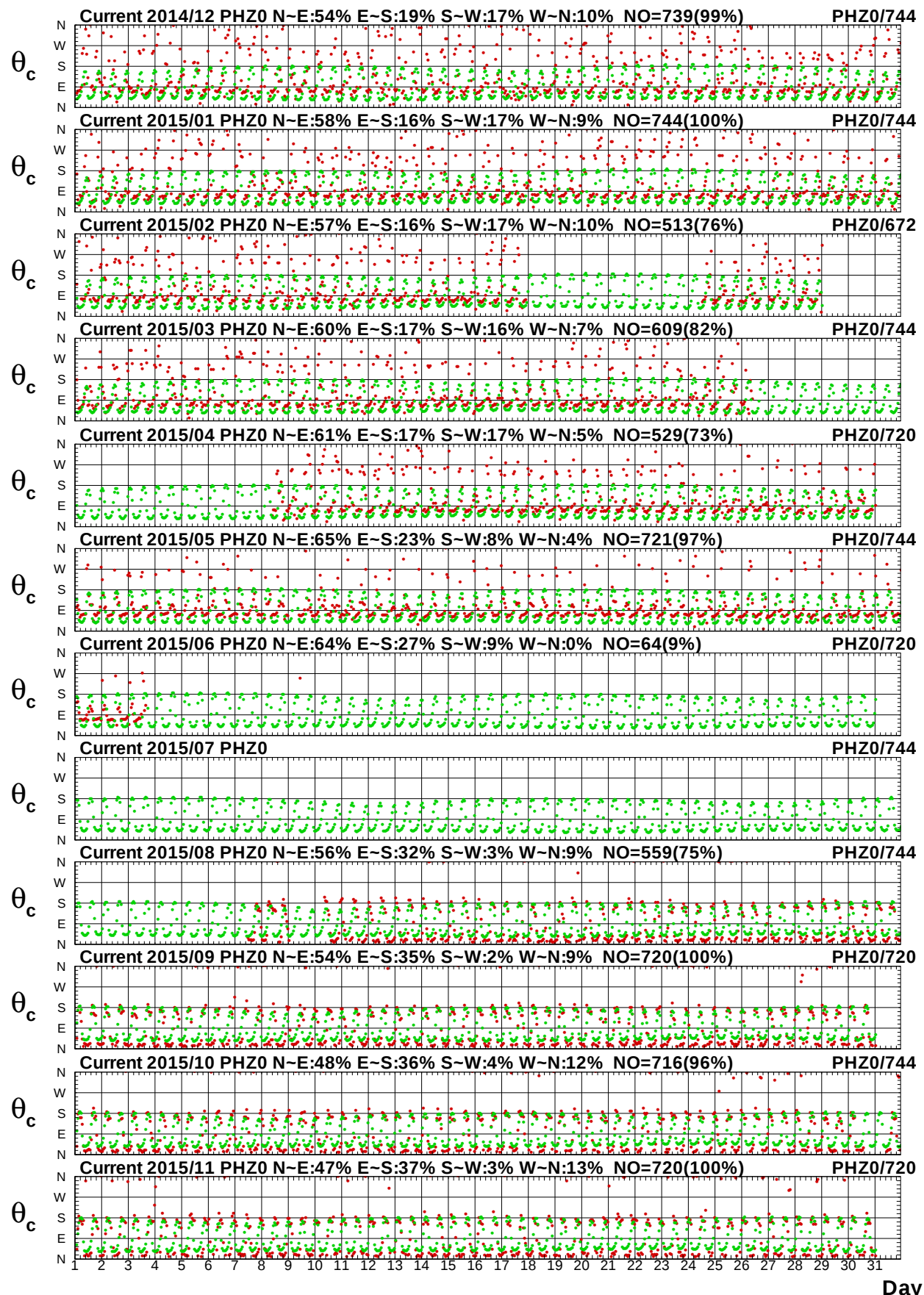


圖 4.5b 2015年每月澎湖海域 Z 站觀測與潮流流向比較圖

C14CPHZ0.1H0 C14CPHZ0.1HD C151PHZ0.1H0 C151PHZ0.1HD C152PHZ0.1H0 C152PHZ0.1HD
C153PHZ0.1H0 C153PHZ0.1HD C154PHZ0.1H0 C154PHZ0.1HD C155PHZ0.1H0 C155PHZ0.1HD

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Current Speed in Peng-Hu Seas of PHZ0 at 2015

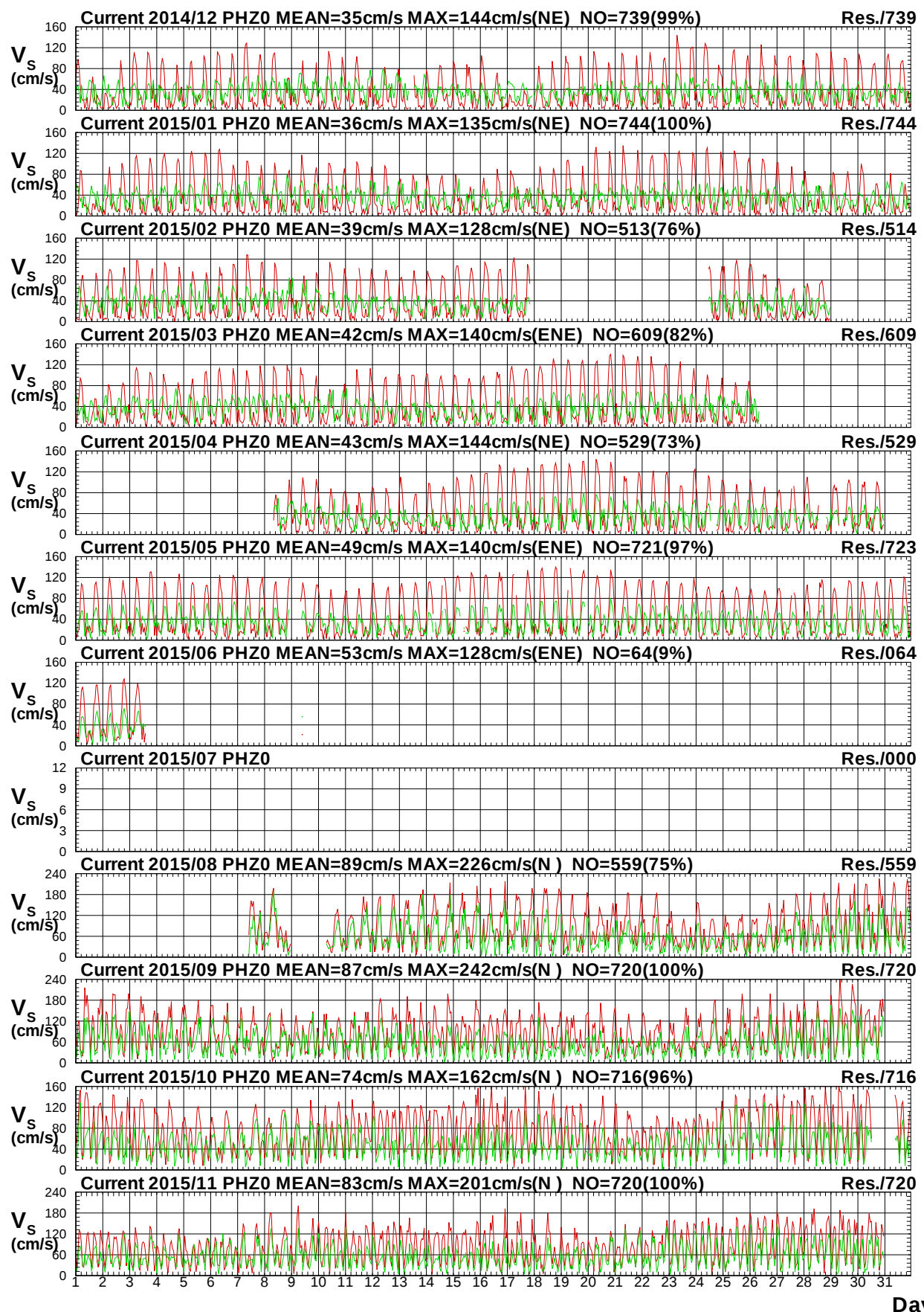


圖 4.6a 2015 年每月澎湖海域 Z 站觀測與非潮流速比較圖

C14CPHZ0.1H0 C14CPHZ0.1HR C151PHZ0.1H0 C151PHZ0.1HR C152PHZ0.1H0 C152PHZ0.1HR
C153PHZ0.1H0 C153PHZ0.1HR C154PHZ0.1H0 C154PHZ0.1HR C155PHZ0.1H0 C155PHZ0.1HR

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Current Direction in Peng-Hu Seas of PHZ0 at 2015

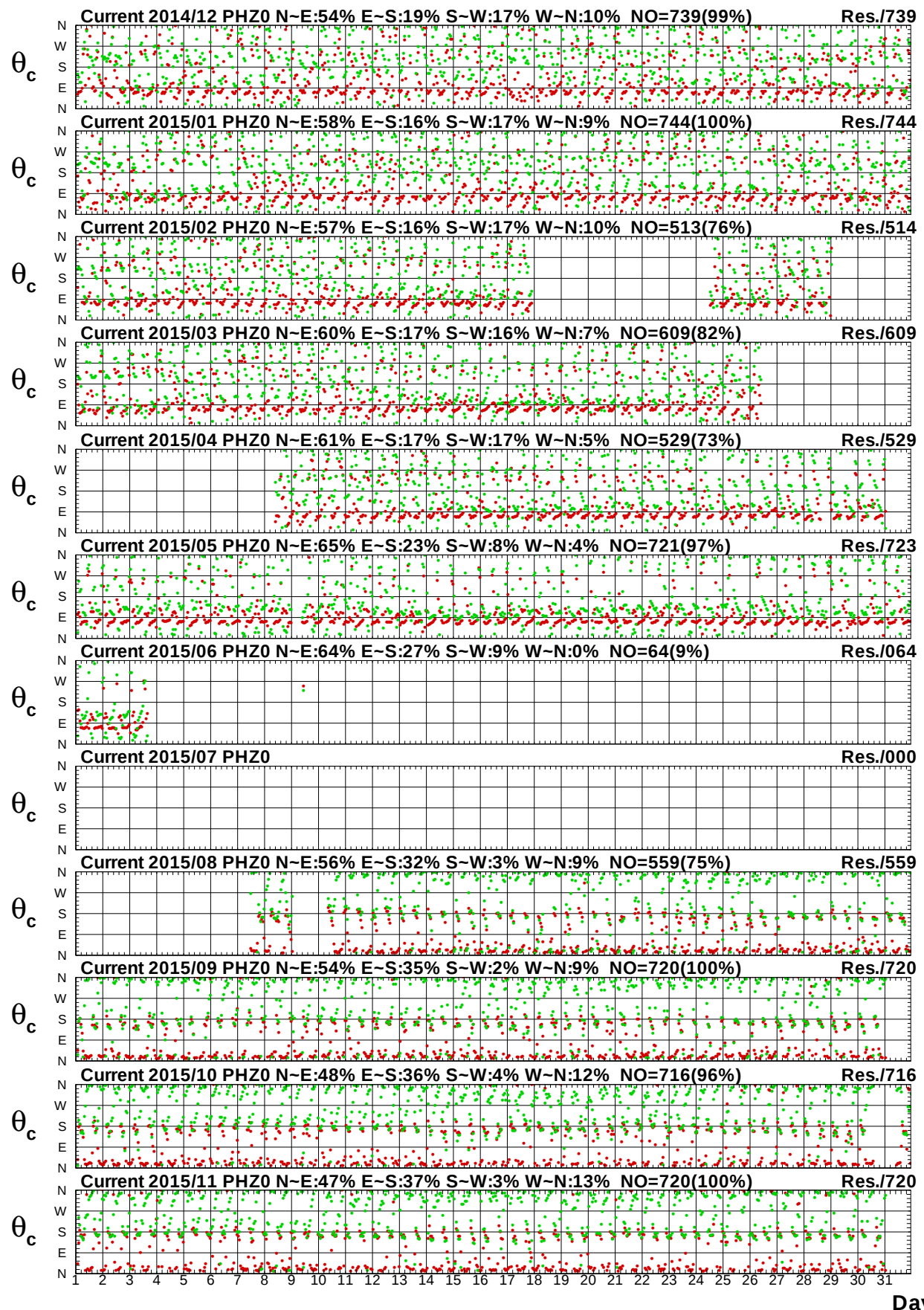


圖 4.6b 2015 年每月澎湖海域 Z 站觀測與非潮流向比較圖

C14CPHZ0.1H0 C14CPHZ0.1HR C151PHZ0.1H0 C151PHZ0.1HR C152PHZ0.1H0 C152PHZ0.1HR
C153PHZ0.1H0 C153PHZ0.1HR C154PHZ0.1H0 C154PHZ0.1HR C155PHZ0.1H0 C155PHZ0.1HR

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Current Speed in Peng-Hu Seas of PHY0 at 2015

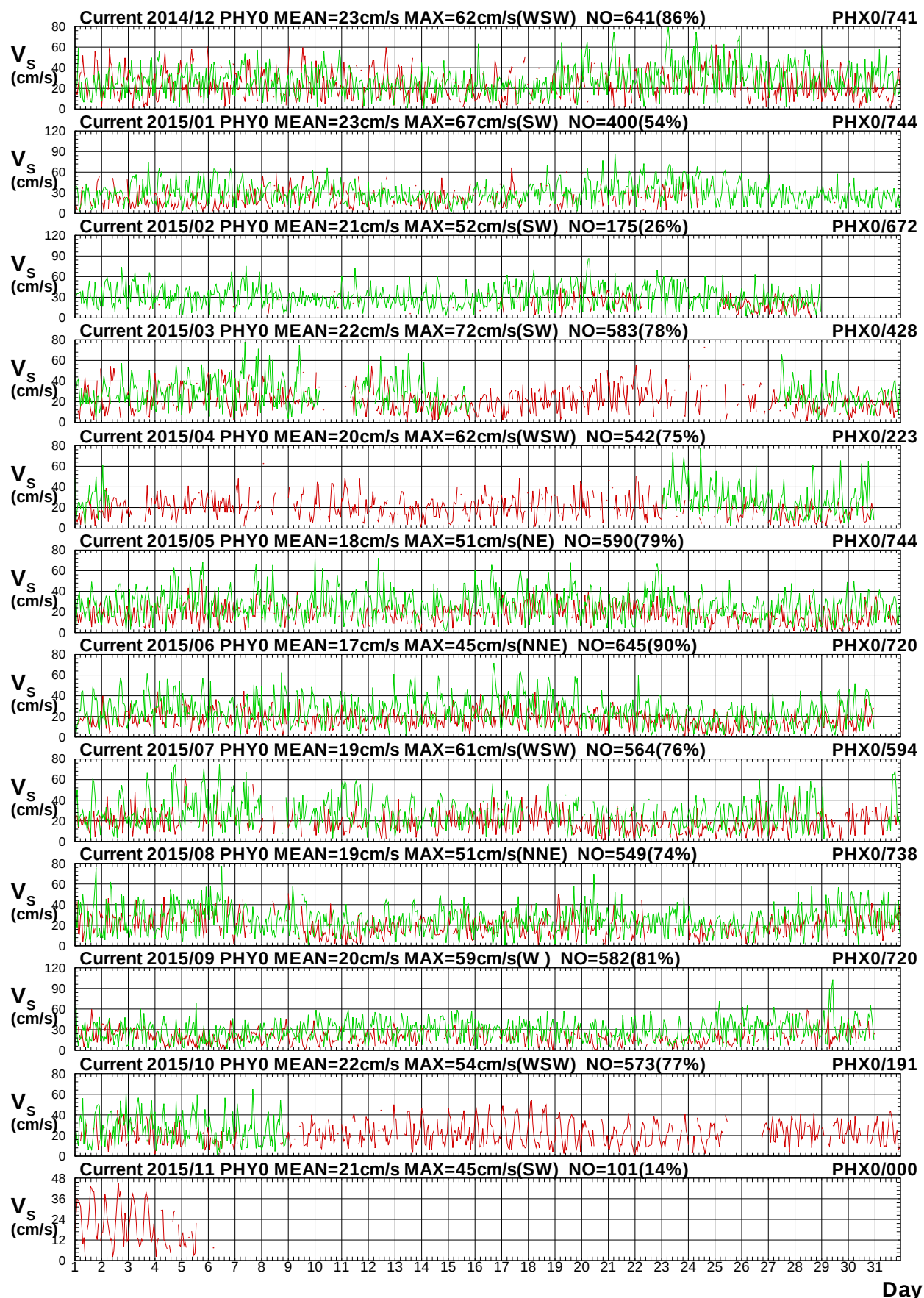


圖 4.7a 2015年每月澎湖海域 Y 站與 X 站流速比較圖

C14CPHY0.1H0 C14CPHX0.1H0 C151PHY0.1H0 C151PHX0.1H0 C152PHY0.1H0 C152PHX0.1H0
C153PHY0.1H0 C153PHX0.1H0 C154PHY0.1H0 C154PHX0.1H0 C155PHY0.1H0 C155PHX0.1H0

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Current Direction in Peng-Hu Seas of PHY0 at 2015

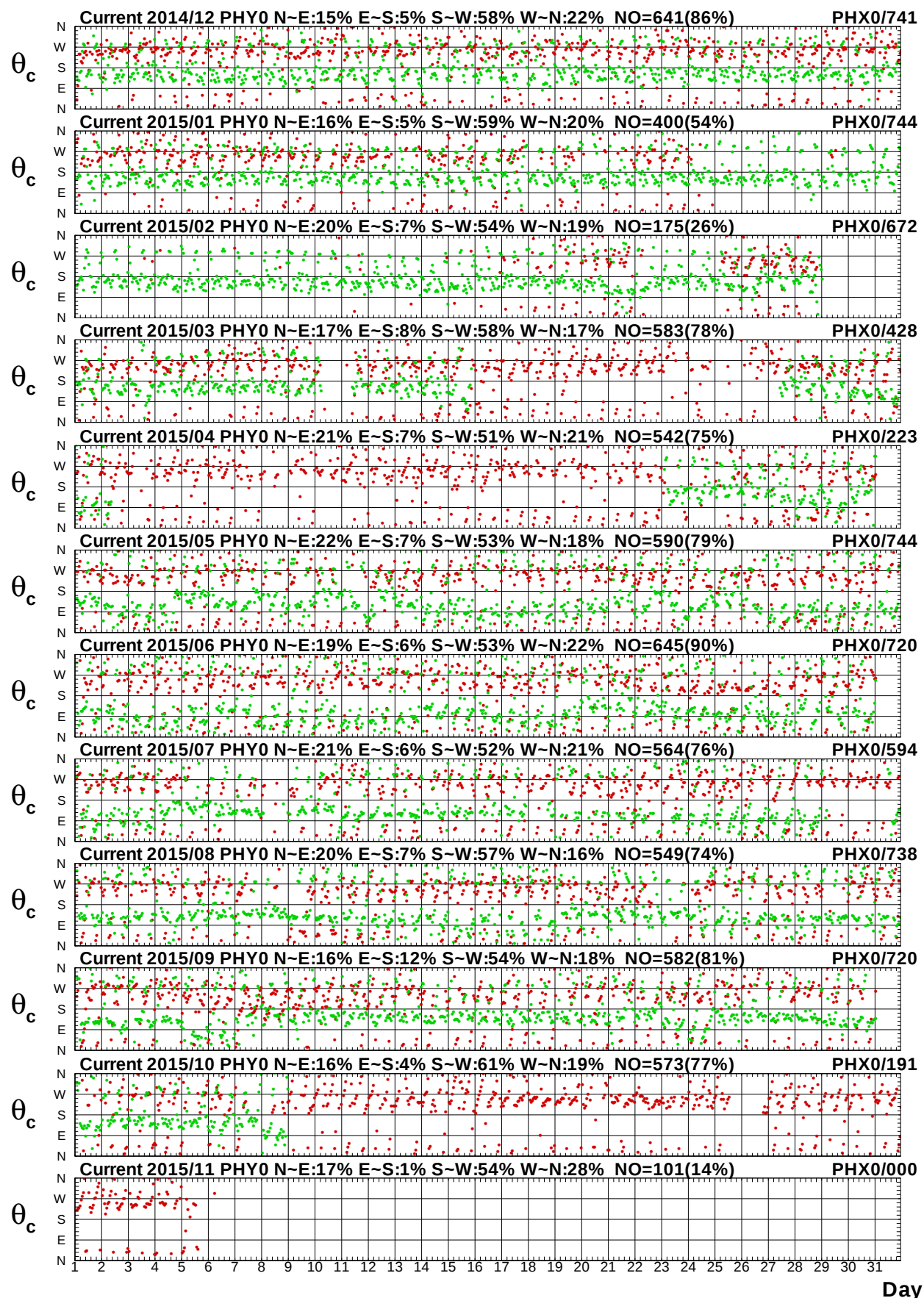


圖 4.7b 2015年每月澎湖海域 Y 站與 X 站流向比較圖

C14CPHY0.1H0 C14CPHX0.1H0 C151PHY0.1H0 C151PHX0.1H0 C152PHY0.1H0 C152PHX0.1H0
C153PHY0.1H0 C153PHX0.1H0 C154PHY0.1H0 C154PHX0.1H0 C155PHY0.1H0 C155PHX0.1H0

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Current Speed in Peng-Hu Seas of PHY0 at 2015

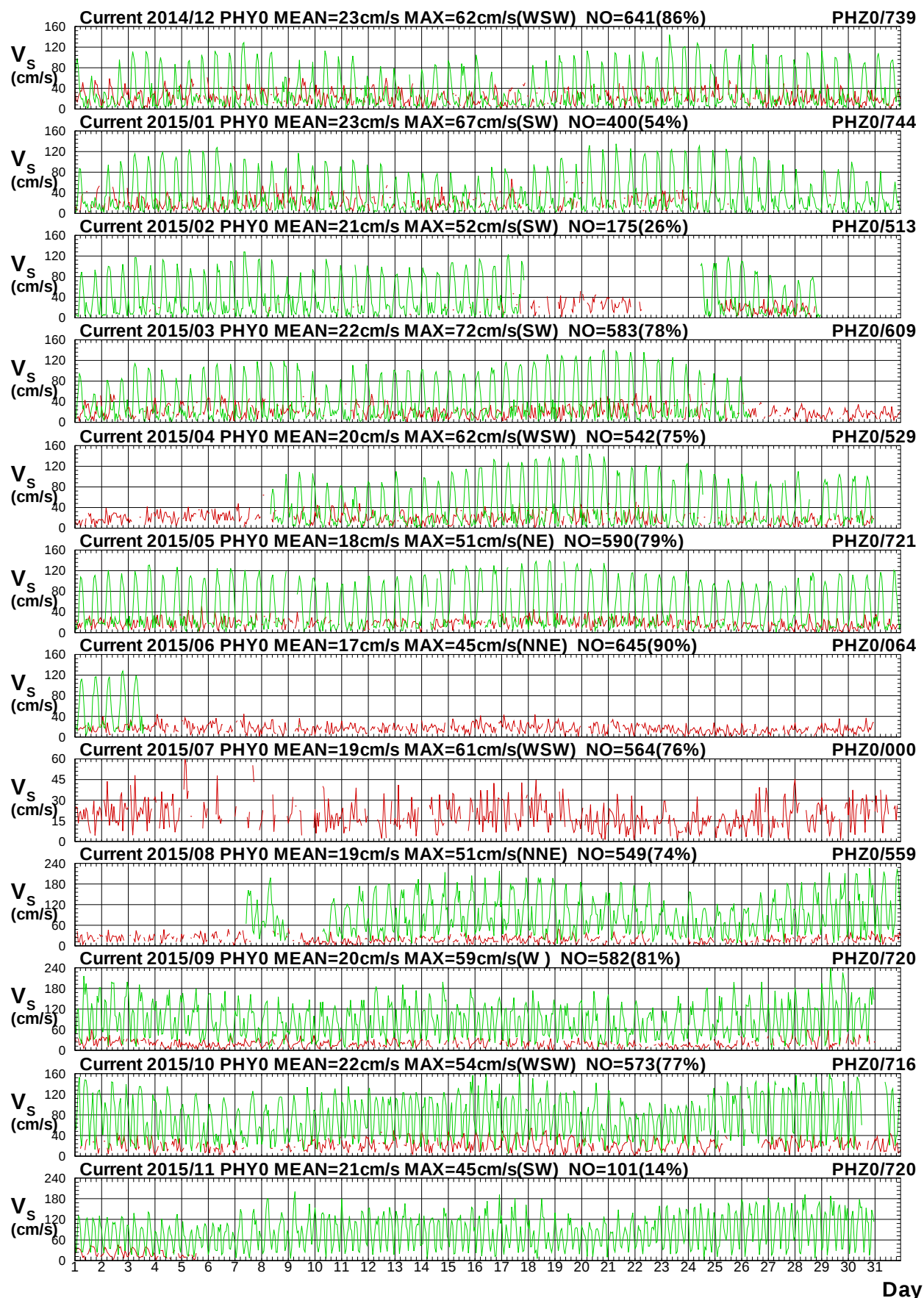


圖 4.8a 2015年每月澎湖海域 Y 站與 Z 站流速比較圖

C14CPHY0.1H0 C14CPHZ0.1H0 C151PHY0.1H0 C151PHZ0.1H0 C152PHY0.1H0 C152PHZ0.1H0
C153PHY0.1H0 C153PHZ0.1H0 C154PHY0.1H0 C154PHZ0.1H0 C155PHY0.1H0 C155PHZ0.1H0

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Current Direction in Peng-Hu Seas of PHY0 at 2015

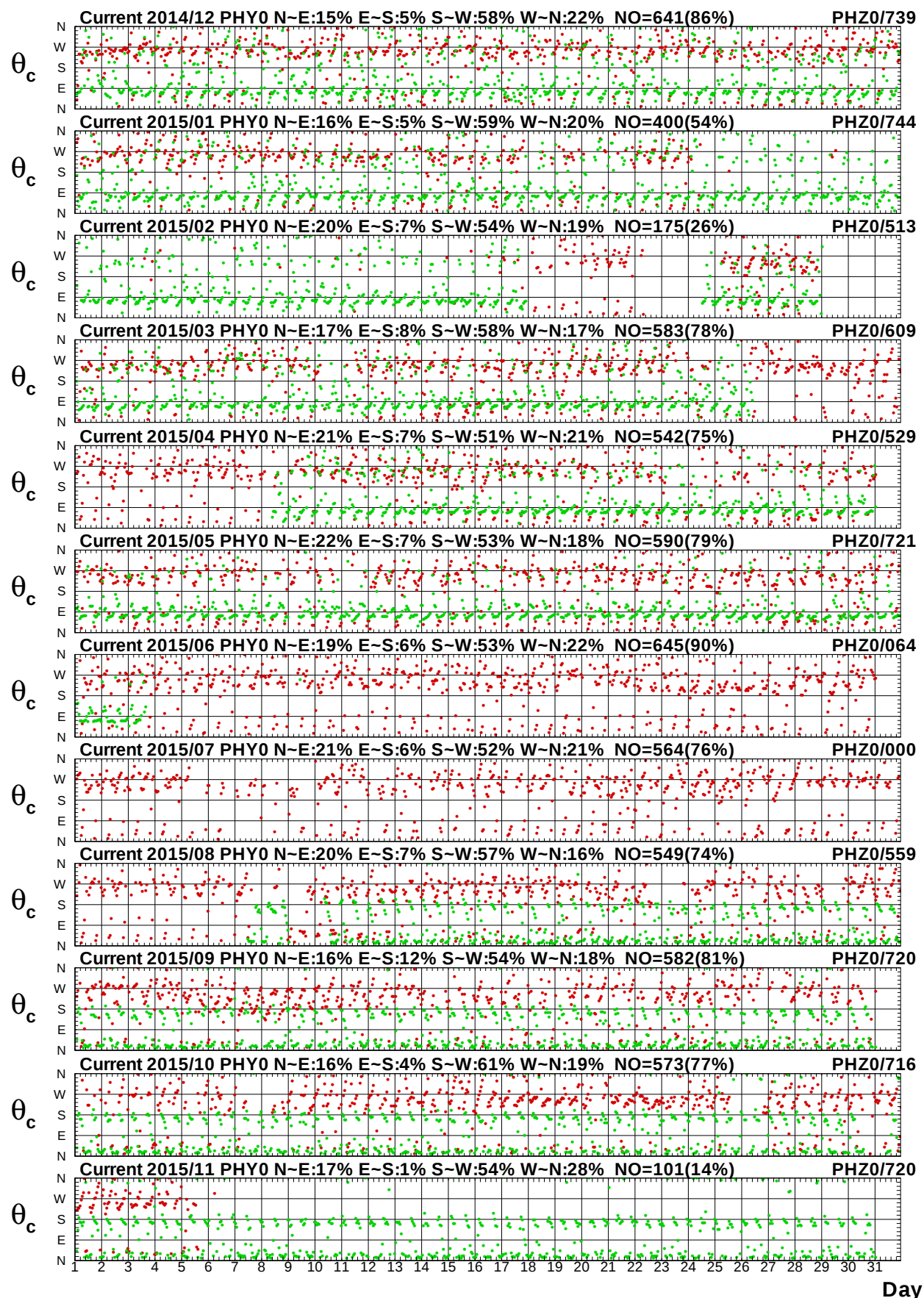


圖 4.8b 2015年每月澎湖海域 Y 站與 Z 站流向比較圖

C14CPHY0.1H0 C14CPHZ0.1H0 C151PHY0.1H0 C151PHZ0.1H0 C152PHY0.1H0 C152PHZ0.1H0
C153PHY0.1H0 C153PHZ0.1H0 C154PHY0.1H0 C154PHZ0.1H0 C155PHY0.1H0 C155PHZ0.1H0

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