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2016 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2016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: <p style="text-align: center;">This Annual report 2016 of Harbor Environment Information Website(HEIV) covers the observation data of winds, waves, tides and currents near Peng-Hu offshore 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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2016 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)

目 錄

中文摘要.....	I
英文摘要.....	II
目錄.....	III
誌謝.....	V
第一章 2016 年澎湖海域觀測風力資料	1-1
第二章 2016 年澎湖海域觀測波浪資料	2-1
第三章 2016 年澎湖海域觀測潮汐資料	3-1
第四章 2016 年澎湖海域觀測海流資料	4-1

誌 謝

2016 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。

2016 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。

2016 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。

2016 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 2016 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，2016 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，2016 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 2016 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	2009/12-2016/11(觀測中)	港研中心	馬公港區
B	23°33'30"N	119°40'5.5"E	2009/12-2016/11(觀測中)	港研中心	龍門尖山港區
E	23°34'02"N	119°33'19"E	2001/01-2016/11(觀測中)	中央氣象局	馬公港區
Y	23°43'37"N	119°33'07"E	2006/09-2016/11(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	2015/07-2016/11(觀測中)	中央氣象局	七美資料浮標
I	23°34'02"N	119°33'19"E	2014/08-2016/11(觀測中)	中央氣象局	東吉島

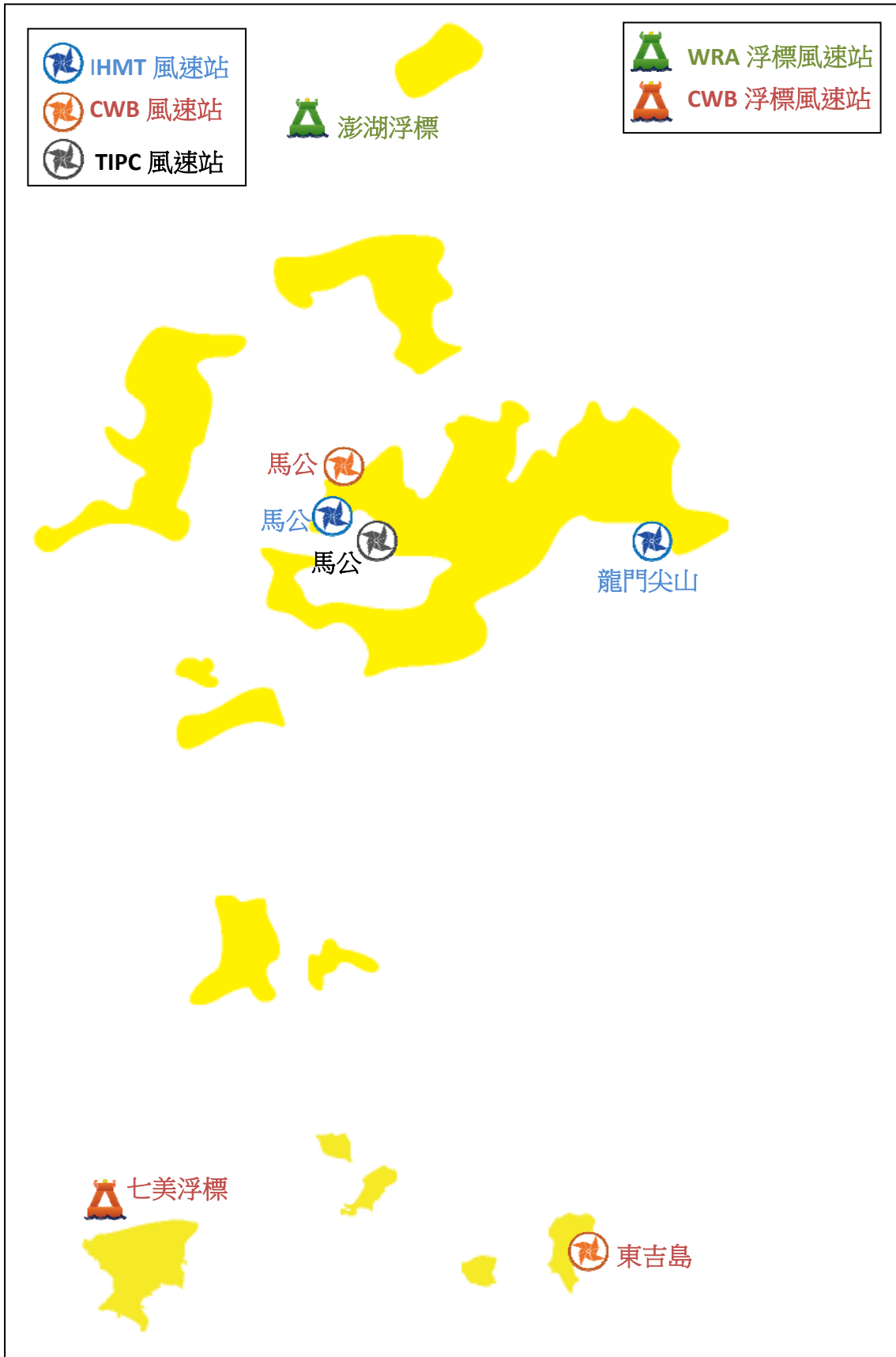


圖 1 澎湖海域風力觀測站位置示意圖

表 1.1a 2016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	
2015/12月	743 (99.9%)	699 (94.0%)	744 (100%)	726 (97.6%)	744 (100%)	*	744 (100%)	*
2016/ 1月	545 (73.3%)	714 (96.0%)	744 (100%)	729 (98.0%)	743 (99.9%)	*	743 (99.9%)	*
2016/ 2月	690 (99.1%)	679 (97.6%)	629 (90.4%)	464 (66.7%)	696 (100%)	*	696 (100%)	*
2016/ 3月	729 (98.0%)	728 (97.8%)	698 (93.8%)	*	744 (100%)	*	744 (100%)	*
2016/ 4月	717 (99.6%)	709 (98.5%)	720 (100%)	*	720 (100%)	*	720 (100%)	*
2016/ 5月	732 (98.4%)	726 (97.6%)	730 (98.1%)	*	744 (100%)	*	744 (100%)	*
2016/ 6月	527 (73.2%)	720 (100%)	502 (69.7%)	*	720 (100%)	*	720 (100%)	*
2016/ 7月	378 (50.8%)	714 (96.0%)	744 (100%)	315 (42.3%)	744 (100%)	*	744 (100%)	*
2016/ 8月	743 (99.9%)	740 (99.5%)	744 (100%)	744 (100%)	744 (100%)	*	744 (100%)	*
2016/ 9月	720 (100%)	633 (87.9%)	720 (100%)	720 (100%)	720 (100%)	*	720 (100%)	*
2016/10月	734 (98.7%)	109 (14.7%)	244 (32.8%)	682 (91.7%)	744 (100%)	*	744 (100%)	*
2016/11月	715 (99.3%)	707 (98.2%)	*	636 (88.3%)	720 (100%)	*	720 (100%)	*
2016/冬季	*	*	*	*	*	*	*	*
2016/春季	*	*	*	*	*	*	*	*
2016/夏季	*	*	*	*	*	*	*	*
2016/秋季	*	*	*	*	*	*	*	*
2016/整年	*	*	*	*	*	*	*	*
起始年月	*	*	*	*	*	*	*	*
結束年月	*	*	*	*	*	*	*	*

表 1.1b 2016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	
2015/12月	*	744 (100%)	*	*	*	*	*	*
2016/ 1月	*	744 (100%)	*	*	*	*	*	*
2016/ 2月	*	696 (100%)	*	*	*	*	*	*
2016/ 3月	*	744 (100%)	*	*	*	*	*	*
2016/ 4月	*	720 (100%)	*	*	*	*	*	*
2016/ 5月	*	744 (100%)	*	*	*	*	*	*
2016/ 6月	*	720 (100%)	*	*	*	*	*	*
2016/ 7月	*	744 (100%)	*	*	*	*	*	*
2016/ 8月	*	744 (100%)	*	*	*	*	*	*
2016/ 9月	*	720 (100%)	*	*	*	*	*	*
2016/10月	*	744 (100%)	*	*	*	*	*	*
2016/11月	*	720 (100%)	*	*	*	*	*	*
2016/冬季	*	*	*	*	*	*	*	*
2016/春季	*	*	*	*	*	*	*	*
2016/夏季	*	*	*	*	*	*	*	*
2016/秋季	*	*	*	*	*	*	*	*
2016/整年	*	*	*	*	*	*	*	*
起始年月	*	*	*	*	*	*	*	*
結束年月	*	*	*	*	*	*	*	*

Wind Speed in Peng-Hu Seas of PHY0 at 2016

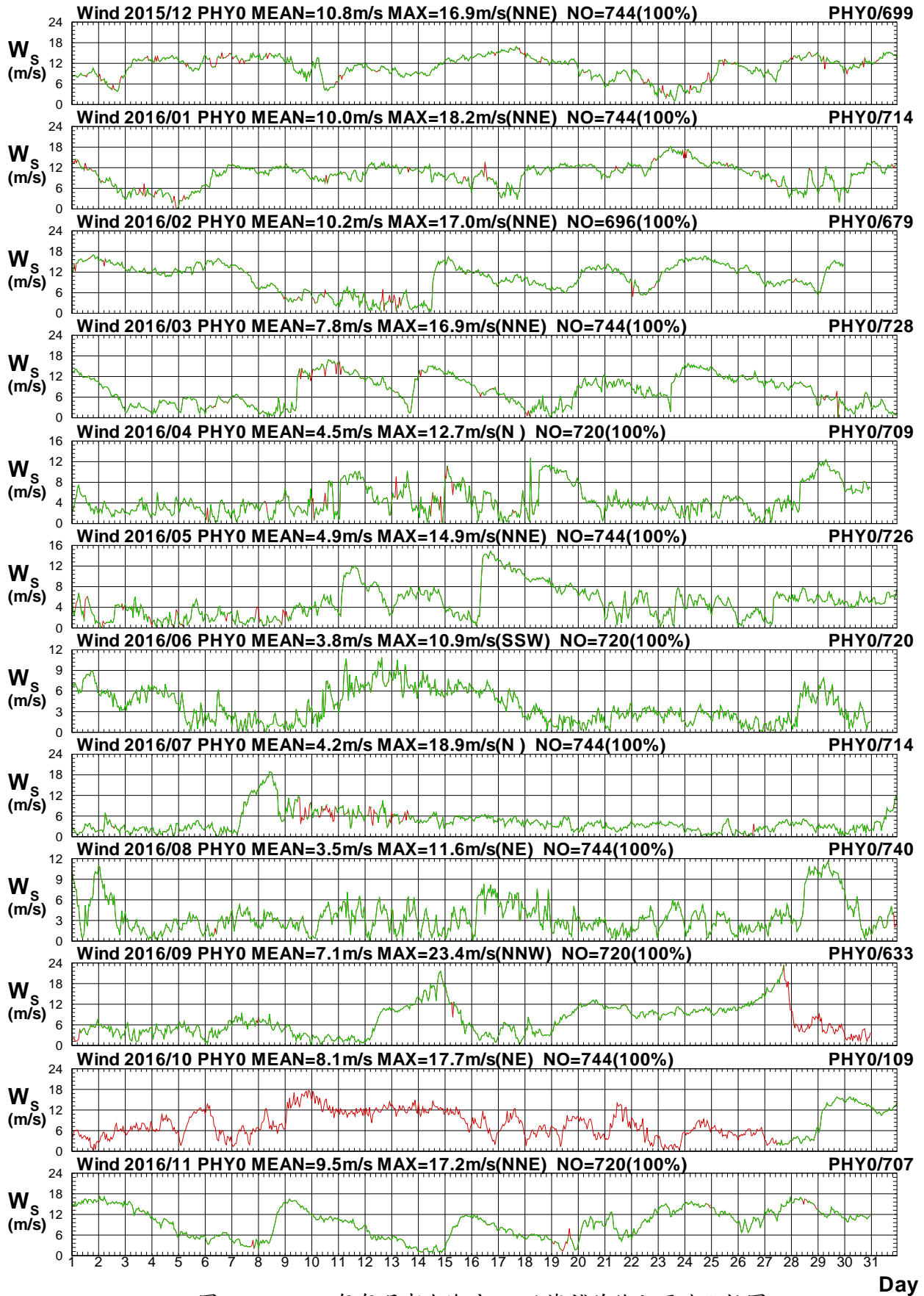


圖 1.1a 2016年每月澎湖海域 Y 站修補前後之風速比較圖

W15CPHY0.1HA W15CPHY0.1HO W161PHY0.1HA W161PHY0.1HO W162PHY0.1HA W162PHY0.1HO
W163PHY0.1HA W163PHY0.1HO W164PHY0.1HA W164PHY0.1HO W165PHY0.1HA W165PHY0.1HO

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Wind Direction in Peng-Hu Seas of PHY0 at 2016

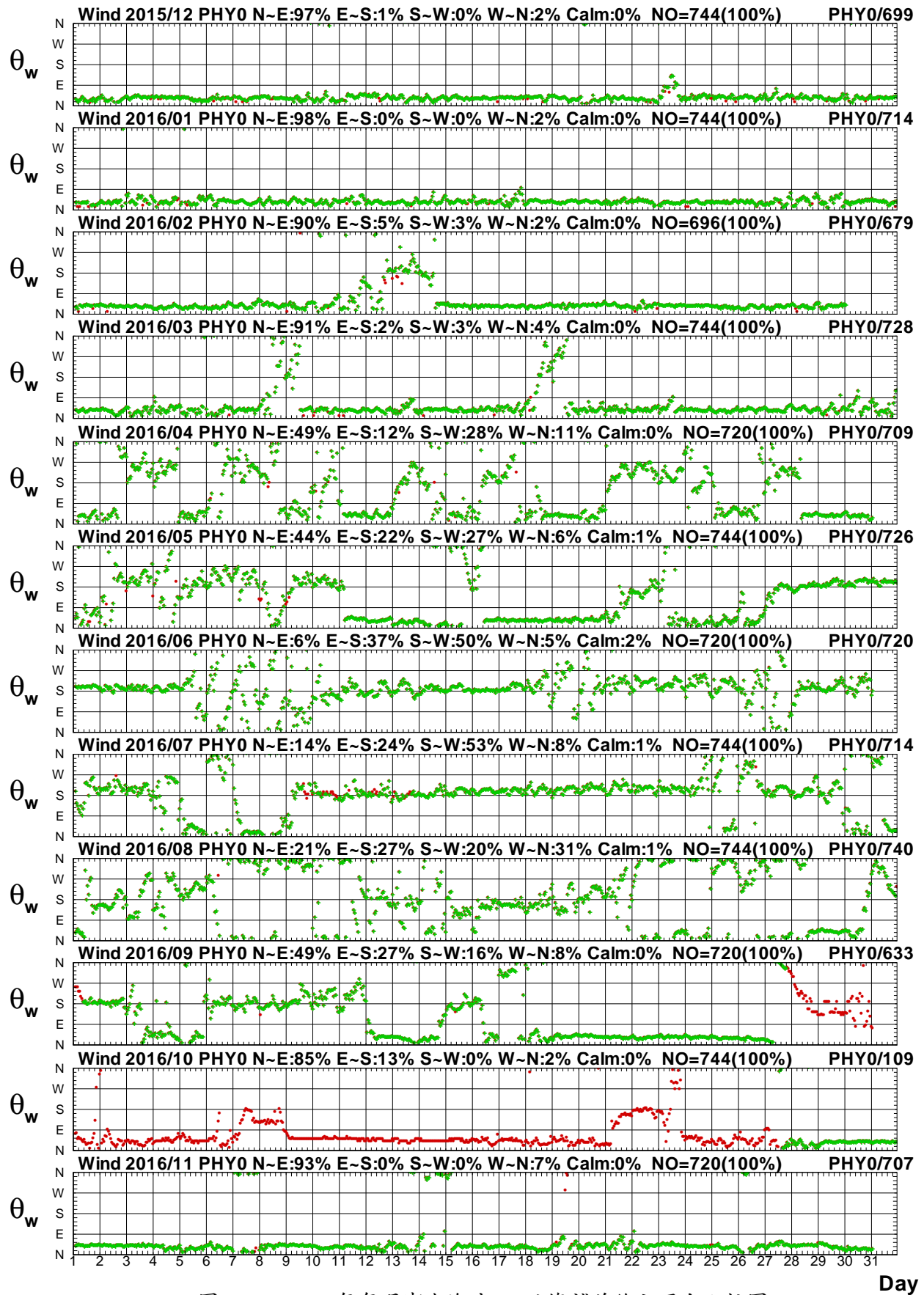


圖 1.1b 2016年每月澎湖海域 Y 站修補前後之風向比較圖

W15CPHY0.1HA W15CPHY0.1HO W161PHY0.1HA W161PHY0.1HO W162PHY0.1HA W162PHY0.1HO
 W163PHY0.1HA W163PHY0.1HO W164PHY0.1HA W164PHY0.1HO W165PHY0.1HA W165PHY0.1HO

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Wind Speed in Peng-Hu Seas of PHY0 at 2016

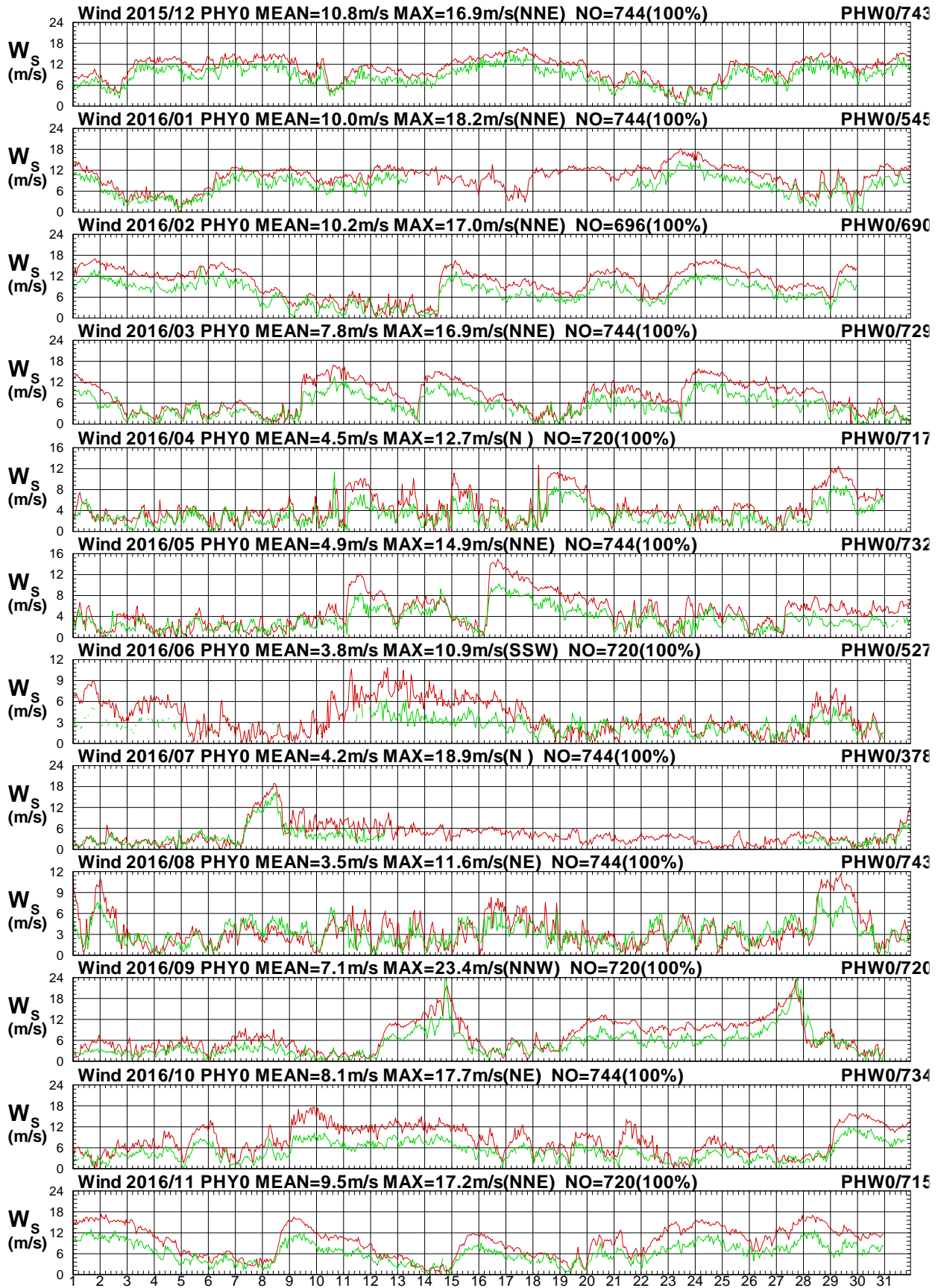


圖 1.2a 2016年每月澎湖海域 Y 站與 W 站風速比較圖

W15CPHY0.1HA W15CPHW0.1H0 W161PHY0.1HA W161PHW0.1H0 W162PHY0.1HA W162PHW0.1H0
 W163PHY0.1HA W163PHW0.1H0 W164PHY0.1HA W164PHW0.1H0 W165PHY0.1HA W165PHW0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2016

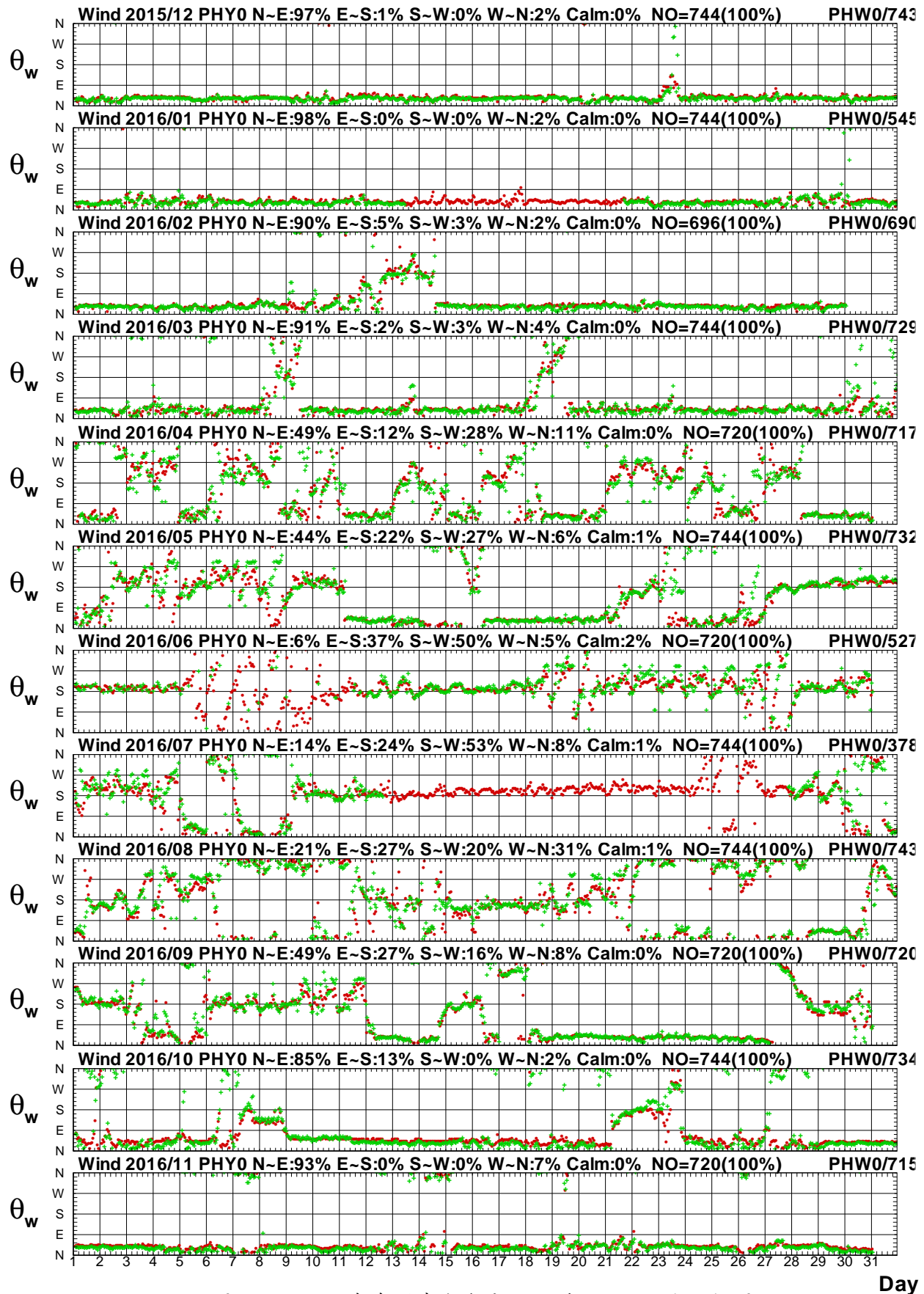


圖 1.2b 2016年每月澎湖海域 Y 站與 W 站風向比較圖

W15CPHY0.1HA W15CPHW0.1H0 W161PHY0.1HA W161PHW0.1H0 W162PHY0.1HA W162PHW0.1H0
 W163PHY0.1HA W163PHW0.1H0 W164PHY0.1HA W164PHW0.1H0 W165PHY0.1HA W165PHW0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2016

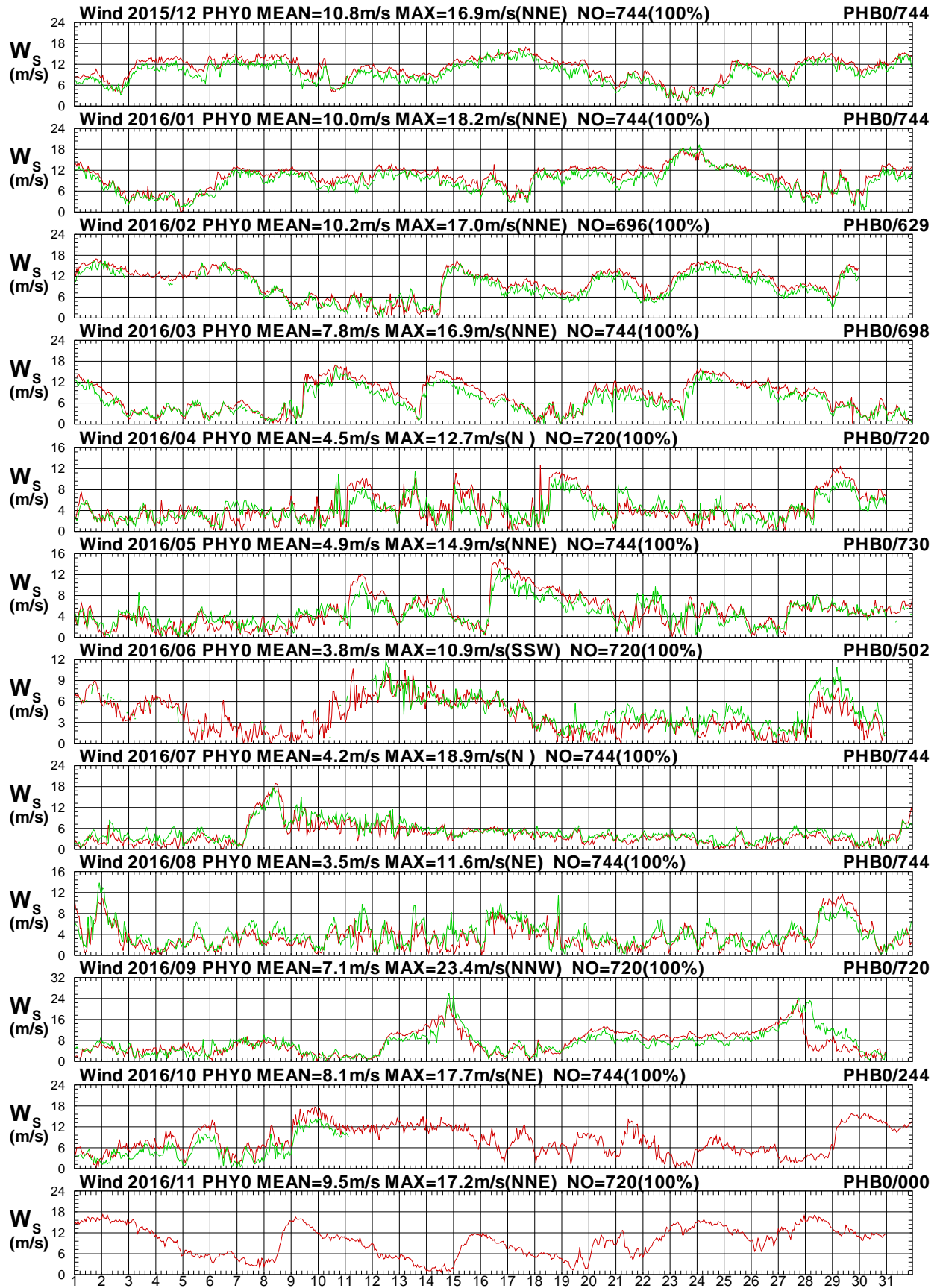


圖 1.3a 2016年每月澎湖海域 Y 站與 B 站風速比較圖

W15CPHY0.1HA W15CPHB0.1HO W161PHY0.1HA W161PHB0.1HO W162PHY0.1HA W162PHB0.1HO
 W163PHY0.1HA W163PHB0.1HO W164PHY0.1HA W164PHB0.1HO W165PHY0.1HA W165PHB0.1HO

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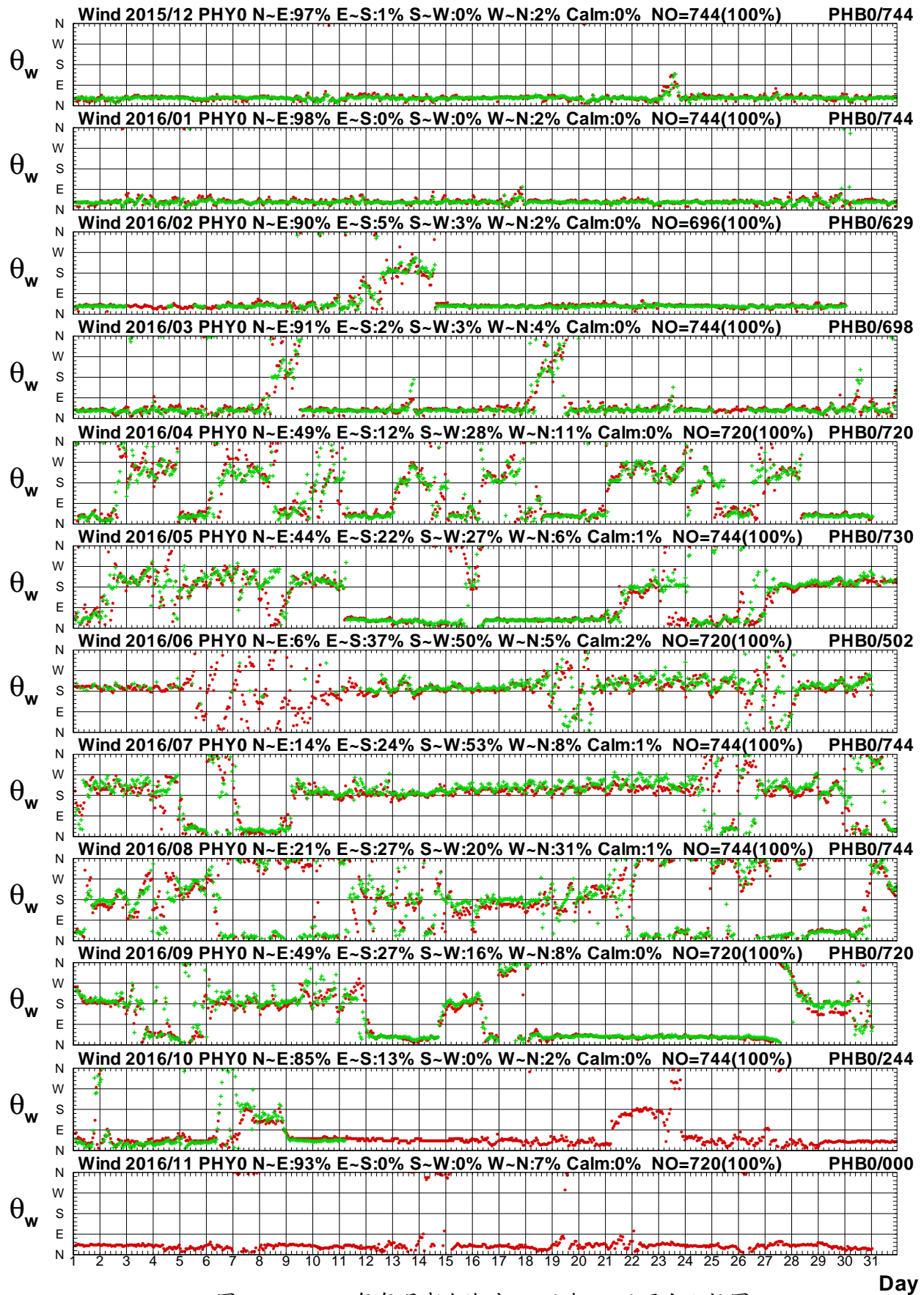


圖 1.3b 2016年每月澎湖海域 Y 站與 B 站風向比較圖

W15CPHY0.1HA W15CPHB0.1HO W161PHY0.1HA W161PHB0.1HO W162PHY0.1HA W162PHB0.1HO
 W163PHY0.1HA W163PHB0.1HO W164PHY0.1HA W164PHB0.1HO W165PHY0.1HA W165PHB0.1HO

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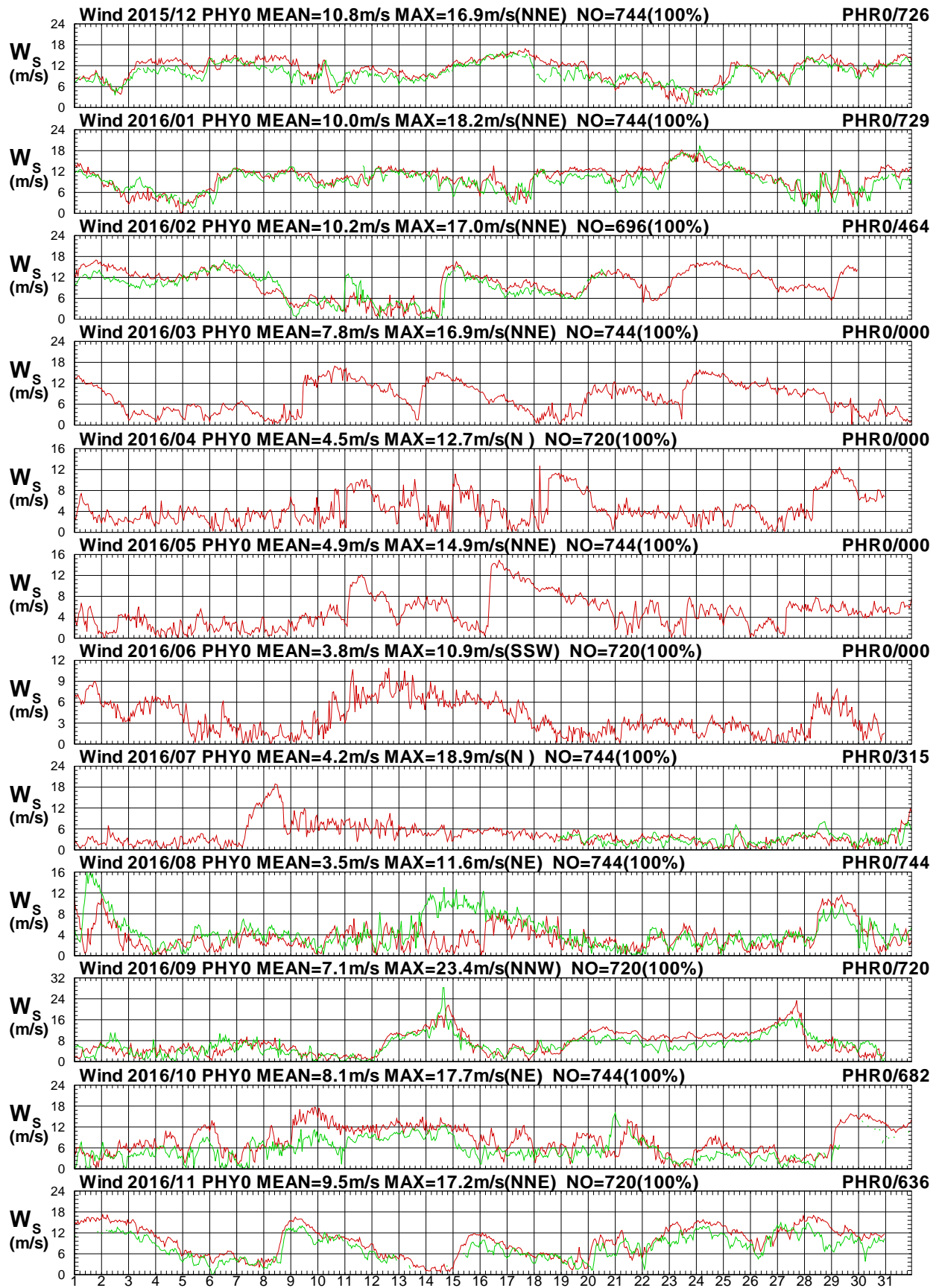


圖 1.4a 2016年每月澎湖海域 Y 站與 R 站風速比較圖

W15CPHY0.1HA W15CPHR0.1HO W161PHY0.1HA W161PHR0.1HO W162PHY0.1HA W162PHR0.1HO
 W163PHY0.1HA W163PHR0.1HO W164PHY0.1HA W164PHR0.1HO W165PHY0.1HA W165PHR0.1HO

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Wind Direction in Peng-Hu Seas of PHY0 at 2016

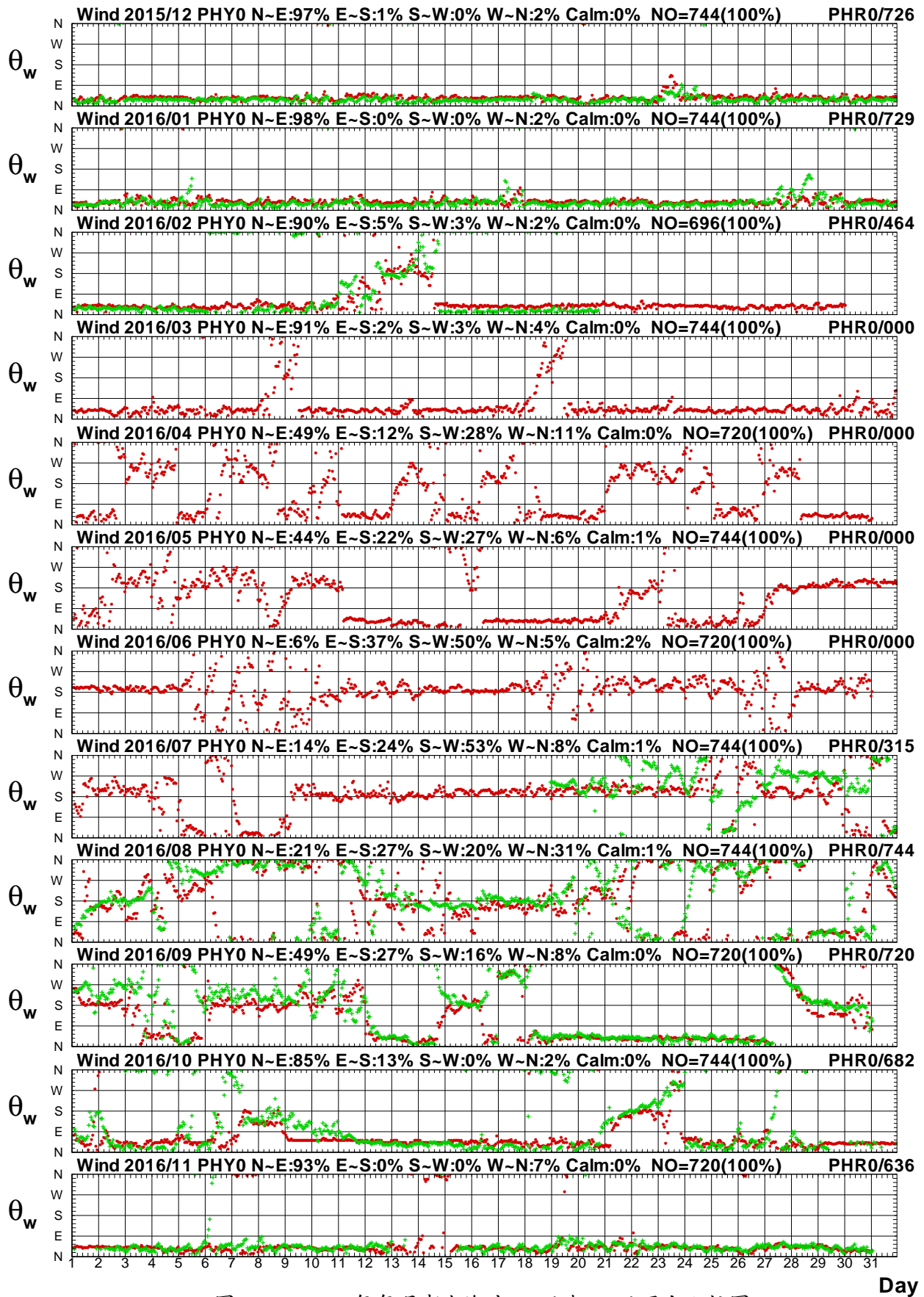


圖 1.4b 2016年每月澎湖海域 Y 站與 R 站風向比較圖

W15CPHY0.1HA W15CPHR0.1HO W161PHY0.1HA W161PHR0.1HO W162PHY0.1HA W162PHR0.1HO
 W163PHY0.1HA W163PHR0.1HO W164PHY0.1HA W164PHR0.1HO W165PHY0.1HA W165PHR0.1HO

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Wind Speed in Peng-Hu Seas of PHY0 at 2016

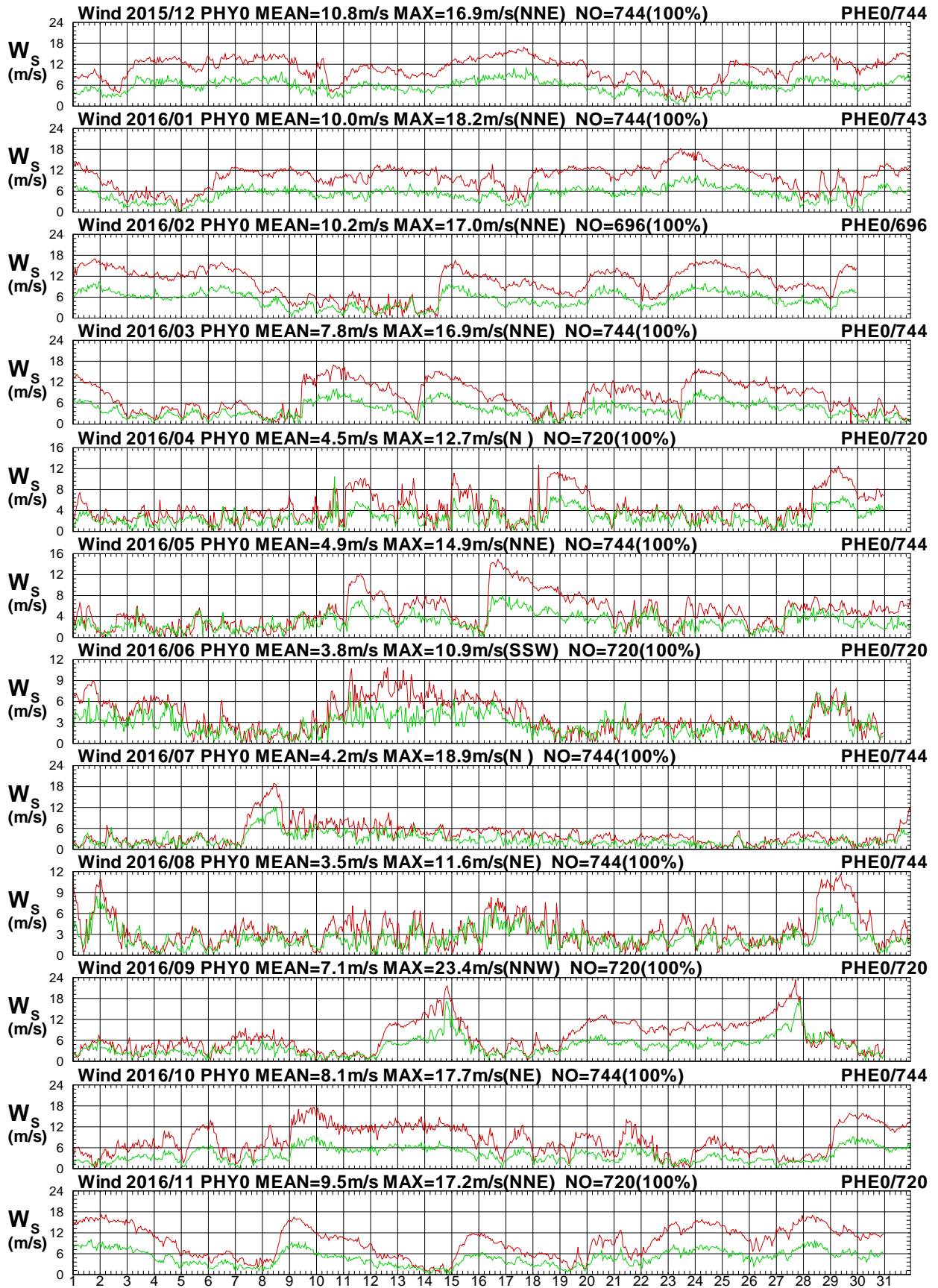


圖 1.5a 2016年每月澎湖海域 Y 站與 E 站風速比較圖

W15CPHY0.1HA W15CPHE0.1HO W161PHY0.1HA W161PHE0.1HO W162PHY0.1HA W162PHE0.1HO
 W163PHY0.1HA W163PHE0.1HO W164PHY0.1HA W164PHE0.1HO W165PHY0.1HA W165PHE0.1HO

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Wind Direction in Peng-Hu Seas of PHY0 at 2016

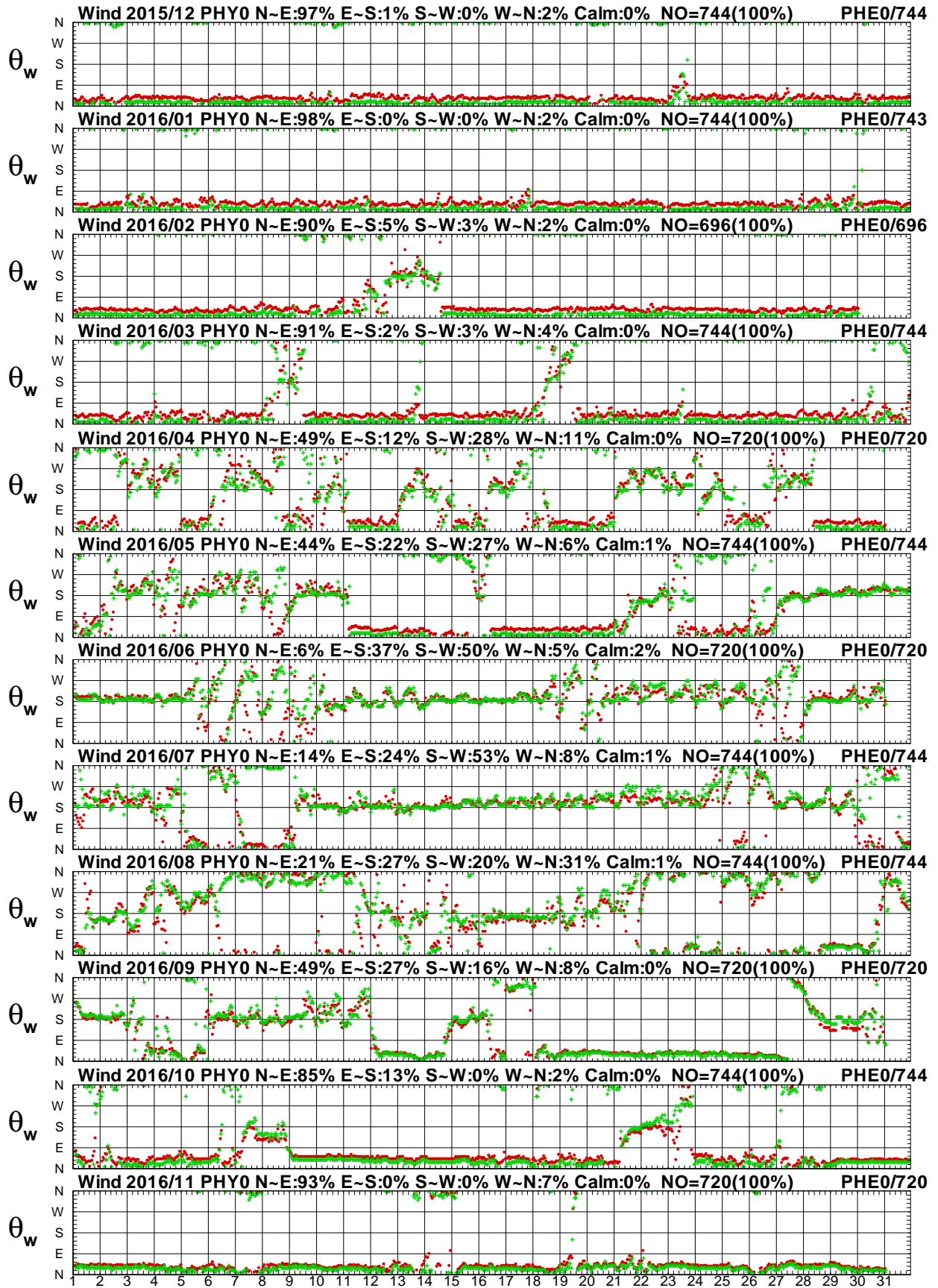


圖 1.5b 2016年每月澎湖海域 Y 站與 E 站風向比較圖

W15CPHY0.1HA W15CPHE0.1HO W161PHY0.1HA W161PHE0.1HO W162PHY0.1HA W162PHE0.1HO
 W163PHY0.1HA W163PHE0.1HO W164PHY0.1HA W164PHE0.1HO W165PHY0.1HA W165PHE0.1HO

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Wind Speed in Peng-Hu Seas of PHY0 at 2016

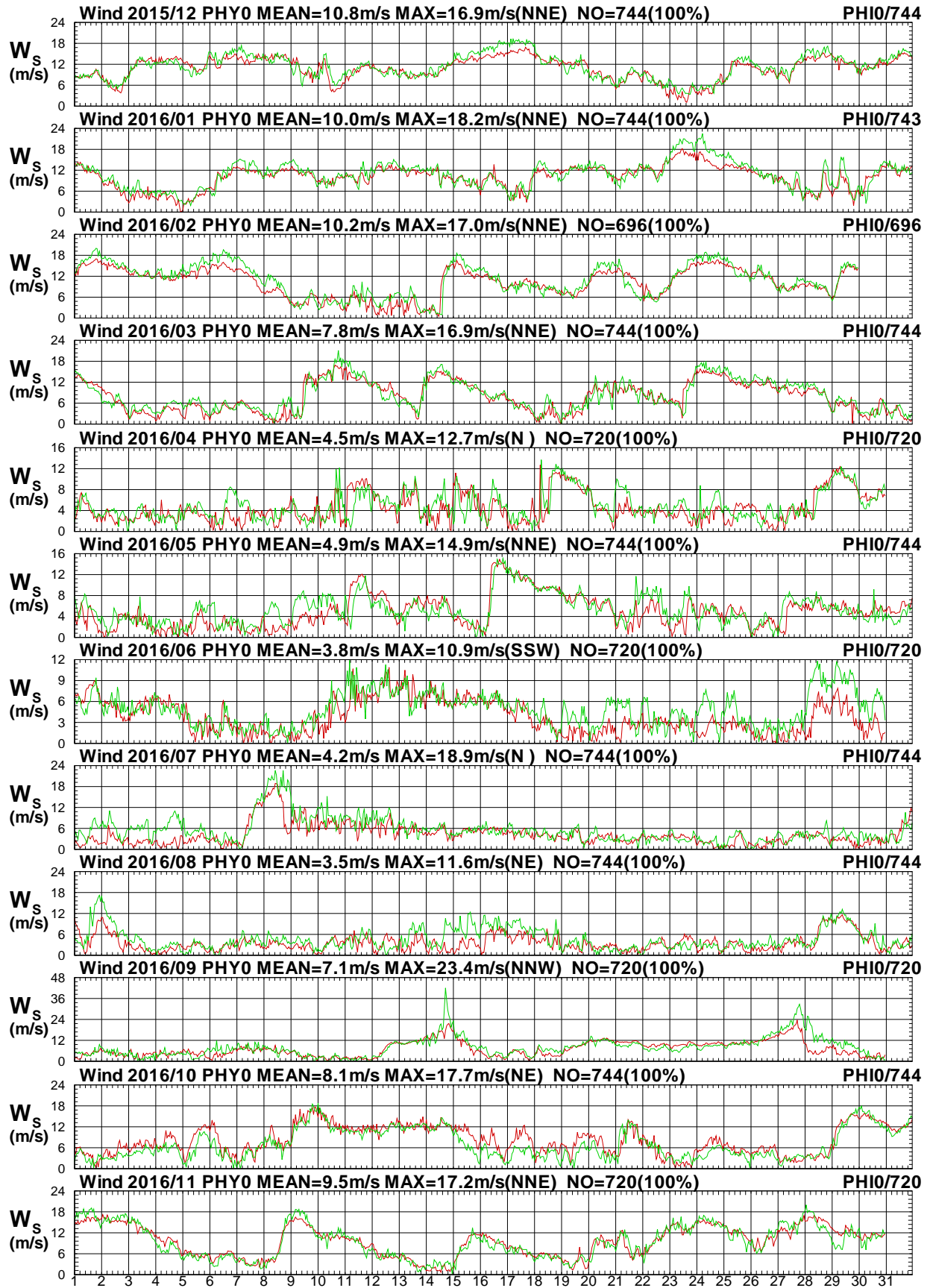


圖 1.6a 2016年每月澎湖海域 Y 站與 I 站風速比較圖

W15CPHY0.1HA W15CPHI0.1H0 W161PHY0.1HA W161PHI0.1H0 W162PHY0.1HA W162PHI0.1H0
W163PHY0.1HA W163PHI0.1H0 W164PHY0.1HA W164PHI0.1H0 W165PHY0.1HA W165PHI0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2016

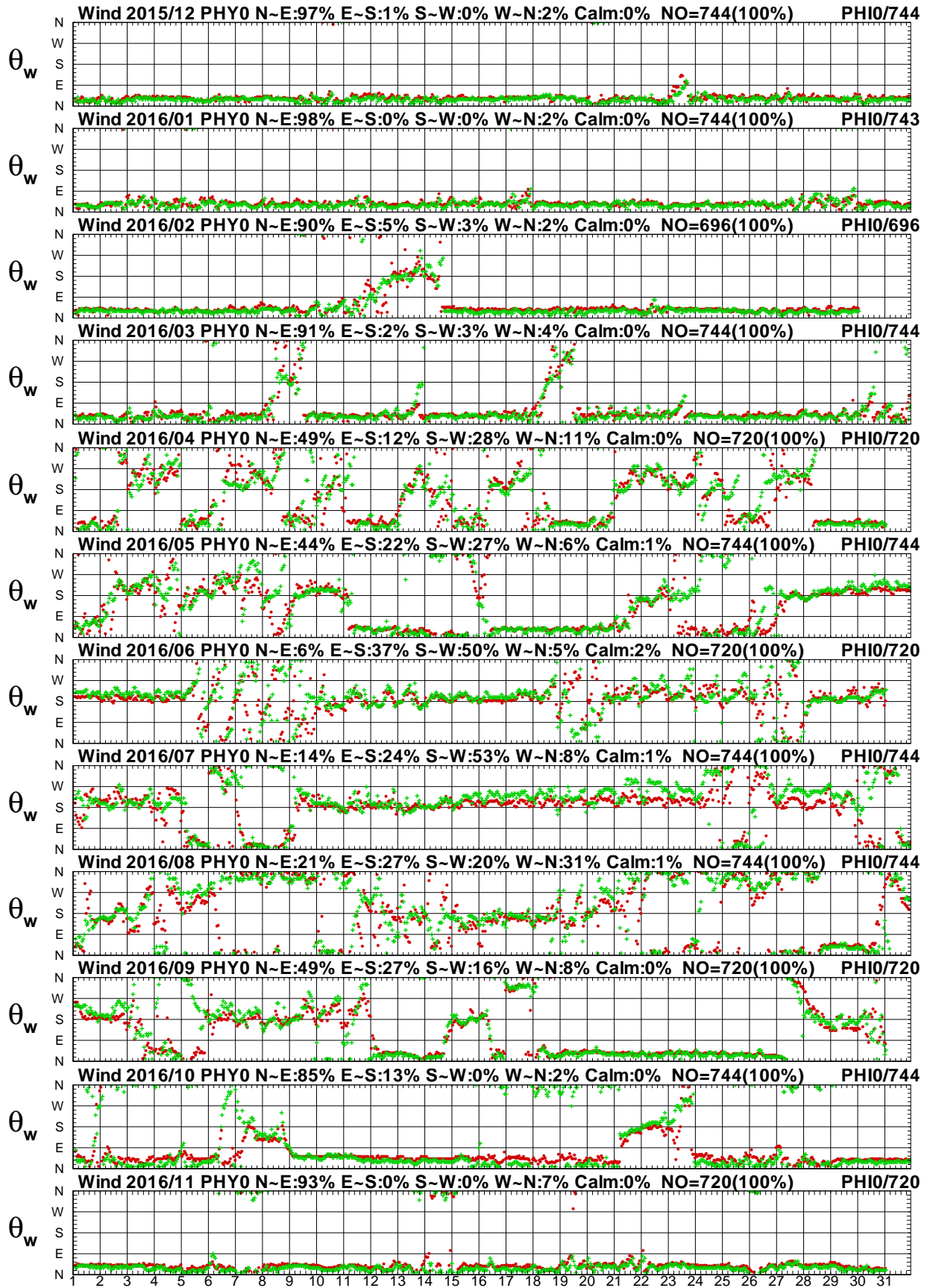


圖 1.6b 2016年每月澎湖海域 Y 站與 I 站風向比較圖

W15CPHY0.1HA W15CPHI0.1H0 W161PHY0.1HA W161PHI0.1H0 W162PHY0.1HA W162PHI0.1H0
 W163PHY0.1HA W163PHI0.1H0 W164PHY0.1HA W164PHI0.1H0 W165PHY0.1HA W165PHI0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2016

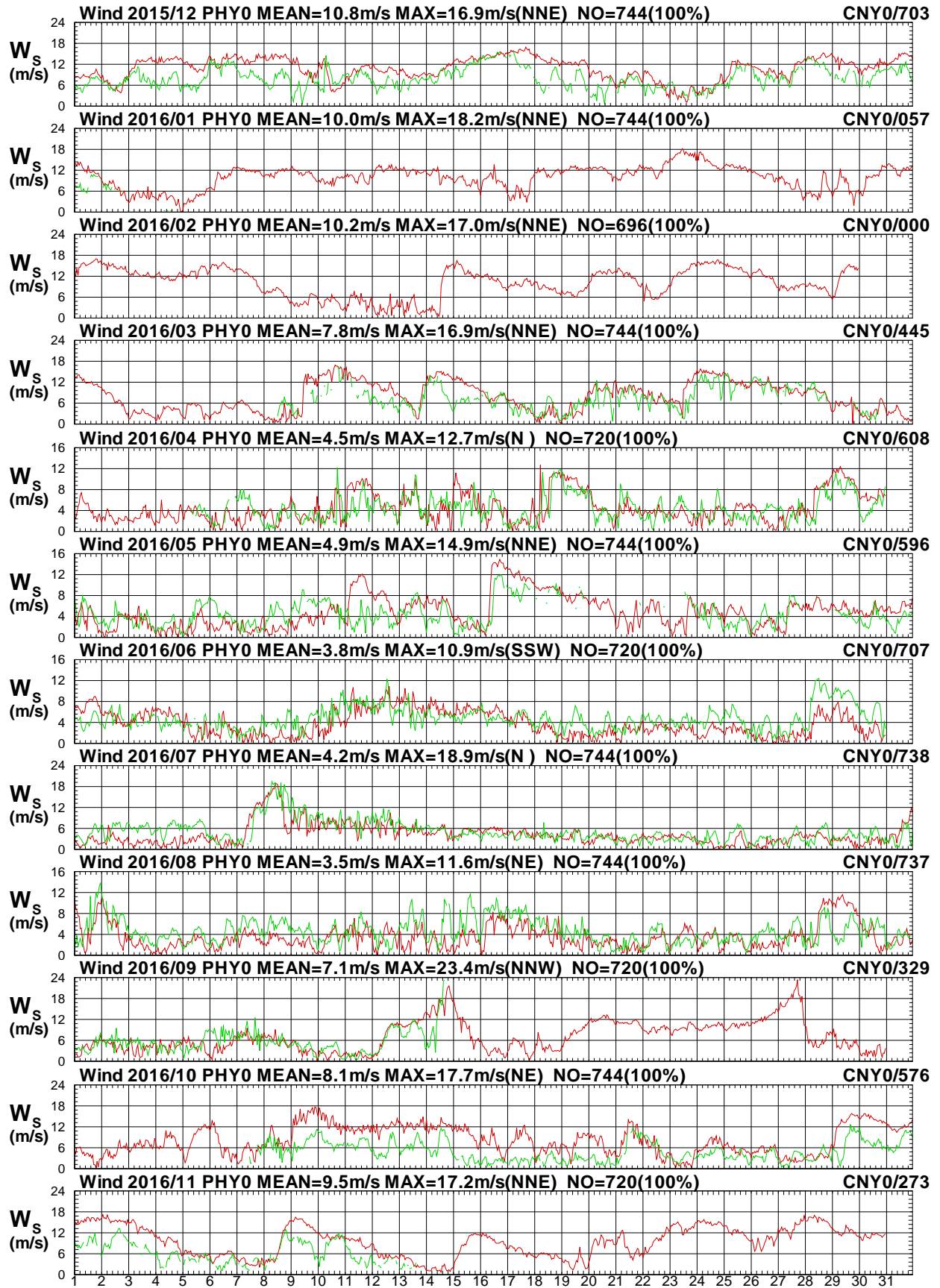


圖 1.7a 2016年每月澎湖海域 Y 站與嘉南海域 Y 站風速圖

W15CPHY0.1HA W15CCNY0.1H0 W161PHY0.1HA W161CNY0.1H0 W162PHY0.1HA W162CNY0.1H0
 W163PHY0.1HA W163CNY0.1H0 W164PHY0.1HA W164CNY0.1H0 W165PHY0.1HA W165CNY0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2016

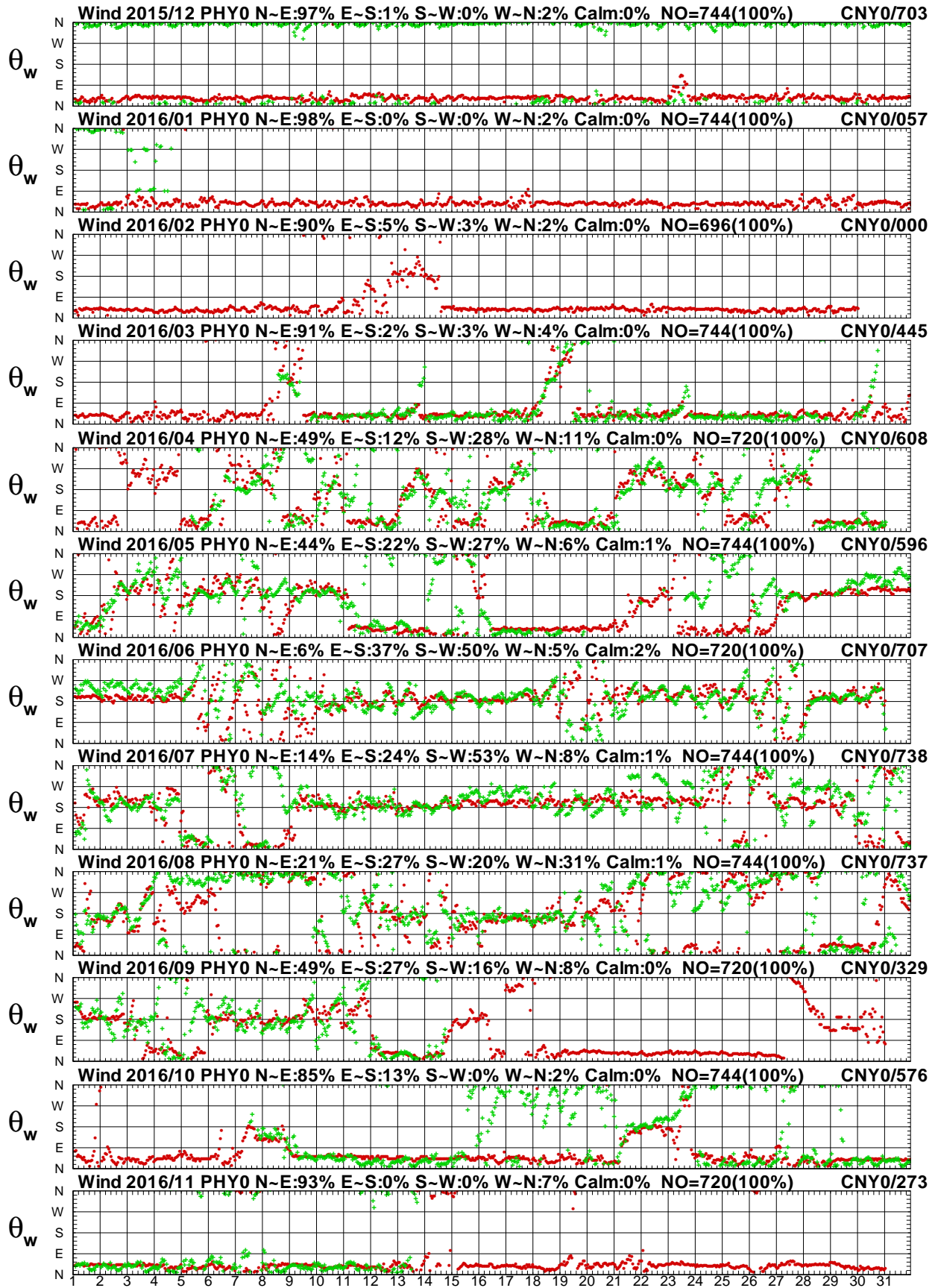


圖 1.7b 2016年每月澎湖海域 Y 站與嘉南海域 Y 站風向圖

W15CPHY0.1HA W15CCNY0.1H0 W161PHY0.1HA W161CNY0.1H0 W162PHY0.1HA W162CNY0.1H0
 W163PHY0.1HA W163CNY0.1H0 W164PHY0.1HA W164CNY0.1H0 W165PHY0.1HA W165CNY0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2016

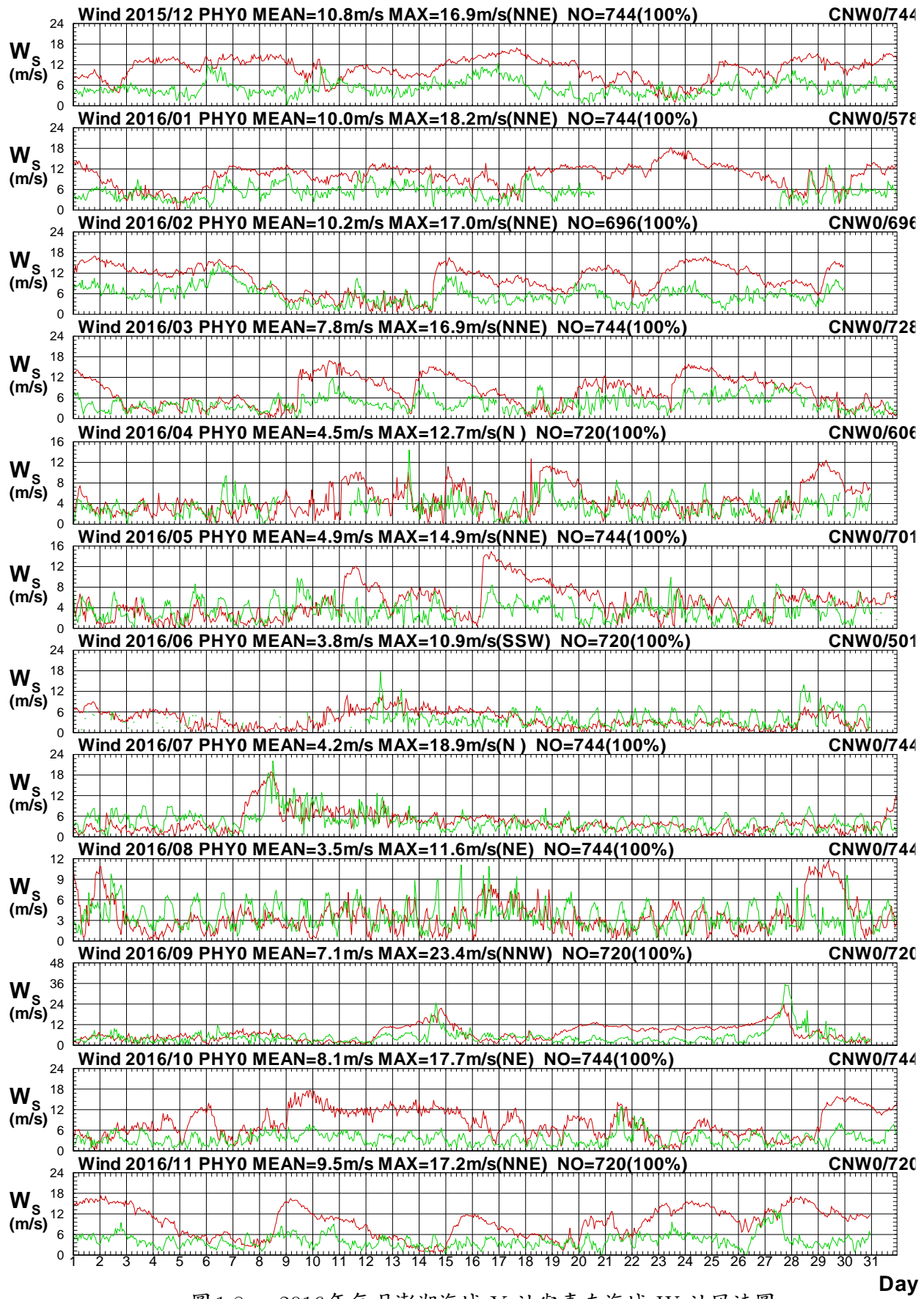


圖 1.8a 2016年每月澎湖海域 Y 站與嘉南海域 W 站風速圖

W15CPHY0.1HA W15CCNW0.1H0 W161PHY0.1HA W161CNW0.1H0 W162PHY0.1HA W162CNW0.1H0
 W163PHY0.1HA W163CNW0.1H0 W164PHY0.1HA W164CNW0.1H0 W165PHY0.1HA W165CNW0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2016

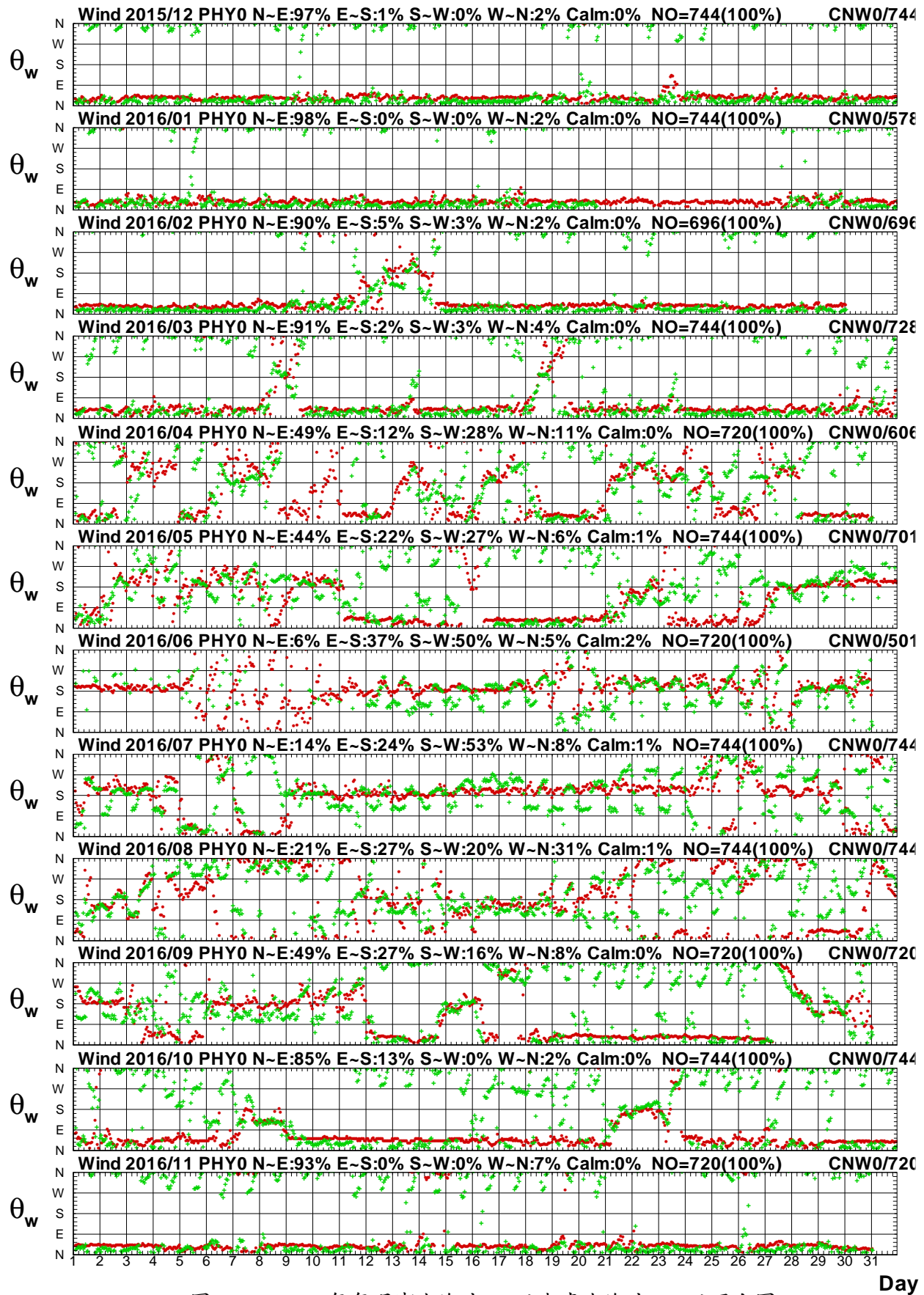


圖 1.8b 2016年每月澎湖海域 Y 站與嘉南海域 W 站風向圖

W15CPHY0.1HA W15CCNW0.1H0 W161PHY0.1HA W161CNW0.1H0 W162PHY0.1HA W162CNW0.1H0
 W163PHY0.1HA W163CNW0.1H0 W164PHY0.1HA W164CNW0.1H0 W165PHY0.1HA W165CNW0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2016

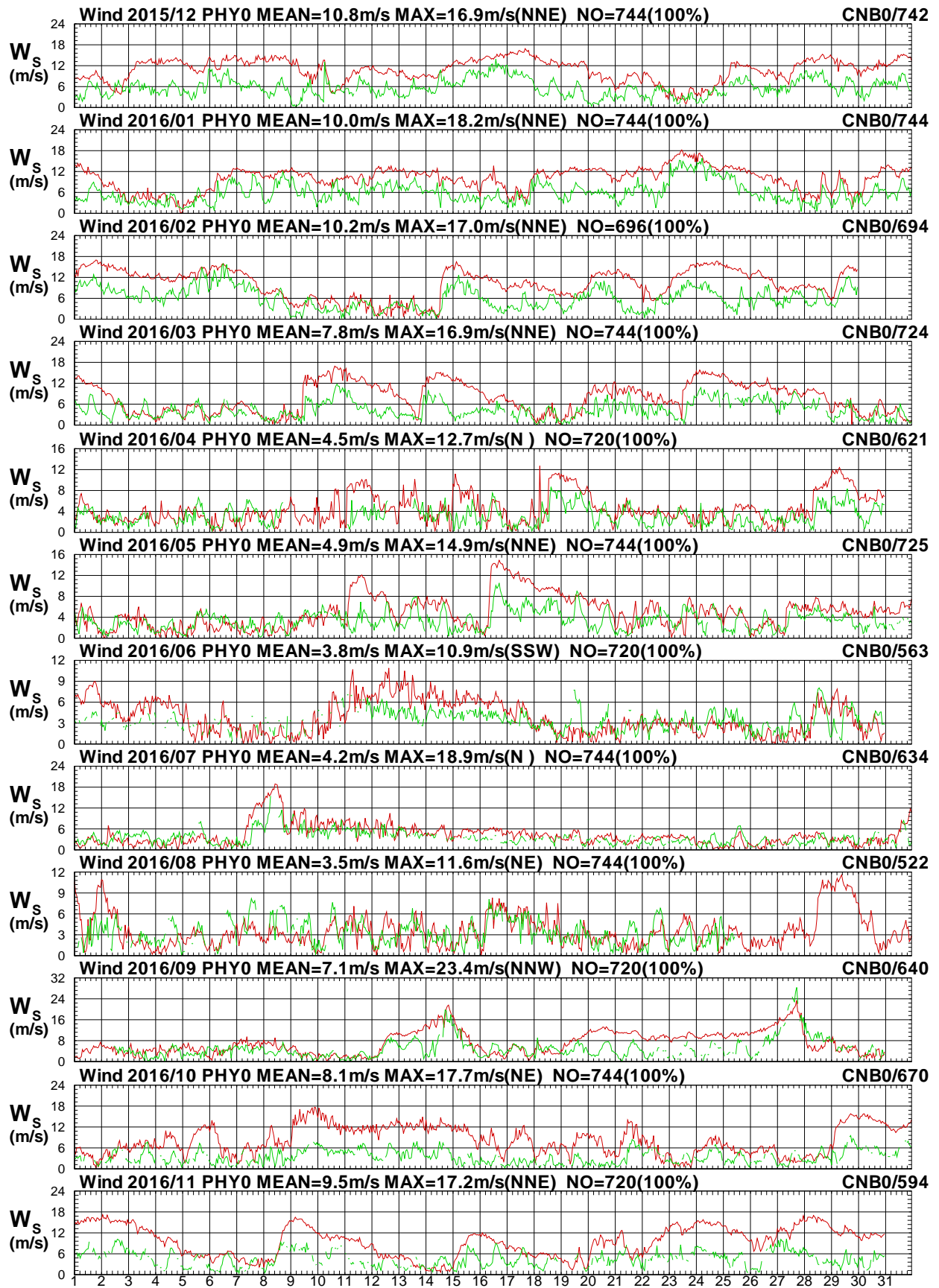


圖 1.9a 2016年每月澎湖海域 Y 站與嘉南海域 B 站風速圖

W15CPHY0.1HA W15CCNB0.1H0 W161PHY0.1HA W161CNB0.1H0 W162PHY0.1HA W162CNB0.1H0
 W163PHY0.1HA W163CNB0.1H0 W164PHY0.1HA W164CNB0.1H0 W165PHY0.1HA W165CNB0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2016

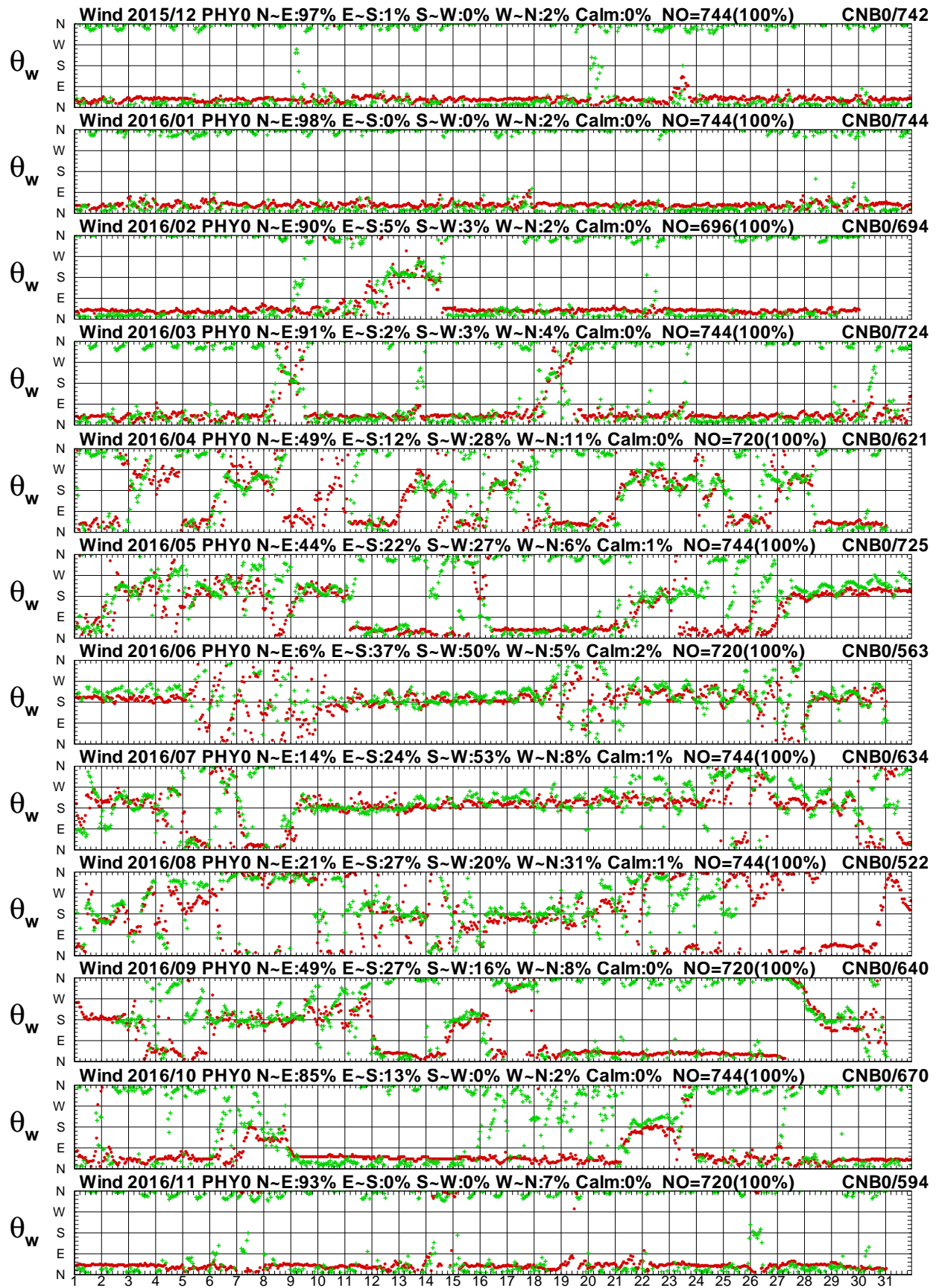


圖 1.9b 2016年每月澎湖海域 Y 站與嘉南海域 B 站風向圖

W15CPHY0.1HA W15CCNB0.1H0 W161PHY0.1HA W161CNB0.1H0 W162PHY0.1HA W162CNB0.1H0
 W163PHY0.1HA W163CNB0.1H0 W164PHY0.1HA W164CNB0.1H0 W165PHY0.1HA W165CNB0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2016

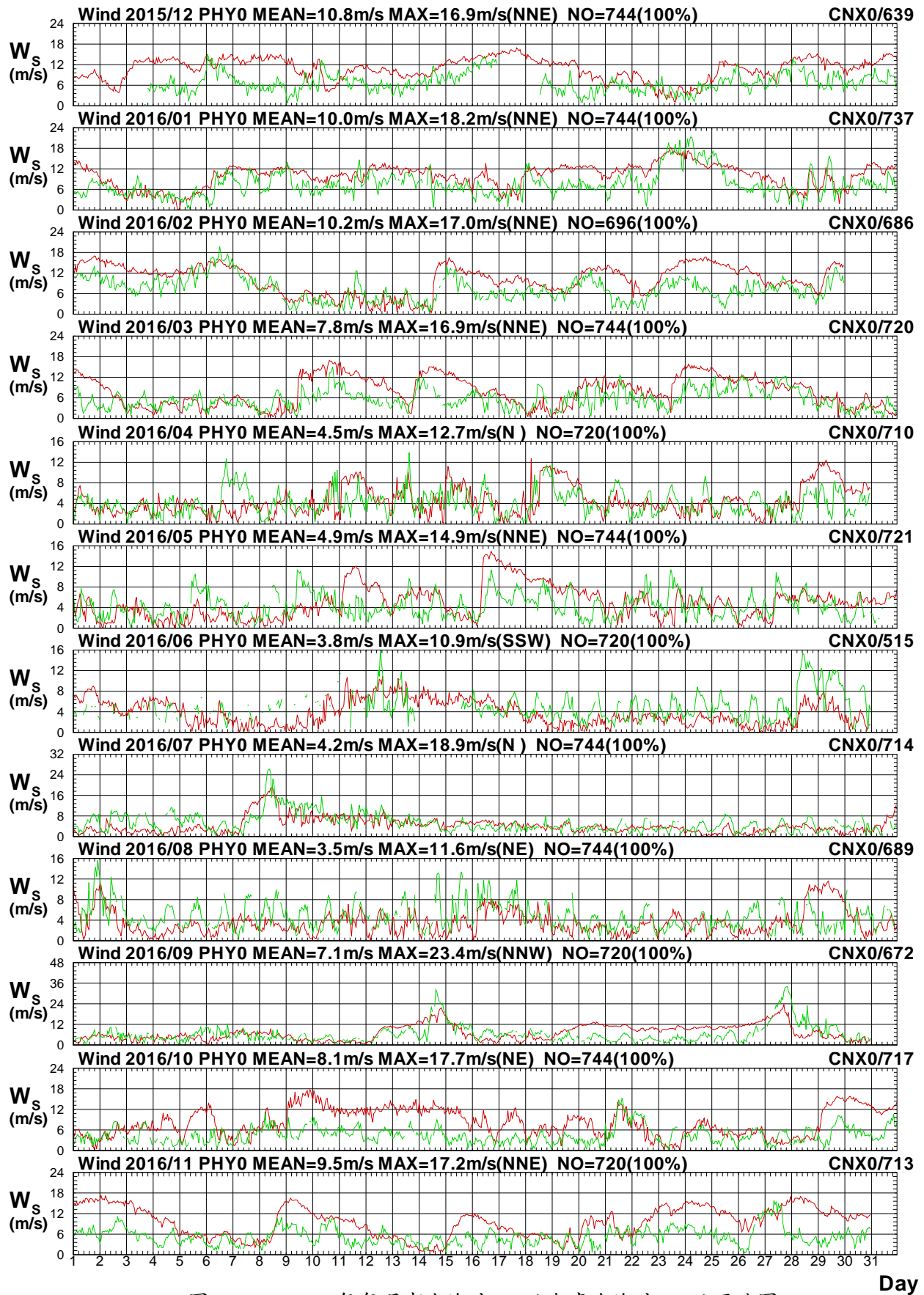


圖 1.10a 2016年每月澎湖海域 Y 站與嘉南海域 X 站風速圖

W15CPHY0.1HA W15CCNX0.1H0 W161PHY0.1HA W161CNX0.1H0 W162PHY0.1HA W162CNX0.1H0
 W163PHY0.1HA W163CNX0.1H0 W164PHY0.1HA W164CNX0.1H0 W165PHY0.1HA W165CNX0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2016

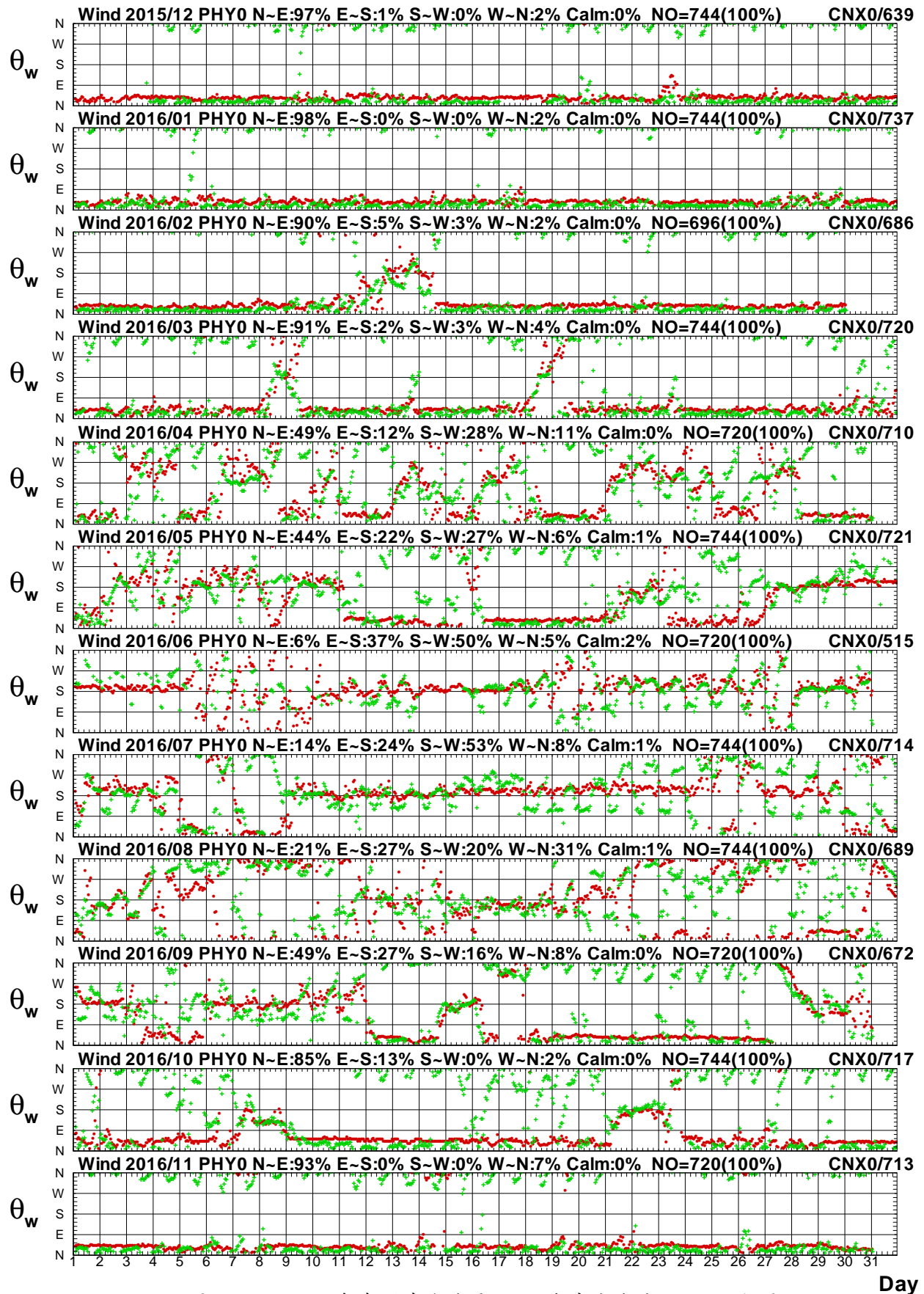


圖 1.10b 2016年每月澎湖海域 Y 站與嘉南海域 X 站風向圖

W15CPHY0.1HA W15CCNX0.1H0 W161PHY0.1HA W161CNX0.1H0 W162PHY0.1HA W162CNX0.1H0
 W163PHY0.1HA W163CNX0.1H0 W164PHY0.1HA W164CNX0.1H0 W165PHY0.1HA W165CNX0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2016

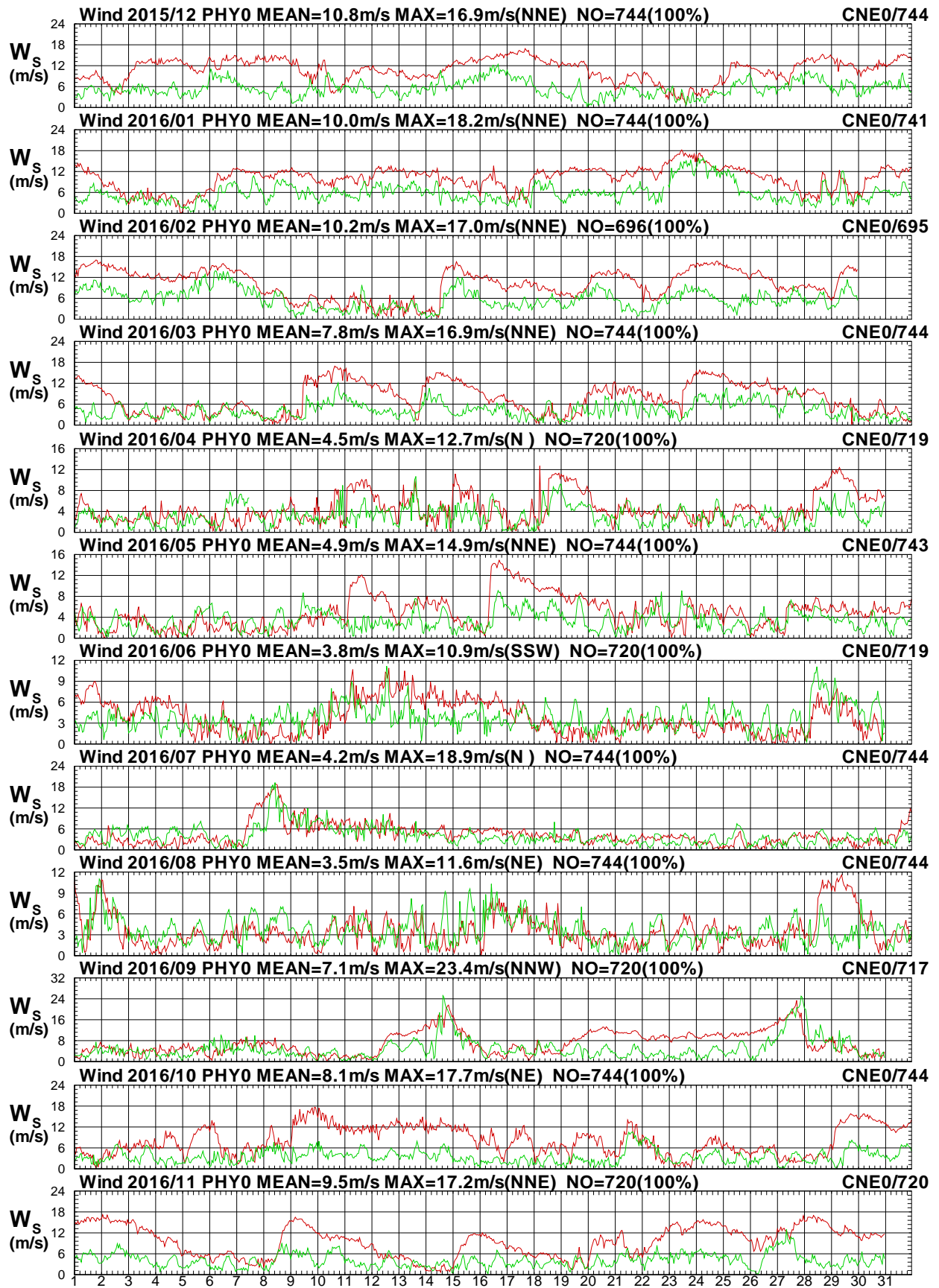


圖 1.11a 2016年每月澎湖海域 Y 站與嘉南海域 E 站風速圖

W15CPHY0.1HA W15CCNE0.1H0 W161PHY0.1HA W161CNE0.1H0 W162PHY0.1HA W162CNE0.1H0
 W163PHY0.1HA W163CNE0.1H0 W164PHY0.1HA W164CNE0.1H0 W165PHY0.1HA W165CNE0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2016

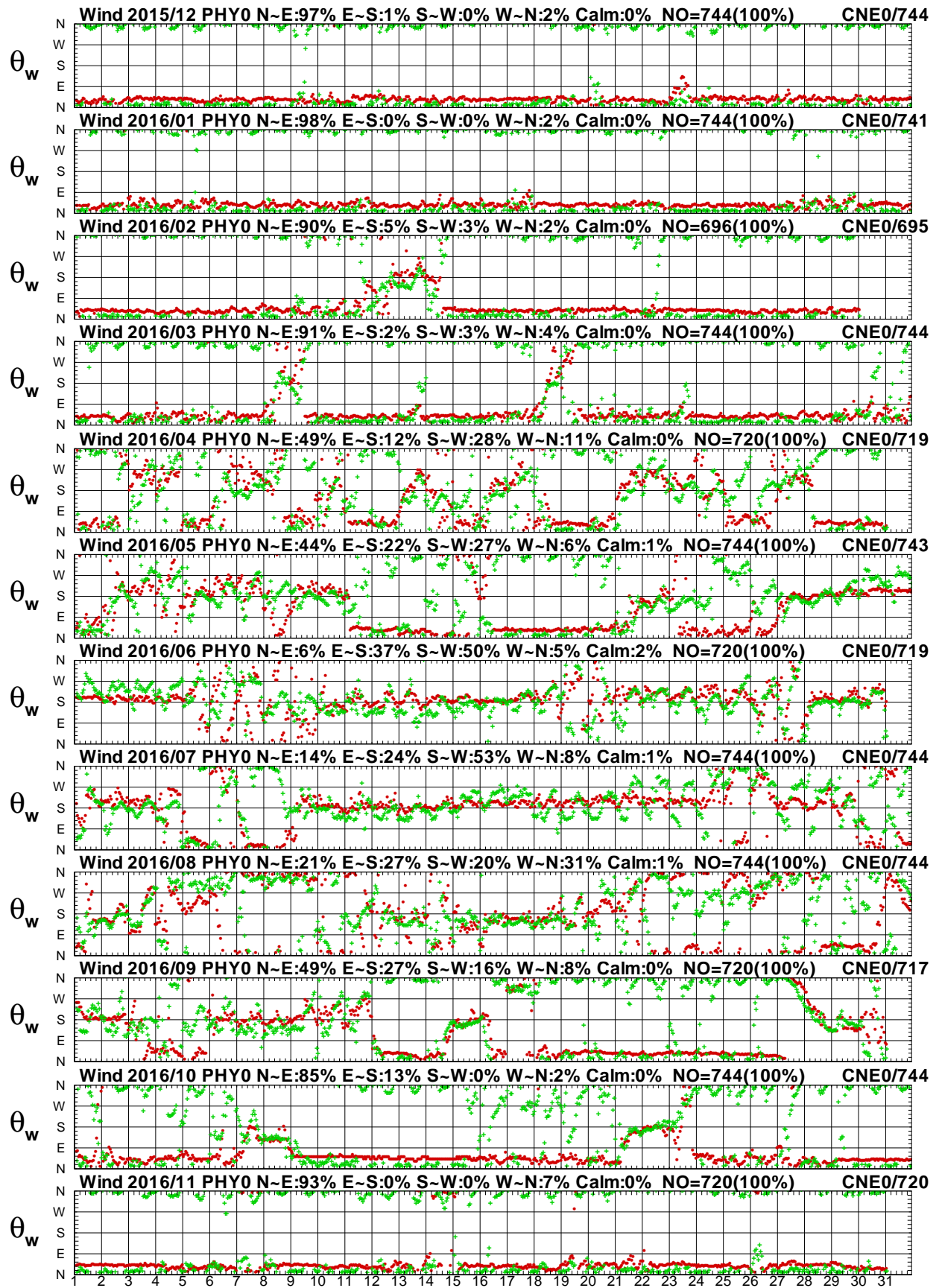


圖 1.11b 2016年每月澎湖海域 Y 站與嘉南海域 E 站風向圖

W15CPHY0.1HA W15CCNE0.1H0 W161PHY0.1HA W161CNE0.1H0 W162PHY0.1HA W162CNE0.1H0
 W163PHY0.1HA W163CNE0.1H0 W164PHY0.1HA W164CNE0.1H0 W165PHY0.1HA W165CNE0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2016

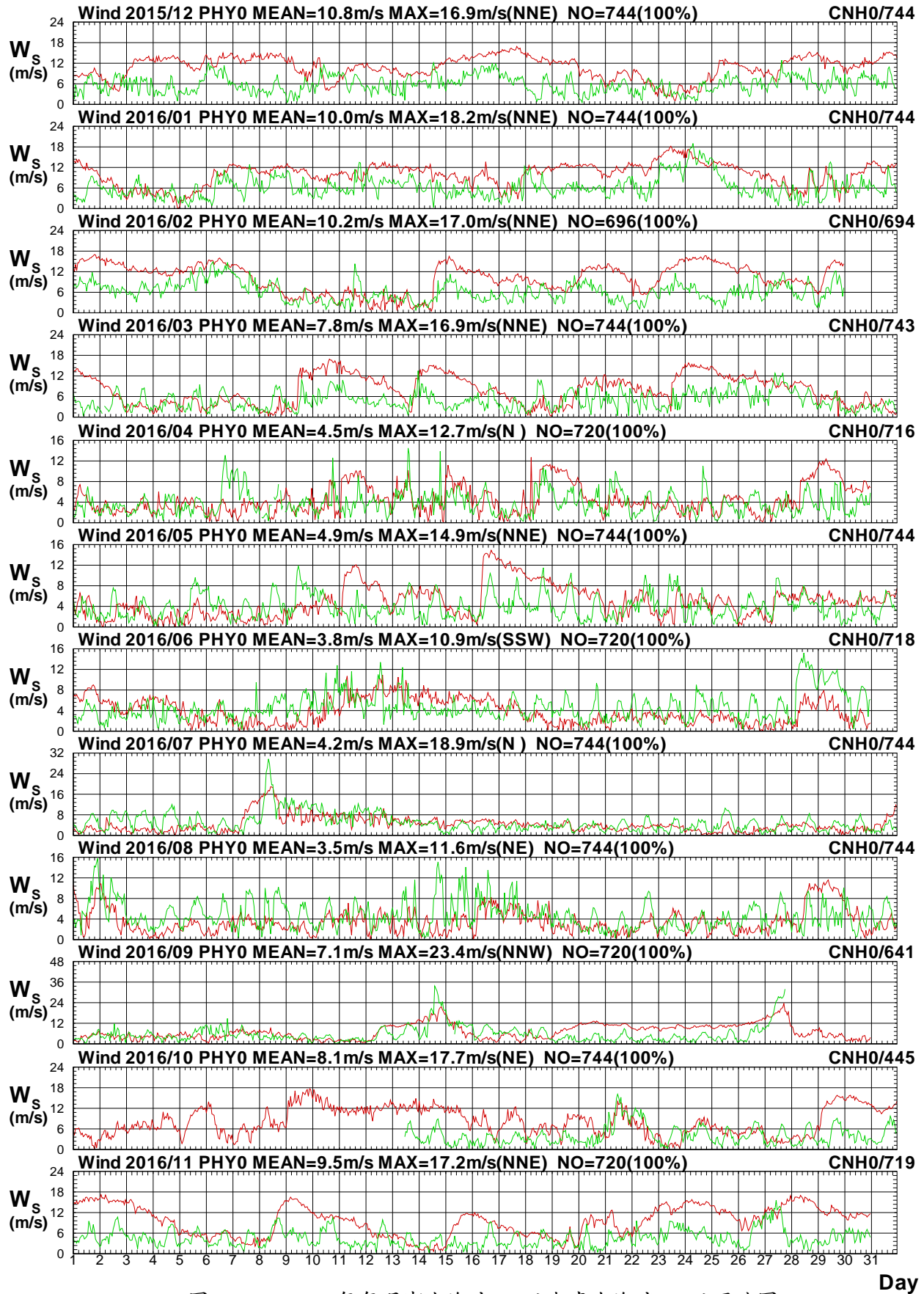


圖 1.12a 2016年每月澎湖海域 Y 站與嘉南海域 H 站風速圖

W15CPHY0.1HA W15CCNH0.1H0 W161PHY0.1HA W161CNH0.1H0 W162PHY0.1HA W162CNH0.1H0
 W163PHY0.1HA W163CNH0.1H0 W164PHY0.1HA W164CNH0.1H0 W165PHY0.1HA W165CNH0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2016

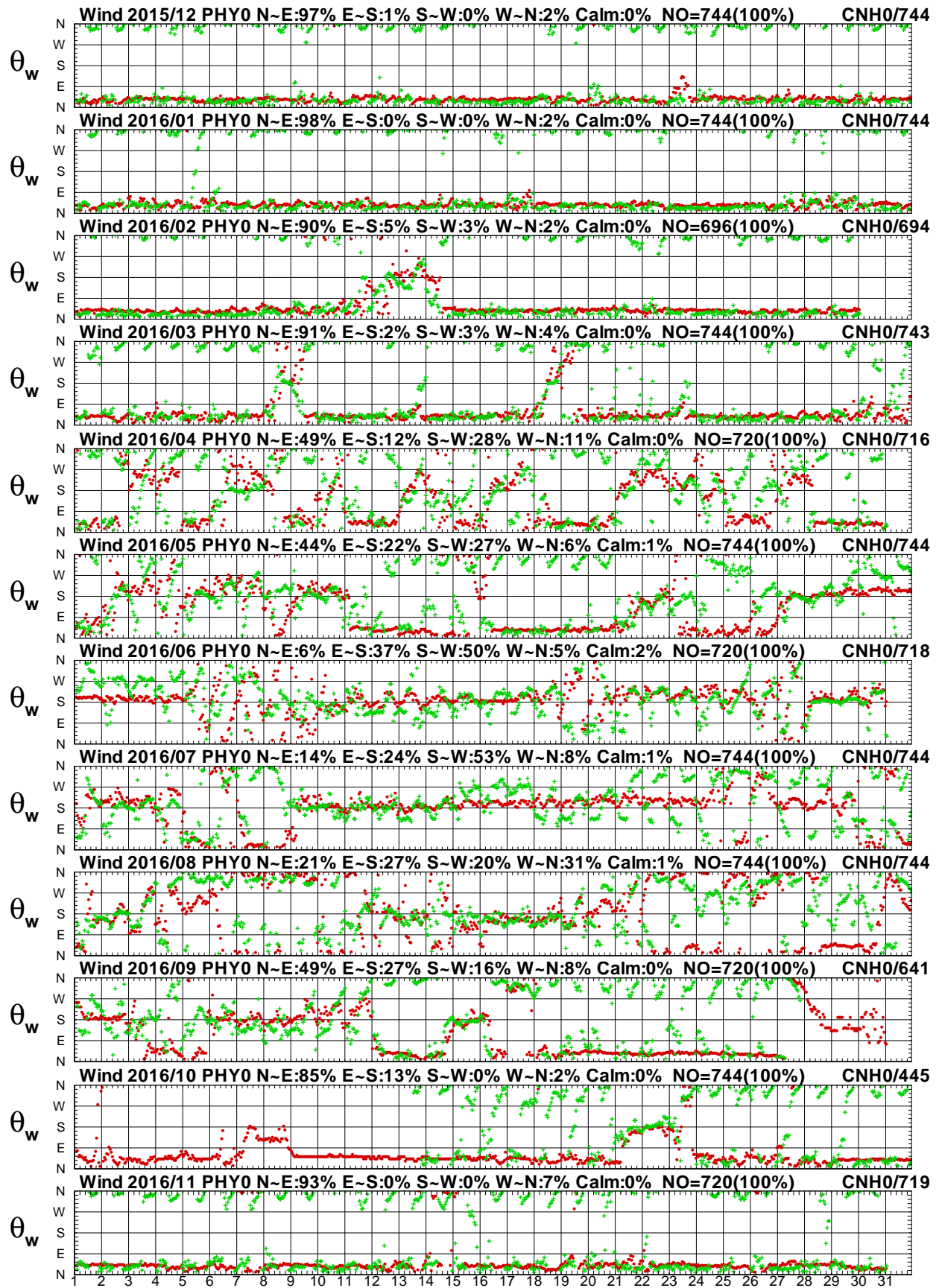


圖 1.12b 2016年每月澎湖海域 Y 站與嘉南海域 H 站風向圖

W15CPHY0.1HA W15CCNH0.1H0 W161PHY0.1HA W161CNH0.1H0 W162PHY0.1HA W162CNH0.1H0
 W163PHY0.1HA W163CNH0.1H0 W164PHY0.1HA W164CNH0.1H0 W165PHY0.1HA W165CNH0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2016

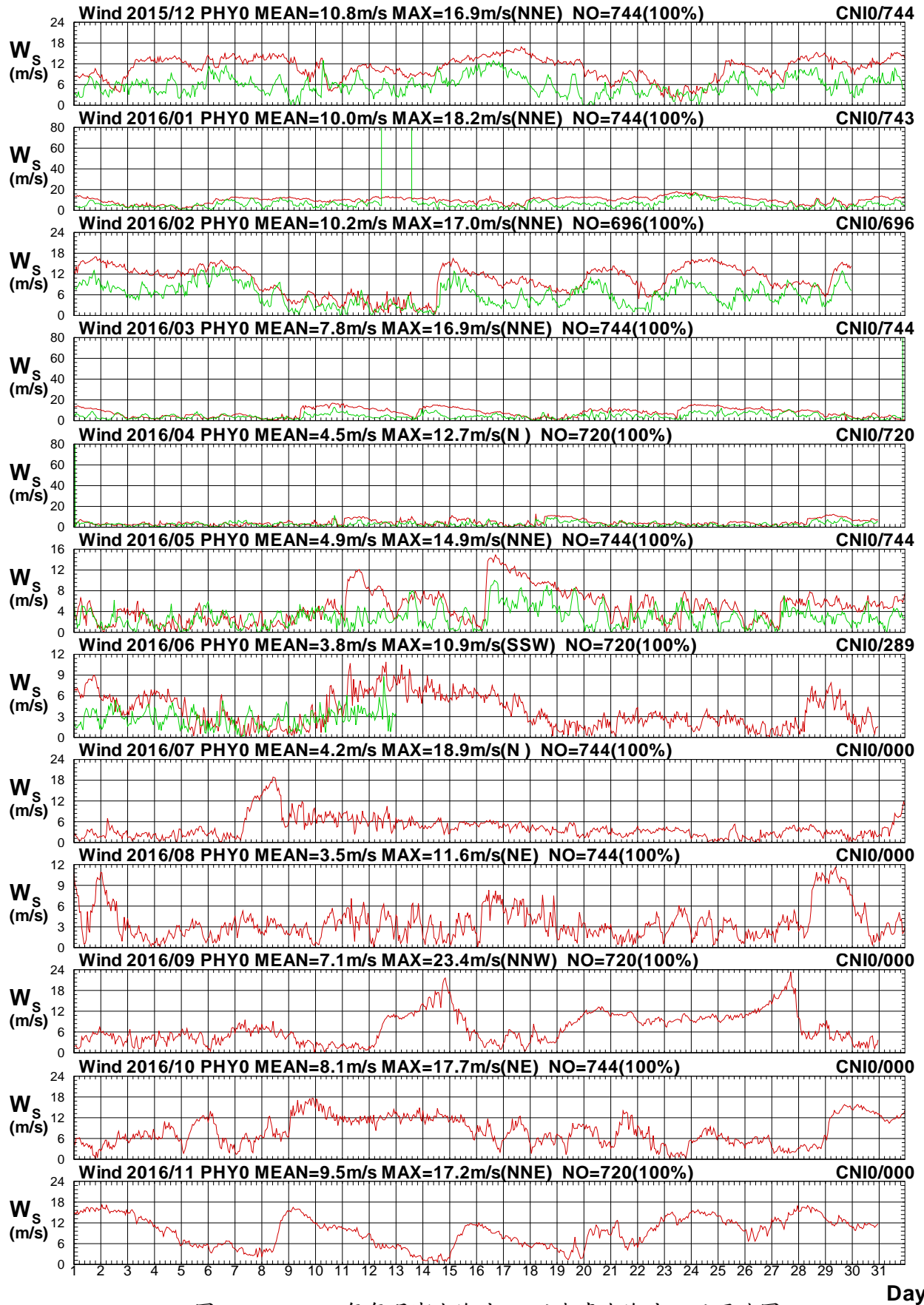


圖 1.13a 2016年每月澎湖海域 Y 站與嘉南海域 I 站風速圖

W15CPHY0.1HA W15CCNI0.1HO W161PHY0.1HA W161CNI0.1HO W162PHY0.1HA W162CNI0.1HO
W163PHY0.1HA W163CNI0.1HO W164PHY0.1HA W164CNI0.1HO W165PHY0.1HA W165CNI0.1HO

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Wind Direction in Peng-Hu Seas of PHY0 at 2016

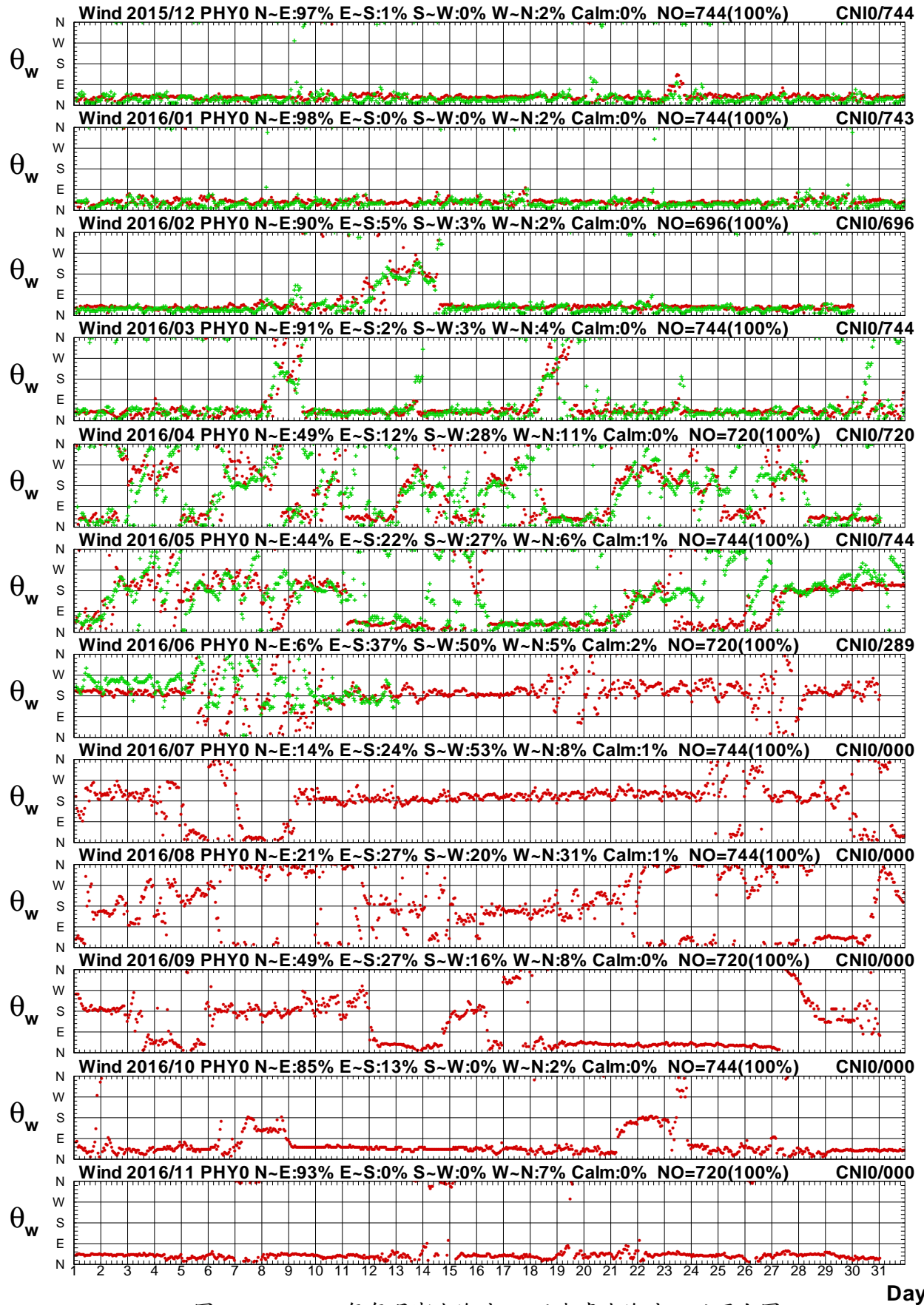


圖 1.13b 2016年每月澎湖海域 Y 站與嘉南海域 I 站風向圖

W15CPHY0.1HA W15CCNI0.1H0 W161PHY0.1HA W161CNI0.1H0 W162PHY0.1HA W162CNI0.1H0
 W163PHY0.1HA W163CNI0.1H0 W164PHY0.1HA W164CNI0.1H0 W165PHY0.1HA W165CNI0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2016

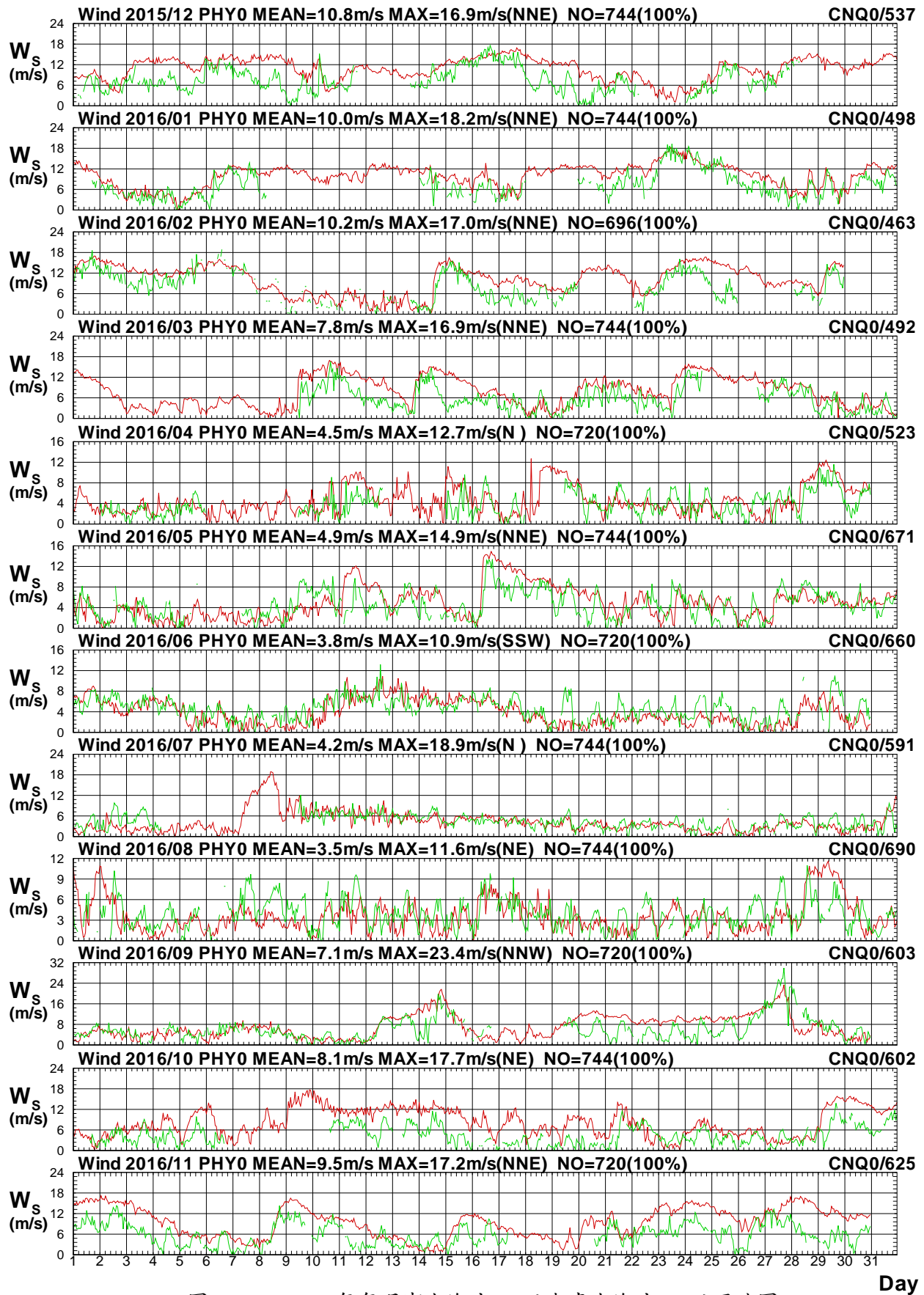


圖 1.14a 2016年每月澎湖海域 Y 站與嘉南海域 Q 站風速圖

W15CPHY0.1HA W15CCNQ0.1H0 W161PHY0.1HA W161CNQ0.1H0 W162PHY0.1HA W162CNQ0.1H0
 W163PHY0.1HA W163CNQ0.1H0 W164PHY0.1HA W164CNQ0.1H0 W165PHY0.1HA W165CNQ0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2016

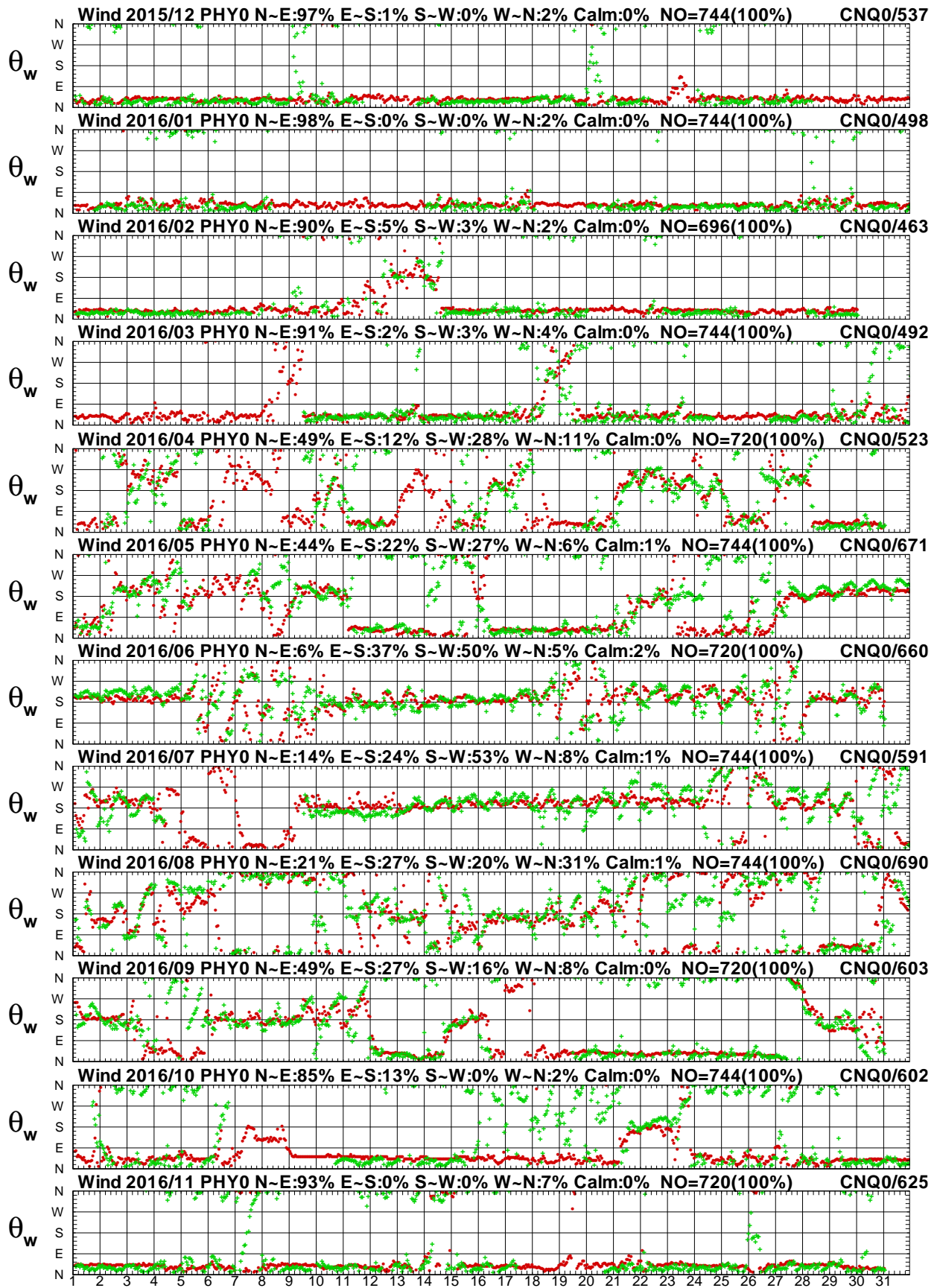


圖 1.14b 2016年每月澎湖海域 Y 站與嘉南海域 Q 站風向圖

W15CPHY0.1HA W15CCNQ0.1H0 W161PHY0.1HA W161CNQ0.1H0 W162PHY0.1HA W162CNQ0.1H0
 W163PHY0.1HA W163CNQ0.1H0 W164PHY0.1HA W164CNQ0.1H0 W165PHY0.1HA W165CNQ0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2016

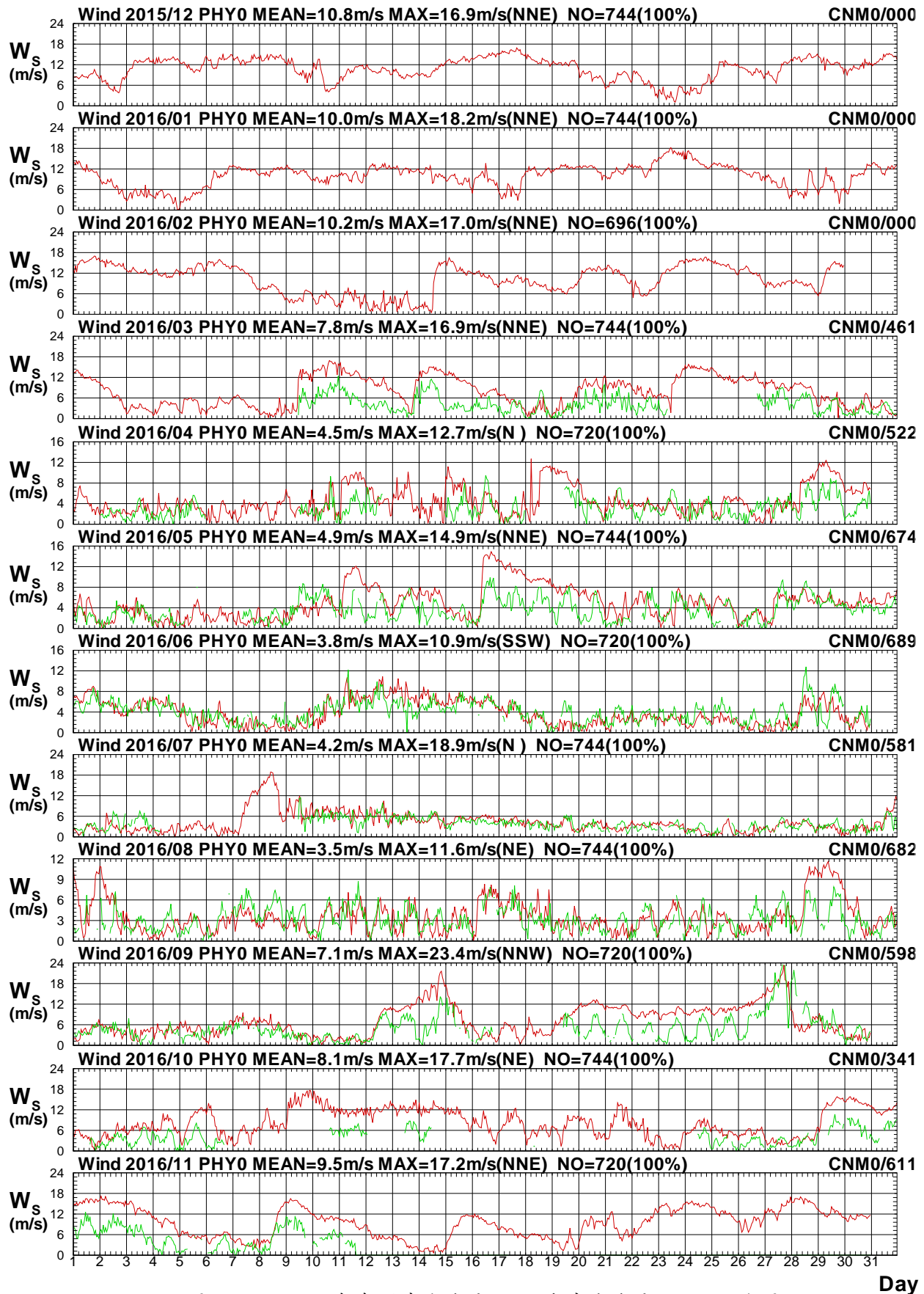


圖 1.15a 2016年每月澎湖海域 Y 站與嘉南海域 M 站風速圖

W15CPHY0.1HA W15CCNM0.1H0 W161PHY0.1HA W161CNM0.1H0 W162PHY0.1HA W162CNM0.1H0
 W163PHY0.1HA W163CNM0.1H0 W164PHY0.1HA W164CNM0.1H0 W165PHY0.1HA W165CNM0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2016

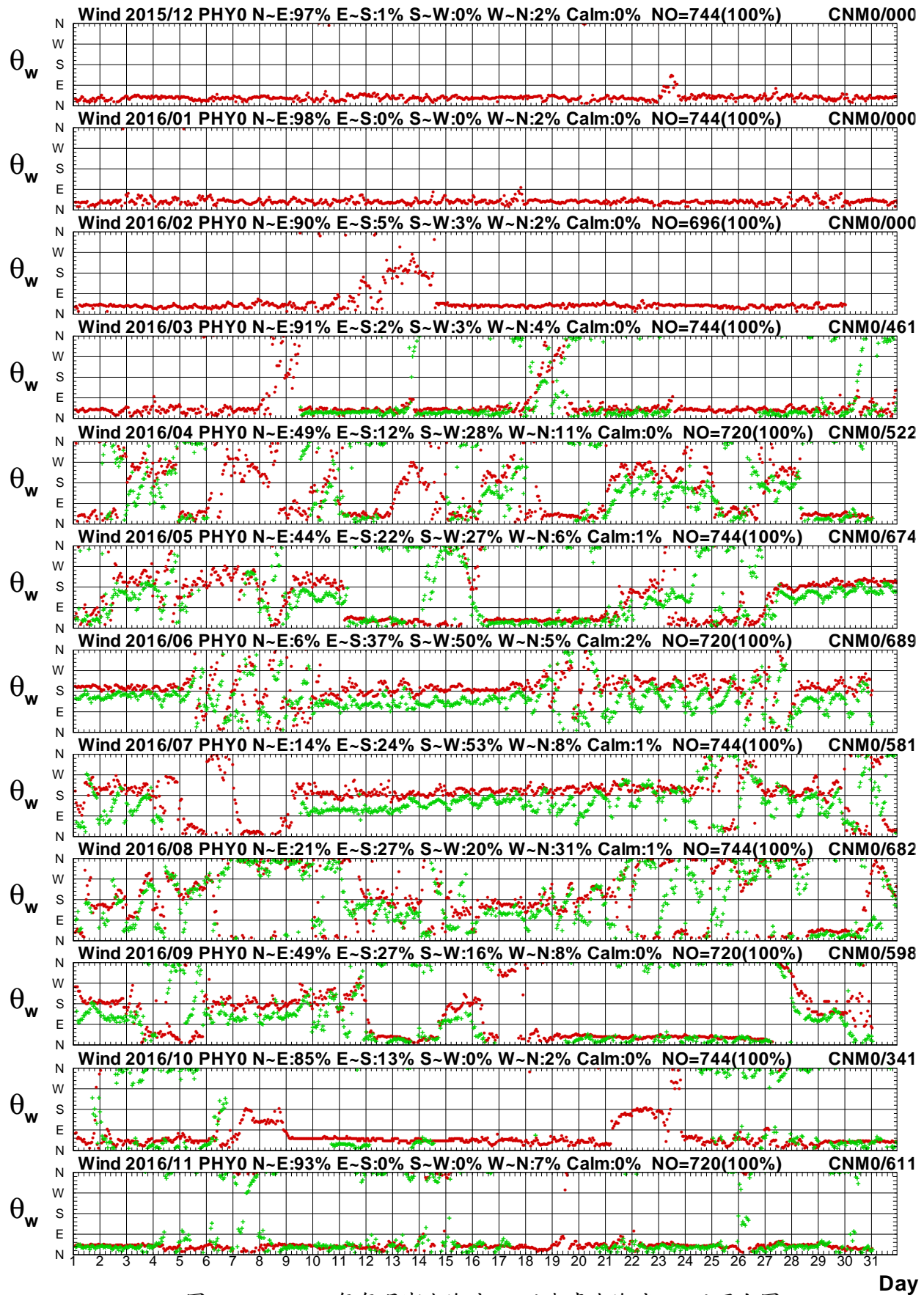


圖 1.15b 2016年每月澎湖海域 Y 站與嘉南海域 M 站風向圖

W15CPHY0.1HA W15CCNM0.1H0 W161PHY0.1HA W161CNM0.1H0 W162PHY0.1HA W162CNM0.1H0
 W163PHY0.1HA W163CNM0.1H0 W164PHY0.1HA W164CNM0.1H0 W165PHY0.1HA W165CNM0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2016

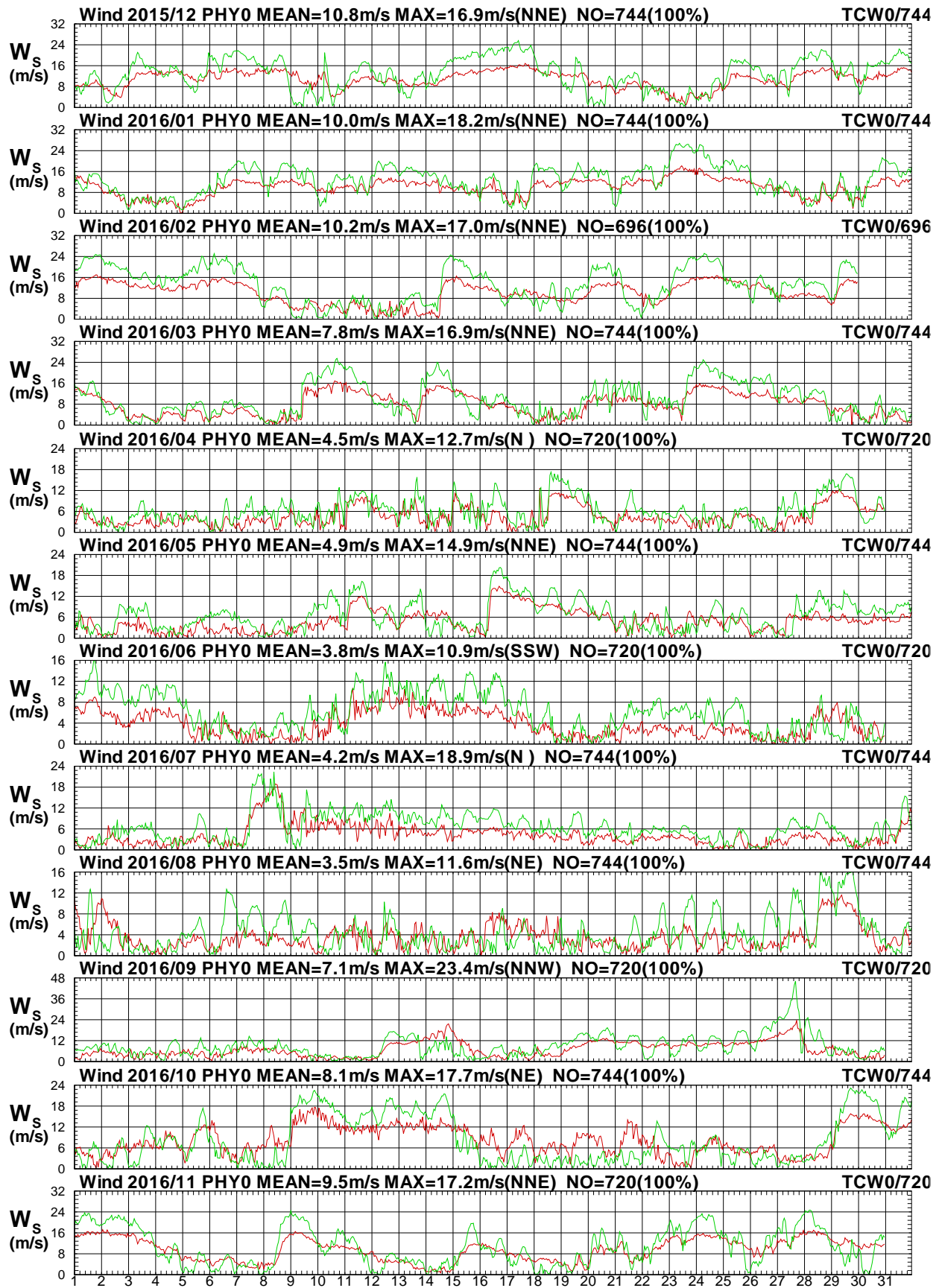


圖 1.16a 2016年每月澎湖海域 Y 站與中雲海域 W 站風速圖

W15CPHY0.1HA W15CTCW0.1H0 W161PHY0.1HA W161TCW0.1H0 W162PHY0.1HA W162TCW0.1H0
 W163PHY0.1HA W163TCW0.1H0 W164PHY0.1HA W164TCW0.1H0 W165PHY0.1HA W165TCW0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2016

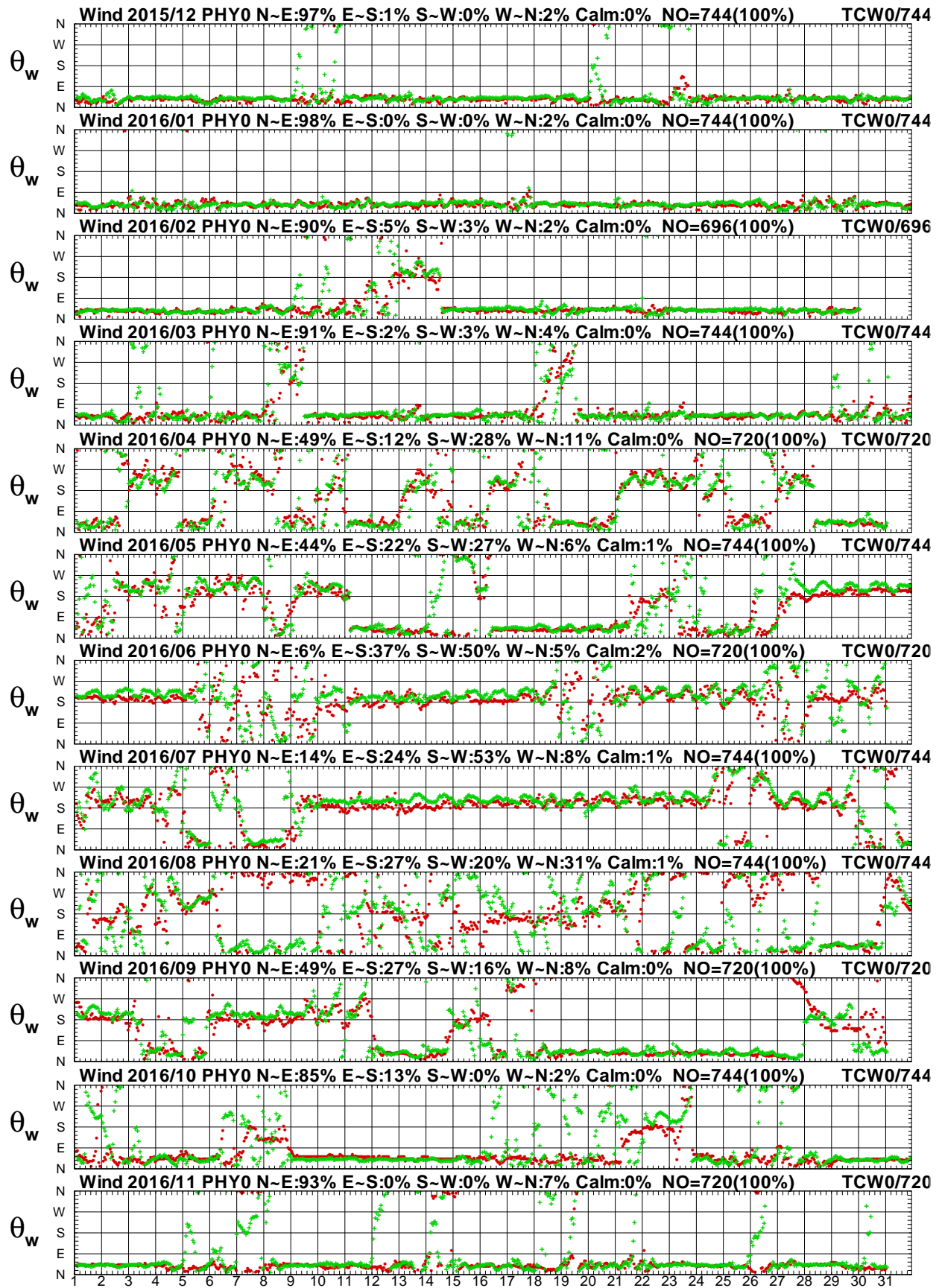


圖 1.16b 2016年每月澎湖海域 Y 站與中雲海域 W 站風向圖

W15CPHY0.1HA W15CTCW0.1HO W161PHY0.1HA W161TCW0.1HO W162PHY0.1HA W162TCW0.1HO
 W163PHY0.1HA W163TCW0.1HO W164PHY0.1HA W164TCW0.1HO W165PHY0.1HA W165TCW0.1HO

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Wind Speed in Peng-Hu Seas of PHY0 at 2016

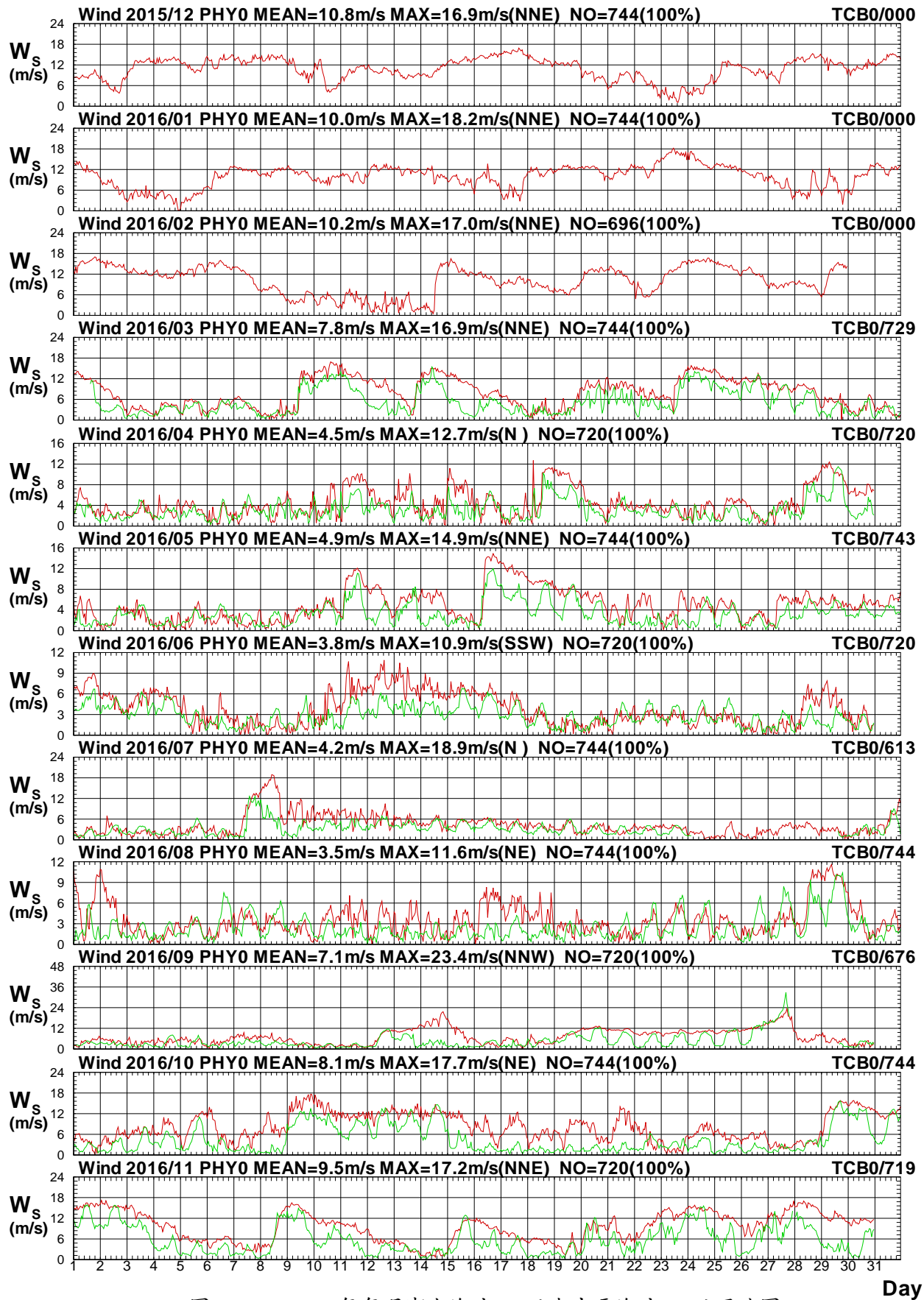


圖 1.17a 2016年每月澎湖海域 Y 站與中雲海域 B 站風速圖

W15CPHY0.1HA W15CTCB0.1H0 W161PHY0.1HA W161TCB0.1H0 W162PHY0.1HA W162TCB0.1H0
 W163PHY0.1HA W163TCB0.1H0 W164PHY0.1HA W164TCB0.1H0 W165PHY0.1HA W165TCB0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2016

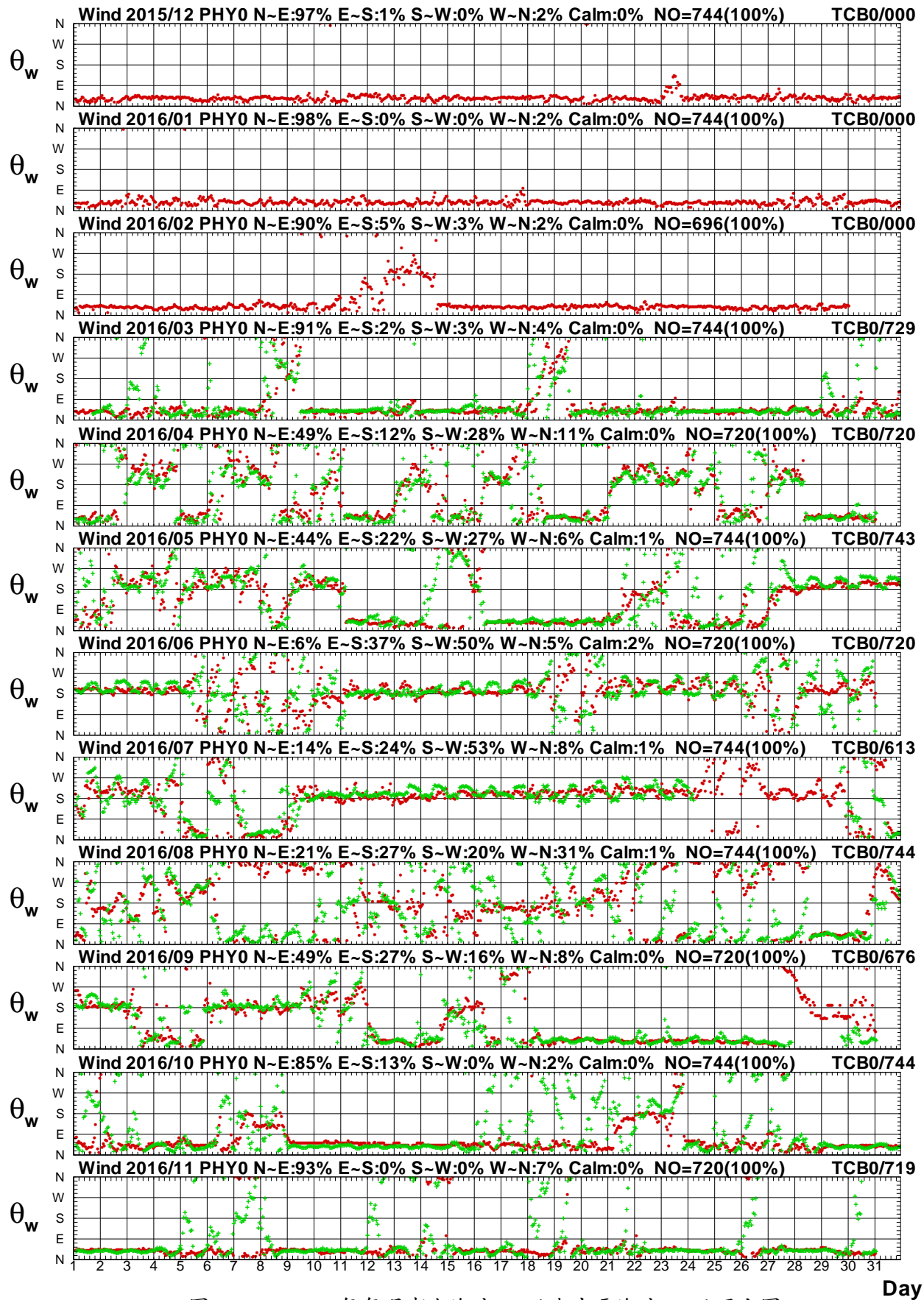


圖 1.17b 2016年每月澎湖海域 Y 站與中雲海域 B 站風向圖

W15CPHY0.1HA W15CTCB0.1H0 W161PHY0.1HA W161TCB0.1H0 W162PHY0.1HA W162TCB0.1H0
 W163PHY0.1HA W163TCB0.1H0 W164PHY0.1HA W164TCB0.1H0 W165PHY0.1HA W165TCB0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2016

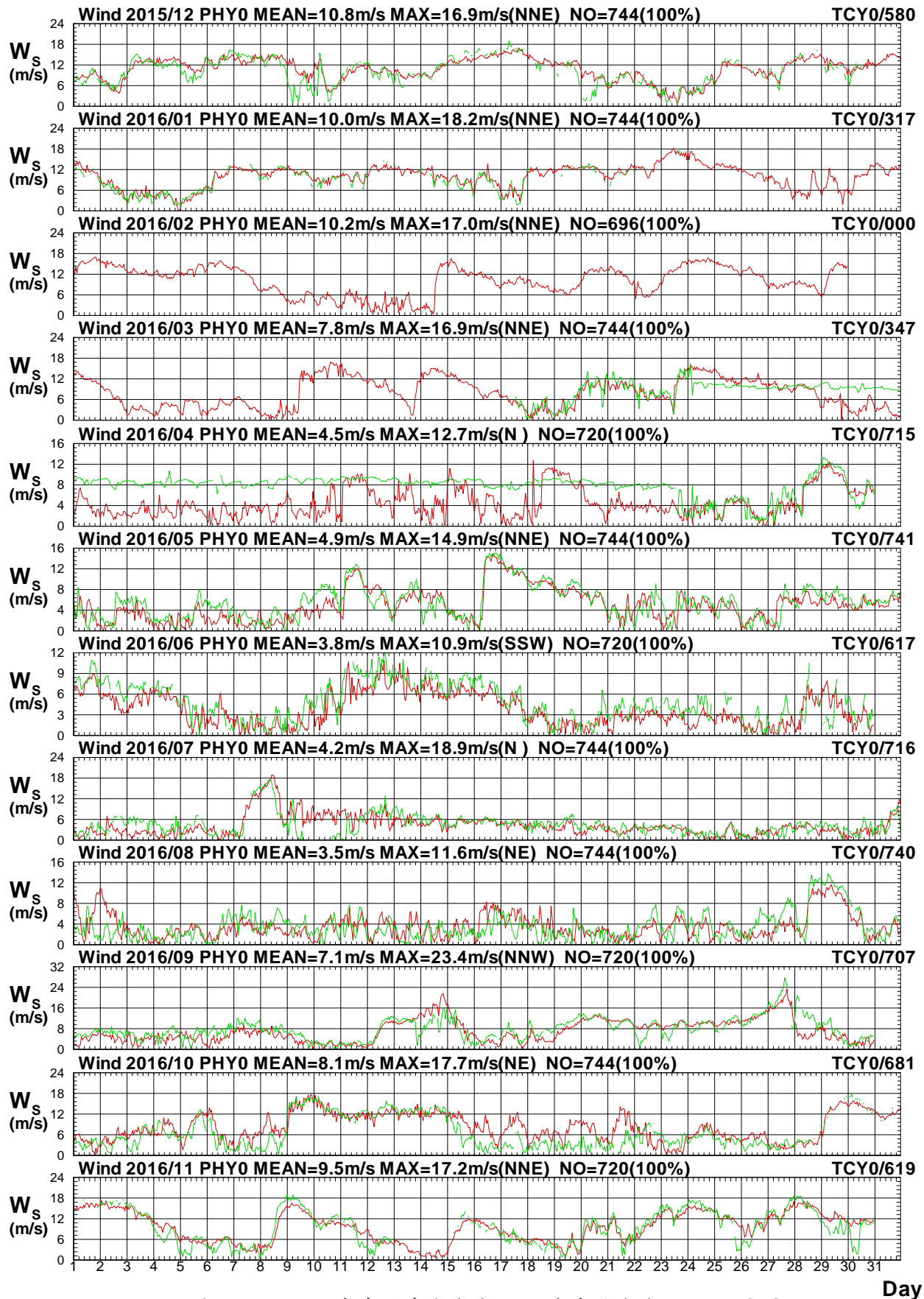


圖 1.18a 2016年每月澎湖海域 Y 站與中雲海域 Y 站風速圖

W15CPHY0.1HA W15CTCY0.1H0 W161PHY0.1HA W161TCY0.1H0 W162PHY0.1HA W162TCY0.1H0
 W163PHY0.1HA W163TCY0.1H0 W164PHY0.1HA W164TCY0.1H0 W165PHY0.1HA W165TCY0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2016

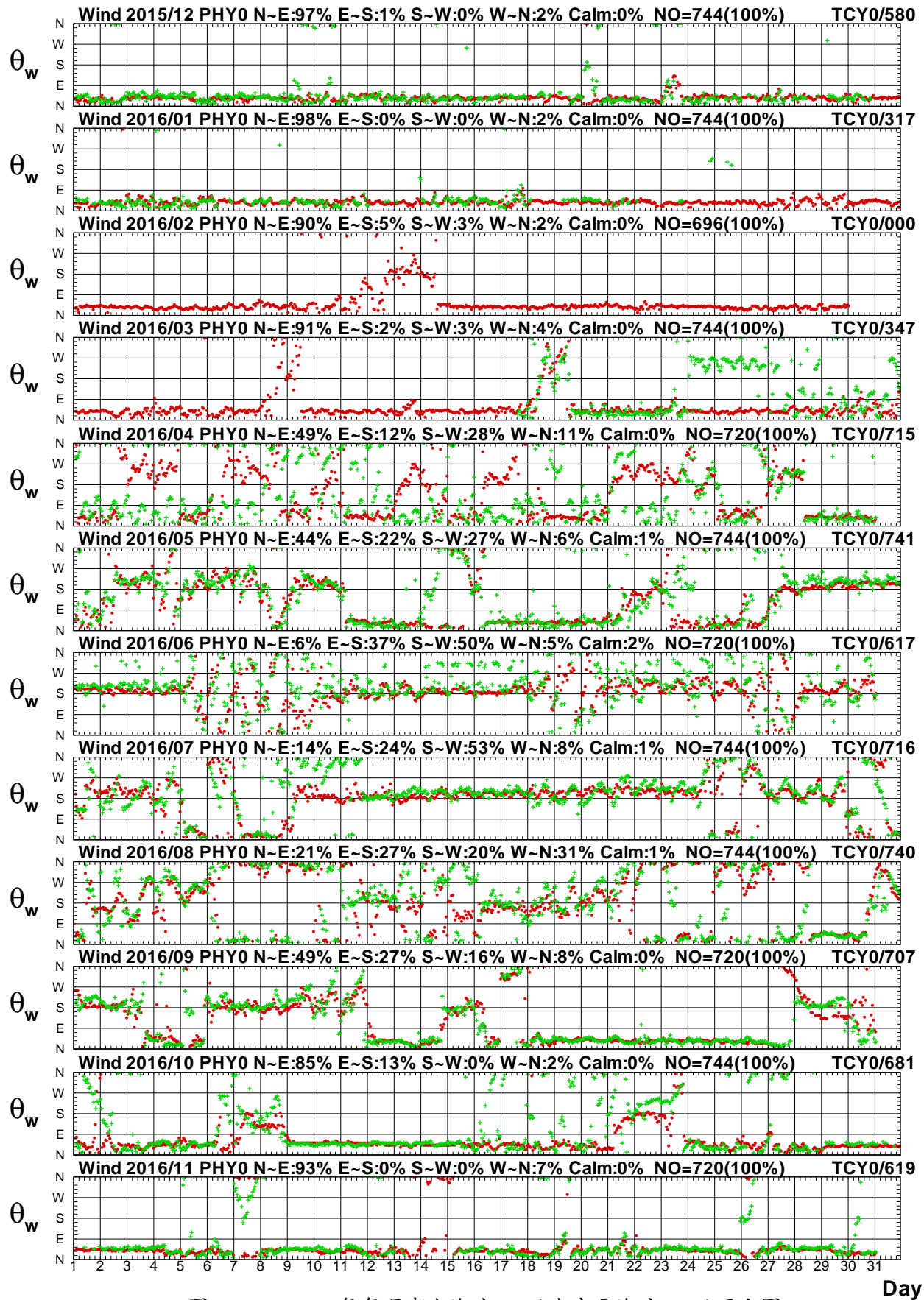


圖 1.18b 2016年每月澎湖海域 Y 站與中雲海域 Y 站風向圖

W15CPHY0.1HA W15CTCY0.1H0 W161PHY0.1HA W161TCY0.1H0 W162PHY0.1HA W162TCY0.1H0
 W163PHY0.1HA W163TCY0.1H0 W164PHY0.1HA W164TCY0.1H0 W165PHY0.1HA W165TCY0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2016

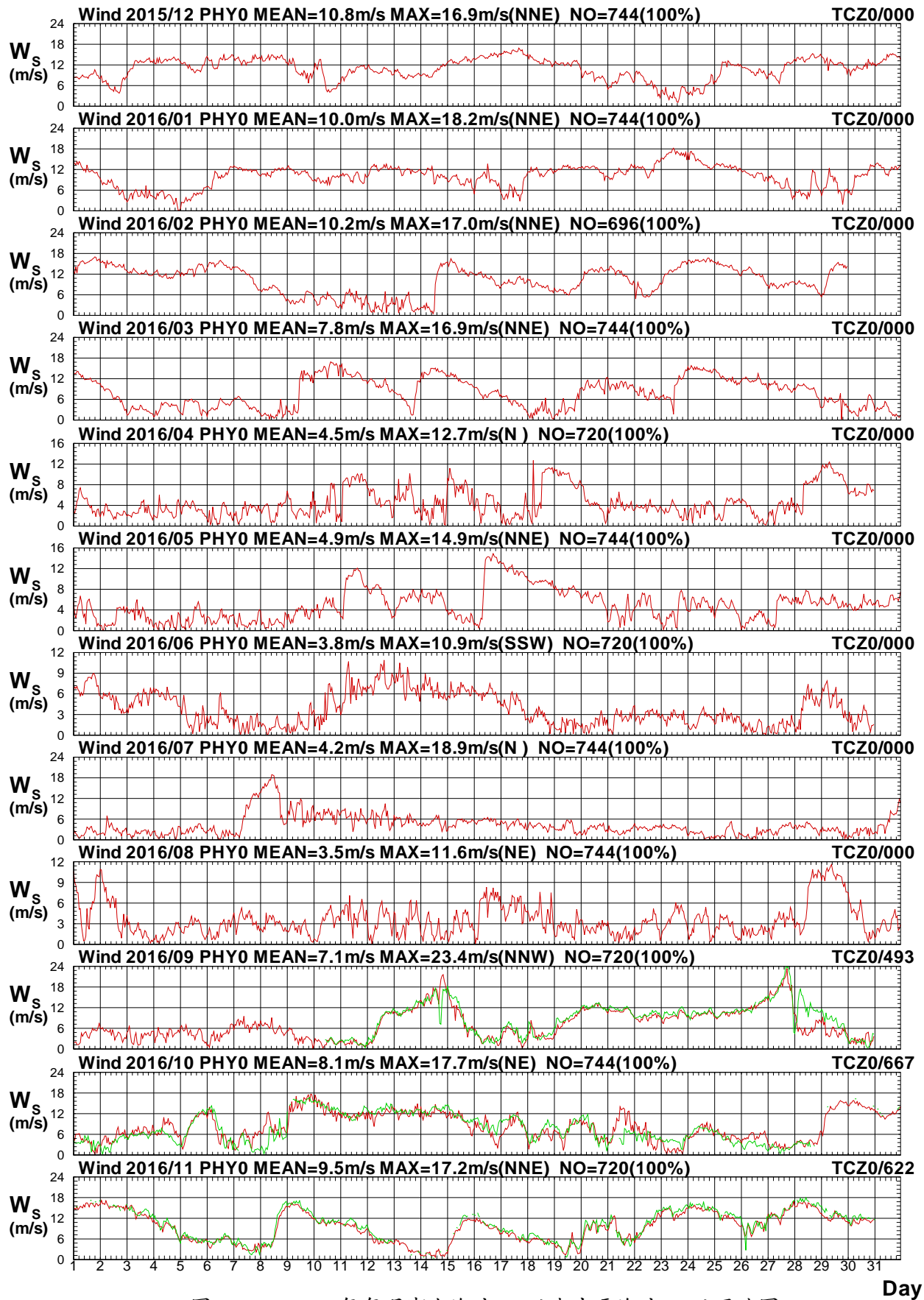


圖 1.19a 2016年每月澎湖海域 Y 站與中雲海域 Z 站風速圖

W15CPHY0.1HA W15CTCZ0.1H0 W161PHY0.1HA W161TCZ0.1H0 W162PHY0.1HA W162TCZ0.1H0
 W163PHY0.1HA W163TCZ0.1H0 W164PHY0.1HA W164TCZ0.1H0 W165PHY0.1HA W165TCZ0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2016

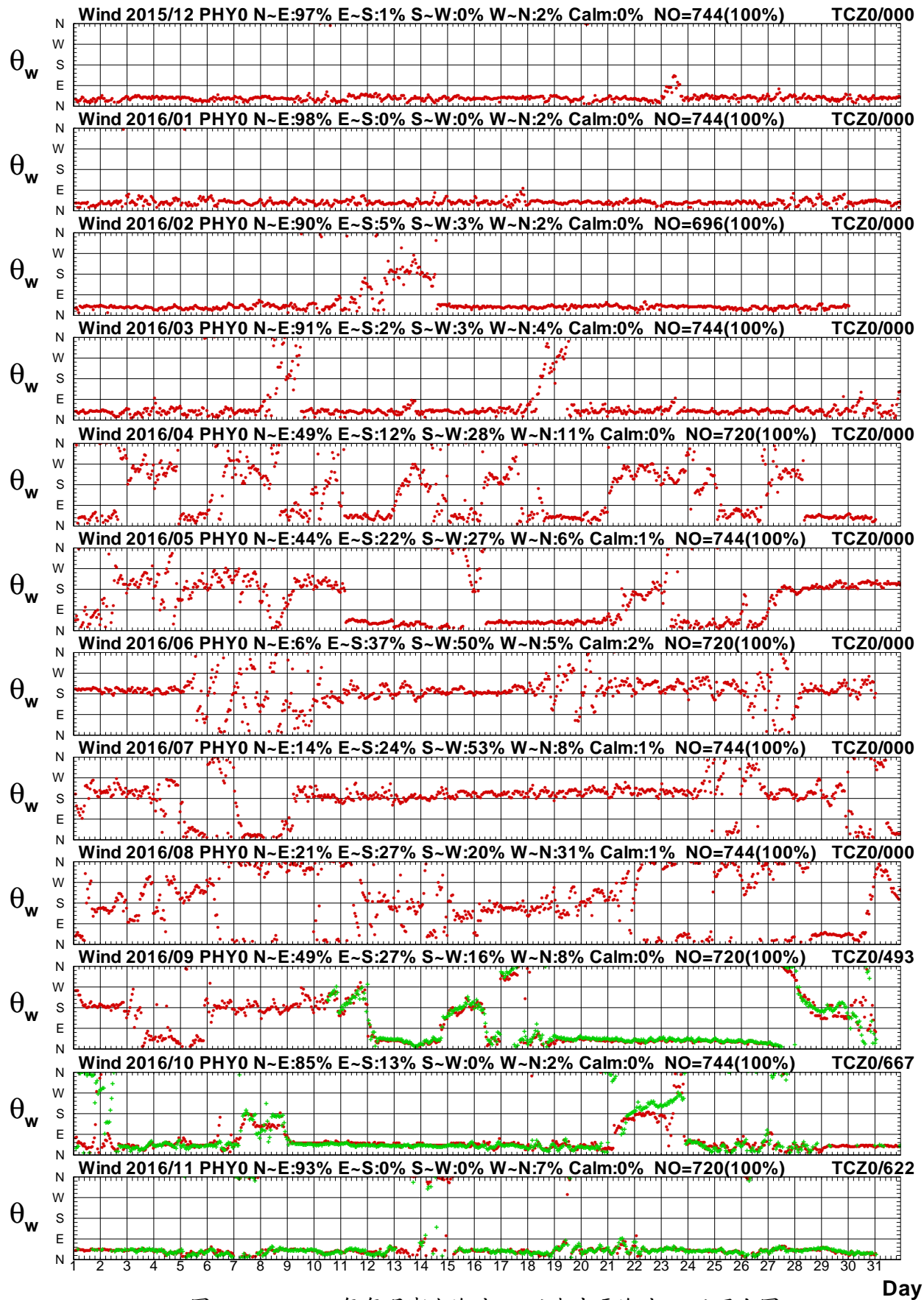


圖 1.19b 2016年每月澎湖海域 Y 站與中雲海域 Z 站風向圖

W15CPHY0.1HA W15CTCZ0.1H0 W161PHY0.1HA W161TCZ0.1H0 W162PHY0.1HA W162TCZ0.1H0
 W163PHY0.1HA W163TCZ0.1H0 W164PHY0.1HA W164TCZ0.1H0 W165PHY0.1HA W165TCZ0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2016

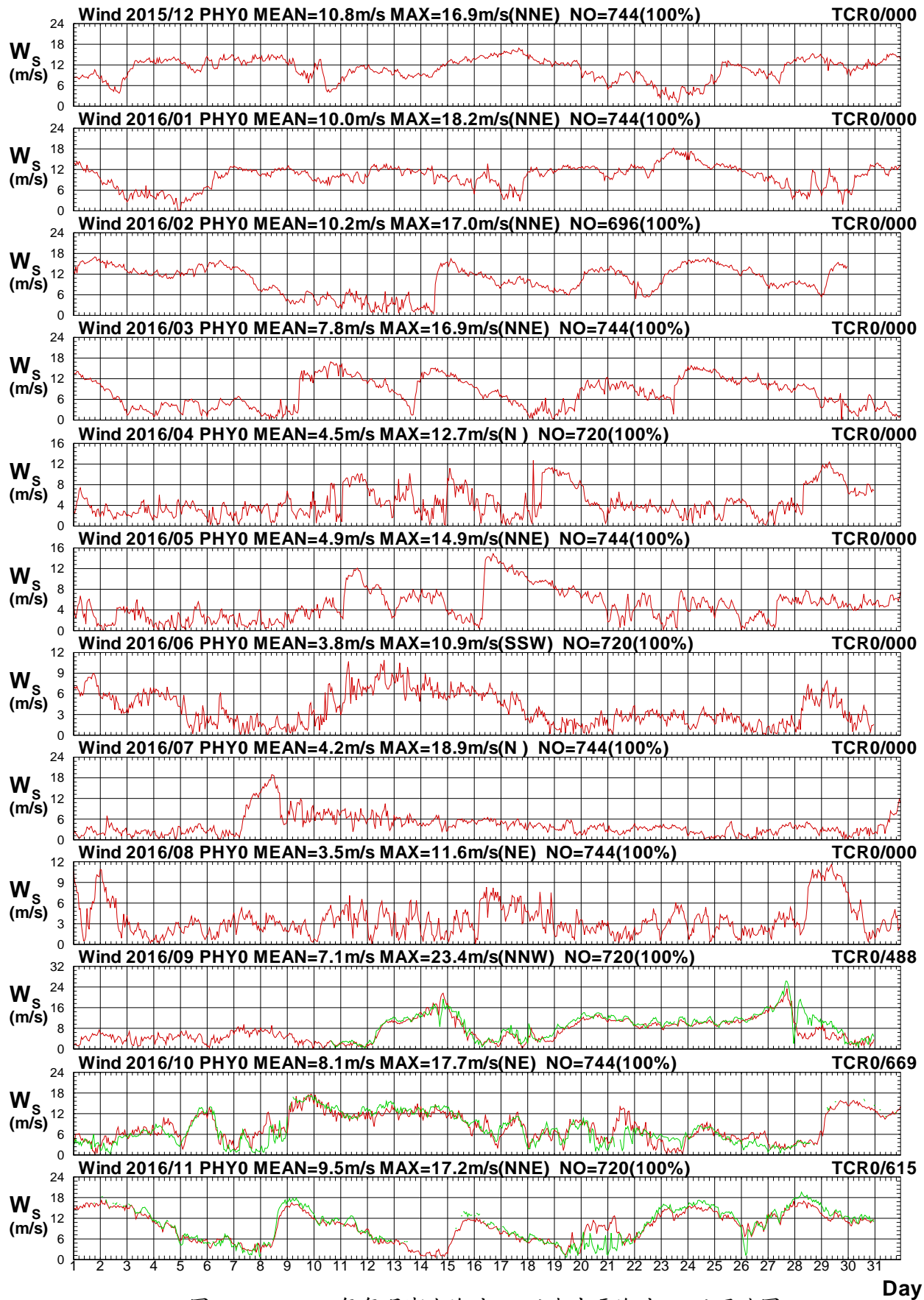


圖 1.20a 2016年每月澎湖海域 Y 站與中雲海域 R 站風速圖

W15CPHY0.1HA W15CTCR0.1H0 W161PHY0.1HA W161TCR0.1H0 W162PHY0.1HA W162TCR0.1H0
W163PHY0.1HA W163TCR0.1H0 W164PHY0.1HA W164TCR0.1H0 W165PHY0.1HA W165TCR0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2016

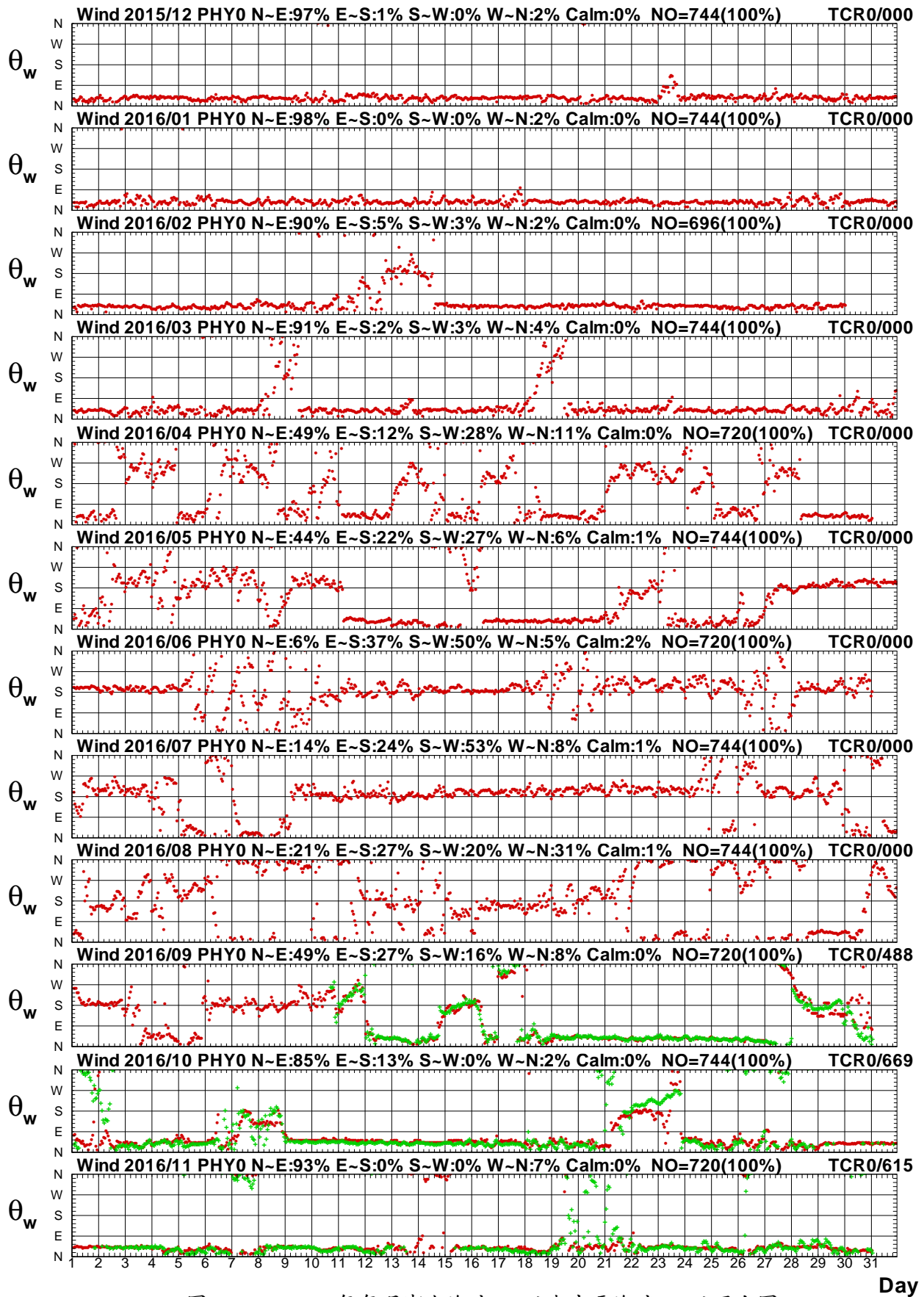


圖 1.20b 2016年每月澎湖海域 Y 站與中雲海域 R 站風向圖

W15CPHY0.1HA W15CTCR0.1H0 W161PHY0.1HA W161TCR0.1H0 W162PHY0.1HA W162TCR0.1H0
 W163PHY0.1HA W163TCR0.1H0 W164PHY0.1HA W164TCR0.1H0 W165PHY0.1HA W165TCR0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2016

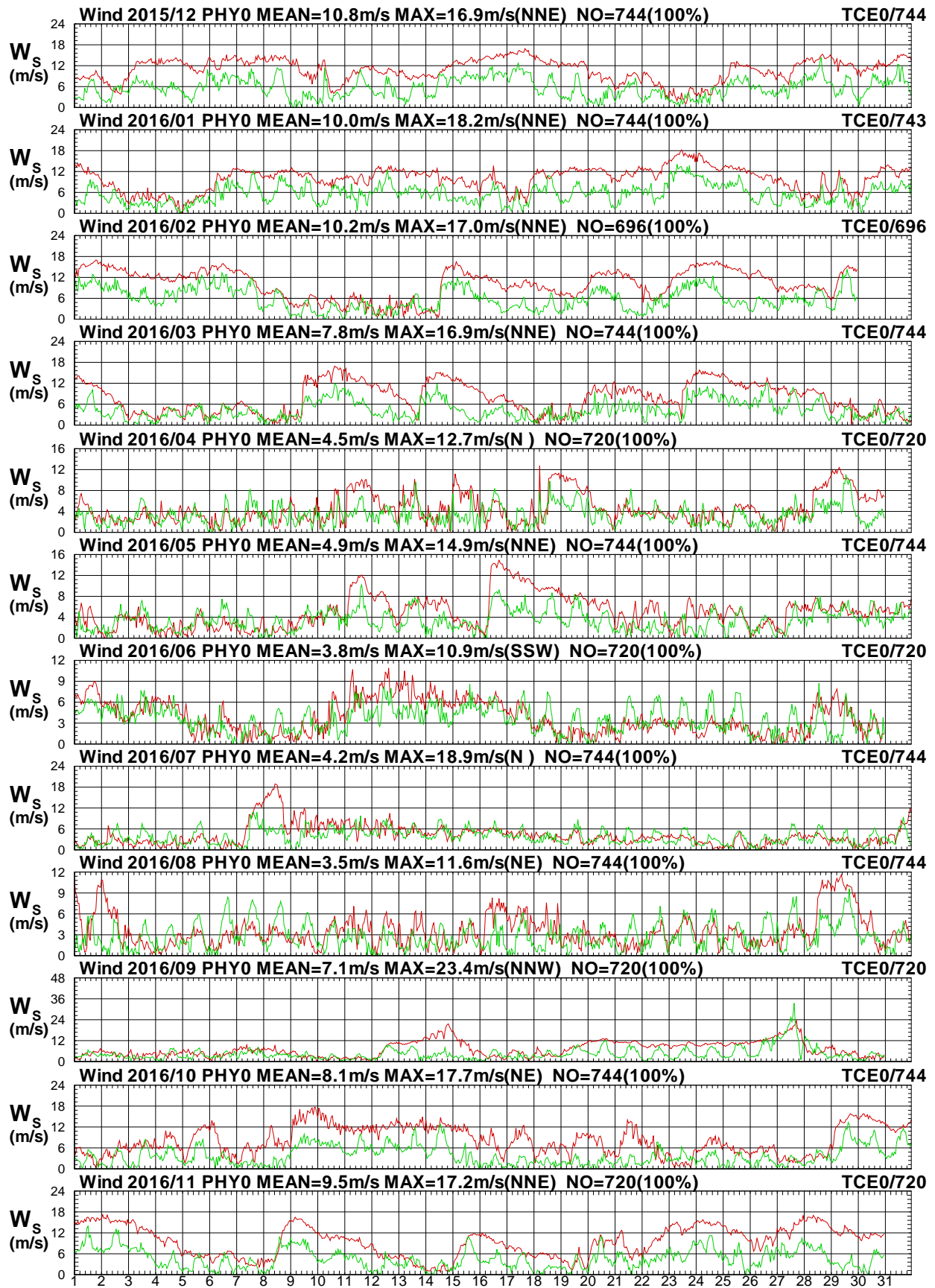


圖 1.21a 2016年每月澎湖海域 Y 站與中雲海域 E 站風速圖

W15CPHY0.1HA W15CTCE0.1H0 W161PHY0.1HA W161TCE0.1H0 W162PHY0.1HA W162TCE0.1H0
W163PHY0.1HA W163TCE0.1H0 W164PHY0.1HA W164TCE0.1H0 W165PHY0.1HA W165TCE0.1H0

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Wind Direction in Peng-Hu Seas of PHY0 at 2016

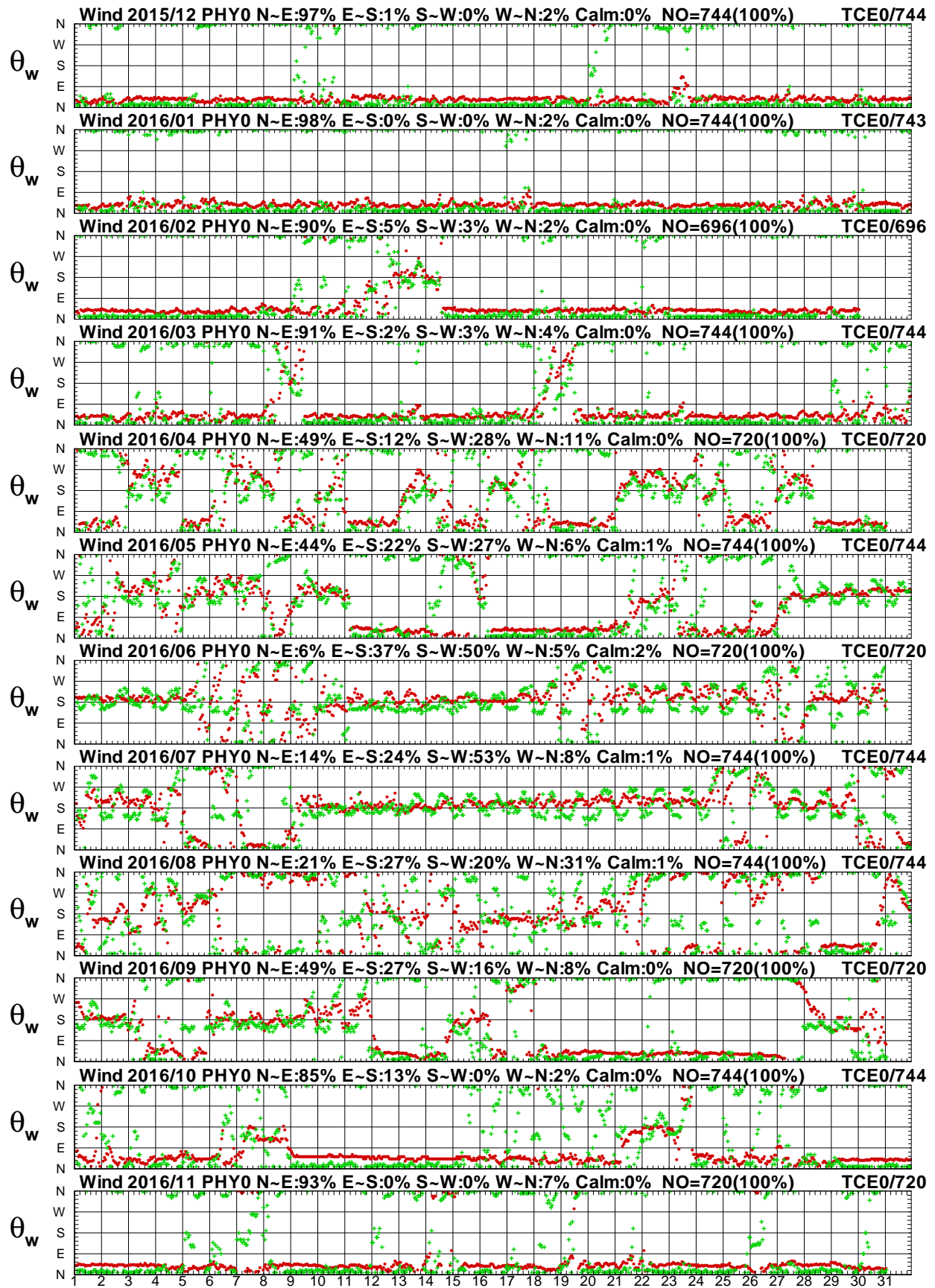


圖 1.21b 2016年每月澎湖海域 Y 站與中雲海域 E 站風向圖

W15CPHY0.1HA W15CTCE0.1H0 W161PHY0.1HA W161TCE0.1H0 W162PHY0.1HA W162TCE0.1H0
 W163PHY0.1HA W163TCE0.1H0 W164PHY0.1HA W164TCE0.1H0 W165PHY0.1HA W165TCE0.1H0

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Wind Speed in Peng-Hu Seas of PHY0 at 2016

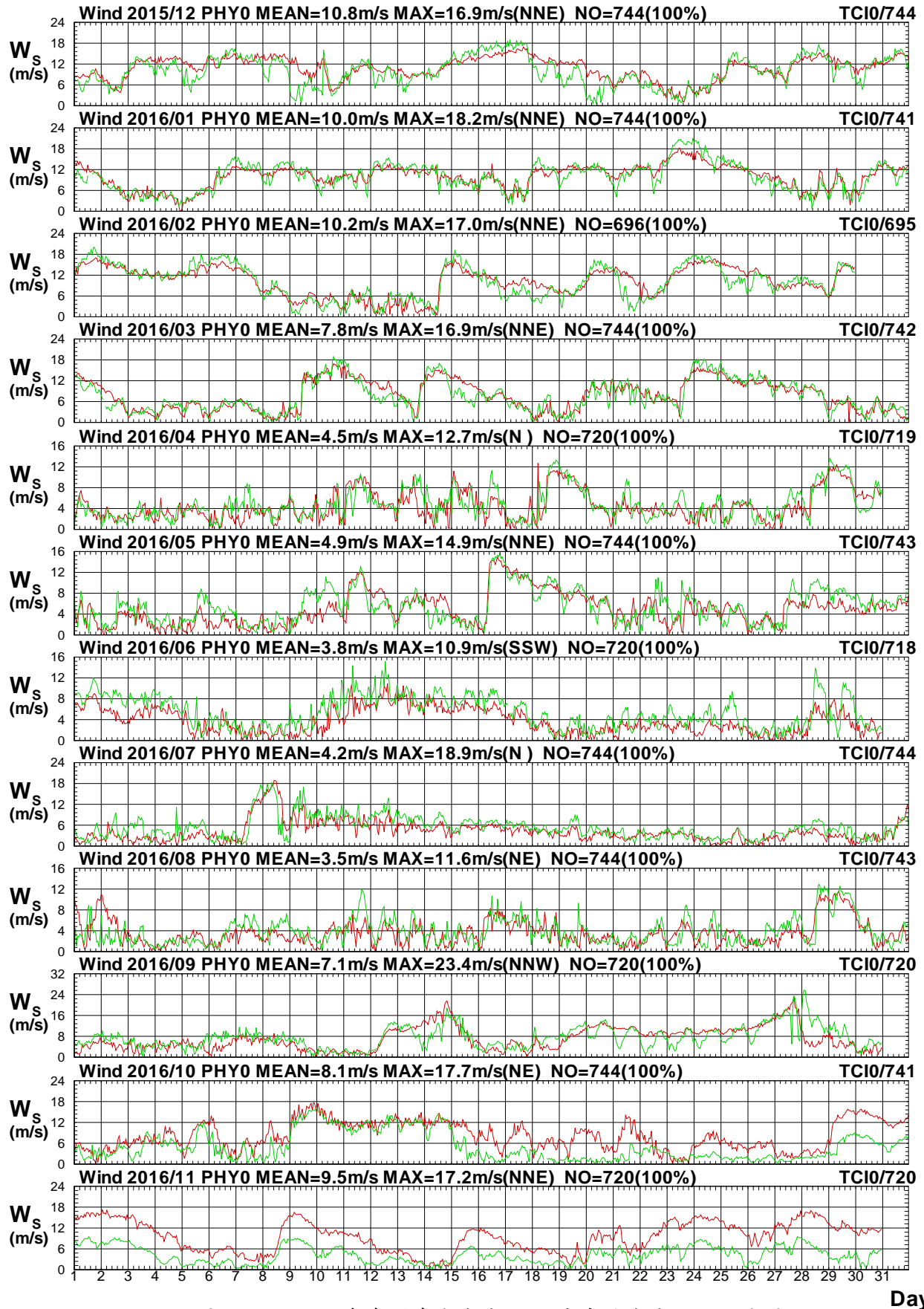


圖 1.22a 2016年每月澎湖海域 Y 站與中雲海域 I 站風速圖

W15CPHY0.1HA W15CTCIO.1HO W161PHY0.1HA W161TCIO.1HO W162PHY0.1HA W162TCIO.1HO
 W163PHY0.1HA W163TCIO.1HO W164PHY0.1HA W164TCIO.1HO W165PHY0.1HA W165TCIO.1HO

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Wind Direction in Peng-Hu Seas of PHY0 at 2016

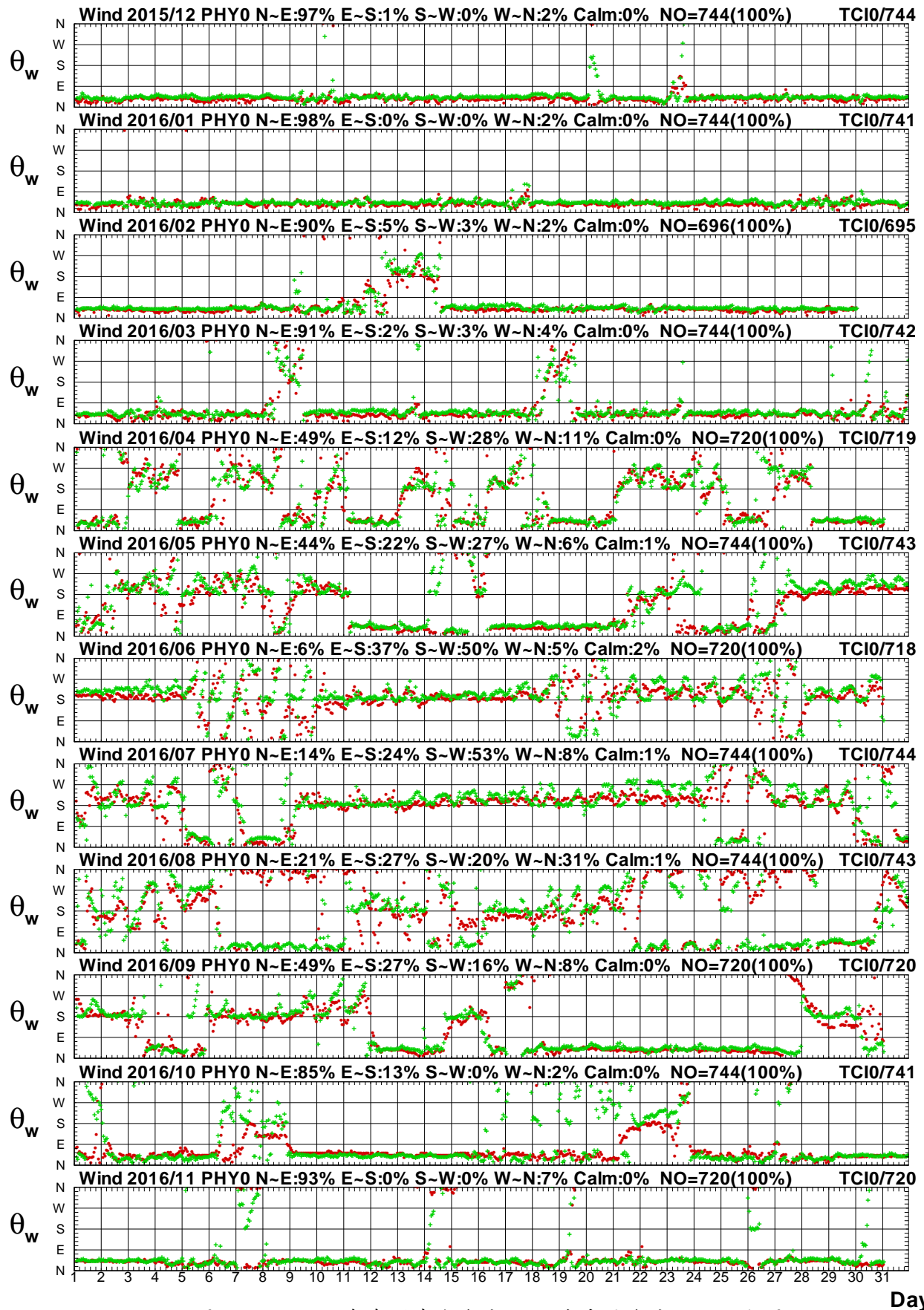


圖 1.22b 2016年每月澎湖海域 Y 站與中雲海域 I 站風向圖

W15CPHY0.1HA W15CTCI0.1H0 W161PHY0.1HA W161TCI0.1H0 W162PHY0.1HA W162TCI0.1H0
 W163PHY0.1HA W163TCI0.1H0 W164PHY0.1HA W164TCI0.1H0 W165PHY0.1HA W165TCI0.1H0

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第二章 2016 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**，2016 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，2016 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 2016 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	2011/01-2016/11(觀測中)	港研中心	龍門尖山港外海
Y	23°43'37"N	119°33'07"E	2006/09-2016/11(觀測中)	水利署	澎湖資料浮標
Z	23°15'23"N	119°41'2"E	2013/10-2016/11(觀測中)	中央氣象局	東吉島波浪站
R	22°45'16"N	119°25'42"E	2015/07-2016/11(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 2016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				
2015/12月	618 (83.1%)	81 (10.9%)	*	694 (93.3%)	*	*	*	*
2016/ 1月	625 (84.0%)	731 (98.3%)	*	697 (93.7%)	*	*	*	*
2016/ 2月	552 (79.3%)	682 (98.0%)	*	657 (94.4%)	*	*	*	*
2016/ 3月	667 (89.7%)	728 (97.8%)	*	238 (32.0%)	*	*	*	*
2016/ 4月	698 (96.9%)	697 (96.8%)	*	78 (10.8%)	*	*	*	*
2016/ 5月	726 (97.6%)	740 (99.5%)	*	*	*	*	*	*
2016/ 6月	720 (100%)	716 (99.4%)	*	*	*	*	*	*
2016/ 7月	714 (96.0%)	711 (95.6%)	*	319 (42.9%)	*	*	*	*
2016/ 8月	741 (99.6%)	701 (94.2%)	*	736 (98.9%)	*	*	*	*
2016/ 9月	693 (96.3%)	634 (88.1%)	*	680 (94.4%)	*	*	*	*
2016/10月	102 (13.7%)	*	*	643 (86.4%)	*	*	*	*
2016/11月	659 (91.5%)	*	*	607 (84.3%)	*	*	*	*
2016/冬季	*	*	*	*	*	*	*	*
2016/春季	*	*	*	*	*	*	*	*
2016/夏季	*	*	*	*	*	*	*	*
2016/秋季	*	*	*	*	*	*	*	*
2016/整年	*	*	*	*	*	*	*	*
起始年月	*	*	*	*	*	*	*	*
結束年月	*	*	*	*	*	*	*	*

表 2.1b 2016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				
2015/12月	744 (100%)	*	*	*	*	*	*	*
2016/ 1月	744 (100%)	*	*	*	*	*	*	*
2016/ 2月	696 (100%)	*	*	*	*	*	*	*
2016/ 3月	744 (100%)	*	*	*	*	*	*	*
2016/ 4月	720 (100%)	*	*	*	*	*	*	*
2016/ 5月	744 (100%)	*	*	*	*	*	*	*
2016/ 6月	720 (100%)	*	*	*	*	*	*	*
2016/ 7月	744 (100%)	*	*	*	*	*	*	*
2016/ 8月	744 (100%)	*	*	*	*	*	*	*
2016/ 9月	720 (100%)	*	*	*	*	*	*	*
2016/10月	744 (100%)	*	*	*	*	*	*	*
2016/11月	720 (100%)	*	*	*	*	*	*	*
2016/冬季	*	*	*	*	*	*	*	*
2016/春季	*	*	*	*	*	*	*	*
2016/夏季	*	*	*	*	*	*	*	*
2016/秋季	*	*	*	*	*	*	*	*
2016/整年	*	*	*	*	*	*	*	*
起始年月	*	*	*	*	*	*	*	*
結束年月	*	*	*	*	*	*	*	*

Wave H_s in Peng-Hu Seas of PHY0 at 2016

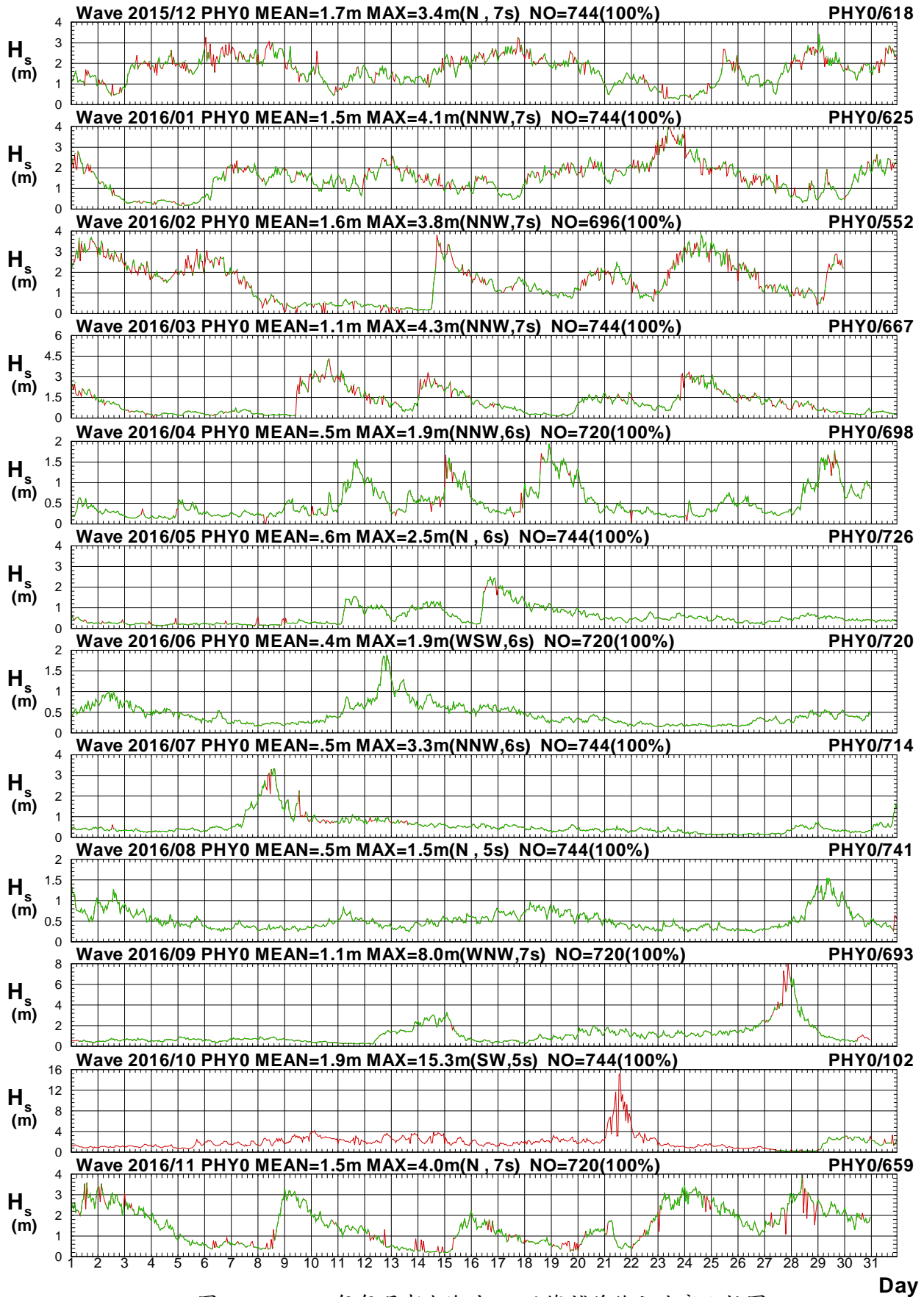


圖 2.1a 2016年每月澎湖海域 Y 站修補前後之波高比較圖

V15CPHY0.1HA V15CPHY0.1HO V161PHY0.1HA V161PHY0.1HO V162PHY0.1HA V162PHY0.1HO
 V163PHY0.1HA V163PHY0.1HO V164PHY0.1HA V164PHY0.1HO V165PHY0.1HA V165PHY0.1HO

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Wave T_p in Peng-Hu Seas of PHY0 at 2016

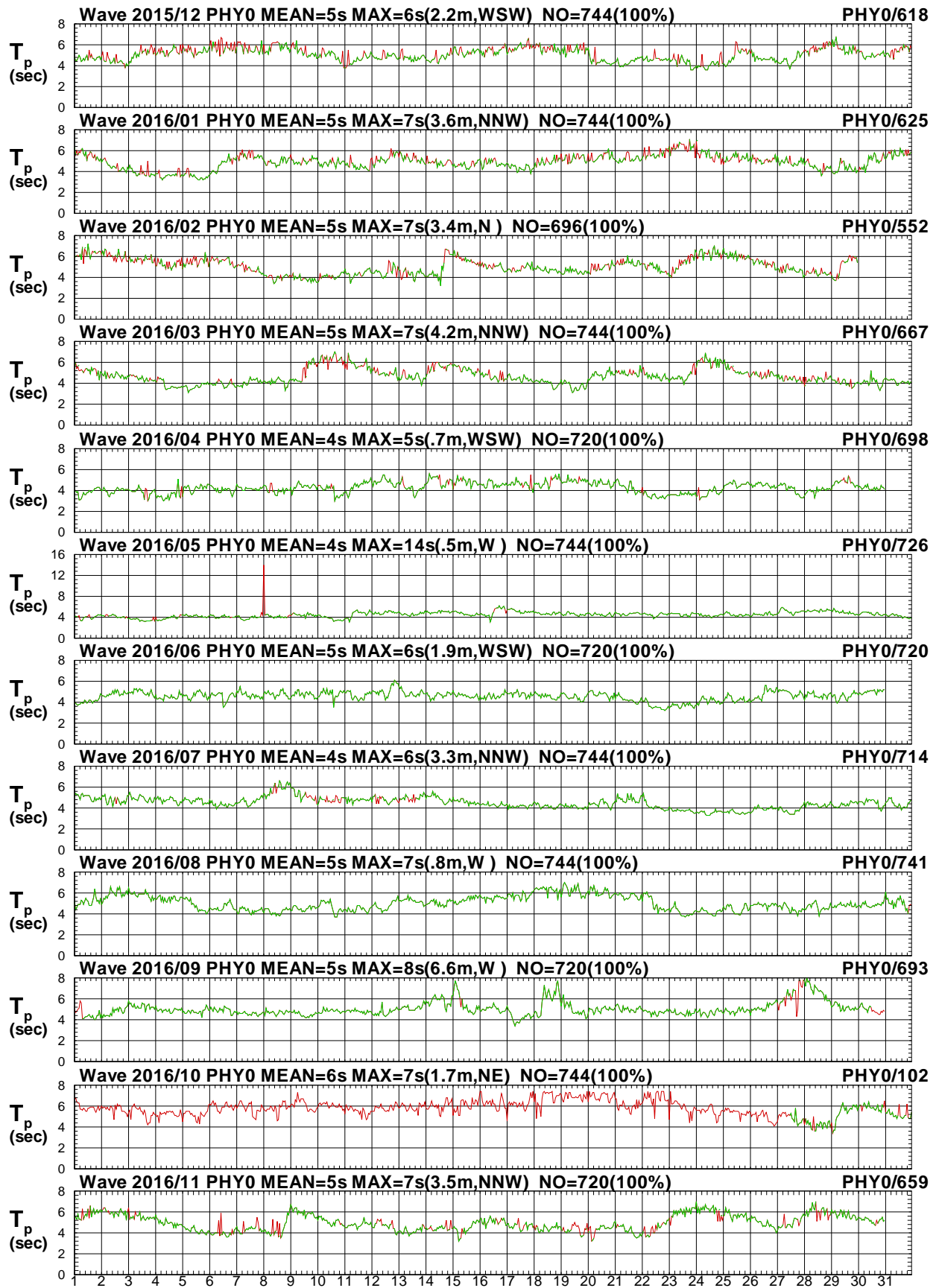


圖 2.1b 2016年每月澎湖海域 Y 站修補前後之週期比較圖

V15CPHY0.1HA V15CPHY0.1HO V161PHY0.1HA V161PHY0.1HO V162PHY0.1HA V162PHY0.1HO
 V163PHY0.1HA V163PHY0.1HO V164PHY0.1HA V164PHY0.1HO V165PHY0.1HA V165PHY0.1HO

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Wave Direction in Peng-Hu Seas of PHY0 at 2016

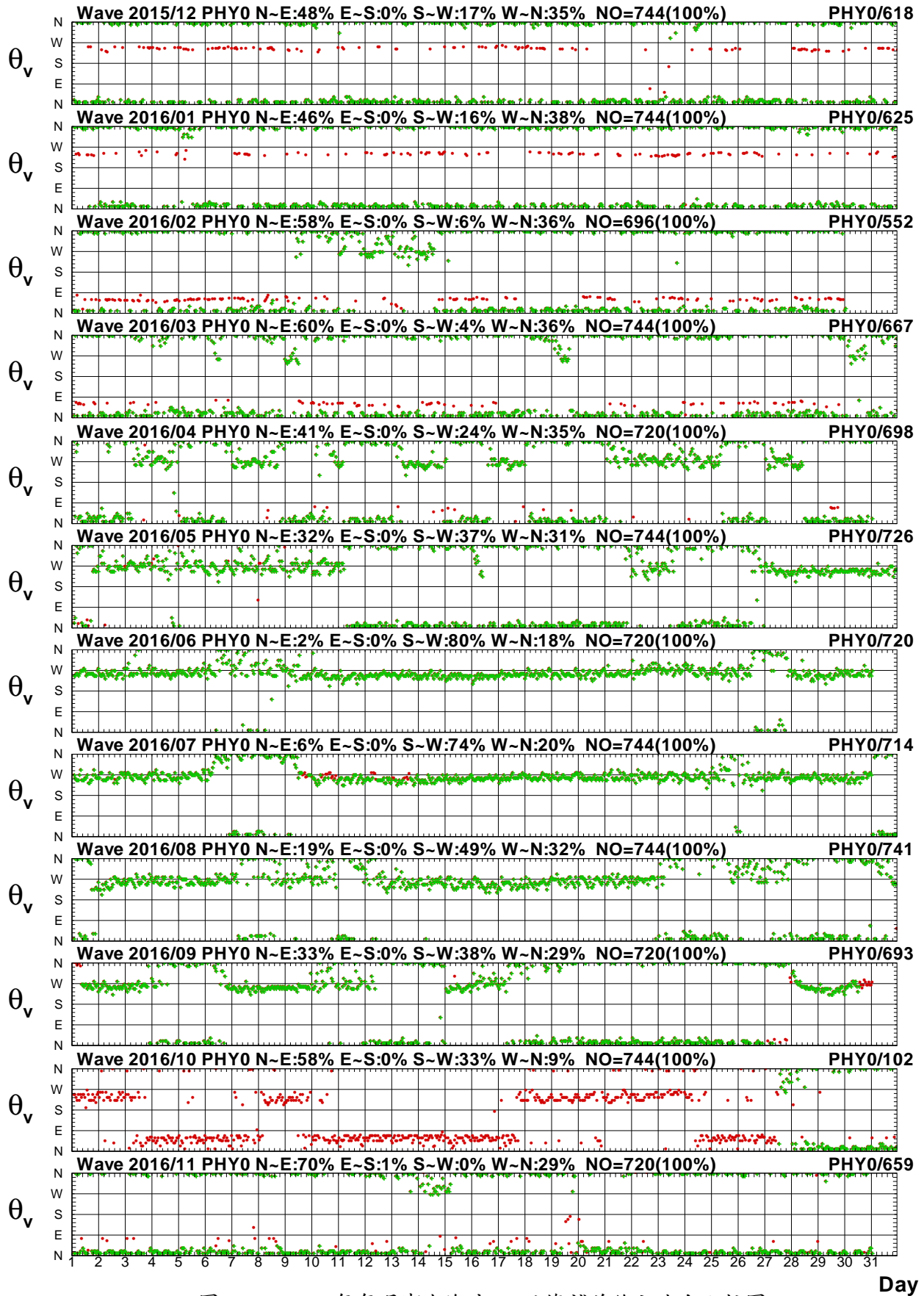


圖 2.1c 2016年每月澎湖海域 Y 站修補前後之波向比較圖

V15CPHY0.1HA V15CPHY0.1HO V161PHY0.1HA V161PHY0.1HO V162PHY0.1HA V162PHY0.1HO
 V163PHY0.1HA V163PHY0.1HO V164PHY0.1HA V164PHY0.1HO V165PHY0.1HA V165PHY0.1HO

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Wave H_s in Peng-Hu Seas of PHY0 at 2016

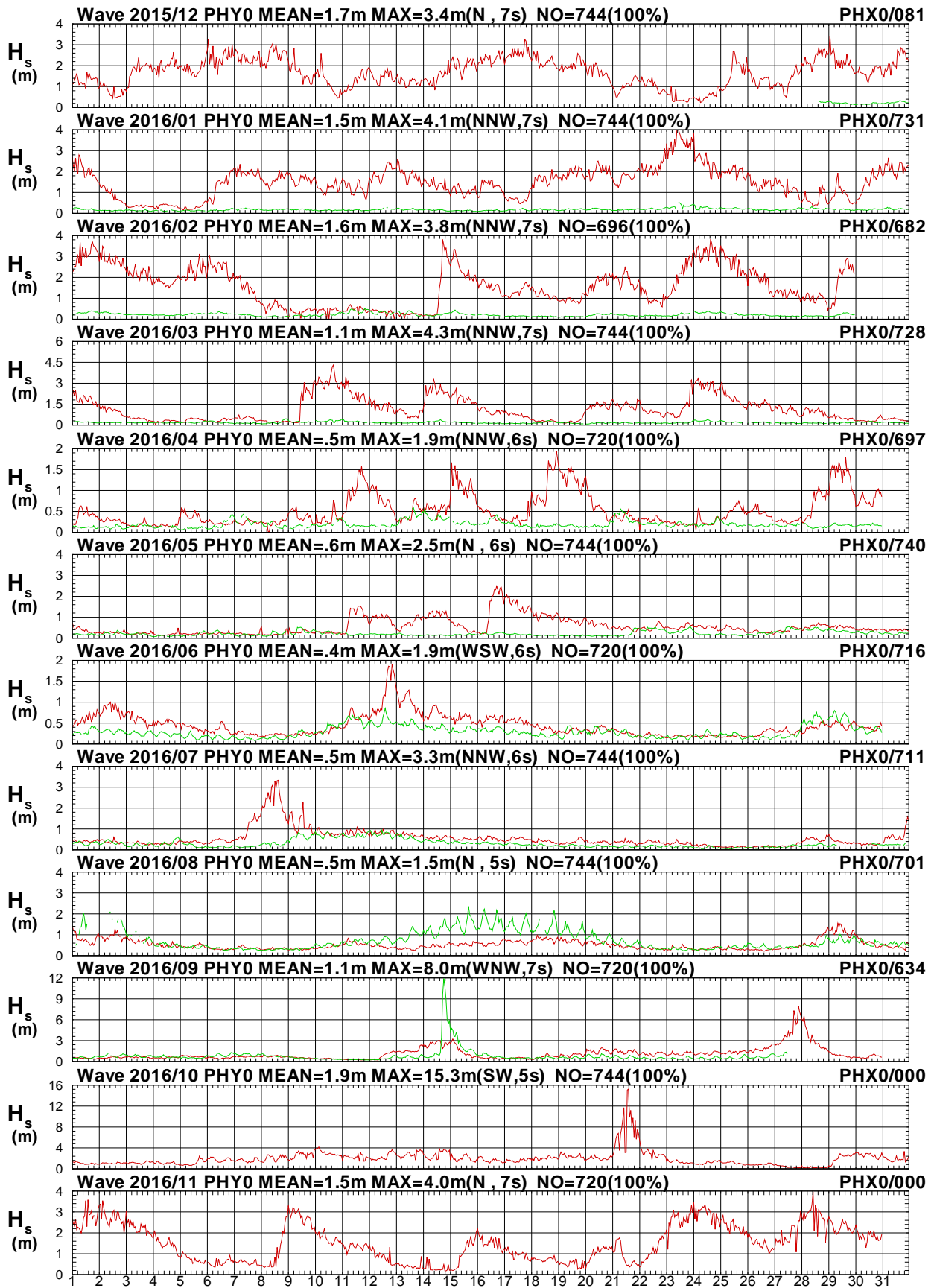


圖 2.2a 2016年每月澎湖海域 Y 站與 X 站波高比較圖

V15CPHY0.1HA V15CPHX0.1H0 V161PHY0.1HA V161PHX0.1H0 V162PHY0.1HA V162PHX0.1H0
 V163PHY0.1HA V163PHX0.1H0 V164PHY0.1HA V164PHX0.1H0 V165PHY0.1HA V165PHX0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2016

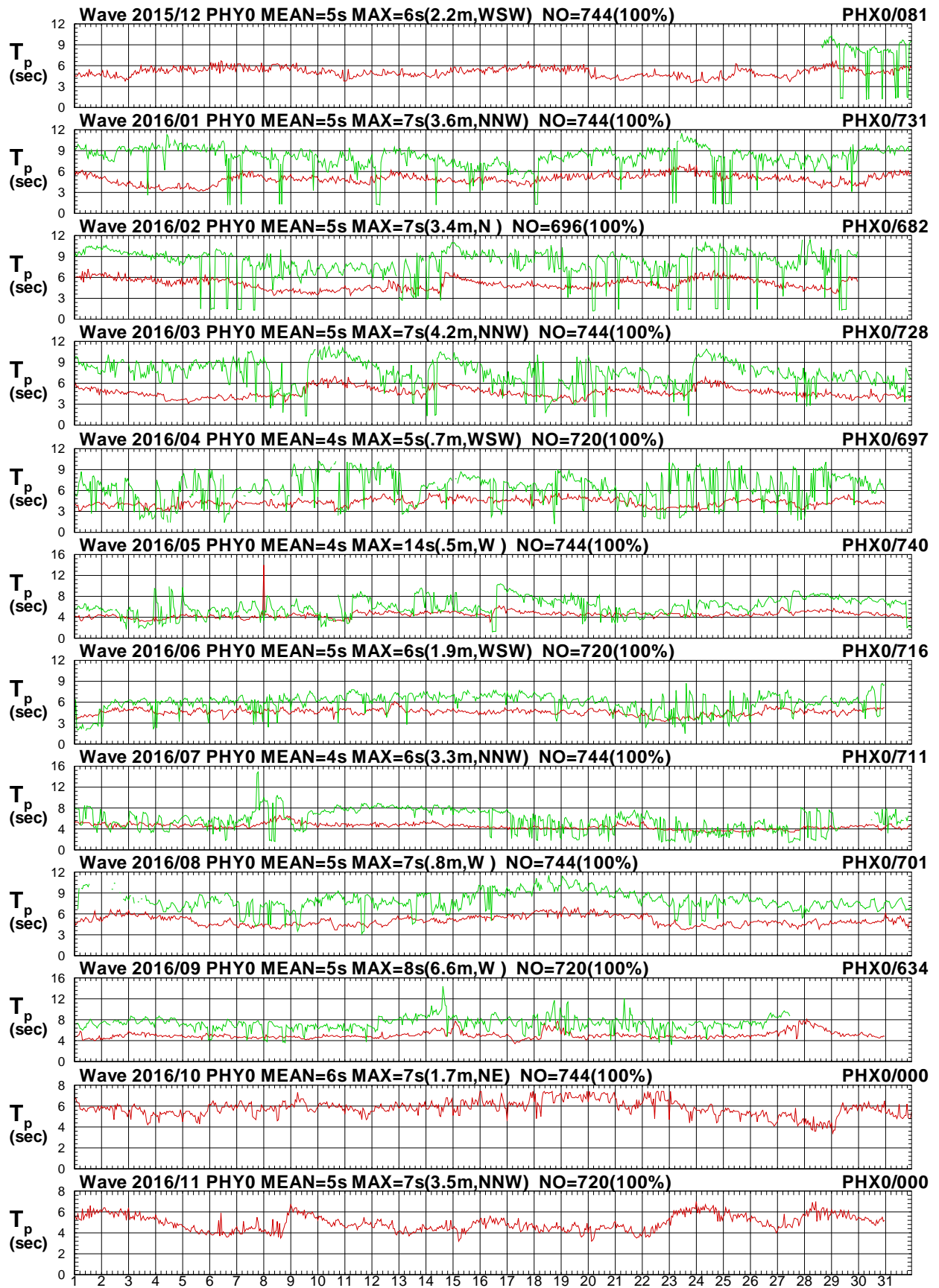


圖 2.2b 2016年每月澎湖海域 Y 站與 X 站週期比較圖

V15CPHY0.1HA V15CPHX0.1H0 V161PHY0.1HA V161PHX0.1H0 V162PHY0.1HA V162PHX0.1H0
 V163PHY0.1HA V163PHX0.1H0 V164PHY0.1HA V164PHX0.1H0 V165PHY0.1HA V165PHX0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2016

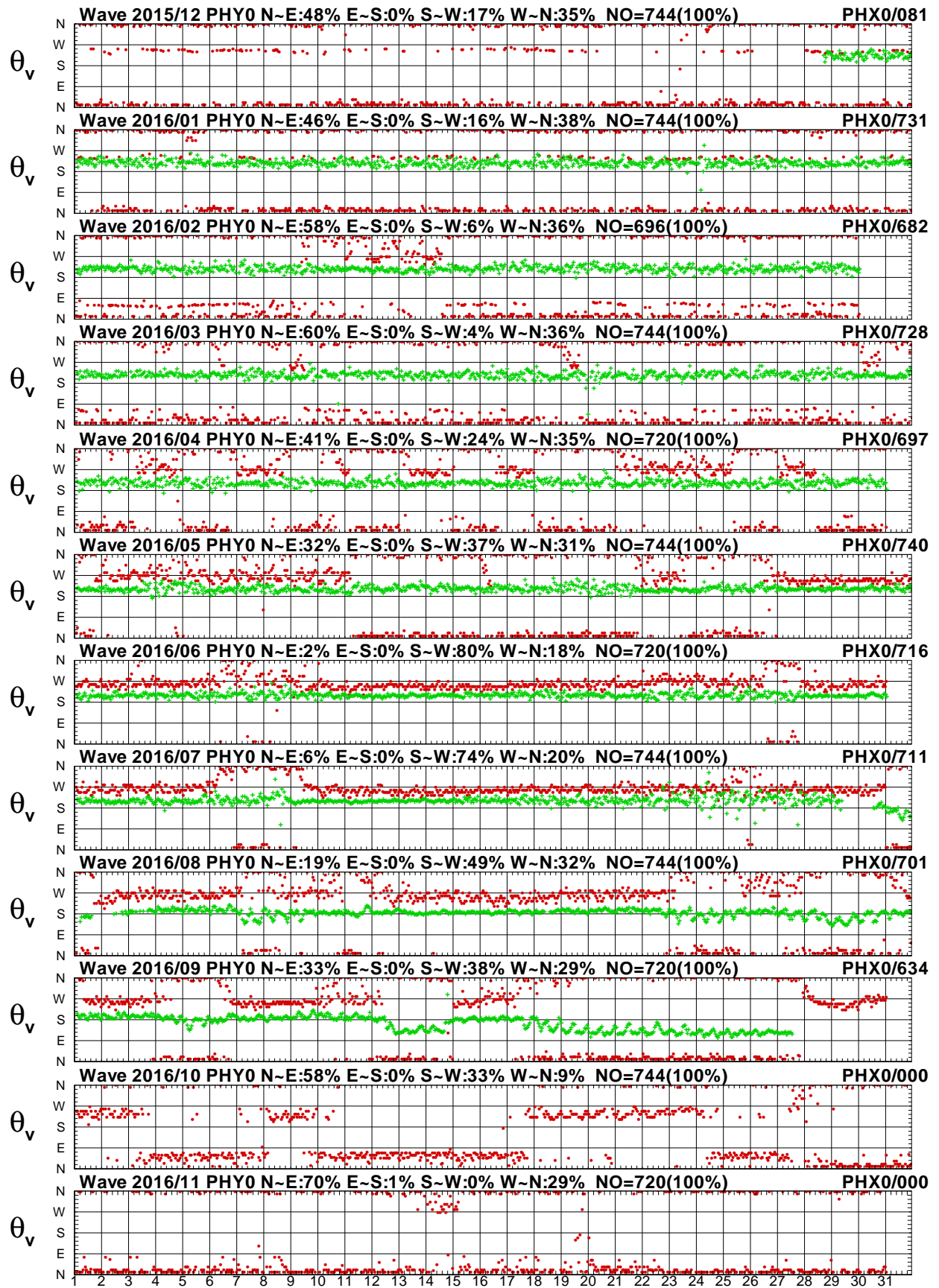


圖 2.2c 2016年每月澎湖海域 Y 站與 X 站波向比較圖

V15CPHY0.1HA V15CPHX0.1H0 V161PHY0.1HA V161PHX0.1H0 V162PHY0.1HA V162PHX0.1H0
 V163PHY0.1HA V163PHX0.1H0 V164PHY0.1HA V164PHX0.1H0 V165PHY0.1HA V165PHX0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2016

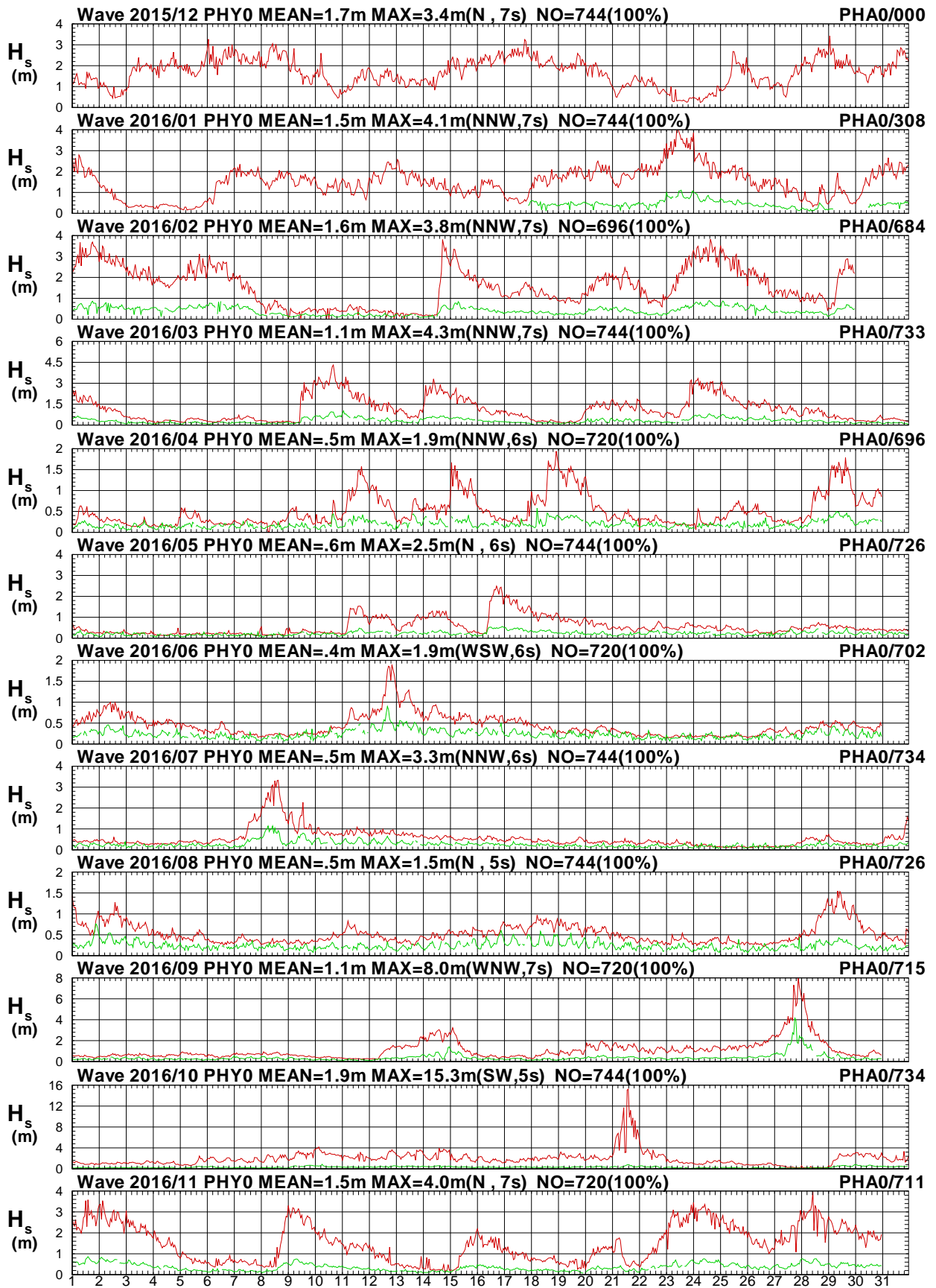


圖 2.3a 2016年每月澎湖海域 Y 站與 A 站波高比較圖

V15CPHY0.1HA V15CPHA0.1H0 V161PHY0.1HA V161PHA0.1H0 V162PHY0.1HA V162PHA0.1H0
 V163PHY0.1HA V163PHA0.1H0 V164PHY0.1HA V164PHA0.1H0 V165PHY0.1HA V165PHA0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2016

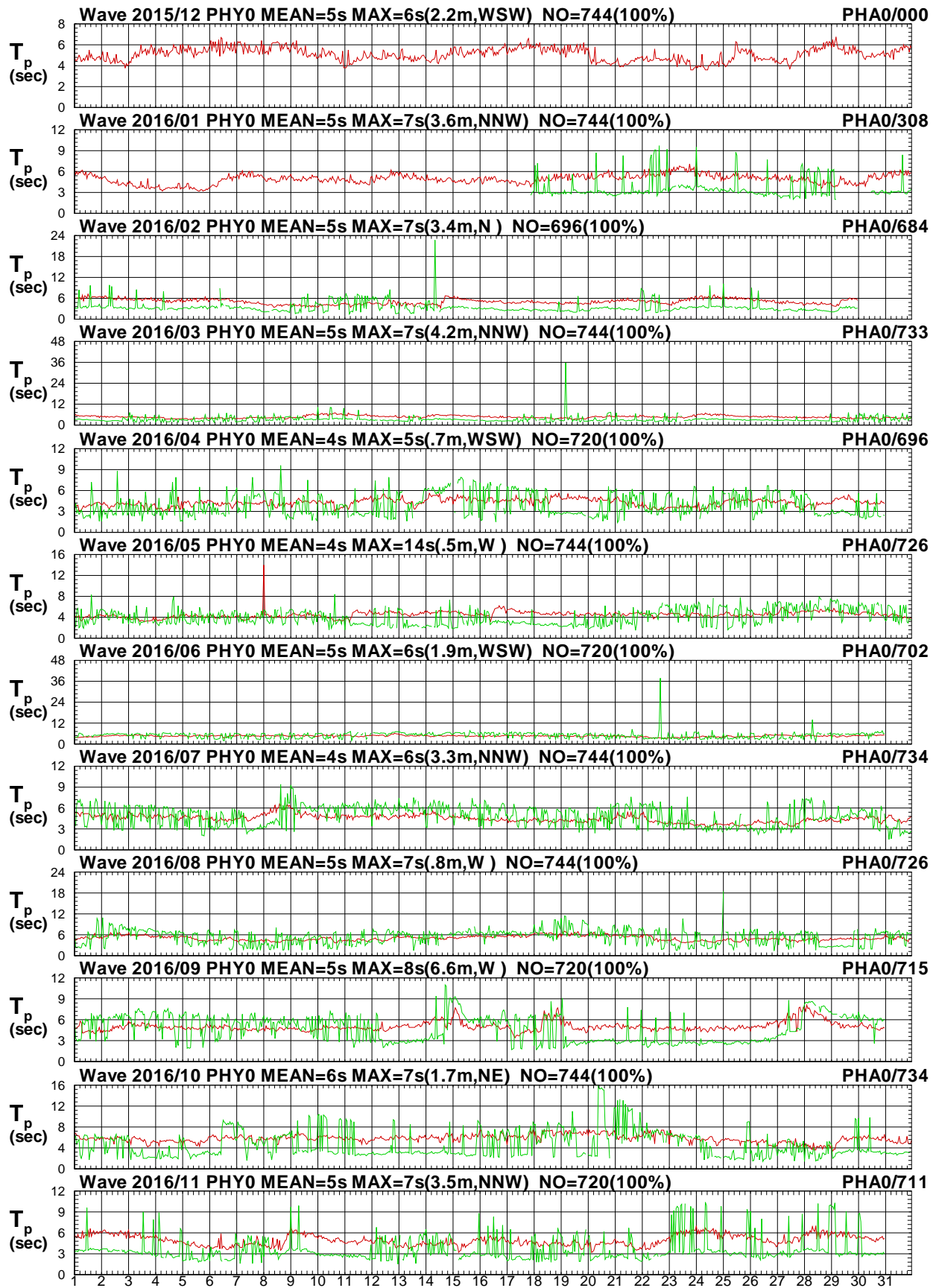


圖 2.3b 2016年每月澎湖海域 Y 站與 A 站週期比較圖

V15CPHY0.1HA V15CPHA0.1HO V161PHY0.1HA V161PHA0.1HO V162PHY0.1HA V162PHA0.1HO
 V163PHY0.1HA V163PHA0.1HO V164PHY0.1HA V164PHA0.1HO V165PHY0.1HA V165PHA0.1HO

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Wave Direction in Peng-Hu Seas of PHY0 at 2016

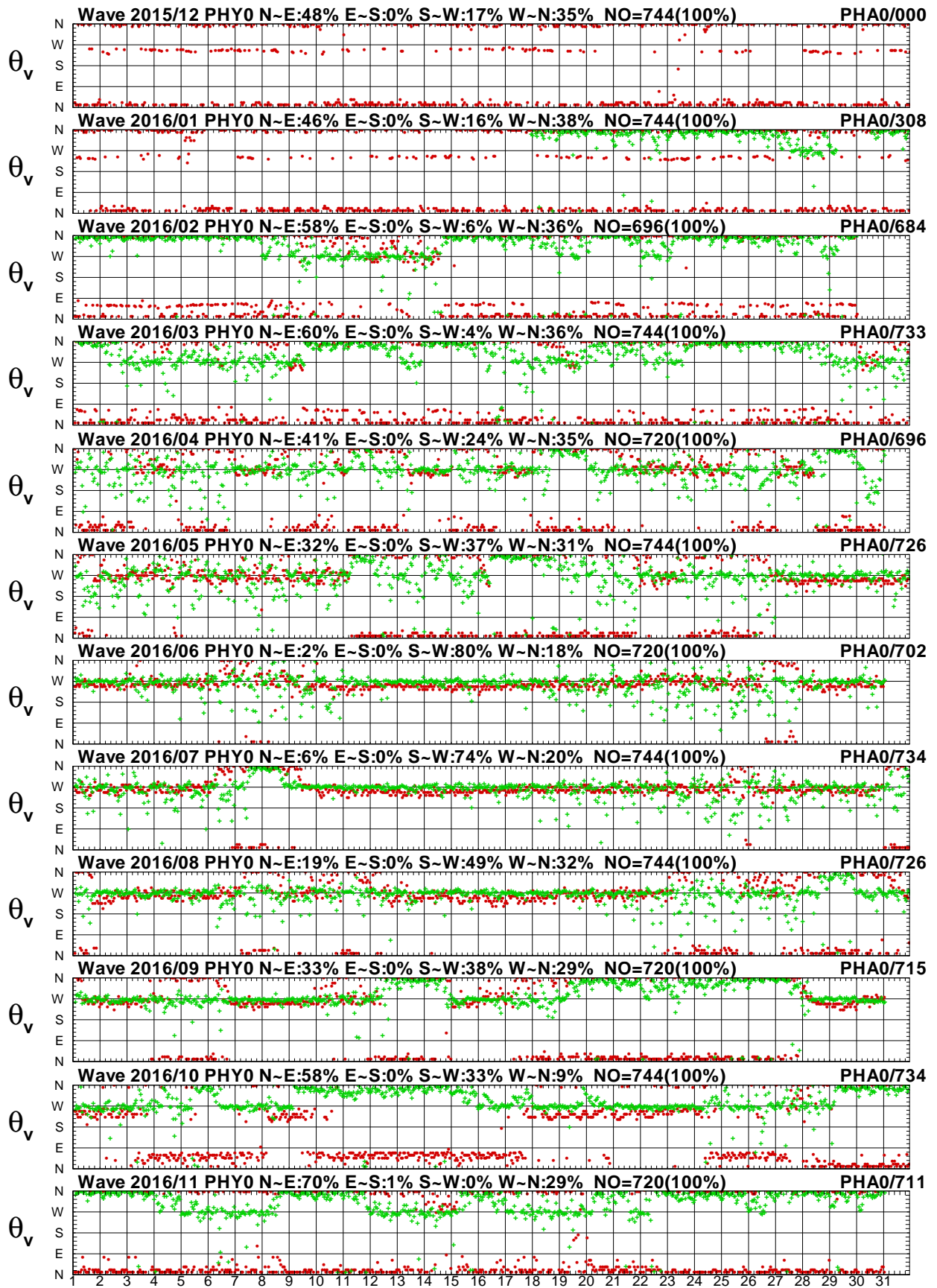


圖 2.3c 2016年每月澎湖海域 Y 站與 A 站波向比較圖

V15CPHY0.1HA V15CPHA0.1H0 V161PHY0.1HA V161PHA0.1H0 V162PHY0.1HA V162PHA0.1H0
 V163PHY0.1HA V163PHA0.1H0 V164PHY0.1HA V164PHA0.1H0 V165PHY0.1HA V165PHA0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2016

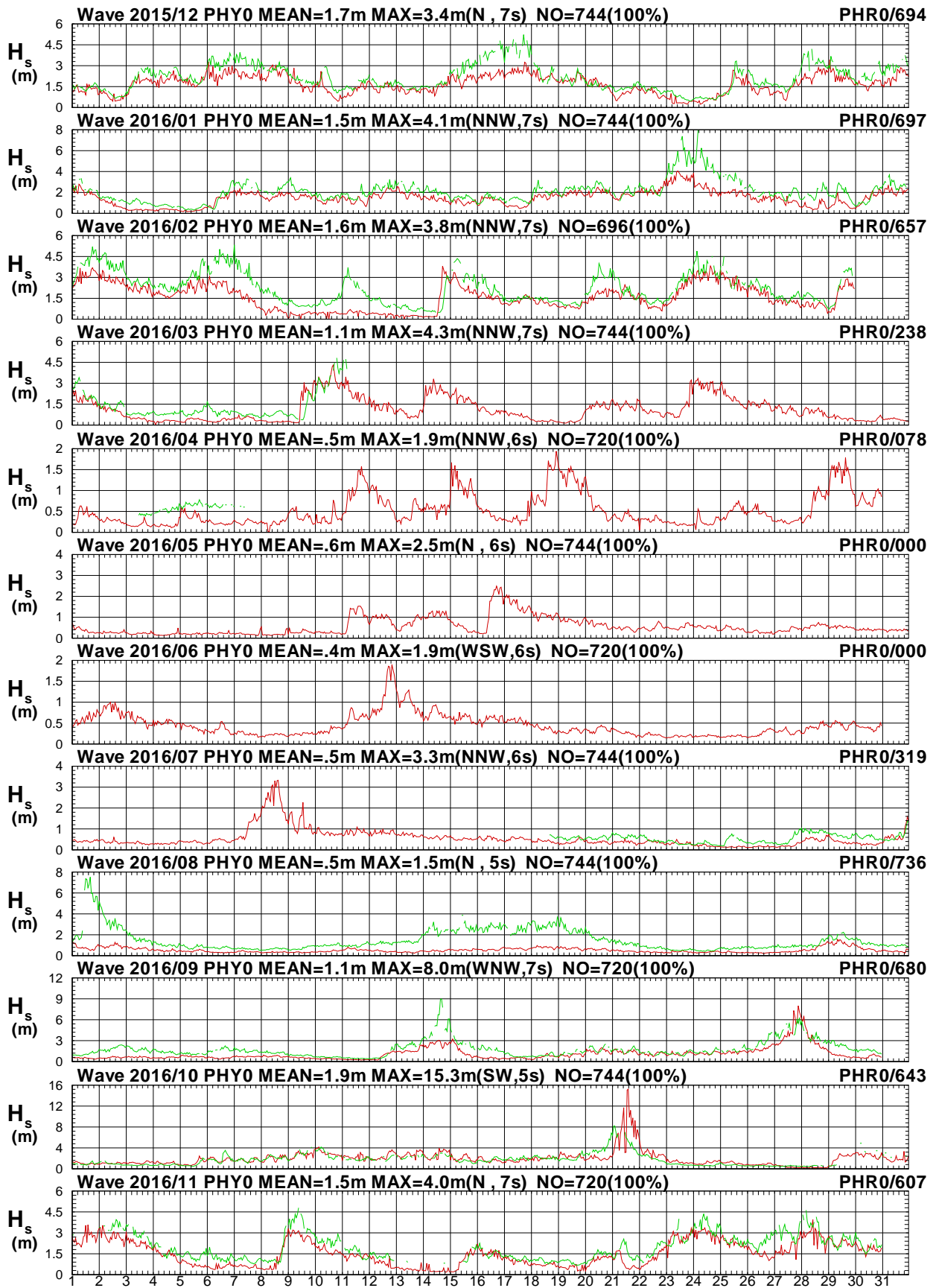


圖 2.4a 2016年每月澎湖海域 Y 站與 R 站波高比較圖

V15CPHY0.1HA V15CPHR0.1H0 V161PHY0.1HA V161PHR0.1H0 V162PHY0.1HA V162PHR0.1H0
 V163PHY0.1HA V163PHR0.1H0 V164PHY0.1HA V164PHR0.1H0 V165PHY0.1HA V165PHR0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2016

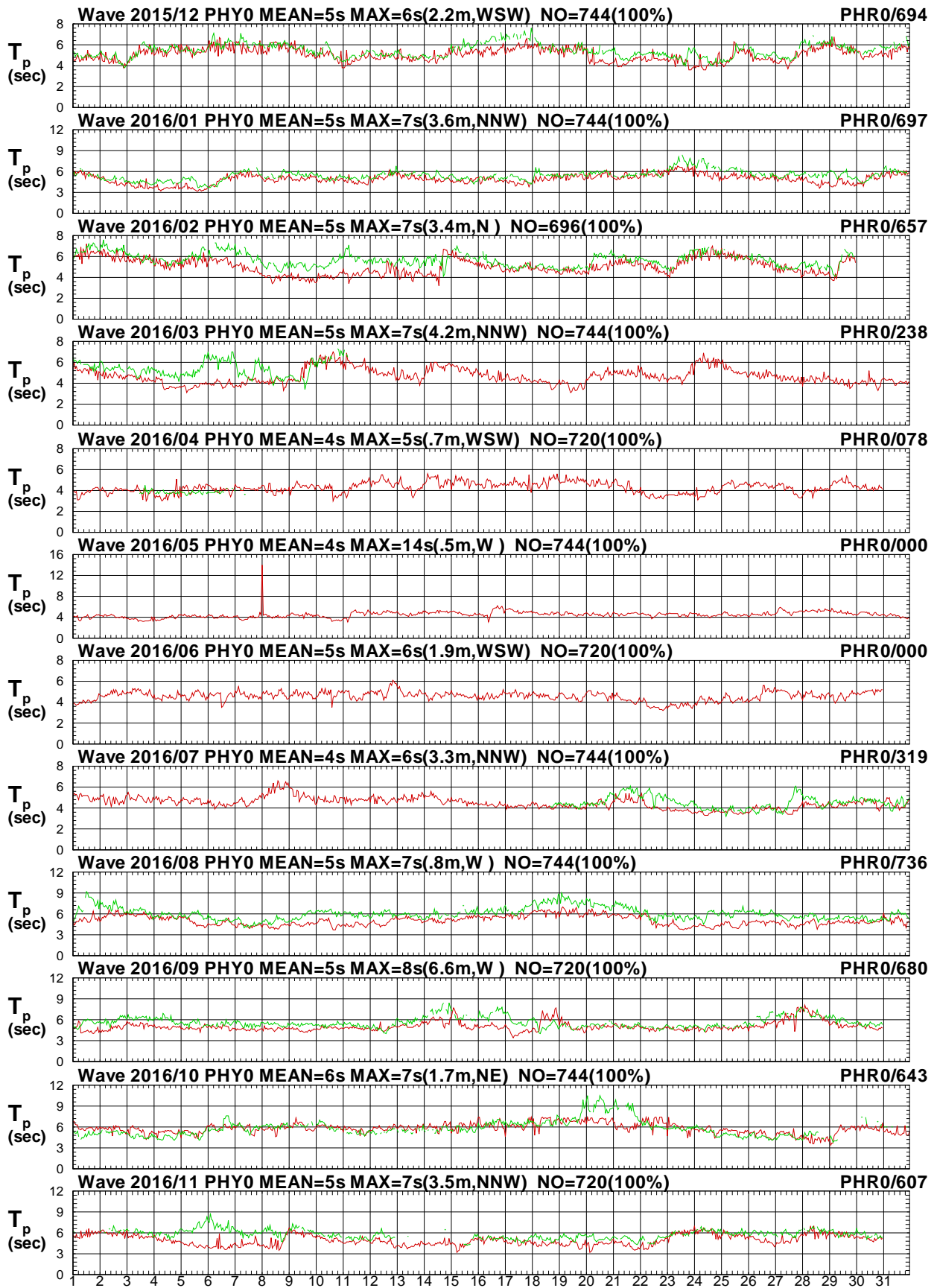


圖 2.4b 2016年每月澎湖海域 Y 站與 R 站週期比較圖

Day

V15CPHY0.1HA V15CPHR0.1H0 V161PHY0.1HA V161PHR0.1H0 V162PHY0.1HA V162PHR0.1H0
 V163PHY0.1HA V163PHR0.1H0 V164PHY0.1HA V164PHR0.1H0 V165PHY0.1HA V165PHR0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2016

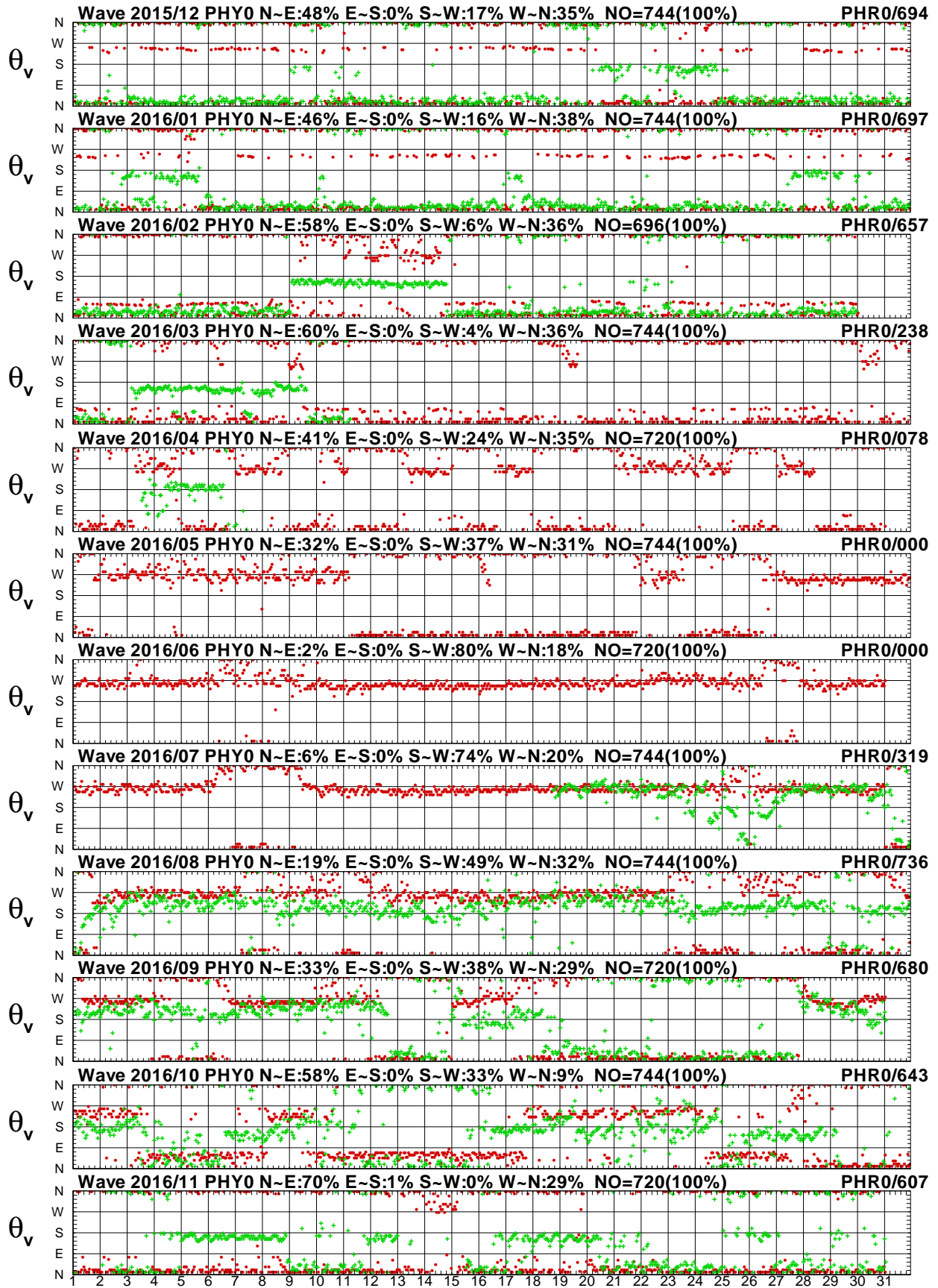


圖 2.4c 2016年每月澎湖海域 Y 站與 R 站波向比較圖

V15CPHY0.1HA V15CPHR0.1H0 V161PHY0.1HA V161PHR0.1H0 V162PHY0.1HA V162PHR0.1H0
 V163PHY0.1HA V163PHR0.1H0 V164PHY0.1HA V164PHR0.1H0 V165PHY0.1HA V165PHR0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2016

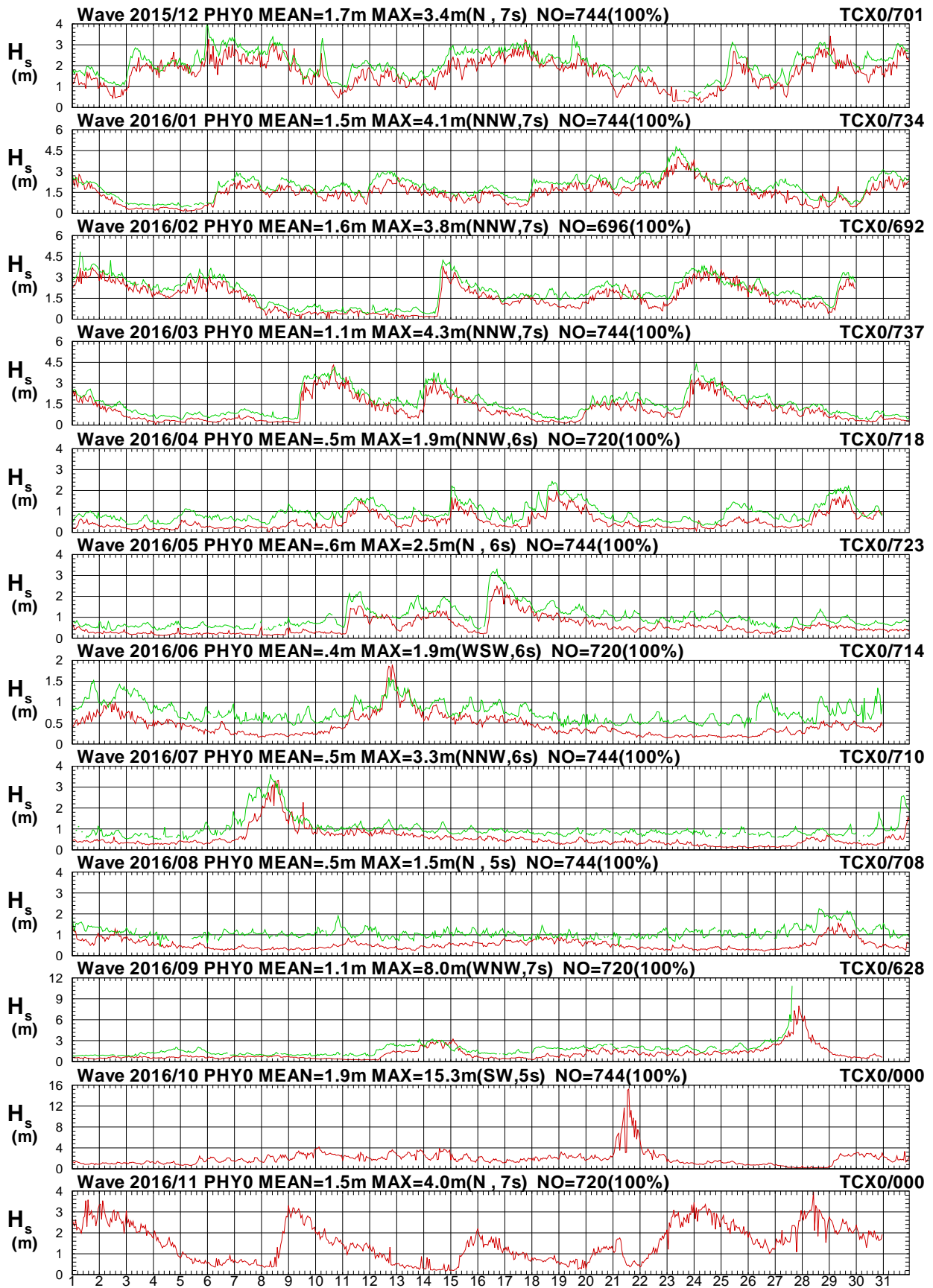


圖 2.5a 2016年每月澎湖海域 Y 站與中雲海域 X 站波高圖

Day

V15CPHY0.1HA V15CTCX0.1H0 V161PHY0.1HA V161TCX0.1H0 V162PHY0.1HA V162TCX0.1H0
 V163PHY0.1HA V163TCX0.1H0 V164PHY0.1HA V164TCX0.1H0 V165PHY0.1HA V165TCX0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2016

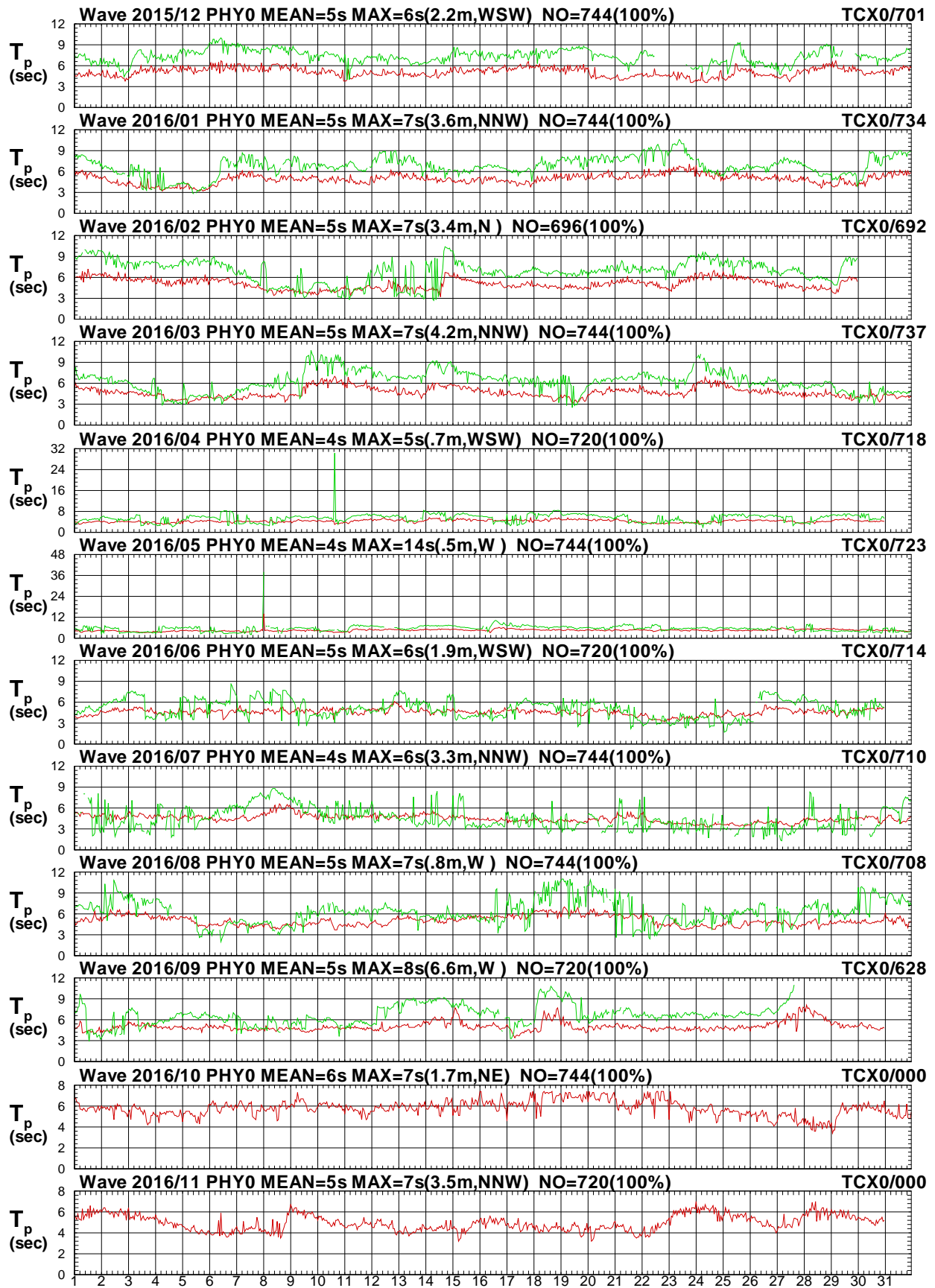


圖 2.5b 2016年每月澎湖海域 Y 站與中雲海域 X 站週期圖

Day

V15CPHY0.1HA V15CTCX0.1H0 V161PHY0.1HA V161TCX0.1H0 V162PHY0.1HA V162TCX0.1H0
 V163PHY0.1HA V163TCX0.1H0 V164PHY0.1HA V164TCX0.1H0 V165PHY0.1HA V165TCX0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2016

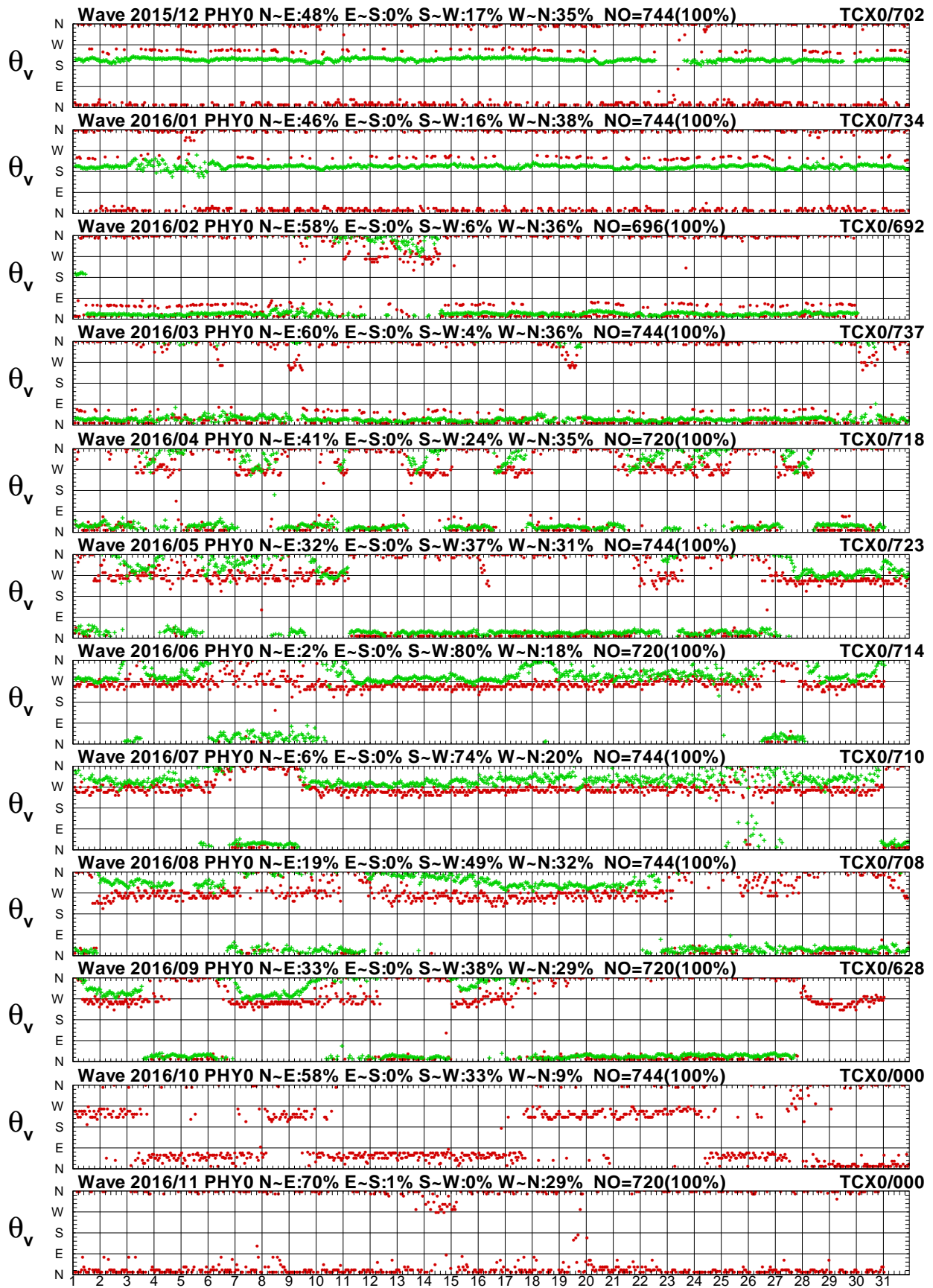


圖 2.5c 2016年每月澎湖海域 Y 站與中雲海域 X 站波向圖

V15CPHY0.1HA V15CTCX0.1H0 V161PHY0.1HA V161TCX0.1H0 V162PHY0.1HA V162TCX0.1H0
 V163PHY0.1HA V163TCX0.1H0 V164PHY0.1HA V164TCX0.1H0 V165PHY0.1HA V165TCX0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2016

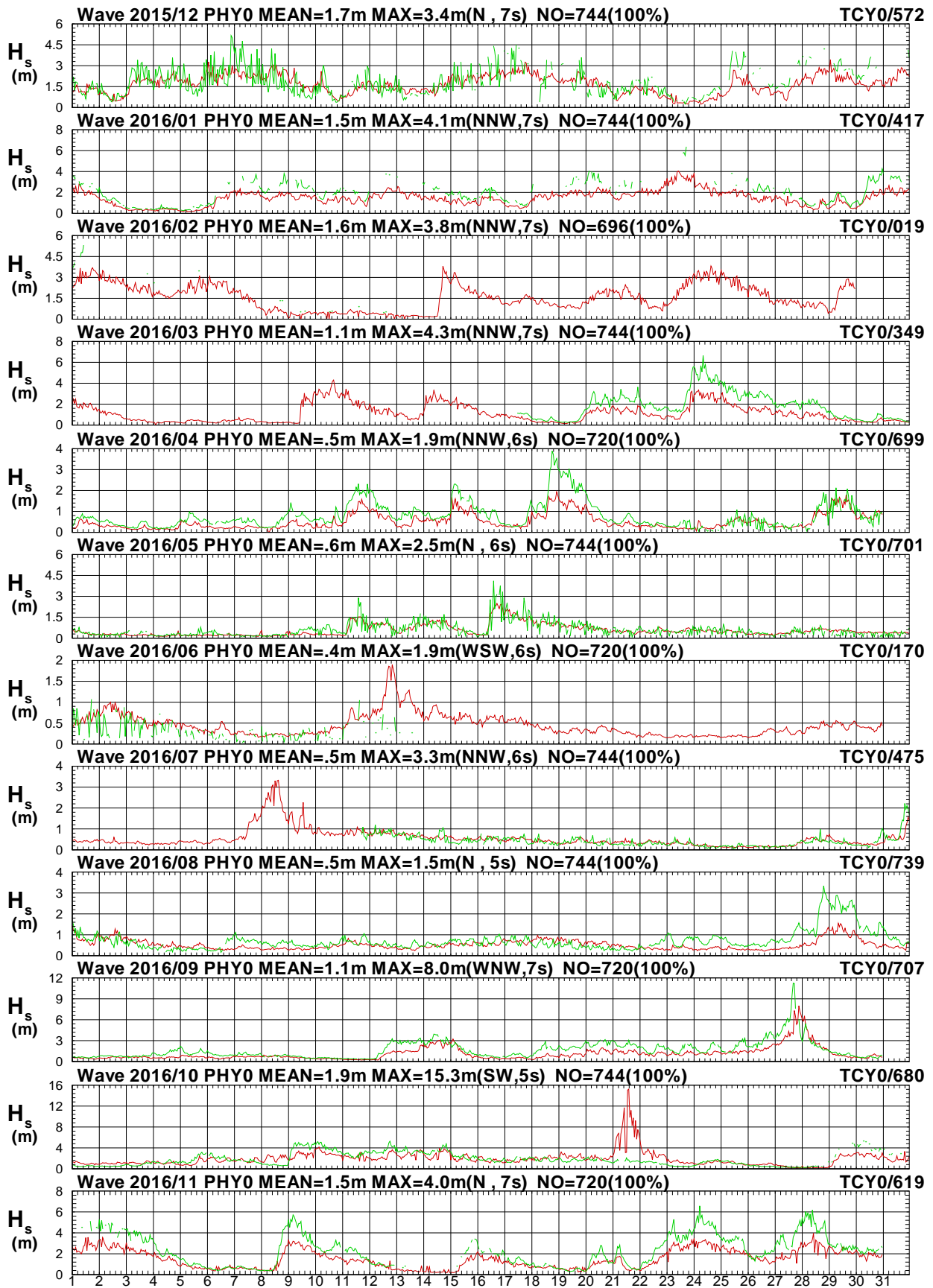


圖 2.6a 2016年每月澎湖海域 Y 站與中雲海域 Y 站波高圖

V15CPHY0.1HA V15CTCY0.1H0 V161PHY0.1HA V161TCY0.1H0 V162PHY0.1HA V162TCY0.1H0
 V163PHY0.1HA V163TCY0.1H0 V164PHY0.1HA V164TCY0.1H0 V165PHY0.1HA V165TCY0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2016

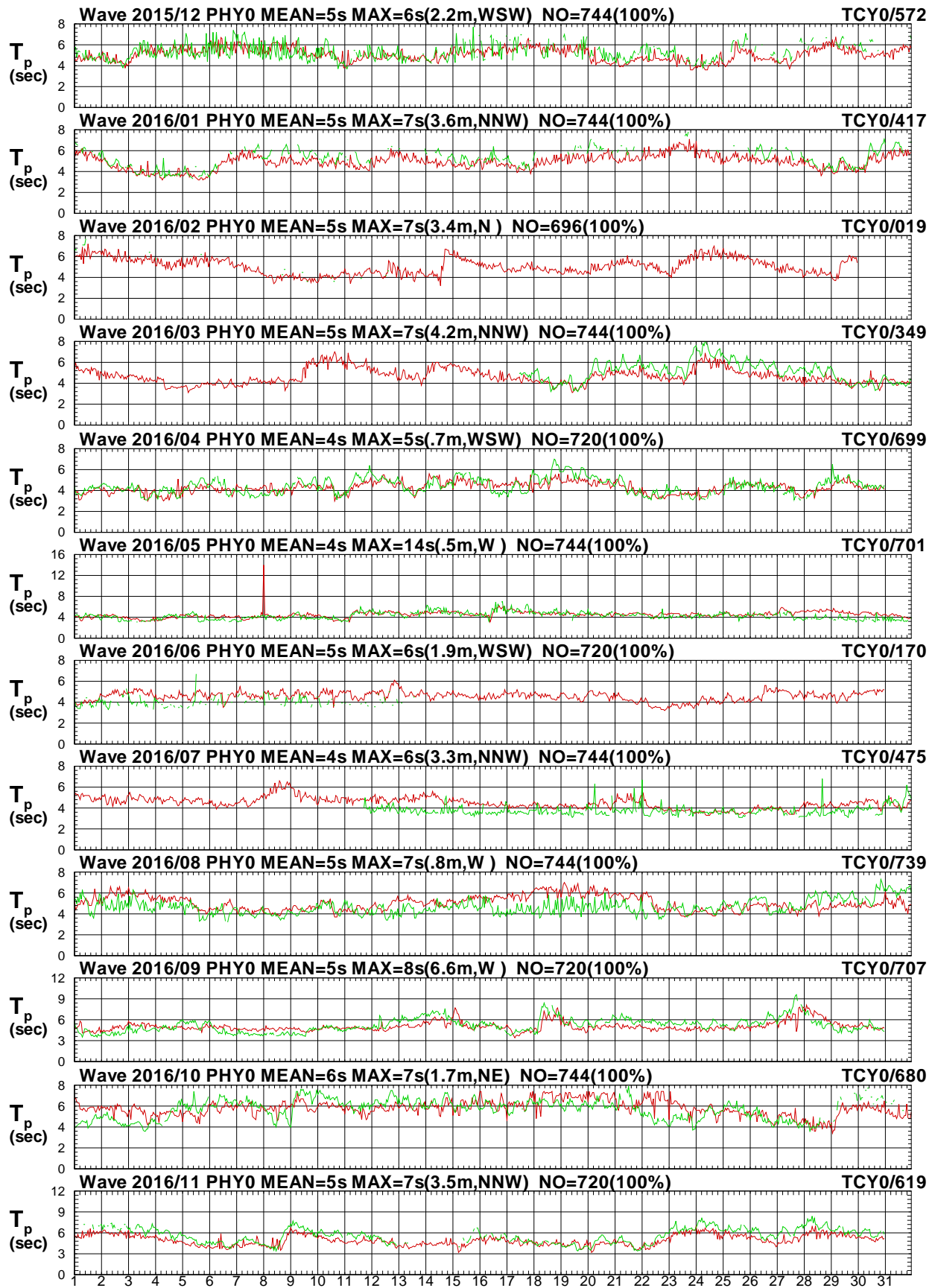


圖 2.6b 2016年每月澎湖海域 Y 站與中雲海域 Y 站週期圖

Day

V15CPHY0.1HA V15CTCY0.1HO V161PHY0.1HA V161TCY0.1HO V162PHY0.1HA V162TCY0.1HO
 V163PHY0.1HA V163TCY0.1HO V164PHY0.1HA V164TCY0.1HO V165PHY0.1HA V165TCY0.1HO

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Wave Direction in Peng-Hu Seas of PHY0 at 2016

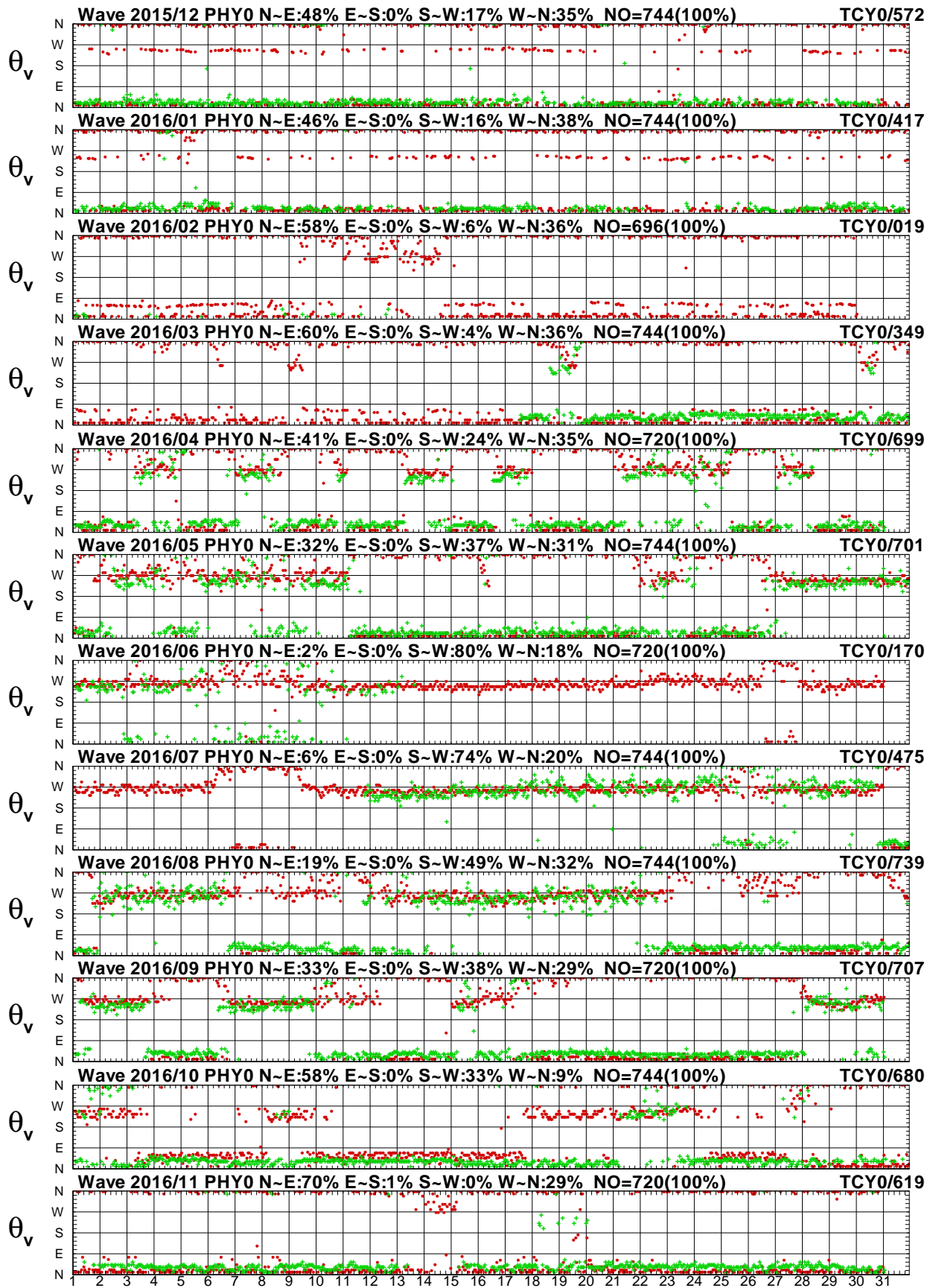


圖 2.6c 2016年每月澎湖海域 Y 站與中雲海域 Y 站波向圖

V15CPHY0.1HA V15CTCY0.1H0 V161PHY0.1HA V161TCY0.1H0 V162PHY0.1HA V162TCY0.1H0
 V163PHY0.1HA V163TCY0.1H0 V164PHY0.1HA V164TCY0.1H0 V165PHY0.1HA V165TCY0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2016

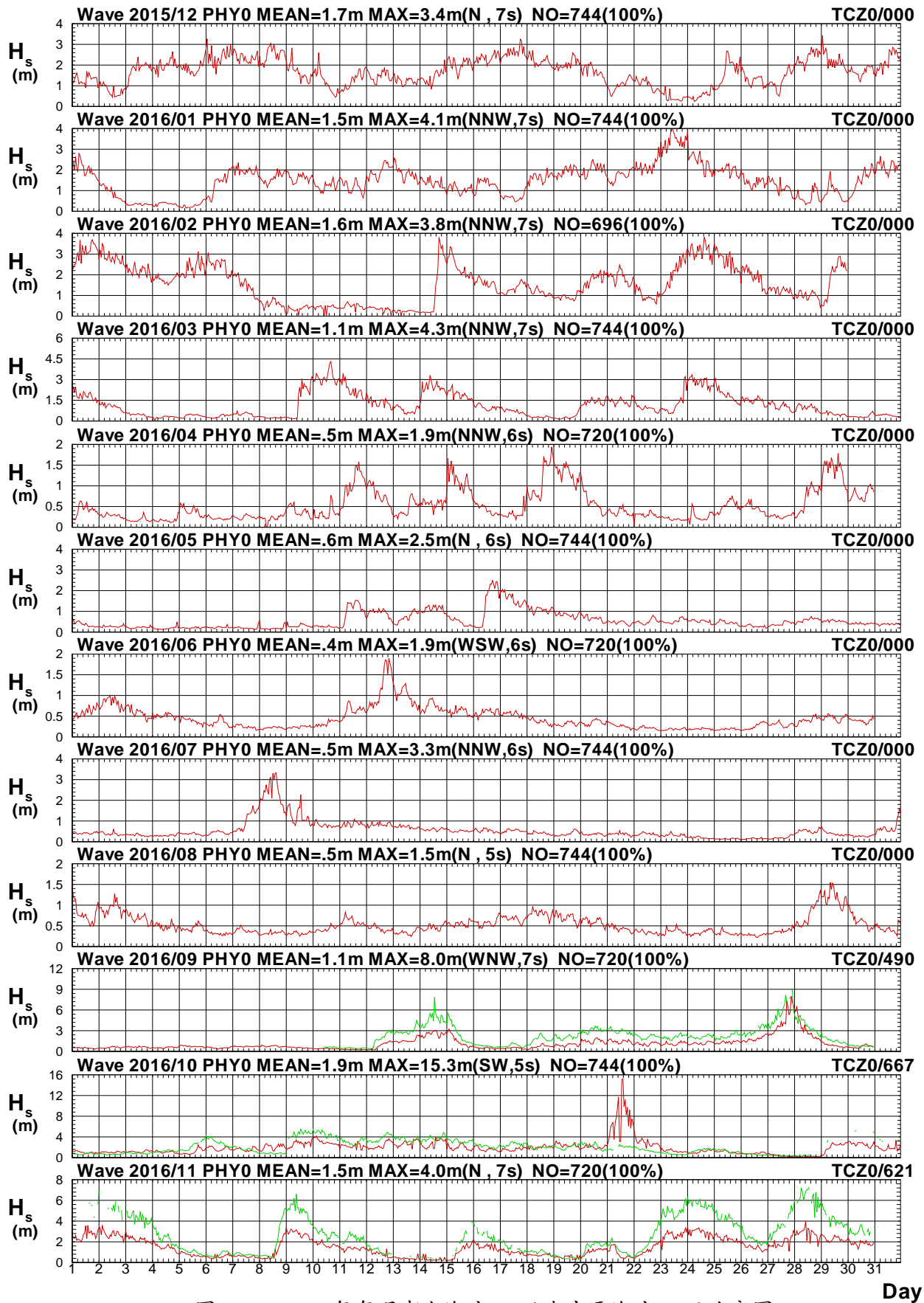


圖 2.7a 2016年每月澎湖海域 Y 站與中雲海域 Z 站波高圖

V15CPHY0.1HA V15CTCZ0.1H0 V161PHY0.1HA V161TCZ0.1H0 V162PHY0.1HA V162TCZ0.1H0
 V163PHY0.1HA V163TCZ0.1H0 V164PHY0.1HA V164TCZ0.1H0 V165PHY0.1HA V165TCZ0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2016

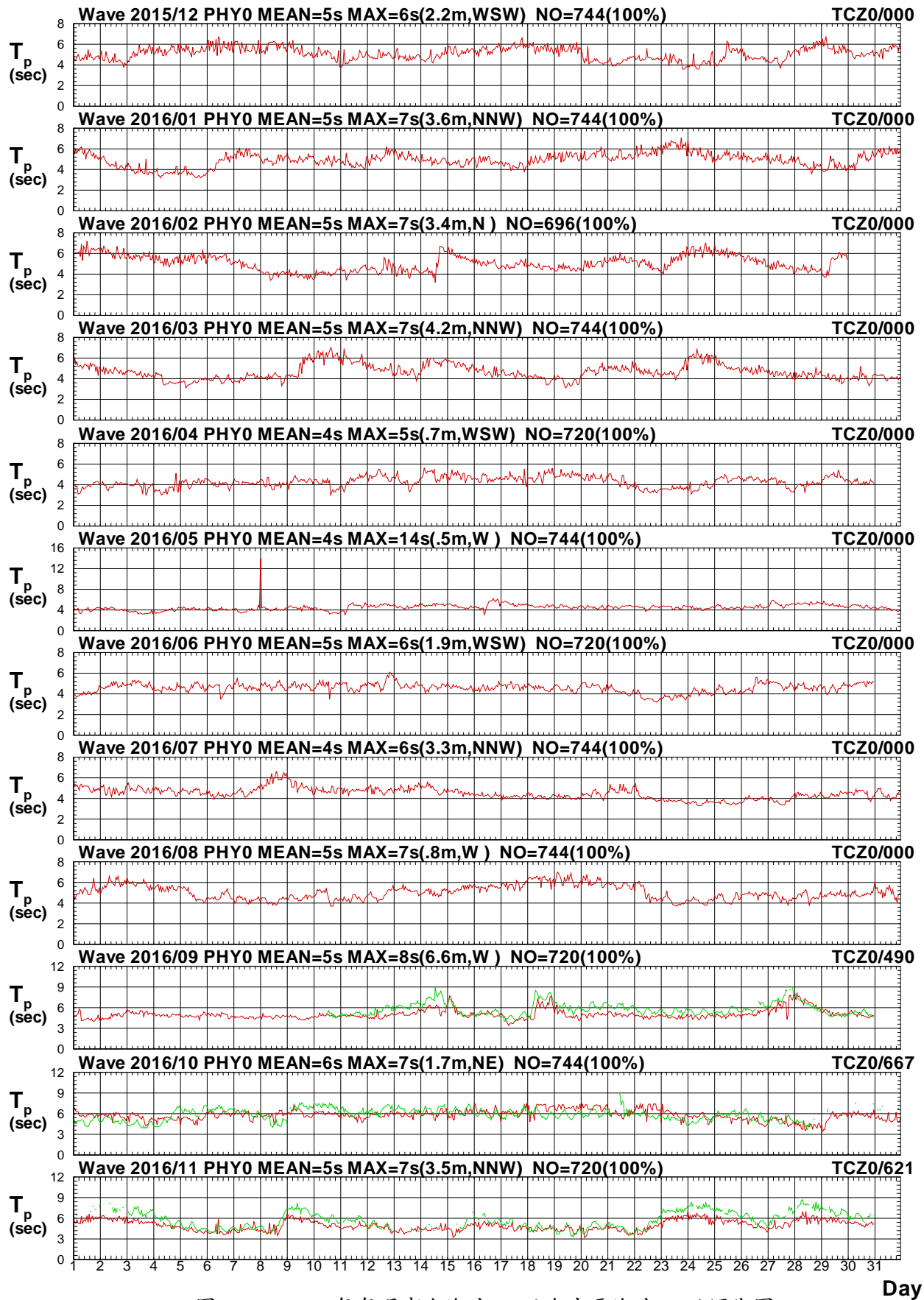


圖 2.7b 2016年每月澎湖海域 Y 站與中雲海域 Z 站週期圖

V15CPHY0.1HA V15CTCZ0.1H0 V161PHY0.1HA V161TCZ0.1H0 V162PHY0.1HA V162TCZ0.1H0
 V163PHY0.1HA V163TCZ0.1H0 V164PHY0.1HA V164TCZ0.1H0 V165PHY0.1HA V165TCZ0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2016

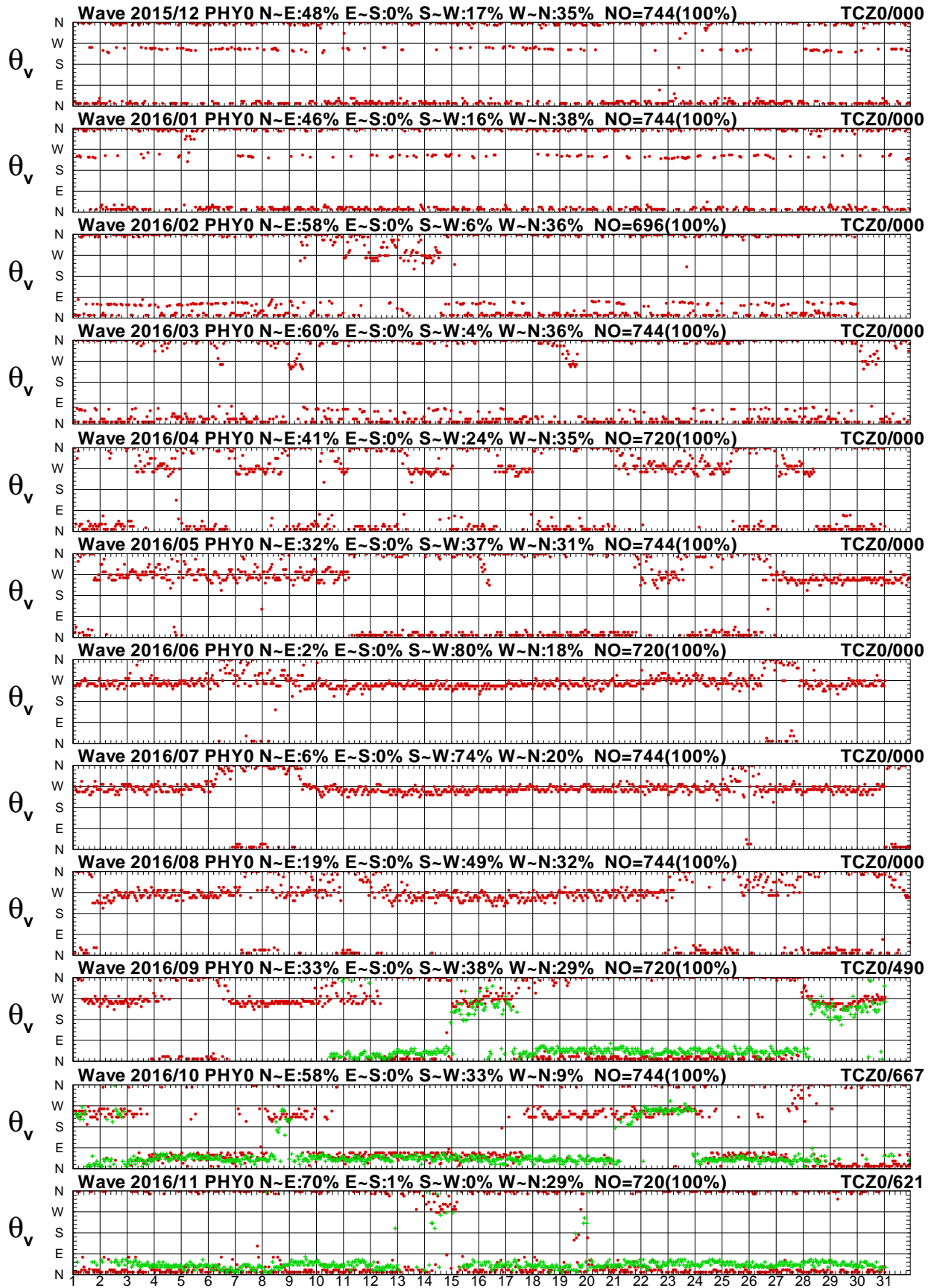


圖 2.7c 2016年每月澎湖海域 Y 站與中雲海域 Z 站波向圖

V15CPHY0.1HA V15CTCZ0.1H0 V161PHY0.1HA V161TCZ0.1H0 V162PHY0.1HA V162TCZ0.1H0
 V163PHY0.1HA V163TCZ0.1H0 V164PHY0.1HA V164TCZ0.1H0 V165PHY0.1HA V165TCZ0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2016

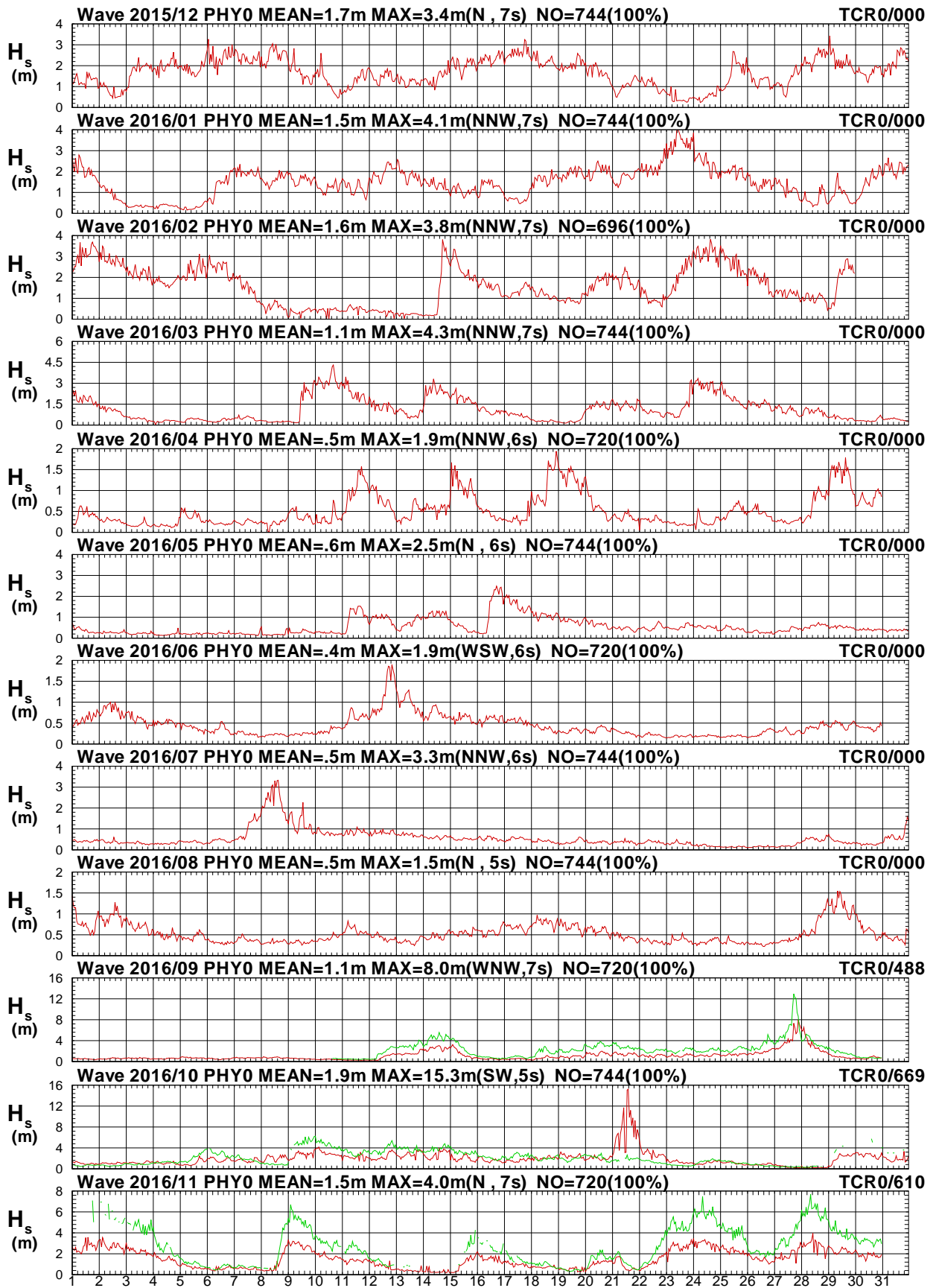


圖 2.8a 2016年每月澎湖海域 Y 站與中雲海域 R 站波高圖

V15CPHY0.1HA V15CTCR0.1H0 V161PHY0.1HA V161TCR0.1H0 V162PHY0.1HA V162TCR0.1H0
 V163PHY0.1HA V163TCR0.1H0 V164PHY0.1HA V164TCR0.1H0 V165PHY0.1HA V165TCR0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2016

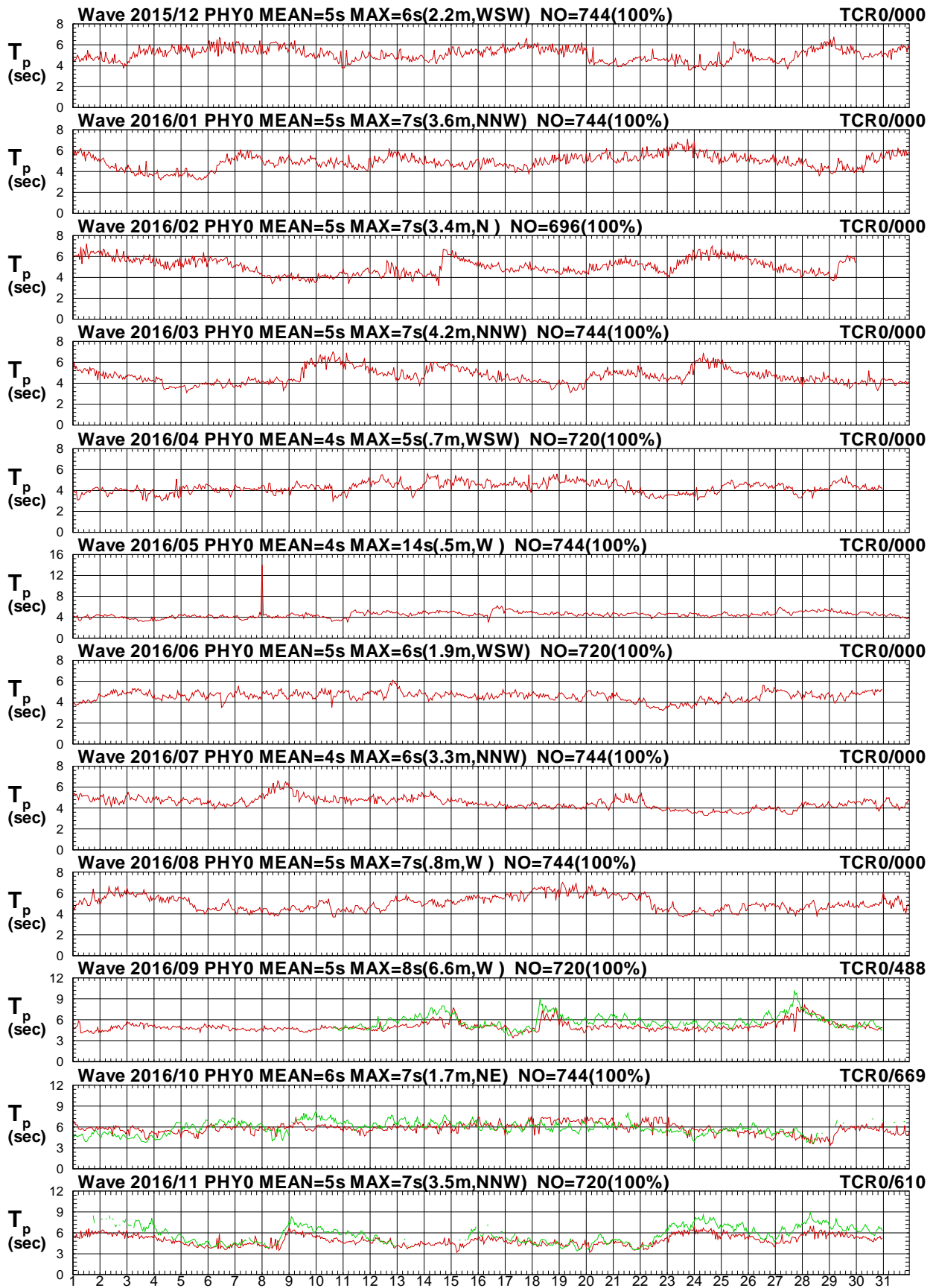


圖 2.8b 2016年每月澎湖海域 Y 站與中雲海域 R 站週期圖

V15CPHY0.1HA V15CTCR0.1H0 V161PHY0.1HA V161TCR0.1H0 V162PHY0.1HA V162TCR0.1H0
 V163PHY0.1HA V163TCR0.1H0 V164PHY0.1HA V164TCR0.1H0 V165PHY0.1HA V165TCR0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2016

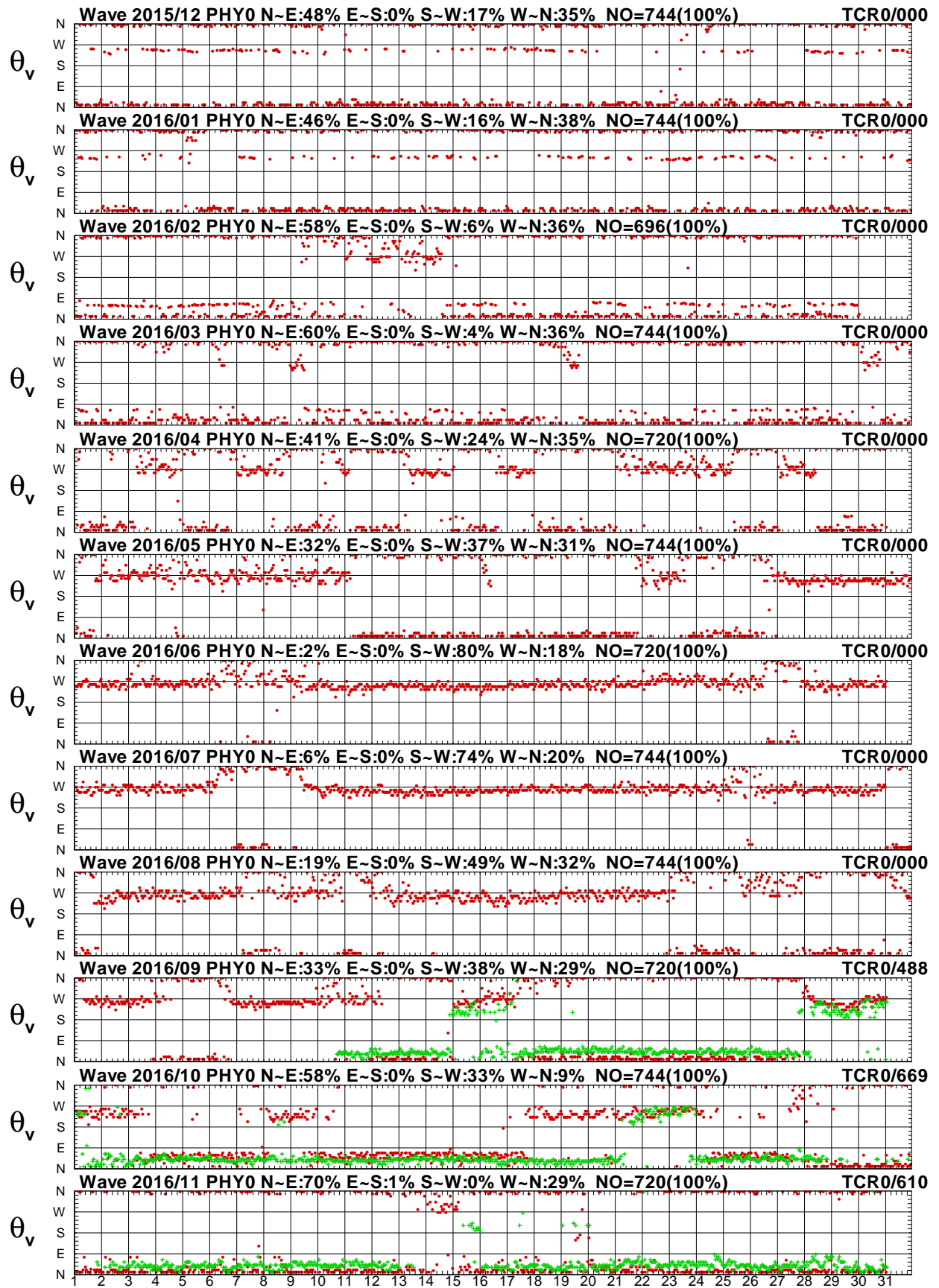


圖 2.8c 2016年每月澎湖海域 Y 站與中雲海域 R 站波向圖

V15CPHY0.1HA V15CTCR0.1H0 V161PHY0.1HA V161TCR0.1H0 V162PHY0.1HA V162TCR0.1H0
 V163PHY0.1HA V163TCR0.1H0 V164PHY0.1HA V164TCR0.1H0 V165PHY0.1HA V165TCR0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2016

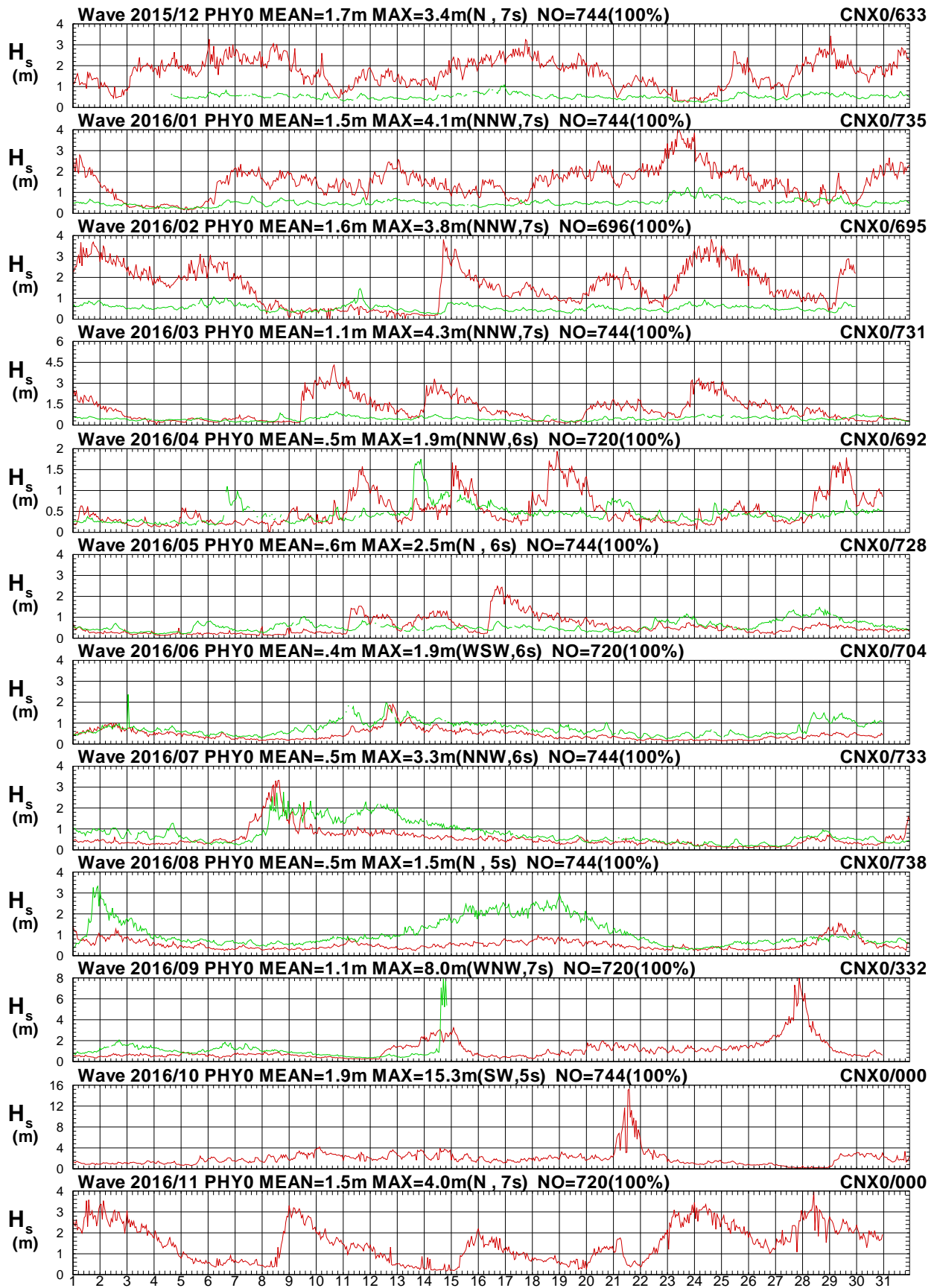


圖 2.9a 2016年每月澎湖海域 Y 站與嘉南海域 X 站波高圖

V15CPHY0.1HA V15CCNX0.1HO V161PHY0.1HA V161CNX0.1HO V162PHY0.1HA V162CNX0.1HO
 V163PHY0.1HA V163CNX0.1HO V164PHY0.1HA V164CNX0.1HO V165PHY0.1HA V165CNX0.1HO

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Wave T_p in Peng-Hu Seas of PHY0 at 2016

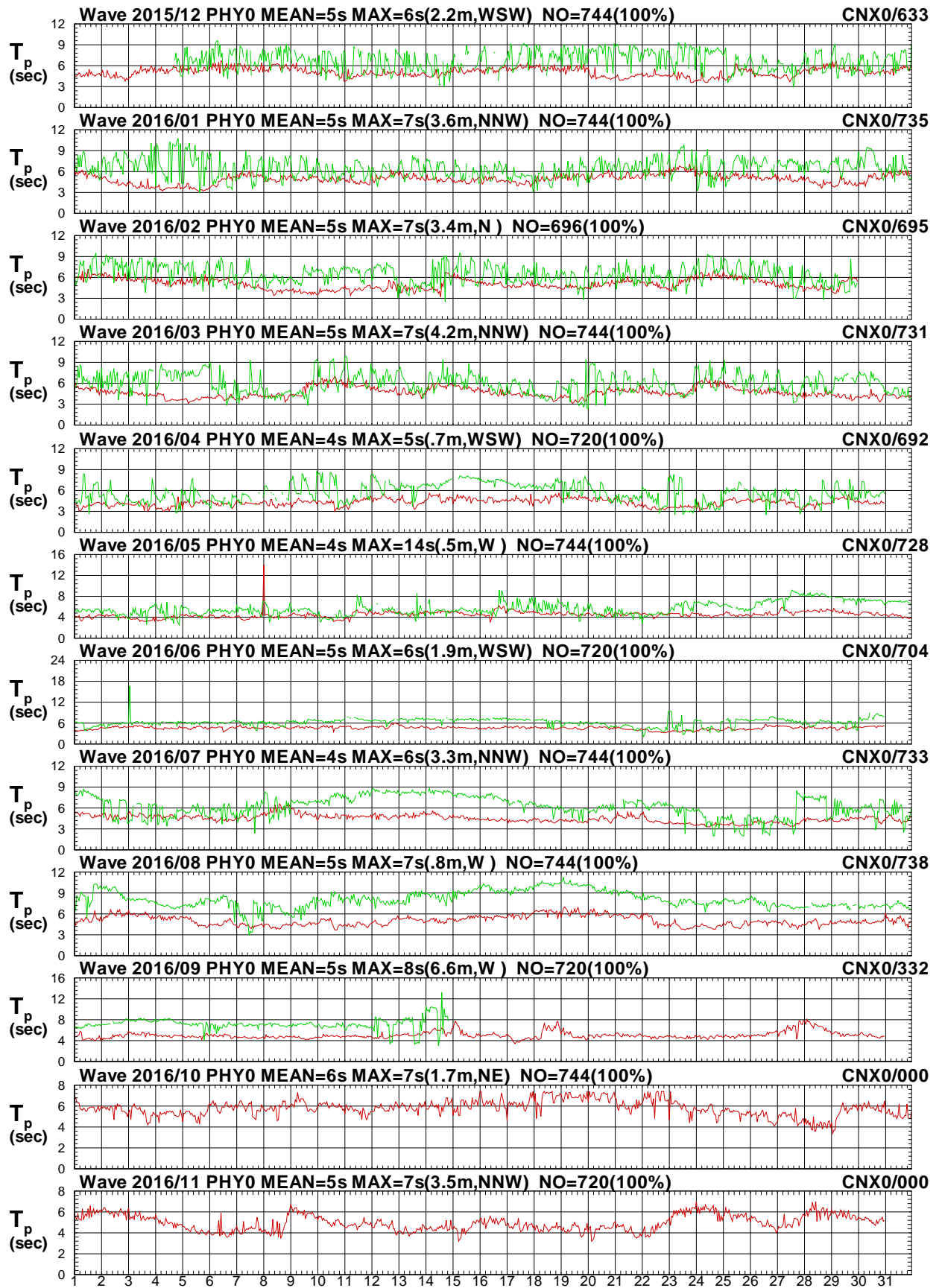


圖 2.9b 2016年每月澎湖海域 Y 站與嘉南海域 X 站週期圖

V15CPHY0.1HA V15CCNX0.1H0 V161PHY0.1HA V161CNX0.1H0 V162PHY0.1HA V162CNX0.1H0
 V163PHY0.1HA V163CNX0.1H0 V164PHY0.1HA V164CNX0.1H0 V165PHY0.1HA V165CNX0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2016

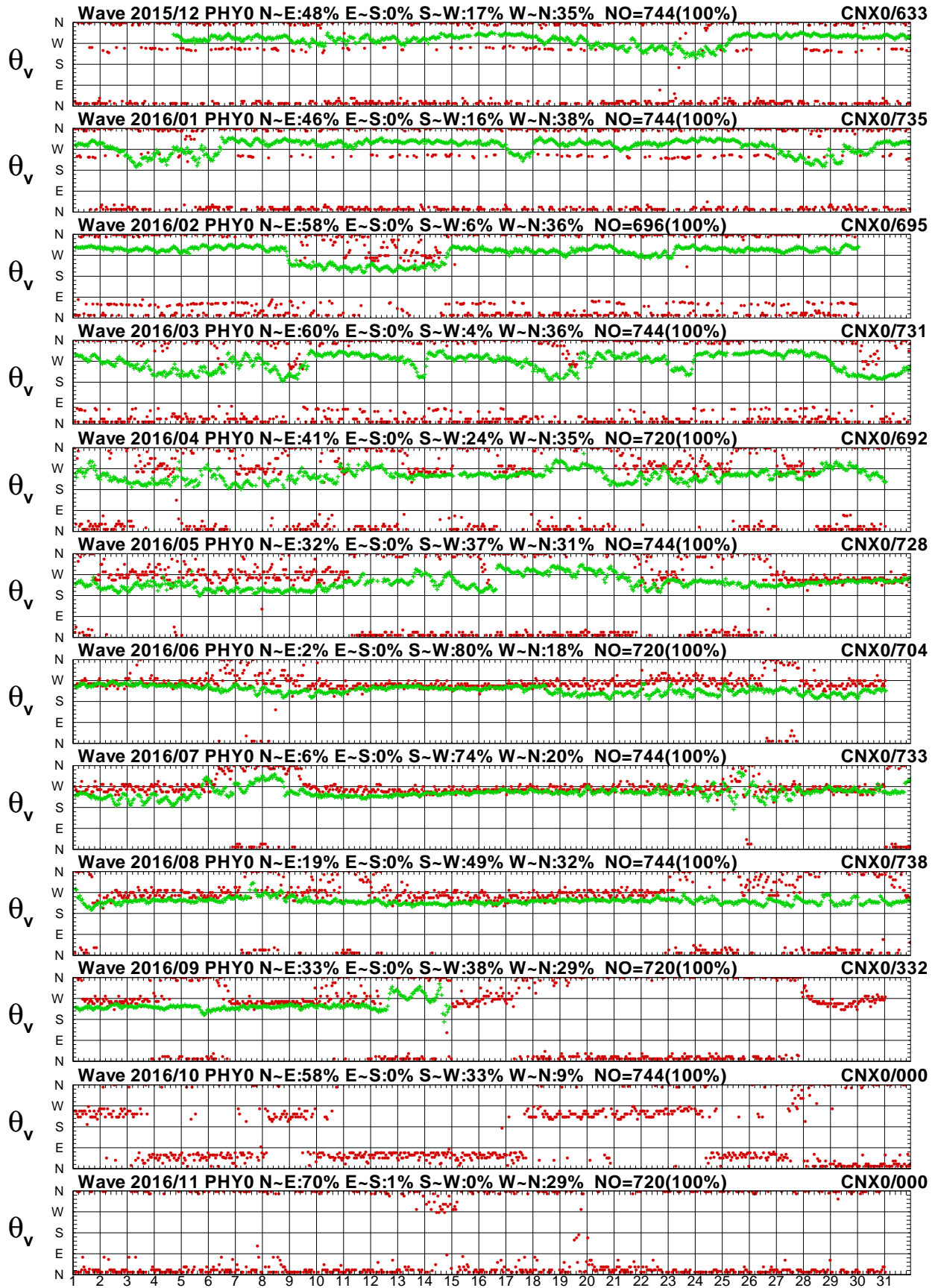


圖 2.9c 2016年每月澎湖海域 Y 站與嘉南海域 X 站波向圖

V15CPHY0.1HA V15CCNX0.1HO V161PHY0.1HA V161CNX0.1HO V162PHY0.1HA V162CNX0.1HO
 V163PHY0.1HA V163CNX0.1HO V164PHY0.1HA V164CNX0.1HO V165PHY0.1HA V165CNX0.1HO

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Wave H_s in Peng-Hu Seas of PHY0 at 2016

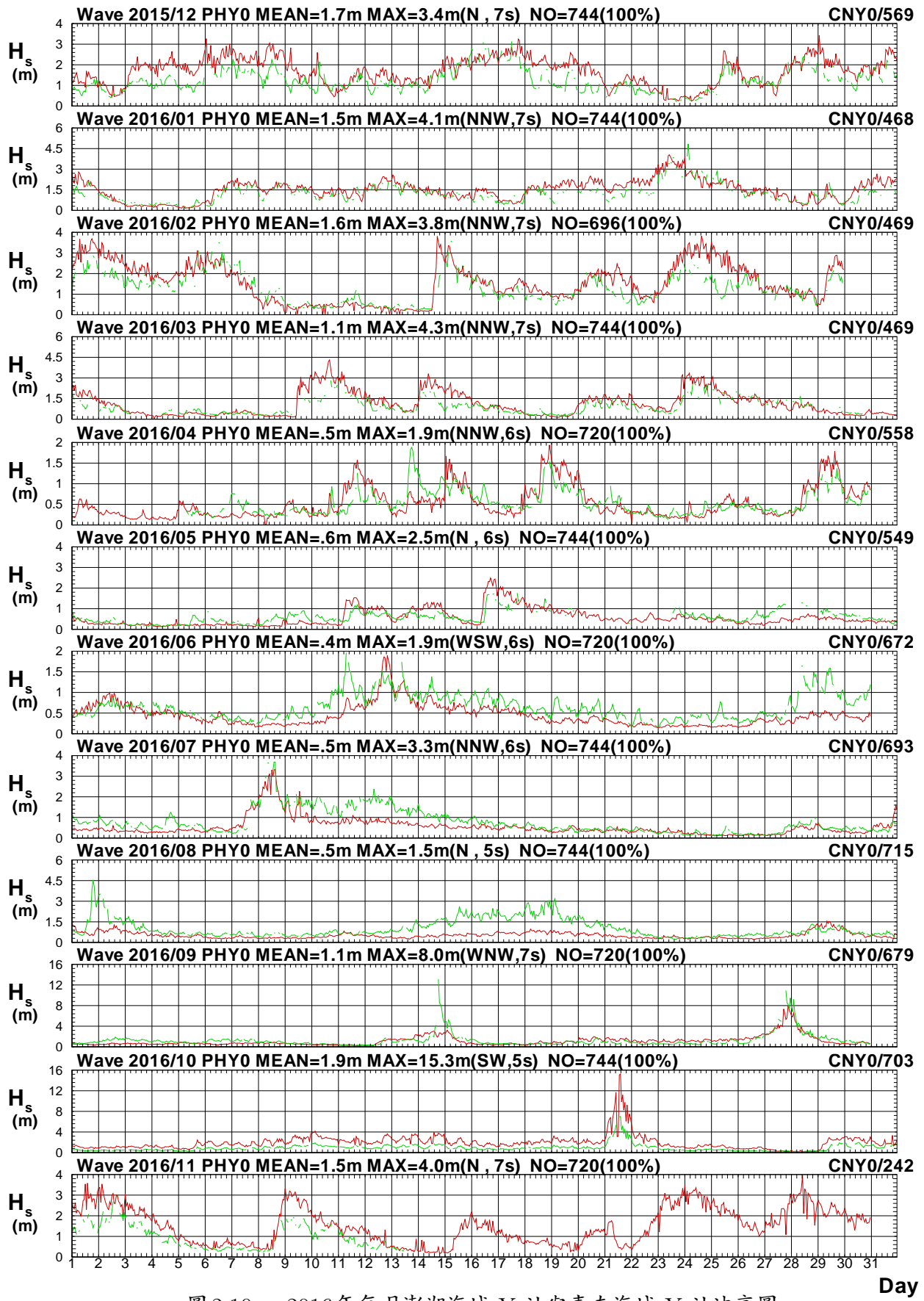


圖 2.10a 2016年每月澎湖海域 Y 站與嘉南海域 Y 站波高圖

V15CPHY0.1HA V15CCNY0.1HO V161PHY0.1HA V161CNY0.1HO V162PHY0.1HA V162CNY0.1HO
 V163PHY0.1HA V163CNY0.1HO V164PHY0.1HA V164CNY0.1HO V165PHY0.1HA V165CNY0.1HO

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Wave T_p in Peng-Hu Seas of PHY0 at 2016

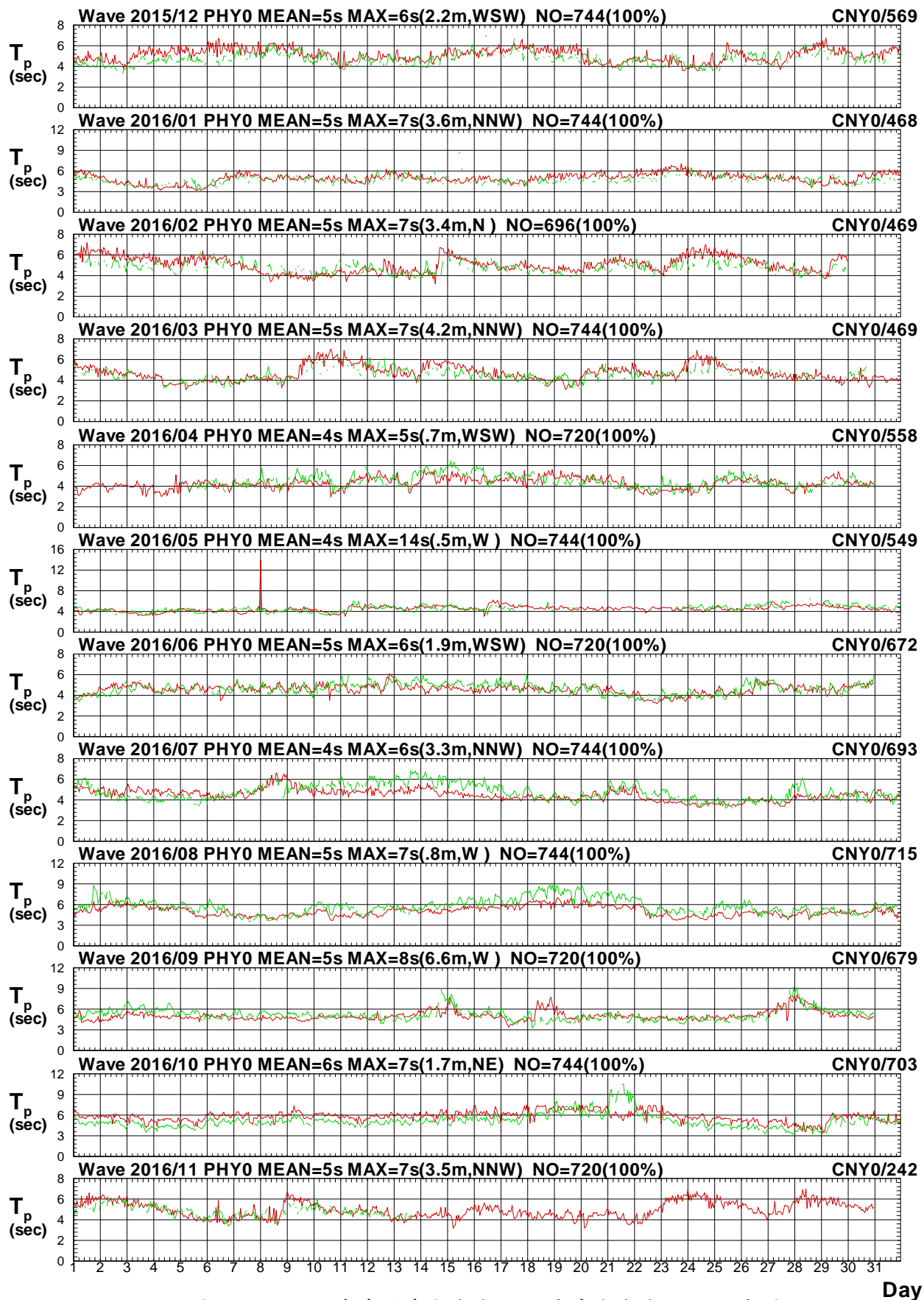


圖 2.10b 2016年每月澎湖海域 Y 站與嘉南海域 Y 站週期圖

V15CPHY0.1HA V15CCNY0.1H0 V161PHY0.1HA V161CNY0.1H0 V162PHY0.1HA V162CNY0.1H0
 V163PHY0.1HA V163CNY0.1H0 V164PHY0.1HA V164CNY0.1H0 V165PHY0.1HA V165CNY0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2016

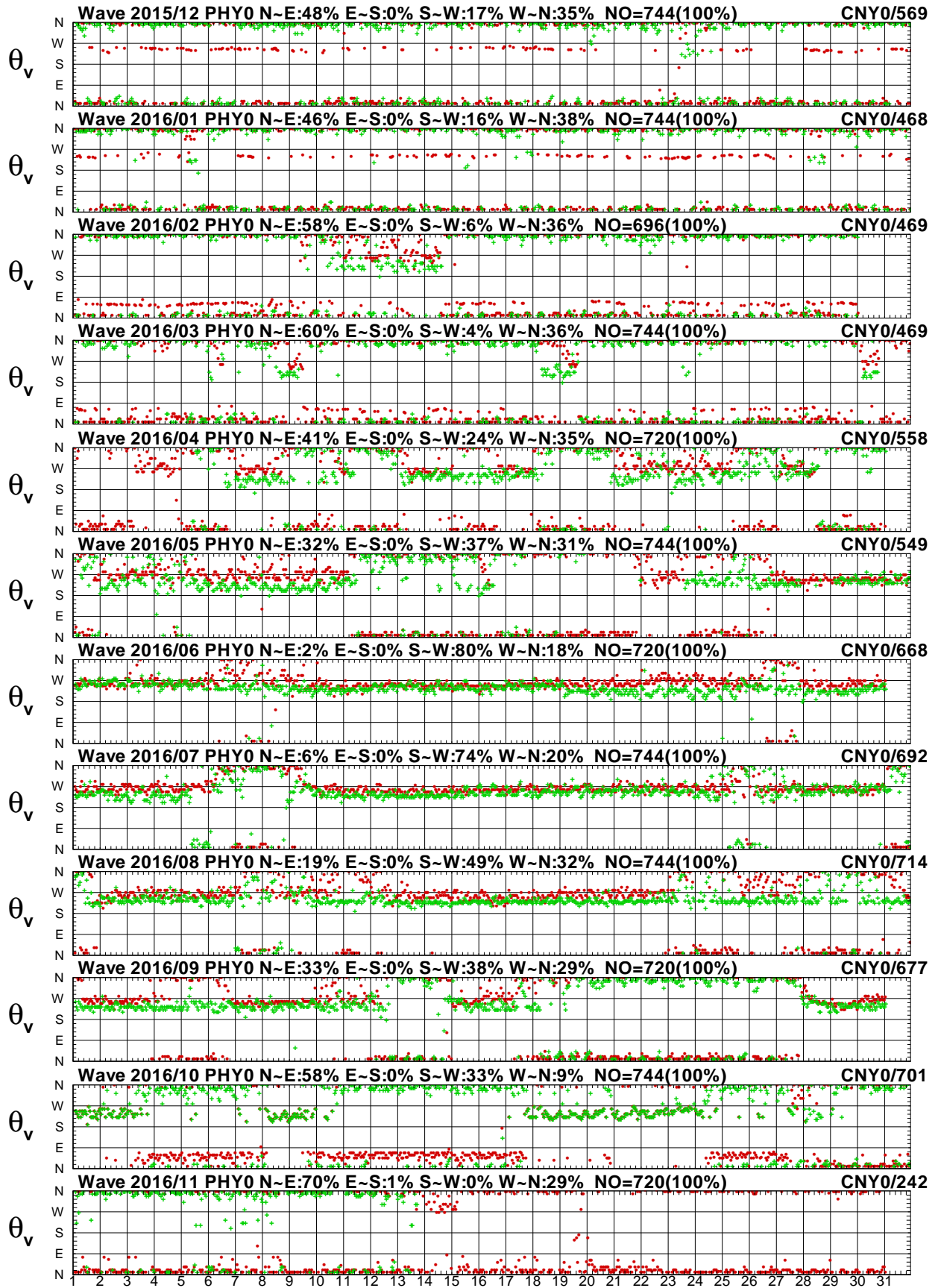


圖 2.10c 2016年每月澎湖海域 Y 站與嘉南海域 Y 站波向圖

V15CPHY0.1HA V15CCNY0.1H0 V161PHY0.1HA V161CNY0.1H0 V162PHY0.1HA V162CNY0.1H0
 V163PHY0.1HA V163CNY0.1H0 V164PHY0.1HA V164CNY0.1H0 V165PHY0.1HA V165CNY0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2016

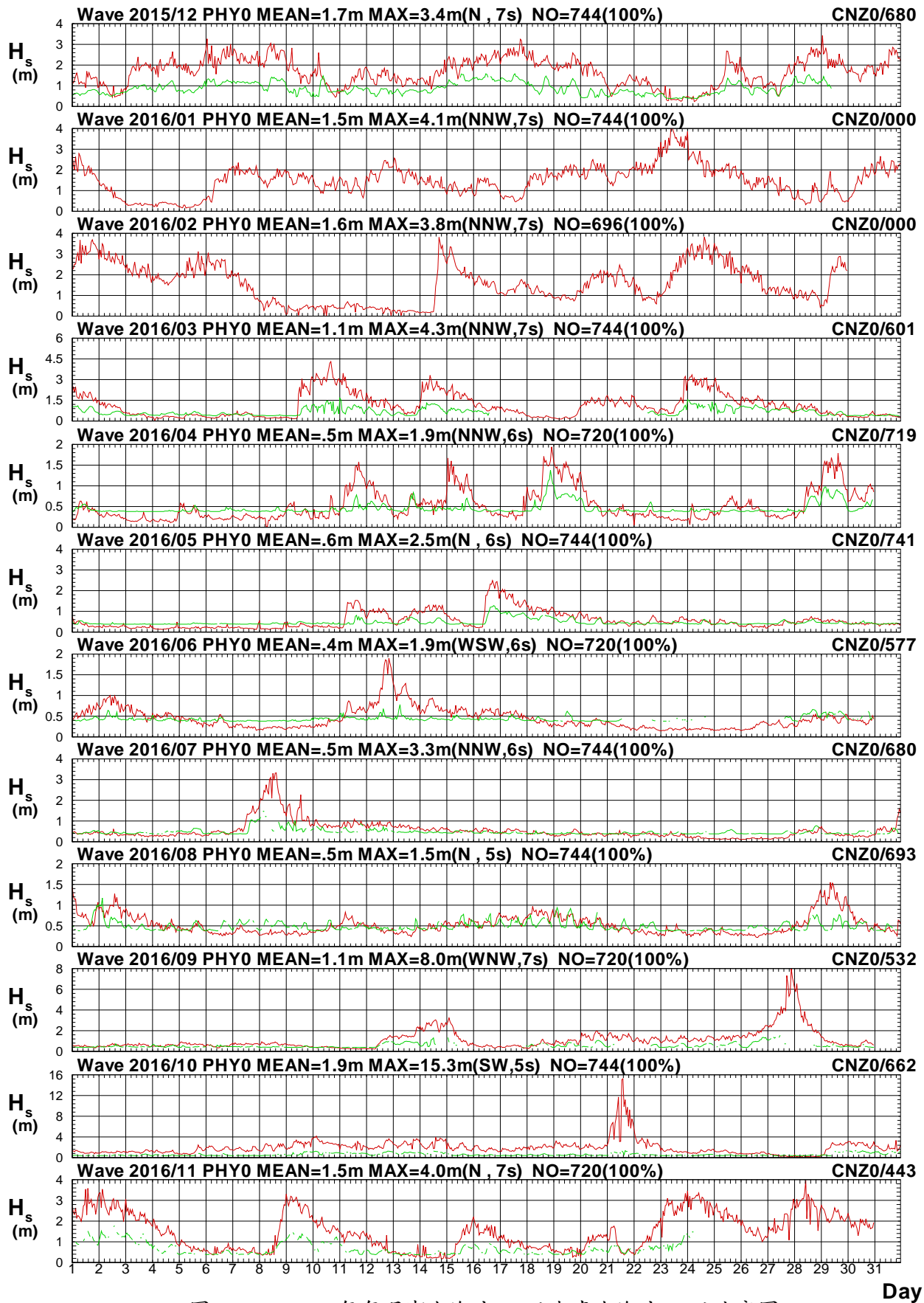


圖 2.11a 2016年每月澎湖海域 Y 站與嘉南海域 Z 站波高圖

V15CPHY0.1HA V15CCNZ0.1H0 V161PHY0.1HA V161CNZ0.1H0 V162PHY0.1HA V162CNZ0.1H0
 V163PHY0.1HA V163CNZ0.1H0 V164PHY0.1HA V164CNZ0.1H0 V165PHY0.1HA V165CNZ0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2016

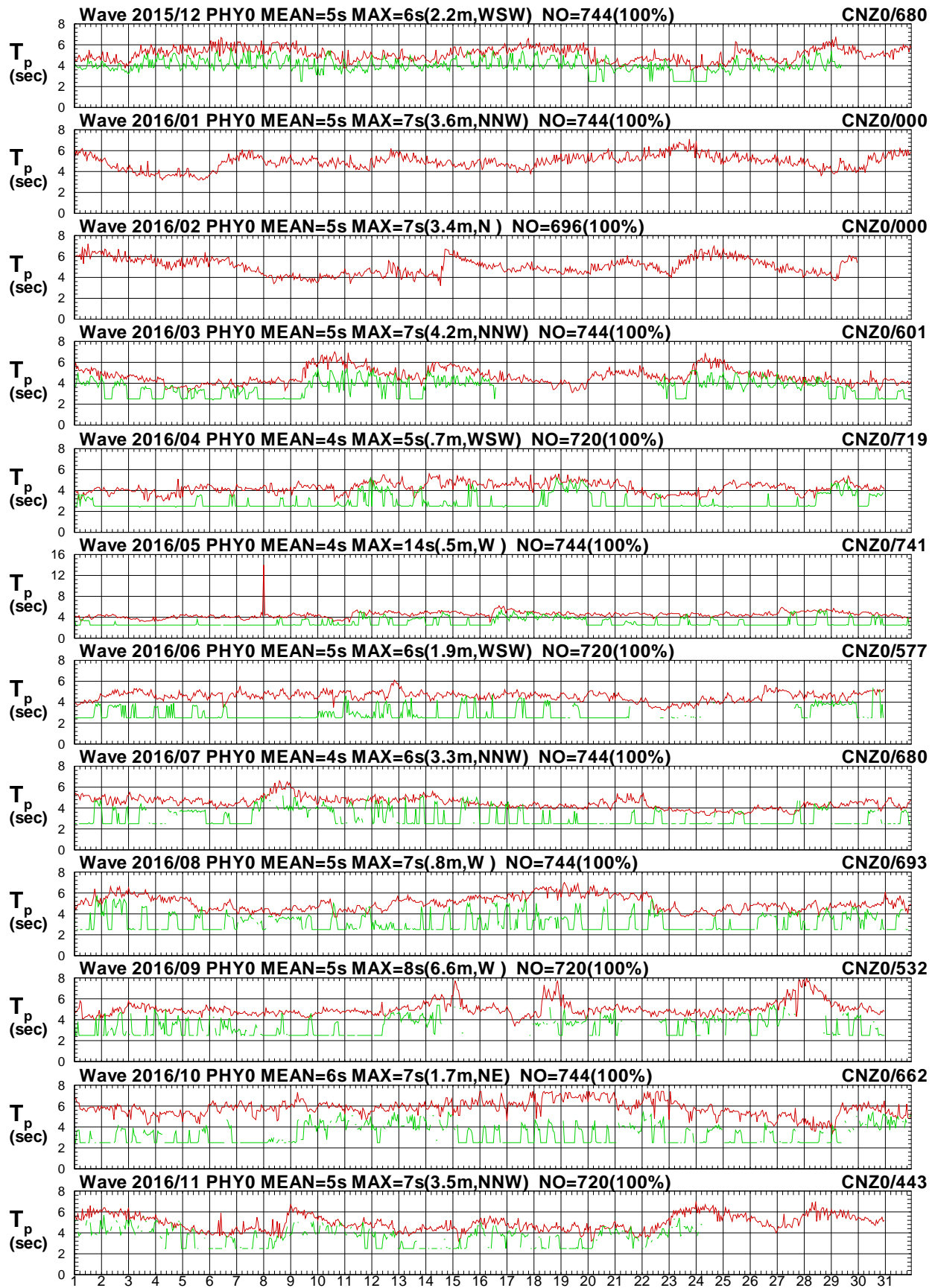


圖 2.11b 2016年每月澎湖海域 Y 站與嘉南海域 Z 站週期圖

V15CPHY0.1HA V15CCNZ0.1H0 V161PHY0.1HA V161CNZ0.1H0 V162PHY0.1HA V162CNZ0.1H0
 V163PHY0.1HA V163CNZ0.1H0 V164PHY0.1HA V164CNZ0.1H0 V165PHY0.1HA V165CNZ0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2016

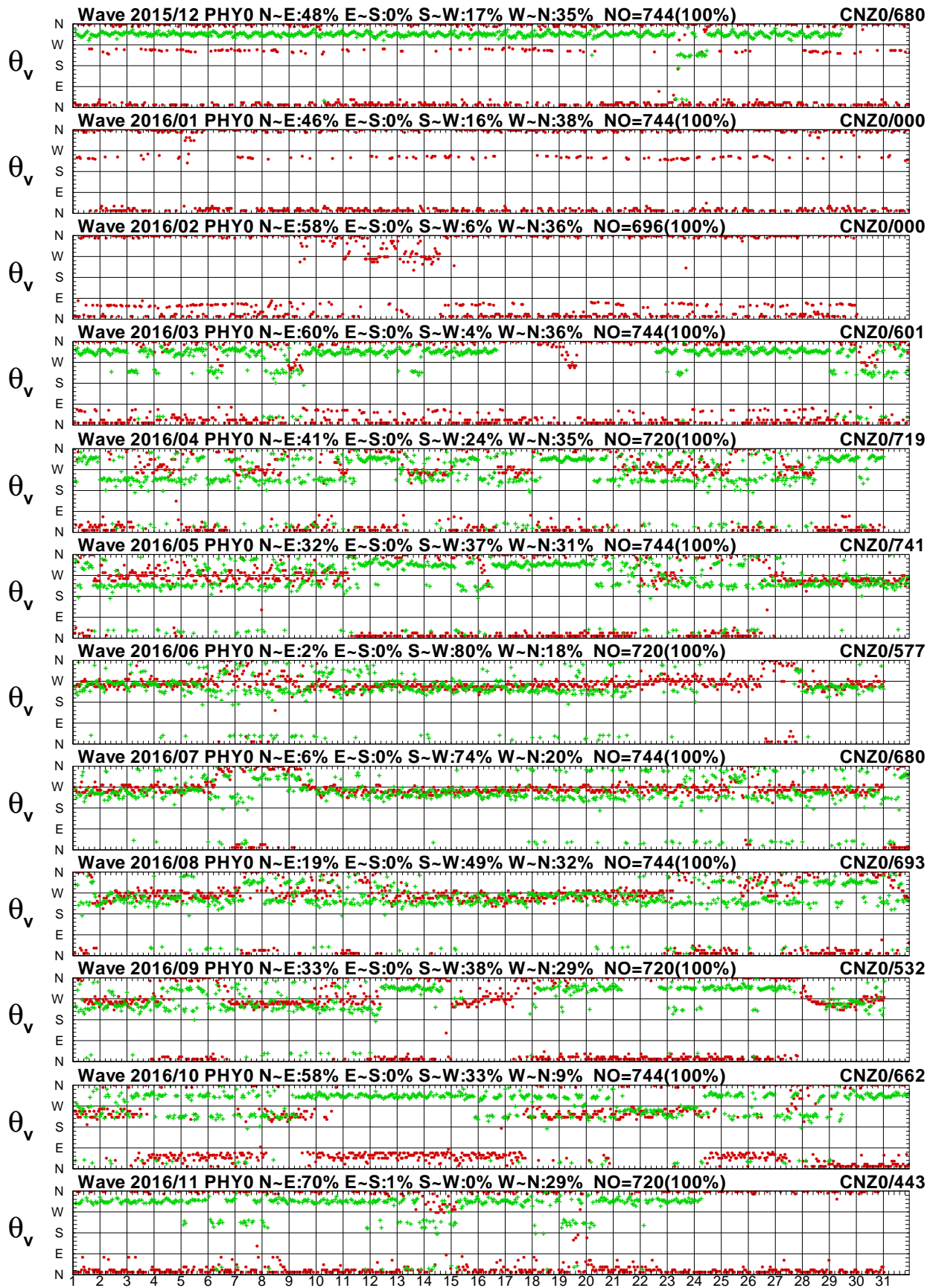


圖 2.11c 2016 年每月澎湖海域 Y 站與嘉南海域 Z 站波向圖

V15CPHY0.1HA V15CCNZ0.1H0 V161PHY0.1HA V161CNZ0.1H0 V162PHY0.1HA V162CNZ0.1H0
 V163PHY0.1HA V163CNZ0.1H0 V164PHY0.1HA V164CNZ0.1H0 V165PHY0.1HA V165CNZ0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2016

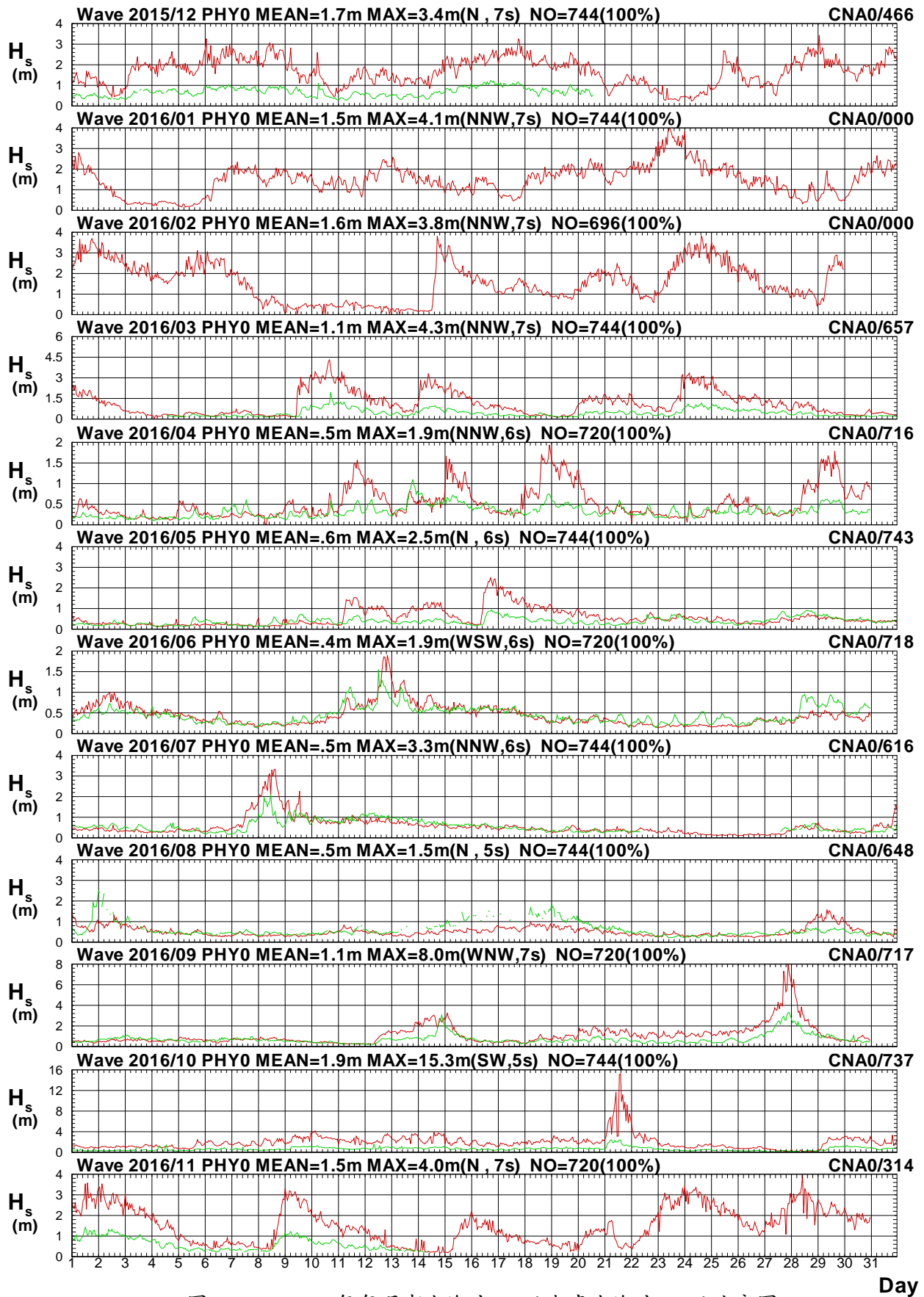


圖 2.12a 2016年每月澎湖海域 Y 站與嘉南海域 A 站波高圖

V15CPHY0.1HA V15CCNA0.1H0 V161PHY0.1HA V161CNA0.1H0 V162PHY0.1HA V162CNA0.1H0
 V163PHY0.1HA V163CNA0.1H0 V164PHY0.1HA V164CNA0.1H0 V165PHY0.1HA V165CNA0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2016

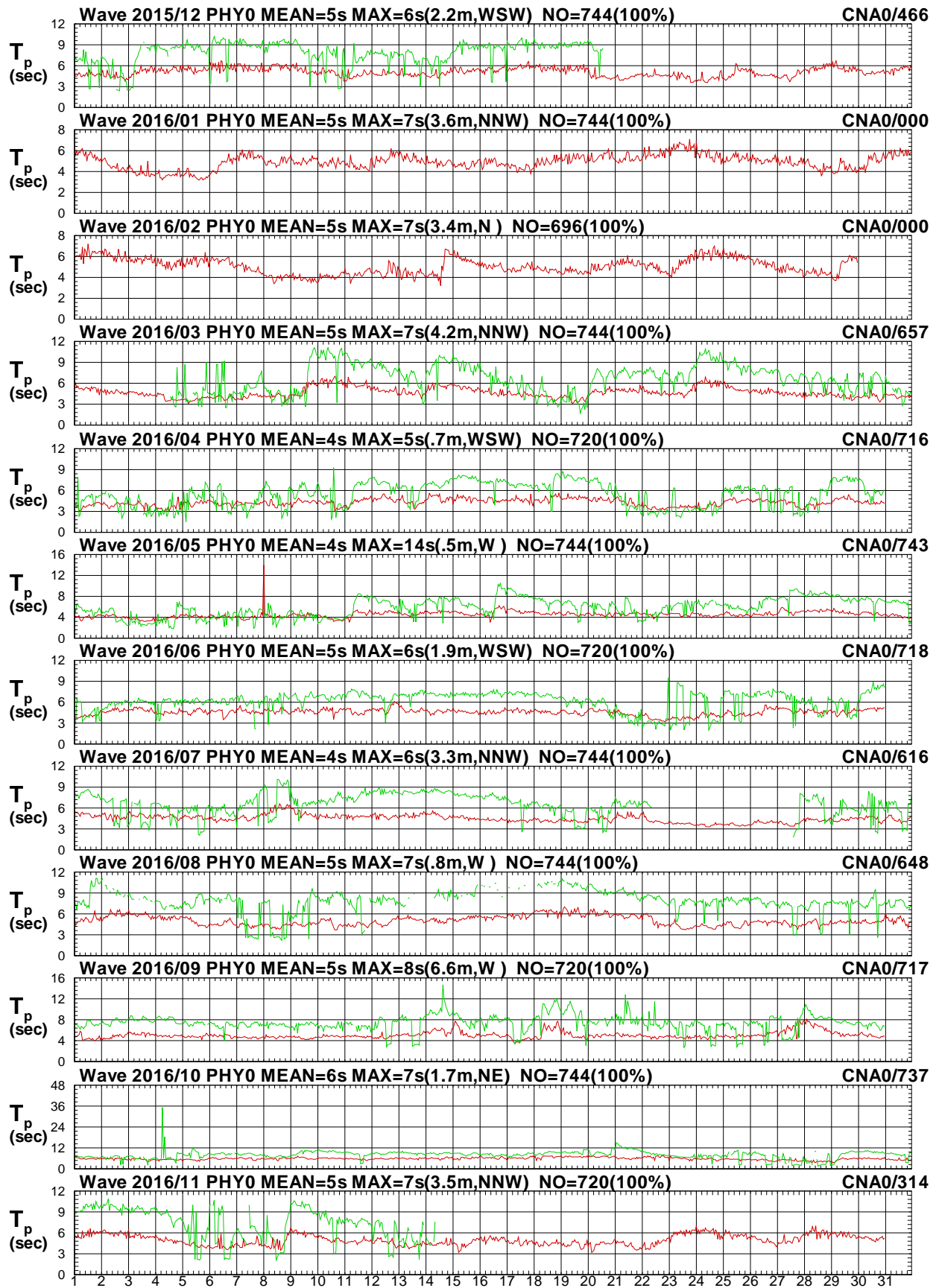


圖 2.12b 2016年每月澎湖海域 Y 站與嘉南海域 A 站週期圖

V15CPHY0.1HA V15CCNA0.1H0 V161PHY0.1HA V161CNA0.1H0 V162PHY0.1HA V162CNA0.1H0
 V163PHY0.1HA V163CNA0.1H0 V164PHY0.1HA V164CNA0.1H0 V165PHY0.1HA V165CNA0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2016

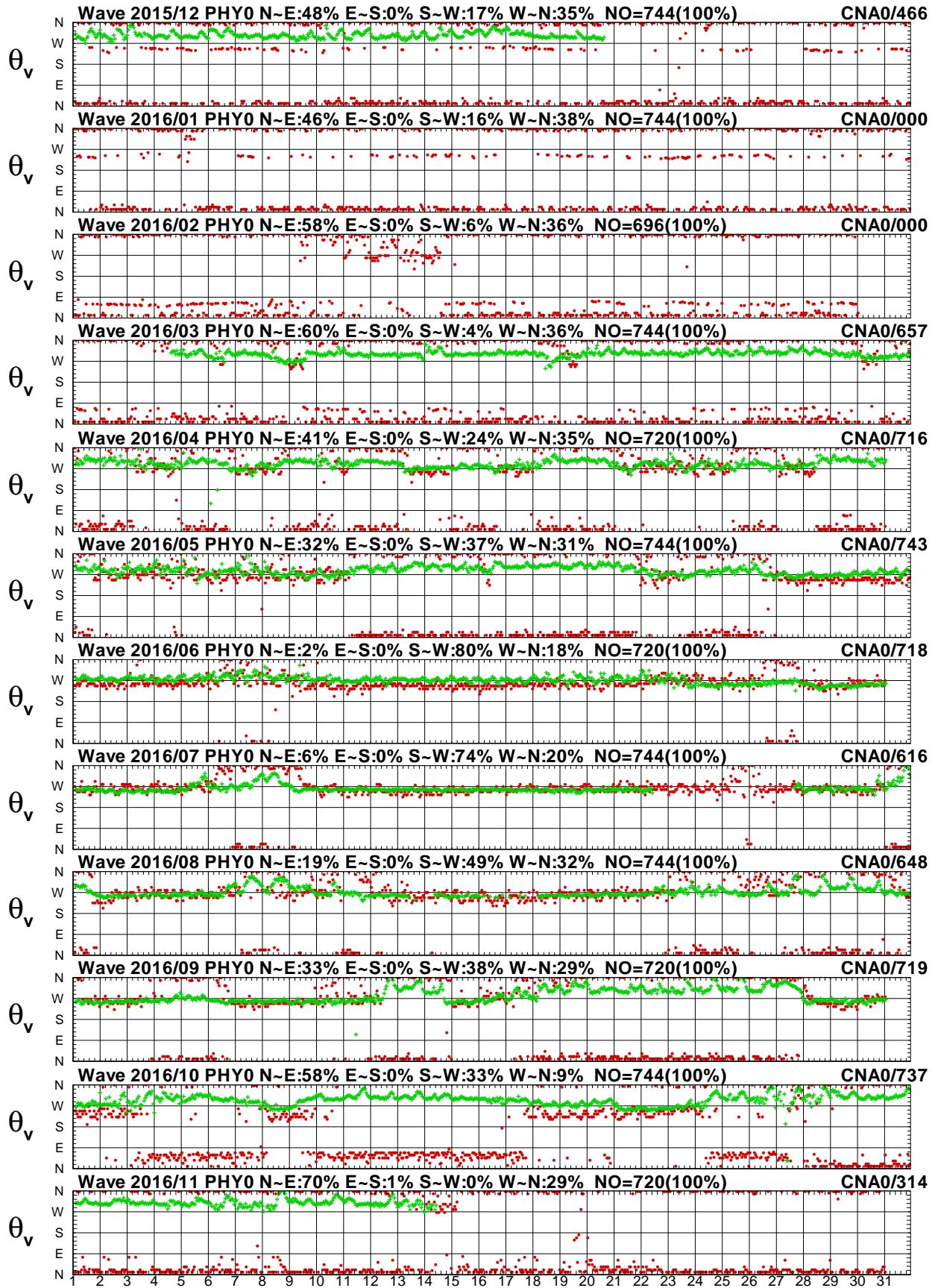


圖 2.12c 2016年每月澎湖海域 Y 站與嘉南海域 A 站波向圖

V15CPHY0.1HA V15CCNA0.1H0 V161PHY0.1HA V161CNA0.1H0 V162PHY0.1HA V162CNA0.1H0
 V163PHY0.1HA V163CNA0.1H0 V164PHY0.1HA V164CNA0.1H0 V165PHY0.1HA V165CNA0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2016

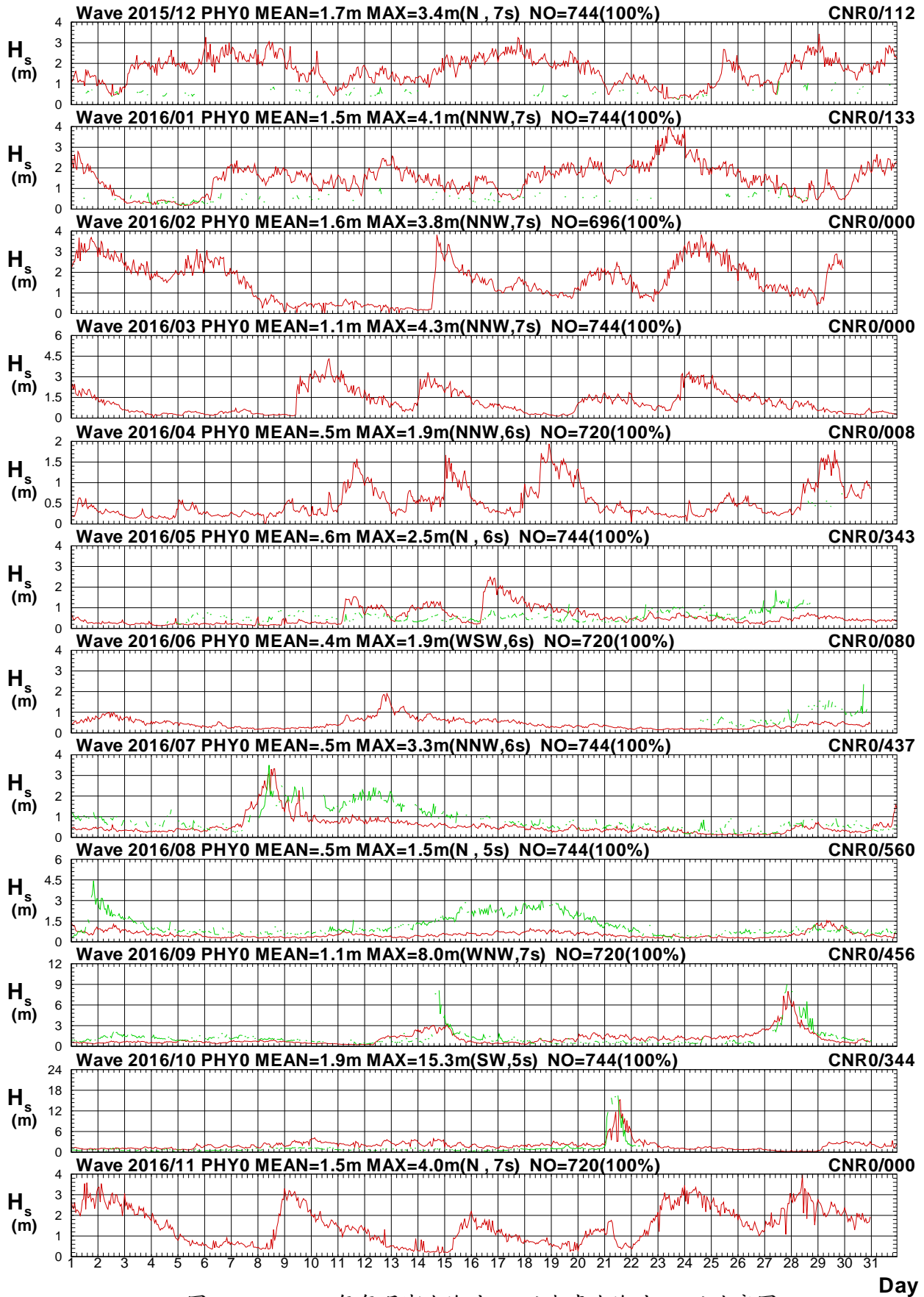


圖 2.13a 2016年每月澎湖海域 Y 站與嘉南海域 R 站波高圖

V15CPHY0.1HA V15CCNR0.1H0 V161PHY0.1HA V161CNR0.1H0 V162PHY0.1HA V162CNR0.1H0
 V163PHY0.1HA V163CNR0.1H0 V164PHY0.1HA V164CNR0.1H0 V165PHY0.1HA V165CNR0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2016

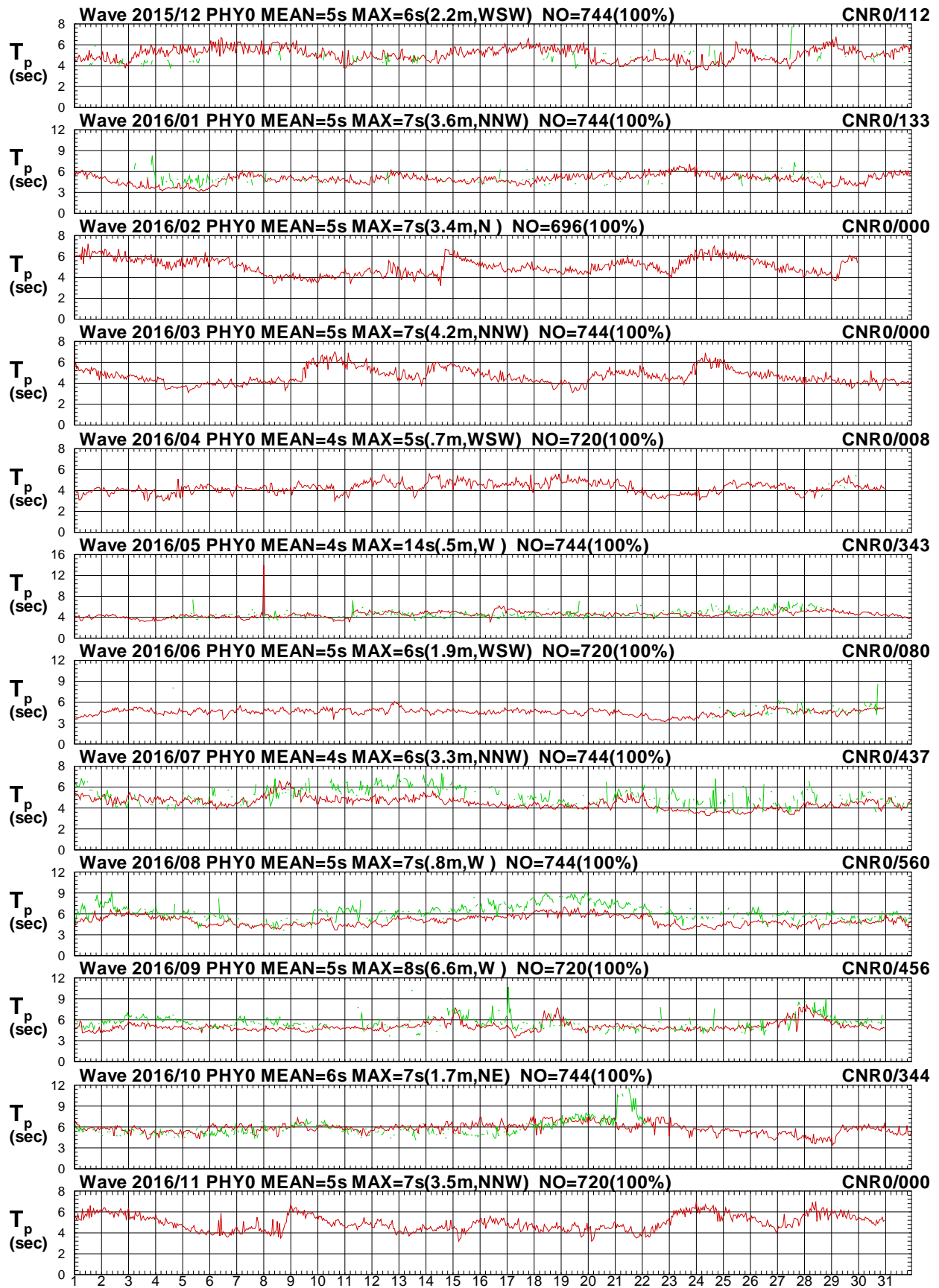


圖 2.13b 2016年每月澎湖海域 Y 站與嘉南海域 R 站週期圖

V15CPHY0.1HA V15CCNR0.1HO V161PHY0.1HA V161CNR0.1HO V162PHY0.1HA V162CNR0.1HO
 V163PHY0.1HA V163CNR0.1HO V164PHY0.1HA V164CNR0.1HO V165PHY0.1HA V165CNR0.1HO

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Wave Direction in Peng-Hu Seas of PHY0 at 2016

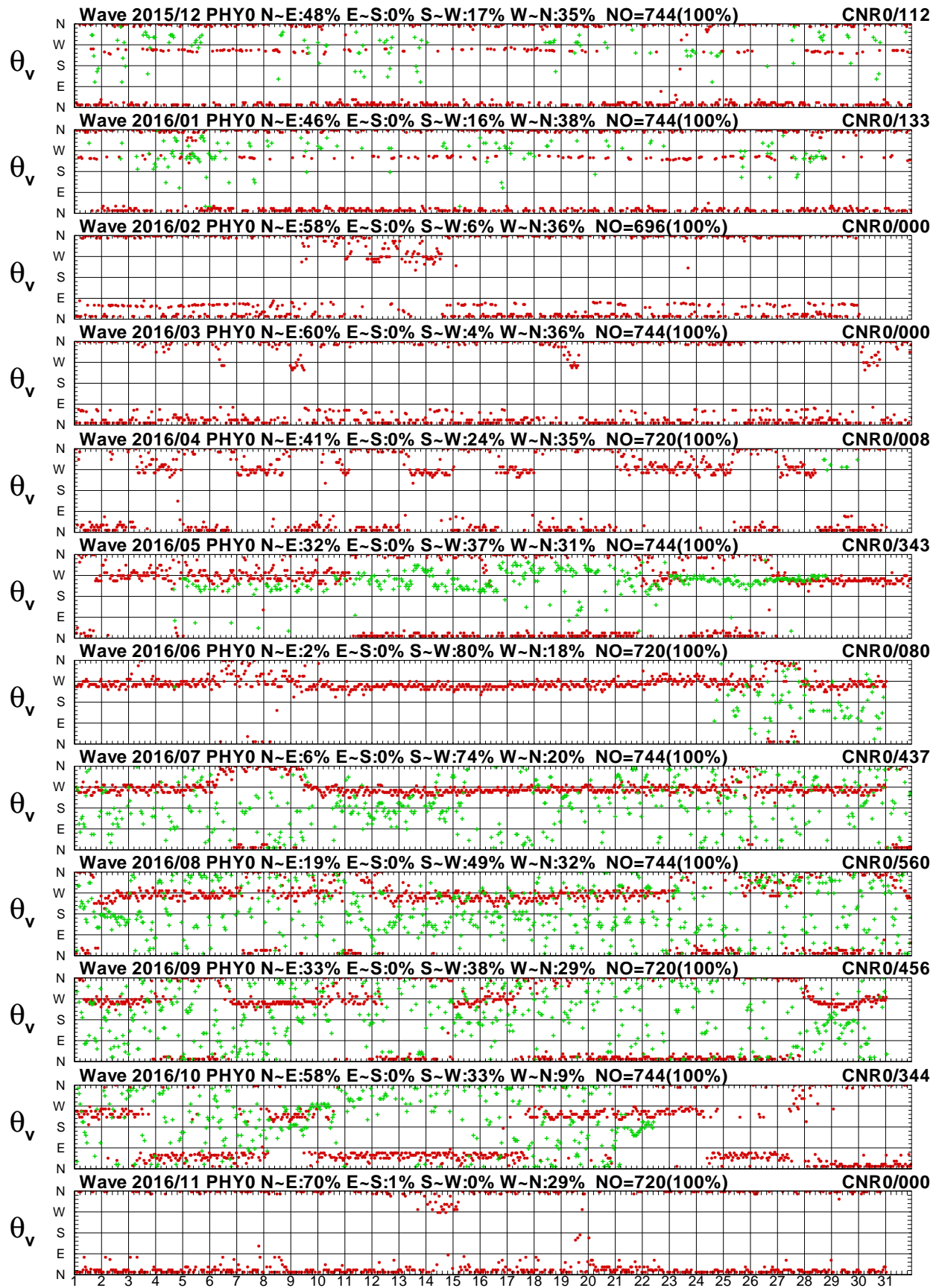


圖 2.13c 2016年每月澎湖海域 Y 站與嘉南海域 R 站波向圖

V15CPHY0.1HA V15CCNR0.1H0 V161PHY0.1HA V161CNR0.1H0 V162PHY0.1HA V162CNR0.1H0
 V163PHY0.1HA V163CNR0.1H0 V164PHY0.1HA V164CNR0.1H0 V165PHY0.1HA V165CNR0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2016

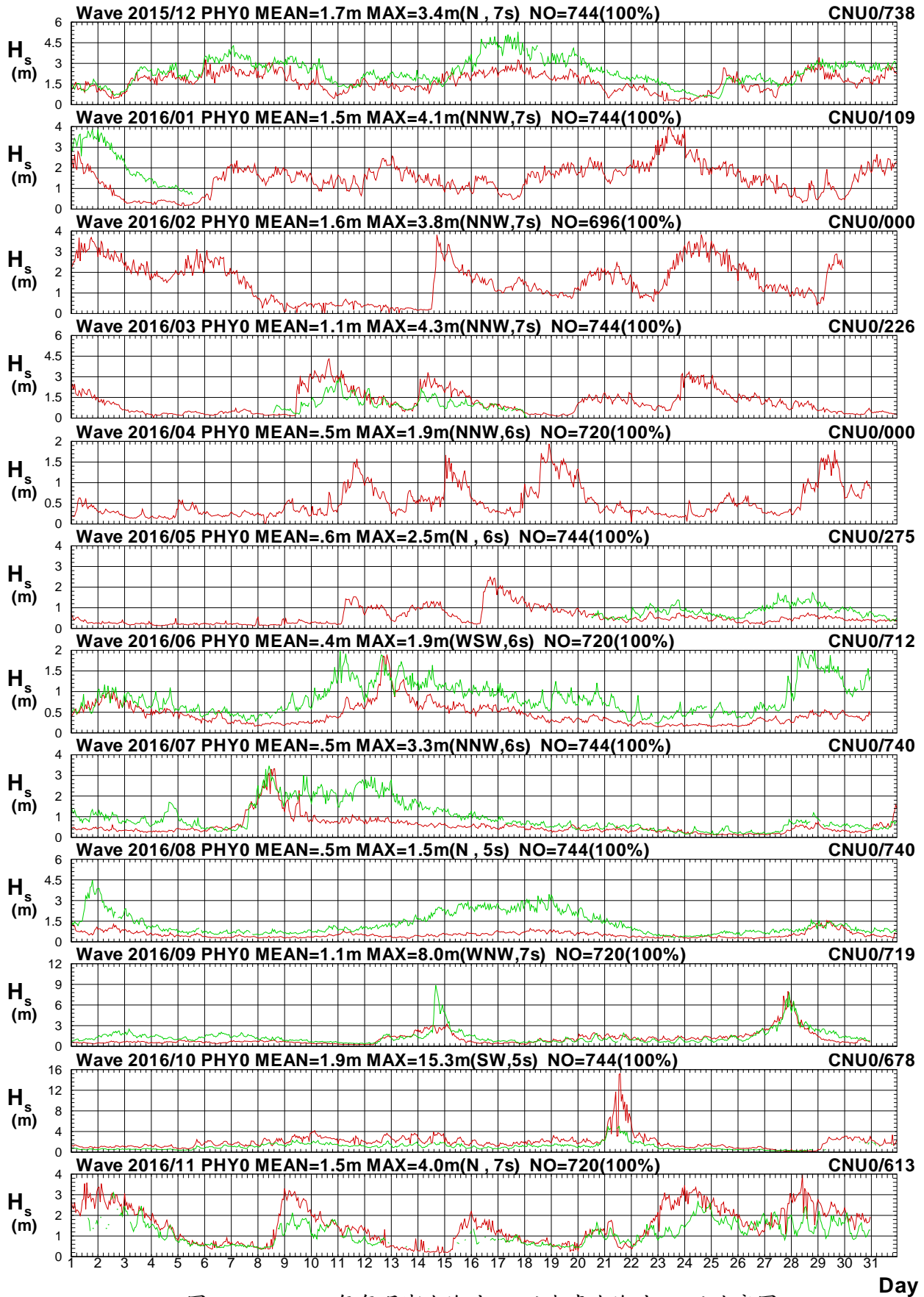


圖 2.14a 2016年每月澎湖海域 Y 站與嘉南海域 U 站波高圖

V15CPHY0.1HA V15CCNU0.1H0 V161PHY0.1HA V161CNU0.1H0 V162PHY0.1HA V162CNU0.1H0
 V163PHY0.1HA V163CNU0.1H0 V164PHY0.1HA V164CNU0.1H0 V165PHY0.1HA V165CNU0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2016

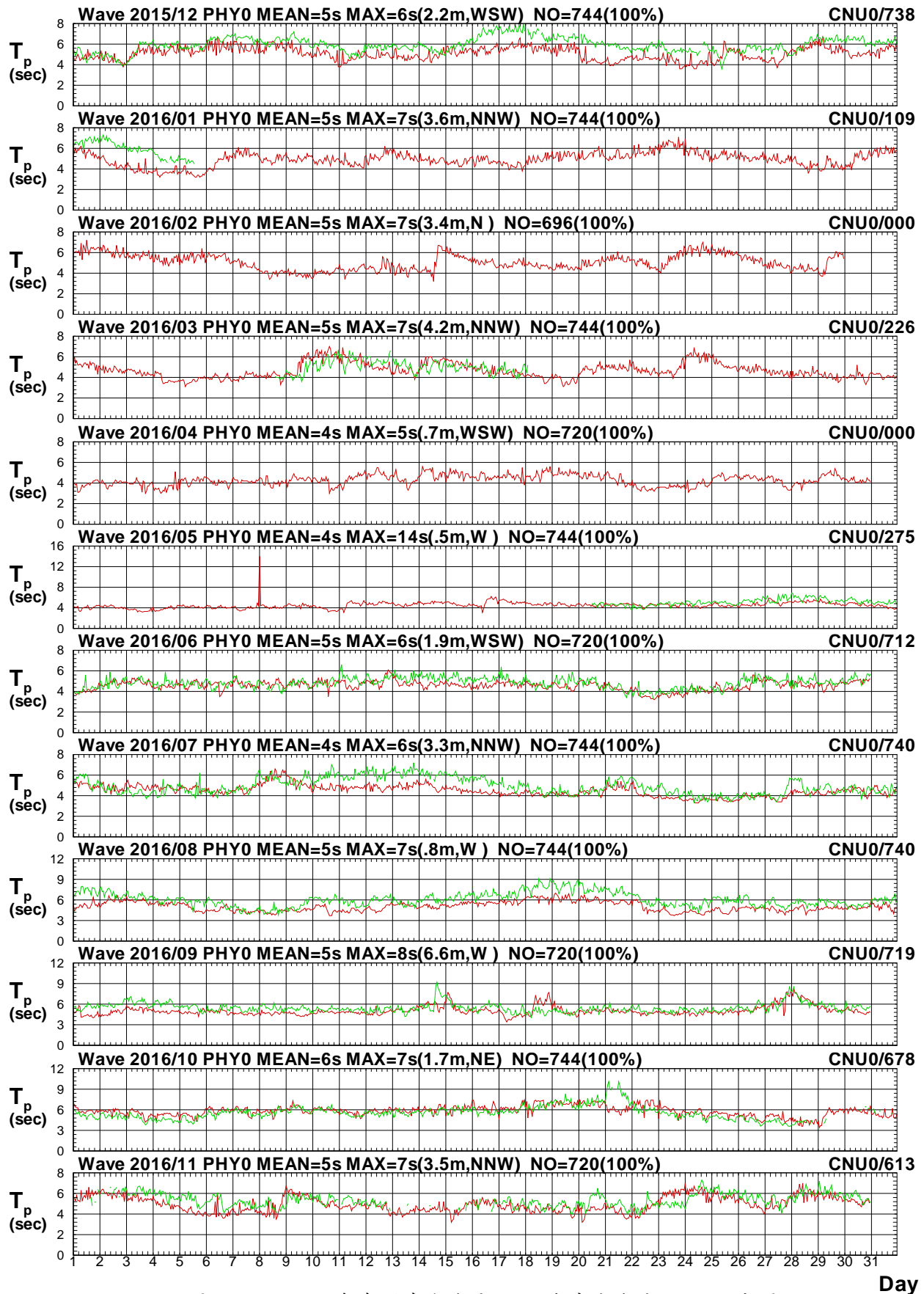


圖 2.14b 2016年每月澎湖海域 Y 站與嘉南海域 U 站週期圖

V15CPHY0.1HA V15CCNU0.1H0 V161PHY0.1HA V161CNU0.1H0 V162PHY0.1HA V162CNU0.1H0
 V163PHY0.1HA V163CNU0.1H0 V164PHY0.1HA V164CNU0.1H0 V165PHY0.1HA V165CNU0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2016

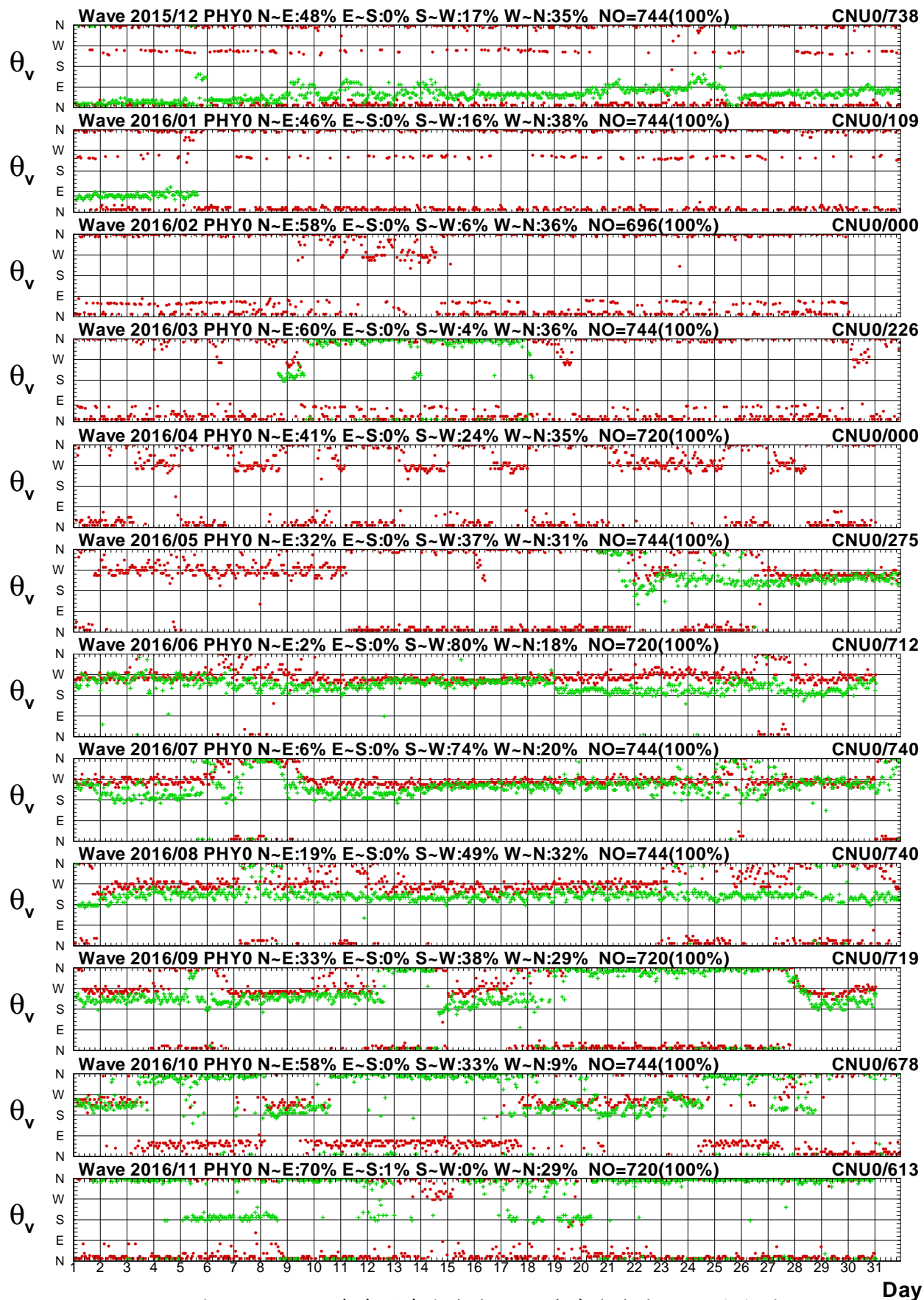


圖 2.14c 2016年每月澎湖海域 Y 站與嘉南海域 U 站波向圖

V15CPHY0.1HA V15CCNU0.1H0 V161PHY0.1HA V161CNU0.1H0 V162PHY0.1HA V162CNU0.1H0
 V163PHY0.1HA V163CNU0.1H0 V164PHY0.1HA V164CNU0.1H0 V165PHY0.1HA V165CNU0.1H0

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Wave H_s in Peng-Hu Seas of PHY0 at 2016

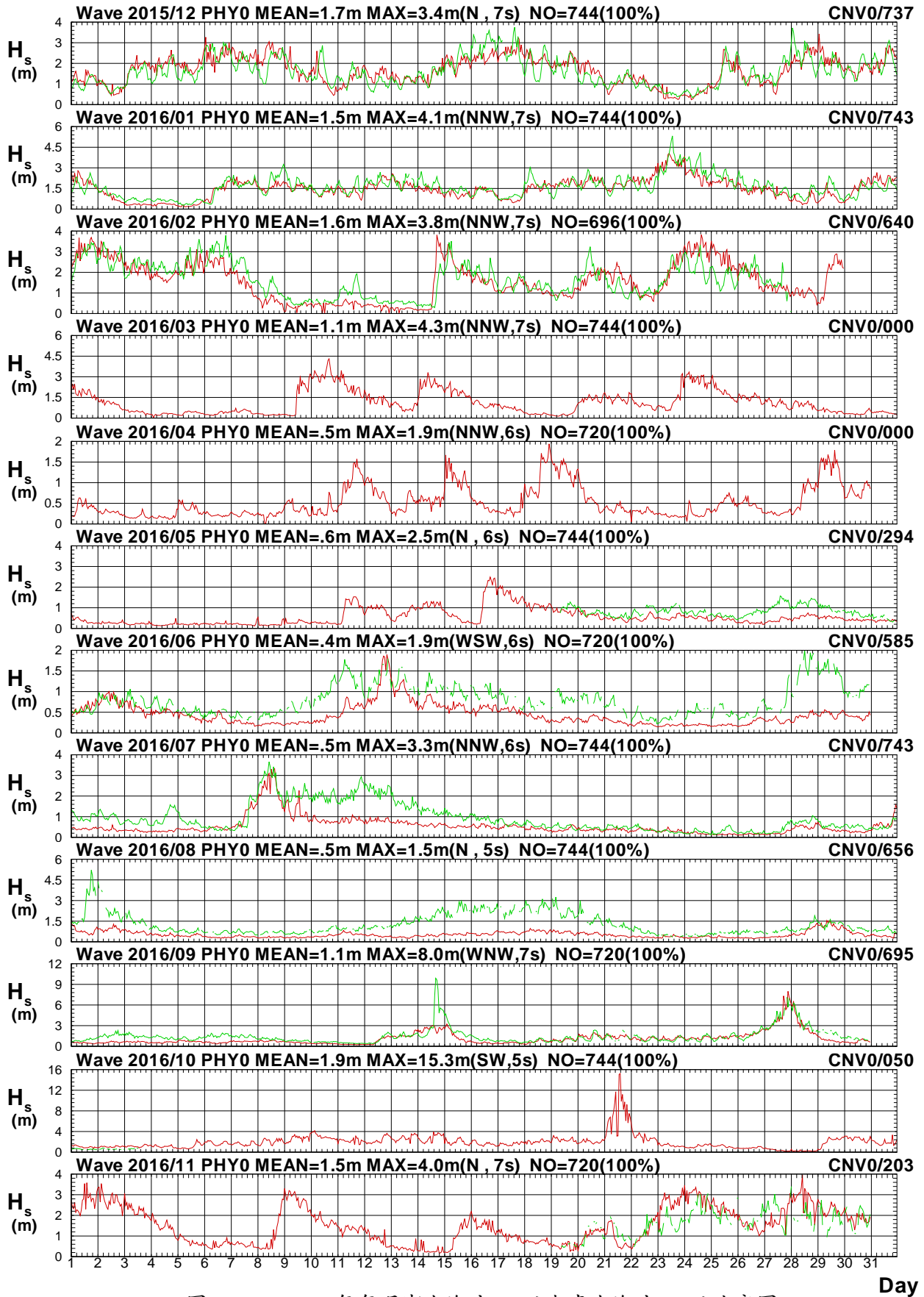


圖 2.15a 2016年每月澎湖海域 Y 站與嘉南海域 V 站波高圖

V15CPHY0.1HA V15CCNV0.1H0 V161PHY0.1HA V161CNV0.1H0 V162PHY0.1HA V162CNV0.1H0
 V163PHY0.1HA V163CNV0.1H0 V164PHY0.1HA V164CNV0.1H0 V165PHY0.1HA V165CNV0.1H0

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Wave T_p in Peng-Hu Seas of PHY0 at 2016

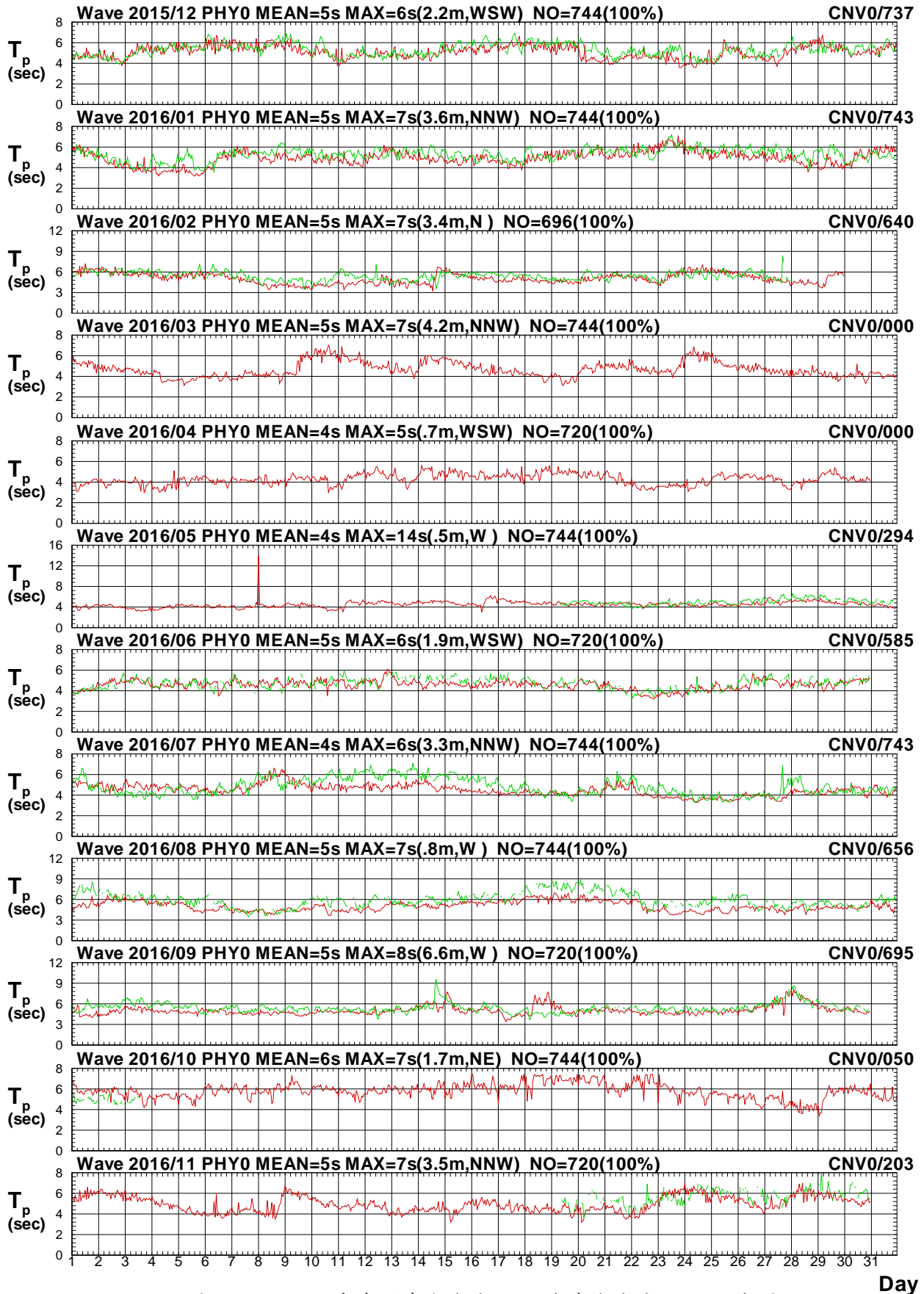


圖 2.15b 2016年每月澎湖海域 Y 站與嘉南海域 V 站週期圖

V15CPHY0.1HA V15CCNV0.1H0 V161PHY0.1HA V161CNV0.1H0 V162PHY0.1HA V162CNV0.1H0
 V163PHY0.1HA V163CNV0.1H0 V164PHY0.1HA V164CNV0.1H0 V165PHY0.1HA V165CNV0.1H0

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Wave Direction in Peng-Hu Seas of PHY0 at 2016

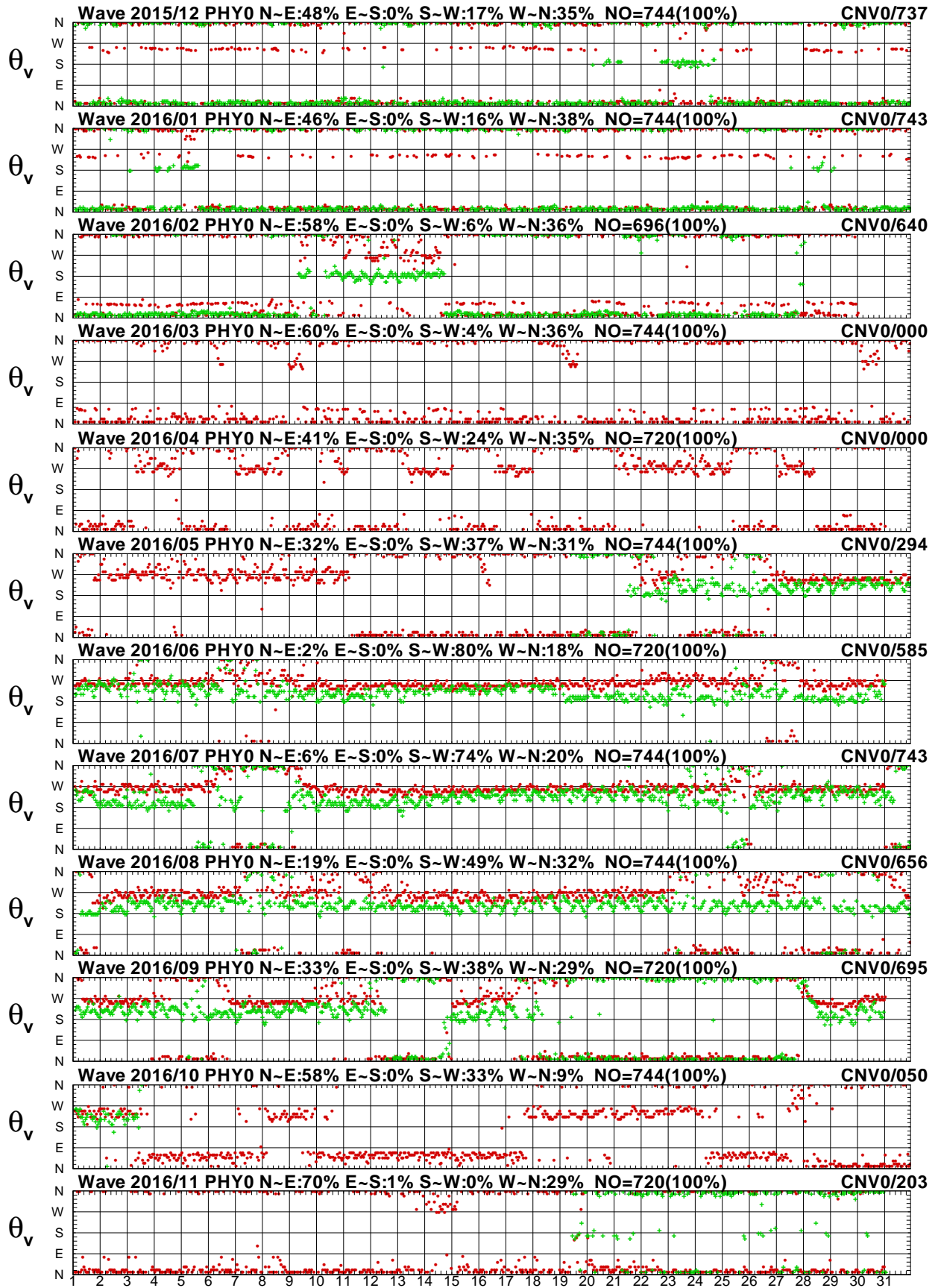


圖 2.15c 2016年每月澎湖海域 Y 站與嘉南海域 V 站波向圖

V15CPHY0.1HA V15CCNV0.1HO V161PHY0.1HA V161CNV0.1HO V162PHY0.1HA V162CNV0.1HO
 V163PHY0.1HA V163CNV0.1HO V164PHY0.1HA V164CNV0.1HO V165PHY0.1HA V165CNV0.1HO

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第三章 2016 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**，2016 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，2016 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 2016 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	2011/01-2016/11(觀測中)	港研中心	龍門尖山港區
S	23°33'30"N	119°40'06"E	2013/06-2016/11(觀測中)	港研中心	馬公港區潮位計
X	23°33'21"N	119°40'31"E	2011/01-2016/11(觀測中)	港研中心	龍門尖山港區外海
F	23°33'42"N	119°34'41"E	2009/01-2016/11(觀測中)	中央氣象局	七美漁港

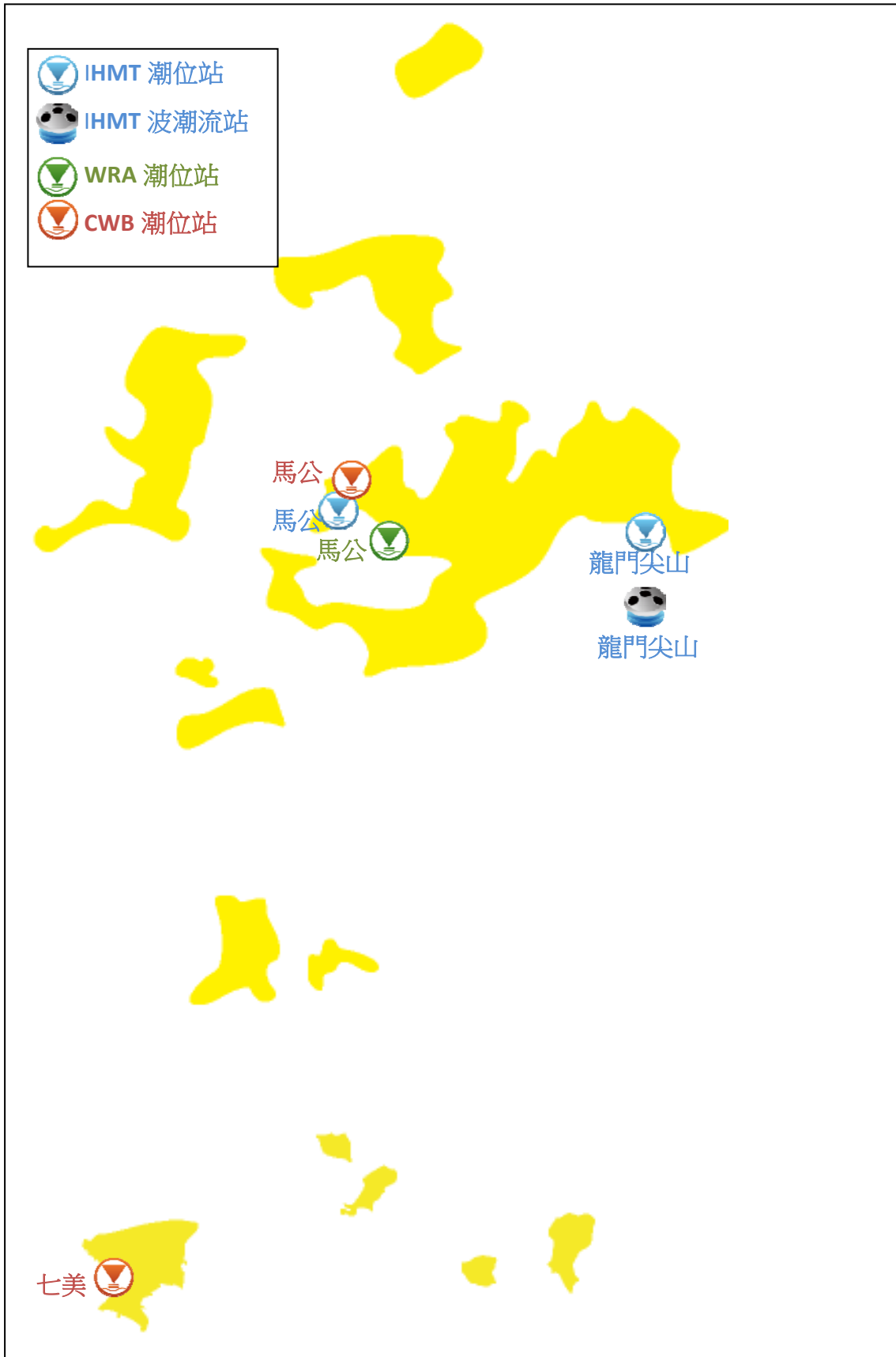


圖 3 澎湖海域潮汐觀測站位置示意圖

表 3.1a 2016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				
2015/12月	174 (23.4%)	81 (10.9%)	*	173 (23.3%)	*	*	*	*
2016/ 1月	744 (100%)	734 (98.7%)	*	253 (34.0%)	*	*	*	*
2016/ 2月	696 (100%)	682 (98.0%)	*	256 (36.8%)	*	*	*	*
2016/ 3月	743 (99.9%)	731 (98.3%)	492 (66.1%)	589 (79.2%)	*	*	*	*
2016/ 4月	720 (100%)	698 (96.9%)	523 (72.6%)	720 (100%)	*	*	*	*
2016/ 5月	743 (99.9%)	743 (99.9%)	682 (91.7%)	744 (100%)	*	*	*	*
2016/ 6月	719 (99.9%)	716 (99.4%)	708 (98.3%)	720 (100%)	*	*	*	*
2016/ 7月	744 (100%)	679 (91.3%)	593 (79.7%)	744 (100%)	*	*	*	*
2016/ 8月	744 (100%)	702 (94.4%)	725 (97.4%)	744 (100%)	*	*	*	*
2016/ 9月	720 (100%)	634 (88.1%)	250 (34.7%)	718 (99.7%)	*	*	*	*
2016/10月	744 (100%)	*	604 (81.2%)	744 (100%)	*	*	*	*
2016/11月	720 (100%)	*	614 (85.3%)	720 (100%)	*	*	*	*
2016/冬季	*	*	*	*	*	*	*	*
2016/春季	*	*	*	*	*	*	*	*
2016/夏季	*	*	*	*	*	*	*	*
2016/秋季	*	*	*	*	*	*	*	*
2016/整年	*	*	*	*	*	*	*	*
起始年月	*	*	*	*	*	*	*	*
結束年月	*	*	*	*	*	*	*	*

表3.1b 2016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				
2015/12月	174 (23.4%)	*	*	*	*	*	*	*
2016/ 1月	744 (100%)	*	*	*	*	*	*	*
2016/ 2月	696 (100%)	*	*	*	*	*	*	*
2016/ 3月	744 (100%)	*	*	*	*	*	*	*
2016/ 4月	720 (100%)	*	*	*	*	*	*	*
2016/ 5月	744 (100%)	*	*	*	*	*	*	*
2016/ 6月	720 (100%)	*	*	*	*	*	*	*
2016/ 7月	744 (100%)	*	*	*	*	*	*	*
2016/ 8月	744 (100%)	*	*	*	*	*	*	*
2016/ 9月	720 (100%)	*	*	*	*	*	*	*
2016/10月	744 (100%)	*	*	*	*	*	*	*
2016/11月	720 (100%)	*	*	*	*	*	*	*
2016/冬季	*	*	*	*	*	*	*	*
2016/春季	*	*	*	*	*	*	*	*
2016/夏季	*	*	*	*	*	*	*	*
2016/秋季	*	*	*	*	*	*	*	*
2016/整年	*	*	*	*	*	*	*	*
起始年月	*	*	*	*	*	*	*	*
結束年月	*	*	*	*	*	*	*	*

Tidal Level in Peng-Hu Seas of PHT0 at 2016

1 ○ 8 ● 15 ● 22 ●

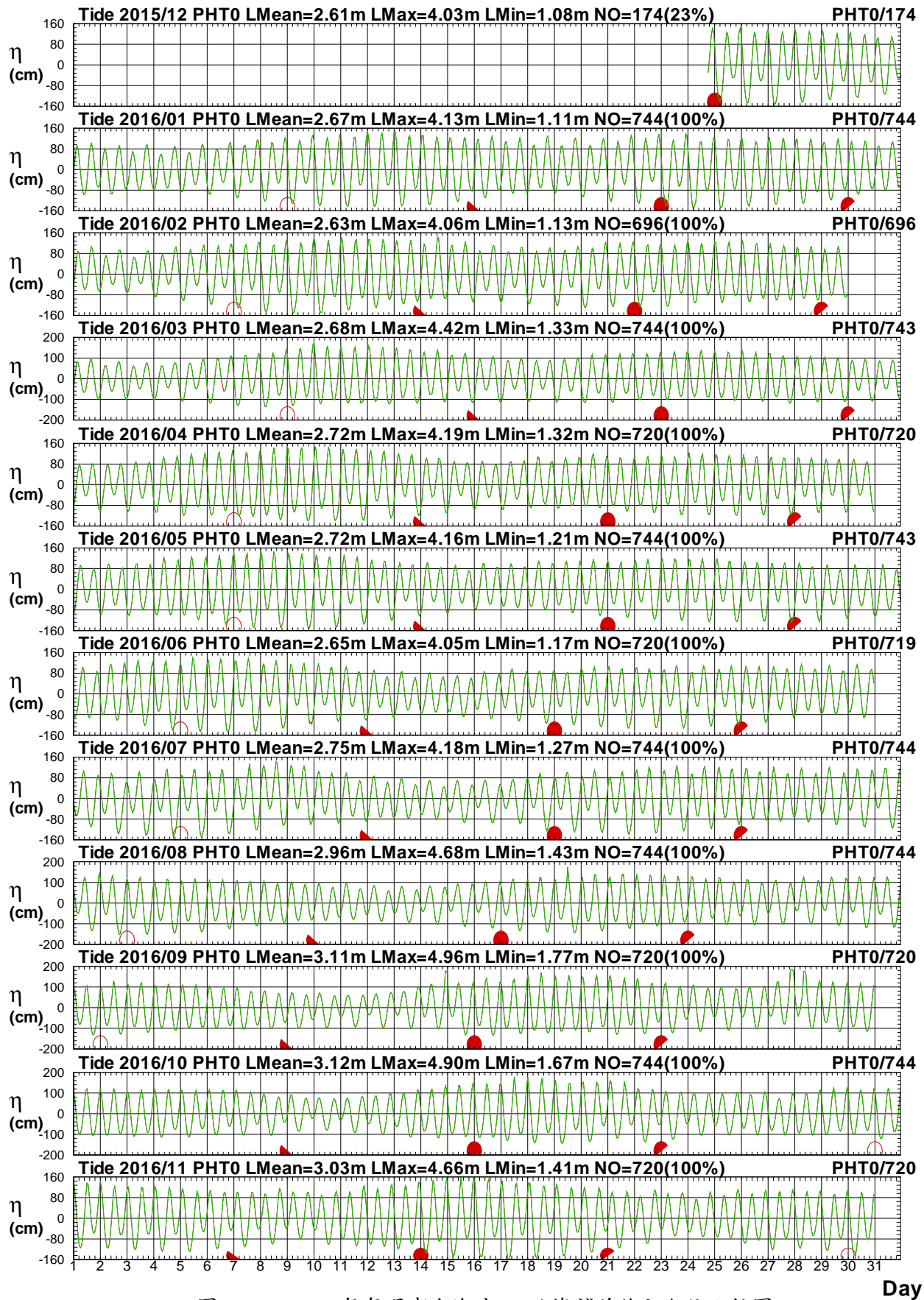


圖 3.1.1 2016年每月澎湖海域 T 站修補前後之潮位比較圖

T15CPHT0.1HA T15CPHT0.1H0 T161PHT0.1HA T161PHT0.1H0 T162PHT0.1HA T162PHT0.1H0
 T163PHT0.1HA T163PHT0.1H0 T164PHT0.1HA T164PHT0.1H0 T165PHT0.1HA T165PHT0.1H0

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Tidal Level in Peng-Hu Seas of PHT0 at 2016

1 ○ 8 ● 15 ● 22 ●

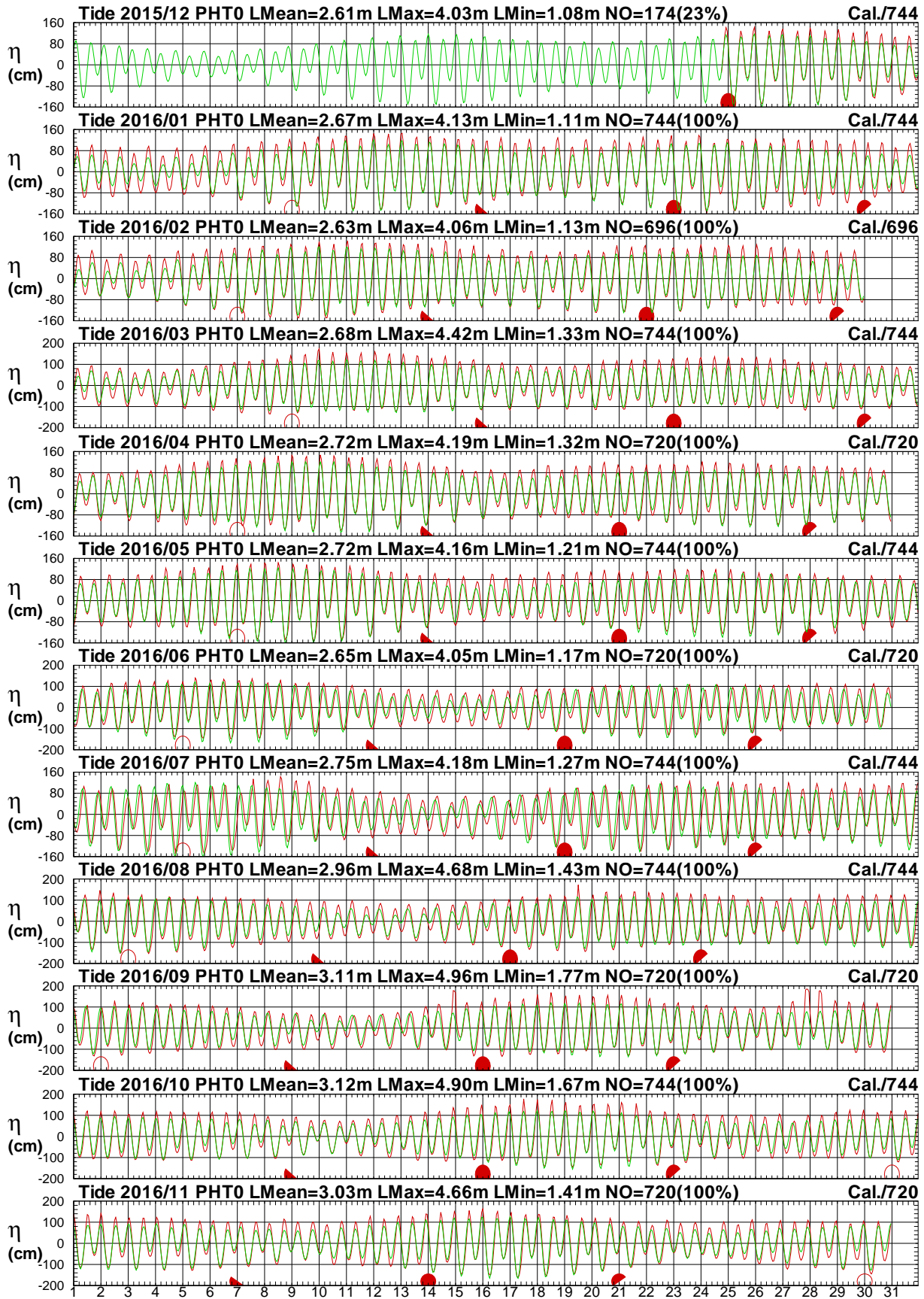


圖 3.1.2 2016年每月澎湖海域 T 站潮位歷線圖 (綠線: 天文潮)

Day

T15CPHT0.1HA T15CPHT0.1HC T161PHT0.1HA T161PHT0.1HC T162PHT0.1HA T162PHT0.1HC
T163PHT0.1HA T163PHT0.1HC T164PHT0.1HA T164PHT0.1HC T165PHT0.1HA T165PHT0.1HC

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Tidal Level in Peng-Hu Seas of PHT0 at 2016

1 ○ 8 ● 15 ● 22 ●

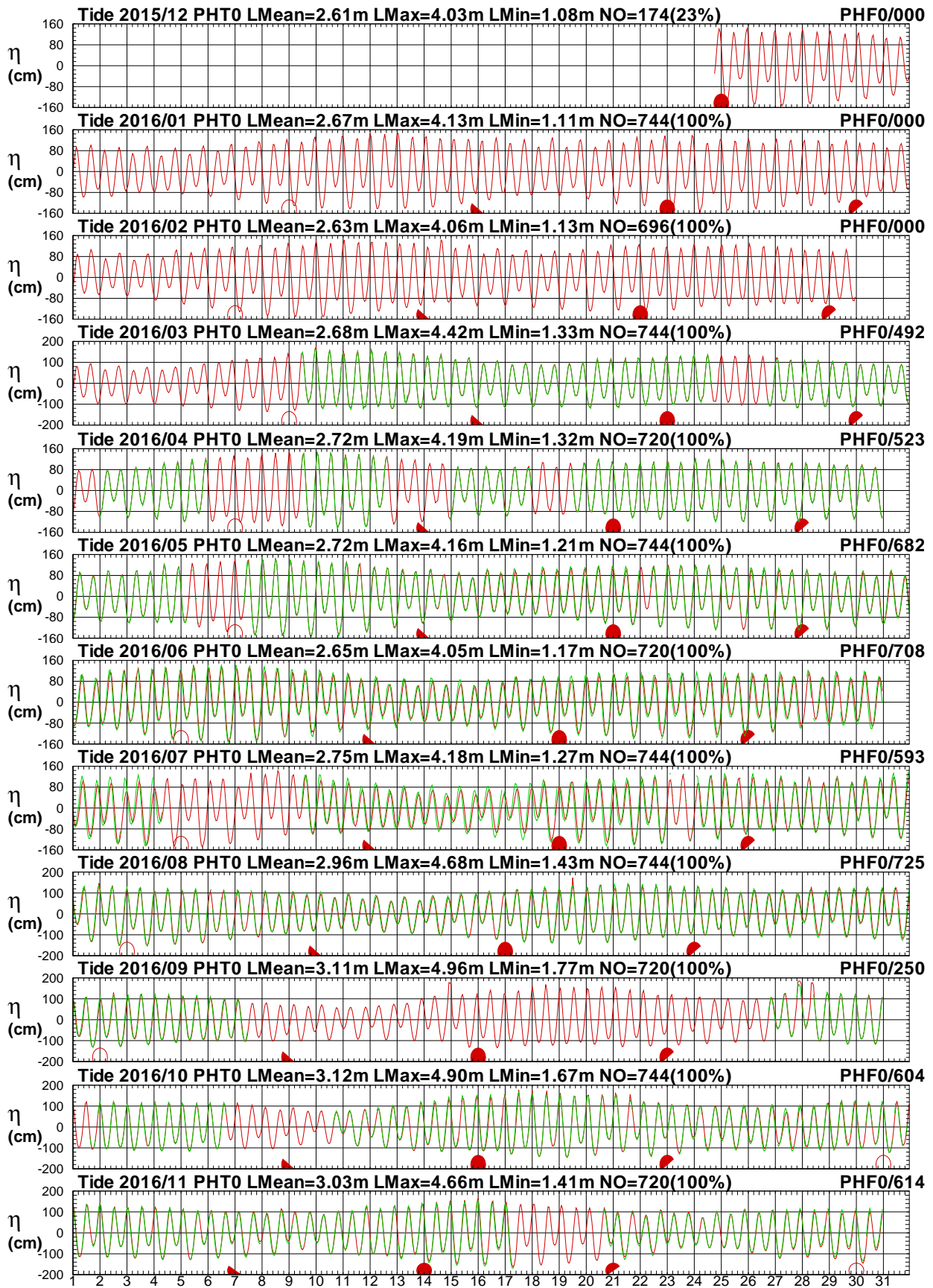


圖 3.1.3 2016年每月澎湖海域 T 站與 F 站潮位比較圖

Day

T15CPHT0.1HA T15CPHF0.1H0 T161PHT0.1HA T161PHF0.1H0 T162PHT0.1HA T162PHF0.1H0
T163PHT0.1HA T163PHF0.1H0 T164PHT0.1HA T164PHF0.1H0 T165PHT0.1HA T165PHF0.1H0

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Tidal Level in Peng-Hu Seas of PHT0 at 2016

1 ○ 8 ● 15 ● 22 ●

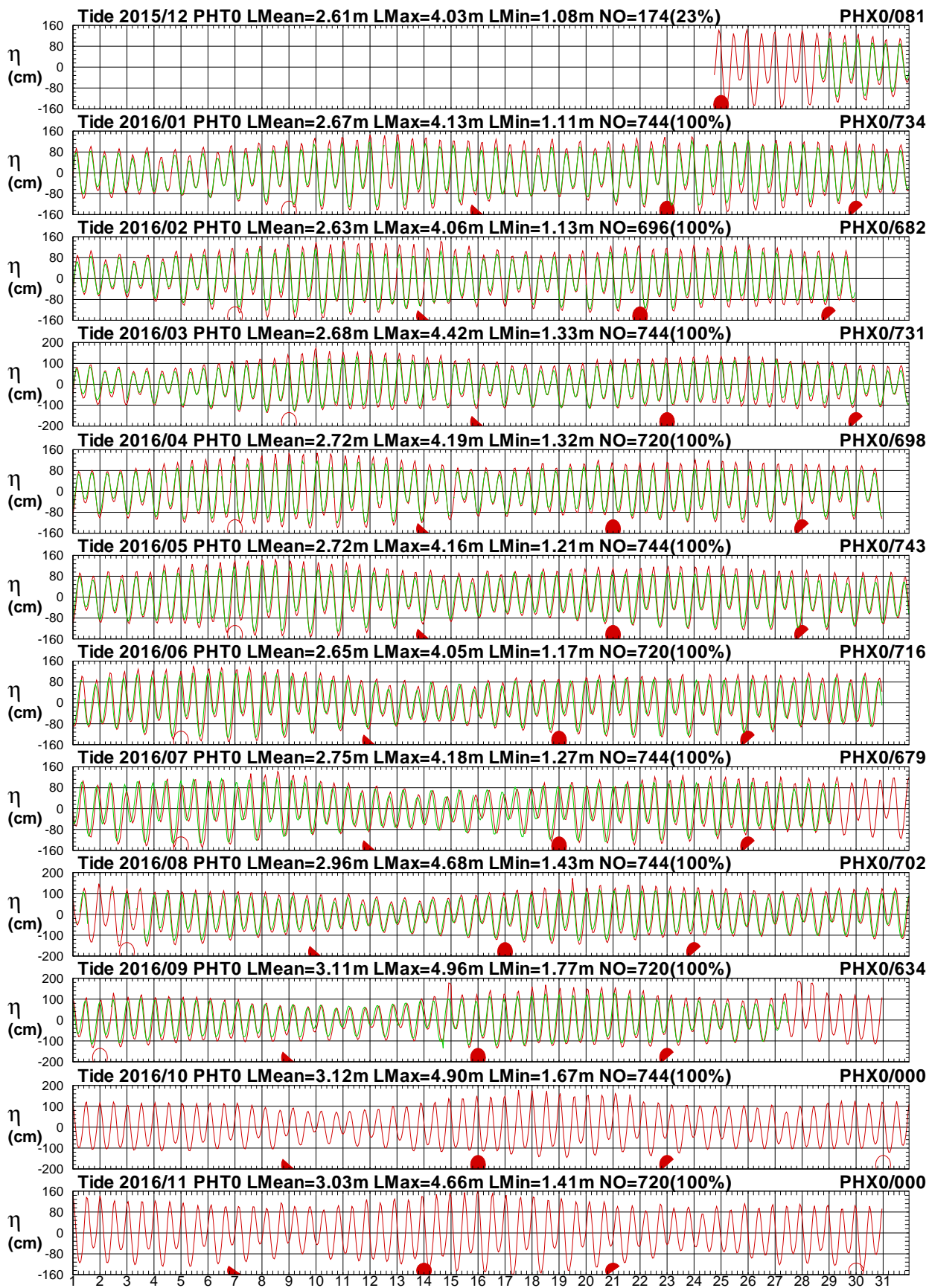


圖 3.1.4 2016年每月澎湖海域 T 站與 X 站潮位比較圖

T15CPHT0.1HA T15CPHX0.1H0 T161PHT0.1HA T161PHX0.1H0 T162PHT0.1HA T162PHX0.1H0
 T163PHT0.1HA T163PHX0.1H0 T164PHT0.1HA T164PHX0.1H0 T165PHT0.1HA T165PHX0.1H0

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Tidal Level in Peng-Hu Seas of PHT0 at 2016

1 ○ 8 ● 15 ● 22 ●

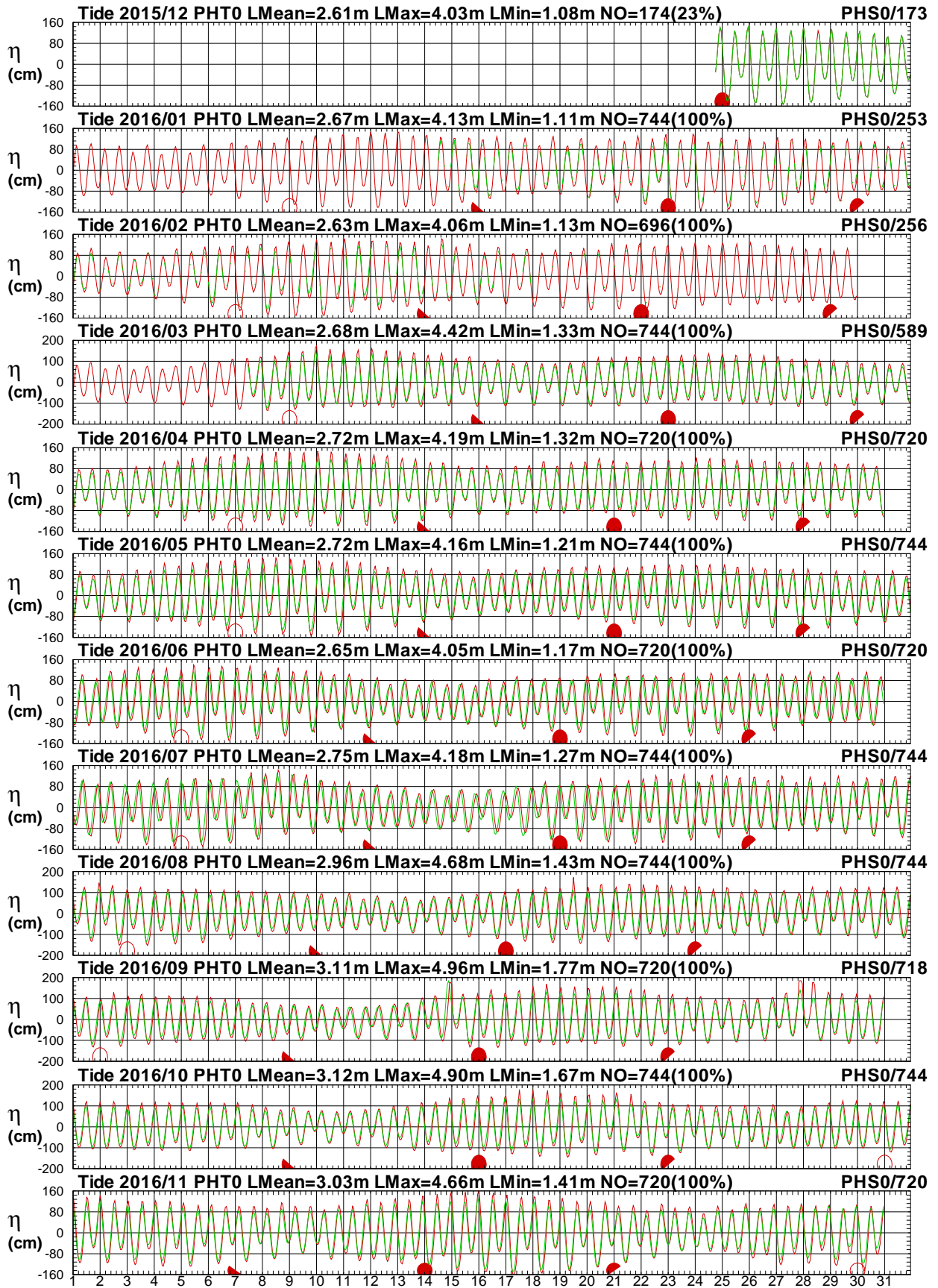


圖 3.1.5 2016年每月澎湖海域 T 站與 S 站潮位比較圖

T15CPHT0.1HA T15CPHS0.1H0 T161PHT0.1HA T161PHS0.1H0 T162PHT0.1HA T162PHS0.1H0
 T163PHT0.1HA T163PHS0.1H0 T164PHT0.1HA T164PHS0.1H0 T165PHT0.1HA T165PHS0.1H0

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第四章 2016 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 2016 年各觀測站每月觀測海流資料記錄期間統計表，如表 4.1a，2016 年各觀測站每月計算潮流資料統計表，如表 4.1b。2016 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 2016 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	2011/01-2016/11(觀測中)	港研中心	龍門尖山港外海
Y	23°43'37"N	119°33'07"E	2010/07-2016/11(觀測中)	水利署	澎湖資料浮標
Z	23°15'23"N	119°41'2"E	2013/10-2016/11(觀測中)	中央氣象局	東吉島資料浮標
R	22°45'16"N	119°25'42"E	2015/07-2016/11(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 2016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				
2015/12月	81 (10.9%)	64 (8.6%)	*	392 (52.7%)	*	*	*	*
2016/ 1月	734 (98.7%)	573 (77.0%)	*	598 (80.4%)	*	*	*	*
2016/ 2月	682 (98.0%)	654 (94.0%)	*	349 (50.1%)	*	*	*	*
2016/ 3月	731 (98.3%)	710 (95.4%)	*	726 (97.6%)	*	*	*	*
2016/ 4月	698 (96.9%)	702 (97.5%)	*	128 (17.8%)	*	*	*	*
2016/ 5月	743 (99.9%)	714 (96.0%)	*	*	*	*	*	*
2016/ 6月	716 (99.4%)	711 (98.8%)	*	*	*	*	*	*
2016/ 7月	711 (95.6%)	696 (93.5%)	*	*	*	*	*	*
2016/ 8月	702 (94.4%)	714 (96.0%)	*	3 (.4%)	*	*	*	*
2016/ 9月	634 (88.1%)	688 (95.6%)	*	*	*	*	*	*
2016/10月	*	110 (14.8%)	*	4 (.5%)	*	*	*	*
2016/11月	*	703 (97.6%)	*	*	*	*	*	*
2016/冬季	1497 (68.5%)	1291 (59.1%)	*	1339 (61.3%)	*	*	*	*
2016/春季	2172 (98.4%)	2126 (96.3%)	*	854 (38.7%)	*	*	*	*
2016/夏季	2129 (96.4%)	2121 (96.1%)	*	4 (.2%)	*	*	*	*
2016/秋季	634 (29.0%)	1501 (68.7%)	*	6 (.3%)	*	*	*	*
2016/整年	6432 (73.2%)	7039 (80.1%)	*	2203 (25.1%)	*	*	*	*
起始年月	2015/12	2015/12	*	2015/12	*	*	*	*
結束年月	2016/09	2016/11	*	2016/11	*	*	*	*

ST-X: 港灣技術研究中心觀測 X 站流速資料

表 4.1b 2016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				
2015/12月	744 (100%)	744 (100%)	*	744 (100%)	*	*	*	*
2016/ 1月	744 (100%)	744 (100%)	*	744 (100%)	*	*	*	*
2016/ 2月	696 (100%)	696 (100%)	*	696 (100%)	*	*	*	*
2016/ 3月	744 (100%)	744 (100%)	*	744 (100%)	*	*	*	*
2016/ 4月	720 (100%)	720 (100%)	*	720 (100%)	*	*	*	*
2016/ 5月	744 (100%)	744 (100%)	*	744 (100%)	*	*	*	*
2016/ 6月	720 (100%)	720 (100%)	*	720 (100%)	*	*	*	*
2016/ 7月	744 (100%)	744 (100%)	*	744 (100%)	*	*	*	*
2016/ 8月	744 (100%)	744 (100%)	*	744 (100%)	*	*	*	*
2016/ 9月	720 (100%)	720 (100%)	*	720 (100%)	*	*	*	*
2016/10月	744 (100%)	744 (100%)	*	744 (100%)	*	*	*	*
2016/11月	720 (100%)	720 (100%)	*	720 (100%)	*	*	*	*
2016/冬季	*	*	*	*	*	*	*	*
2016/春季	*	*	*	*	*	*	*	*
2016/夏季	*	*	*	*	*	*	*	*
2016/秋季	*	*	*	*	*	*	*	*
2016/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 2016

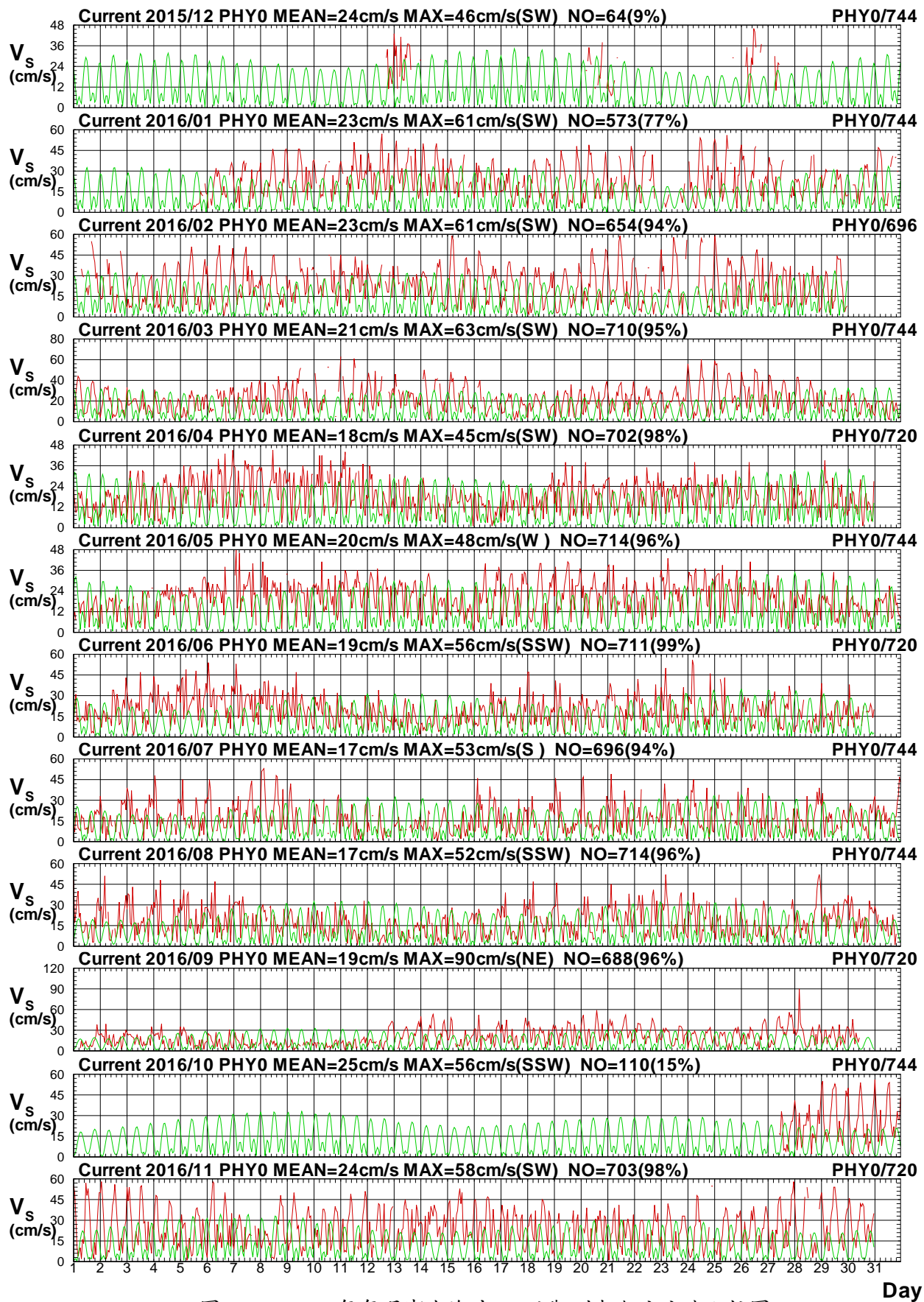


圖 4.1a 2016年每月澎湖海域 Y 站觀測與潮流流速比較圖

C15CPHY0.1HD C15CPHY0.1HD C161PHY0.1HD C161PHY0.1HD C162PHY0.1HD C162PHY0.1HD
 C163PHY0.1HD C163PHY0.1HD C164PHY0.1HD C164PHY0.1HD C165PHY0.1HD C165PHY0.1HD

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Current Direction in Peng-Hu Seas of PHY0 at 2016

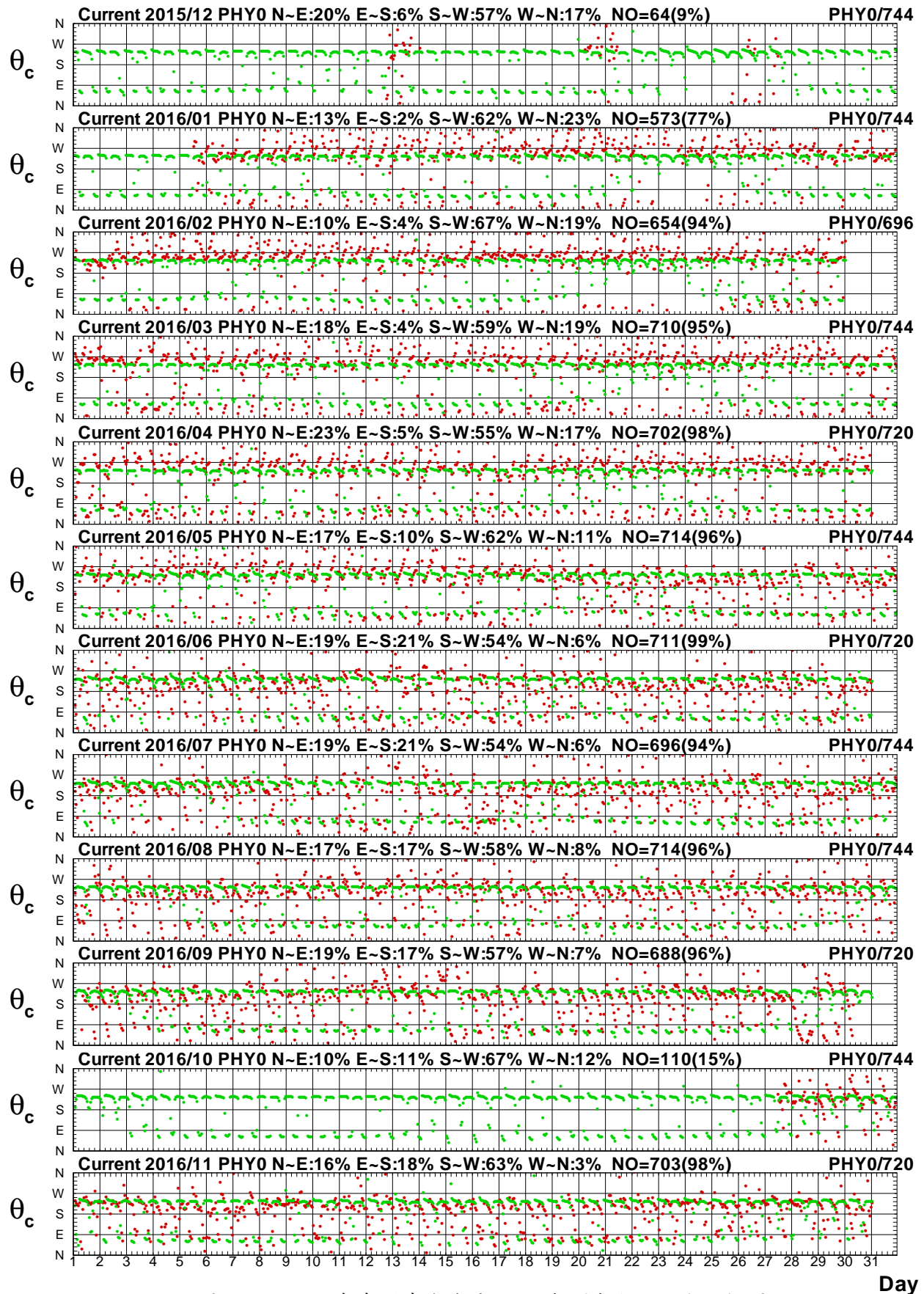


圖 4.1b 2016年每月澎湖海域 Y 站觀測與潮流流向比較圖

C15CPHY0.1H0 C15CPHY0.1HD C161PHY0.1H0 C161PHY0.1HD C162PHY0.1H0 C162PHY0.1HD
 C163PHY0.1H0 C163PHY0.1HD C164PHY0.1H0 C164PHY0.1HD C165PHY0.1H0 C165PHY0.1HD

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Current Speed in Peng-Hu Seas of PHY0 at 2016

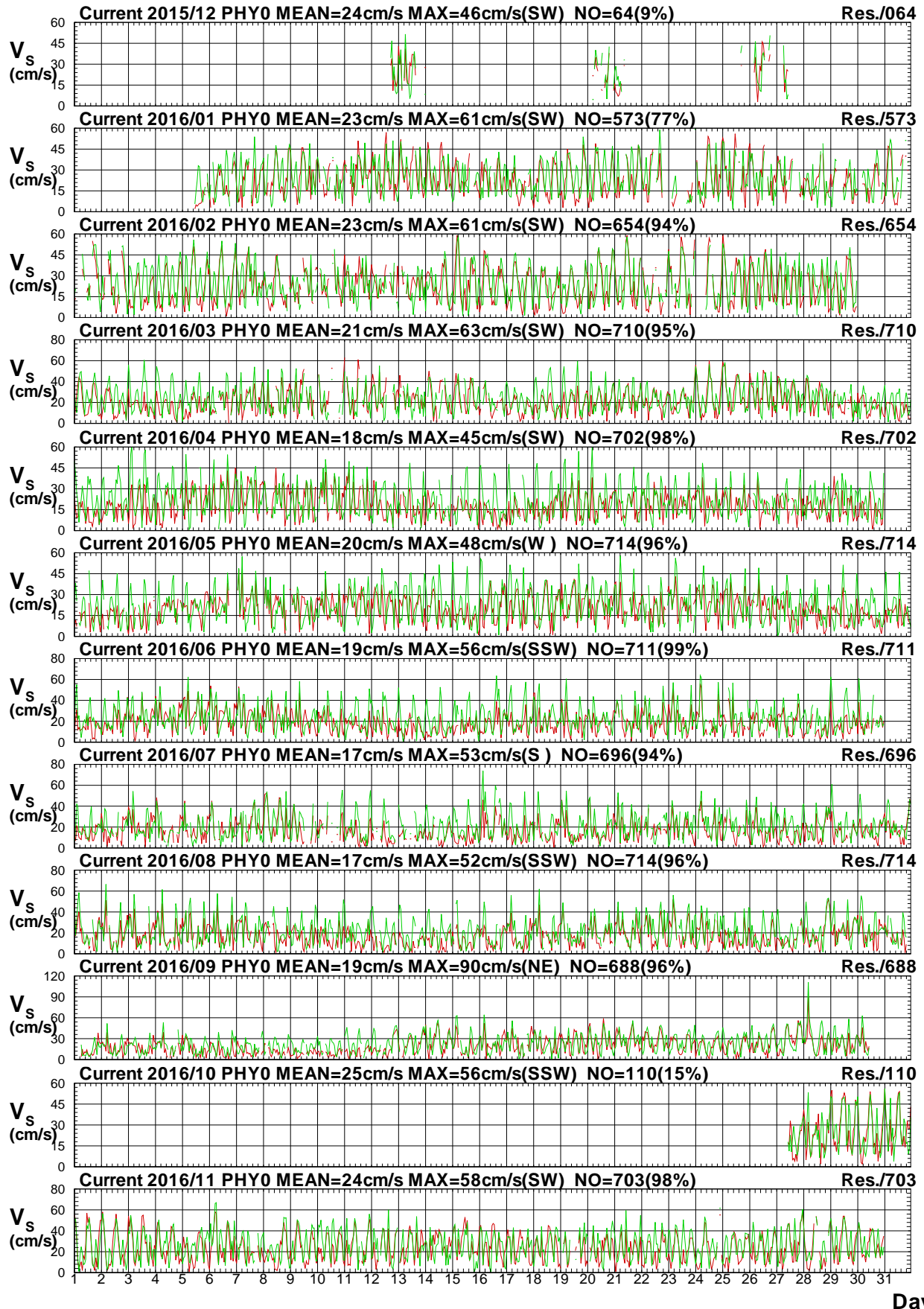


圖 4.2a 2016年每月澎湖海域 Y 站觀測與非潮流速比較圖

C15CPHY0.1H0 C15CPHY0.1HR C161PHY0.1H0 C161PHY0.1HR C162PHY0.1H0 C162PHY0.1HR
 C163PHY0.1H0 C163PHY0.1HR C164PHY0.1H0 C164PHY0.1HR C165PHY0.1H0 C165PHY0.1HR

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Current Direction in Peng-Hu Seas of PHY0 at 2016

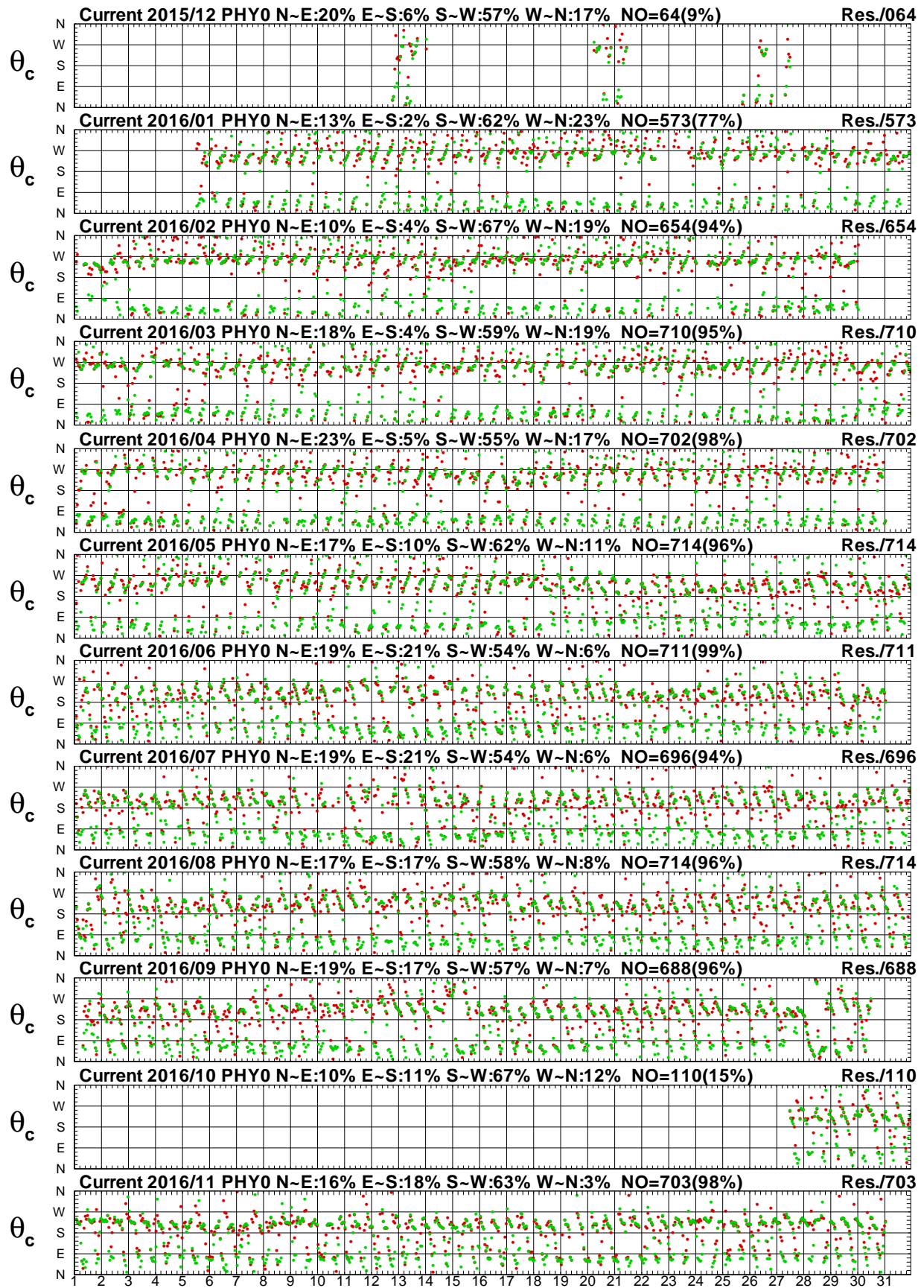


圖 4.2b 2016年每月澎湖海域 Y 站觀測與非潮流向比較圖

C15CPHY0.1H0 C15CPHY0.1HR C161PHY0.1H0 C161PHY0.1HR C162PHY0.1H0 C162PHY0.1HR
 C163PHY0.1H0 C163PHY0.1HR C164PHY0.1H0 C164PHY0.1HR C165PHY0.1H0 C165PHY0.1HR

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Current Speed in Peng-Hu Seas of PHX0 at 2016

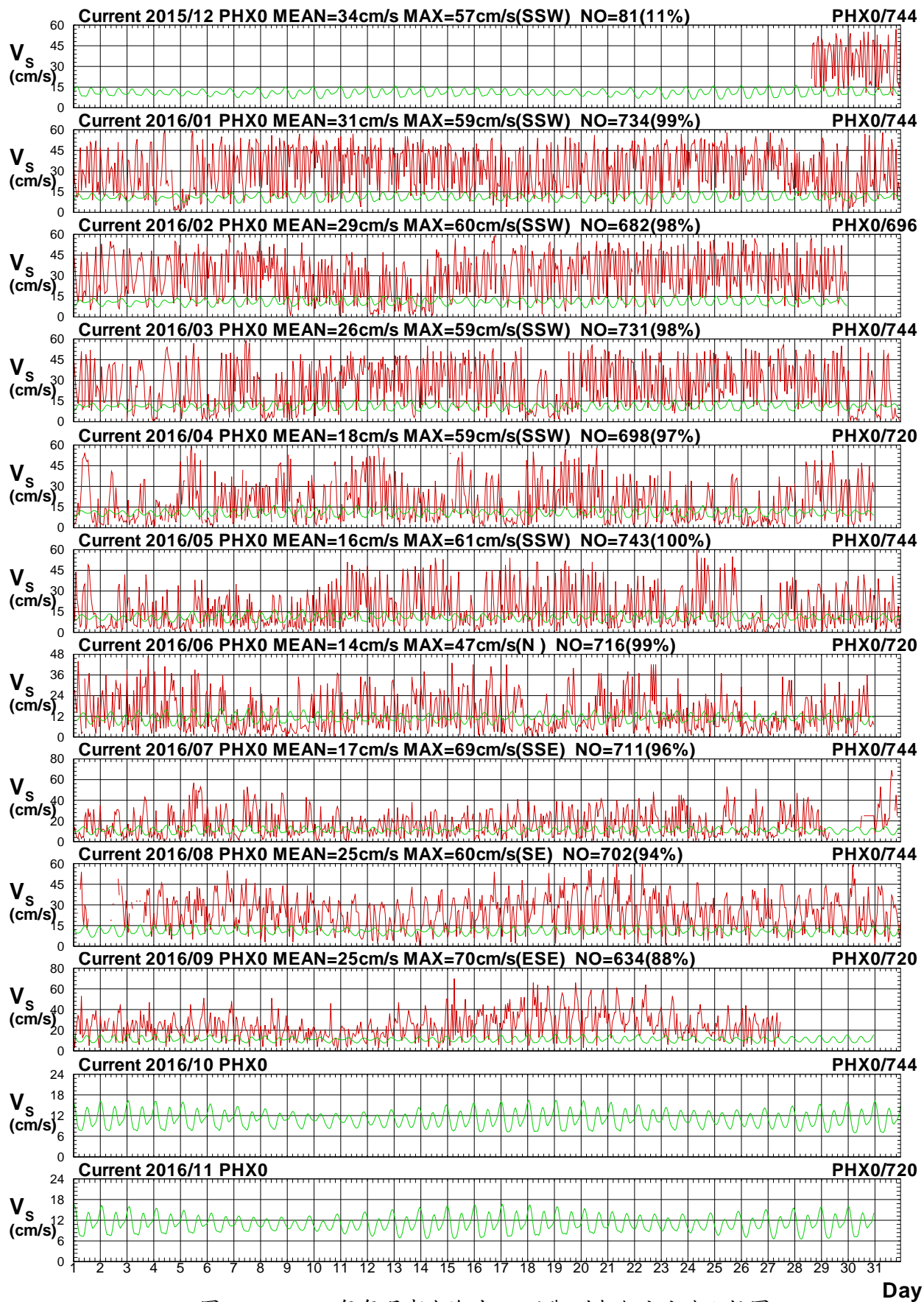


圖 4.3a 2016年每月澎湖海域 X 站觀測與潮流流速比較圖

C15CPHX0.1H0 C15CPHX0.1HD C161PHX0.1H0 C161PHX0.1HD C162PHX0.1H0 C162PHX0.1HD
 C163PHX0.1H0 C163PHX0.1HD C164PHX0.1H0 C164PHX0.1HD C165PHX0.1H0 C165PHX0.1HD

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Current Direction in Peng-Hu Seas of PHX0 at 2016

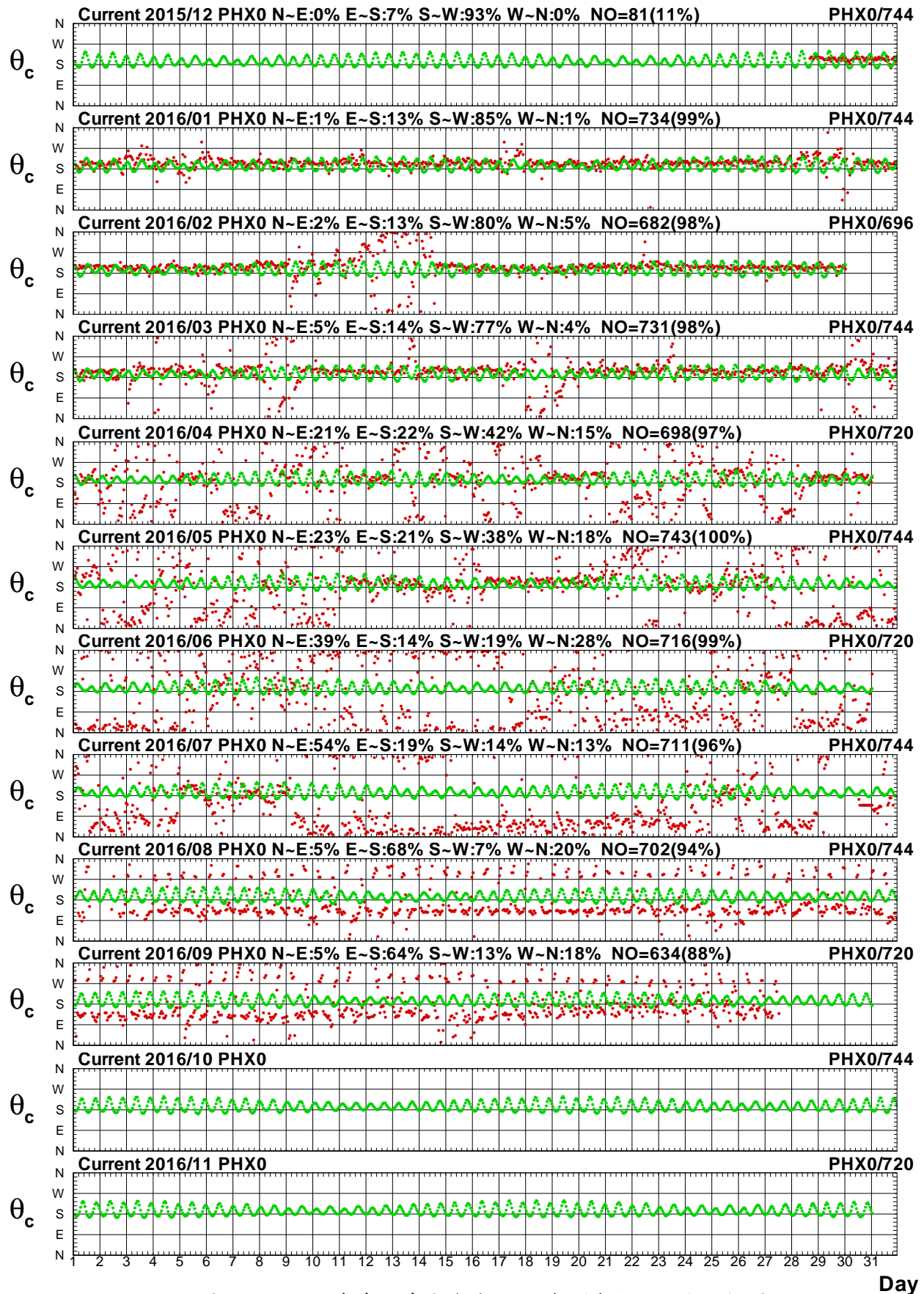


圖 4.3b 2016年每月澎湖海域 X 站觀測與潮流流向比較圖

C15CPHX0.1H0 C15CPHX0.1HD C161PHX0.1H0 C161PHX0.1HD C162PHX0.1H0 C162PHX0.1HD
 C163PHX0.1H0 C163PHX0.1HD C164PHX0.1H0 C164PHX0.1HD C165PHX0.1H0 C165PHX0.1HD

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Current Speed in Peng-Hu Seas of PHX0 at 2016

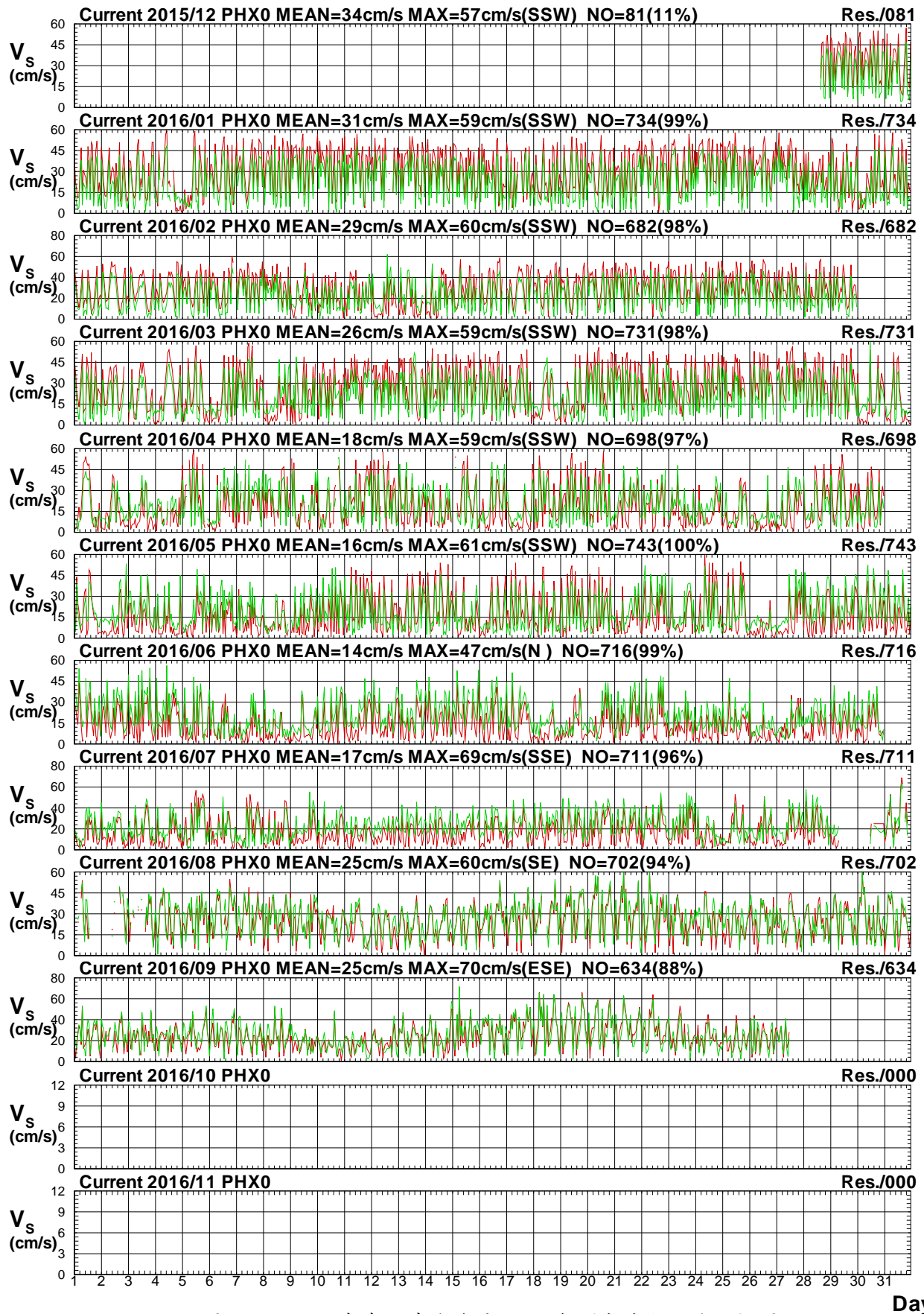


圖 4.4a 2016年每月澎湖海域 X 站觀測與非潮流速比較圖

C15CPHX0.1H0 C15CPHX0.1HR C161PHX0.1H0 C161PHX0.1HR C162PHX0.1H0 C162PHX0.1HR
 C163PHX0.1H0 C163PHX0.1HR C164PHX0.1H0 C164PHX0.1HR C165PHX0.1H0 C165PHX0.1HR

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Current Direction in Peng-Hu Seas of PHX0 at 2016

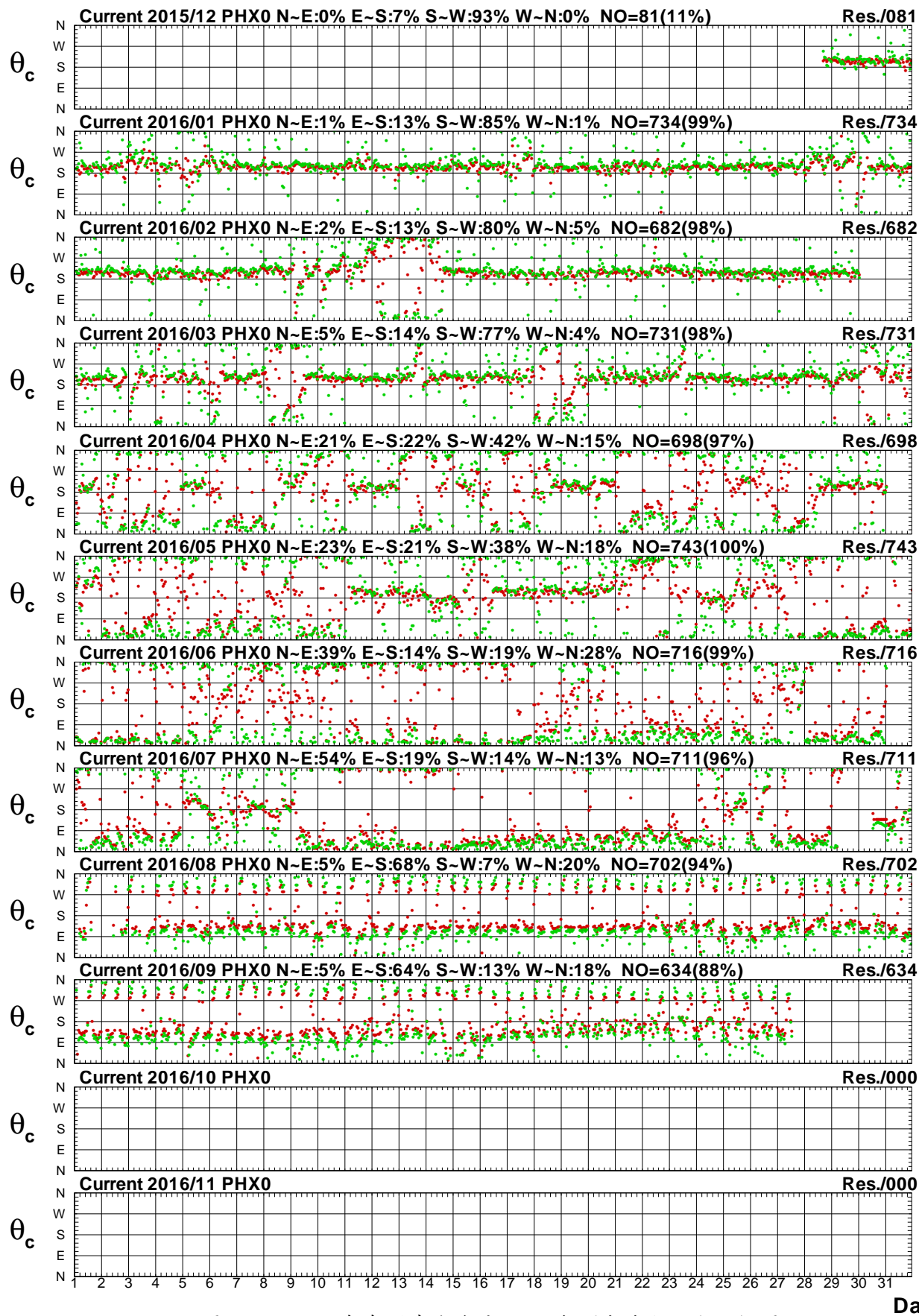


圖 4.4b 2016年每月澎湖海域 X 站觀測與非潮流向比較圖

C15CPHX0.1H0 C15CPHX0.1HR C161PHX0.1H0 C161PHX0.1HR C162PHX0.1H0 C162PHX0.1HR
 C163PHX0.1H0 C163PHX0.1HR C164PHX0.1H0 C164PHX0.1HR C165PHX0.1H0 C165PHX0.1HR

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Current Speed in Peng-Hu Seas of PHZ0 at 2016

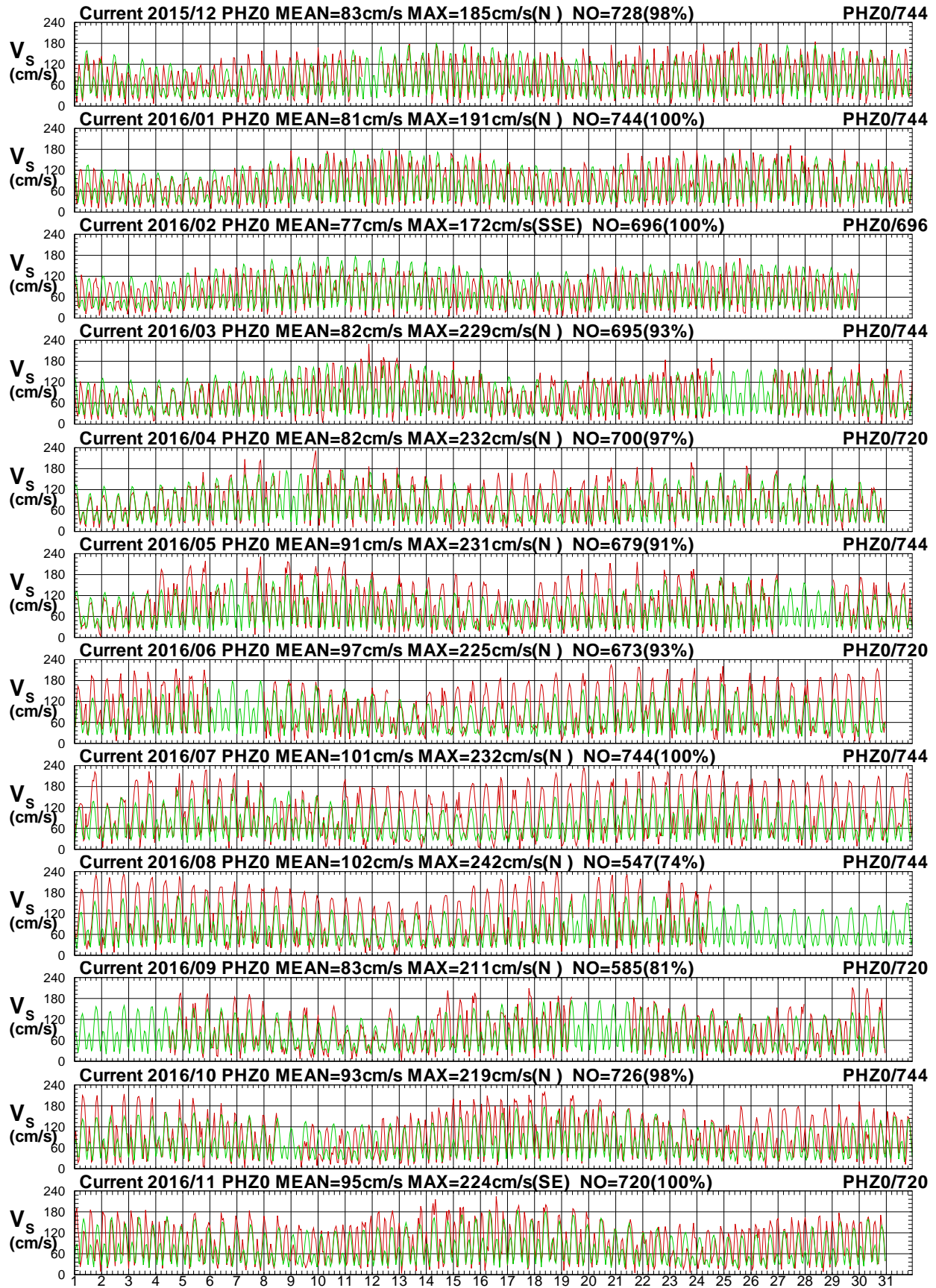


圖 4.5a 2016年每月澎湖海域 Z 站觀測與潮流流速比較圖

C15CPHZ0.1H0 C15CPHZ0.1HD C161PHZ0.1H0 C161PHZ0.1HD C162PHZ0.1H0 C162PHZ0.1HD
 C163PHZ0.1H0 C163PHZ0.1HD C164PHZ0.1H0 C164PHZ0.1HD C165PHZ0.1H0 C165PHZ0.1HD

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Current Direction in Peng-Hu Seas of PHZ0 at 2016

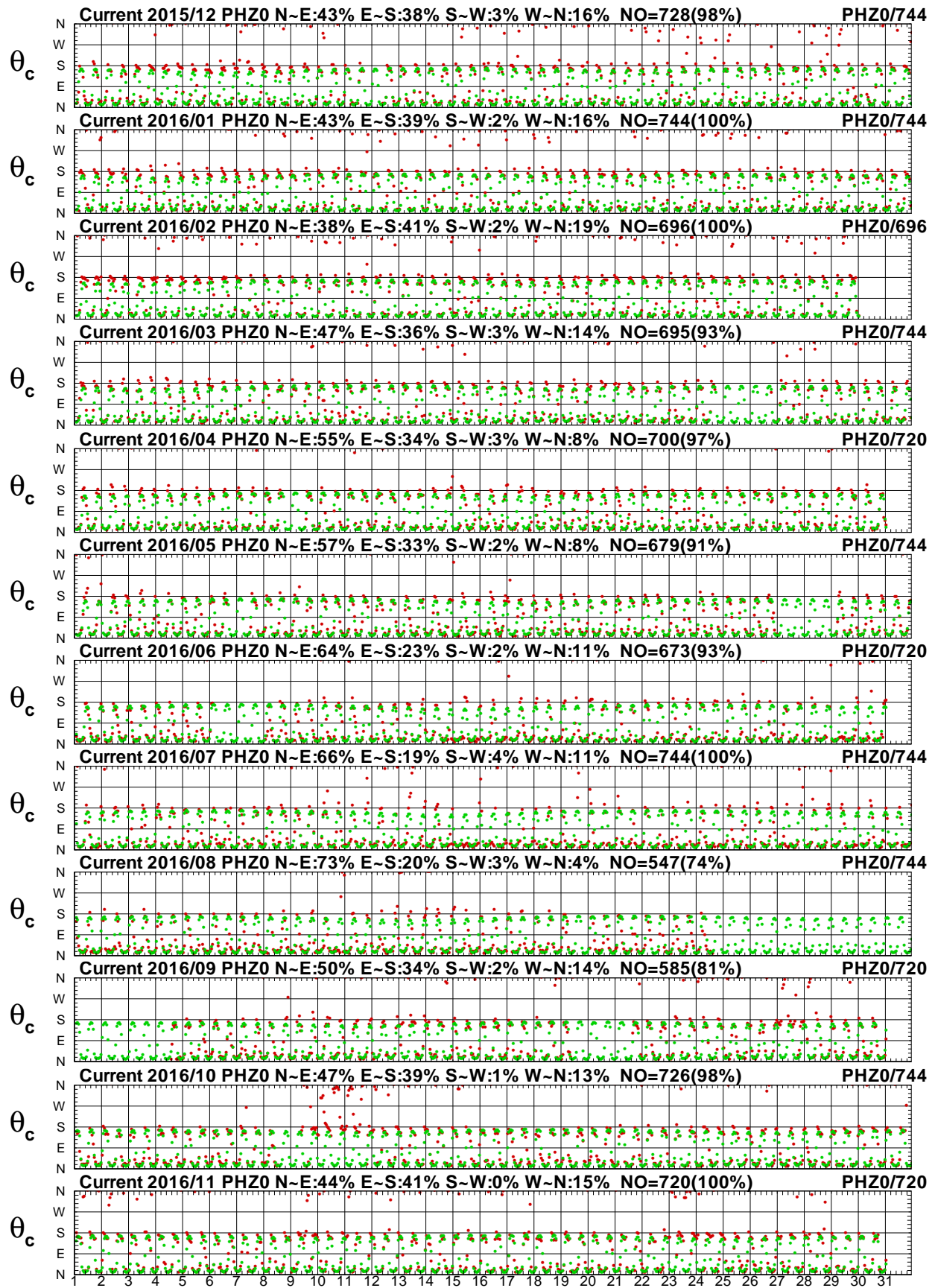


圖 4.5b 2016年每月澎湖海域 Z 站觀測與潮流流向比較圖

C15CPHZ0.1H0 C15CPHZ0.1HD C161PHZ0.1H0 C161PHZ0.1HD C162PHZ0.1H0 C162PHZ0.1HD
 C163PHZ0.1H0 C163PHZ0.1HD C164PHZ0.1H0 C164PHZ0.1HD C165PHZ0.1H0 C165PHZ0.1HD

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Current Speed in Peng-Hu Seas of PHZ0 at 2016

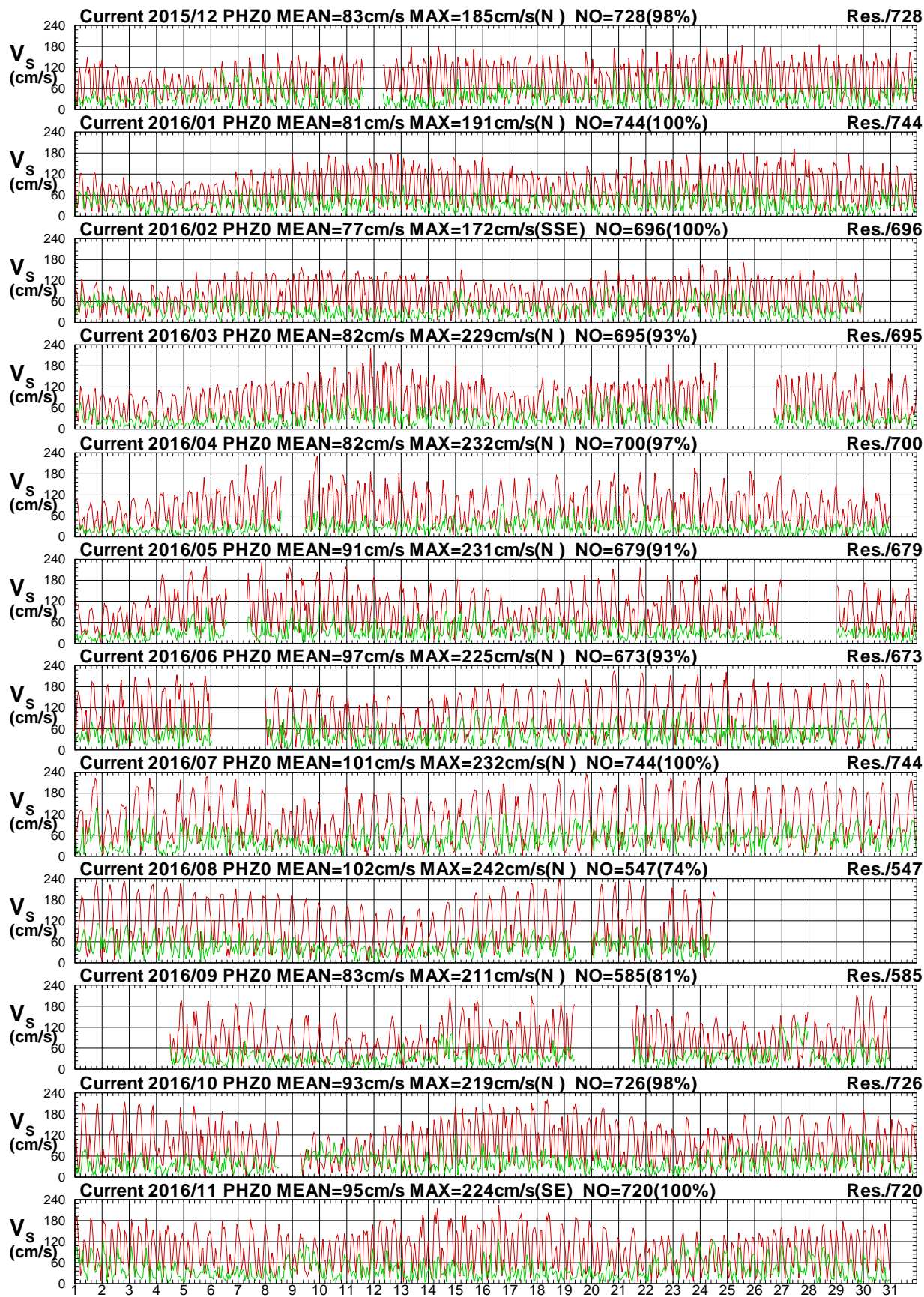


圖 4.6a 2016年每月澎湖海域 Z 站觀測與非潮流速比較圖

C15CPHZ0.1H0 C15CPHZ0.1HR C161PHZ0.1H0 C161PHZ0.1HR C162PHZ0.1H0 C162PHZ0.1HR
 C163PHZ0.1H0 C163PHZ0.1HR C164PHZ0.1H0 C164PHZ0.1HR C165PHZ0.1H0 C165PHZ0.1HR

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Current Direction in Peng-Hu Seas of PHZ0 at 2016

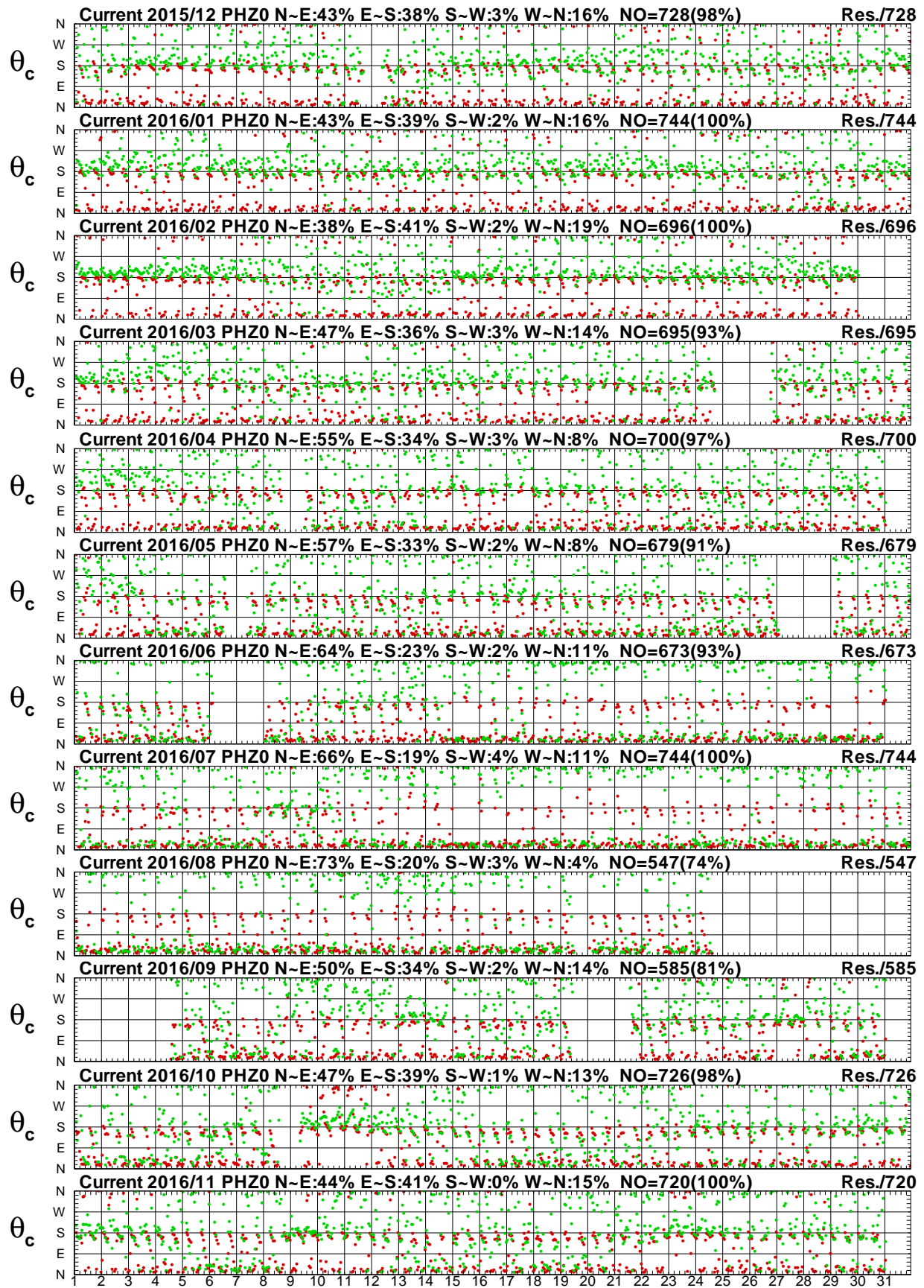


圖 4.6b 2016年每月澎湖海域 Z 站觀測與非潮流向比較圖

C15CPHZ0.1HO C15CPHZ0.1HR C161PHZ0.1HO C161PHZ0.1HR C162PHZ0.1HO C162PHZ0.1HR
 C163PHZ0.1HO C163PHZ0.1HR C164PHZ0.1HO C164PHZ0.1HR C165PHZ0.1HO C165PHZ0.1HR

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Current Speed in Peng-Hu Seas of PHR0 at 2016

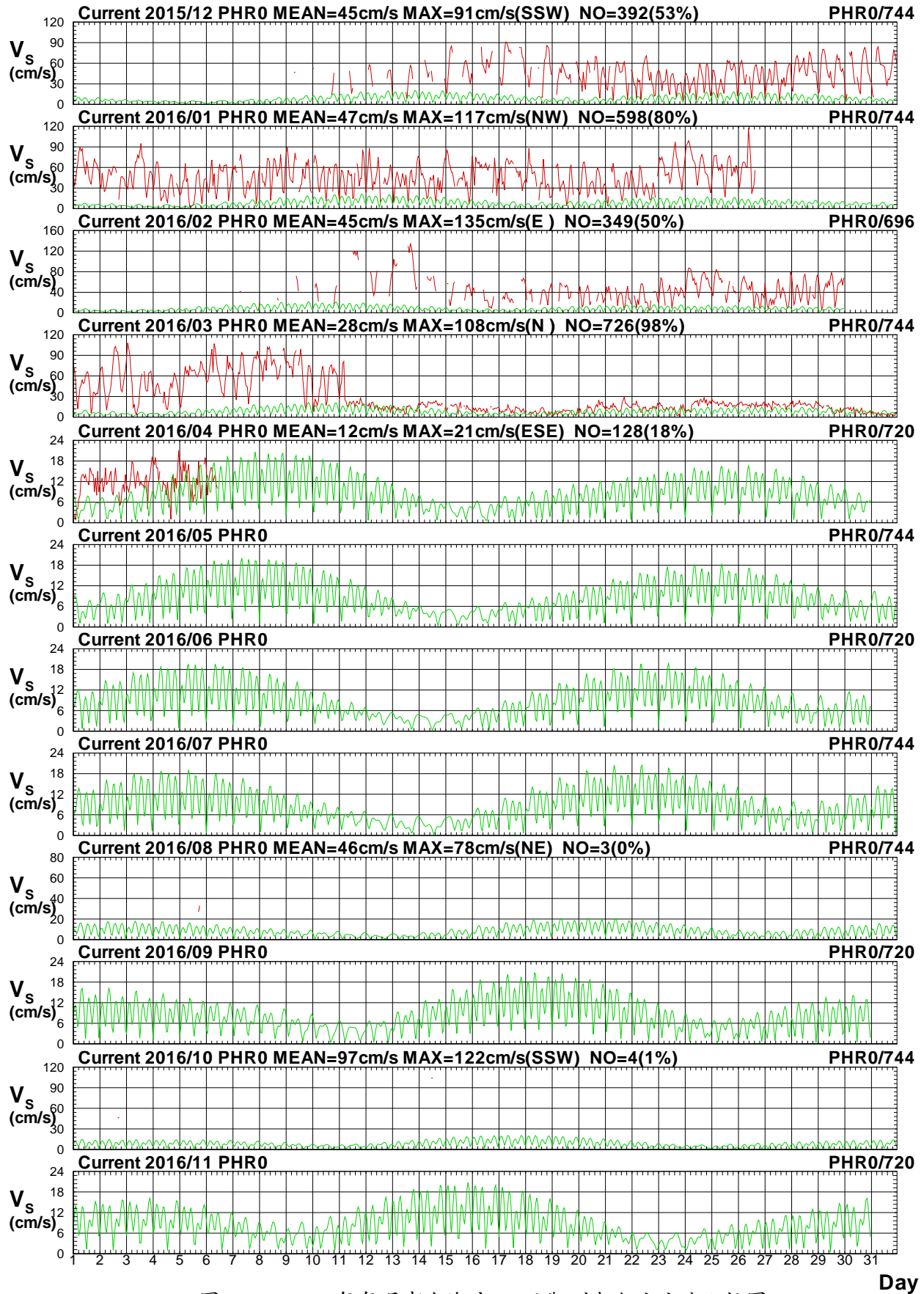


圖 4.7a 2016年每月澎湖海域 R 站觀測與潮流流速比較圖

C15CPHR0.1HD C15CPHR0.1HD C161PHR0.1HD C161PHR0.1HD C162PHR0.1HD C162PHR0.1HD
 C163PHR0.1HD C163PHR0.1HD C164PHR0.1HD C164PHR0.1HD C165PHR0.1HD C165PHR0.1HD

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Current Direction in Peng-Hu Seas of PHR0 at 2016

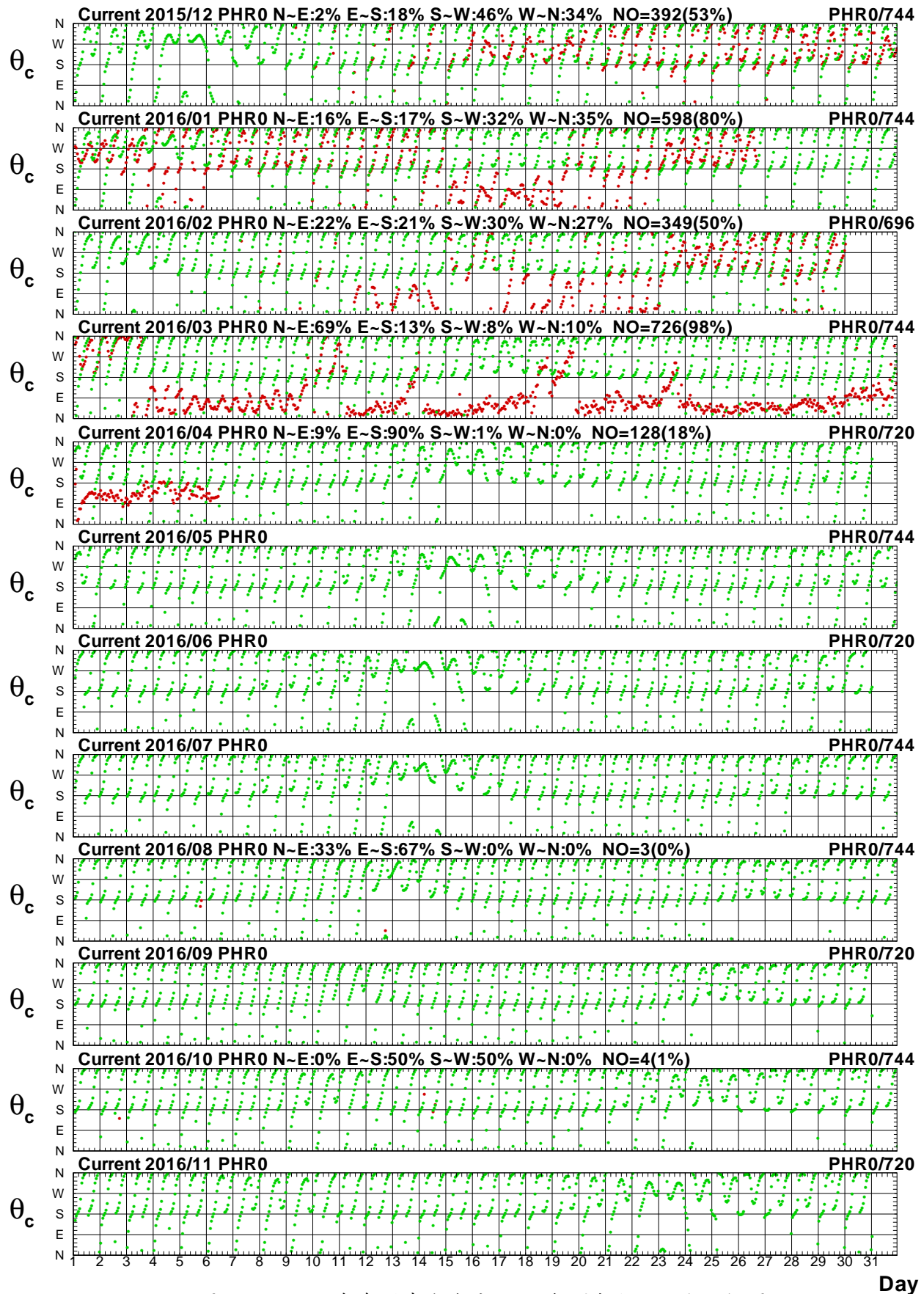


圖 4.7b 2016年每月澎湖海域 R 站觀測與潮流流向比較圖

C15CPHR0.1H0 C15CPHR0.1HD C161PHR0.1H0 C161PHR0.1HD C162PHR0.1H0 C162PHR0.1HD
 C163PHR0.1H0 C163PHR0.1HD C164PHR0.1H0 C164PHR0.1HD C165PHR0.1H0 C165PHR0.1HD

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Current Speed in Peng-Hu Seas of PHR0 at 2016

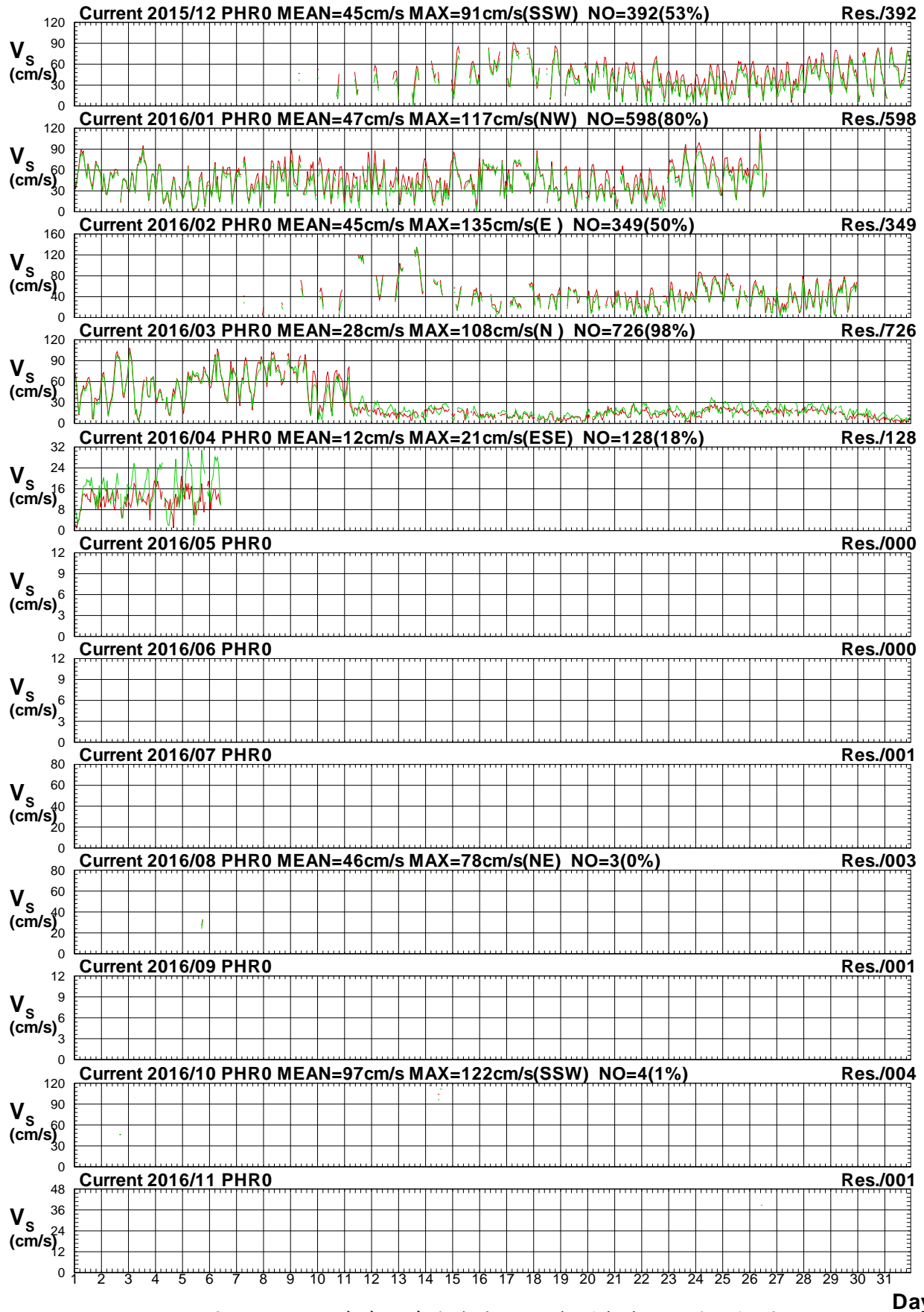


圖 4.8a 2016年每月澎湖海域 R 站觀測與非潮流速比較圖

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 C163PHR0.1H0 C163PHR0.1HR C164PHR0.1H0 C164PHR0.1HR C165PHR0.1H0 C165PHR0.1HR

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Current Direction in Peng-Hu Seas of PHR0 at 2016

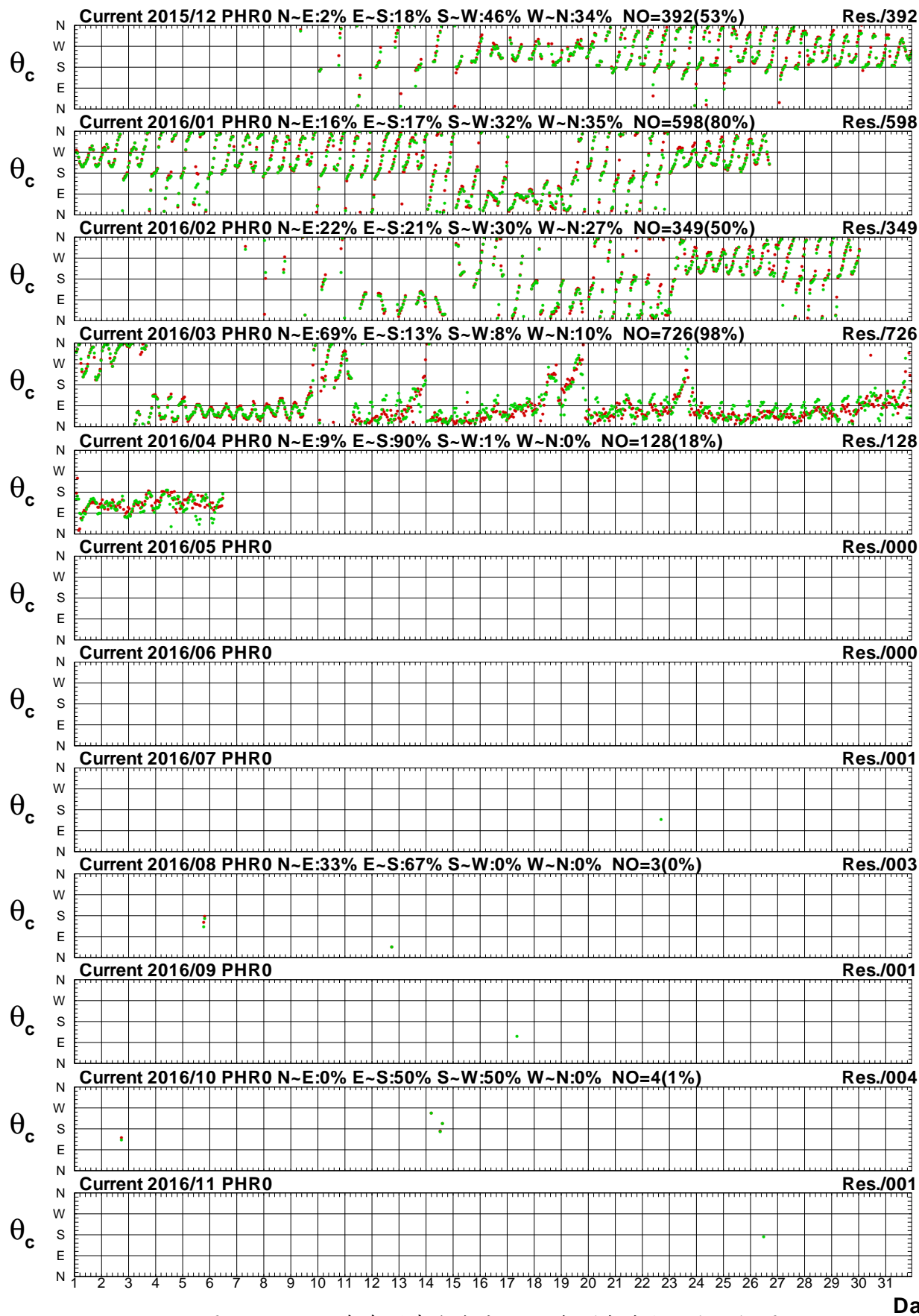


圖 4.8b 2016 年每月澎湖海域 R 站觀測與非潮流向比較圖

C15CPHR0.1H0 C15CPHR0.1HR C161PHR0.1H0 C161PHR0.1HR C162PHR0.1H0 C162PHR0.1HR
 C163PHR0.1H0 C163PHR0.1HR C164PHR0.1H0 C164PHR0.1HR C165PHR0.1H0 C165PHR0.1HR

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Current Speed in Peng-Hu Seas of PHY0 at 2016

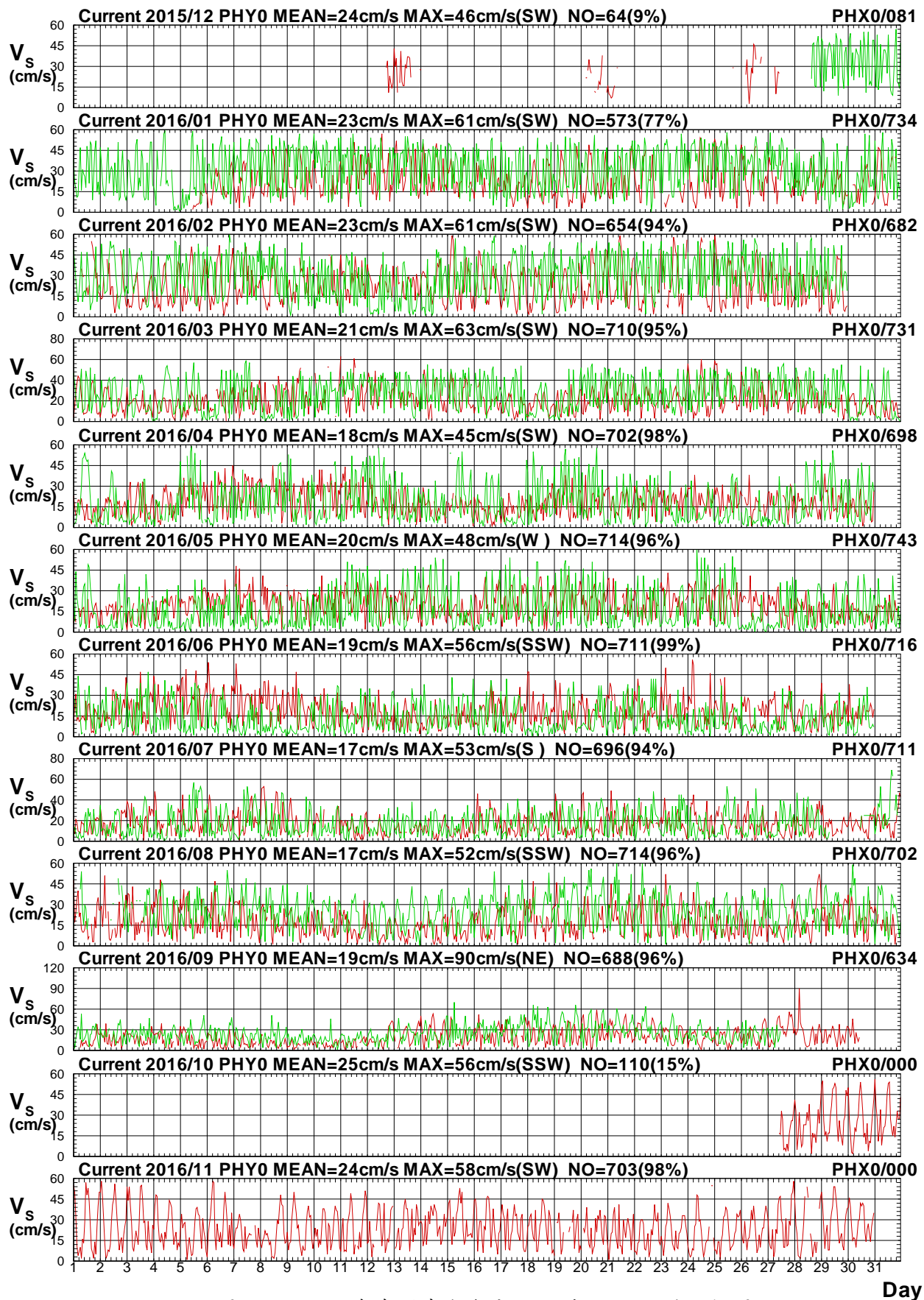


圖 4.9a 2016年每月澎湖海域 Y 站與 X 站流速比較圖

C15CPHY0.1H0 C15CPHX0.1H0 C161PHY0.1H0 C161PHX0.1H0 C162PHY0.1H0 C162PHX0.1H0
 C163PHY0.1H0 C163PHX0.1H0 C164PHY0.1H0 C164PHX0.1H0 C165PHY0.1H0 C165PHX0.1H0

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Current Direction in Peng-Hu Seas of PHY0 at 2016

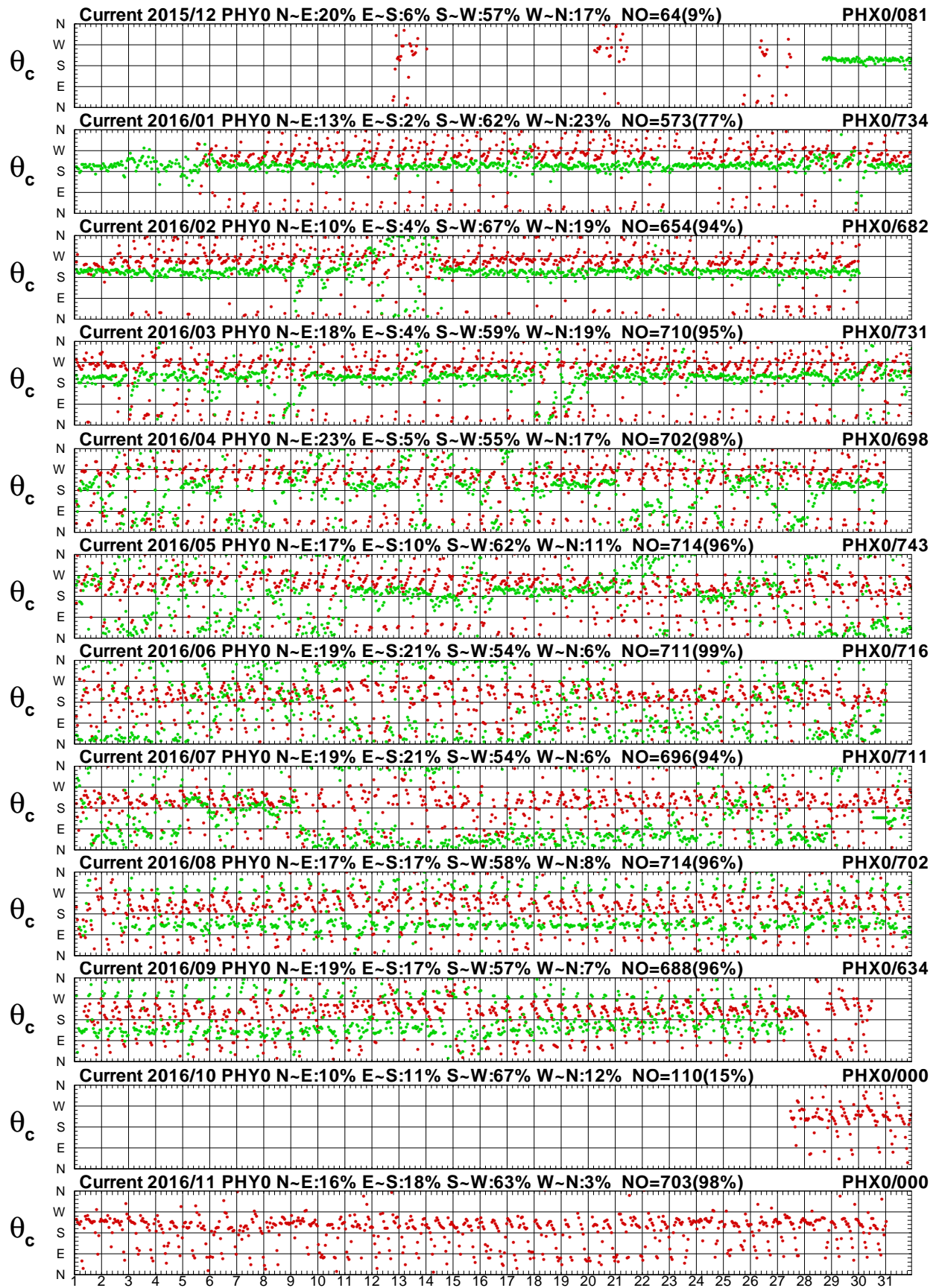


圖 4.9b 2016年每月澎湖海域 Y 站與 X 站流向比較圖

C15CPHY0.1H0 C15CPHX0.1H0 C161PHY0.1H0 C161PHX0.1H0 C162PHY0.1H0 C162PHX0.1H0
 C163PHY0.1H0 C163PHX0.1H0 C164PHY0.1H0 C164PHX0.1H0 C165PHY0.1H0 C165PHX0.1H0

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Current Speed in Peng-Hu Seas of PHY0 at 2016

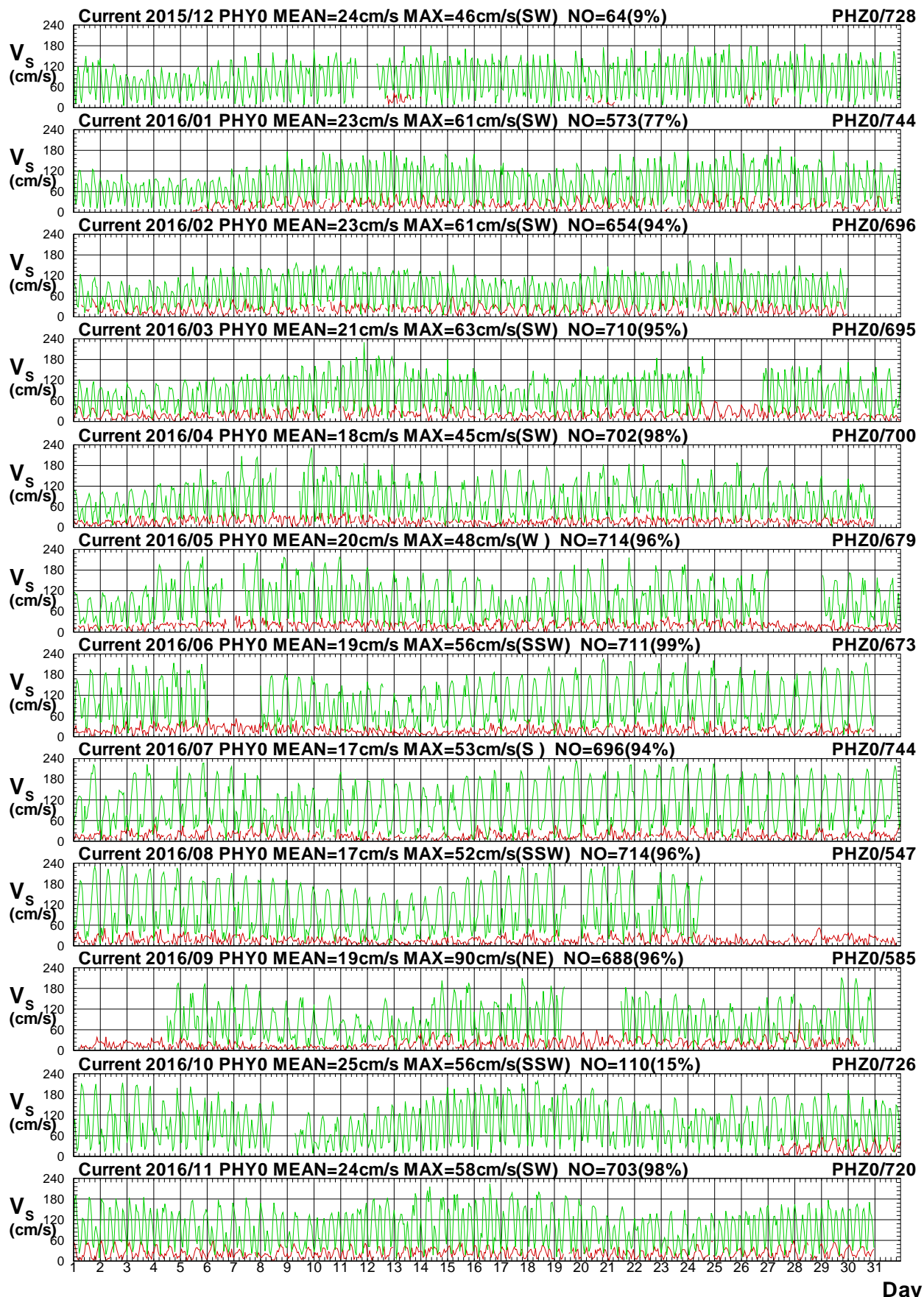


圖 4.10a 2016年每月澎湖海域 Y 站與 Z 站流速比較圖

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 C163PHY0.1H0 C163PHZ0.1H0 C164PHY0.1H0 C164PHZ0.1H0 C165PHY0.1H0 C165PHZ0.1H0

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Current Direction in Peng-Hu Seas of PHY0 at 2016

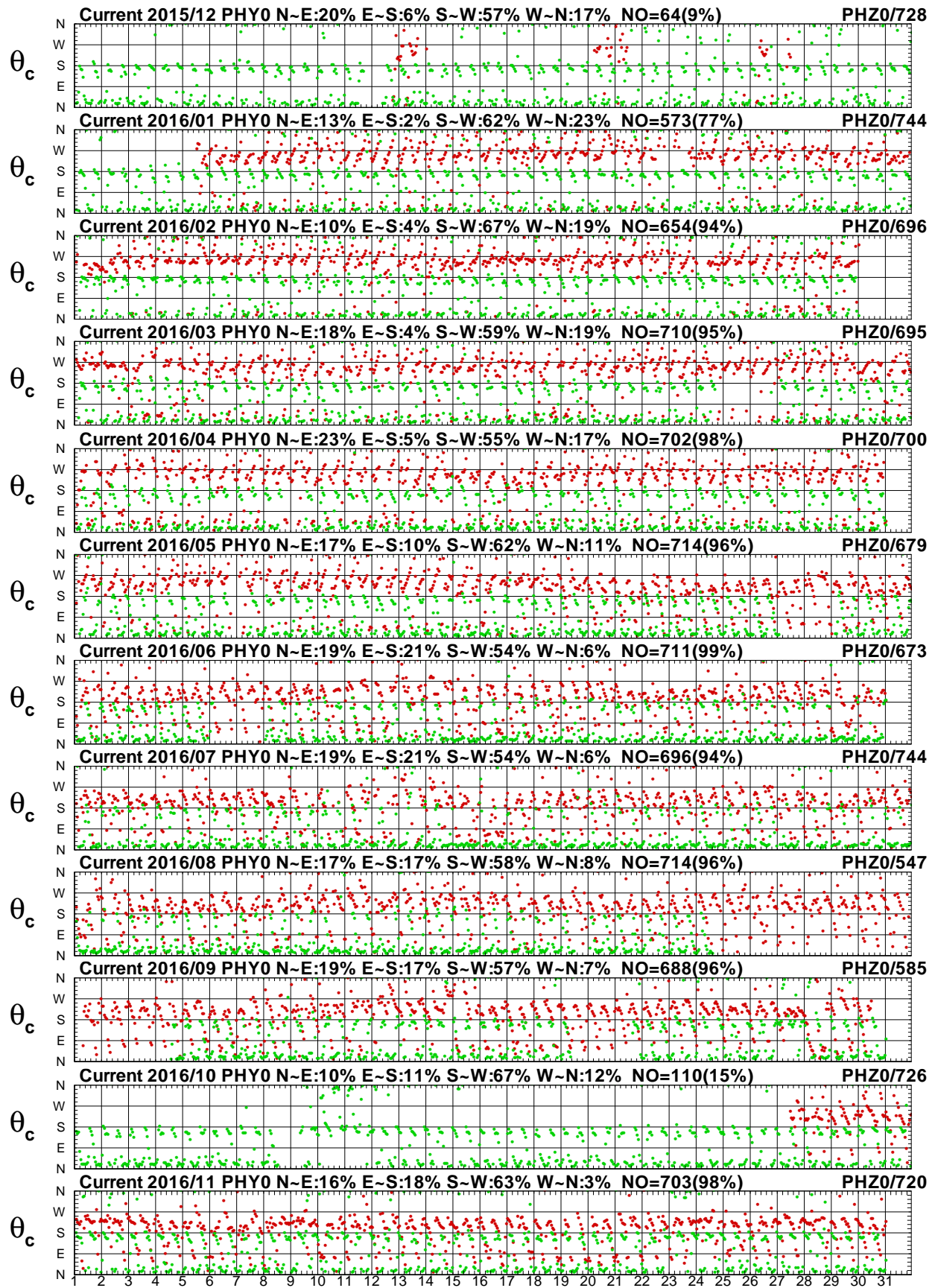


圖 4.10b 2016年每月澎湖海域 Y 站與 Z 站流向比較圖

C15CPHY0.1H0 C15CPHZ0.1H0 C161PHY0.1H0 C161PHZ0.1H0 C162PHY0.1H0 C162PHZ0.1H0
 C163PHY0.1H0 C163PHZ0.1H0 C164PHY0.1H0 C164PHZ0.1H0 C165PHY0.1H0 C165PHZ0.1H0

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Current Speed in Peng-Hu Seas of PHY0 at 2016

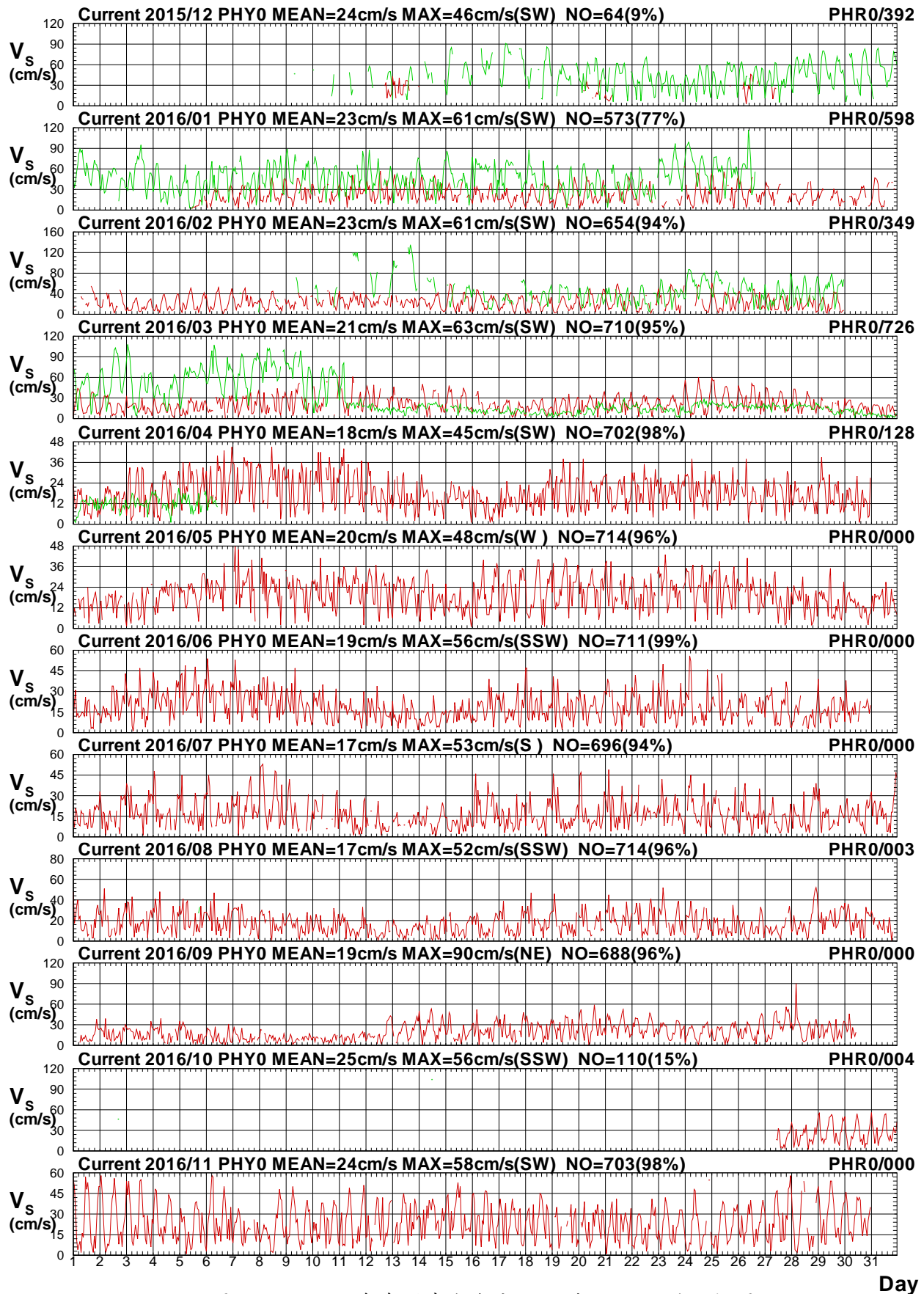


圖 4.11a 2016年每月澎湖海域 Y 站與 R 站流速比較圖

C15CPHY0.1H0 C15CPHR0.1H0 C161PHY0.1H0 C161PHR0.1H0 C162PHY0.1H0 C162PHR0.1H0
 C163PHY0.1H0 C163PHR0.1H0 C164PHY0.1H0 C164PHR0.1H0 C165PHY0.1H0 C165PHR0.1H0

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Current Direction in Peng-Hu Seas of PHY0 at 2016

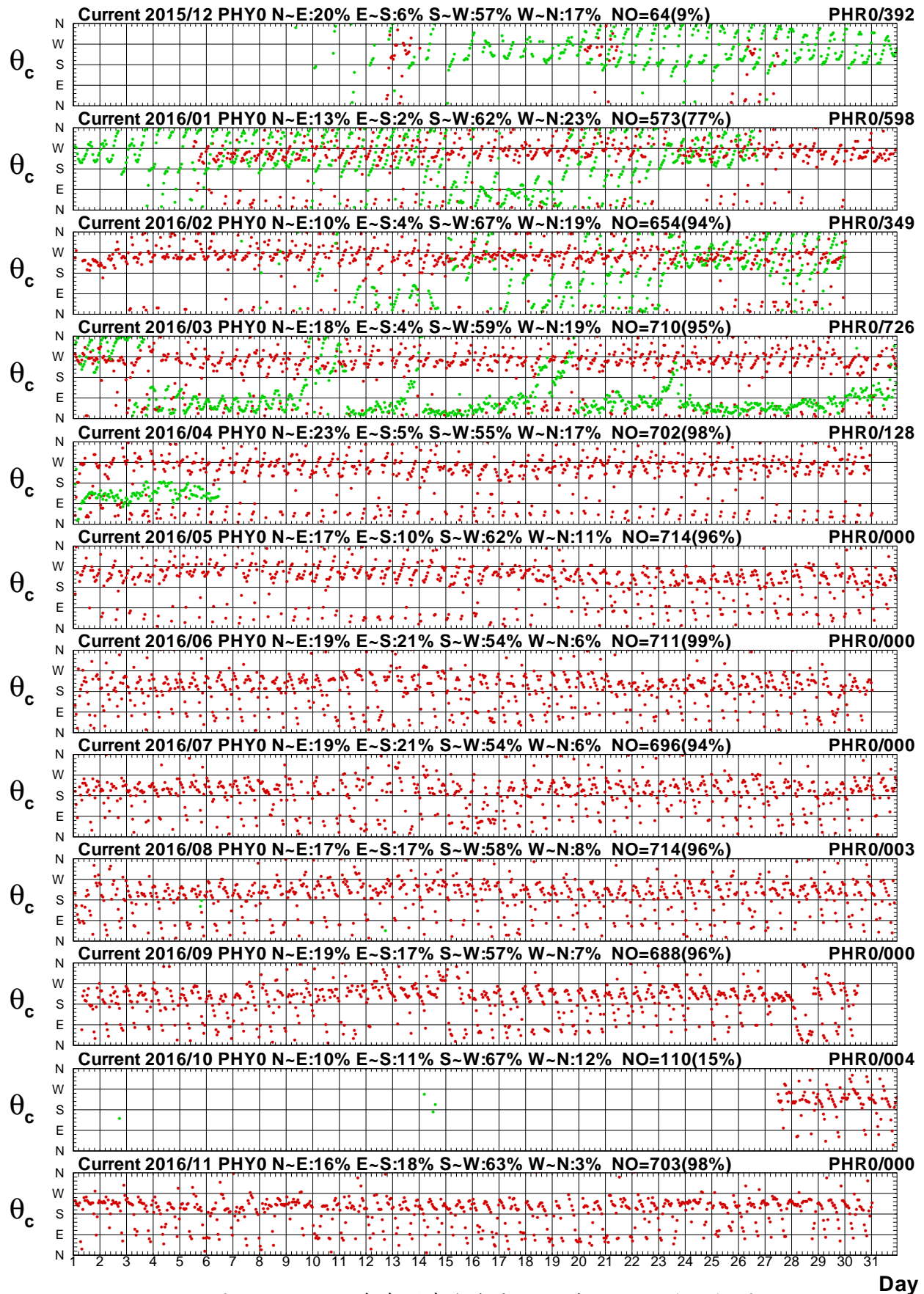


圖 4.11b 2016年每月澎湖海域 Y 站與 R 站流向比較圖

C15CPHY0.1H0 C15CPR0.1H0 C161PHY0.1H0 C161PHR0.1H0 C162PHY0.1H0 C162PHR0.1H0
 C163PHY0.1H0 C163PHR0.1H0 C164PHY0.1H0 C164PHR0.1H0 C165PHY0.1H0 C165PHR0.1H0

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