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2015 年港灣環境資訊網觀測資料年報 (高雄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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關鍵詞港灣環境資訊網、2015 年、高雄海域、觀測海氣象資料、年報			
摘要： <p style="text-align: center;">本港灣環境資訊網觀測海氣象資料年報，包括高雄海域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。</p>			
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KEY WORDS: Harbor Environment Information Website, 2015, Annual Report, Kao-Hsiung Off-shoe Region, Oceanographical Observation Data			
ABSTRACT: <p style="text-align: center;">This Annual report 2015 of Harbor Environment Information Website(HEIV) covers the observation data of winds, waves, tides and currents near Kao-Hsiung offshoe region in Taiwan. The contents in this Annual report include the records of observation and the time series of data.</p>			
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2015 年港灣環境資訊網觀測資料年報 (高雄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，蒐集之高雄海域風力資料，除本中心自行觀測之外，在高雄氣象站(測站 E) 觀測風力資料，係交通部中央氣象局(CWB)提供。彌陀海上浮標站(測站 Z)、小港氣象站(測站 H)等觀測風力資料，係經濟部水利署(WRA)提供，謹致謝忱。

2015 年港灣環境資訊網觀測波浪資料，蒐集之高雄海域波浪資料，除本中心自行觀測之外，在彌陀海上浮標站(測站 Z)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，蒐集之高雄海域潮汐觀測資料，除本中心自行觀測之外，在高雄 1 港(測站 F)、高雄 2 港(測站 L)等觀測潮汐資料，係交通部中央氣象局提供，謹致謝忱。

2015 年港灣環境資訊網觀測海流資料，蒐集之高雄海域海流資料，除本中心自行觀測之外，在彌陀海上浮標(測站 Z)觀測海流資料，係經濟部水利署(WRA)提供，謹致謝忱。

第一章 2015 年高雄海域觀測風力資料

高雄海域風之觀測係 2003 年 6 月本中心(IHMT)在高雄港十號碼頭安裝一具風速風向即時傳送監測系統(稱**測站 B0**)，本測站於 2010 年 9 月停止觀測。2010 年 10 月在第二港口南防坡堤頭，增設 Gill 二維超音波式風速計(**測站 B1**)，測站之位置如圖 1。另於 2007 年 4 月在高雄港二港口北防坡堤頭增設超音波風速風向儀(稱**測站 W 及測站 C**)。

高雄港附近風力觀**測站 E** 風速儀屬中央氣象局(CWB)所有，**測站 Z**(彌陀外海浮標站) 及小港氣象站**測站 H** 之風速儀則屬水利署(WRA)所有。各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 **W 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 高雄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
B	22°36'54"N	120°17'19"E	2002/06-2015/11(觀測中)	港研中心	高雄 1 港口
W	22°32'51"N	120°17'55"E	2010/09-2015/11(觀測中)	港研中心	高雄 2 港口
C	22°32'51"N	120°17'55"E	2007/04-2015/11(觀測中)	港研中心	高雄 2 港口
E	22°33'58"N	120°18'57"E	1999/01-2015/11(觀測中)	中央氣象局	高雄
Z	22°45'50"N	120°09'49"E	2012/09-2015/11(觀測中)	水利署	彌陀浮標站
H	23°09'32"N	121°24'12"E	2013/09-2015/11(觀測中)	中央氣象局	小港氣象站

高雄海域



圖 1 高雄海域風力觀測站位置示意圖

表 1.1a 2015年每月高雄海域修補前各測站觀測風力資料紀錄統計表

年/月 港區	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域
測站	W	Z	B	C	E	H		
2014/12月	743 (99.9%)	729 (98.0%)	367 (49.3%)	*	744 (100%)	743 (99.9%)	*	*
2015/ 1月	743 (99.9%)	740 (99.5%)	743 (99.9%)	*	743 (99.9%)	744 (100%)	*	*
2015/ 2月	671 (99.9%)	671 (99.9%)	671 (99.9%)	74 (11.0%)	672 (100%)	672 (100%)	*	*
2015/ 3月	743 (99.9%)	739 (99.3%)	743 (99.9%)	744 (100%)	744 (100%)	740 (99.5%)	*	*
2015/ 4月	719 (99.9%)	718 (99.7%)	719 (99.9%)	719 (99.9%)	720 (100%)	718 (99.7%)	*	*
2015/ 5月	743 (99.9%)	741 (99.6%)	743 (99.9%)	736 (98.9%)	744 (100%)	743 (99.9%)	*	*
2015/ 6月	719 (99.9%)	716 (99.4%)	720 (100%)	717 (99.6%)	720 (100%)	719 (99.9%)	*	*
2015/ 7月	743 (99.9%)	737 (99.1%)	743 (99.9%)	741 (99.6%)	744 (100%)	743 (99.9%)	*	*
2015/ 8月	743 (99.9%)	744 (100%)	743 (99.9%)	741 (99.6%)	744 (100%)	743 (99.9%)	*	*
2015/ 9月	719 (99.9%)	720 (100%)	719 (99.9%)	709 (98.5%)	720 (100%)	719 (99.9%)	*	*
2015/10月	741 (99.6%)	744 (100%)	537 (72.2%)	743 (99.9%)	744 (100%)	743 (99.9%)	*	*
2015/11月	719 (99.9%)	716 (99.4%)	615 (85.4%)	718 (99.7%)	720 (100%)	719 (99.9%)	*	*
2015/冬季	2157 (99.9%)	2140 (99.1%)	1781 (82.5%)	74 (3.4%)	2159 (100.0%)	2159 (100.0%)	*	*
2015/春季	2205 (99.9%)	2198 (99.5%)	2205 (99.9%)	2199 (99.6%)	2208 (100%)	2201 (99.7%)	*	*
2015/夏季	2205 (99.9%)	2197 (99.5%)	2206 (99.9%)	2199 (99.6%)	2208 (100%)	2205 (99.9%)	*	*
2015/秋季	2179 (99.8%)	2180 (99.8%)	1871 (85.7%)	2170 (99.4%)	2184 (100%)	2181 (99.9%)	*	*
2015/整年	8746 (99.8%)	8715 (99.5%)	8063 (92.0%)	6642 (75.8%)	8759 (100.0%)	8746 (99.8%)	*	*
起始年月	2014/12	2014/12	2014/12	2015/02	2014/12	2014/12	*	*
結束年月	2015/11	2015/11	2015/11	2015/11	2015/11	2015/11	*	*

表 1.1b 2015年每月高雄海域修補後各測站風力資料統計表

年/月 港區	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域
測站	W	Z	B	C	E	H			
2014/12月	744 (100%)	744 (100%)	744 (100%)	744 (100%)	744 (100%)	744 (100%)	744 (100%)	*	*
2015/ 1月	744 (100%)	744 (100%)	744 (100%)	744 (100%)	744 (100%)	744 (100%)	744 (100%)	*	*
2015/ 2月	672 (100%)	672 (100%)	672 (100%)	672 (100%)	672 (100%)	672 (100%)	672 (100%)	*	*
2015/ 3月	744 (100%)	744 (100%)	744 (100%)	744 (100%)	744 (100%)	744 (100%)	744 (100%)	*	*
2015/ 4月	720 (100%)	720 (100%)	720 (100%)	720 (100%)	720 (100%)	720 (100%)	720 (100%)	*	*
2015/ 5月	744 (100%)	744 (100%)	744 (100%)	744 (100%)	744 (100%)	744 (100%)	744 (100%)	*	*
2015/ 6月	720 (100%)	720 (100%)	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%)	744 (100%)	*	*
2015/ 8月	744 (100%)	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%)	720 (100%)	*	*
2015/10月	744 (100%)	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%)	720 (100%)	*	*
2015/冬季	2160 (100%)	2160 (100%)	2160 (100%)	2160 (100%)	2160 (100%)	2160 (100%)	2160 (100%)	*	*
2015/春季	2208 (100%)	2208 (100%)	2208 (100%)	2208 (100%)	2208 (100%)	2208 (100%)	2208 (100%)	*	*
2015/夏季	2208 (100%)	2208 (100%)	2208 (100%)	2208 (100%)	2208 (100%)	2208 (100%)	2208 (100%)	*	*
2015/秋季	2184 (100%)	2184 (100%)	2184 (100%)	2184 (100%)	2184 (100%)	2184 (100%)	2184 (100%)	*	*
2015/整年	8760 (100%)	8760 (100%)	8760 (100%)	8760 (100%)	8760 (100%)	8760 (100%)	8760 (100%)	*	*
起始年月	2014/12	2014/12	2014/12	2014/12	2014/12	2014/12	2014/12	*	*
結束年月	2015/11	2015/11	2015/11	2015/11	2015/11	2015/11	2015/11	*	*

Wind Speed in Kao-Hsiung Seas of KHW0 at 2015

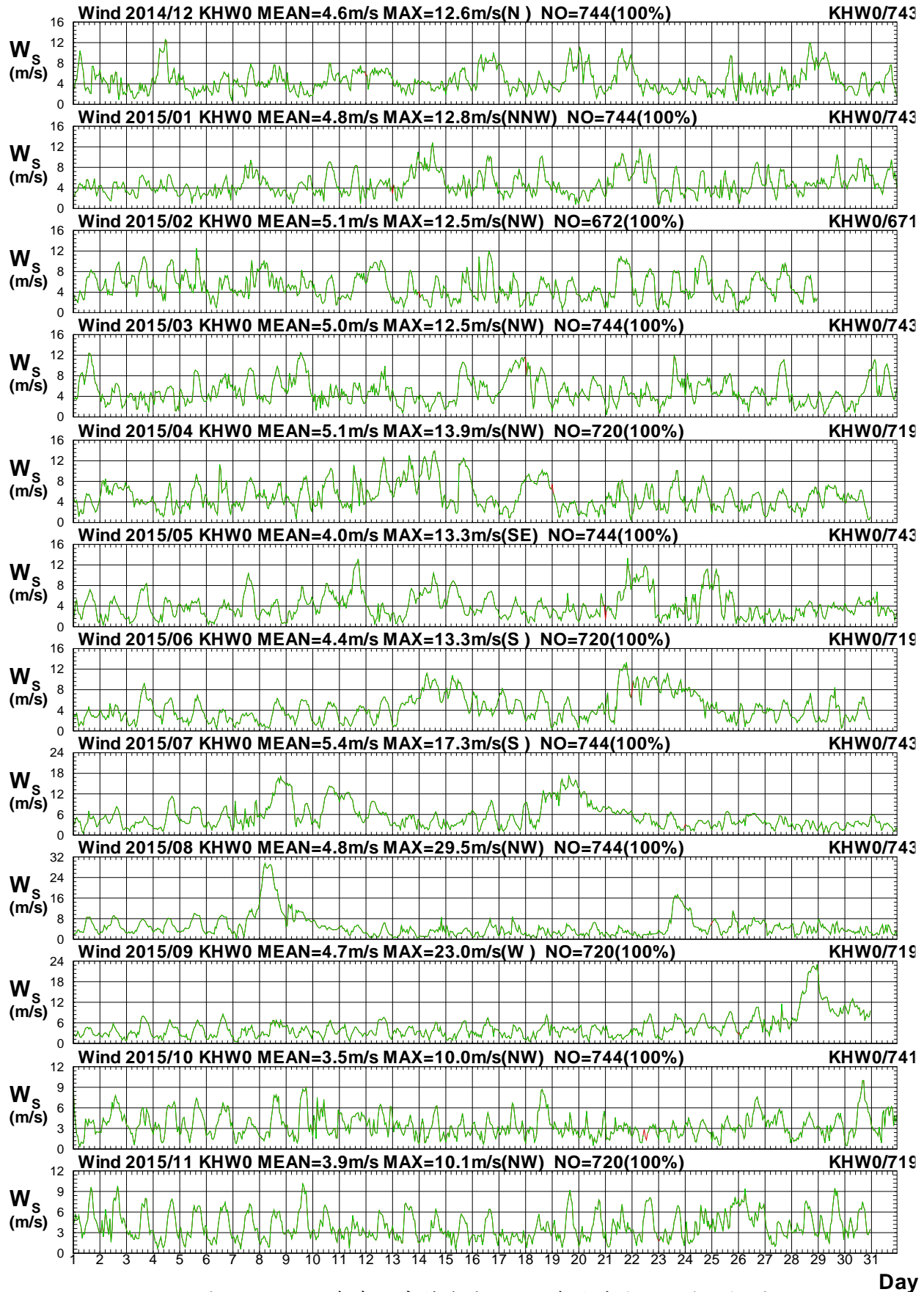


圖 1.1a 2015年每月高雄海域 W 站修補前後之風速比較圖

W14CKHW0.1HA W14CKHW0.1H0 W151KHW0.1HA W151KHW0.1H0 W152KHW0.1HA W152KHW0.1H0

W153KHW0.1HA W153KHW0.1H0 W154KHW0.1HA W154KHW0.1H0 W155KHW0.1HA W155KHW0.1H0

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Wind Direction in Kao-Hsiung Seas of KHW0 at 2015

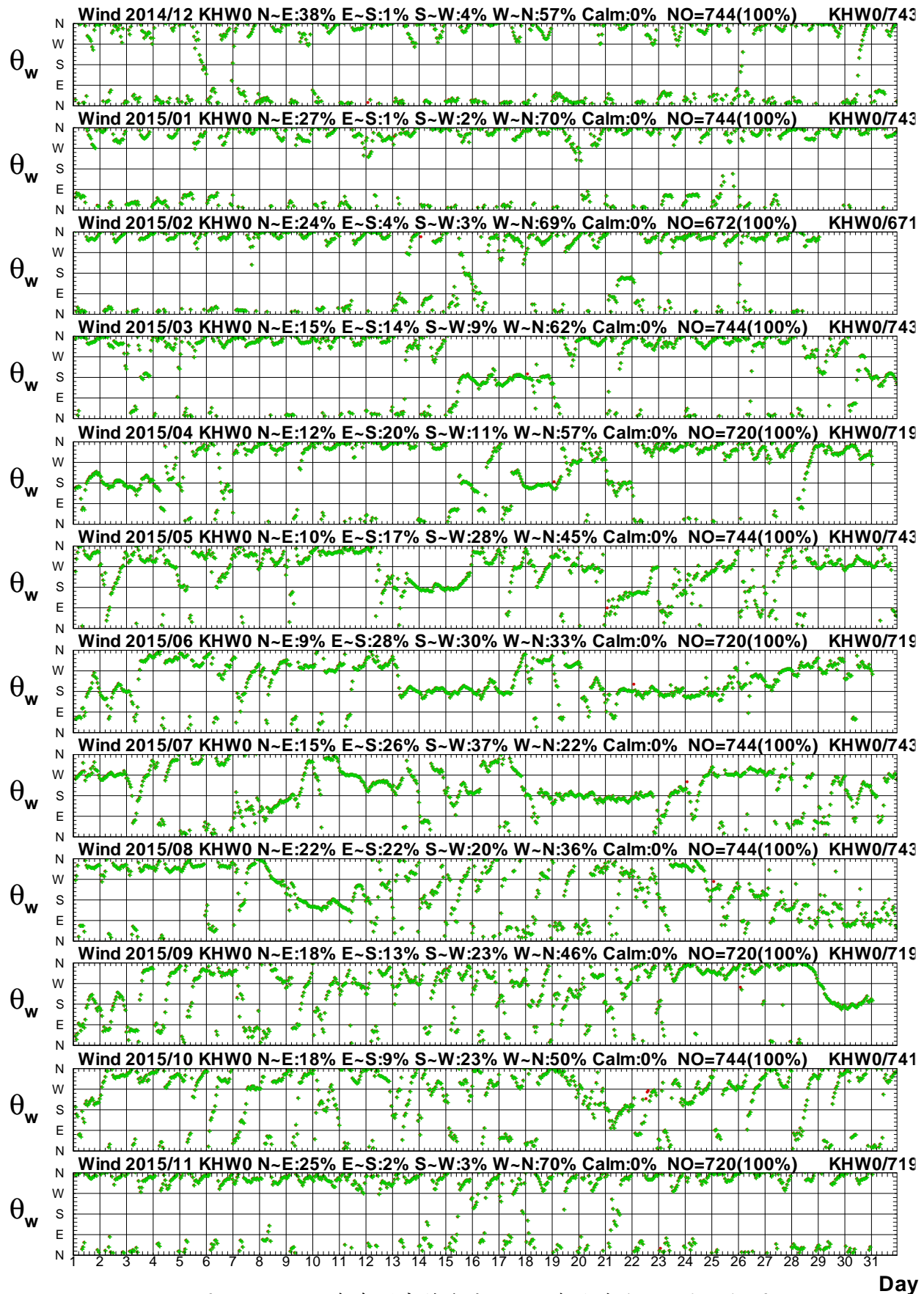


圖 1.1b 2015年每月高雄海域 W 站修補前後之風向比較圖

W14CKHW0.1HA W14CKHW0.1H0 W151KHW0.1HA W151KHW0.1H0 W152KHW0.1HA W152KHW0.1H0

W153KHW0.1HA W153KHW0.1H0 W154KHW0.1HA W154KHW0.1H0 W155KHW0.1HA W155KHW0.1H0 Institute of Harbor & Marine Technology

Wind Speed in Kao-Hsiung Seas of KHW0 at 2015

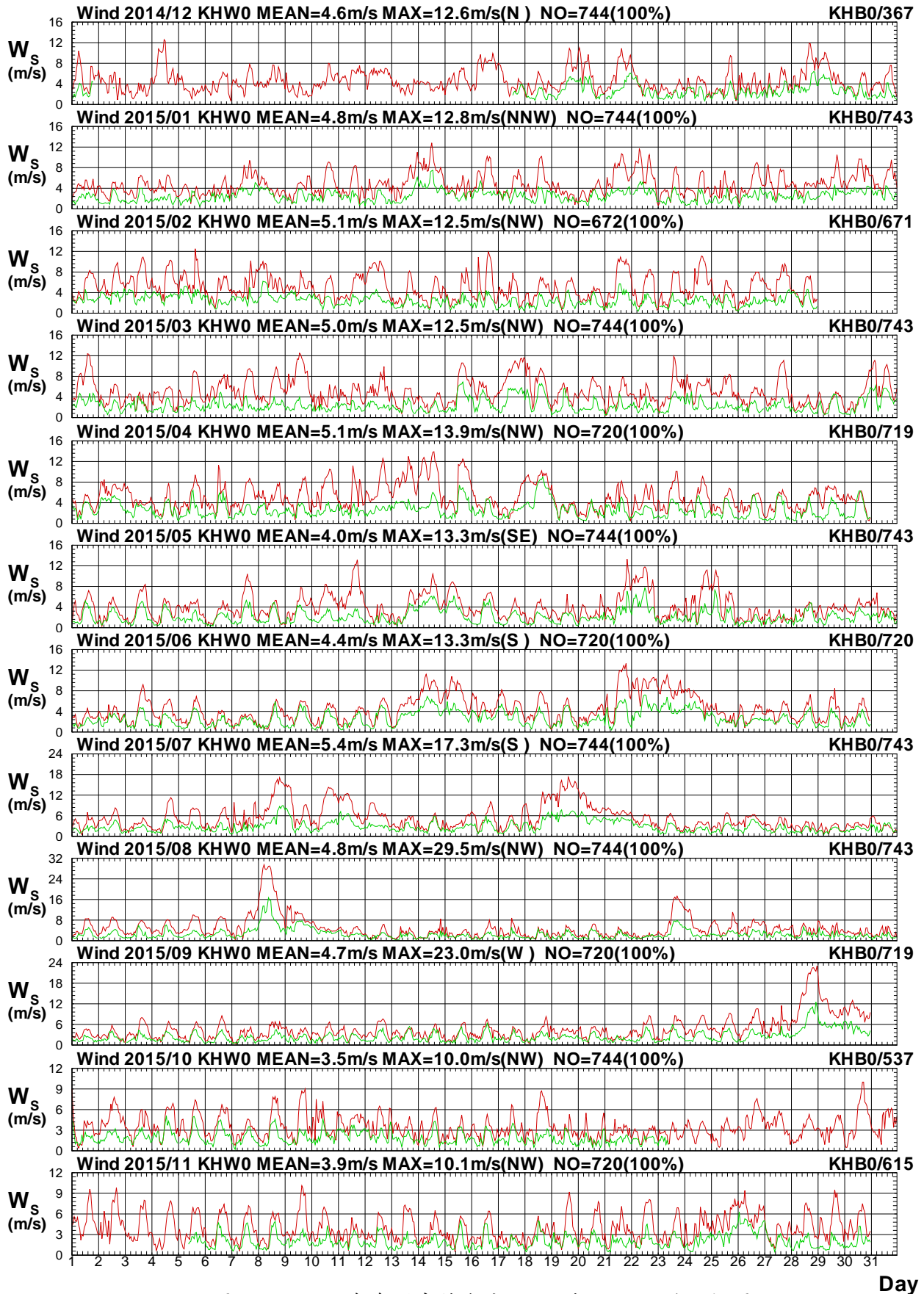


圖 1.2a 2015年每月高雄海域 W 站與 B 站風速比較圖

W14CKHW0.1HA W14CKHB0.1HO W151KHW0.1HA W151KHB0.1HO W152KHW0.1HA W152KHB0.1HO
 W153KHW0.1HA W153KHB0.1HO W154KHW0.1HA W154KHB0.1HO W155KHW0.1HA W155KHB0.1HO

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Wind Direction in Kao-Hsiung Seas of KHW0 at 2015

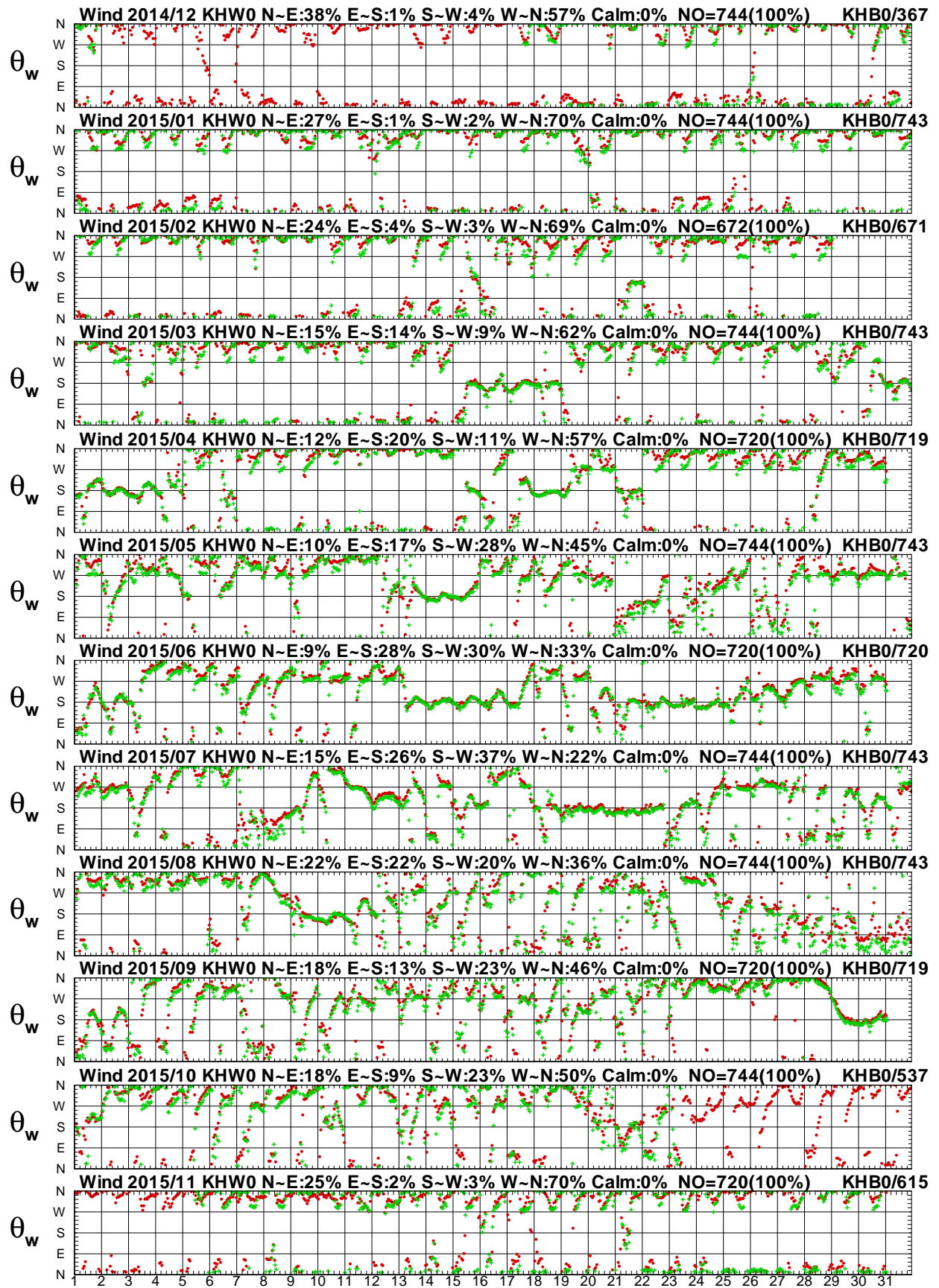


圖 1.2b 2015年每月高雄海域 W 站與 B 站風向比較圖

W14CKHW0.1HA W14CKHB0.1HO W151KHW0.1HA W151KHB0.1HO W152KHW0.1HA W152KHB0.1HO
 W153KHW0.1HA W153KHB0.1HO W154KHW0.1HA W154KHB0.1HO W155KHW0.1HA W155KHB0.1HO

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Wind Speed in Kao-Hsiung Seas of KHW0 at 2015

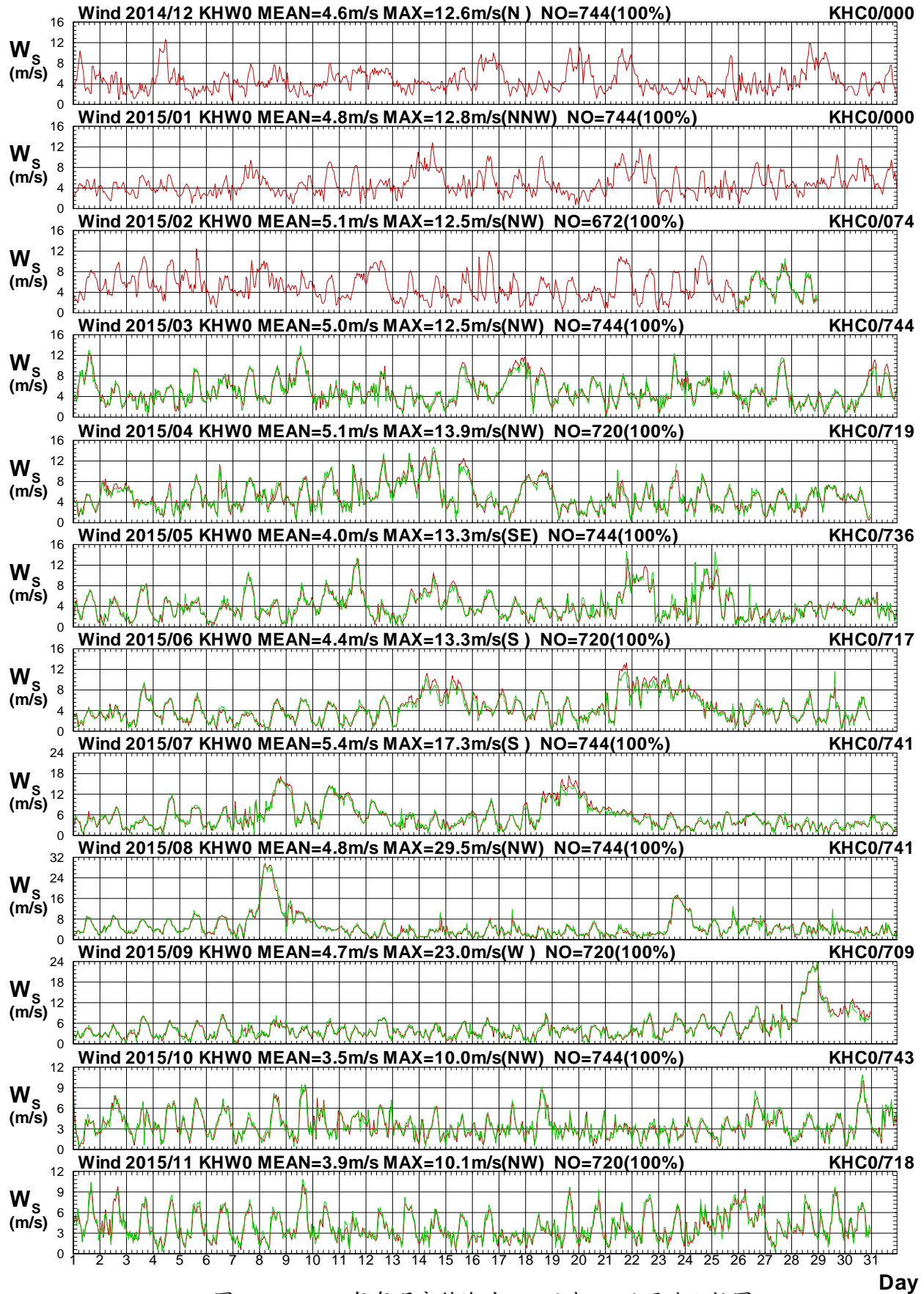


圖 1.3a 2015年每月高雄海域 W 站與 C 站風速比較圖

W14CKHW0.1HA W14CKHC0.1HO W151KHW0.1HA W151KHC0.1HO W152KHW0.1HA W152KHC0.1HO
 W153KHW0.1HA W153KHC0.1HO W154KHW0.1HA W154KHC0.1HO W155KHW0.1HA W155KHC0.1HO

Institute of Harbor & Marine Technology

Wind Direction in Kao-Hsiung Seas of KHW0 at 2015

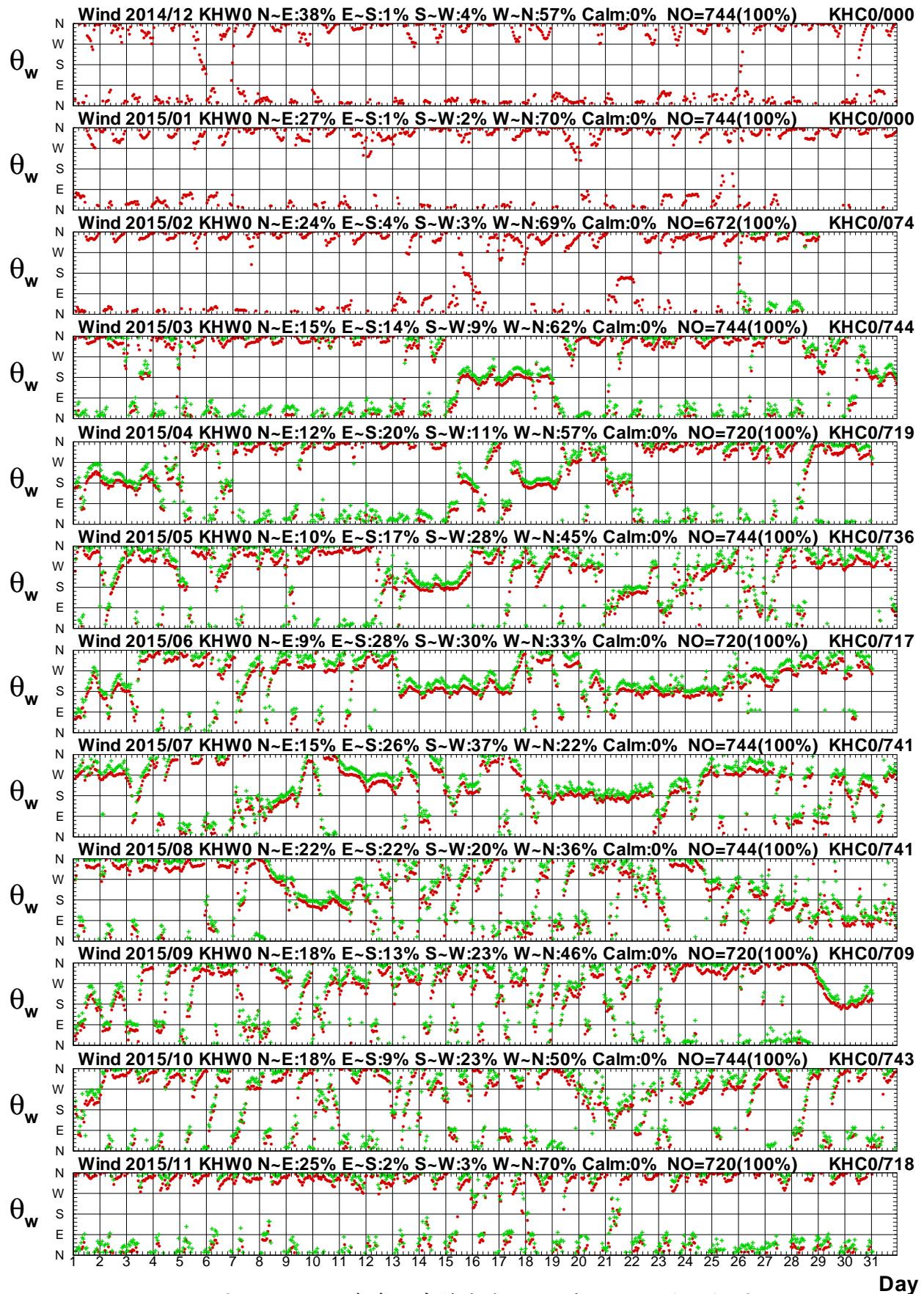


圖 1.3b 2015年每月高雄海域 W 站與 C 站風向比較圖

W14CKHW0.1HA W14CKHC0.1H0 W151KHW0.1HA W151KHC0.1H0 W152KHW0.1HA W152KHC0.1H0
 W153KHW0.1HA W153KHC0.1H0 W154KHW0.1HA W154KHC0.1H0 W155KHW0.1HA W155KHC0.1H0

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Wind Speed in Kao-Hsiung Seas of KHW0 at 2015

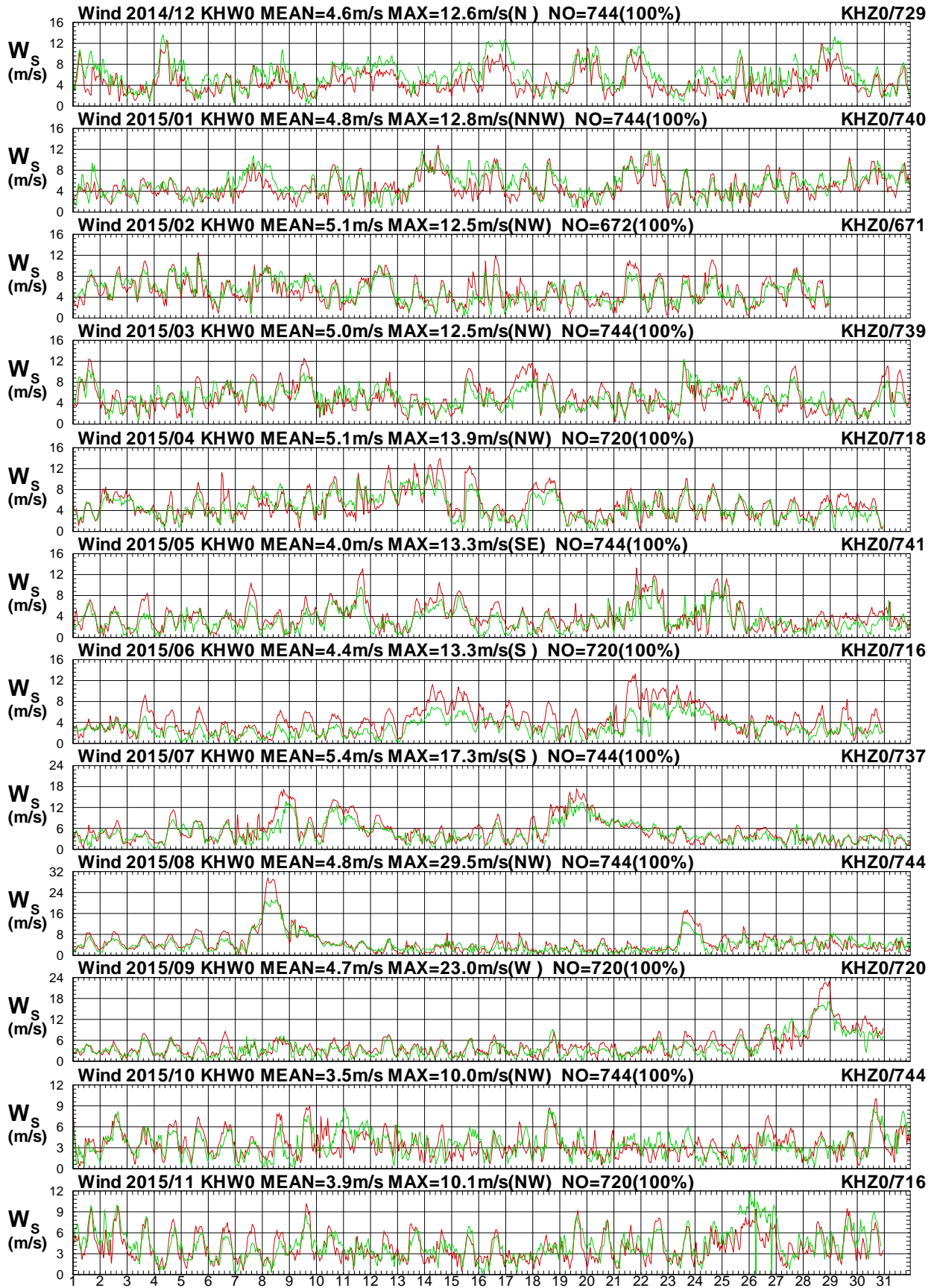


圖 1.4a 2015年每月高雄海域 W 站與 Z 站風速比較圖

W14CKHW0.1HA W14CKHZ0.1H0 W151KHW0.1HA W151KHZ0.1H0 W152KHW0.1HA W152KHZ0.1H0
 W153KHW0.1HA W153KHZ0.1H0 W154KHW0.1HA W154KHZ0.1H0 W155KHW0.1HA W155KHZ0.1H0

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Wind Direction in Kao-Hsiung Seas of KHW0 at 2015

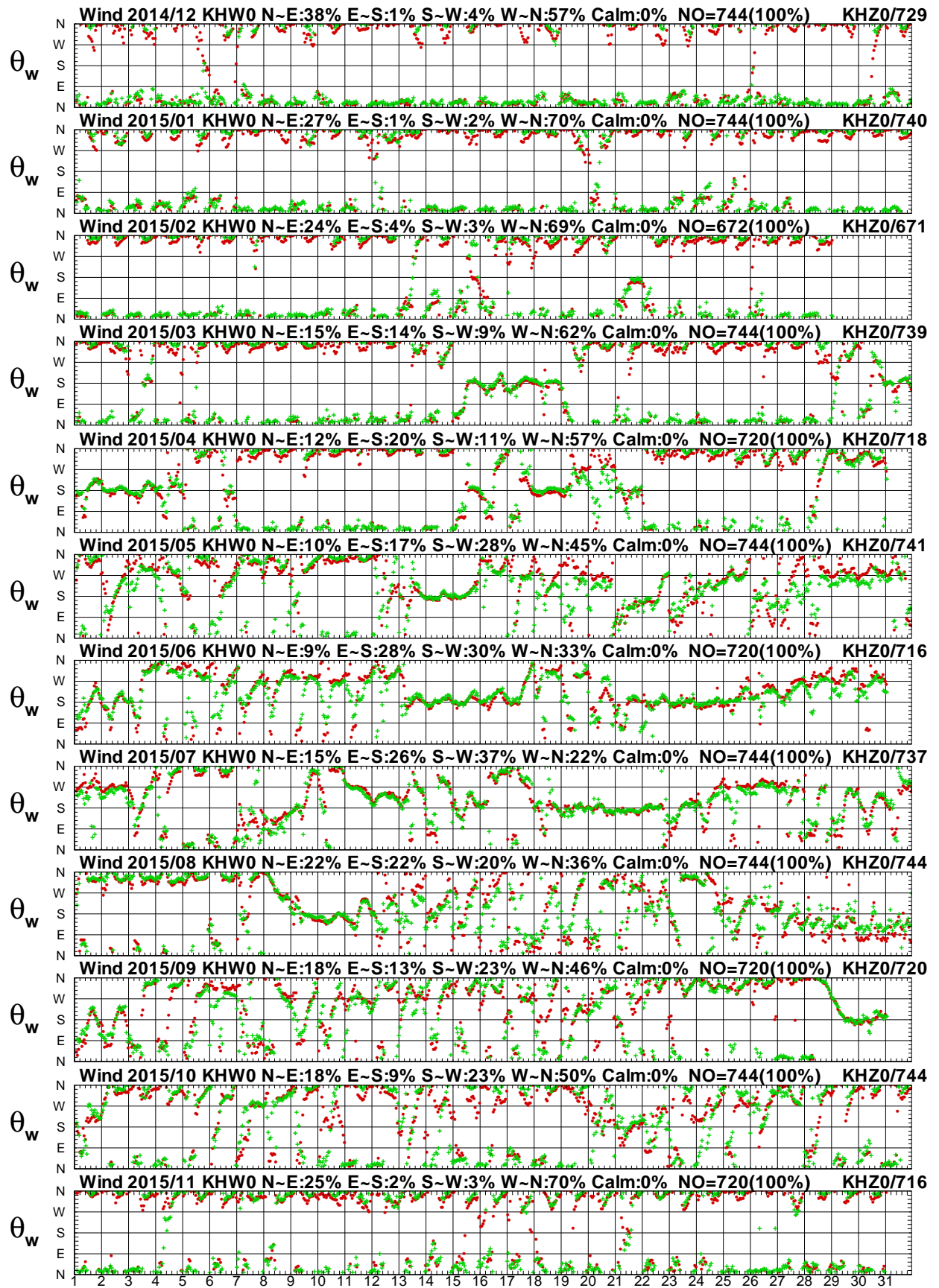


圖 1.4b 2015年每月高雄海域 W 站與 Z 站風向比較圖

W14CKHW0.1HA W14CKHZ0.1HO W151KHW0.1HA W151KHZ0.1HO W152KHW0.1HA W152KHZ0.1HO
 W153KHW0.1HA W153KHZ0.1HO W154KHW0.1HA W154KHZ0.1HO W155KHW0.1HA W155KHZ0.1HO

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Wind Speed in Kao-Hsiung Seas of KHW0 at 2015

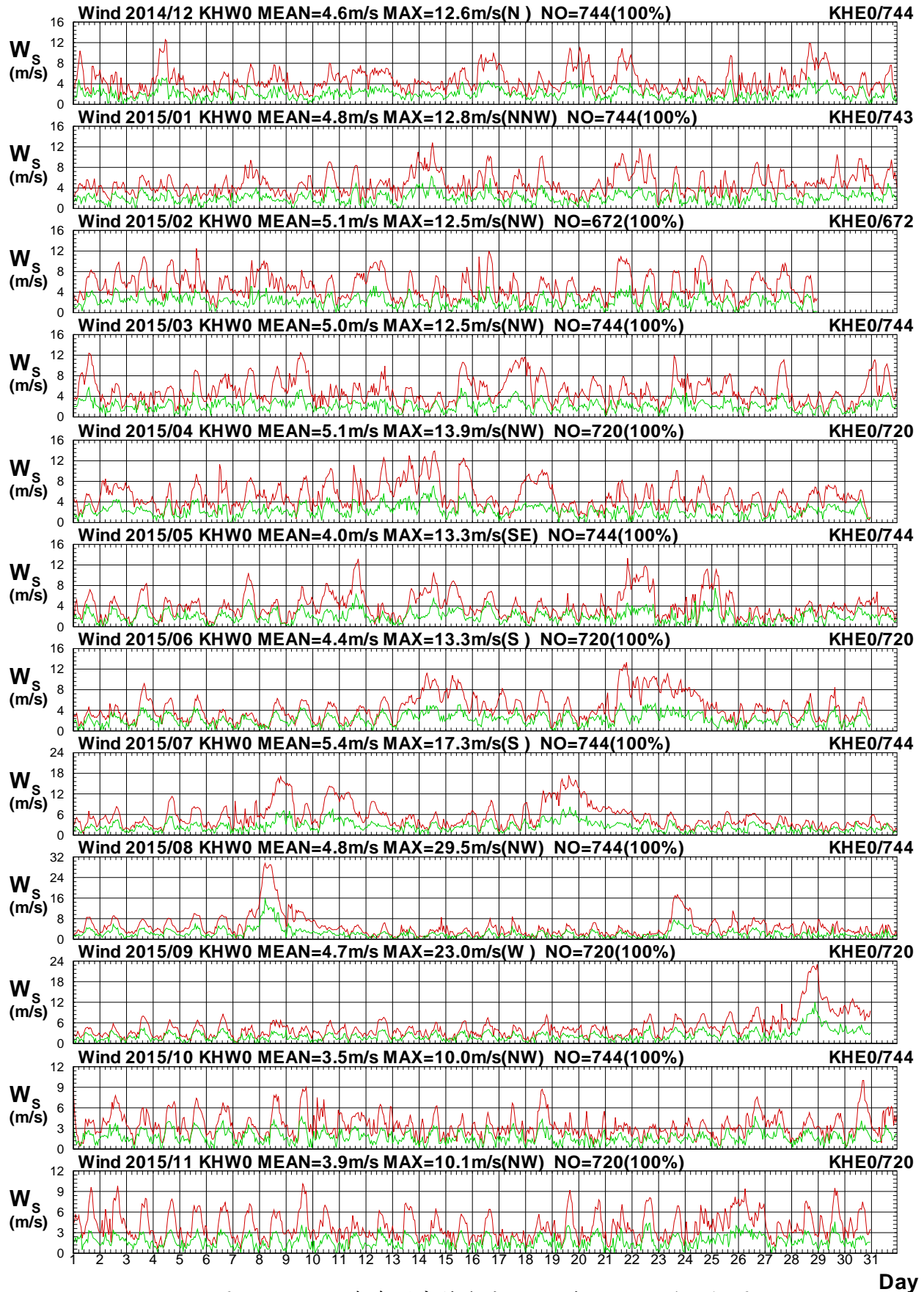


圖 1.5a 2015年每月高雄海域 W 站與 E 站風速比較圖

W14CKHW0.1HA W14CKHE0.1HO W151KHW0.1HA W151KHE0.1HO W152KHW0.1HA W152KHE0.1HO
 W153KHW0.1HA W153KHE0.1HO W154KHW0.1HA W154KHE0.1HO W155KHW0.1HA W155KHE0.1HO

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Wind Direction in Kao-Hsiung Seas of KHW0 at 2015

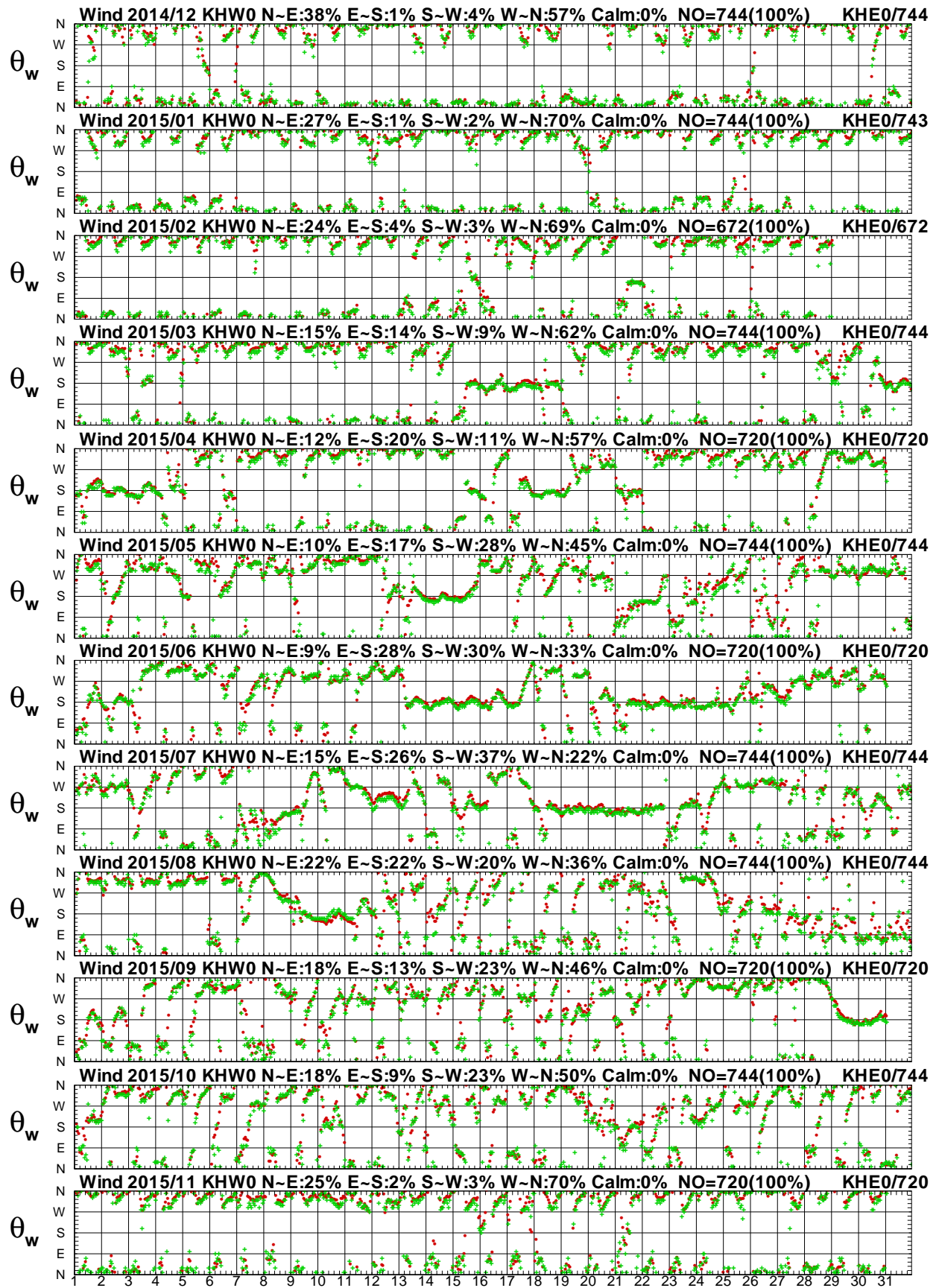


圖 1.5b 2015年每月高雄海域 W 站與 E 站風向比較圖

W14CKHW0.1HA W14CKHE0.1HO W151KHW0.1HA W151KHE0.1HO W152KHW0.1HA W152KHE0.1HO
 W153KHW0.1HA W153KHE0.1HO W154KHW0.1HA W154KHE0.1HO W155KHW0.1HA W155KHE0.1HO

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Wind Speed in Kao-Hsiung Seas of KHW0 at 2015

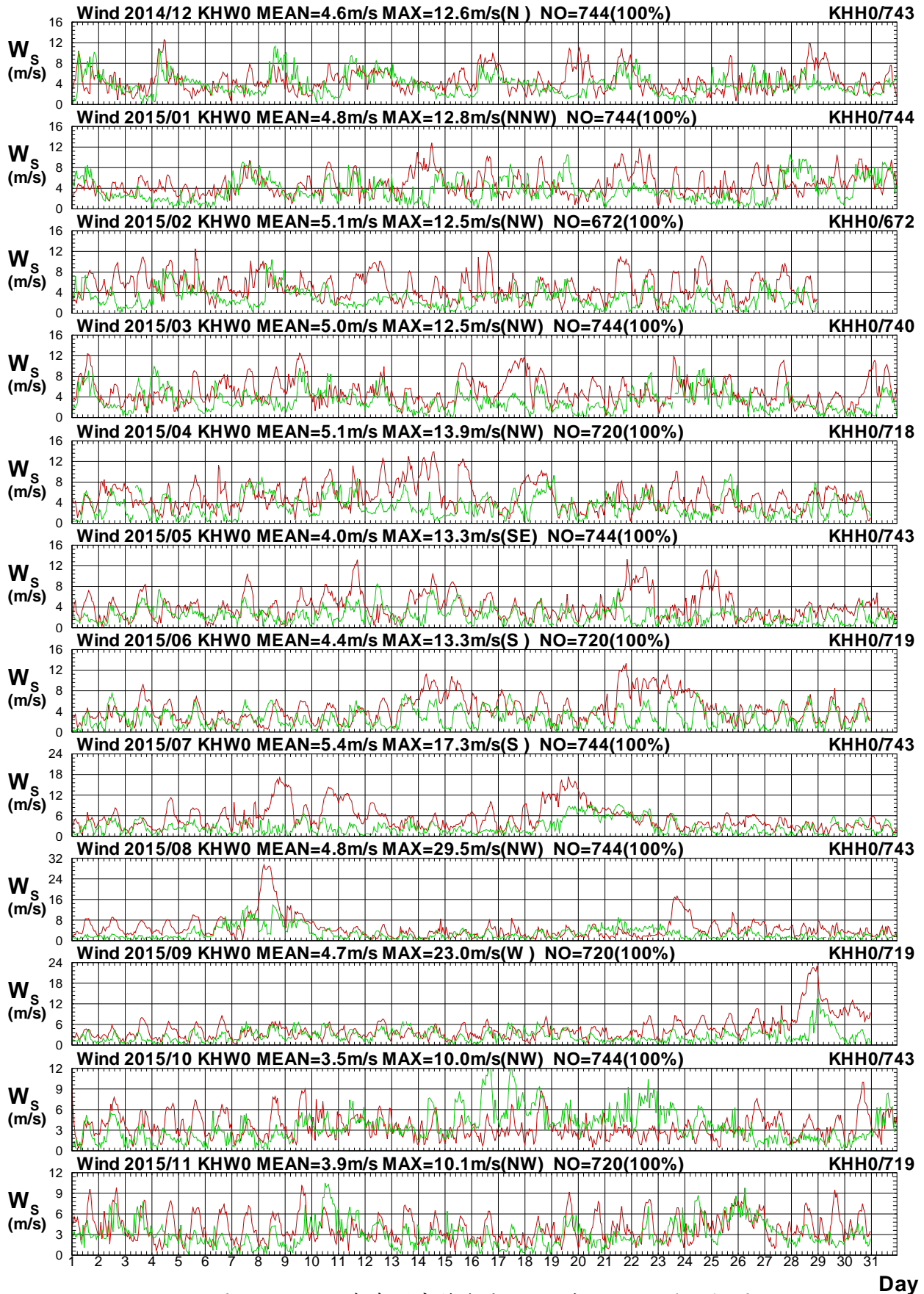


圖 1.6a 2015年每月高雄海域 W 站與 H 站風速比較圖

W14CKHW0.1HA W14CKHH0.1HO W151KHW0.1HA W151KHH0.1HO W152KHW0.1HA W152KHH0.1HO
 W153KHW0.1HA W153KHH0.1HO W154KHW0.1HA W154KHH0.1HO W155KHW0.1HA W155KHH0.1HO

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Wind Direction in Kao-Hsiung Seas of KHW0 at 2015

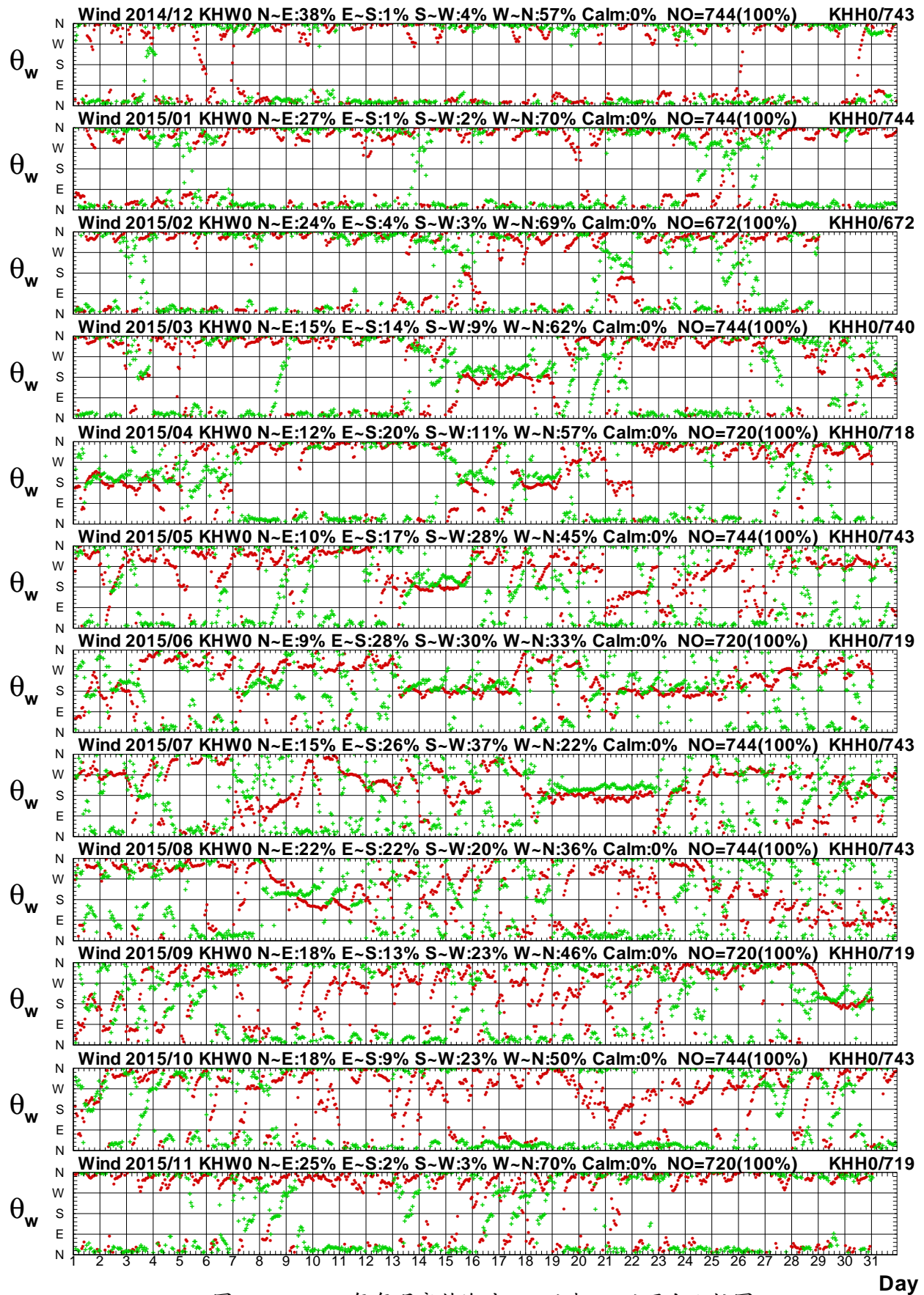


圖 1.6b 2015年每月高雄海域 W 站與 H 站風向比較圖

W14CKHW0.1HA W14CKHH0.1HO W151KHW0.1HA W151KHH0.1HO W152KHW0.1HA W152KHH0.1HO
 W153KHW0.1HA W153KHH0.1HO W154KHW0.1HA W154KHH0.1HO W155KHW0.1HA W155KHH0.1HO

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Wind Speed in Kao-Hsiung Seas of KHW0 at 2015

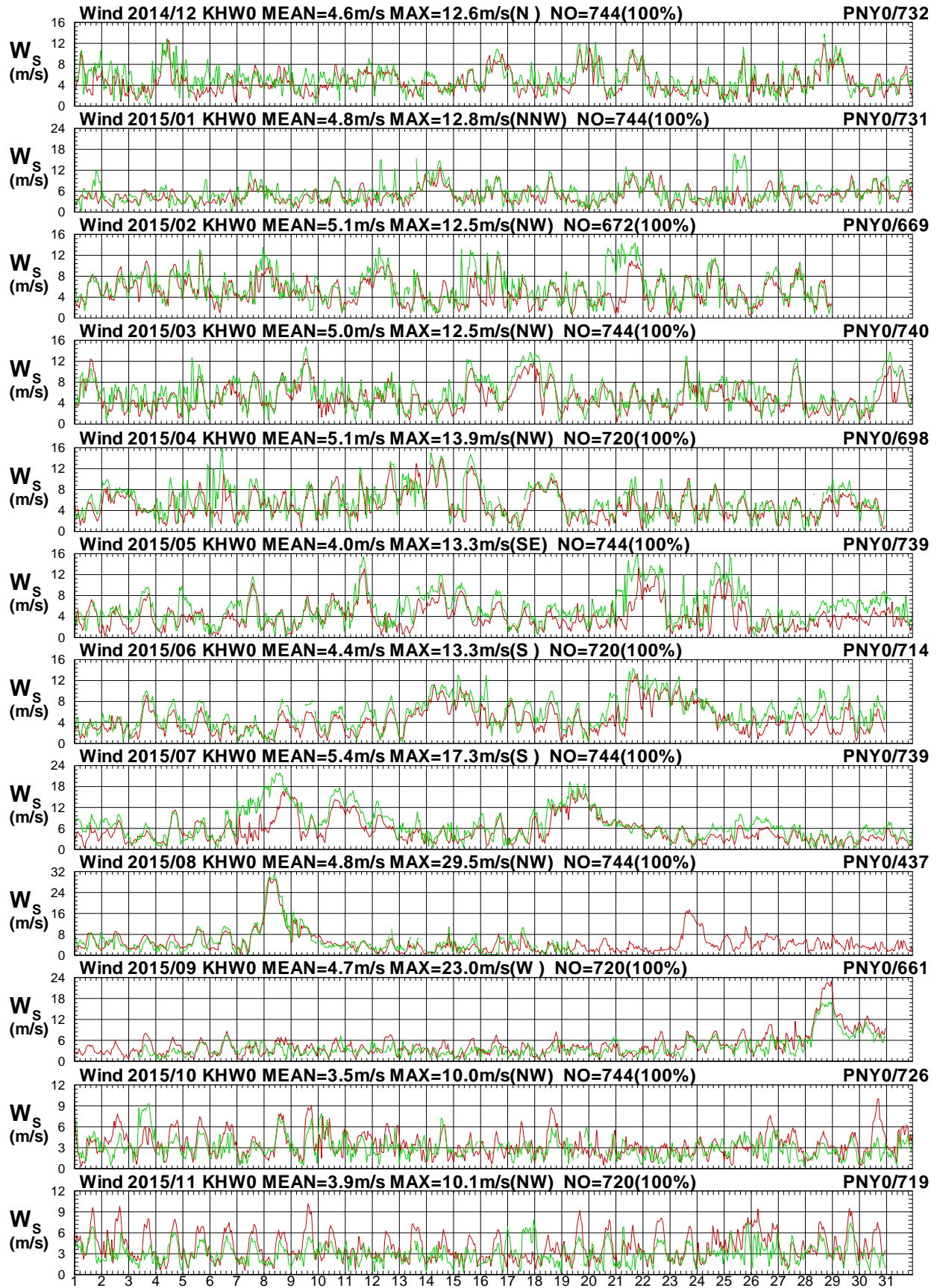


圖 1.7a 2015年每月高雄海域 W 站與屏東海域 Y 站風速圖

W14CKHW0.1HA W14CPNY0.1HO W151KHW0.1HA W151PNY0.1HO W152KHW0.1HA W152PNY0.1HO
 W153KHW0.1HA W153PNY0.1HO W154KHW0.1HA W154PNY0.1HO W155KHW0.1HA W155PNY0.1HO

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Wind Direction in Kao-Hsiung Seas of KHW0 at 2015

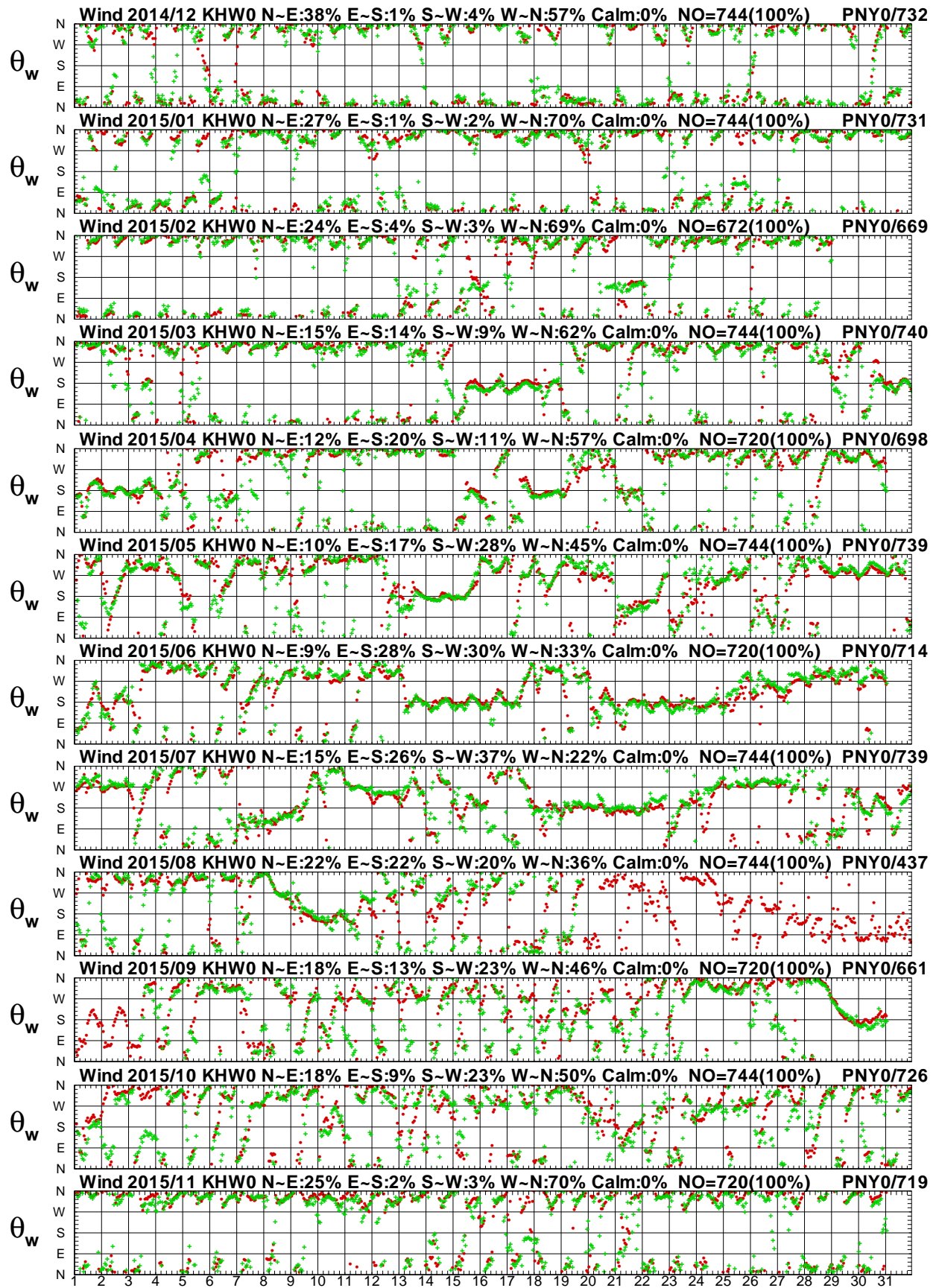


圖 1.7b 2015年每月高雄海域 W 站與屏東海域 Y 站風向圖

W14CKHW0.1HA W14CPNY0.1H0 W151KHW0.1HA W151PNY0.1H0 W152KHW0.1HA W152PNY0.1H0
 W153KHW0.1HA W153PNY0.1H0 W154KHW0.1HA W154PNY0.1H0 W155KHW0.1HA W155PNY0.1H0

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Wind Speed in Kao-Hsiung Seas of KHW0 at 2015

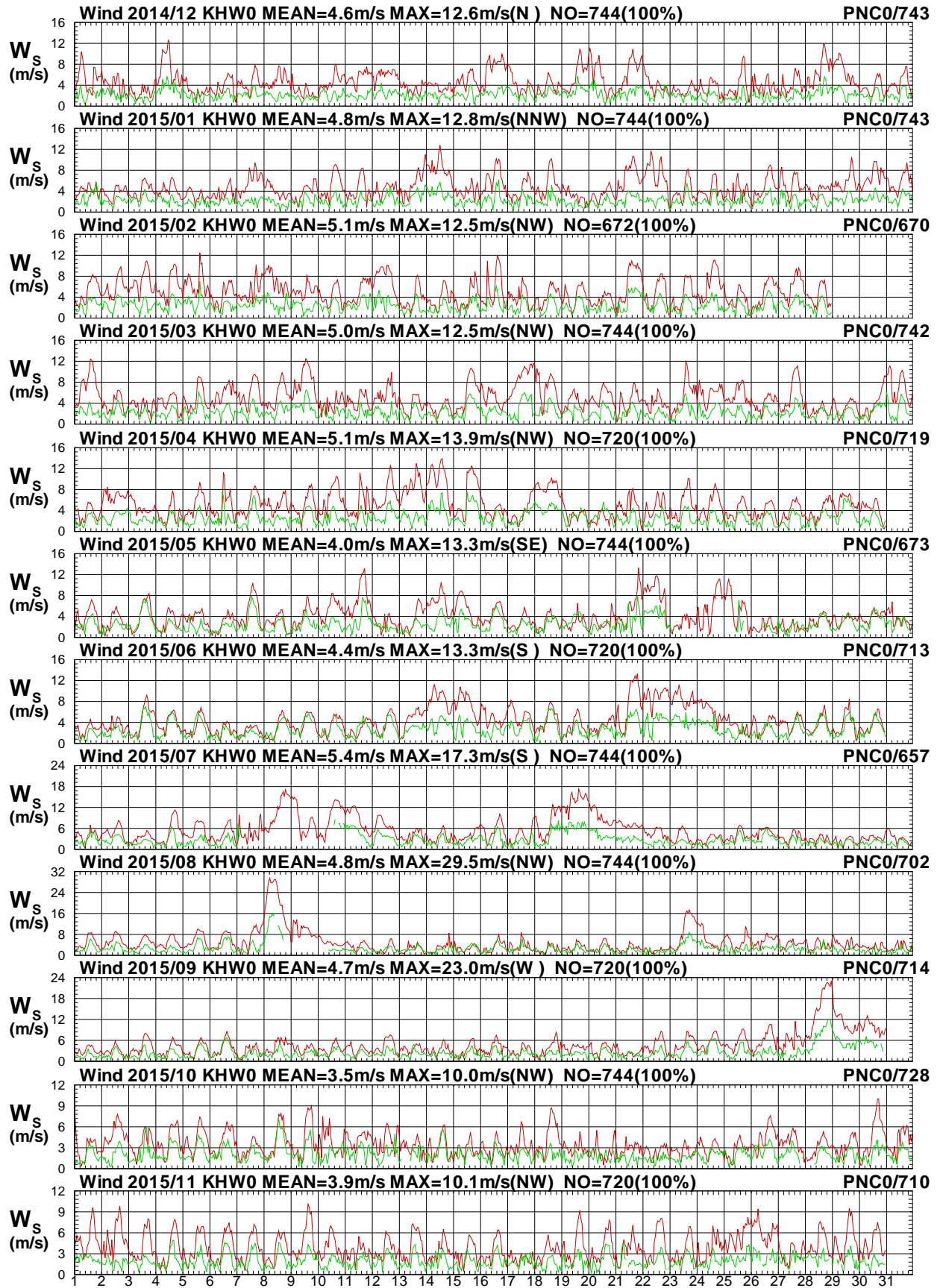


圖 1.8a 2015年每月高雄海域 W 站與屏東海域 C 站風速圖

W14CKHW0.1HA W14CPNC0.1H0 W151KHW0.1HA W151PNC0.1H0 W152KHW0.1HA W152PNC0.1H0
 W153KHW0.1HA W153PNC0.1H0 W154KHW0.1HA W154PNC0.1H0 W155KHW0.1HA W155PNC0.1H0

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Wind Direction in Kao-Hsiung Seas of KHW0 at 2015

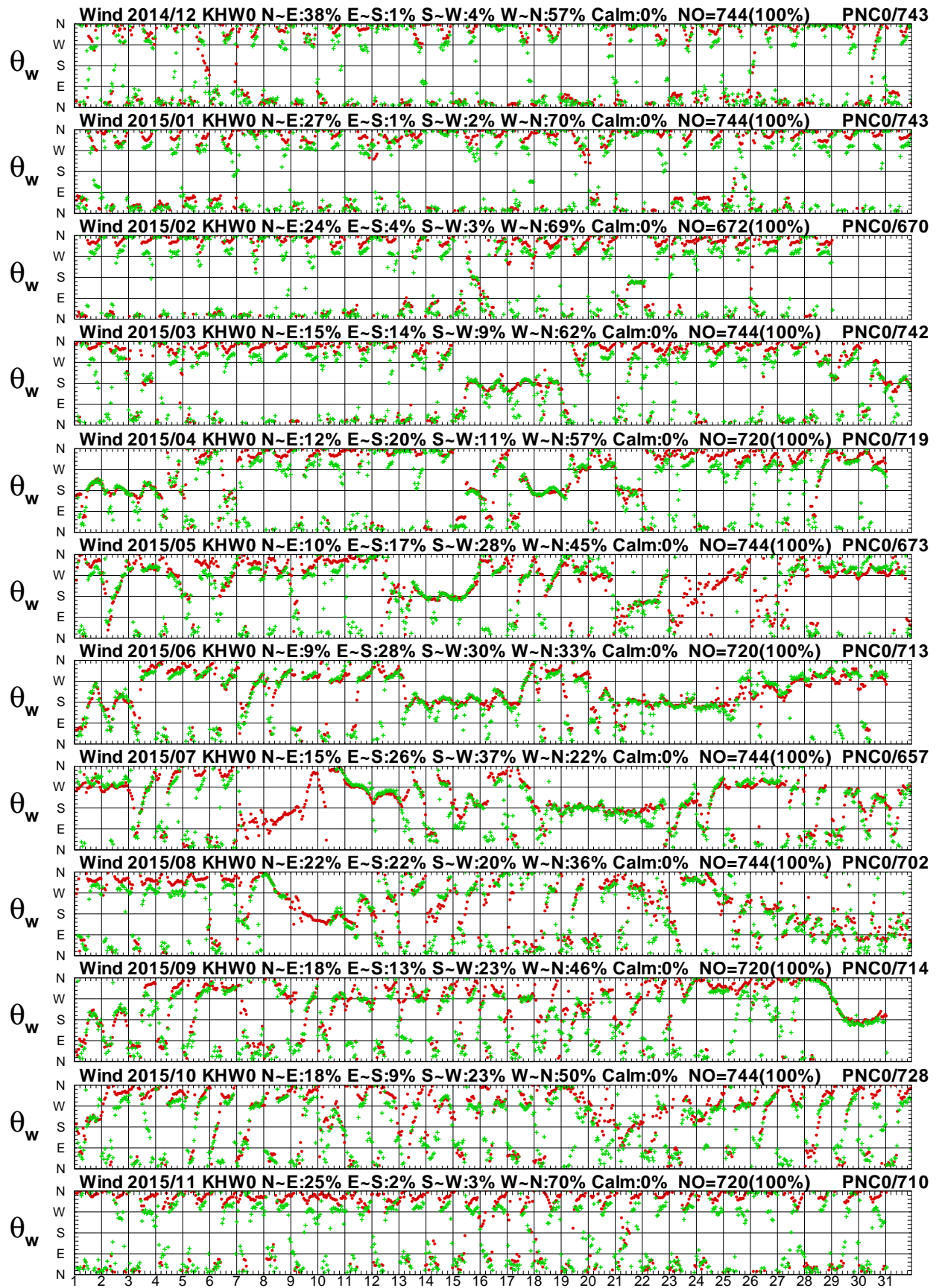


圖 1.8b 2015年每月高雄海域 W 站與屏東海域 C 站風向圖

W14CKHW0.1HA W14CPNC0.1H0 W151KHW0.1HA W151PNC0.1H0 W152KHW0.1HA W152PNC0.1H0
 W153KHW0.1HA W153PNC0.1H0 W154KHW0.1HA W154PNC0.1H0 W155KHW0.1HA W155PNC0.1H0

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Wind Speed in Kao-Hsiung Seas of KHW0 at 2015

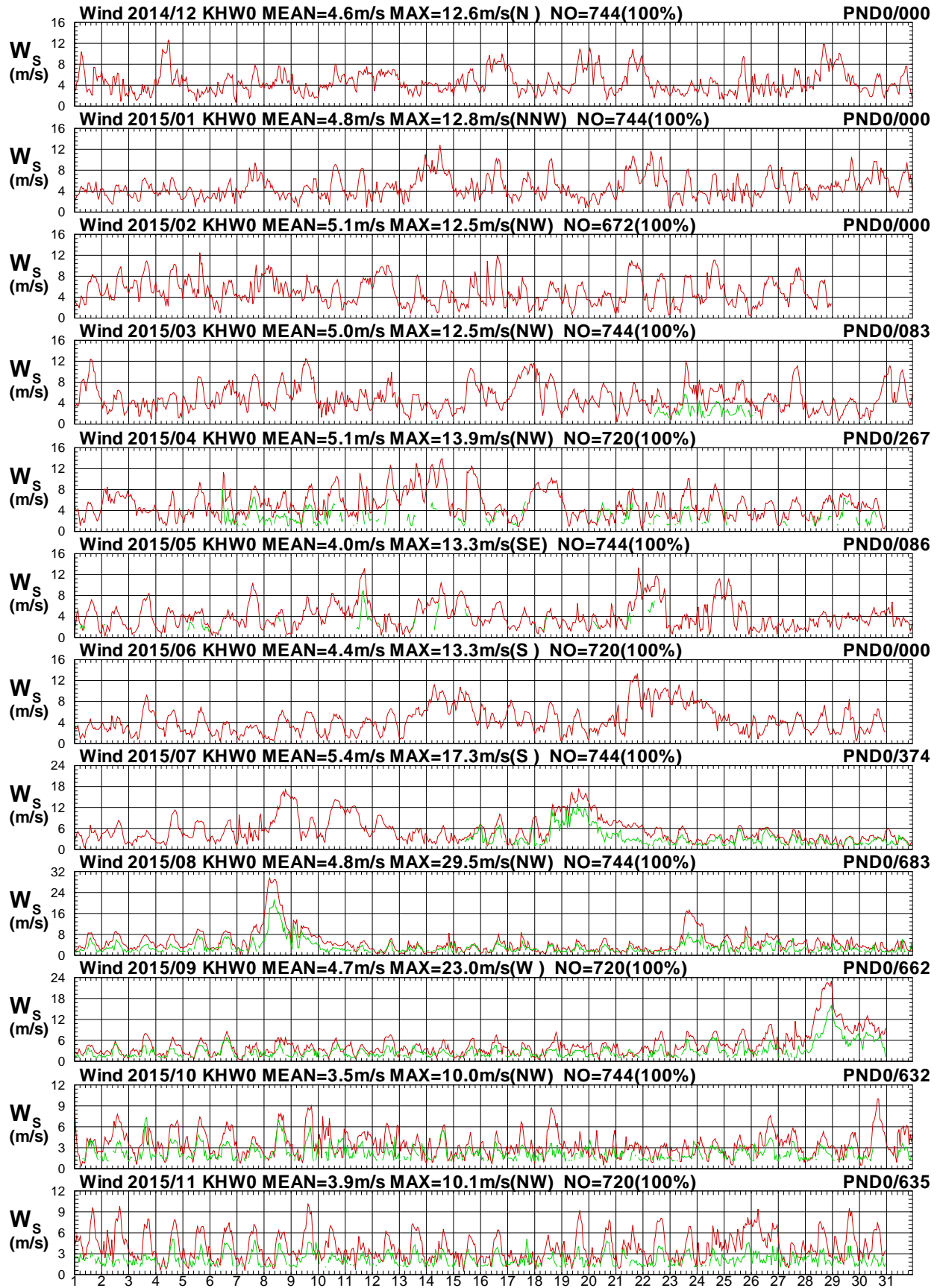


圖 1.9a 2015年每月高雄海域 W 站與屏東海域 D 站風速圖

W14CKHW0.1HA W14CPND0.1HO W151KHW0.1HA W151PND0.1HO W152KHW0.1HA W152PND0.1HO
 W153KHW0.1HA W153PND0.1HO W154KHW0.1HA W154PND0.1HO W155KHW0.1HA W155PND0.1HO

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Wind Direction in Kao-Hsiung Seas of KHW0 at 2015

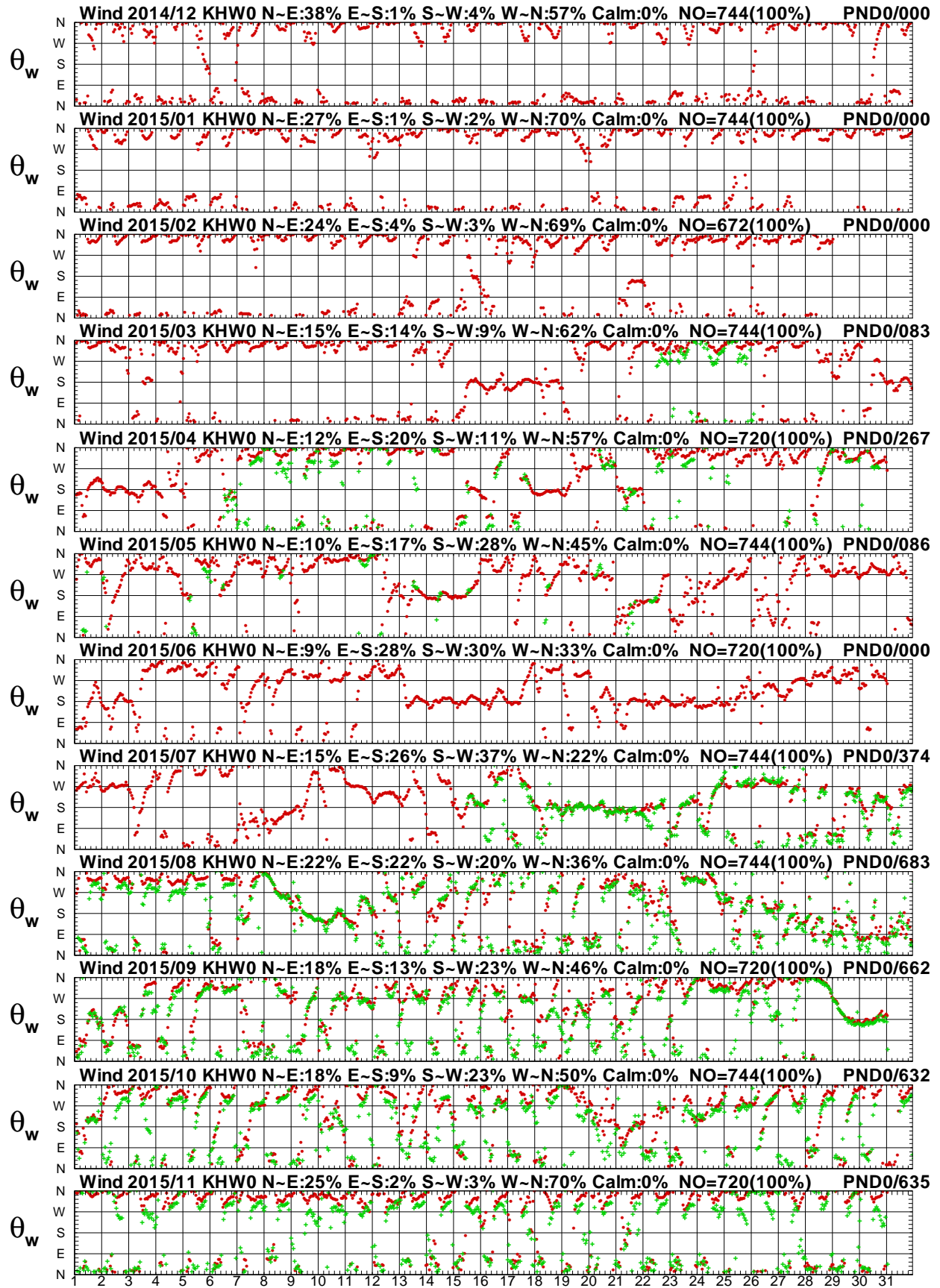


圖 1.9b 2015年每月高雄海域 W 站與屏東海域 D 站風向圖

W14CKHW0.1HA W14CPND0.1H0 W151KHW0.1HA W151PND0.1H0 W152KHW0.1HA W152PND0.1H0
 W153KHW0.1HA W153PND0.1H0 W154KHW0.1HA W154PND0.1H0 W155KHW0.1HA W155PND0.1H0

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Wind Speed in Kao-Hsiung Seas of KHW0 at 2015

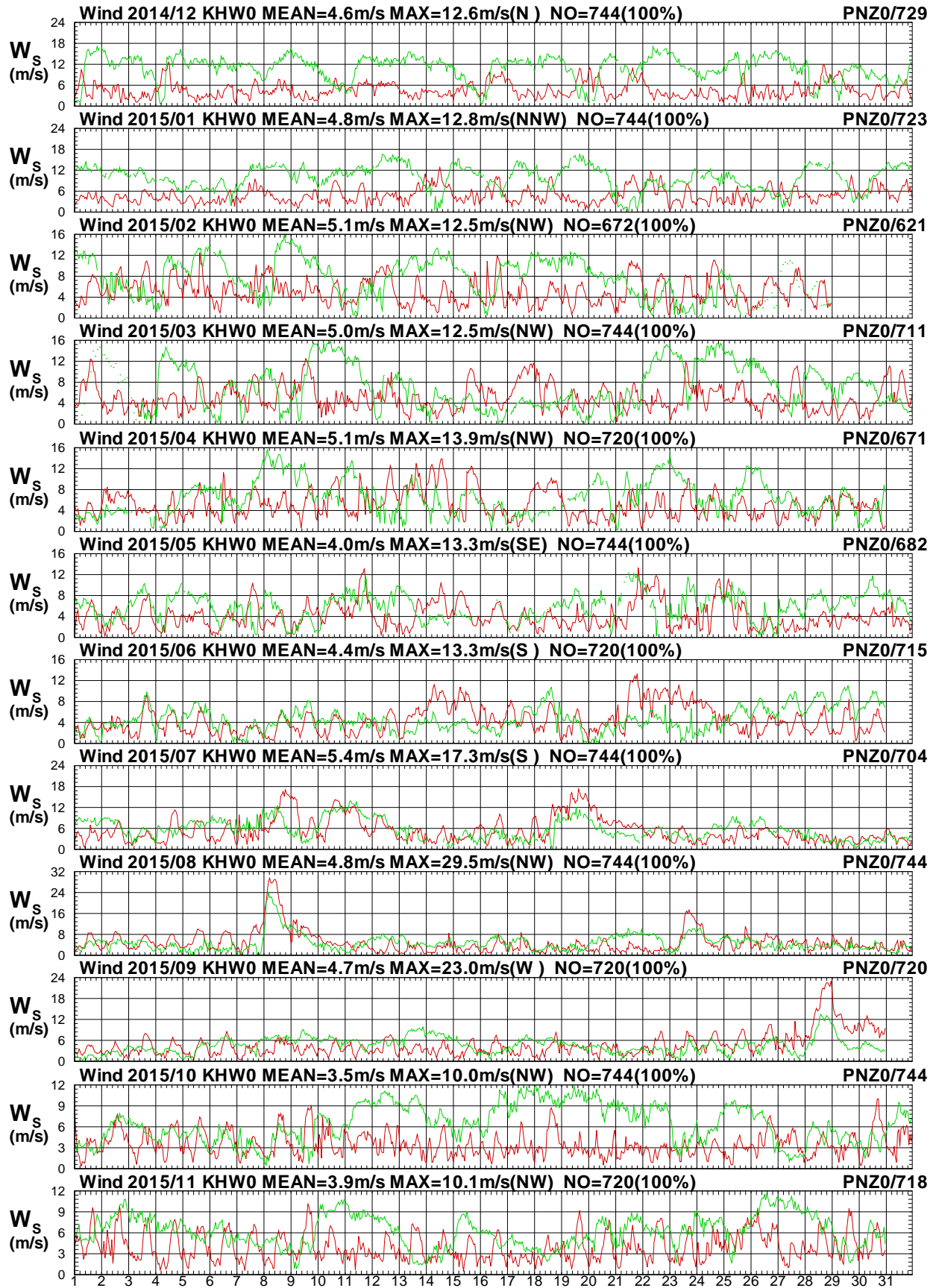


圖 1.10a 2015年每月高雄海域 W 站與屏東海域 Z 站風速圖

W14CKHW0.1HA W14CPNZ0.1H0 W151KHW0.1HA W151PNZ0.1H0 W152KHW0.1HA W152PNZ0.1H0
 W153KHW0.1HA W153PNZ0.1H0 W154KHW0.1HA W154PNZ0.1H0 W155KHW0.1HA W155PNZ0.1H0

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Wind Direction in Kao-Hsiung Seas of KHW0 at 2015

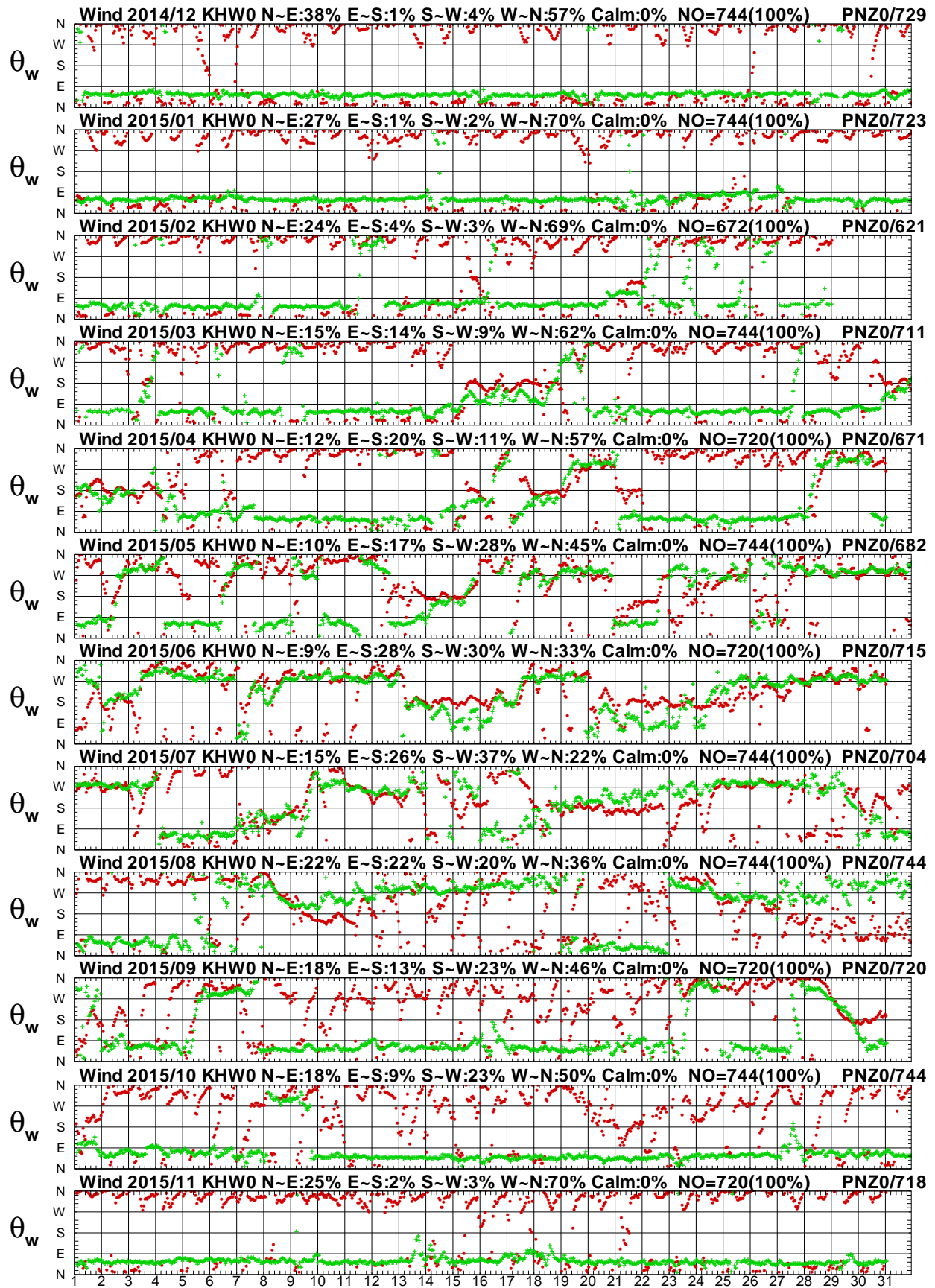


圖 1.10b 2015年每月高雄海域 W 站與屏東海域 Z 站風向圖

W14CKHW0.1HA W14CPNZ0.1H0 W151KHW0.1HA W151PNZ0.1H0 W152KHW0.1HA W152PNZ0.1H0
 W153KHW0.1HA W153PNZ0.1H0 W154KHW0.1HA W154PNZ0.1H0 W155KHW0.1HA W155PNZ0.1H0

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Wind Speed in Kao-Hsiung Seas of KHW0 at 2015

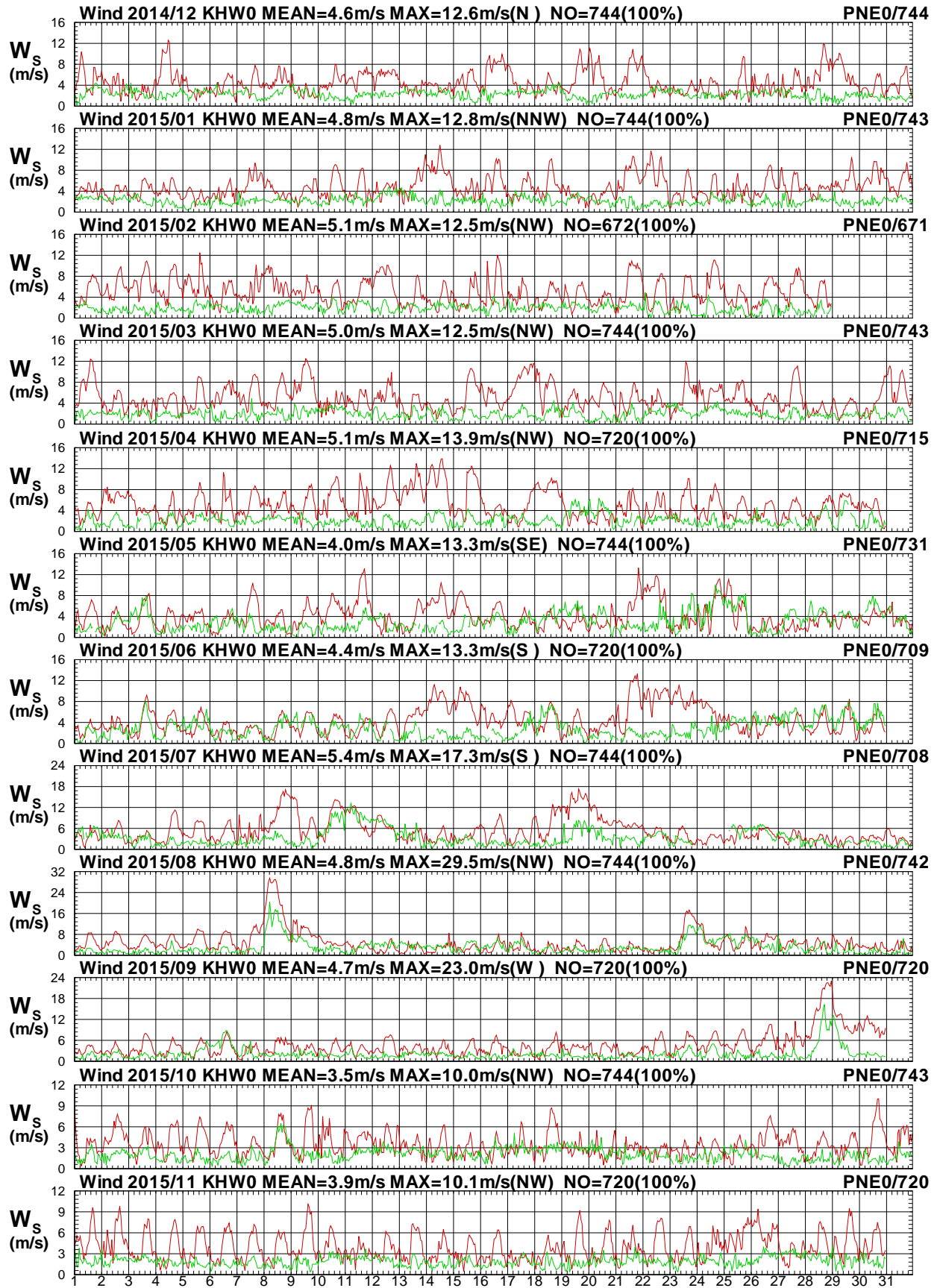


圖 1.11a 2015年每月高雄海域 W 站與屏東海域 E 站風速圖

W14CKHW0.1HA W14CPNE0.1HO W151KHW0.1HA W151PNE0.1HO W152KHW0.1HA W152PNE0.1HO
 W153KHW0.1HA W153PNE0.1HO W154KHW0.1HA W154PNE0.1HO W155KHW0.1HA W155PNE0.1HO

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Wind Direction in Kao-Hsiung Seas of KHW0 at 2015

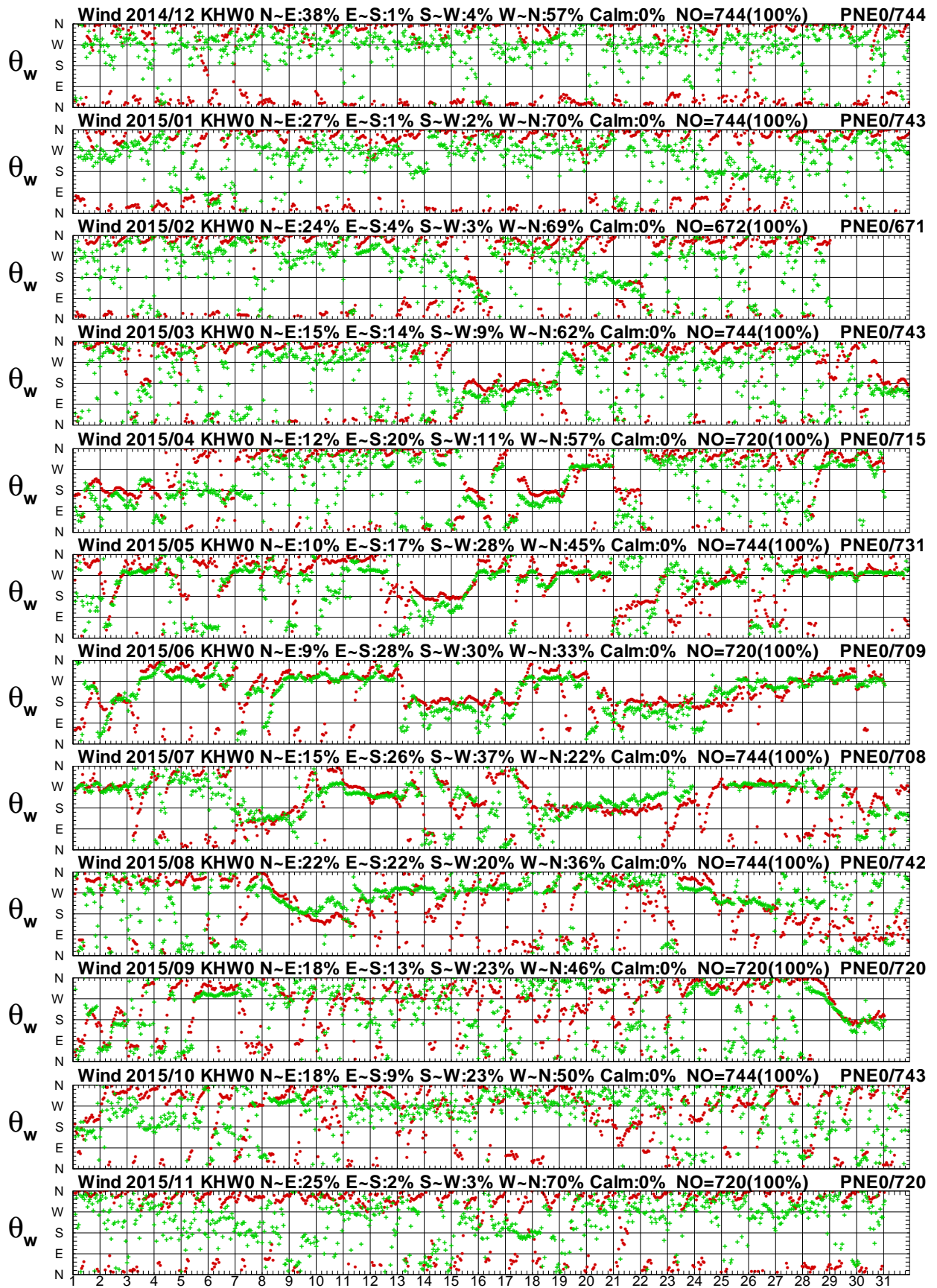


圖 1.11b 2015年每月高雄海域 W 站與屏東海域 E 站風向圖

W14CKHW0.1HA W14CPNE0.1HO W151KHW0.1HA W151PNE0.1HO W152KHW0.1HA W152PNE0.1HO
 W153KHW0.1HA W153PNE0.1HO W154KHW0.1HA W154PNE0.1HO W155KHW0.1HA W155PNE0.1HO

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Wind Speed in Kao-Hsiung Seas of KHW0 at 2015



圖 1.12a 2015年每月高雄海域 W 站與屏東海域 H 站風速圖

W14CKHW0.1HA W14CPNH0.1HO W151KHW0.1HA W151PNH0.1HO W152KHW0.1HA W152PNH0.1HO
 W153KHW0.1HA W153PNH0.1HO W154KHW0.1HA W154PNH0.1HO W155KHW0.1HA W155PNH0.1HO

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Wind Direction in Kao-Hsiung Seas of KHW0 at 2015

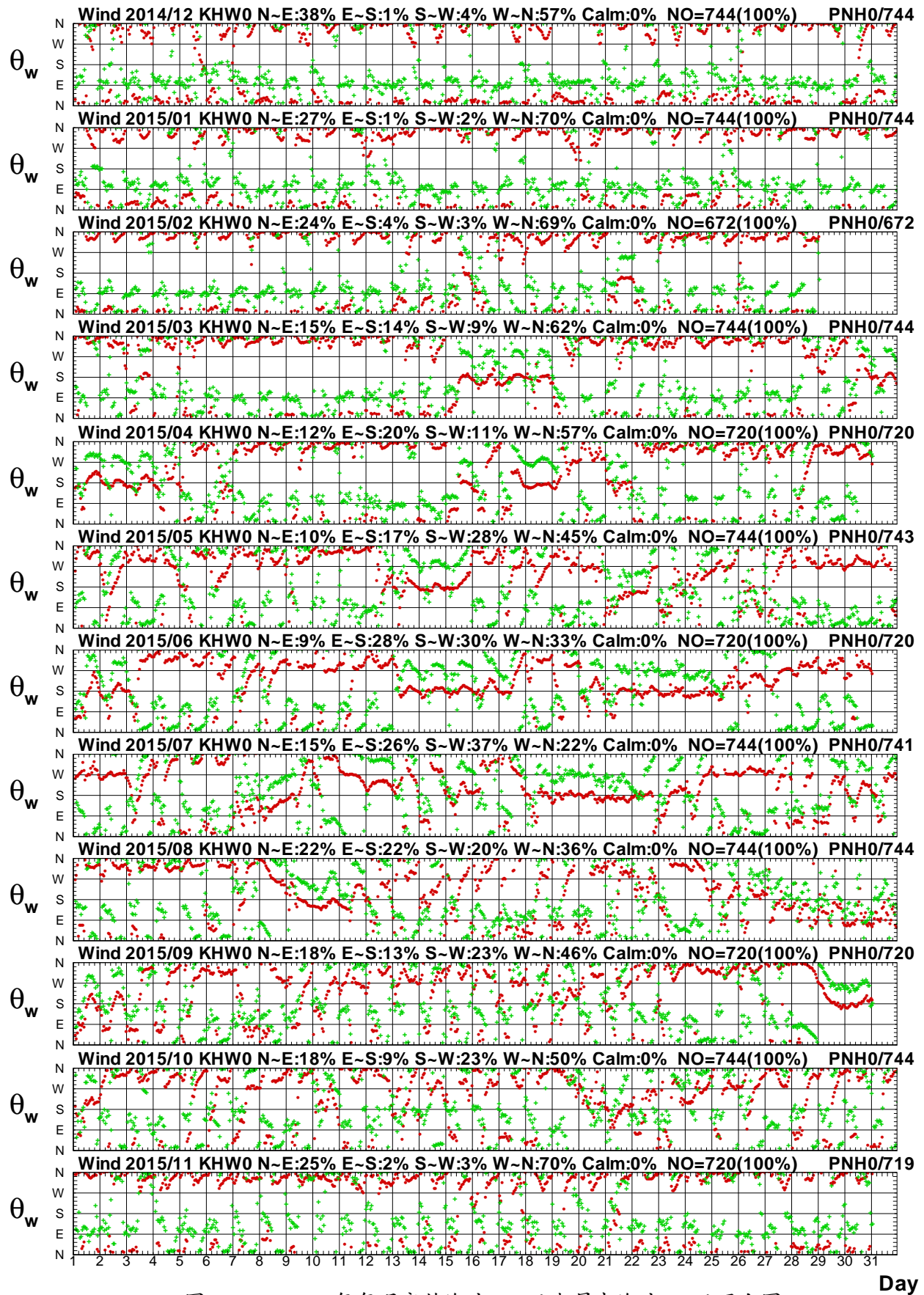


圖 1.12b 2015年每月高雄海域 W 站與屏東海域 H 站風向圖

W14CKHW0.1HA W14CPNH0.1H0 W151KHW0.1HA W151PNH0.1H0 W152KHW0.1HA W152PNH0.1H0
 W153KHW0.1HA W153PNH0.1H0 W154KHW0.1HA W154PNH0.1H0 W155KHW0.1HA W155PNH0.1H0

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Wind Speed in Kao-Hsiung Seas of KHW0 at 2015

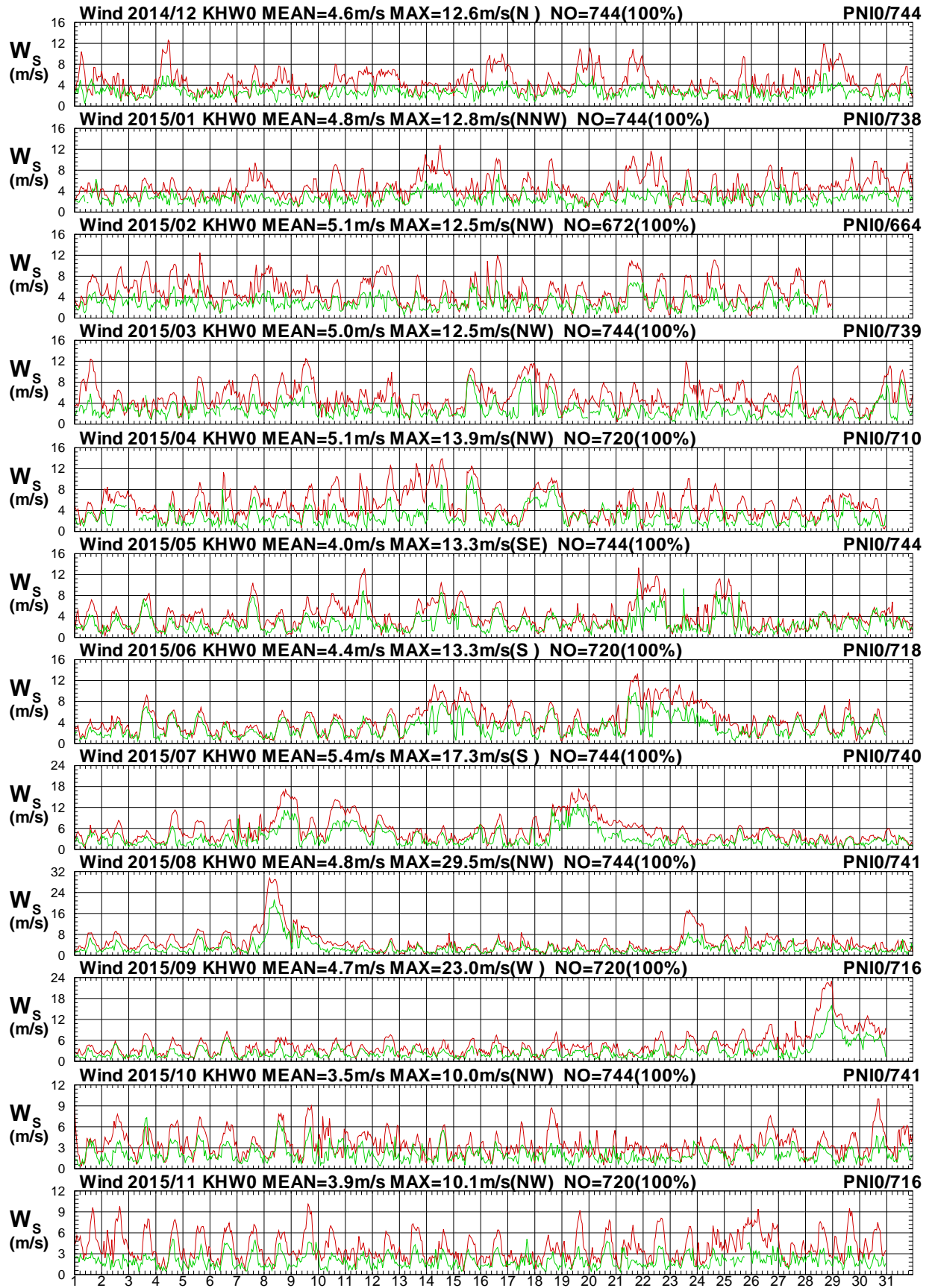


圖 1.13a 2015年每月高雄海域 W 站與屏東海域 I 站風速圖

W14CKHW0.1HA W14CPNI0.1H0 W151KHW0.1HA W151PNI0.1H0 W152KHW0.1HA W152PNI0.1H0
 W153KHW0.1HA W153PNI0.1H0 W154KHW0.1HA W154PNI0.1H0 W155KHW0.1HA W155PNI0.1H0

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Wind Direction in Kao-Hsiung Seas of KHW0 at 2015

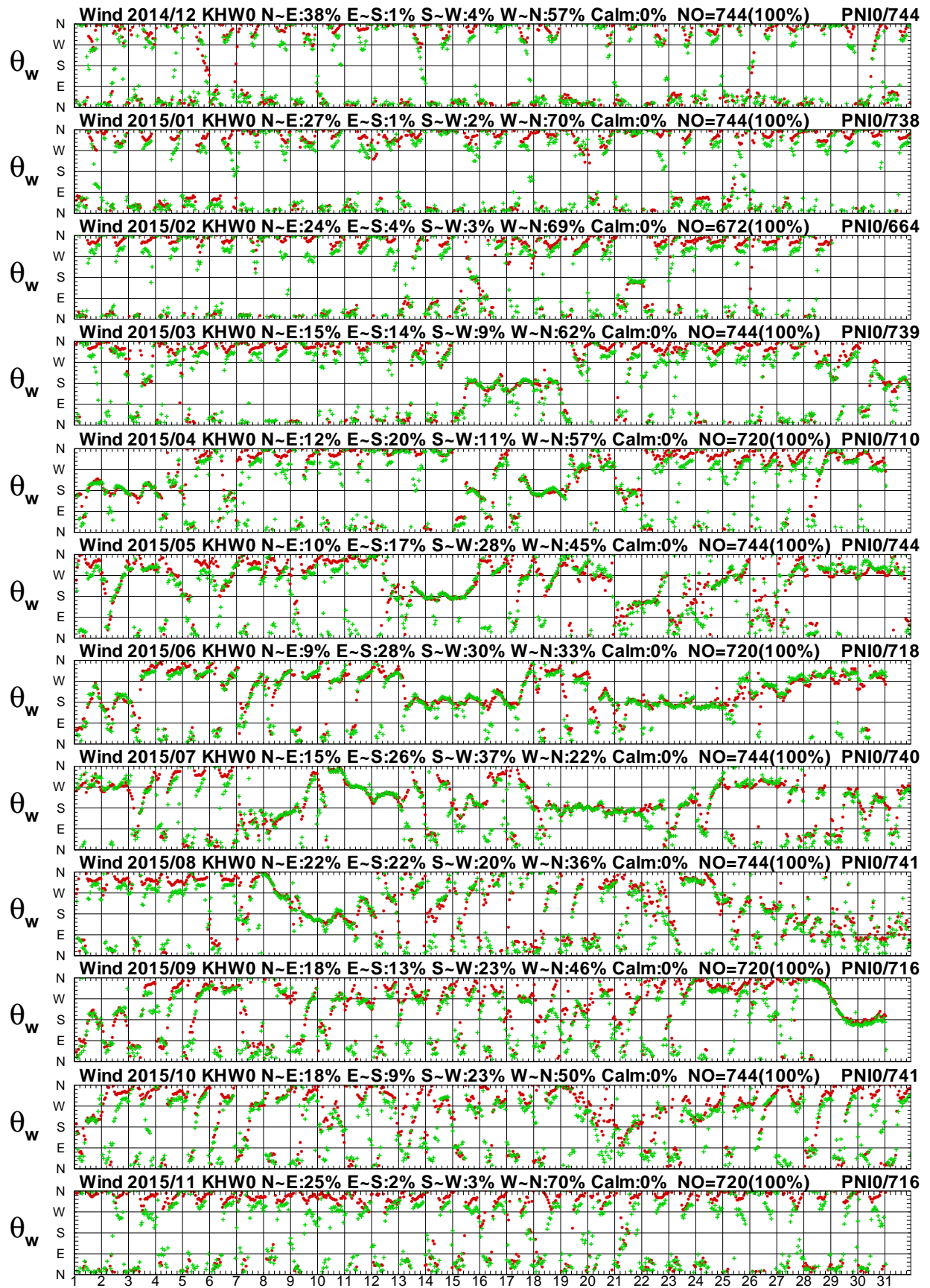


圖 1.13b 2015年每月高雄海域 W 站與屏東海域 I 站風向圖

W14CKHW0.1HA W14CPNI0.1H0 W151KHW0.1HA W151PNI0.1H0 W152KHW0.1HA W152PNI0.1H0
 W153KHW0.1HA W153PNI0.1H0 W154KHW0.1HA W154PNI0.1H0 W155KHW0.1HA W155PNI0.1H0

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Wind Speed in Kao-Hsiung Seas of KHW0 at 2015

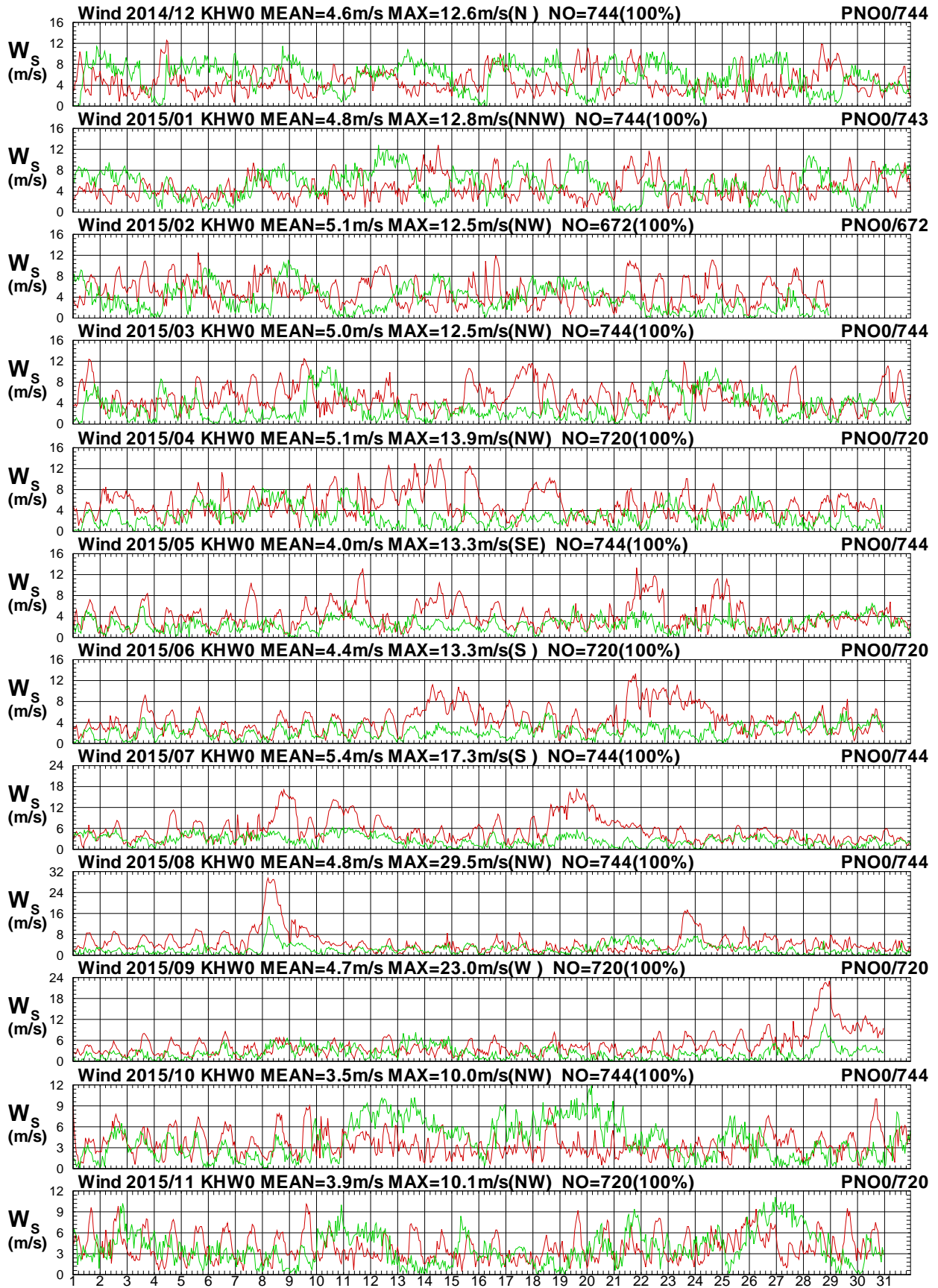


圖 1.14a 2015年每月高雄海域 W 站與屏東海域 O 站風速圖

W14CKHW0.1HA W14CPNO0.1HO W151KHW0.1HA W151PNO0.1HO W152KHW0.1HA W152PNO0.1HO
 W153KHW0.1HA W153PNO0.1HO W154KHW0.1HA W154PNO0.1HO W155KHW0.1HA W155PNO0.1HO

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Wind Direction in Kao-Hsiung Seas of KHW0 at 2015

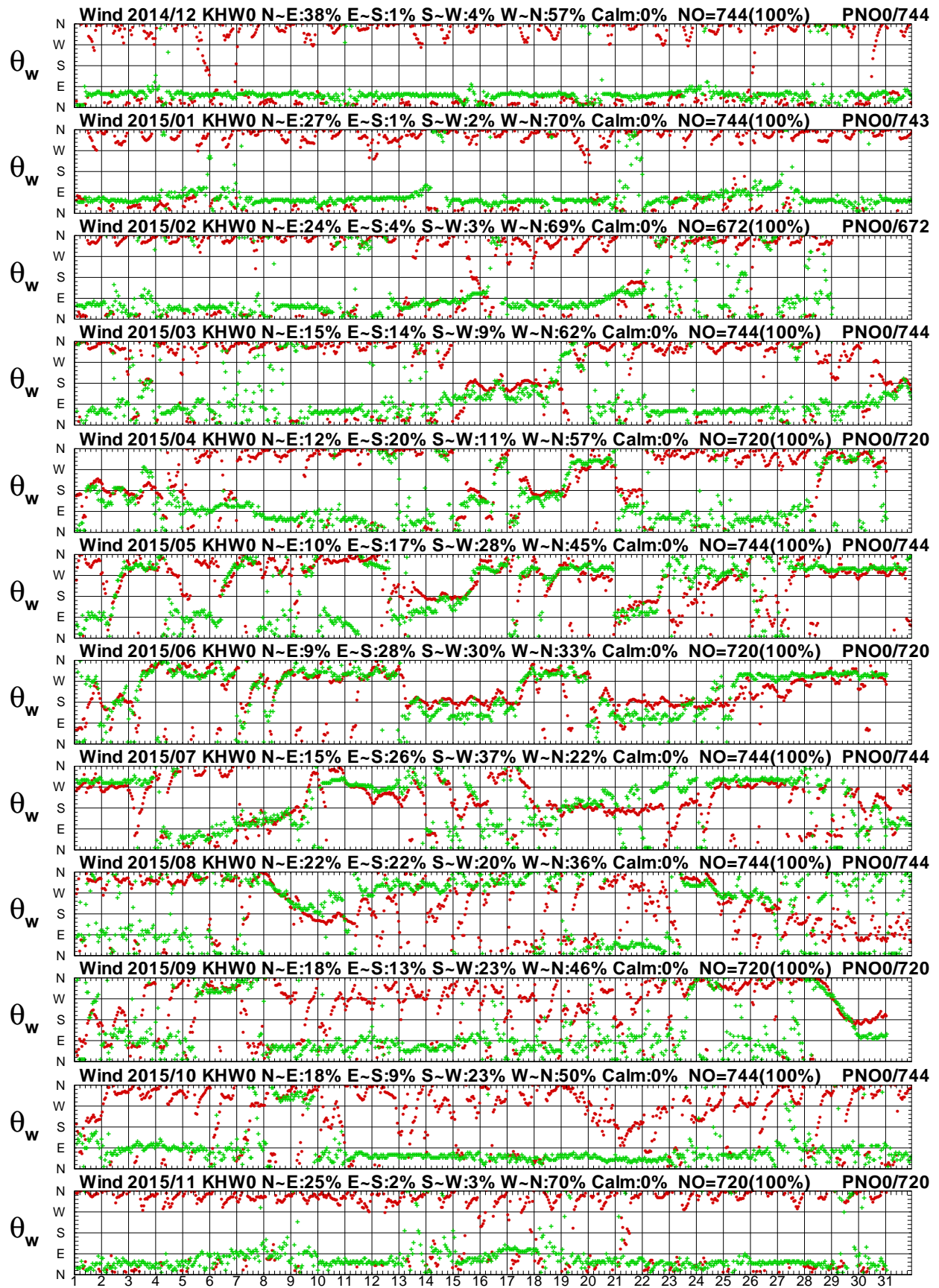


圖 1.14b 2015年每月高雄海域 W 站與屏東海域 O 站風向圖

W14CKHW0.1HA W14CPNO0.1HO W151KHW0.1HA W151PNO0.1HO W152KHW0.1HA W152PNO0.1HO
 W153KHW0.1HA W153PNO0.1HO W154KHW0.1HA W154PNO0.1HO W155KHW0.1HA W155PNO0.1HO

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Wind Speed in Kao-Hsiung Seas of KHW0 at 2015

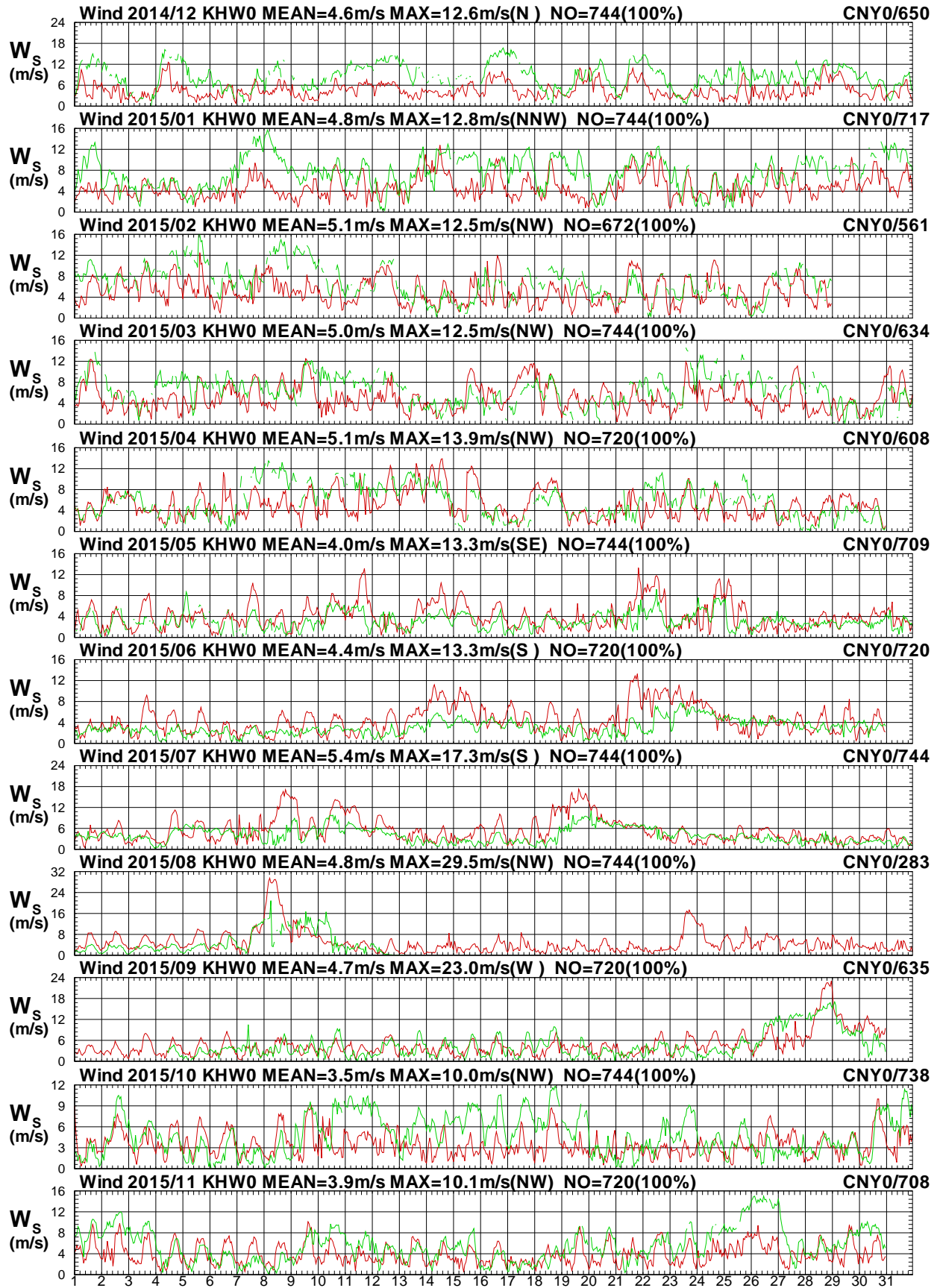


圖 1.15a 2015年每月高雄海域 W 站與嘉南海域 Y 站風速圖

W14CKHW0.1HA W14CCNY0.1H0 W151KHW0.1HA W151CNY0.1H0 W152KHW0.1HA W152CNY0.1H0
 W153KHW0.1HA W153CNY0.1H0 W154KHW0.1HA W154CNY0.1H0 W155KHW0.1HA W155CNY0.1H0

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Wind Direction in Kao-Hsiung Seas of KHW0 at 2015

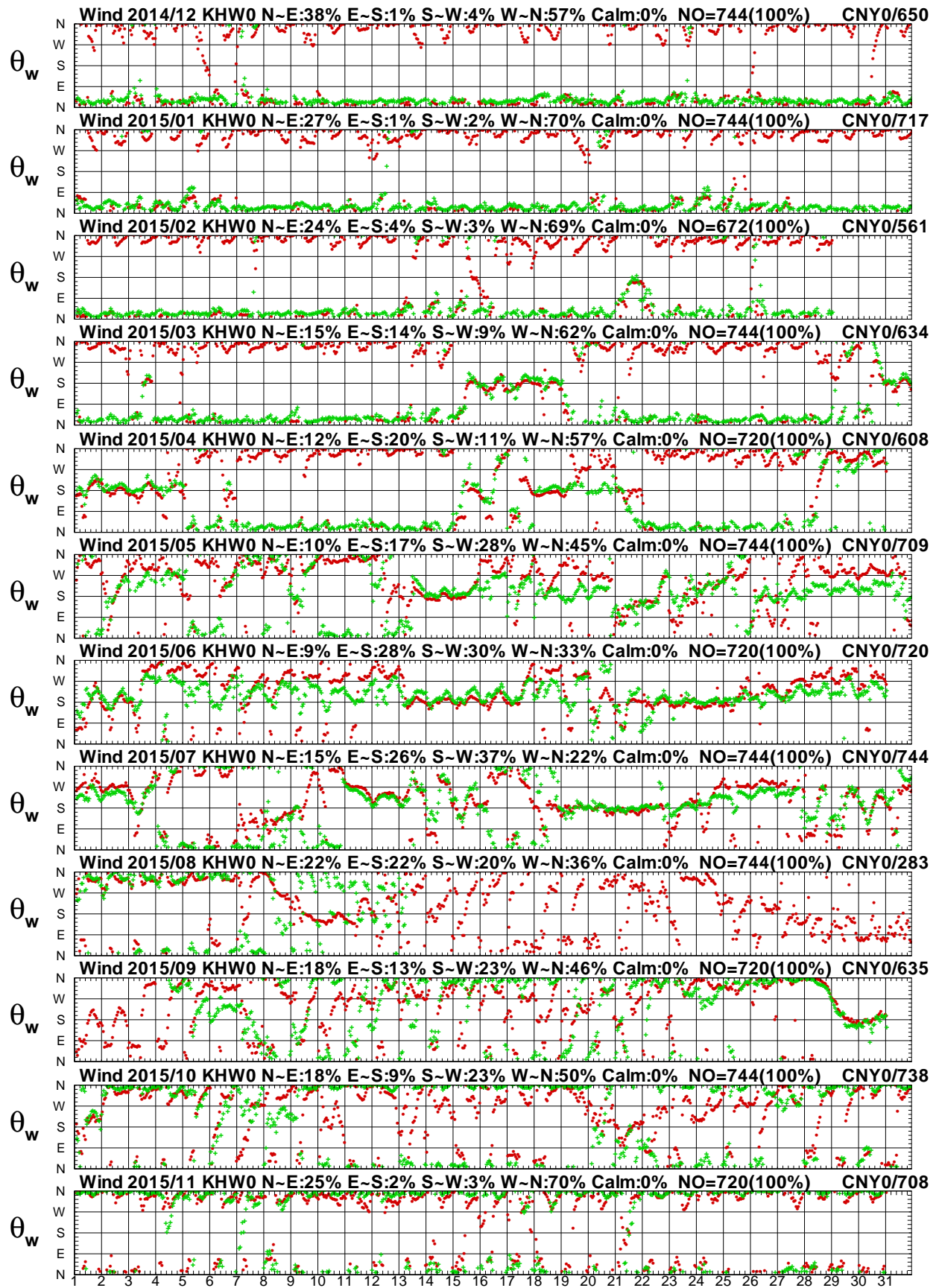


圖 1.15b 2015年每月高雄海域 W 站與嘉南海域 Y 站風向圖

W14CKHW0.1HA W14CCNY0.1H0 W151KHW0.1HA W151CNY0.1H0 W152KHW0.1HA W152CNY0.1H0
 W153KHW0.1HA W153CNY0.1H0 W154KHW0.1HA W154CNY0.1H0 W155KHW0.1HA W155CNY0.1H0

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Wind Speed in Kao-Hsiung Seas of KHW0 at 2015

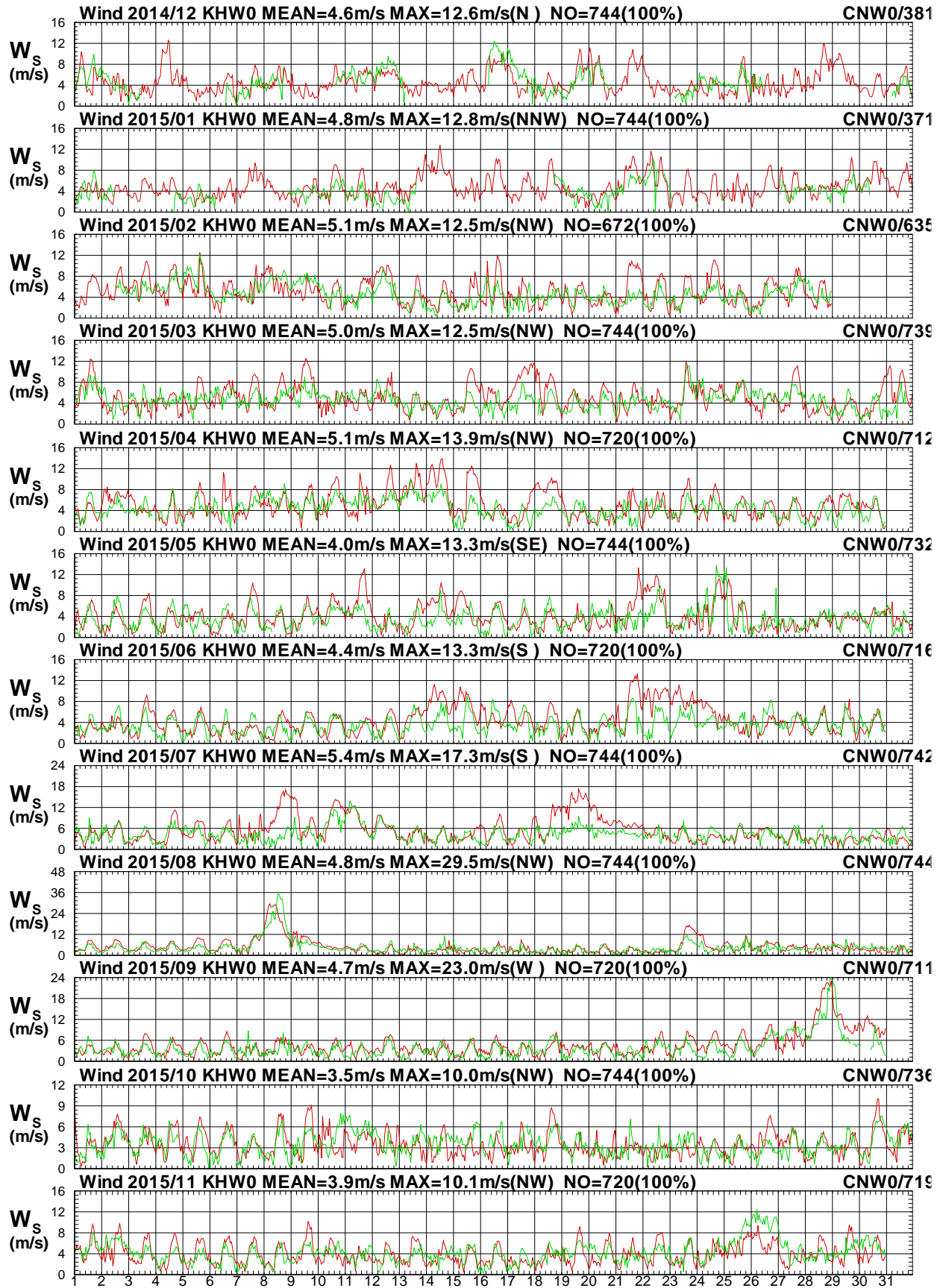


圖 1.16a 2015年每月高雄海域 W 站與嘉南海域 W 站風速圖

W14CKHW0.1HA W14CCNW0.1H0 W151KHW0.1HA W151CNW0.1H0 W152KHW0.1HA W152CNW0.1H0
 W153KHW0.1HA W153CNW0.1H0 W154KHW0.1HA W154CNW0.1H0 W155KHW0.1HA W155CNW0.1H0

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Wind Direction in Kao-Hsiung Seas of KHW0 at 2015

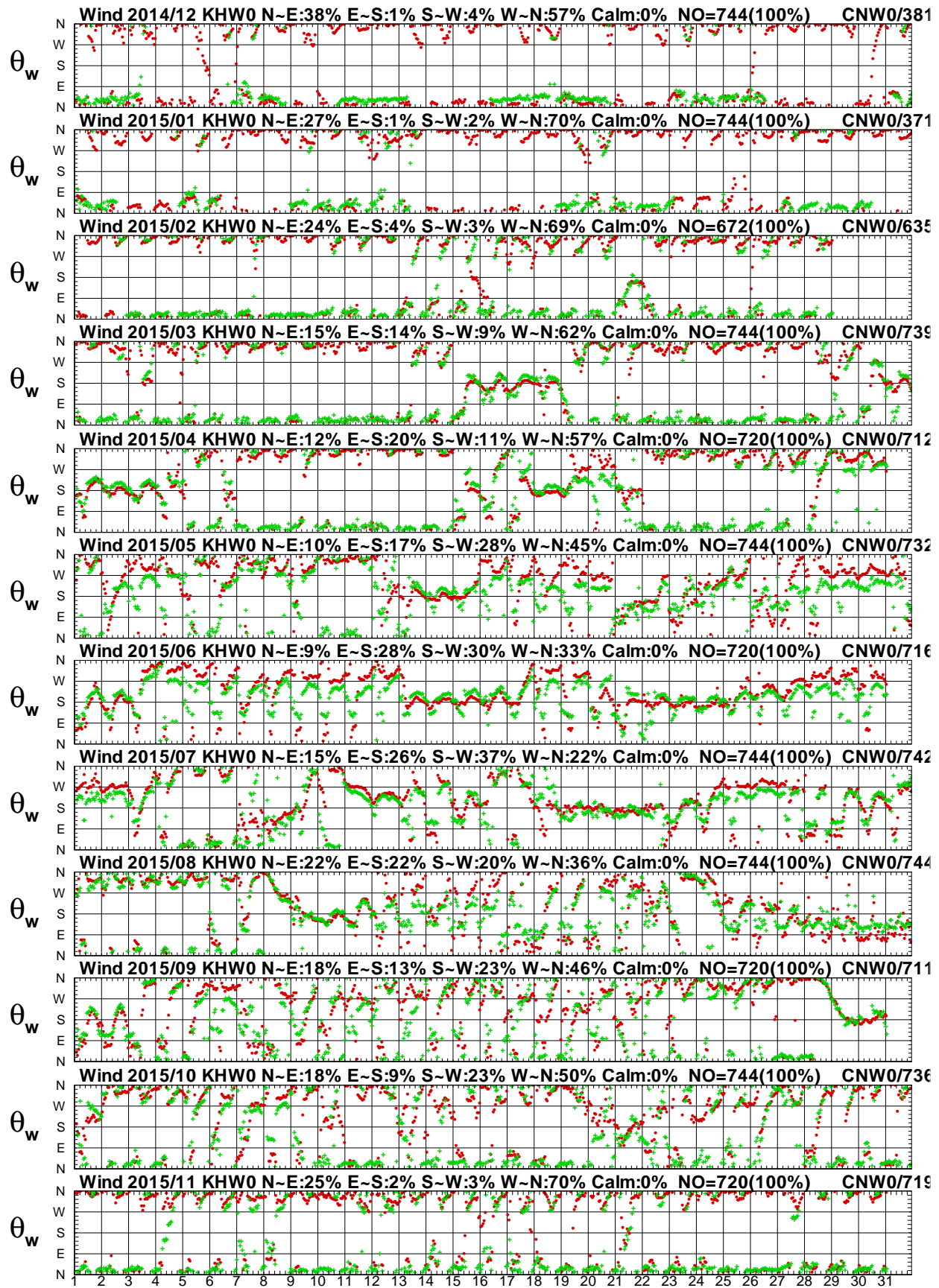


圖 1.16b 2015年每月高雄海域 W 站與嘉南海域 W 站風向圖

W14CKHW0.1HA W14CCNW0.1H0 W151KHW0.1HA W151CNW0.1H0 W152KHW0.1HA W152CNW0.1H0
 W153KHW0.1HA W153CNW0.1H0 W154KHW0.1HA W154CNW0.1H0 W155KHW0.1HA W155CNW0.1H0
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Wind Speed in Kao-Hsiung Seas of KHW0 at 2015

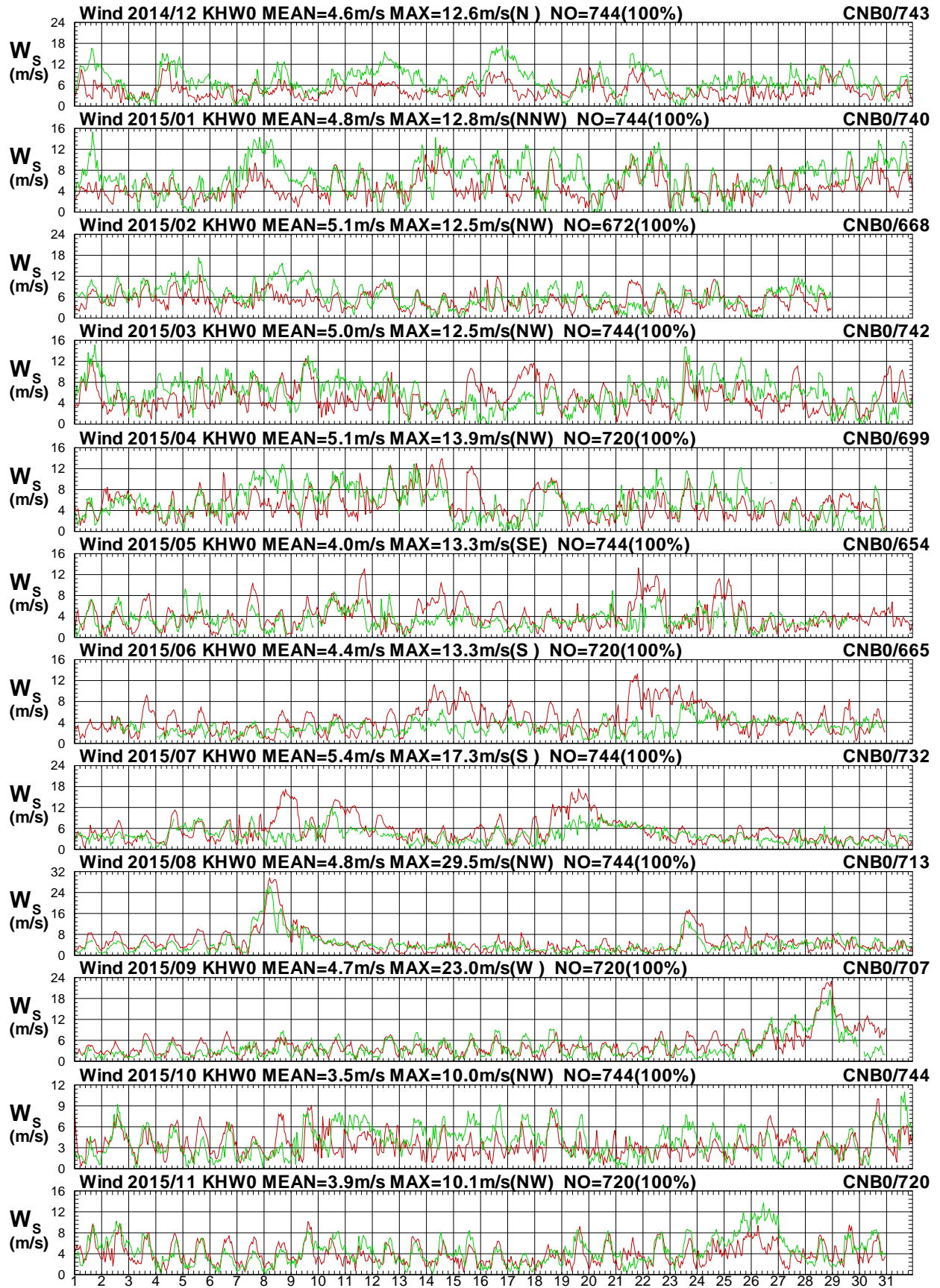


圖 1.17a 2015年每月高雄海域 W 站與嘉南海域 B 站風速圖

W14CKHW0.1HA W14CCNB0.1HO W151KHW0.1HA W151CNB0.1HO W152KHW0.1HA W152CNB0.1HO
 W153KHW0.1HA W153CNB0.1HO W154KHW0.1HA W154CNB0.1HO W155KHW0.1HA W155CNB0.1HO

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Wind Direction in Kao-Hsiung Seas of KHW0 at 2015

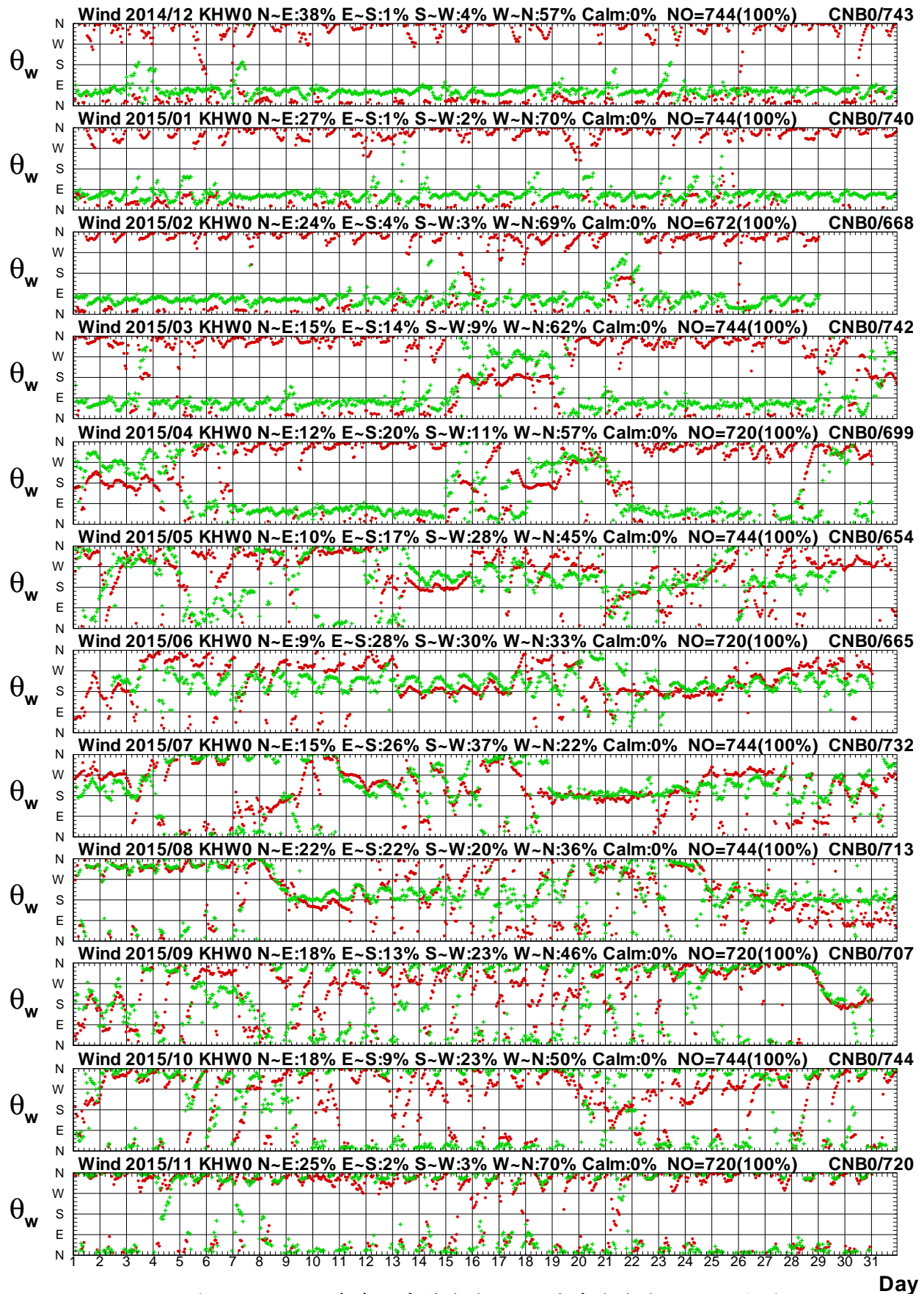


圖 1.17b 2015年每月高雄海域 W 站與嘉南海域 B 站風向圖

W14CKHW0.1HA W14CCNB0.1H0 W151KHW0.1HA W151CNB0.1H0 W152KHW0.1HA W152CNB0.1H0
 W153KHW0.1HA W153CNB0.1H0 W154KHW0.1HA W154CNB0.1H0 W155KHW0.1HA W155CNB0.1H0

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Wind Speed in Kao-Hsiung Seas of KHW0 at 2015

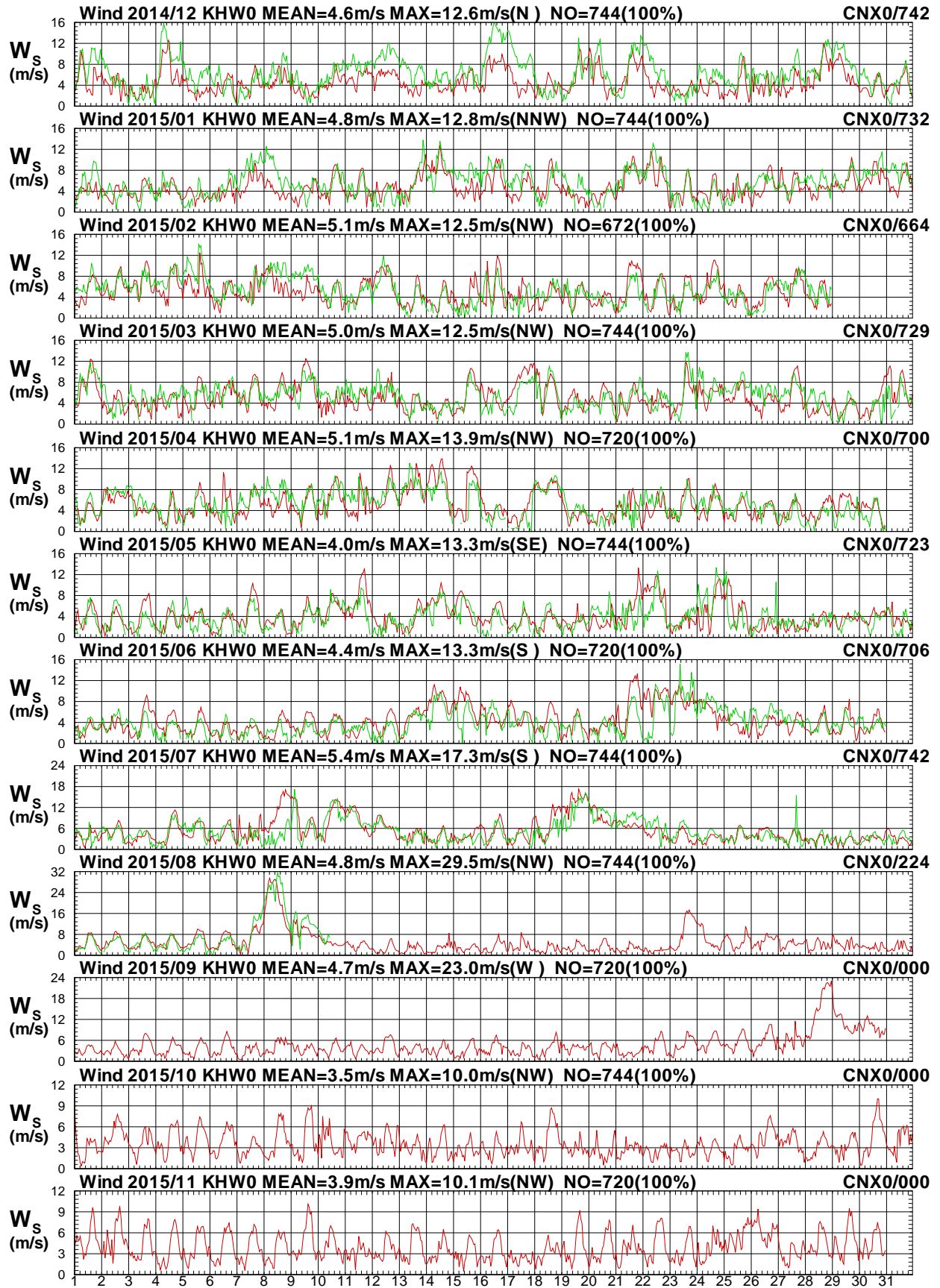


圖 1.18a 2015年每月高雄海域 W 站與嘉南海域 X 站風速圖

W14CKHW0.1HA W14CCNX0.1HO W151KHW0.1HA W151CNX0.1HO W152KHW0.1HA W152CNX0.1HO
 W153KHW0.1HA W153CNX0.1HO W154KHW0.1HA W154CNX0.1HO W155KHW0.1HA W155CNX0.1HO

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Wind Direction in Kao-Hsiung Seas of KHW0 at 2015

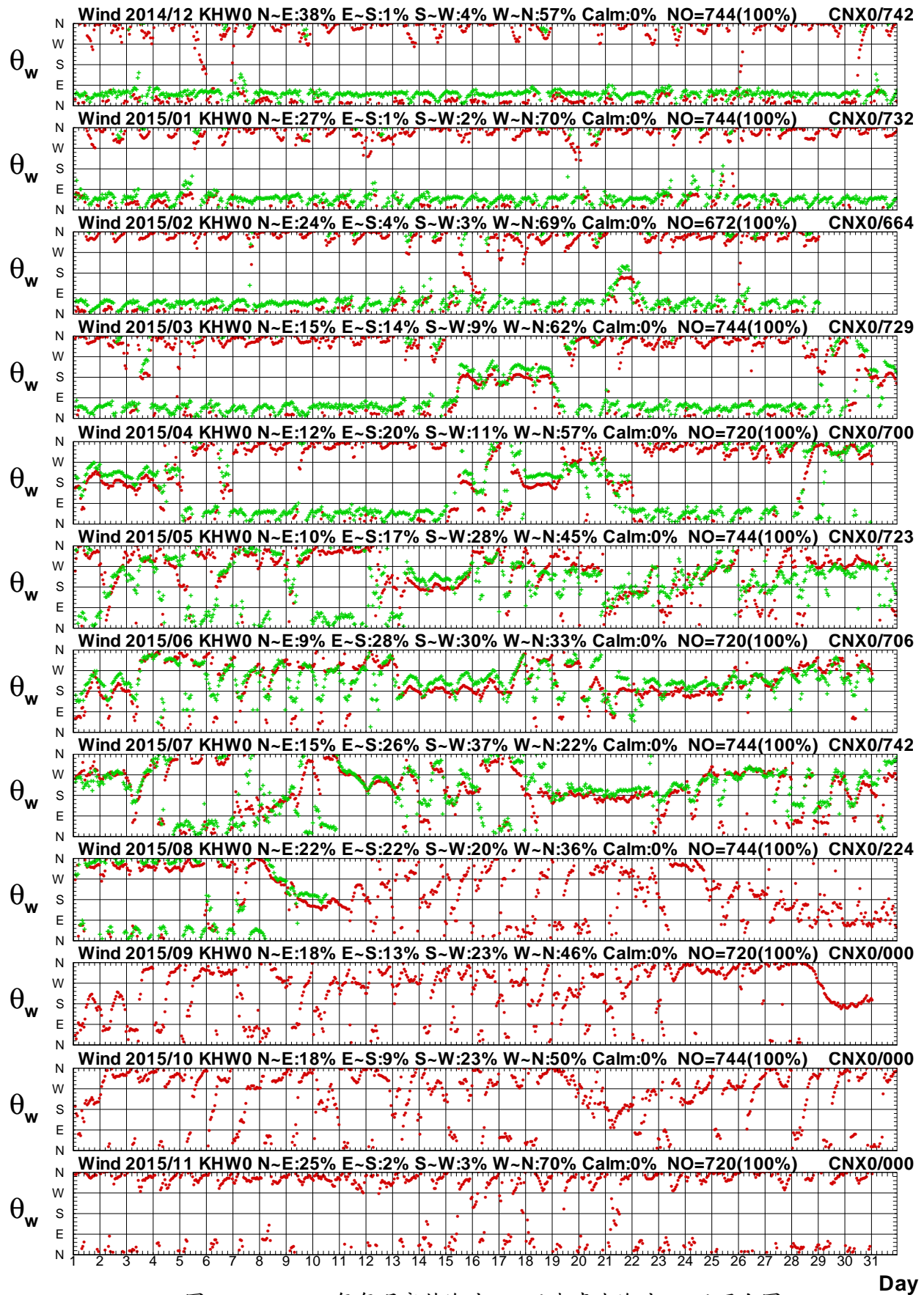


圖 1.18b 2015年每月高雄海域 W 站與嘉南海域 X 站風向圖

W14CKHW0.1HA W14CCNX0.1H0 W151KHW0.1HA W151CNX0.1H0 W152KHW0.1HA W152CNX0.1H0
 W153KHW0.1HA W153CNX0.1H0 W154KHW0.1HA W154CNX0.1H0 W155KHW0.1HA W155CNX0.1H0

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Wind Speed in Kao-Hsiung Seas of KHW0 at 2015

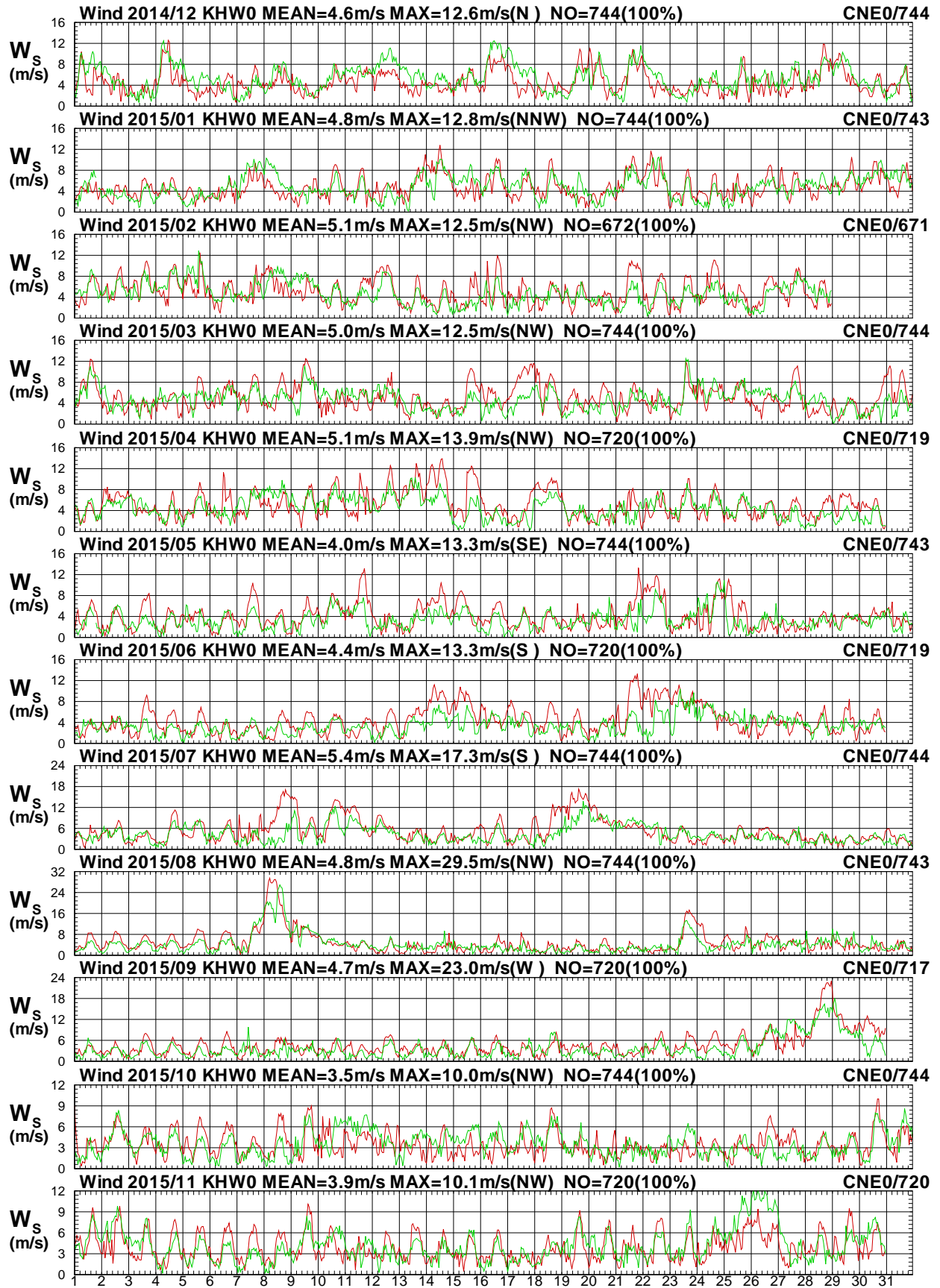


圖 1.19a 2015年每月高雄海域 W 站與嘉南海域 E 站風速圖

W14CKHW0.1HA W14CCNE0.1H0 W151KHW0.1HA W151CNE0.1H0 W152KHW0.1HA W152CNE0.1H0
 W153KHW0.1HA W153CNE0.1H0 W154KHW0.1HA W154CNE0.1H0 W155KHW0.1HA W155CNE0.1H0

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Wind Direction in Kao-Hsiung Seas of KHW0 at 2015

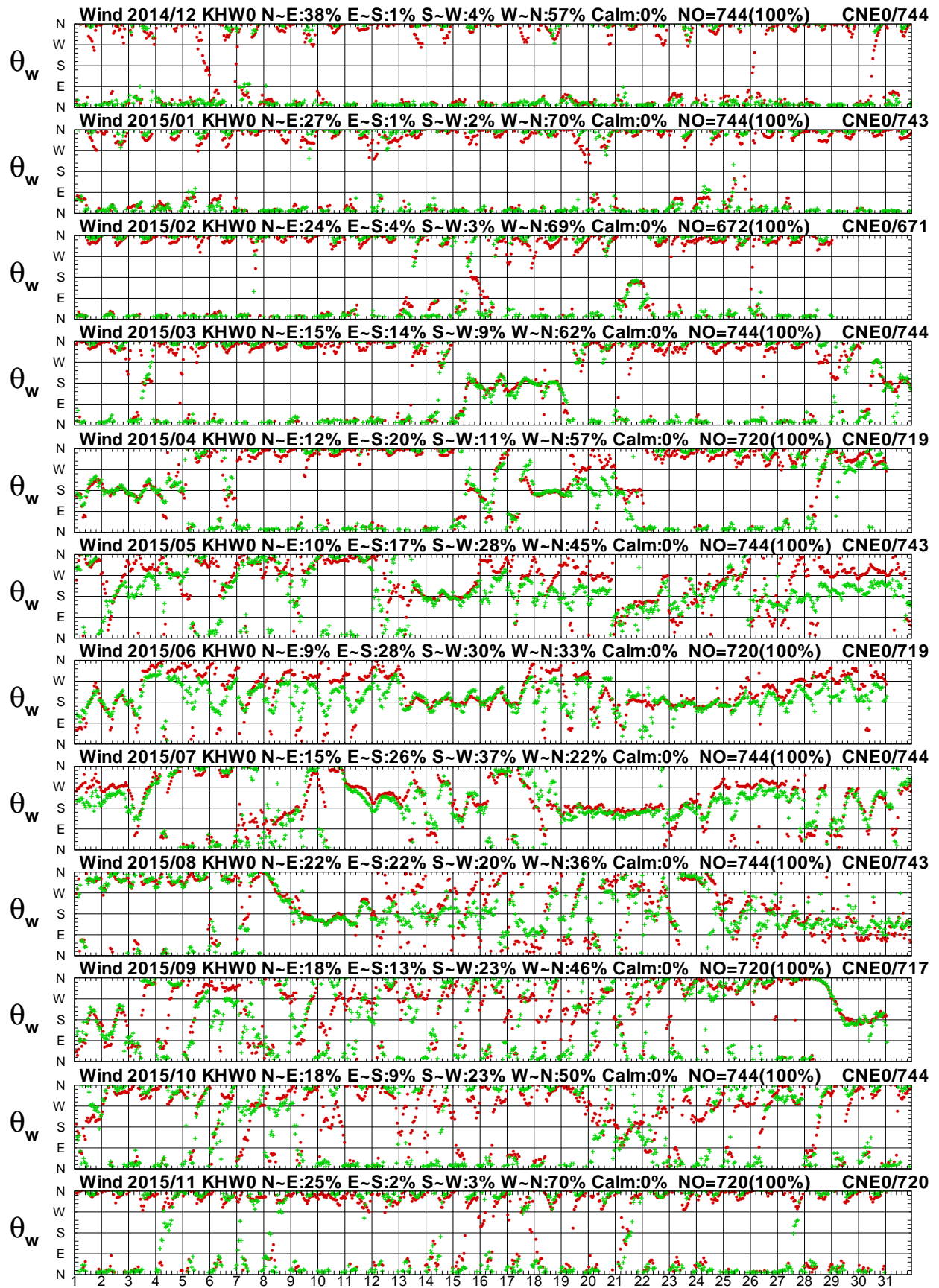


圖 1.19b 2015年每月高雄海域 W 站與嘉南海域 E 站風向圖

W14CKHW0.1HA W14CCNE0.1H0 W151KHW0.1HA W151CNE0.1H0 W152KHW0.1HA W152CNE0.1H0
 W153KHW0.1HA W153CNE0.1H0 W154KHW0.1HA W154CNE0.1H0 W155KHW0.1HA W155CNE0.1H0

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Wind Speed in Kao-Hsiung Seas of KHW0 at 2015

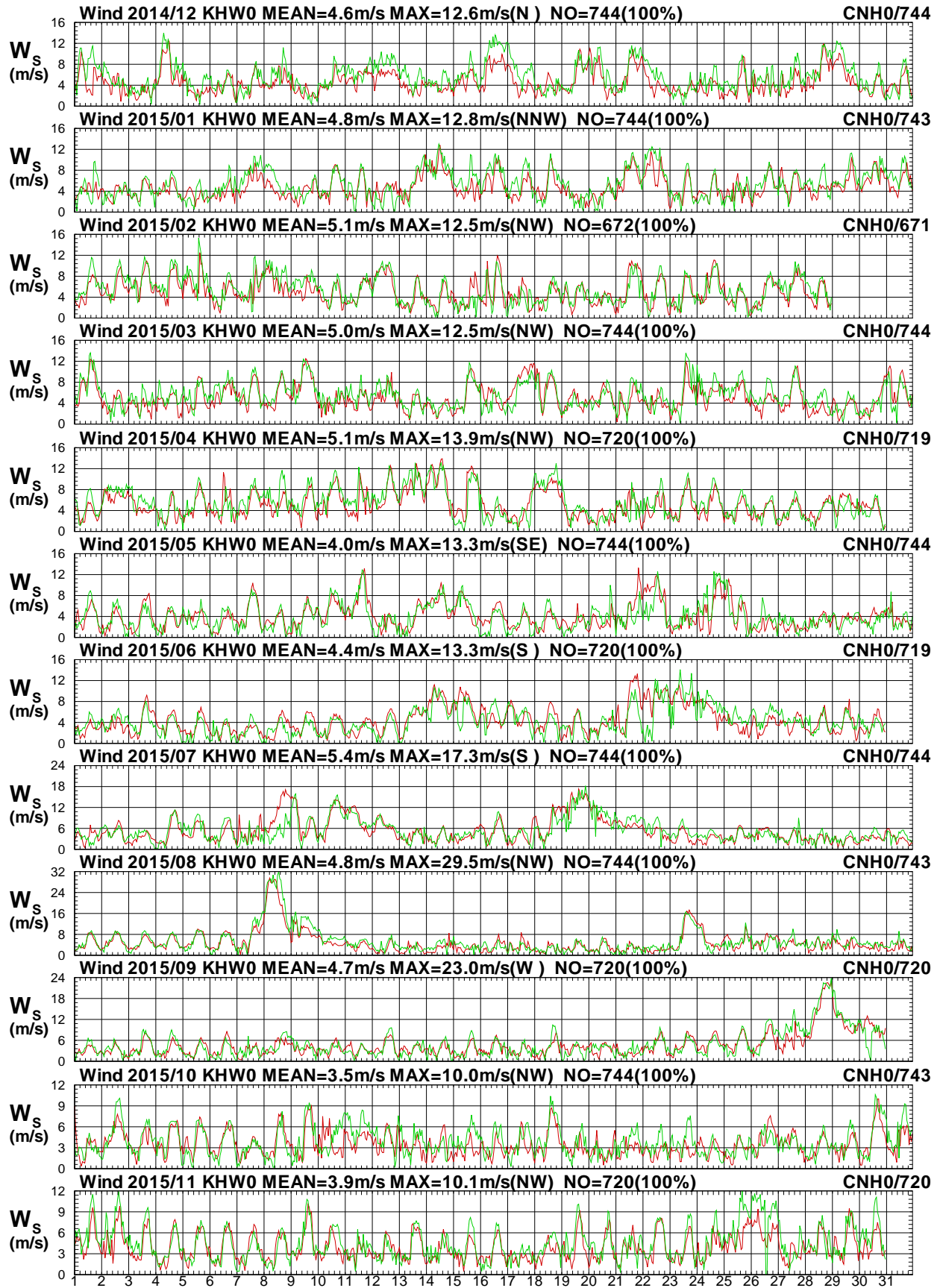


圖 1.20a 2015年每月高雄海域 W 站與嘉南海域 H 站風速圖

W14CKHW0.1HA W14CCNH0.1H0 W151KHW0.1HA W151CNH0.1H0 W152KHW0.1HA W152CNH0.1H0
 W153KHW0.1HA W153CNH0.1H0 W154KHW0.1HA W154CNH0.1H0 W155KHW0.1HA W155CNH0.1H0

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Wind Direction in Kao-Hsiung Seas of KHW0 at 2015

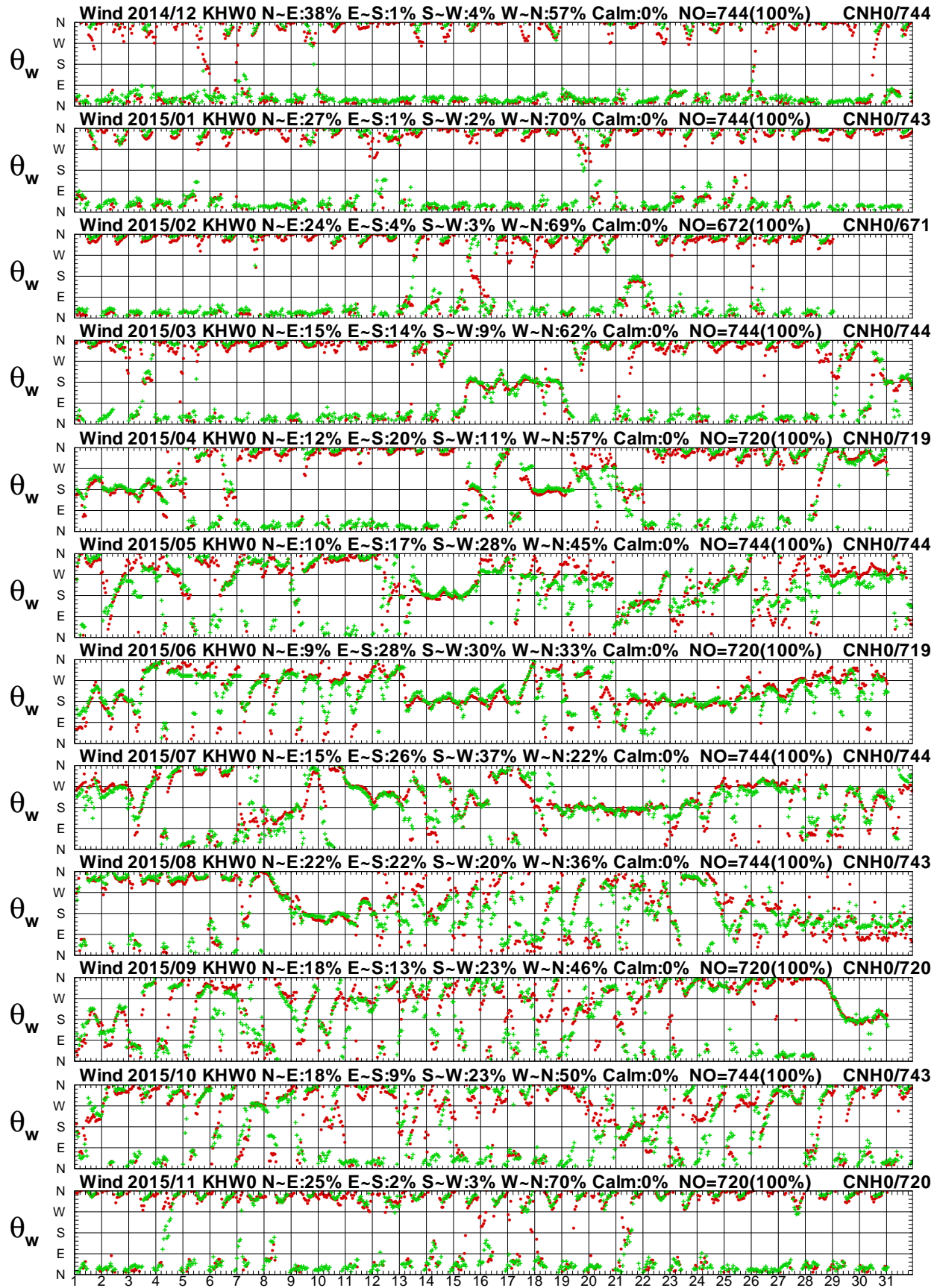


圖 1.20b 2015年每月高雄海域 W 站與嘉南海域 H 站風向圖

W14CKHW0.1HA W14CCNH0.1H0 W151KHW0.1HA W151CNH0.1H0 W152KHW0.1HA W152CNH0.1H0
 W153KHW0.1HA W153CNH0.1H0 W154KHW0.1HA W154CNH0.1H0 W155KHW0.1HA W155CNH0.1H0

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Wind Speed in Kao-Hsiung Seas of KHW0 at 2015

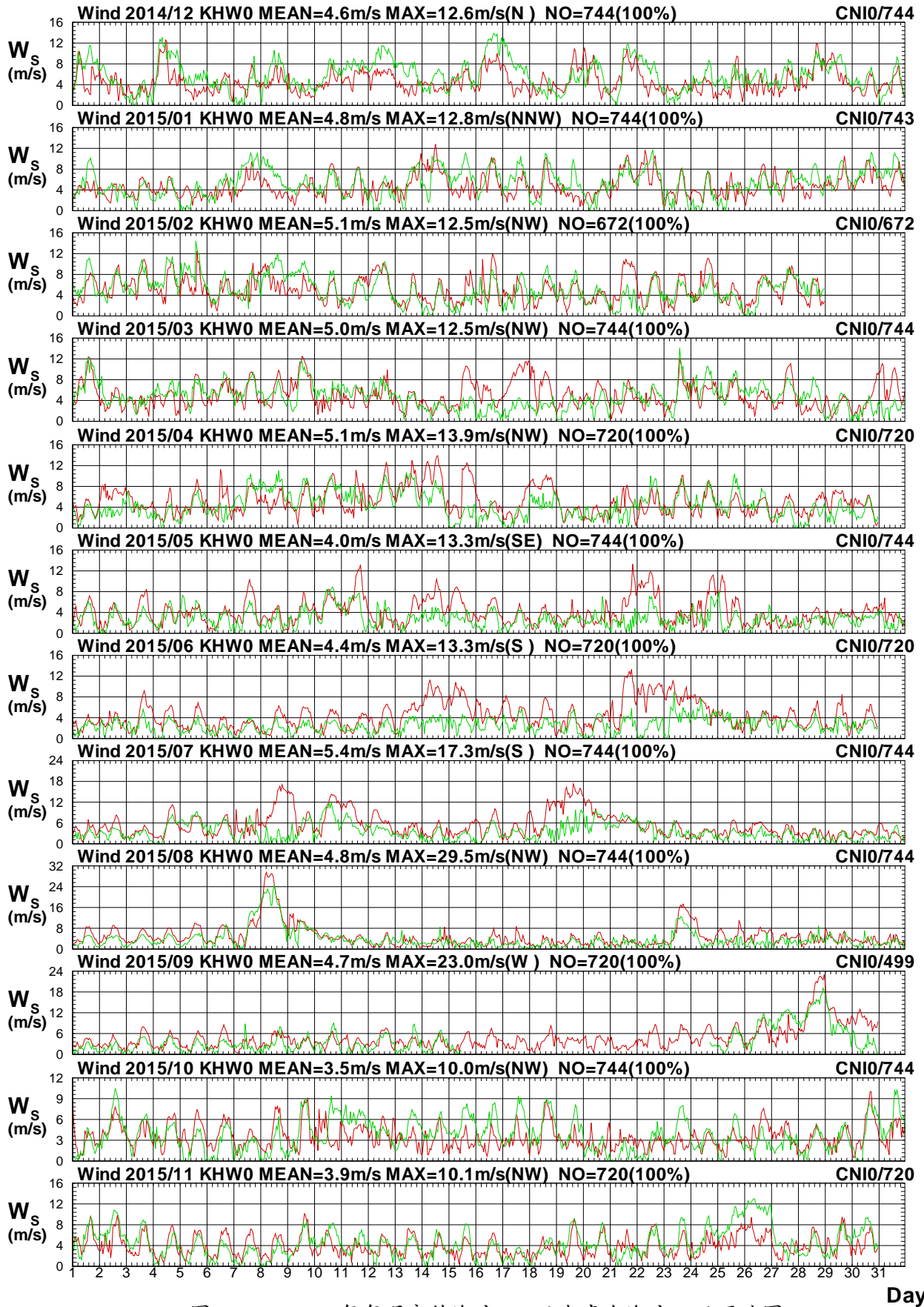


圖 1.21a 2015 年每月高雄海域 W 站與嘉南海域 I 站風速圖

W14CKHW0.1HA W14CCNI0.1H0 W151KHW0.1HA W151CNI0.1H0 W152KHW0.1HA W152CNI0.1H0
 W153KHW0.1HA W153CNI0.1H0 W154KHW0.1HA W154CNI0.1H0 W155KHW0.1HA W155CNI0.1H0

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Wind Direction in Kao-Hsiung Seas of KHW0 at 2015

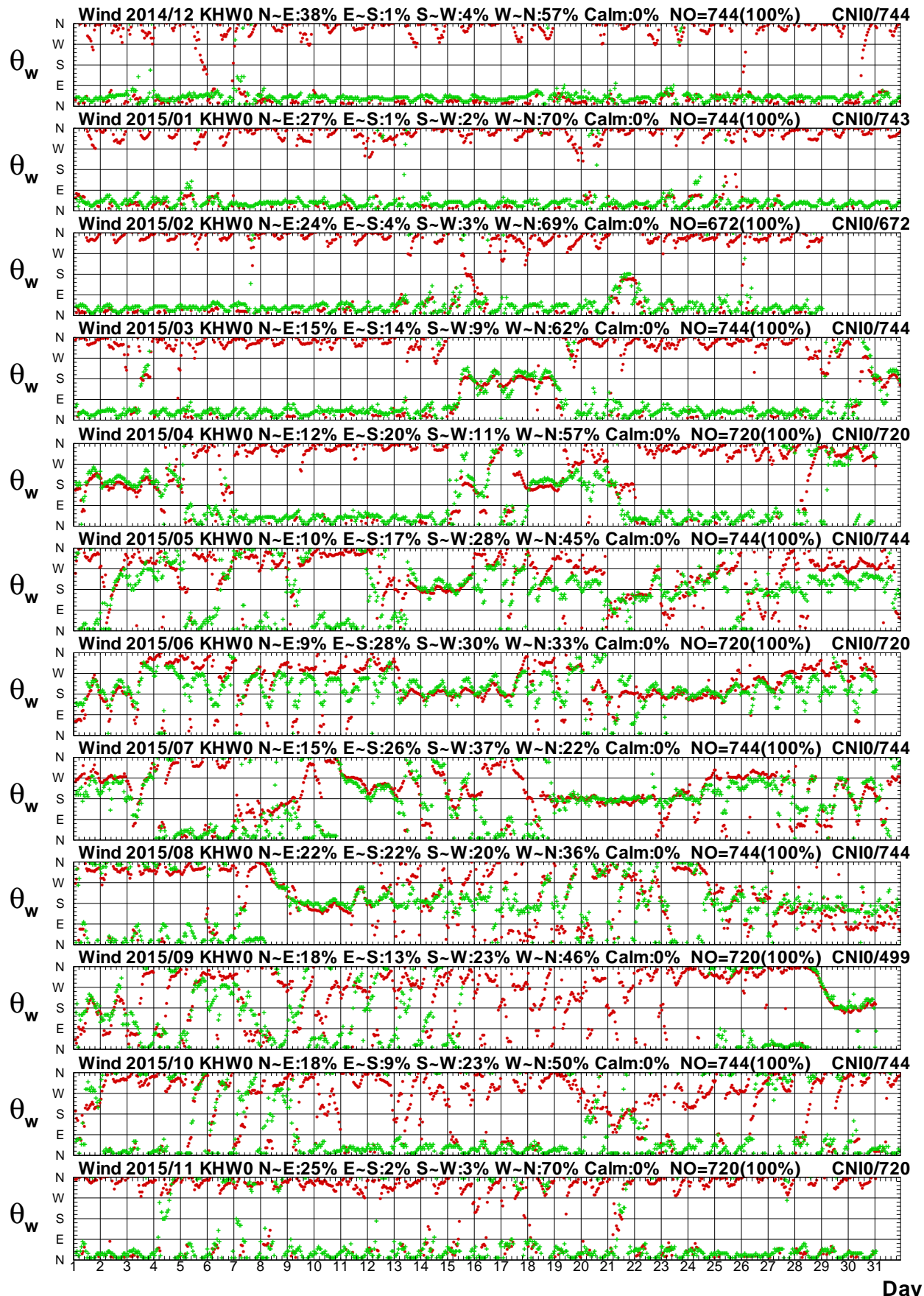


圖 1.21b 2015年每月高雄海域 W 站與嘉南海域 I 站風向圖

W14CKHW0.1HA W14CCNI0.1H0 W151KHW0.1HA W151CNI0.1H0 W152KHW0.1HA W152CNI0.1H0
 W153KHW0.1HA W153CNI0.1H0 W154KHW0.1HA W154CNI0.1H0 W155KHW0.1HA W155CNI0.1H0

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Wind Speed in Kao-Hsiung Seas of KHW0 at 2015

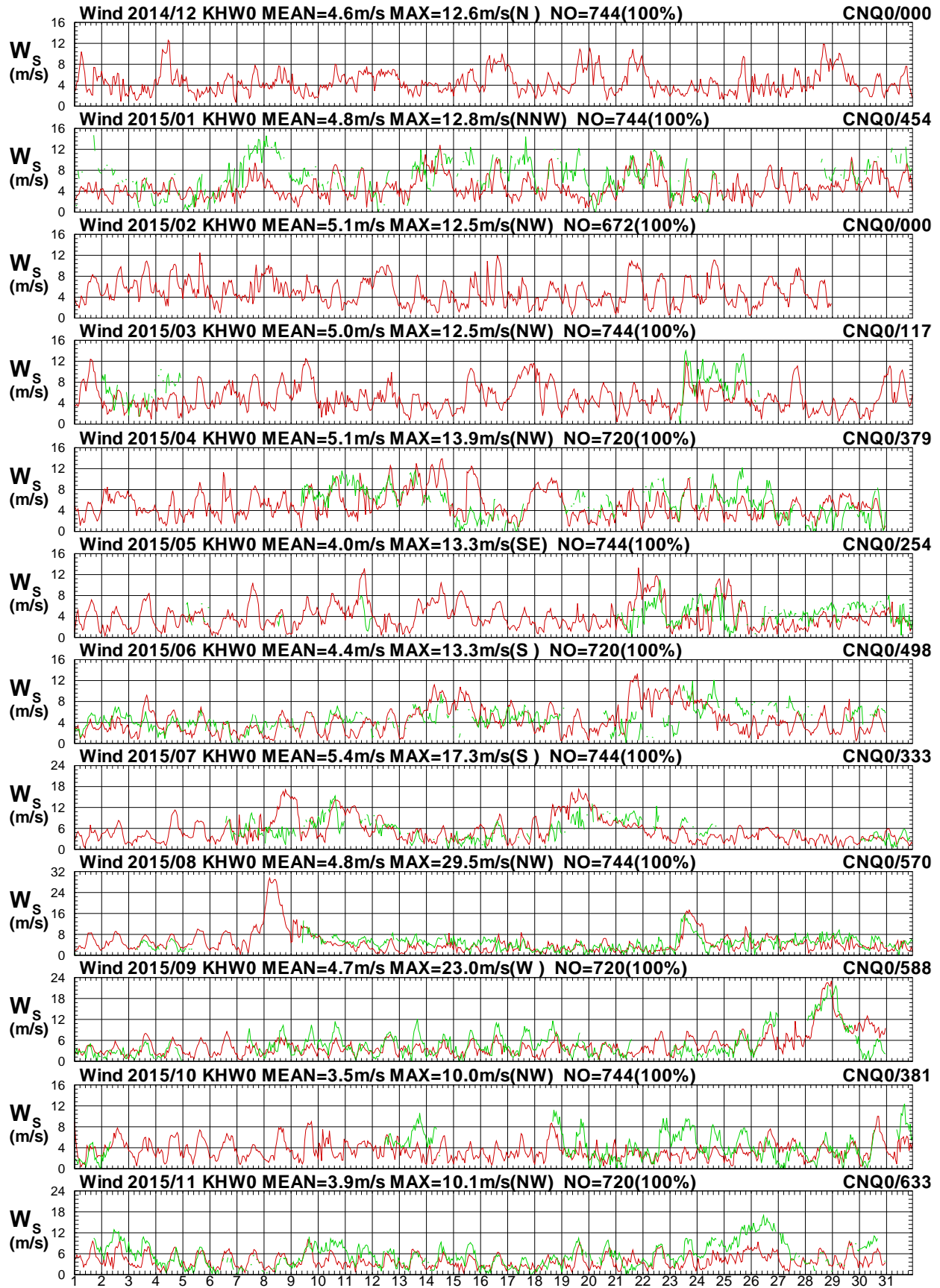


圖 1.22a 2015年每月高雄海域 W 站與嘉南海域 Q 站風速圖

W14CKHW0.1HA W14CCNQ0.1H0 W151KHW0.1HA W151CNQ0.1H0 W152KHW0.1HA W152CNQ0.1H0
 W153KHW0.1HA W153CNQ0.1H0 W154KHW0.1HA W154CNQ0.1H0 W155KHW0.1HA W155CNQ0.1H0

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Wind Direction in Kao-Hsiung Seas of KHW0 at 2015

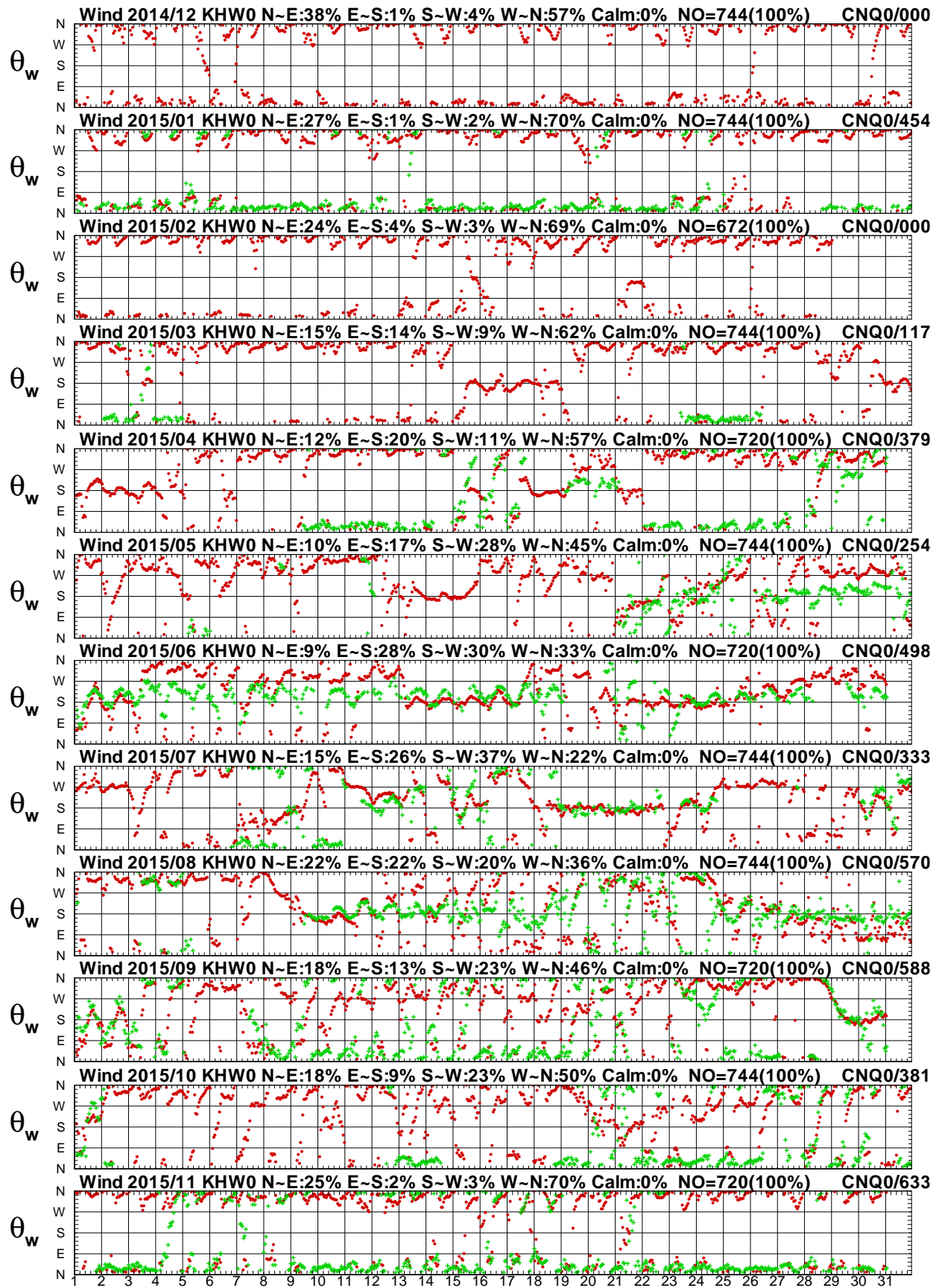


圖 1.22b 2015年每月高雄海域 W 站與嘉南海域 Q 站風向圖

W14CKHW0.1HA W14CCNQ0.1H0 W151KHW0.1HA W151CNQ0.1H0 W152KHW0.1HA W152CNQ0.1H0
 W153KHW0.1HA W153CNQ0.1H0 W154KHW0.1HA W154CNQ0.1H0 W155KHW0.1HA W155CNQ0.1H0

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Wind Speed in Kao-Hsiung Seas of KHW0 at 2015

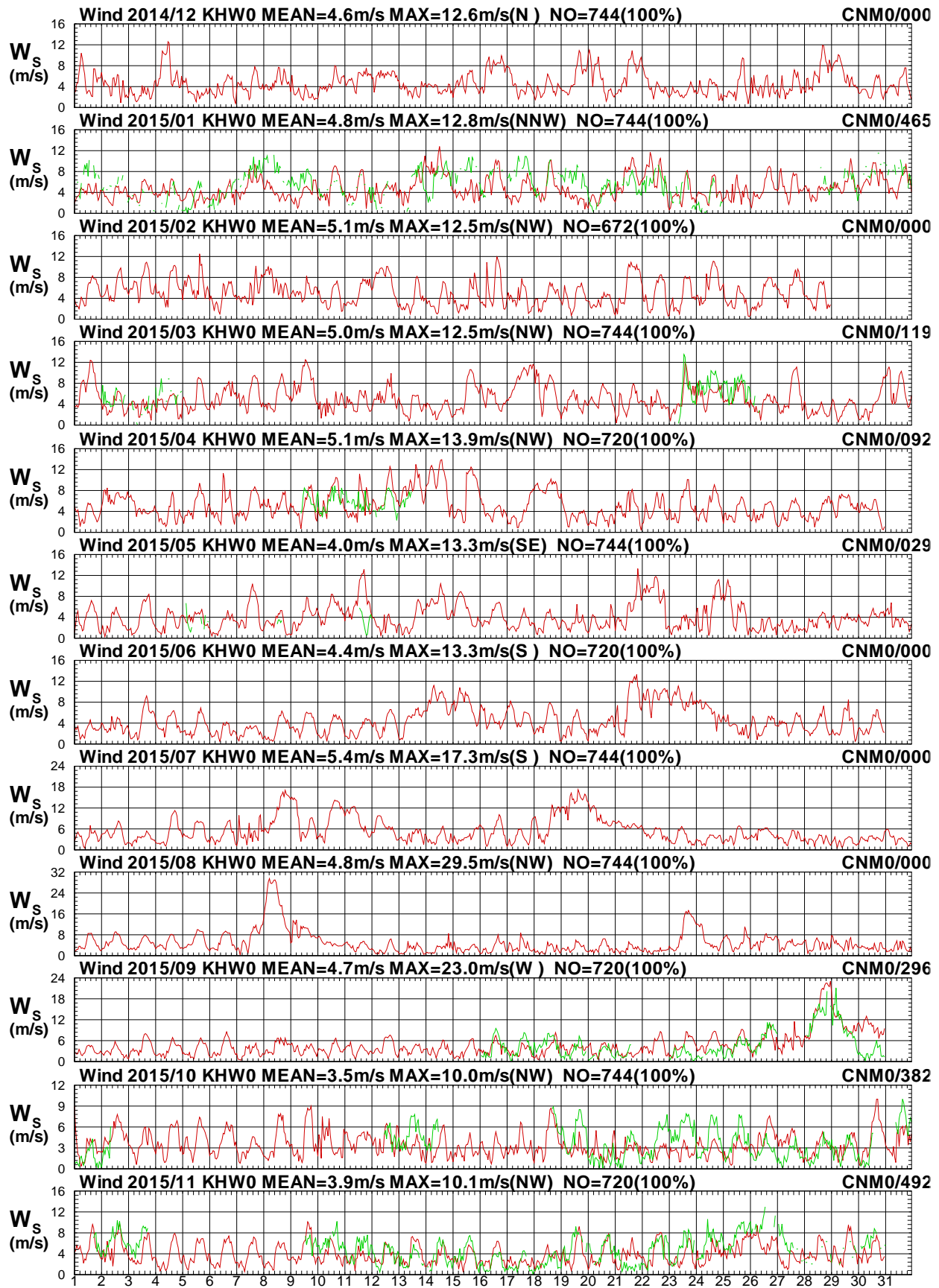


圖 1.23a 2015年每月高雄海域 W 站與嘉南海域 M 站風速圖

W14CKHW0.1HA W14CCNM0.1H0 W151KHW0.1HA W151CNM0.1H0 W152KHW0.1HA W152CNM0.1H0
 W153KHW0.1HA W153CNM0.1H0 W154KHW0.1HA W154CNM0.1H0 W155KHW0.1HA W155CNM0.1H0

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Wind Direction in Kao-Hsiung Seas of KHW0 at 2015

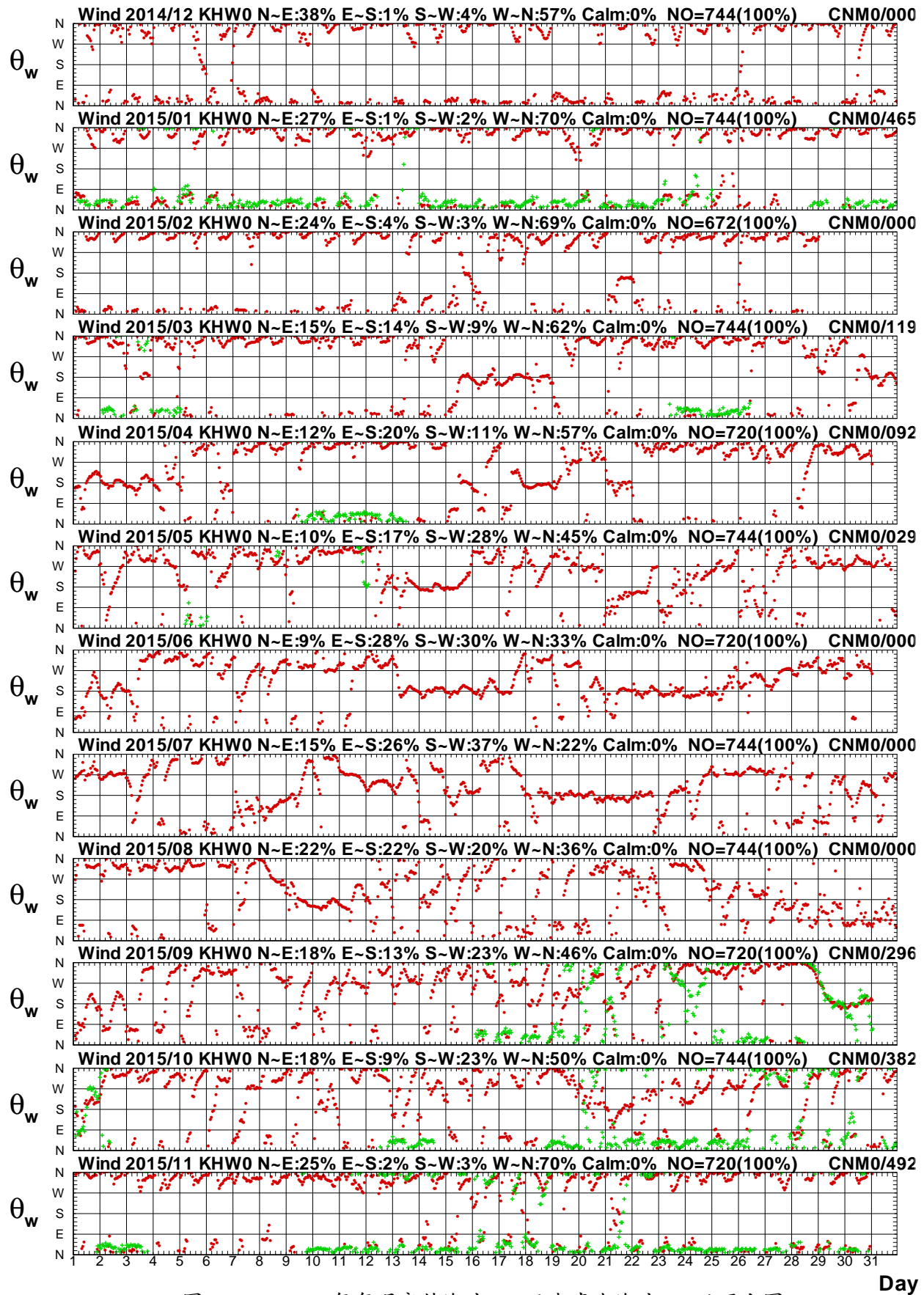


圖 1.23b 2015年每月高雄海域 W 站與嘉南海域 M 站風向圖

W14CKHW0.1HA W14CCNM0.1H0 W151KHW0.1HA W151CNM0.1H0 W152KHW0.1HA W152CNM0.1H0
 W153KHW0.1HA W153CNM0.1H0 W154KHW0.1HA W154CNM0.1H0 W155KHW0.1HA W155CNM0.1H0

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第二章 2015 年高雄海域觀測波浪資料

高雄海域波浪觀測係本中心(IHMT)2000 年 12 月於中區污水處理廠附近海域安置 NORTEK 公司之剖面海流與波浪即時監測系統(測站 X0)，如圖 2，以進行長期觀測。本站於 2005 年 8 月移至第二港口附近海(稱測站 X1)，水深約 18m;另於 2014 年 4 月及 12 月分別於第一港口及第二港口附近海(測站 A 及測站 1、測站 2)，增設潮波儀站。

測站 Z(彌陀外海浮標站)之波浪儀則屬水利署(WRA)所有。高雄海域各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 W 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 高雄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
X0	22°34'23"N	120°16'09"E	2000/12-2005/08	港研中心	高雄中洲外海
X1	22°32'34"N	120°17'38"E	2005/08-2015/11(觀測中)	港研中心	高雄 2 港口外海
A	22°38'36"N	120°14'13"E	2014/04-2015/03	港研中心	高雄 1 港口外海
1			2014/12-2015/12	港研中心	高雄 2 港口外海
2			2015/12-2015/11	港研中心	高雄 2 港口外海
Z	22°45'50"N	120°09'49"E	2012/09-2015/11(觀測中)	水利署	彌陀外海浮標站

高雄海域



IHMT 波潮流站



WRA 浮標波浪站



圖 2 高雄海域波浪觀測站位置示意圖

表 2.1a 2015年每月高雄海域修補前各測站觀測波浪資料紀錄統計表

年/月 港區	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域
測站	X	Z	A	1	2			
2014/12月	734 (98.7%)	729 (98.0%)	493 (66.3%)	494 (66.4%)	*	*	*	*
2015/ 1月	741 (99.6%)	740 (99.5%)	744 (100%)	744 (100%)	*	*	*	*
2015/ 2月	669 (99.6%)	669 (99.6%)	672 (100%)	672 (100%)	*	*	*	*
2015/ 3月	743 (99.9%)	737 (99.1%)	731 (98.3%)	730 (98.1%)	*	*	*	*
2015/ 4月	714 (99.2%)	716 (99.4%)	*	*	*	*	*	*
2015/ 5月	743 (99.9%)	738 (99.2%)	*	*	*	*	*	*
2015/ 6月	718 (99.7%)	714 (99.2%)	*	*	*	*	*	*
2015/ 7月	738 (99.2%)	729 (98.0%)	*	*	*	*	*	*
2015/ 8月	732 (98.4%)	720 (96.8%)	*	*	*	*	*	*
2015/ 9月	698 (96.9%)	674 (93.6%)	*	*	*	*	*	*
2015/10月	738 (99.2%)	714 (96.0%)	*	*	*	*	*	*
2015/11月	708 (98.3%)	678 (94.2%)	*	*	*	*	*	*
2015/冬季	2144 (99.3%)	2138 (99.0%)	1909 (88.4%)	1910 (88.4%)	*	*	*	*
2015/春季	2200 (99.6%)	2191 (99.2%)	731 (33.1%)	730 (33.1%)	*	*	*	*
2015/夏季	2188 (99.1%)	2163 (98.0%)	*	*	*	*	*	*
2015/秋季	2144 (98.2%)	2066 (94.6%)	*	*	*	*	*	*
2015/整年	8676 (99.0%)	8558 (97.7%)	2640 (30.1%)	2640 (30.1%)	*	*	*	*
起始年月	2014/12	2014/12	2014/12	2014/12	*	*	*	*
結束年月	2015/11	2015/11	2015/03	2015/03	*	*	*	*

表 2.1b 2015年每月高雄海域修補後各測站波浪資料統計表

年/月 港區	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域
測站	X	Z	A	1	2			
2014/12月	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%)	*	*	*	*	*	*
2015/ 5月	744 (100%)	744 (100%)	*	*	*	*	*	*
2015/ 6月	720 (100%)	720 (100%)	*	*	*	*	*	*
2015/ 7月	744 (100%)	744 (100%)	*	*	*	*	*	*
2015/ 8月	744 (100%)	744 (100%)	*	*	*	*	*	*
2015/ 9月	720 (100%)	720 (100%)	*	*	*	*	*	*
2015/10月	744 (100%)	744 (100%)	*	*	*	*	*	*
2015/11月	720 (100%)	720 (100%)	*	*	*	*	*	*
2015/冬季	2160 (100%)	2160 (100%)	1416 (65.6%)	2160 (100%)	*	*	*	*
2015/春季	2208 (100%)	2208 (100%)	744 (33.7%)	744 (33.7%)	*	*	*	*
2015/夏季	2208 (100%)	2208 (100%)	*	*	*	*	*	*
2015/秋季	2184 (100%)	2184 (100%)	*	*	*	*	*	*
2015/整年	8760 (100%)	8760 (100%)	2160 (24.7%)	2904 (33.2%)	*	*	*	*
起始年月	2014/12	2014/12	2015/01	2014/12	*	*	*	*
結束年月	2015/11	2015/11	2015/03	2015/03	*	*	*	*

Wave H_s in Kao-Hsiung Seas of KHX0 at 2015

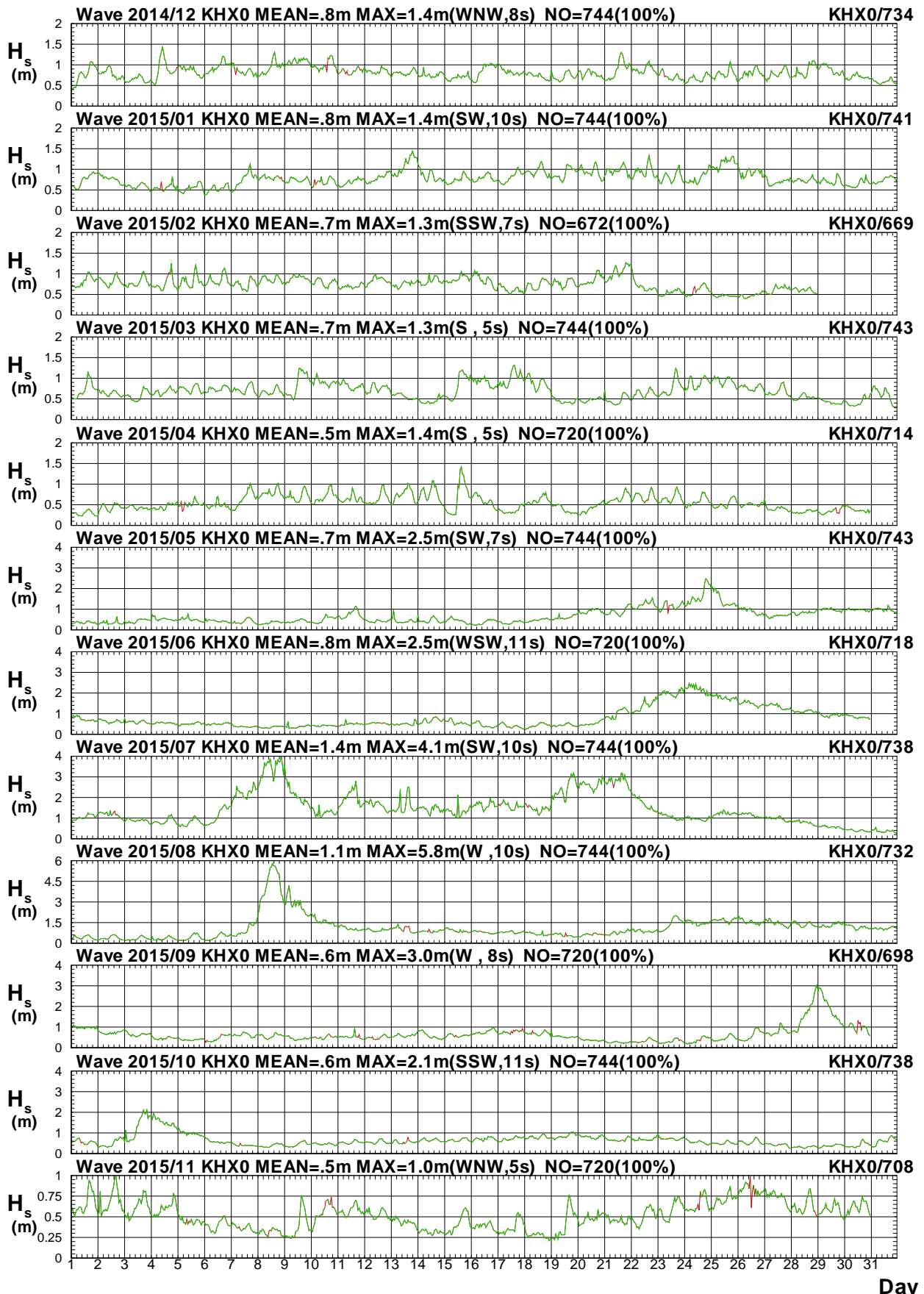


圖 2.1a 2015年每月高雄海域 X 站修補前後之波高比較圖

V14CKHX0.1HA V14CKHX0.1HO V151KHX0.1HA V151KHX0.1HO V152KHX0.1HA V152KHX0.1HO
 V153KHX0.1HA V153KHX0.1HO V154KHX0.1HA V154KHX0.1HO V155KHX0.1HA V155KHX0.1HO

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Wave T_p in Kao-Hsiung Seas of KHX0 at 2015

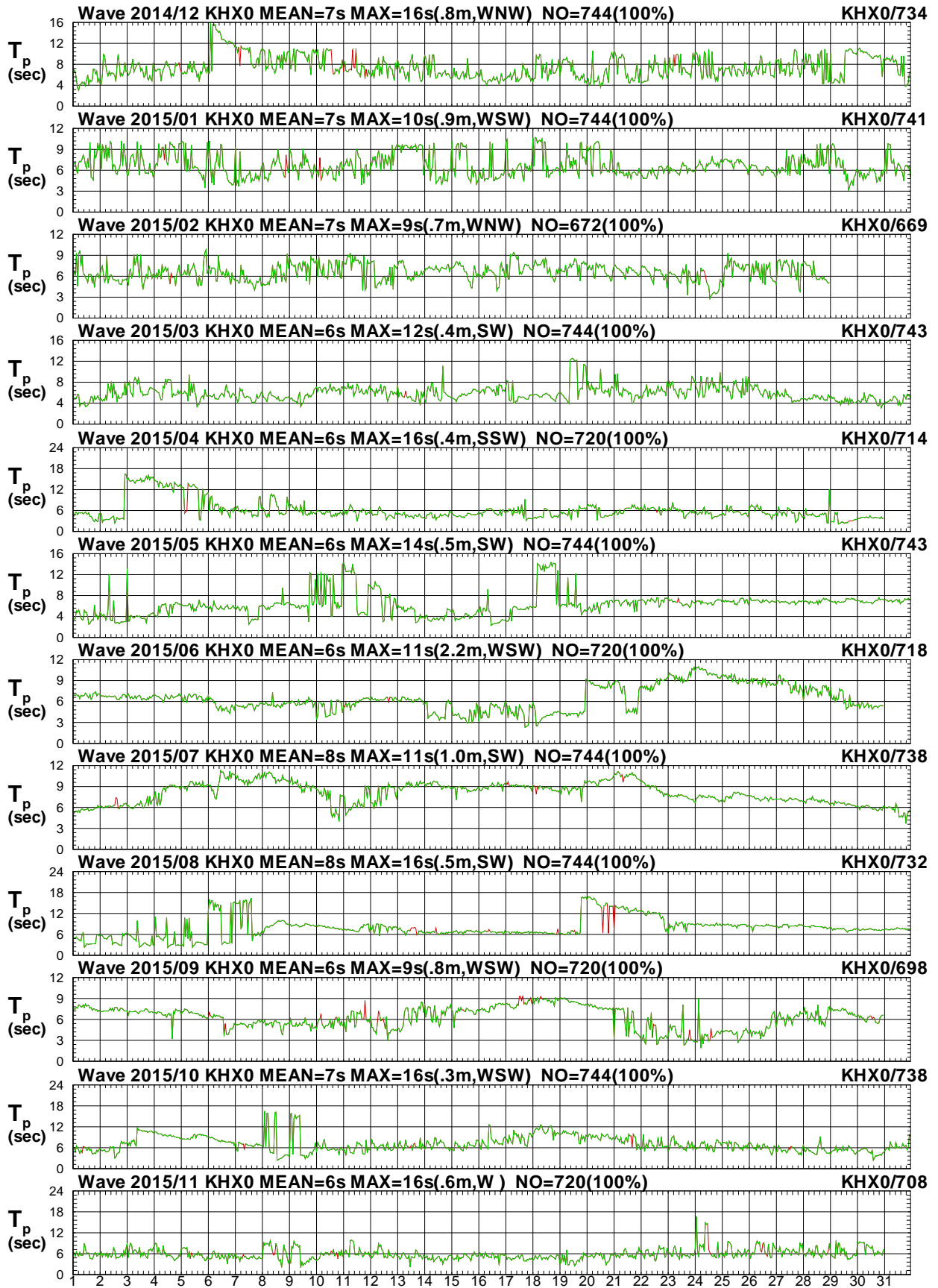


圖 2.1b 2015年每月高雄海域 X 站修補前後之週期比較圖

V14CKHX0.1HA V14CKHX0.1HO V151KHX0.1HA V151KHX0.1HO V152KHX0.1HA V152KHX0.1HO
 V153KHX0.1HA V153KHX0.1HO V154KHX0.1HA V154KHX0.1HO V155KHX0.1HA V155KHX0.1HO

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Wave Direction in Kao-Hsiung Seas of KHX0 at 2015

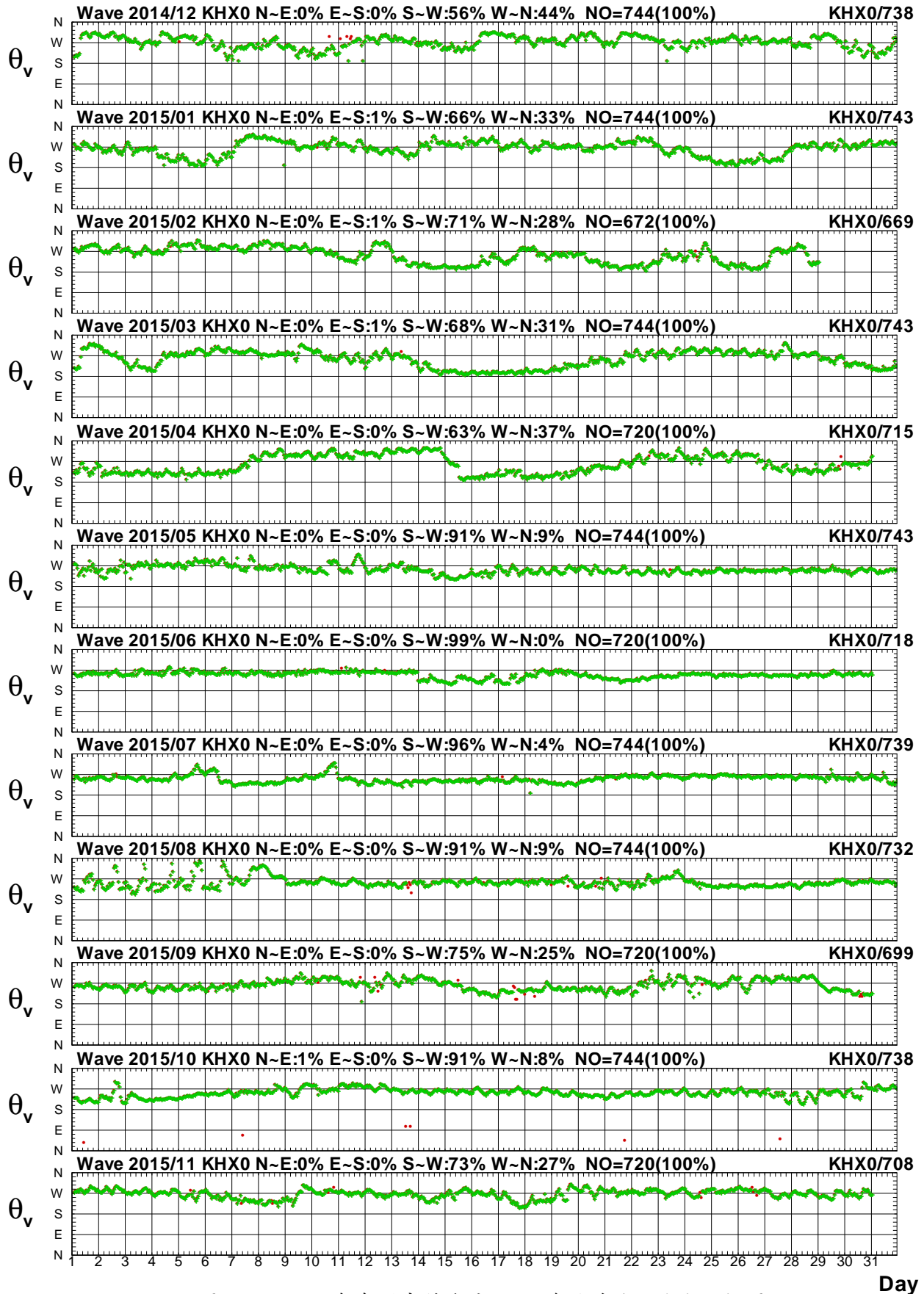


圖 2.1c 2015年每月高雄海域 X 站修補前後之波向比較圖

V14CKHX0.1HA V14CKHX0.1HO V151KHX0.1HA V151KHX0.1HO V152KHX0.1HA V152KHX0.1HO
 V153KHX0.1HA V153KHX0.1HO V154KHX0.1HA V154KHX0.1HO V155KHX0.1HA V155KHX0.1HO

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Wave H_s in Kao-Hsiung Seas of KHX0 at 2015

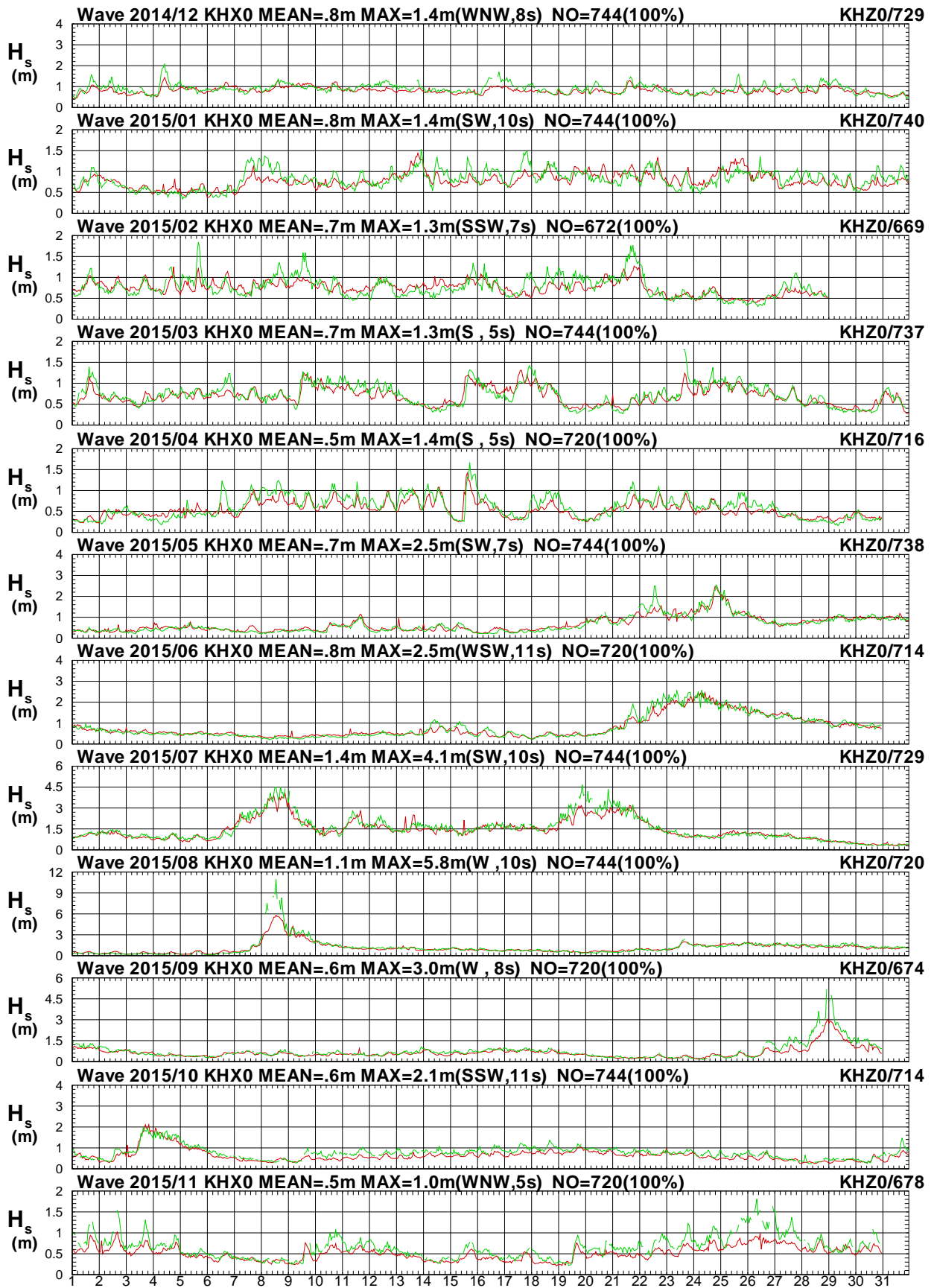


圖 2.2a 2015年每月高雄海域 X 站與 Z 站波高比較圖

V14CKHX0.1HA V14CKHZ0.1H0 V151KHX0.1HA V151KHZ0.1H0 V152KHX0.1HA V152KHZ0.1H0
 V153KHX0.1HA V153KHZ0.1H0 V154KHX0.1HA V154KHZ0.1H0 V155KHX0.1HA V155KHZ0.1H0

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Wave T_p in Kao-Hsiung Seas of KHX0 at 2015

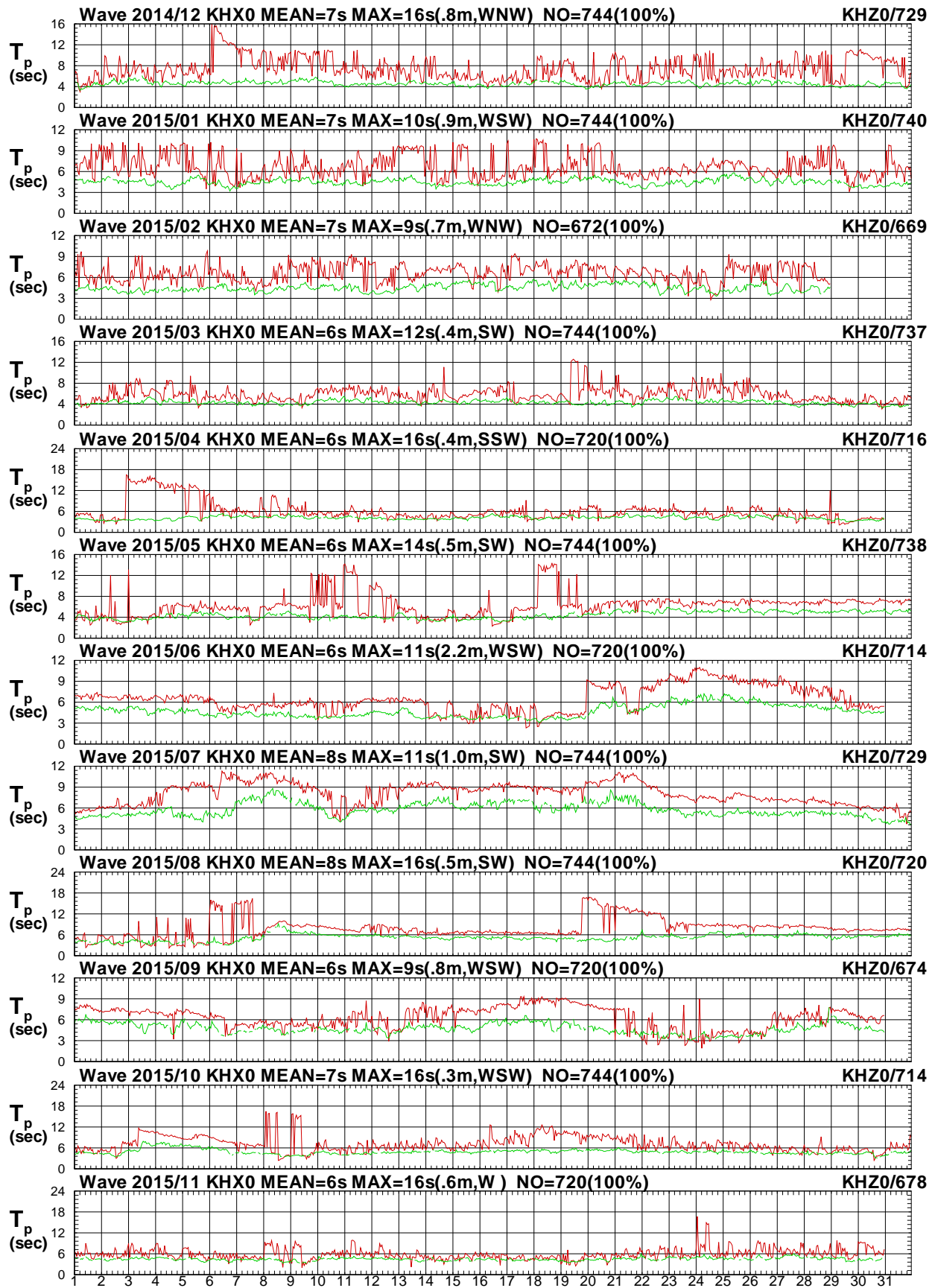


圖 2.2b 2015 年每月高雄海域 X 站與 Z 站週期比較圖

V14CKHX0.1HA V14CKHZ0.1H0 V151KHX0.1HA V151KHZ0.1H0 V152KHX0.1HA V152KHZ0.1H0
 V153KHX0.1HA V153KHZ0.1H0 V154KHX0.1HA V154KHZ0.1H0 V155KHX0.1HA V155KHZ0.1H0

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Wave Direction in Kao-Hsiung Seas of KHX0 at 2015

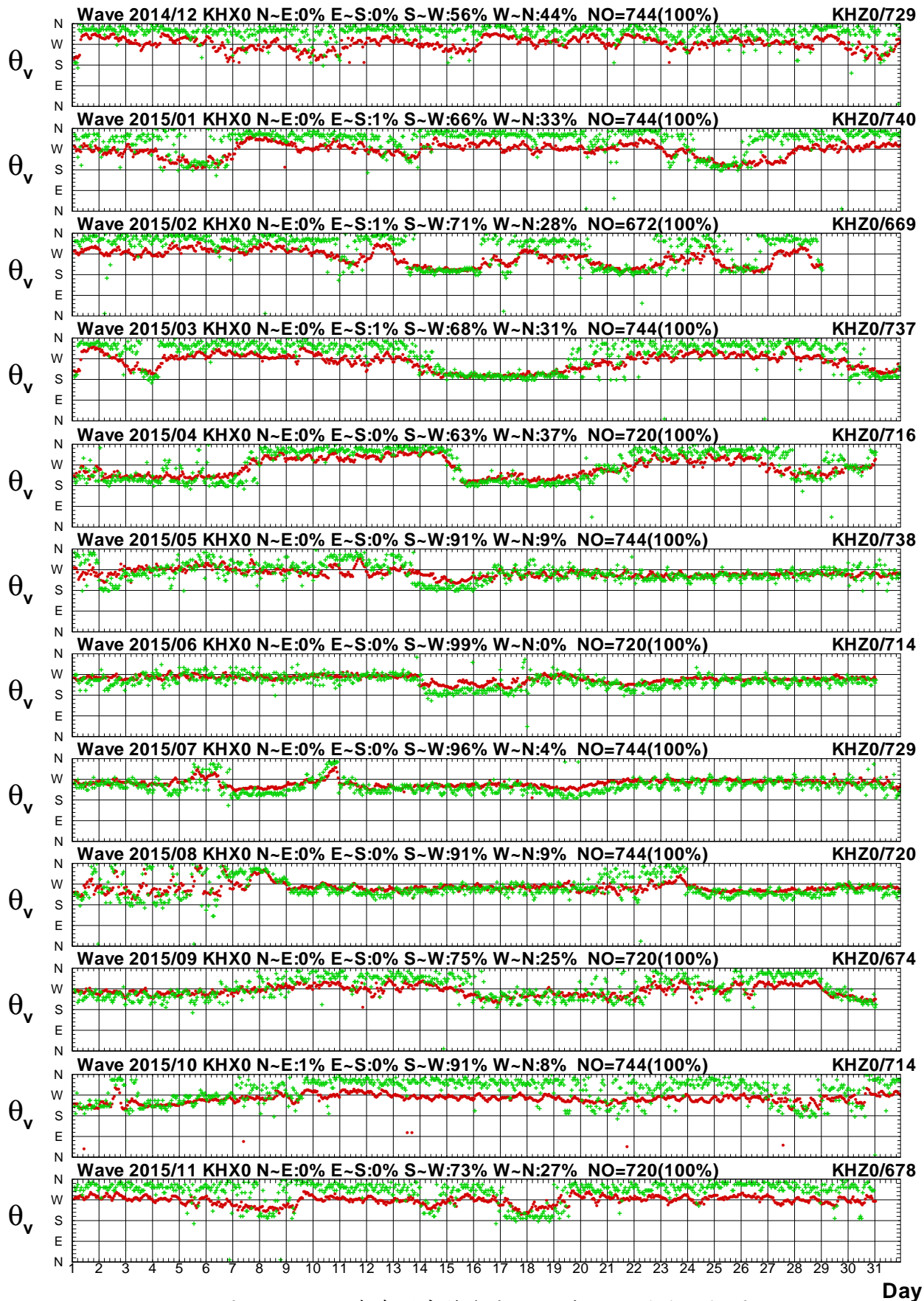


圖 2.2c 2015年每月高雄海域 X 站與 Z 站波向比較圖

V14CKHX0.1HA V14CKHZ0.1H0 V151KHX0.1HA V151KHZ0.1H0 V152KHX0.1HA V152KHZ0.1H0
 V153KHX0.1HA V153KHZ0.1H0 V154KHX0.1HA V154KHZ0.1H0 V155KHX0.1HA V155KHZ0.1H0

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Wave H_s in Kao-Hsiung Seas of KHX0 at 2015

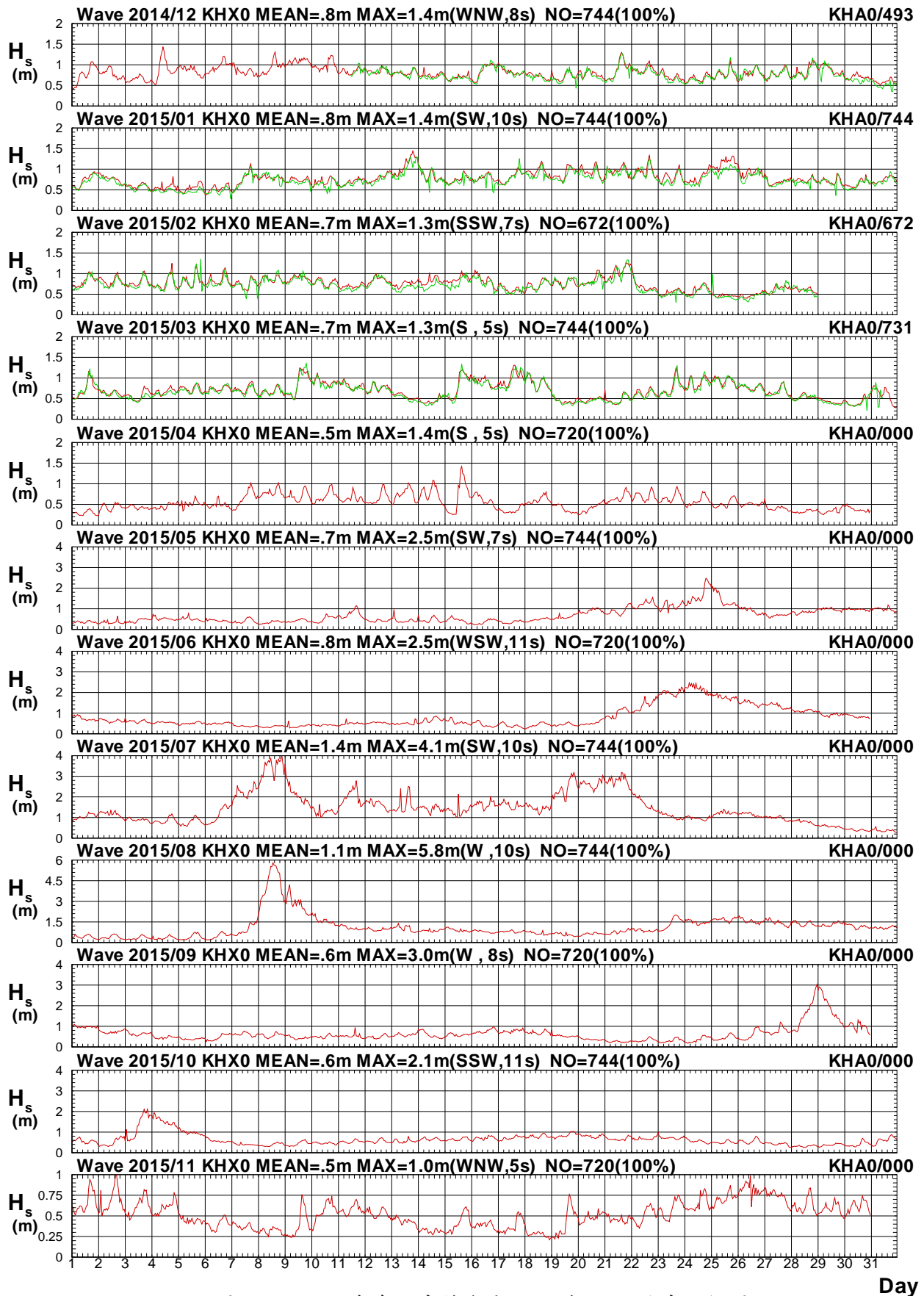


圖 2.3a 2015年每月高雄海域 X 站與 A 站波高比較圖

V14CKHX0.1HA V14CKHA0.1H0 V151KHX0.1HA V151KHA0.1H0 V152KHX0.1HA V152KHA0.1H0
 V153KHX0.1HA V153KHA0.1H0 V154KHX0.1HA V154KHA0.1H0 V155KHX0.1HA V155KHA0.1H0

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Wave T_p in Kao-Hsiung Seas of KHX0 at 2015

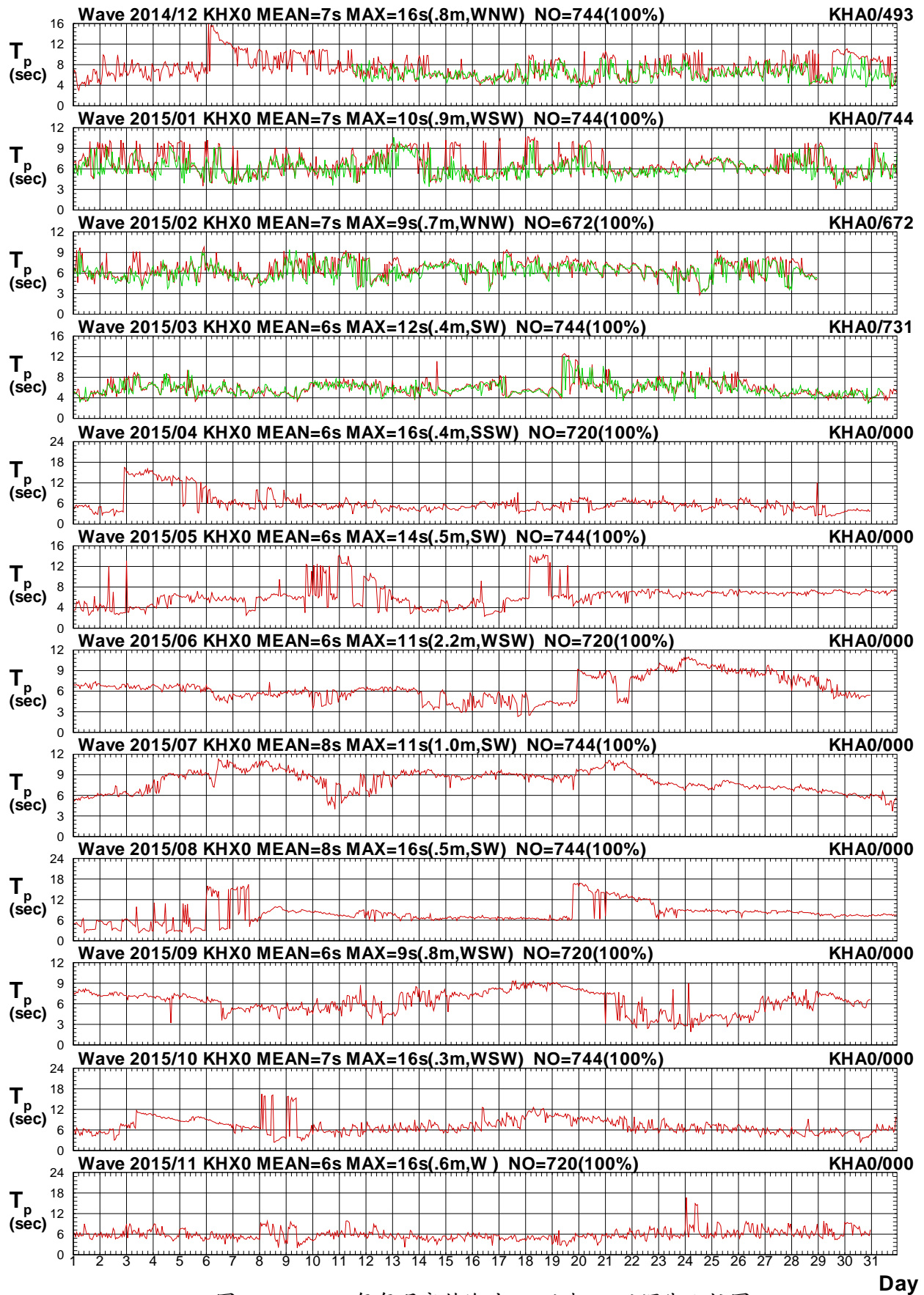


圖 2.3b 2015年每月高雄海域 X 站與 A 站週期比較圖

V14CKHX0.1HA V14CKHA0.1H0 V151KHX0.1HA V151KHA0.1H0 V152KHX0.1HA V152KHA0.1H0
 V153KHX0.1HA V153KHA0.1H0 V154KHX0.1HA V154KHA0.1H0 V155KHX0.1HA V155KHA0.1H0

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Wave Direction in Kao-Hsiung Seas of KHX0 at 2015

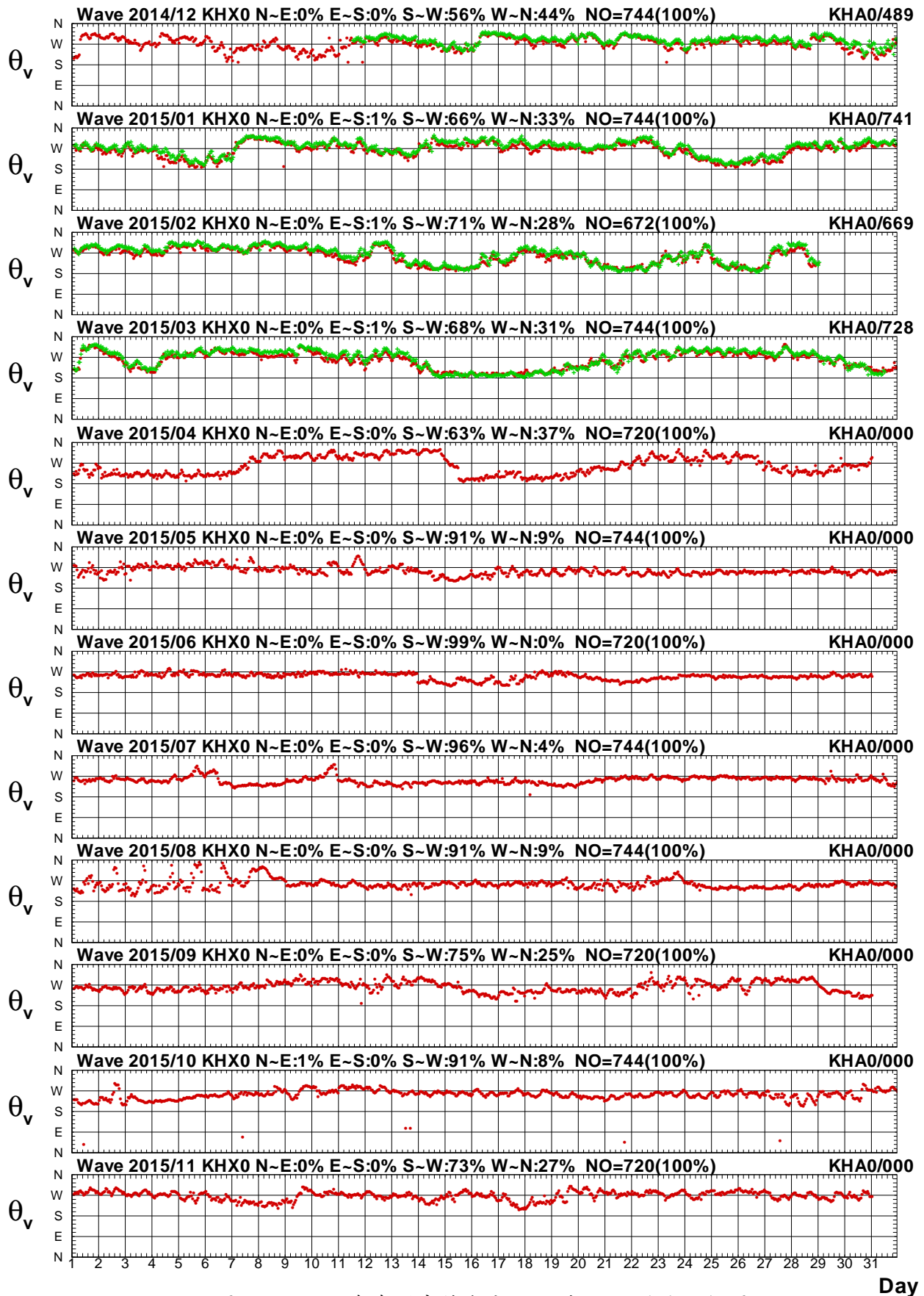


圖 2.3c 2015年每月高雄海域 X 站與 A 站波向比較圖

V14CKHX0.1HA V14CKHA0.1HO V151KHX0.1HA V151KHA0.1HO V152KHX0.1HA V152KHA0.1HO
 V153KHX0.1HA V153KHA0.1HO V154KHX0.1HA V154KHA0.1HO V155KHX0.1HA V155KHA0.1HO

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Wave H_s in Kao-Hsiung Seas of KHX0 at 2015

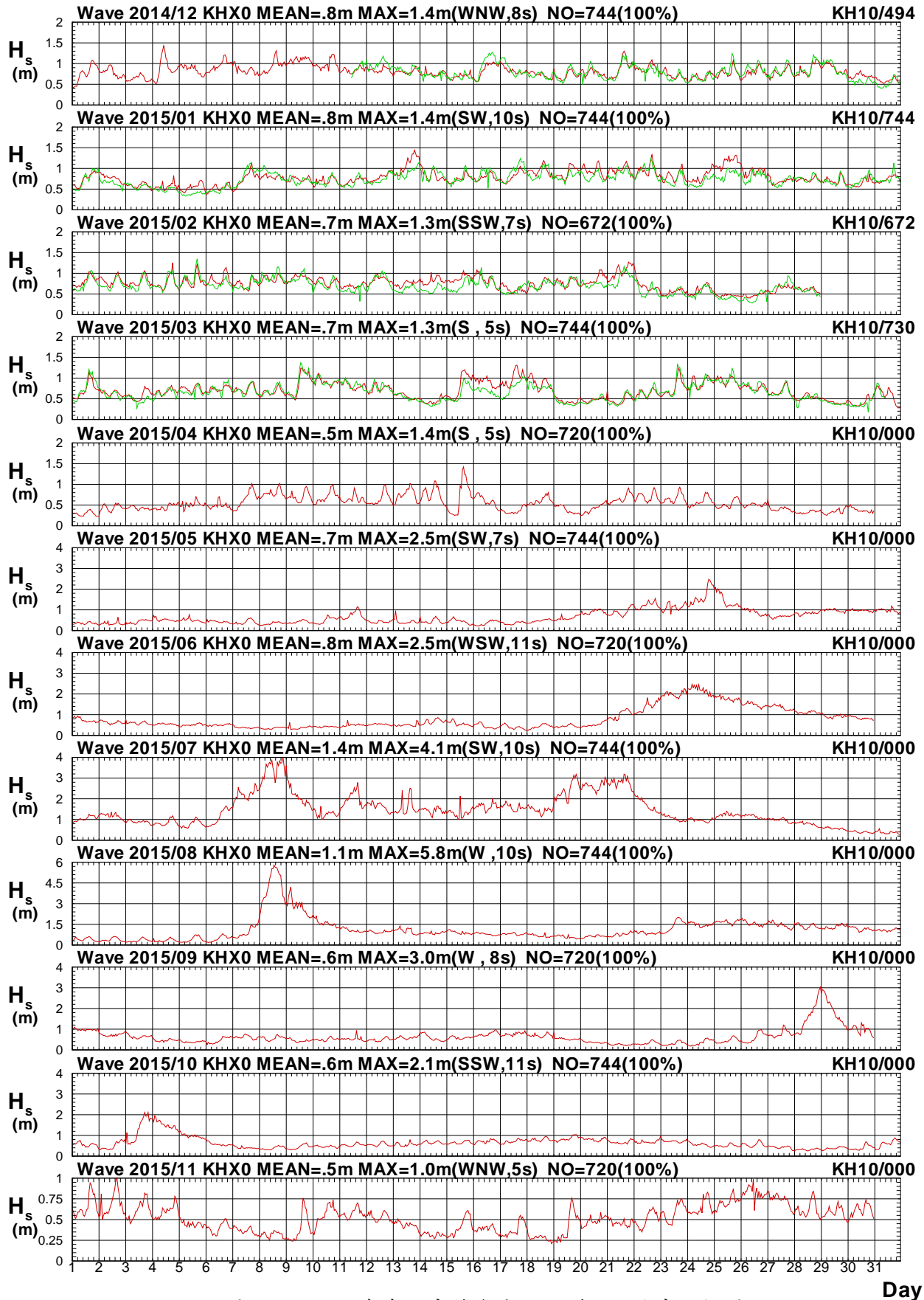


圖 2.4a 2015年每月高雄海域 X 站與 1 站波高比較圖

V14CKHX0.1HA V14CKH10.1H0 V151KHX0.1HA V151KH10.1H0 V152KHX0.1HA V152KH10.1H0
 V153KHX0.1HA V153KH10.1H0 V154KHX0.1HA V154KH10.1H0 V155KHX0.1HA V155KH10.1H0

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Wave T_p in Kao-Hsiung Seas of KHX0 at 2015

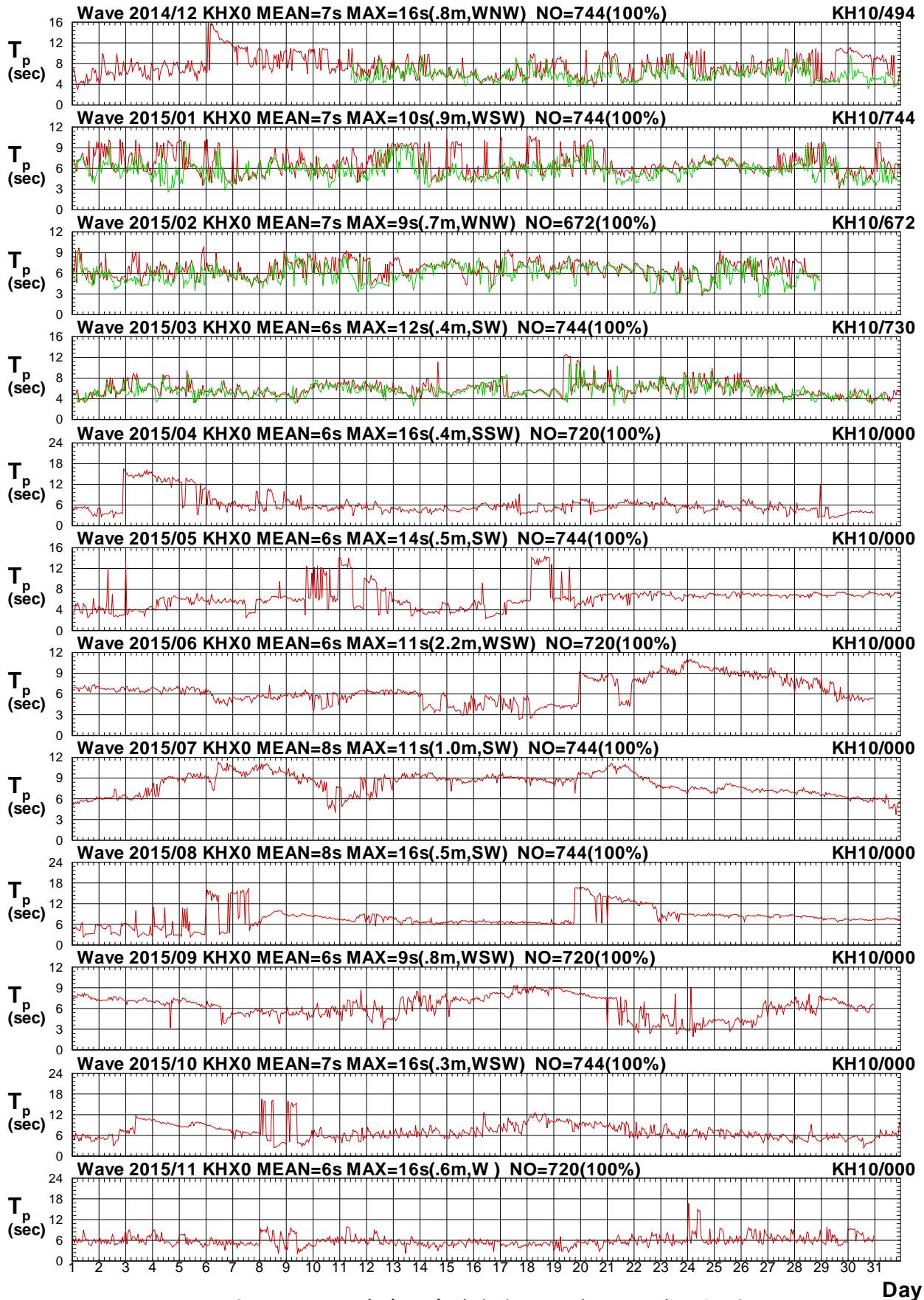


圖 2.4b 2015年每月高雄海域 X 站與 1 站週期比較圖

V14CKHX0.1HA V14CKH10.1H0 V151KHX0.1HA V151KH10.1H0 V152KHX0.1HA V152KH10.1H0
 V153KHX0.1HA V153KH10.1H0 V154KHX0.1HA V154KH10.1H0 V155KHX0.1HA V155KH10.1H0

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Wave Direction in Kao-Hsiung Seas of KHX0 at 2015

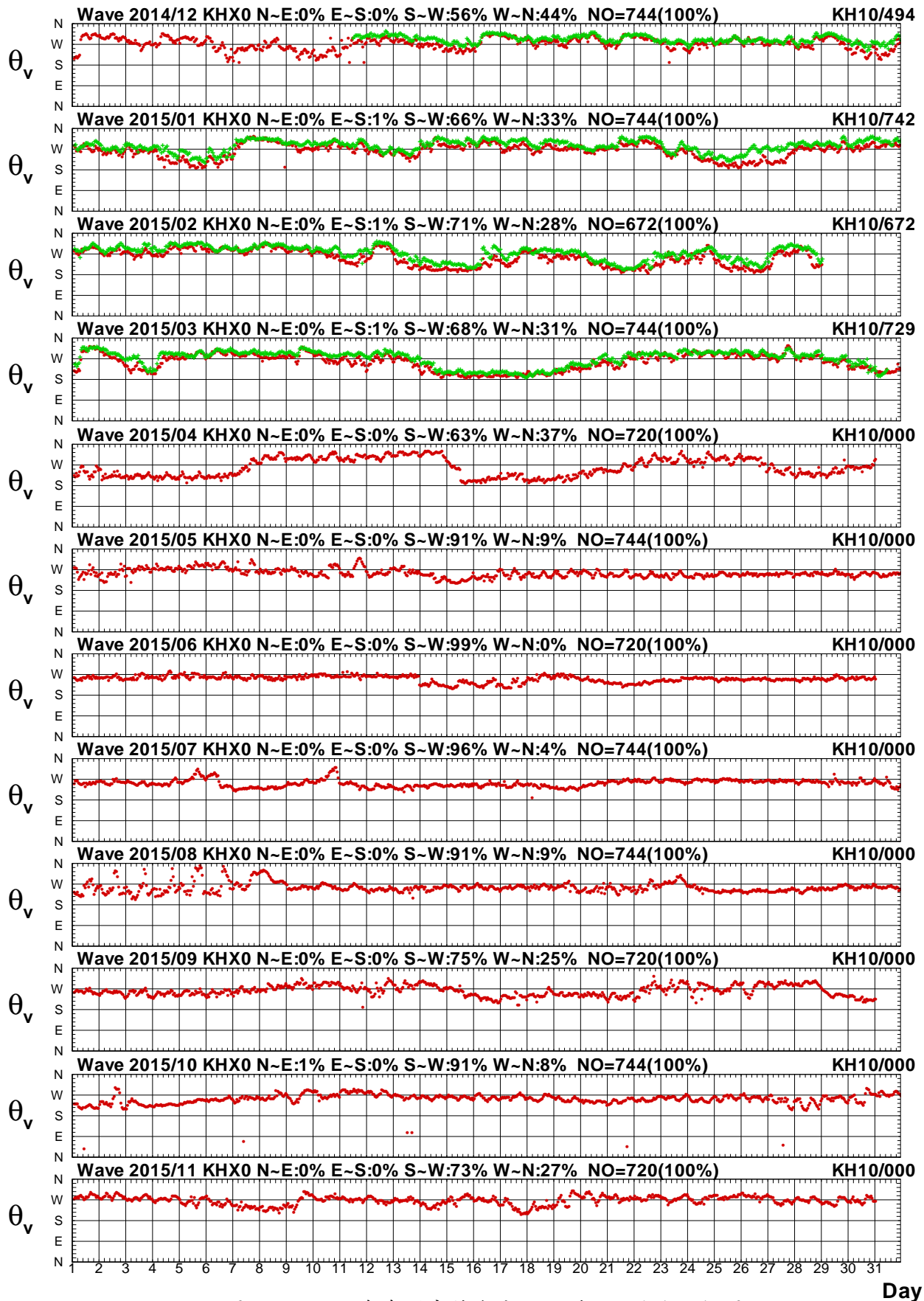


圖 2.4c 2015 年每月高雄海域 X 站與 1 站波向比較圖

V14CKHX0.1HA V14CKH10.1H0 V151KHX0.1HA V151KH10.1H0 V152KHX0.1HA V152KH10.1H0
 V153KHX0.1HA V153KH10.1H0 V154KHX0.1HA V154KH10.1H0 V155KHX0.1HA V155KH10.1H0

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Wave H_s in Kao-Hsiung Seas of KHX0 at 2015

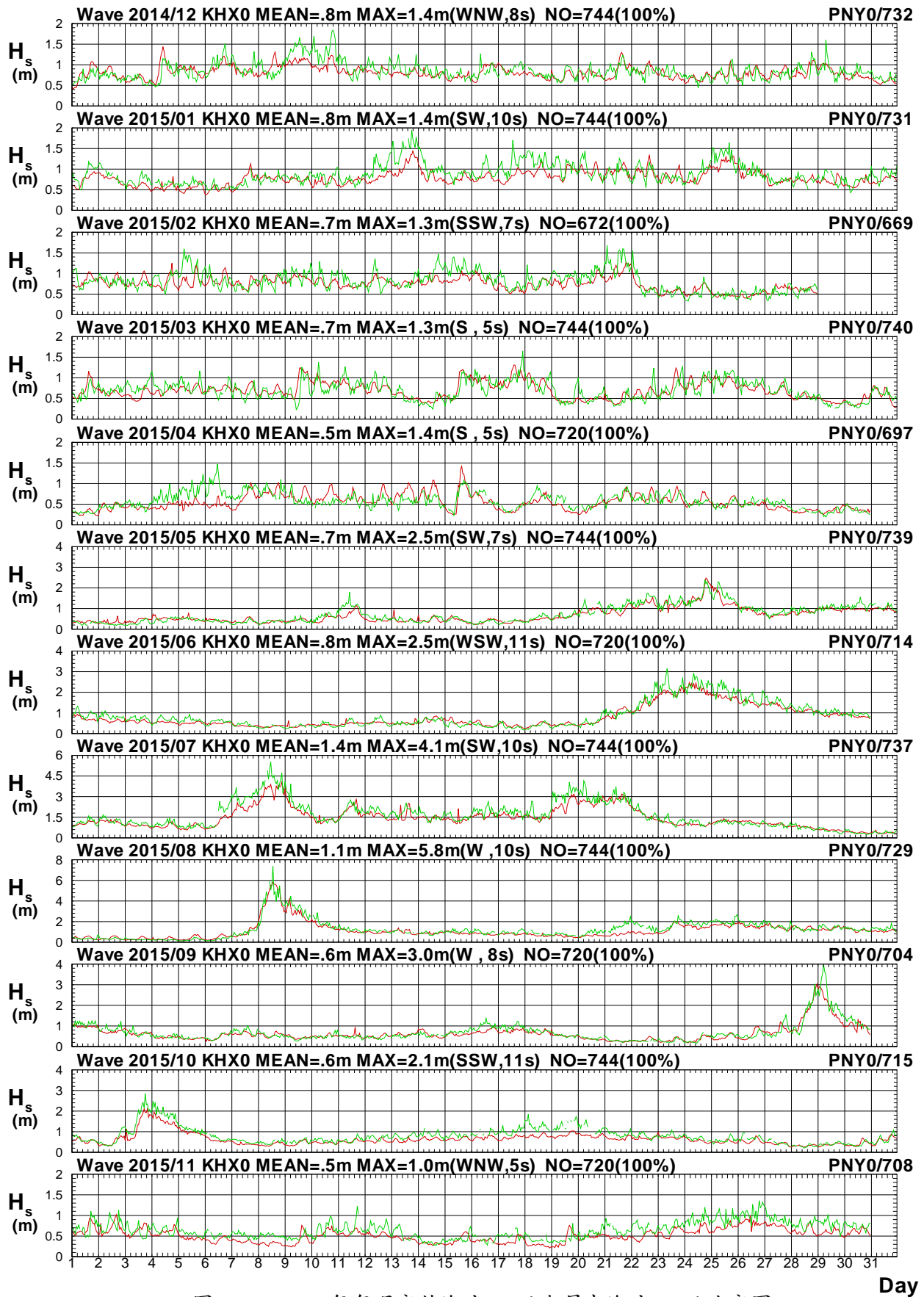


圖 2.5a 2015年每月高雄海域 X 站與屏東海域 Y 站波高圖

V14CKHX0.1HA V14CPNY0.1HO V151KHX0.1HA V151PNY0.1HO V152KHX0.1HA V152PNY0.1HO
 V153KHX0.1HA V153PNY0.1HO V154KHX0.1HA V154PNY0.1HO V155KHX0.1HA V155PNY0.1HO

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Wave T_p in Kao-Hsiung Seas of KHX0 at 2015

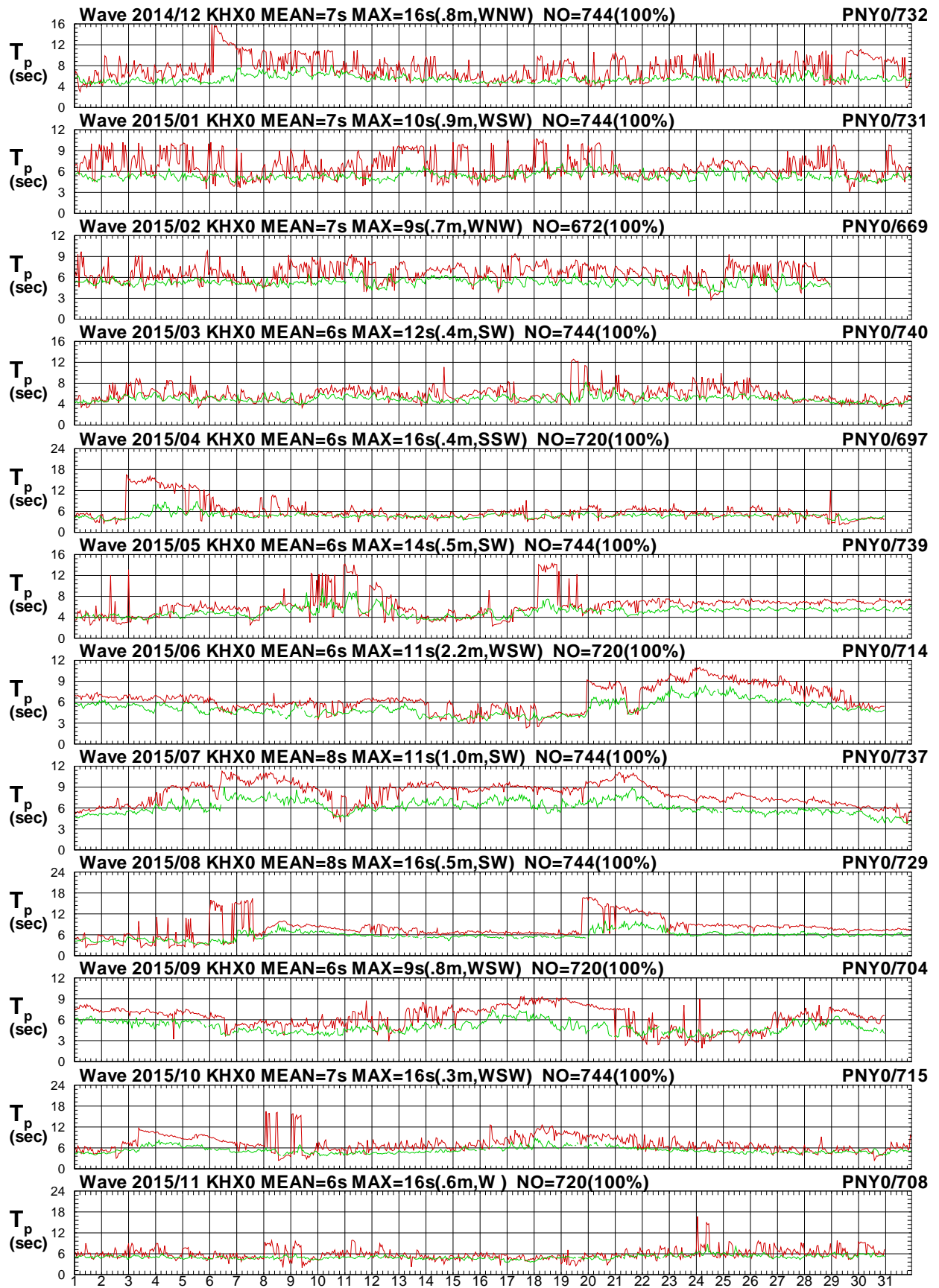


圖 2.5b 2015年每月高雄海域 X 站與屏東海域 Y 站週期圖

V14CKHX0.1HA V14CPNY0.1HO V151KHX0.1HA V151PNY0.1HO V152KHX0.1HA V152PNY0.1HO
 V153KHX0.1HA V153PNY0.1HO V154KHX0.1HA V154PNY0.1HO V155KHX0.1HA V155PNY0.1HO

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Wave Direction in Kao-Hsiung Seas of KHX0 at 2015

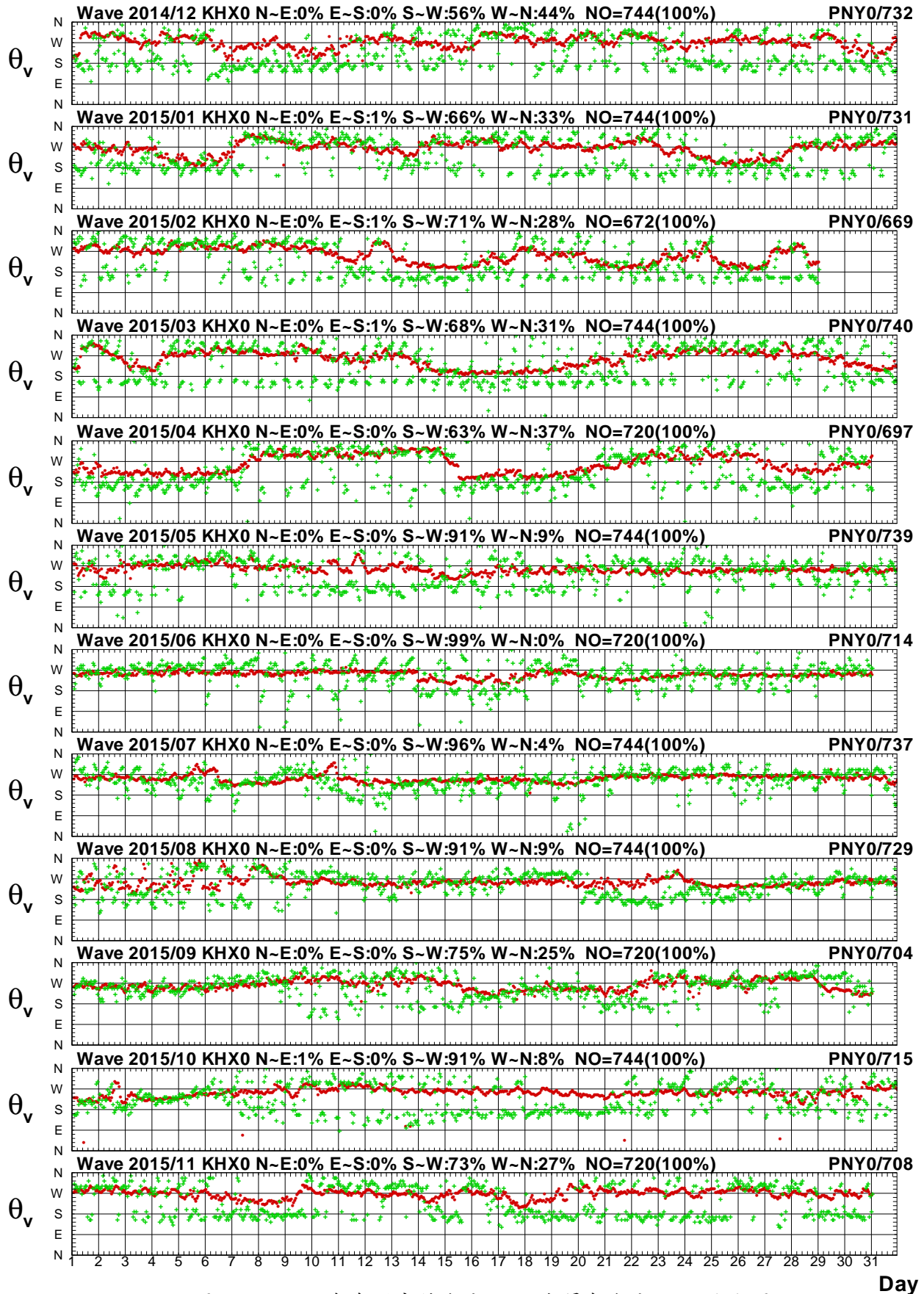


圖 2.5c 2015年每月高雄海域 X 站與屏東海域 Y 站波向圖

V14CKHX0.1HA V14CPNY0.1HO V151KHX0.1HA V151PNY0.1HO V152KHX0.1HA V152PNY0.1HO
 V153KHX0.1HA V153PNY0.1HO V154KHX0.1HA V154PNY0.1HO V155KHX0.1HA V155PNY0.1HO

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Wave H_s in Kao-Hsiung Seas of KHX0 at 2015

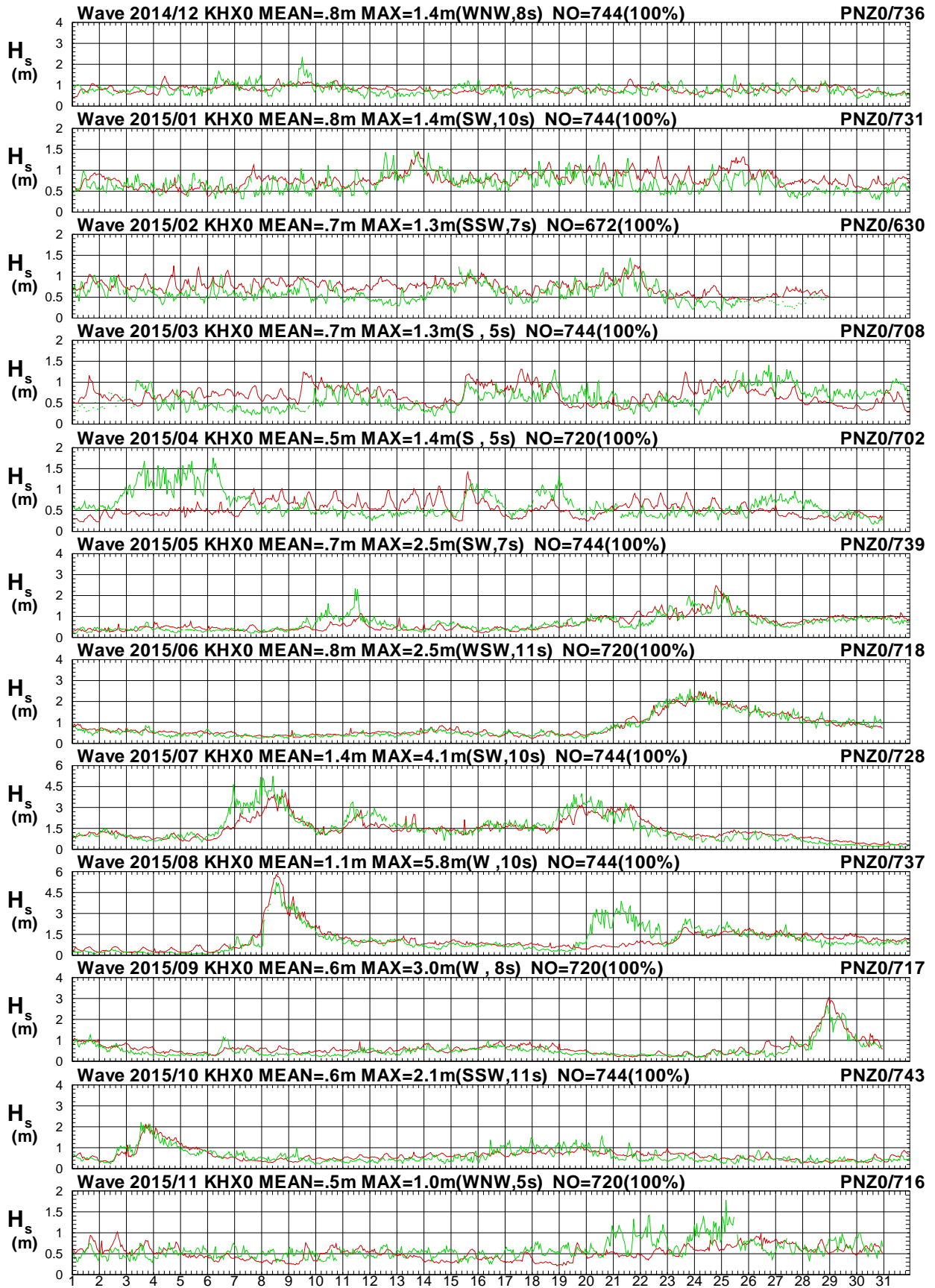


圖 2.6a 2015年每月高雄海域 X 站與屏東海域 Z 站波高圖

Day

V14CKHX0.1HA V14CPNZ0.1H0 V151KHX0.1HA V151PNZ0.1H0 V152KHX0.1HA V152PNZ0.1H0
 V153KHX0.1HA V153PNZ0.1H0 V154KHX0.1HA V154PNZ0.1H0 V155KHX0.1HA V155PNZ0.1H0

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Wave T_p in Kao-Hsiung Seas of KHX0 at 2015

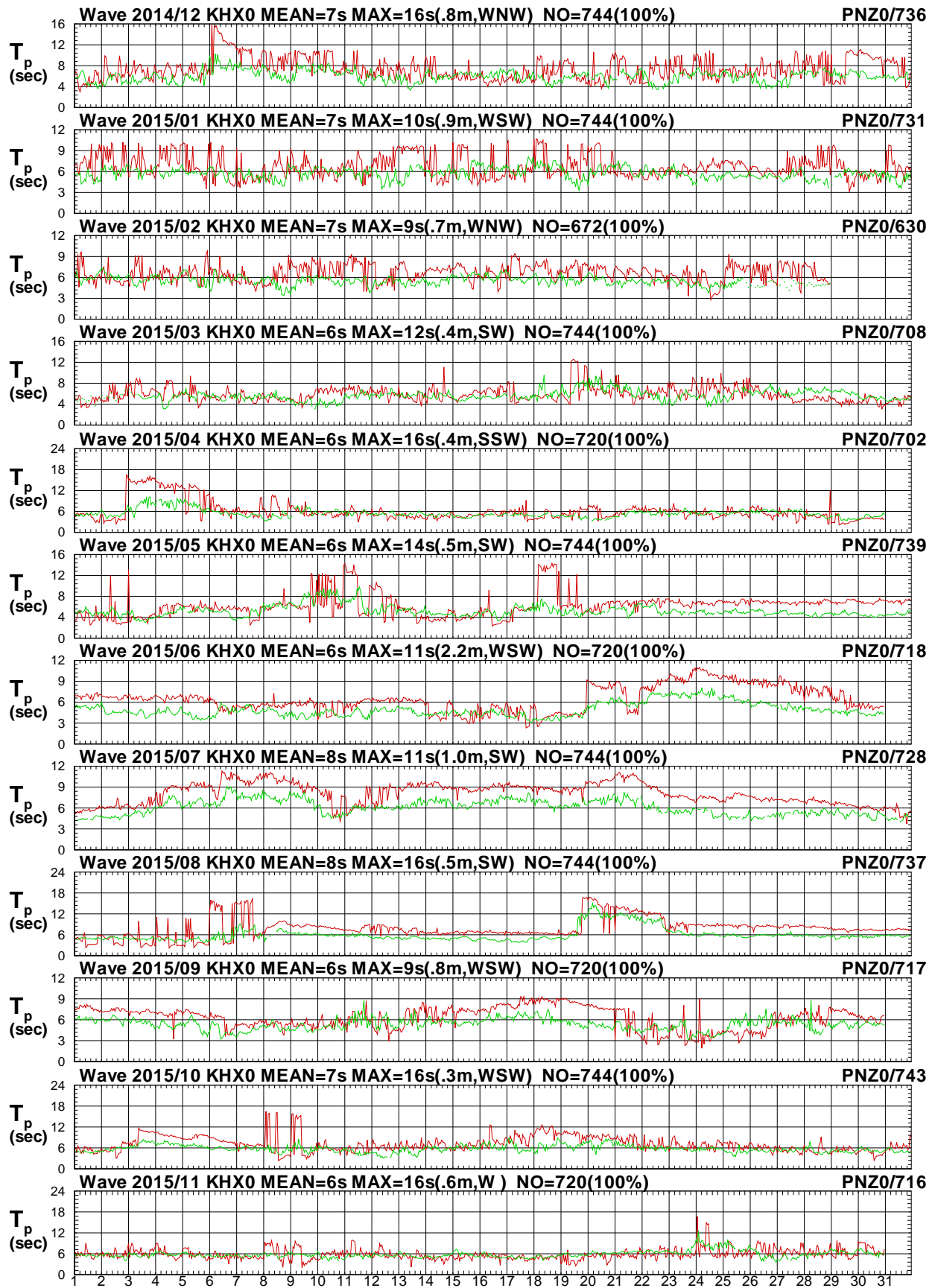


圖 2.6b 2015年每月高雄海域 X 站與屏東海域 Z 站週期圖

V14CKHX0.1HA V14CPNZ0.1H0 V151KHX0.1HA V151PNZ0.1H0 V152KHX0.1HA V152PNZ0.1H0
 V153KHX0.1HA V153PNZ0.1H0 V154KHX0.1HA V154PNZ0.1H0 V155KHX0.1HA V155PNZ0.1H0

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Wave Direction in Kao-Hsiung Seas of KHX0 at 2015

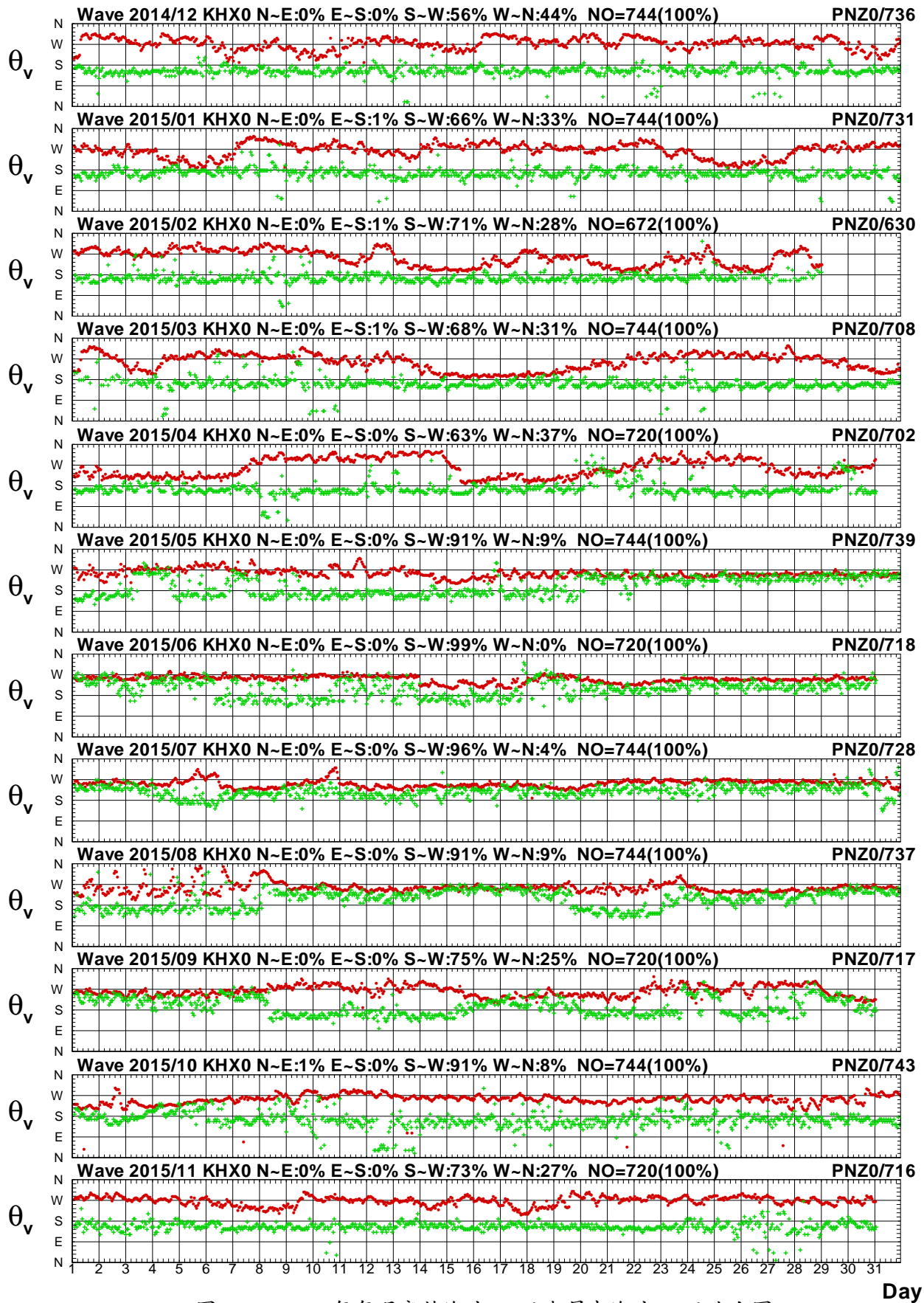


圖 2.6c 2015年每月高雄海域 X 站與屏東海域 Z 站波向圖

V14CKHX0.1HA V14CPNZ0.1H0 V151KHX0.1HA V151PNZ0.1H0 V152KHX0.1HA V152PNZ0.1H0
 V153KHX0.1HA V153PNZ0.1H0 V154KHX0.1HA V154PNZ0.1H0 V155KHX0.1HA V155PNZ0.1H0

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Wave H_s in Kao-Hsiung Seas of KHX0 at 2015

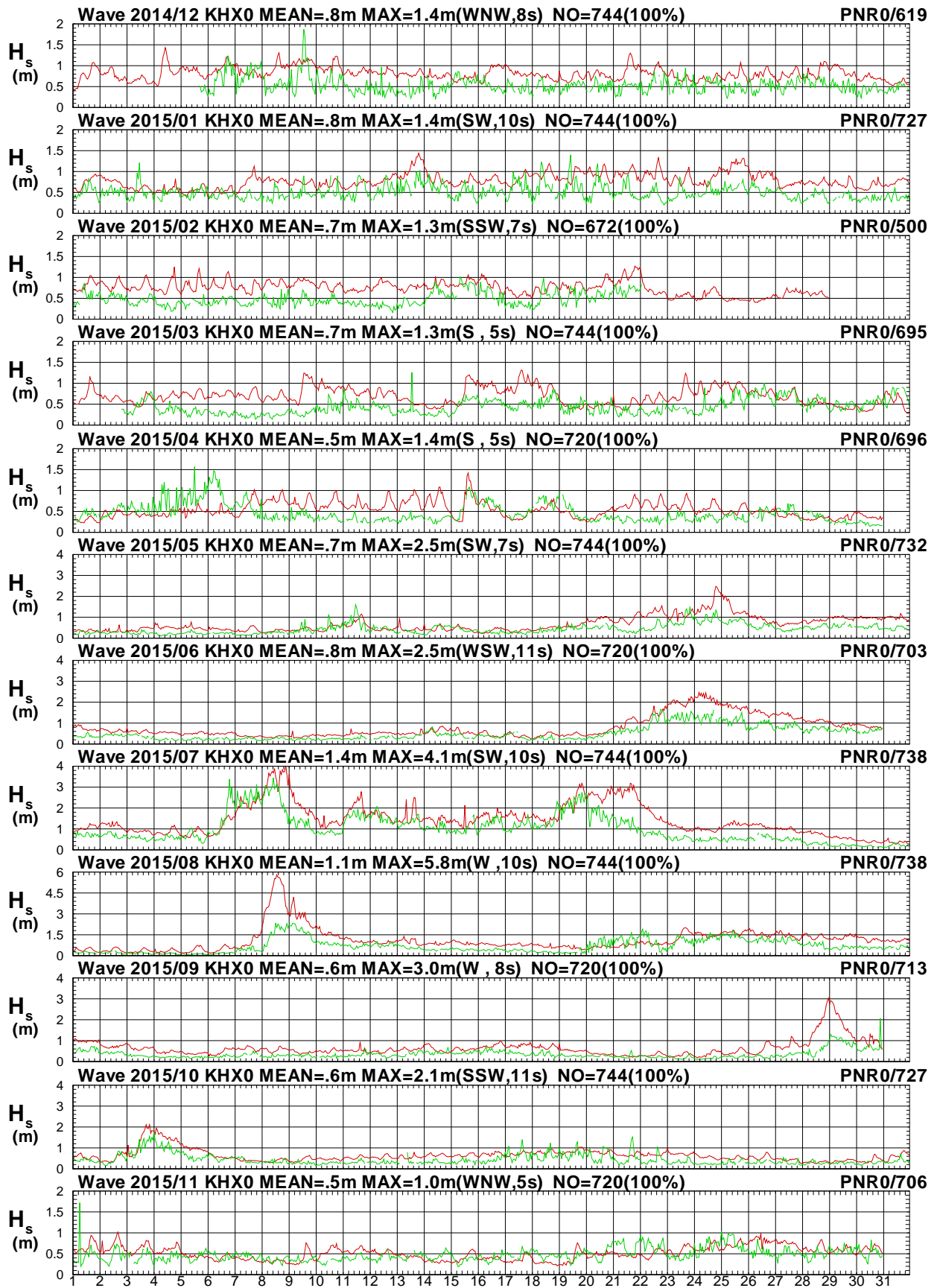


圖 2.7a 2015年每月高雄海域 X 站與屏東海域 R 站波高圖

V14CKHX0.1HA V14CPNR0.1HO V151KHX0.1HA V151PNR0.1HO V152KHX0.1HA V152PNR0.1HO
 V153KHX0.1HA V153PNR0.1HO V154KHX0.1HA V154PNR0.1HO V155KHX0.1HA V155PNR0.1HO

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Wave T_p in Kao-Hsiung Seas of KHX0 at 2015

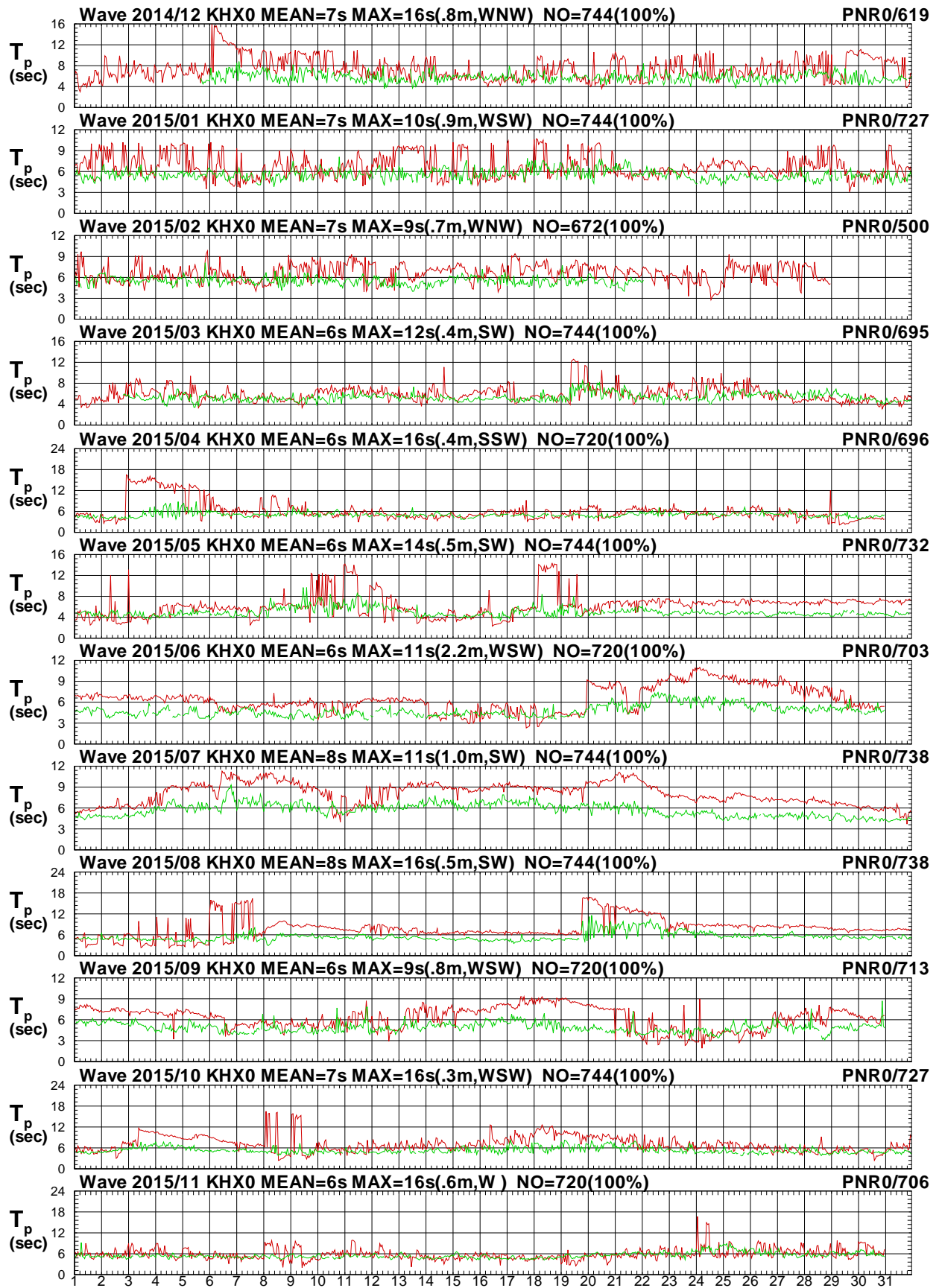


圖 2.7b 2015年每月高雄海域 X 站與屏東海域 R 站週期圖

V14CKHX0.1HA V14CPNR0.1HO V151KHX0.1HA V151PNR0.1HO V152KHX0.1HA V152PNR0.1HO
 V153KHX0.1HA V153PNR0.1HO V154KHX0.1HA V154PNR0.1HO V155KHX0.1HA V155PNR0.1HO

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Wave Direction in Kao-Hsiung Seas of KHX0 at 2015

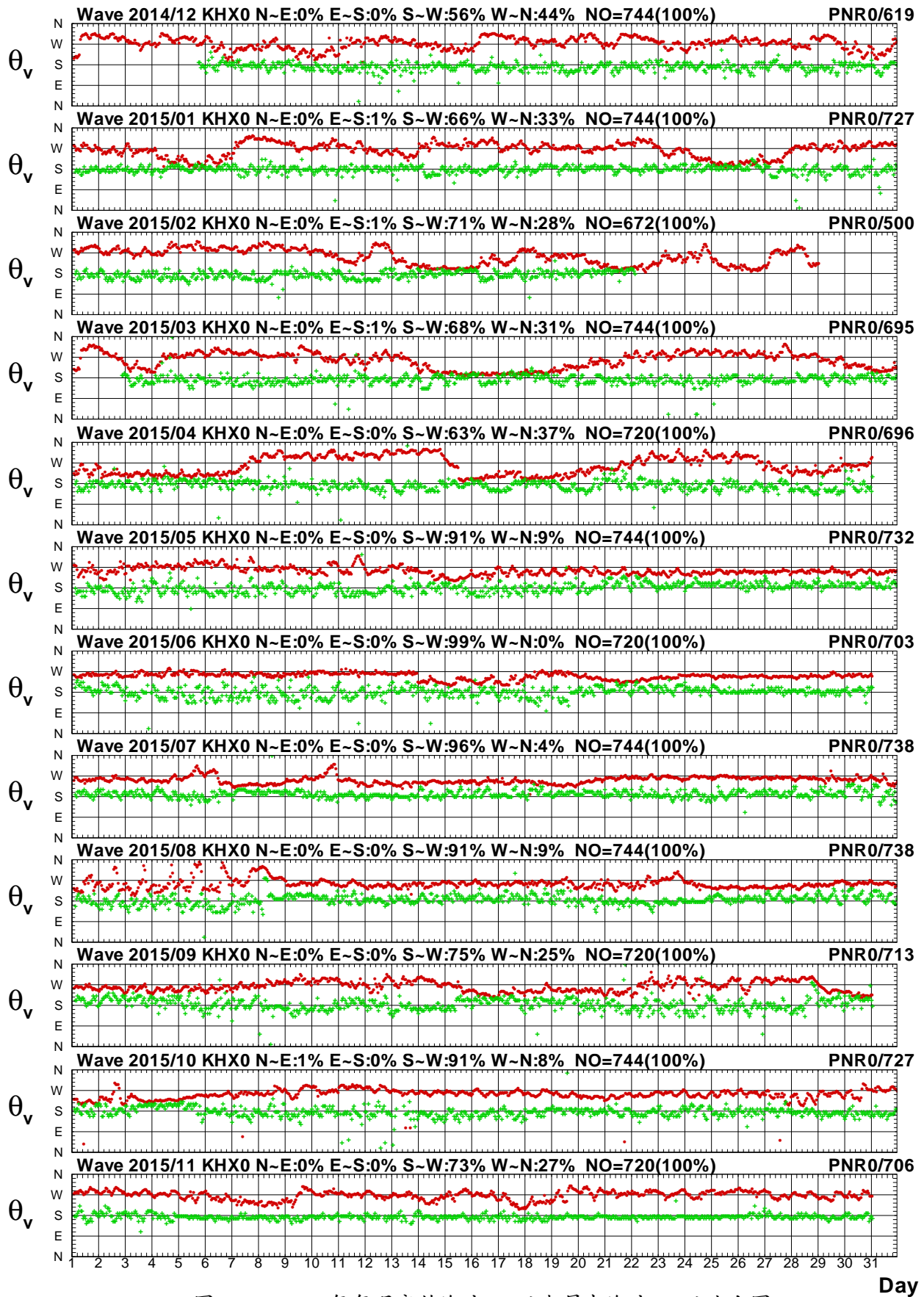


圖 2.7c 2015年每月高雄海域 X 站與屏東海域 R 站波向圖

V14CKHX0.1HA V14CPNR0.1H0 V151KHX0.1HA V151PNR0.1H0 V152KHX0.1HA V152PNR0.1H0
 V153KHX0.1HA V153PNR0.1H0 V154KHX0.1HA V154PNR0.1H0 V155KHX0.1HA V155PNR0.1H0

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Wave H_s in Kao-Hsiung Seas of KHX0 at 2015

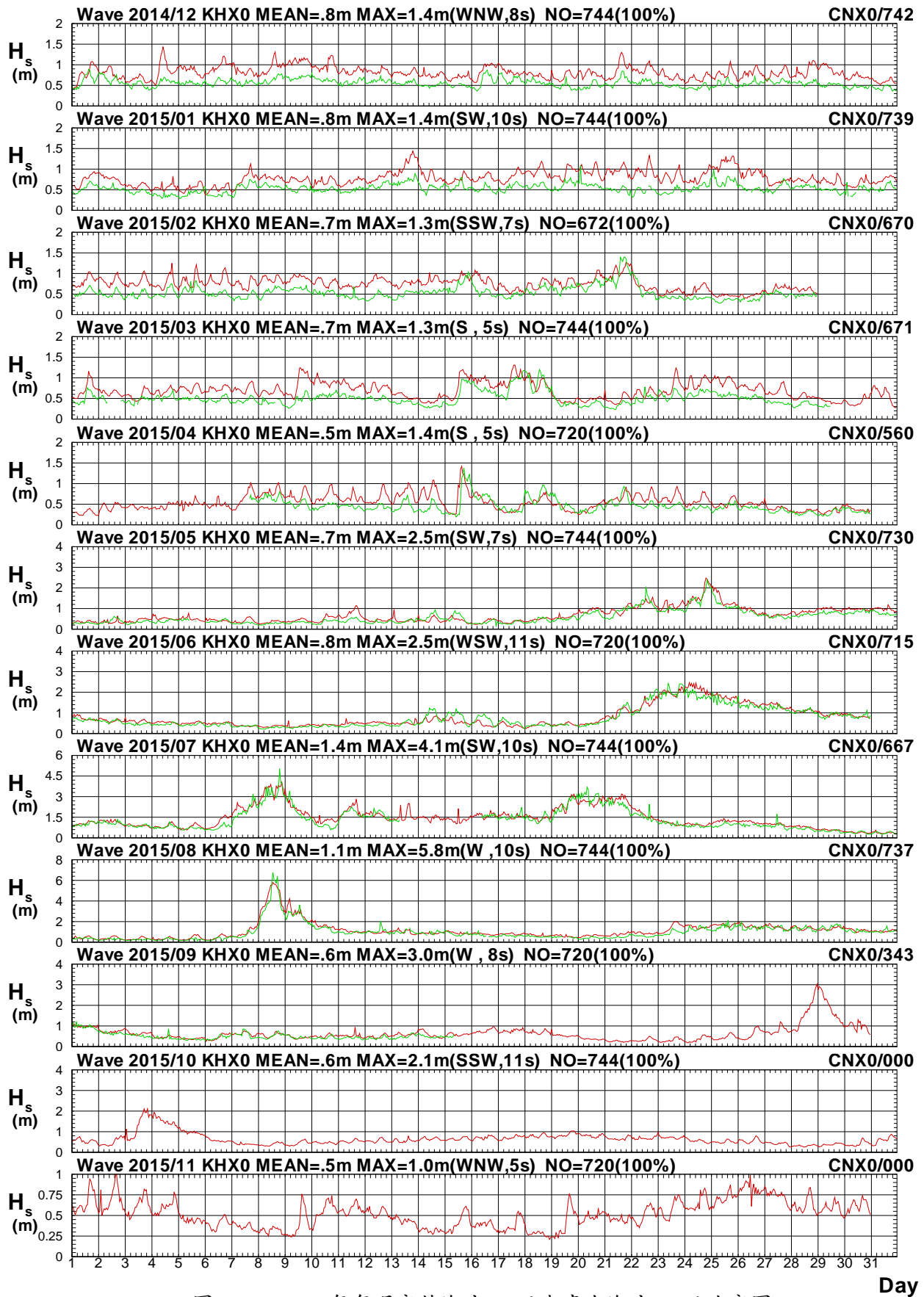


圖 2.8a 2015年每月高雄海域 X 站與嘉南海域 X 站波高圖

V14CKHX0.1HA V14CCNX0.1H0 V151KHX0.1HA V151CNX0.1H0 V152KHX0.1HA V152CNX0.1H0
 V153KHX0.1HA V153CNX0.1H0 V154KHX0.1HA V154CNX0.1H0 V155KHX0.1HA V155CNX0.1H0

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Wave T_p in Kao-Hsiung Seas of KHX0 at 2015

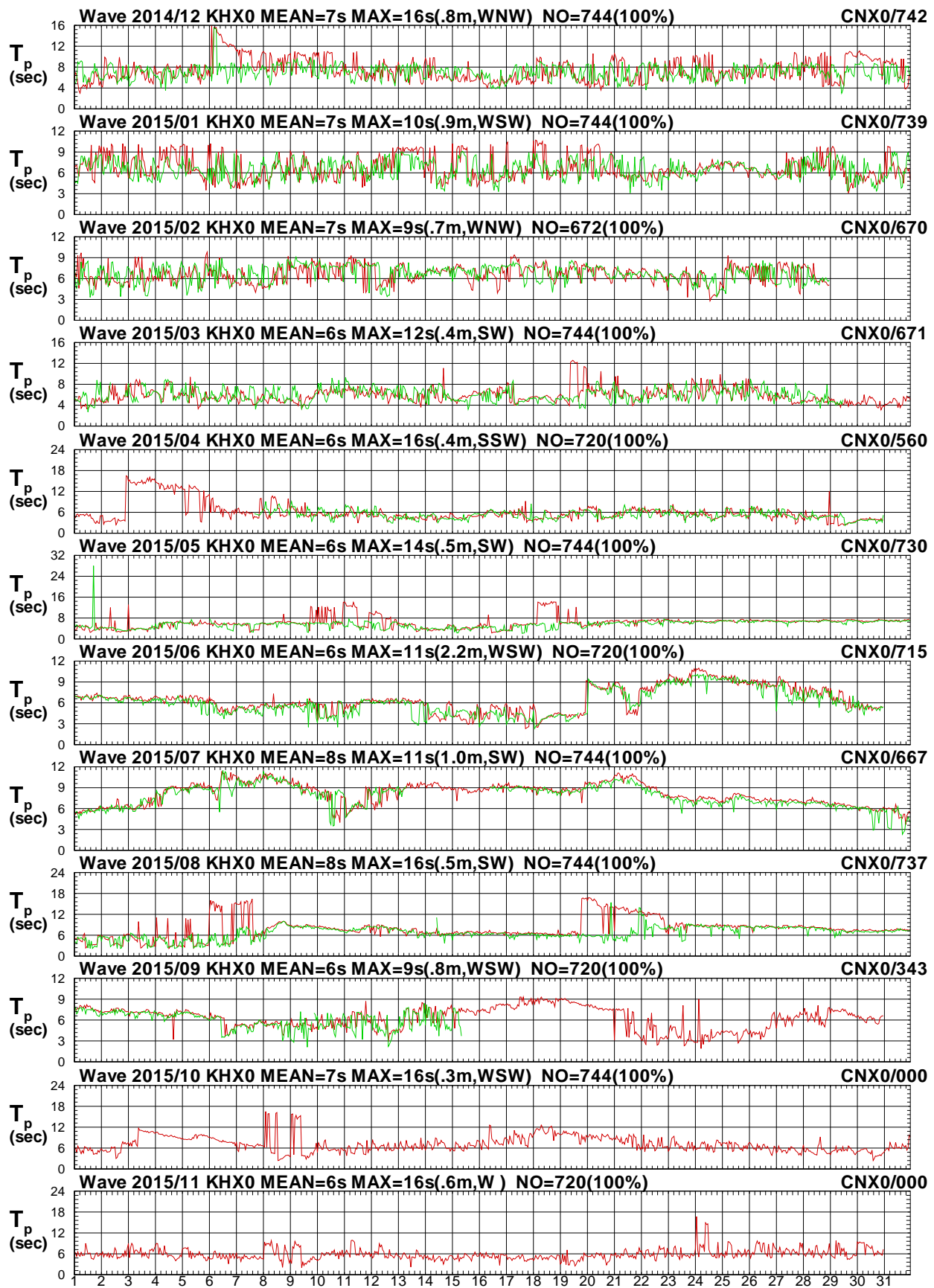


圖 2.8b 2015年每月高雄海域 X 站與嘉南海域 X 站週期圖

V14CKHX0.1HA V14CCNX0.1H0 V151KHX0.1HA V151CNX0.1H0 V152KHX0.1HA V152CNX0.1H0
 V153KHX0.1HA V153CNX0.1H0 V154KHX0.1HA V154CNX0.1H0 V155KHX0.1HA V155CNX0.1H0

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Wave Direction in Kao-Hsiung Seas of KHX0 at 2015

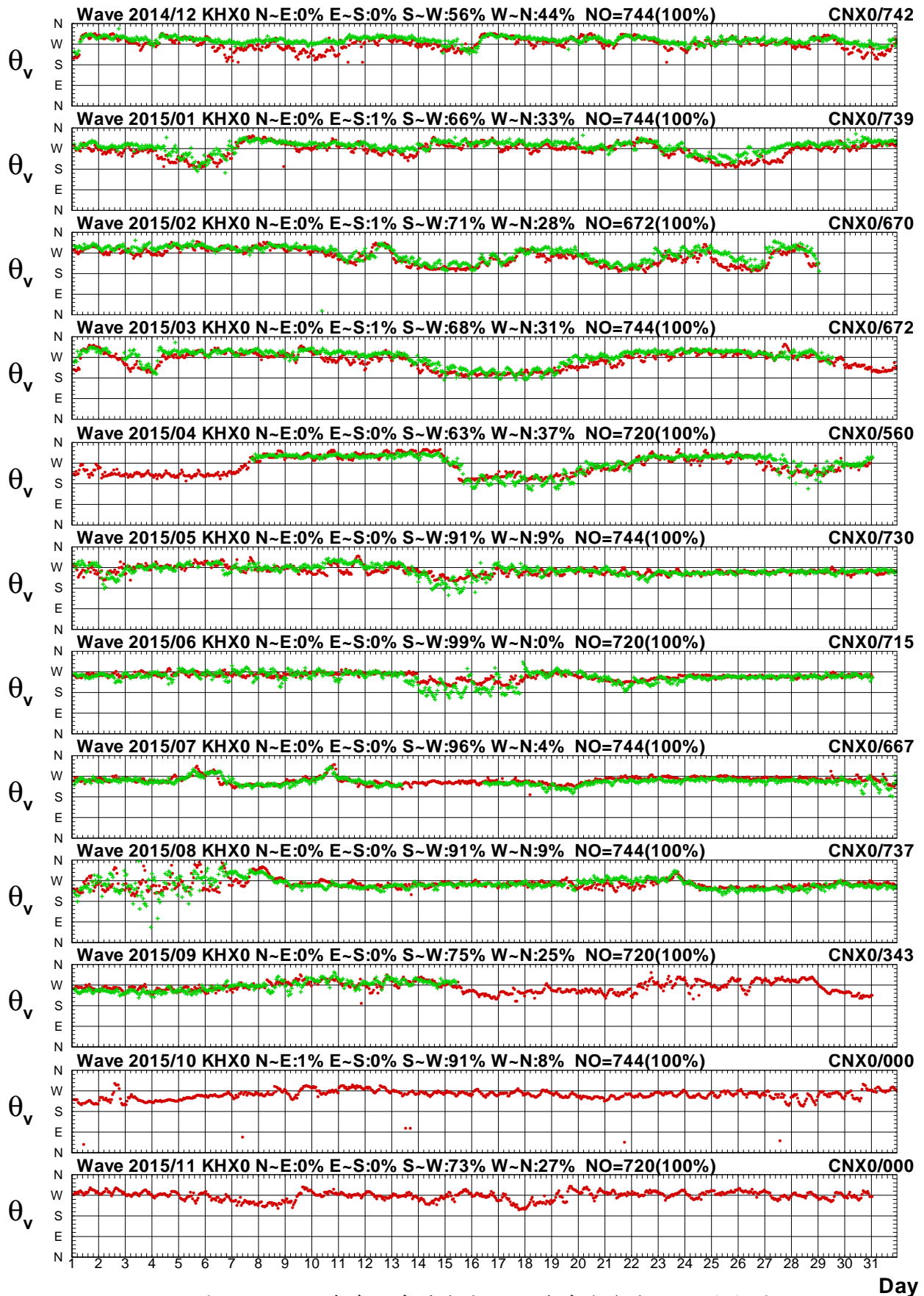


圖 2.8c 2015年每月高雄海域 X 站與嘉南海域 X 站波向圖

V14CKHX0.1HA V14CCNX0.1HO V151KHX0.1HA V151CNX0.1HO V152KHX0.1HA V152CNX0.1HO
 V153KHX0.1HA V153CNX0.1HO V154KHX0.1HA V154CNX0.1HO V155KHX0.1HA V155CNX0.1HO

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Wave H_s in Kao-Hsiung Seas of KHX0 at 2015

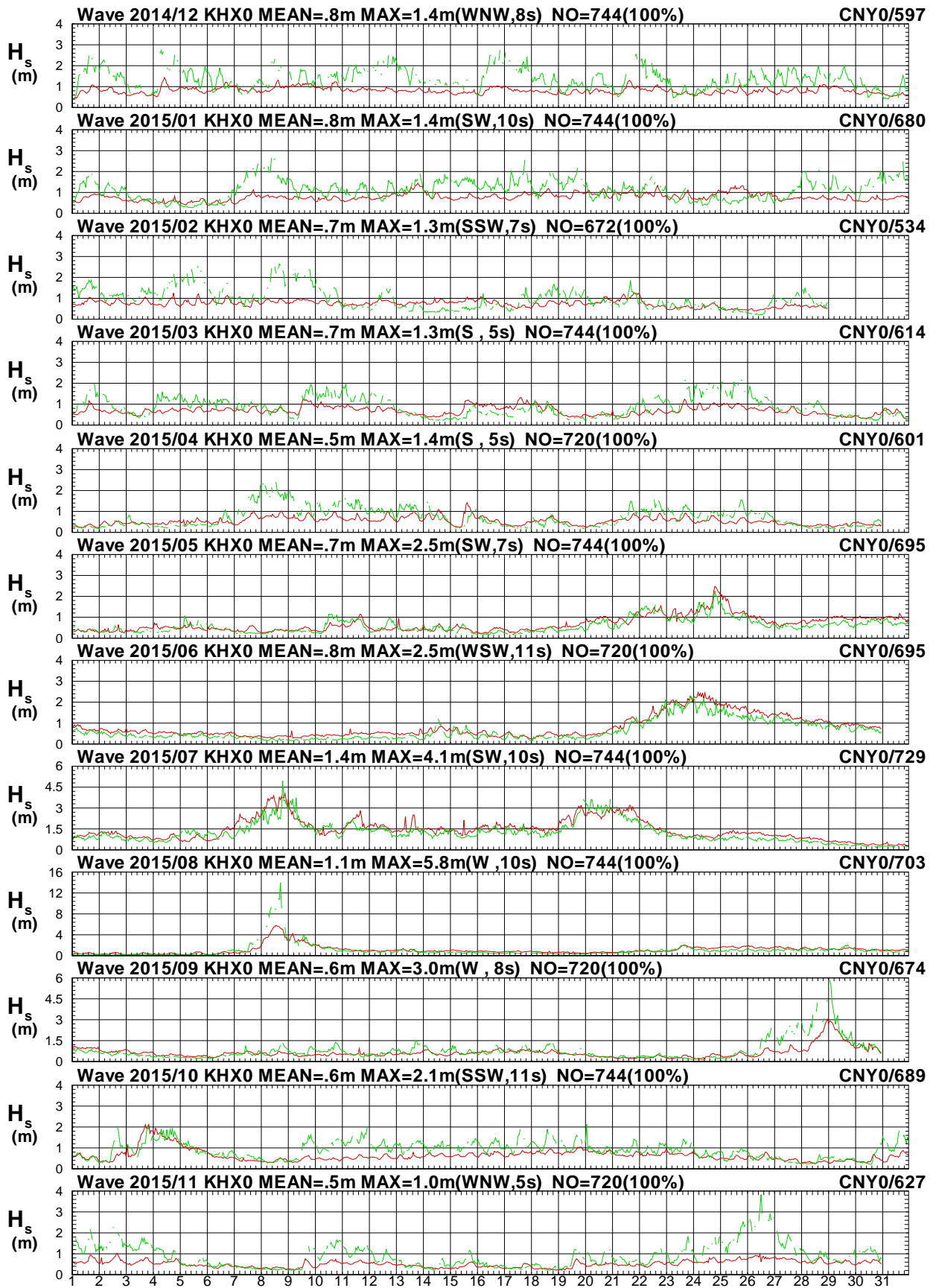


圖 2.9a 2015年每月高雄海域 X 站與嘉南海域 Y 站波高圖

V14CKHX0.1HA V14CCNY0.1HO V151KHX0.1HA V151CNY0.1HO V152KHX0.1HA V152CNY0.1HO
 V153KHX0.1HA V153CNY0.1HO V154KHX0.1HA V154CNY0.1HO V155KHX0.1HA V155CNY0.1HO

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Wave T_p in Kao-Hsiung Seas of KHX0 at 2015

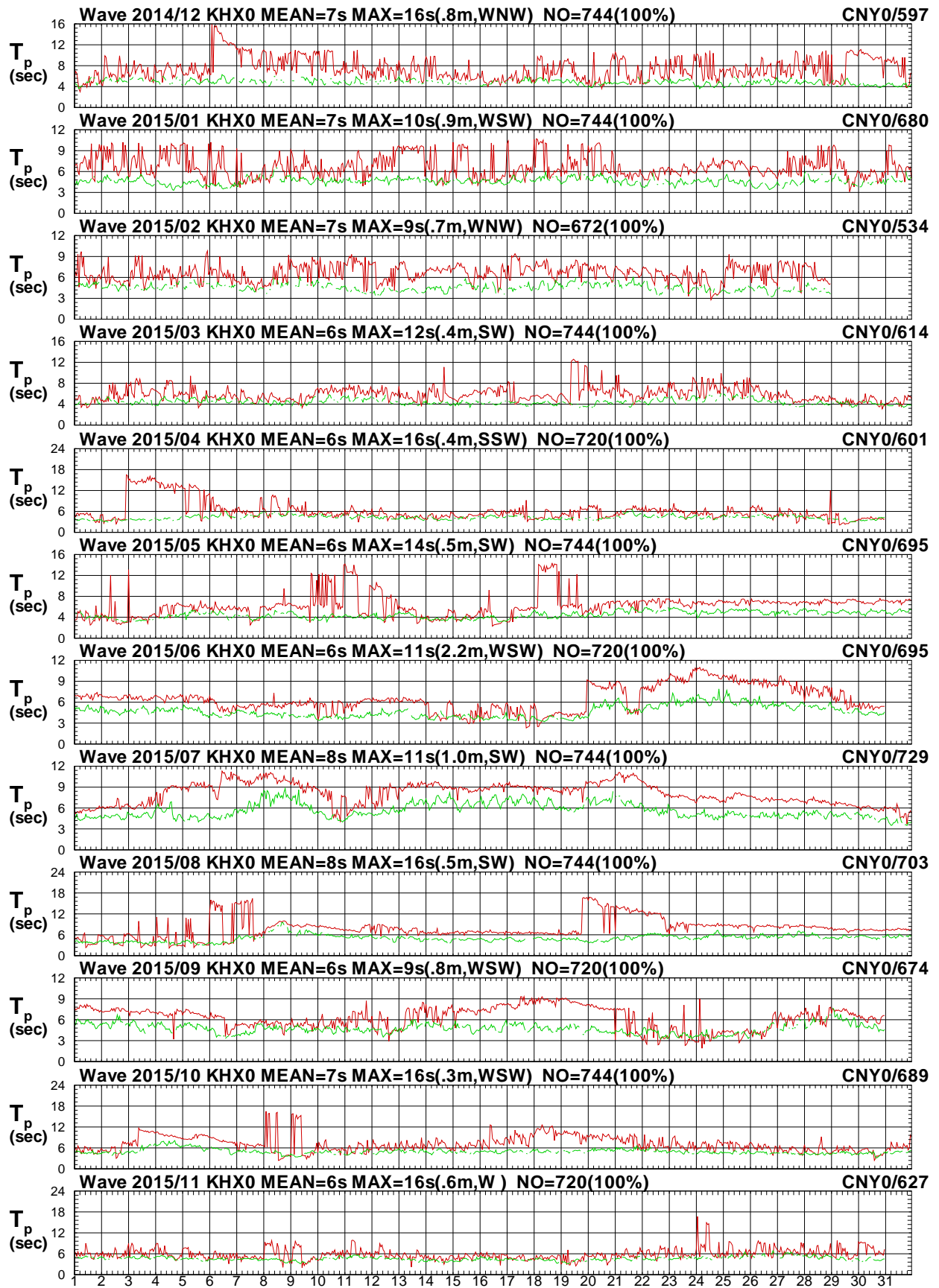


圖 2.9b 2015 年每月高雄海域 X 站與嘉南海域 Y 站週期圖

V14CKHX0.1HA V14CCNY0.1HO V151KHX0.1HA V151CNY0.1HO V152KHX0.1HA V152CNY0.1HO
 V153KHX0.1HA V153CNY0.1HO V154KHX0.1HA V154CNY0.1HO V155KHX0.1HA V155CNY0.1HO

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Wave Direction in Kao-Hsiung Seas of KHX0 at 2015

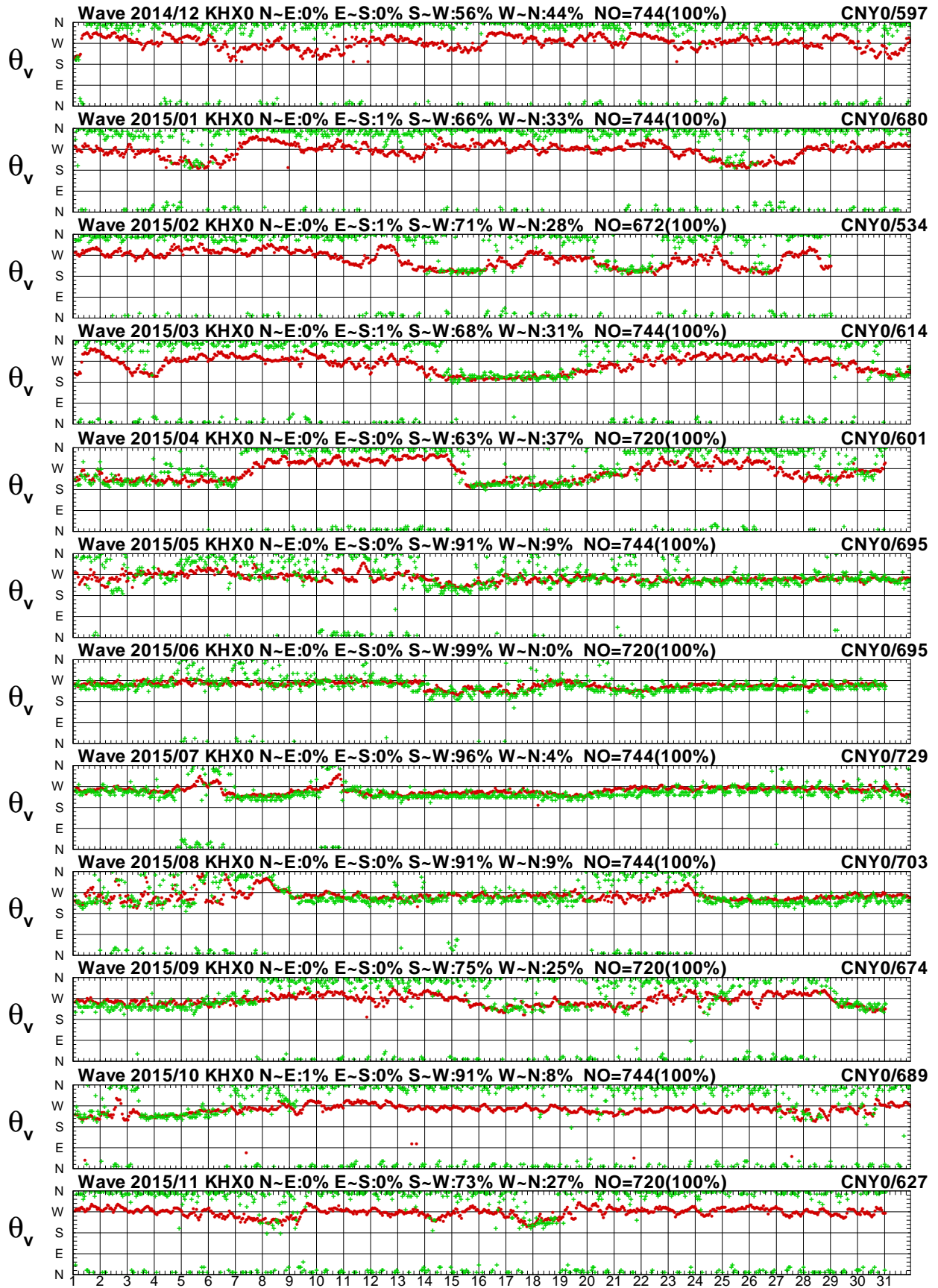


圖 2.9c 2015年每月高雄海域 X 站與嘉南海域 Y 站波向圖

V14CKHX0.1HA V14CCNY0.1HO V151KHX0.1HA V151CNY0.1HO V152KHX0.1HA V152CNY0.1HO
 V153KHX0.1HA V153CNY0.1HO V154KHX0.1HA V154CNY0.1HO V155KHX0.1HA V155CNY0.1HO

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Wave H_s in Kao-Hsiung Seas of KHX0 at 2015

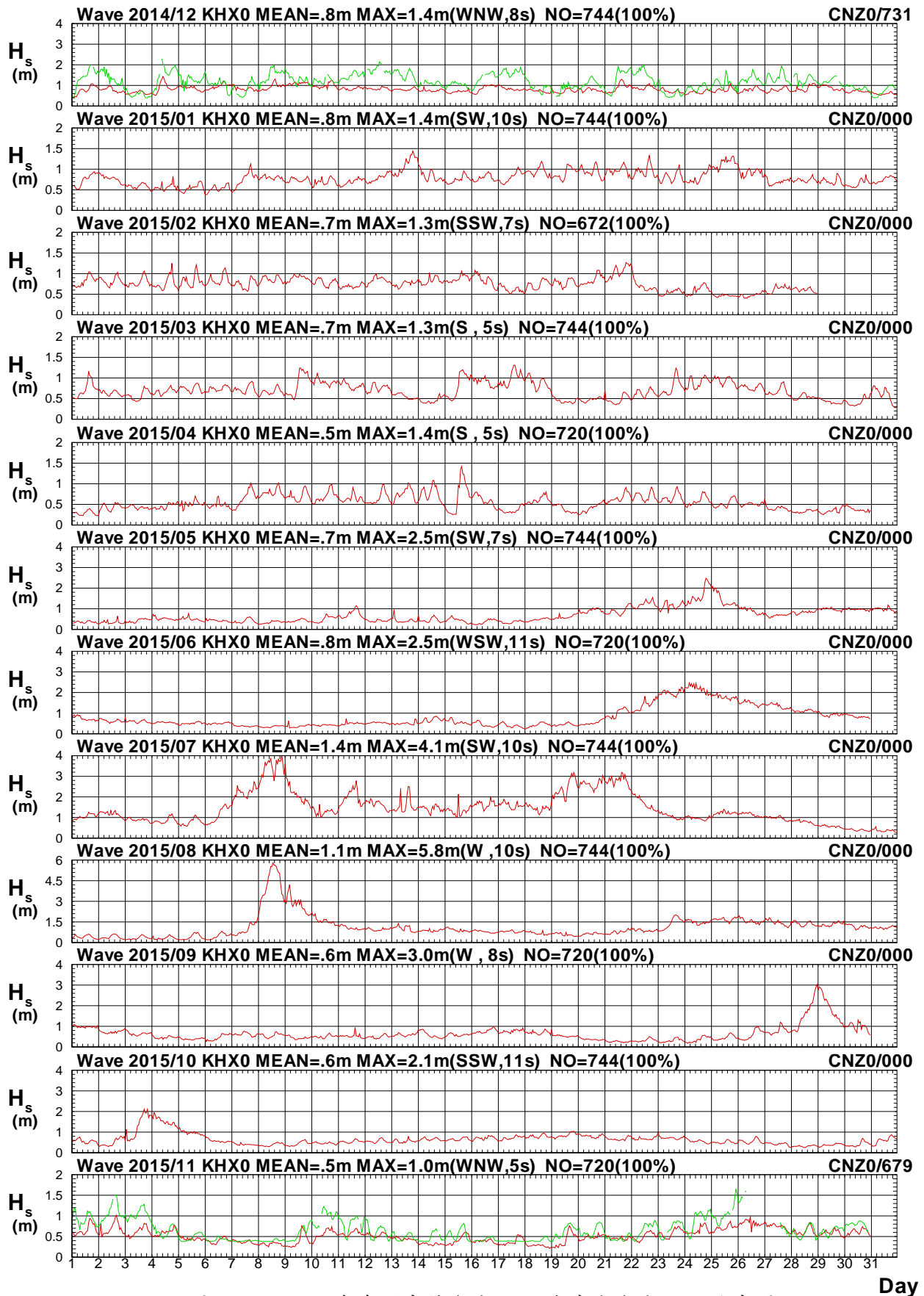


圖 2.10a 2015年每月高雄海域 X 站與嘉南海域 Z 站波高圖

V14CKHX0.1HA V14CCNZ0.1H0 V151KHX0.1HA V151CNZO.1H0 V152KHX0.1HA V152CNZO.1H0
 V153KHX0.1HA V153CNZO.1H0 V154KHX0.1HA V154CNZO.1H0 V155KHX0.1HA V155CNZO.1H0

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Wave T_p in Kao-Hsiung Seas of KHX0 at 2015

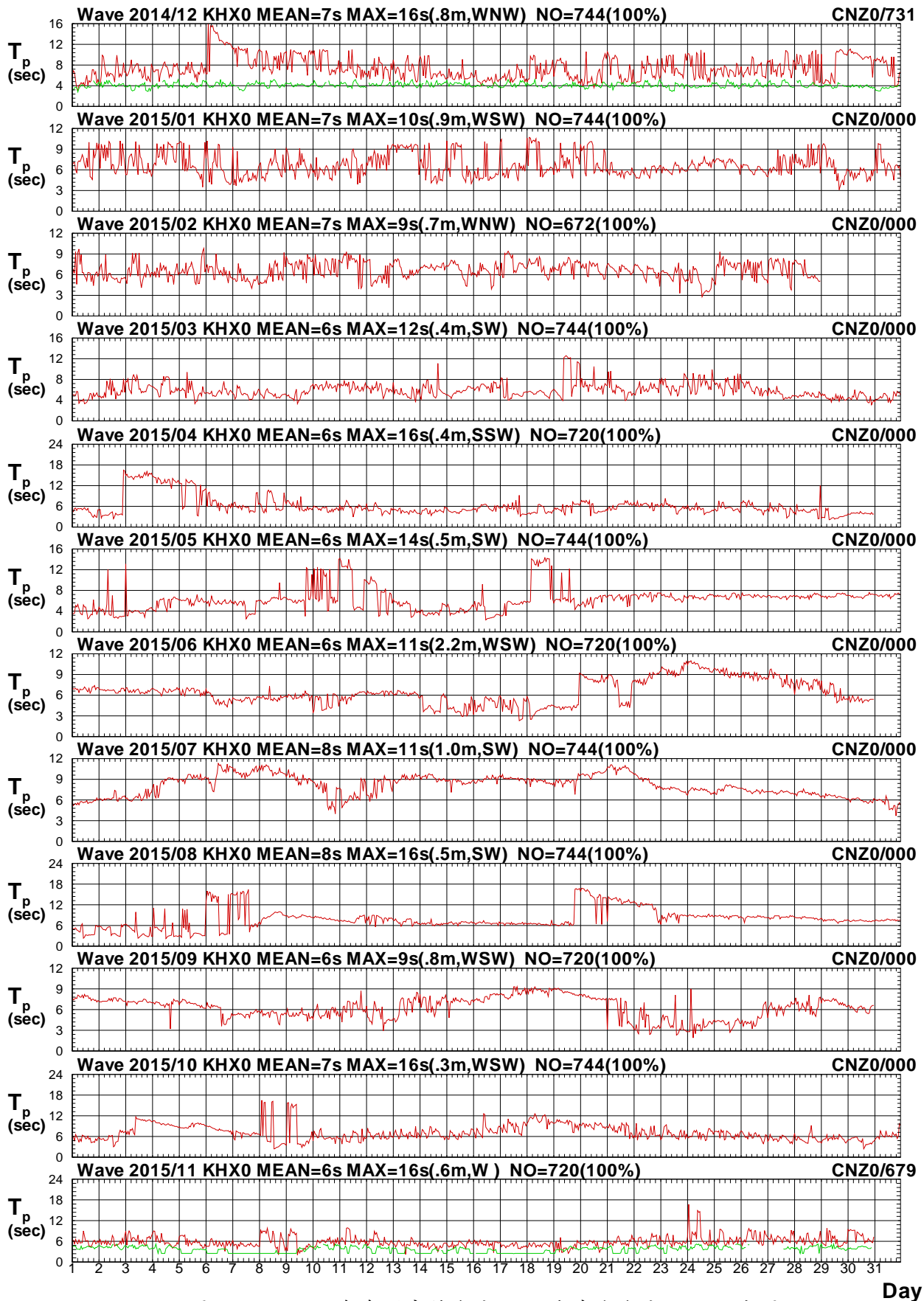


圖 2.10b 2015年每月高雄海域 X 站與嘉南海域 Z 站週期圖

V14CKHX0.1HA V14CCNZ0.1H0 V151KHX0.1HA V151CNZ0.1H0 V152KHX0.1HA V152CNZ0.1H0
 V153KHX0.1HA V153CNZ0.1H0 V154KHX0.1HA V154CNZ0.1H0 V155KHX0.1HA V155CNZ0.1H0

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Wave Direction in Kao-Hsiung Seas of KHX0 at 2015

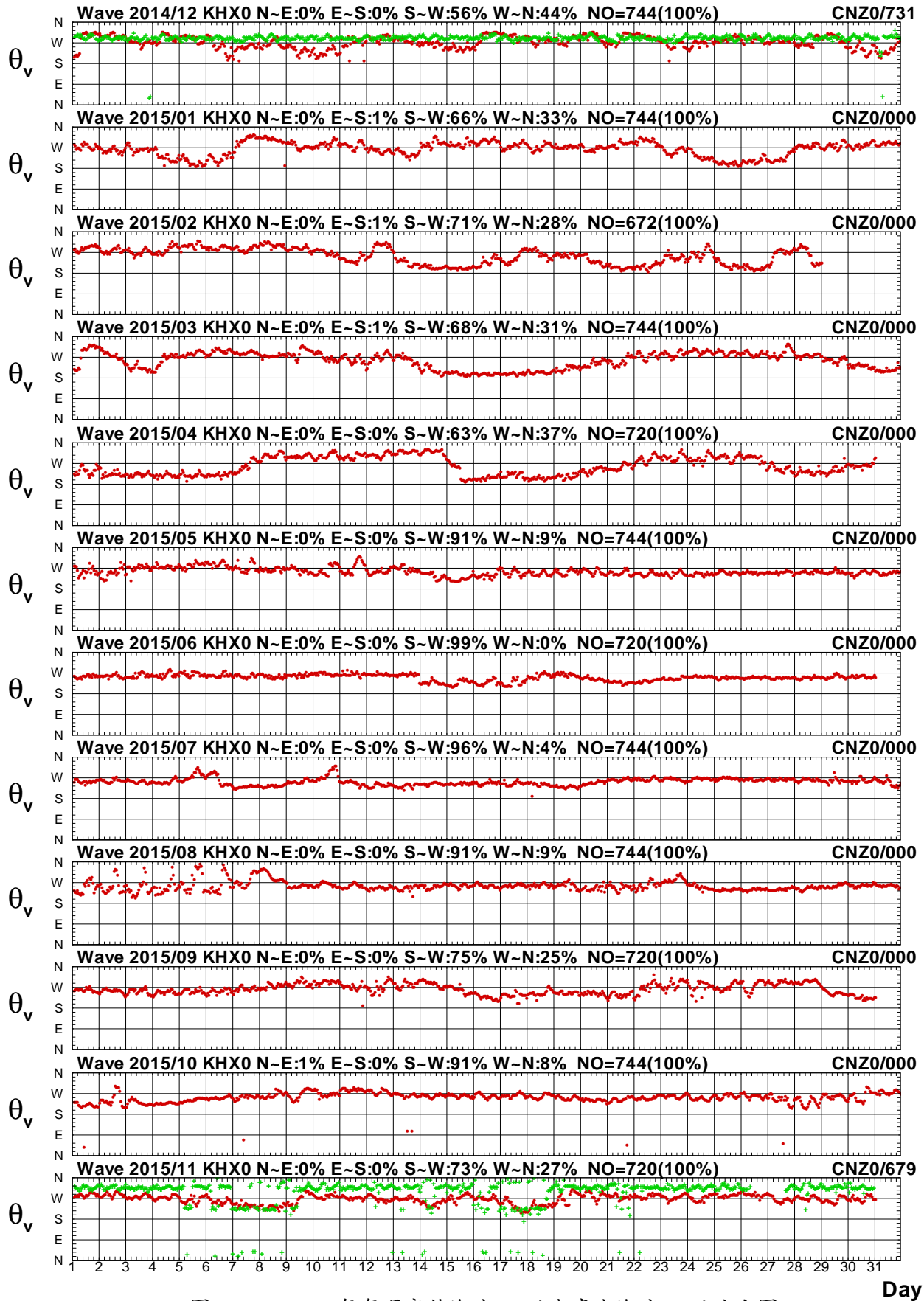


圖 2.10c 2015 年每月高雄海域 X 站與嘉南海域 Z 站波向圖

V14CKHX0.1HA V14CCNZ0.1HO V151KHX0.1HA V151CNZ0.1HO V152KHX0.1HA V152CNZ0.1HO
 V153KHX0.1HA V153CNZ0.1HO V154KHX0.1HA V154CNZ0.1HO V155KHX0.1HA V155CNZ0.1HO

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Wave H_s in Kao-Hsiung Seas of KHX0 at 2015

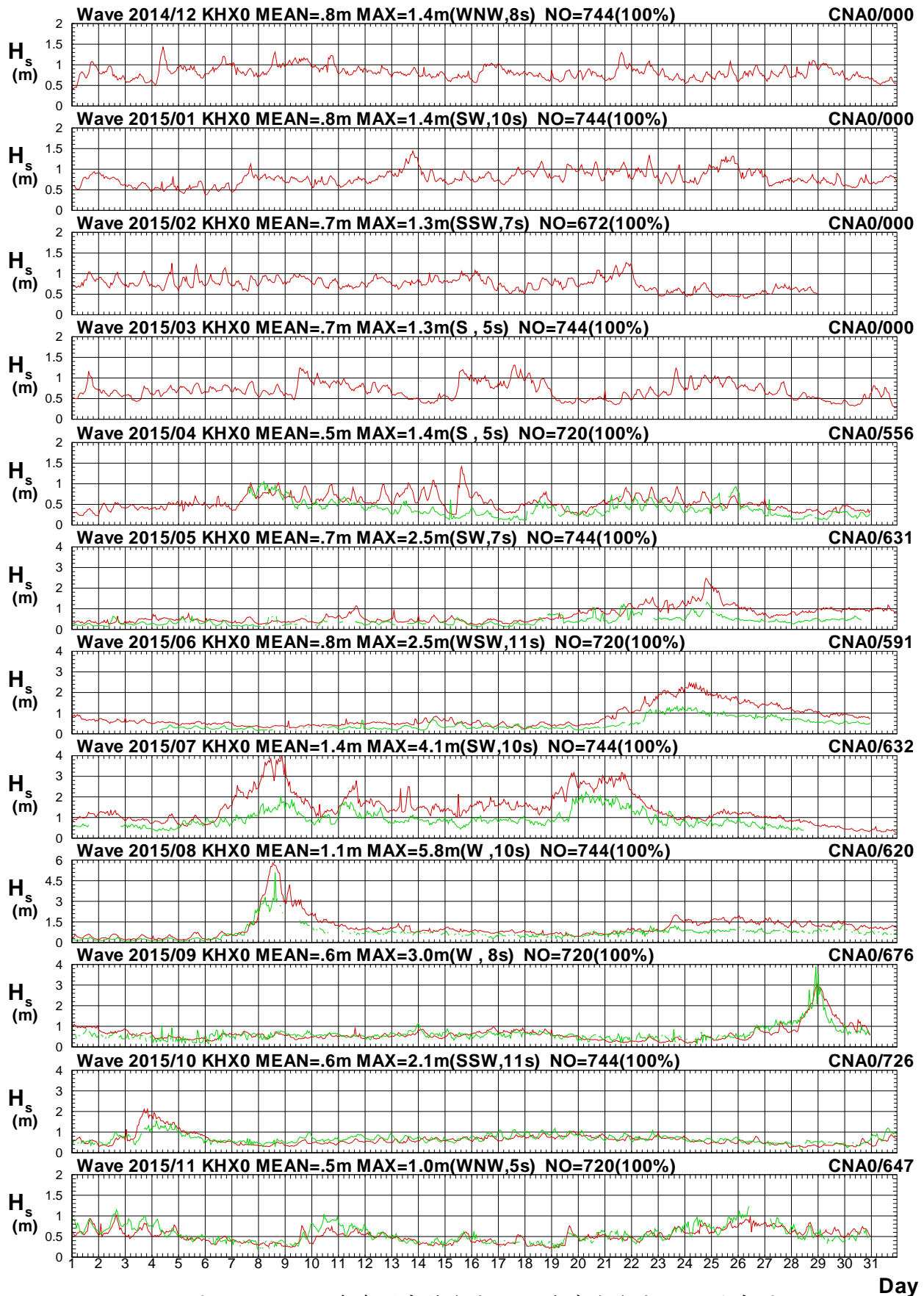


圖 2.11a 2015年每月高雄海域 X 站與嘉南海域 A 站波高圖

V14CKHX0.1HA V14CCNA0.1H0 V151KHX0.1HA V151CNA0.1H0 V152KHX0.1HA V152CNA0.1H0
 V153KHX0.1HA V153CNA0.1H0 V154KHX0.1HA V154CNA0.1H0 V155KHX0.1HA V155CNA0.1H0

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Wave T_p in Kao-Hsiung Seas of KHX0 at 2015

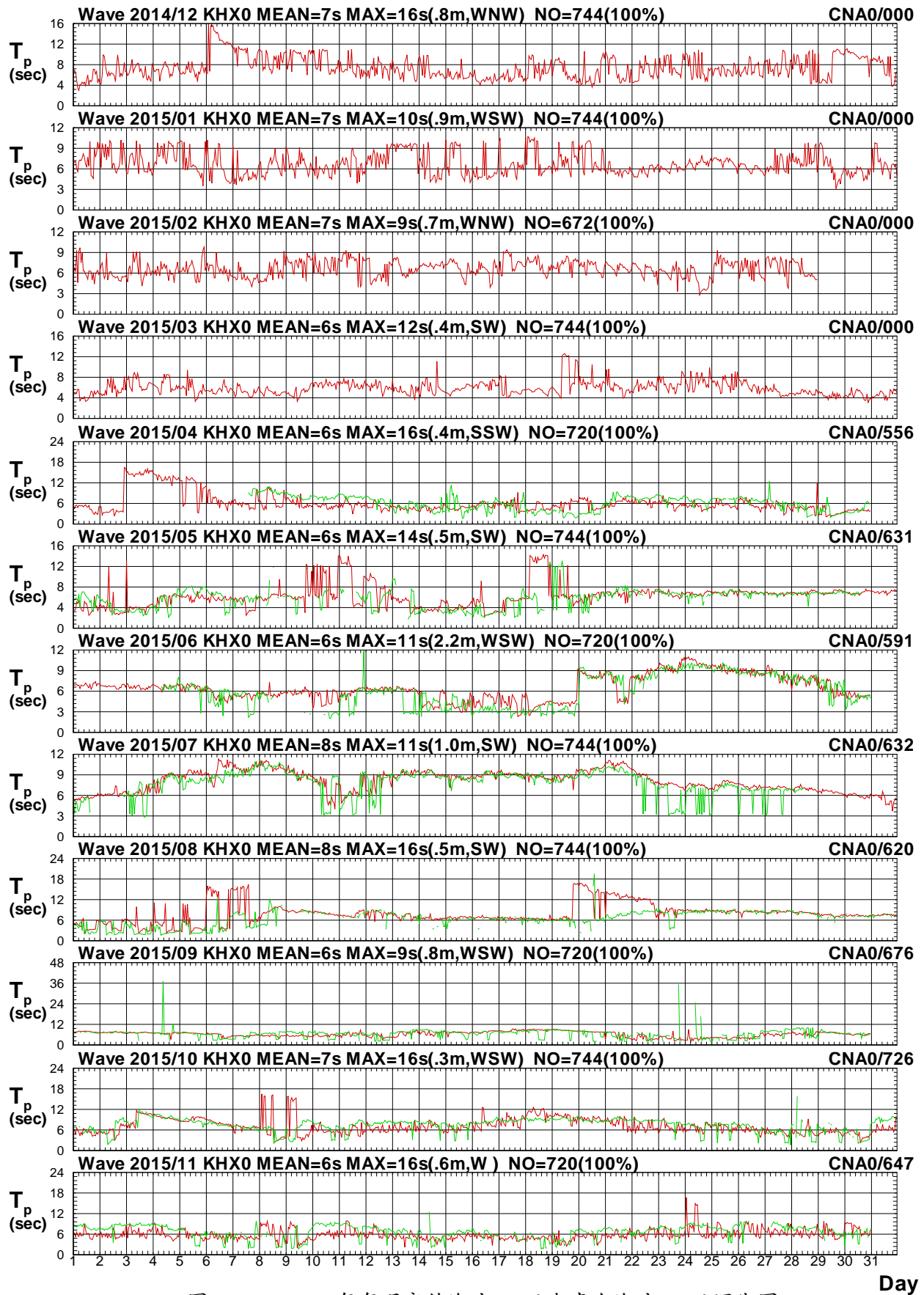


圖 2.11b 2015年每月高雄海域 X 站與嘉南海域 A 站週期圖

V14CKHX0.1HA V14CCNA0.1H0 V151KHX0.1HA V151CNA0.1H0 V152KHX0.1HA V152CNA0.1H0
 V153KHX0.1HA V153CNA0.1H0 V154KHX0.1HA V154CNA0.1H0 V155KHX0.1HA V155CNA0.1H0

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Wave Direction in Kao-Hsiung Seas of KHX0 at 2015

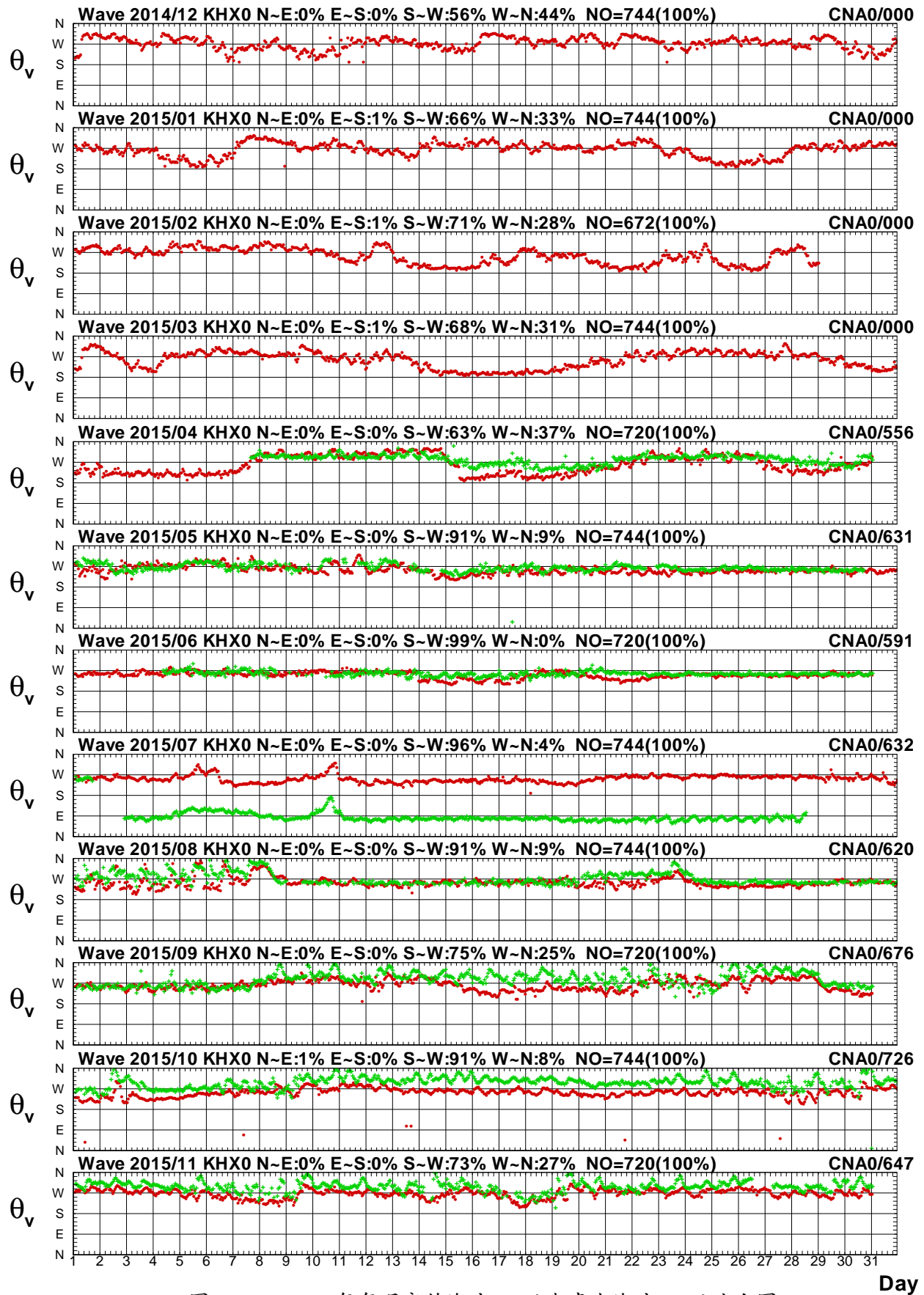


圖 2.11c 2015 年每月高雄海域 X 站與嘉南海域 A 站波向圖

V14CKHX0.1HA V14CCNA0.1HO V151KHX0.1HA V151CNA0.1HO V152KHX0.1HA V152CNA0.1HO
 V153KHX0.1HA V153CNA0.1HO V154KHX0.1HA V154CNA0.1HO V155KHX0.1HA V155CNA0.1HO

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Wave H_s in Kao-Hsiung Seas of KHX0 at 2015

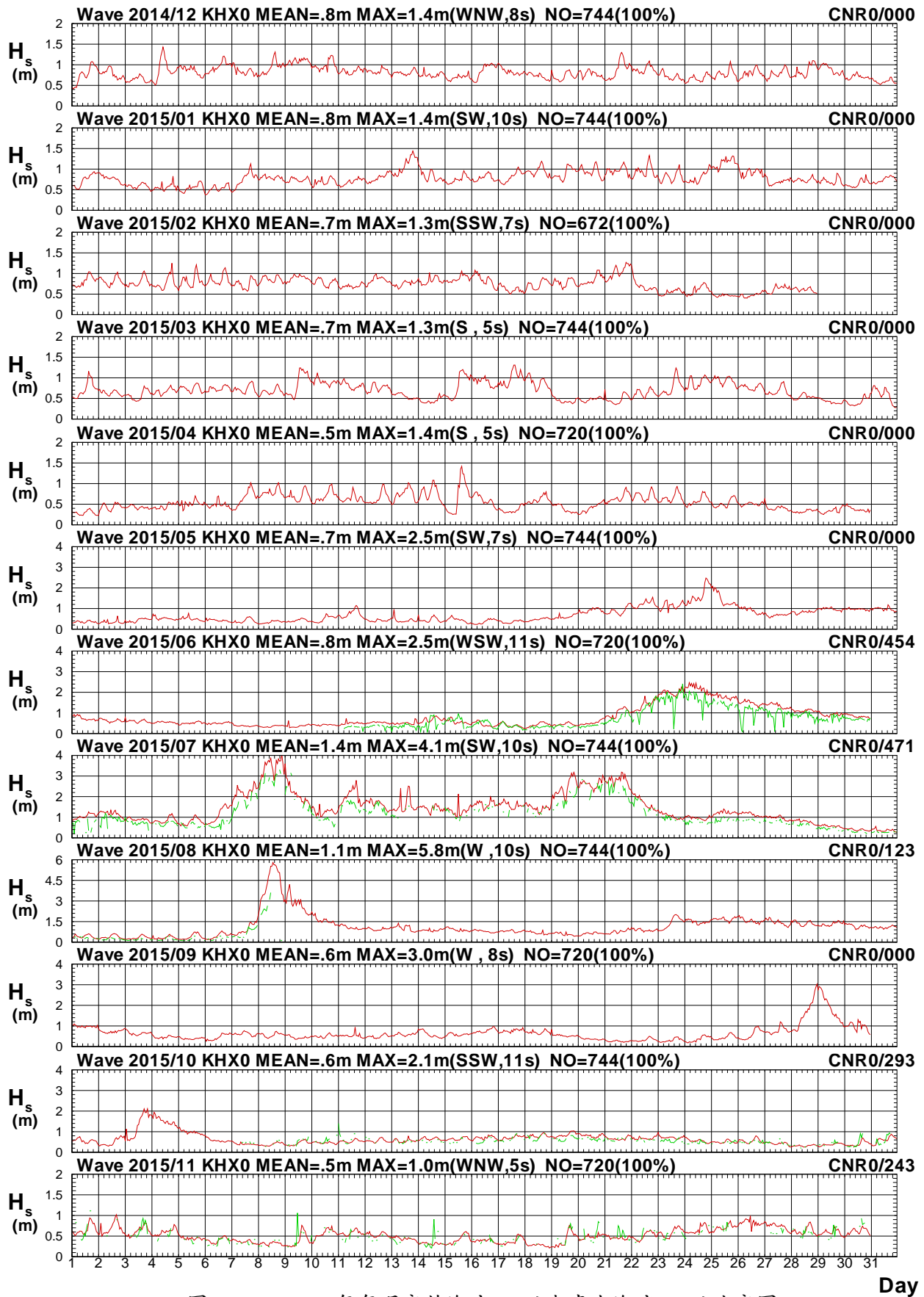


圖 2.12a 2015年每月高雄海域 X 站與嘉南海域 R 站波高圖

V14CKHX0.1HA V14CCNR0.1H0 V151KHX0.1HA V151CNR0.1H0 V152KHX0.1HA V152CNR0.1H0
 V153KHX0.1HA V153CNR0.1H0 V154KHX0.1HA V154CNR0.1H0 V155KHX0.1HA V155CNR0.1H0

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Wave T_p in Kao-Hsiung Seas of KHX0 at 2015

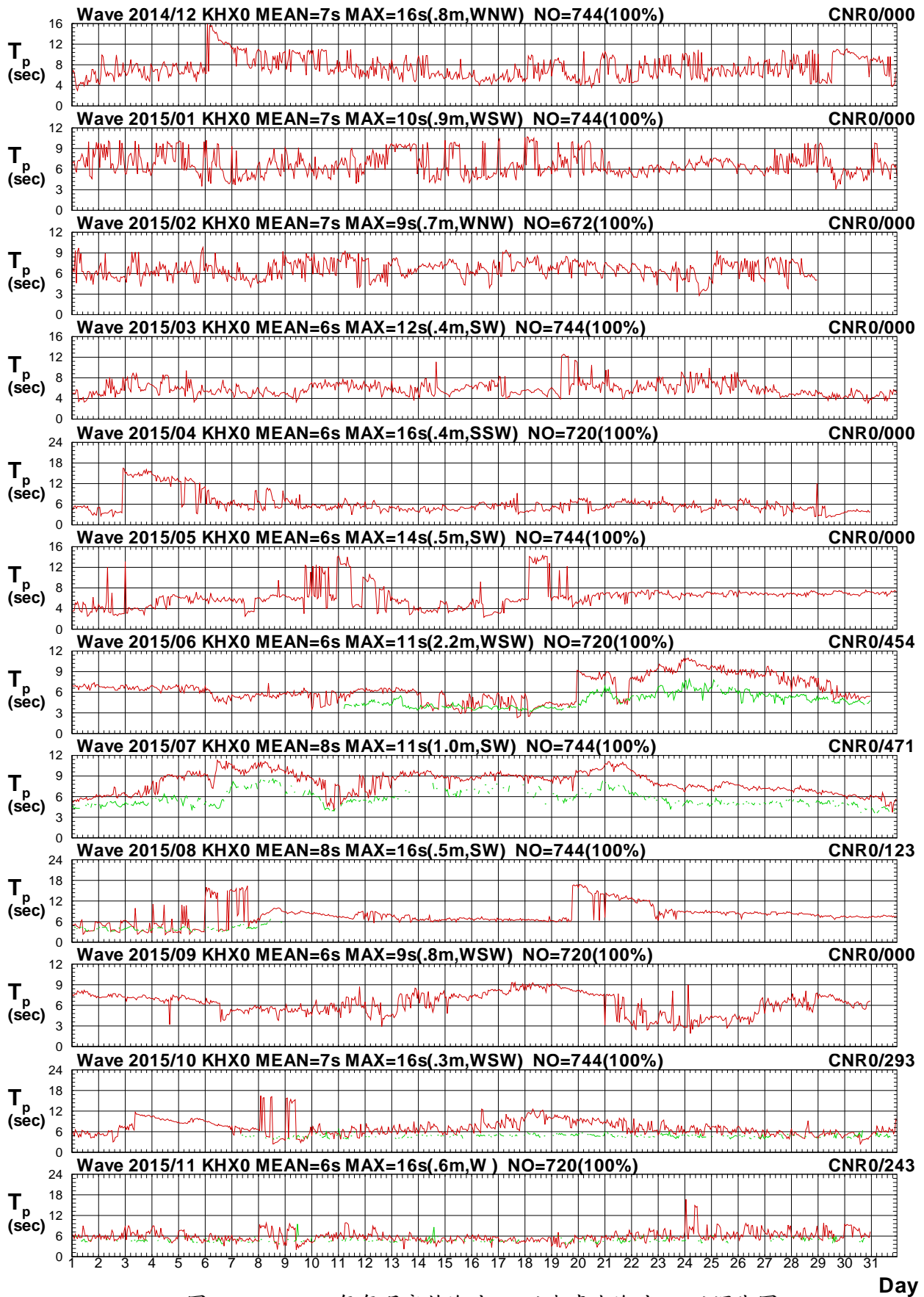


圖 2.12b 2015年每月高雄海域 X 站與嘉南海域 R 站週期圖

V14CKHX0.1HA V14CCNR0.1H0 V151KHX0.1HA V151CNR0.1H0 V152KHX0.1HA V152CNR0.1H0
 V153KHX0.1HA V153CNR0.1H0 V154KHX0.1HA V154CNR0.1H0 V155KHX0.1HA V155CNR0.1H0

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Wave Direction in Kao-Hsiung Seas of KHX0 at 2015

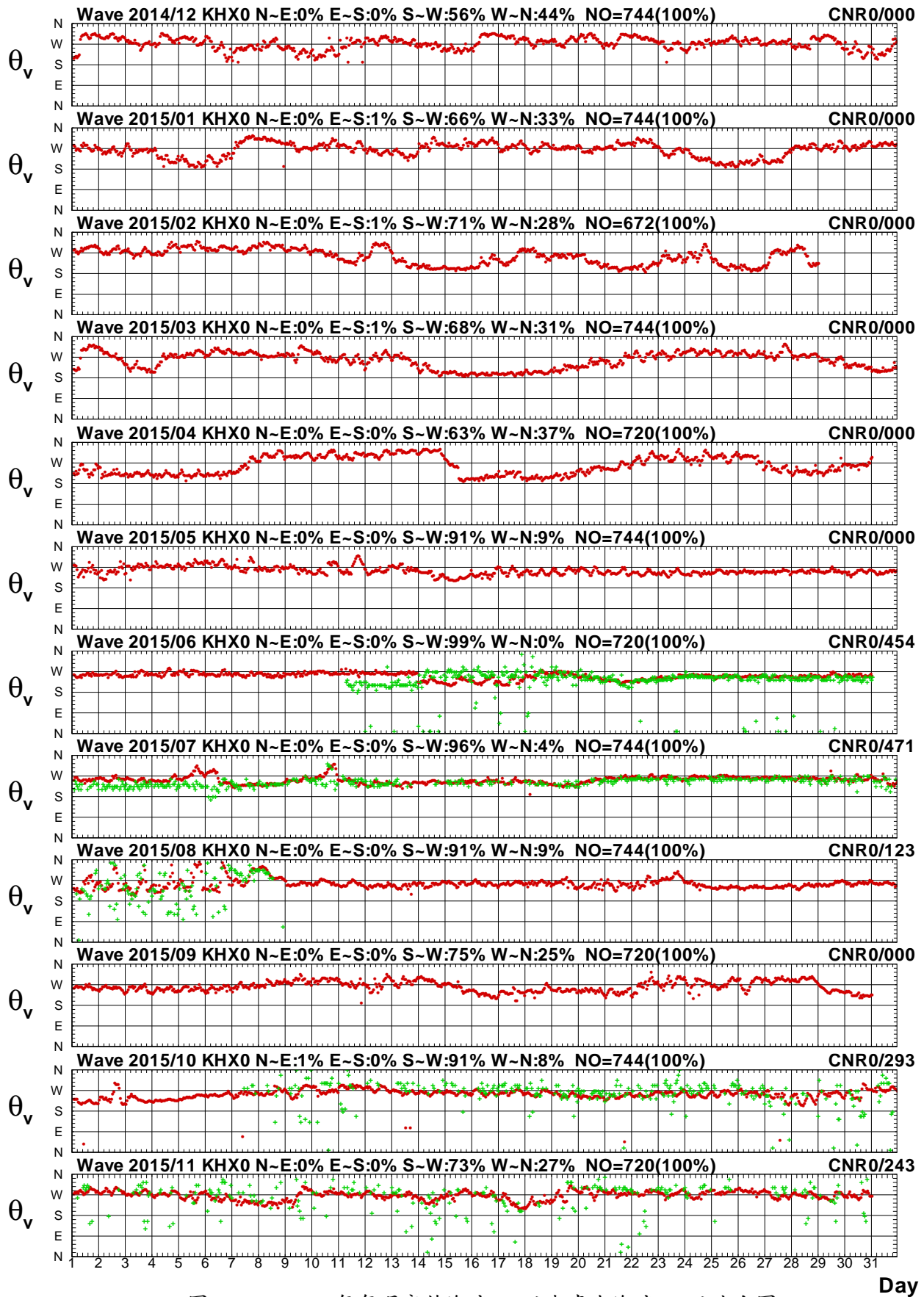


圖 2.12c 2015年每月高雄海域 X 站與嘉南海域 R 站波向圖

V14CKHX0.1HA V14CCNR0.1H0 V151KHX0.1HA V151CNR0.1H0 V152KHX0.1HA V152CNR0.1H0
 V153KHX0.1HA V153CNR0.1H0 V154KHX0.1HA V154CNR0.1H0 V155KHX0.1HA V155CNR0.1H0

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Wave H_s in Kao-Hsiung Seas of KHX0 at 2015

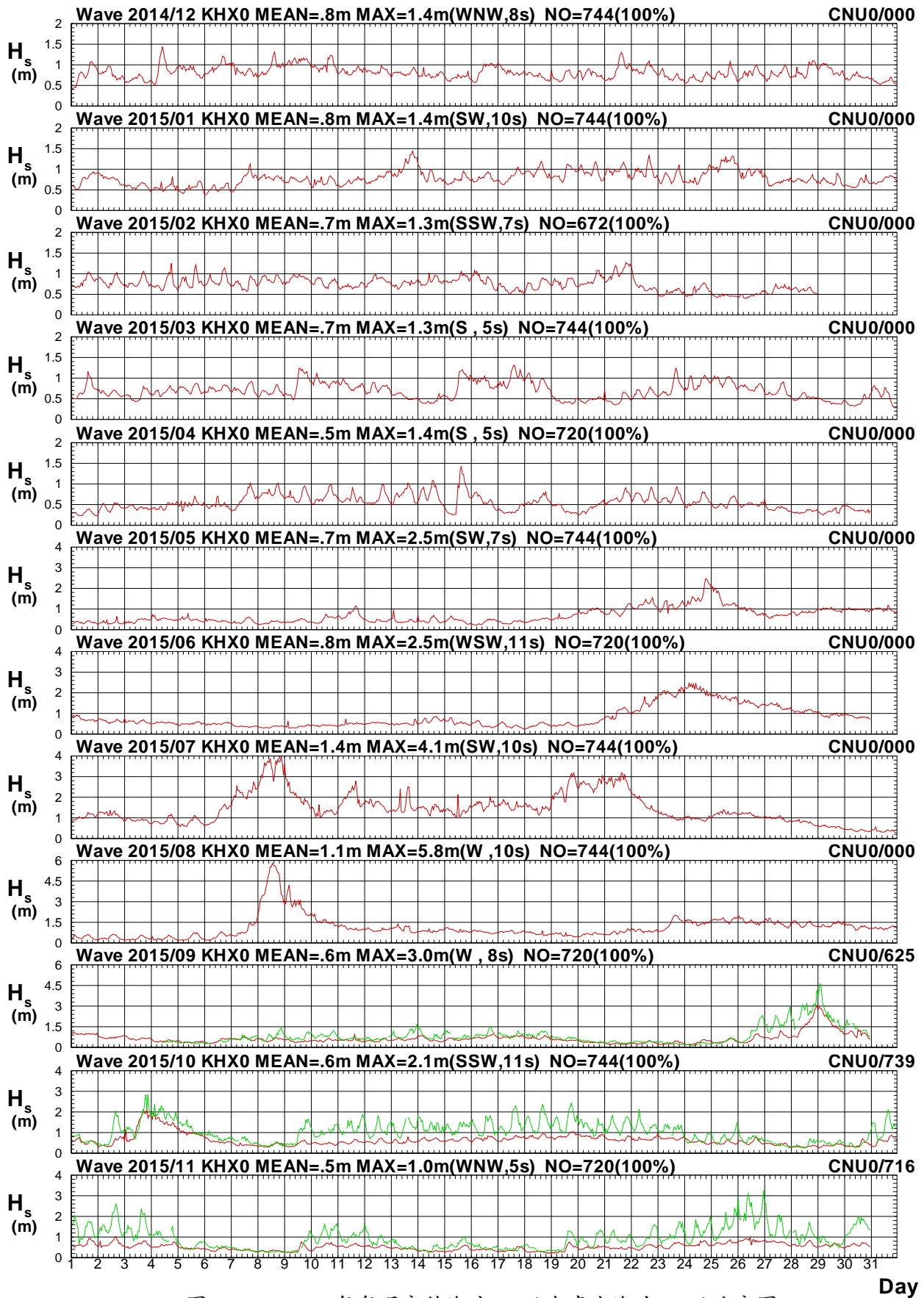


圖 2.13a 2015年每月高雄海域 X 站與嘉南海域 U 站波高圖

V14CKHX0.1HA V14CCNU0.1H0 V151KHX0.1HA V151CNU0.1H0 V152KHX0.1HA V152CNU0.1H0
 V153KHX0.1HA V153CNU0.1H0 V154KHX0.1HA V154CNU0.1H0 V155KHX0.1HA V155CNU0.1H0

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Wave T_p in Kao-Hsiung Seas of KHX0 at 2015

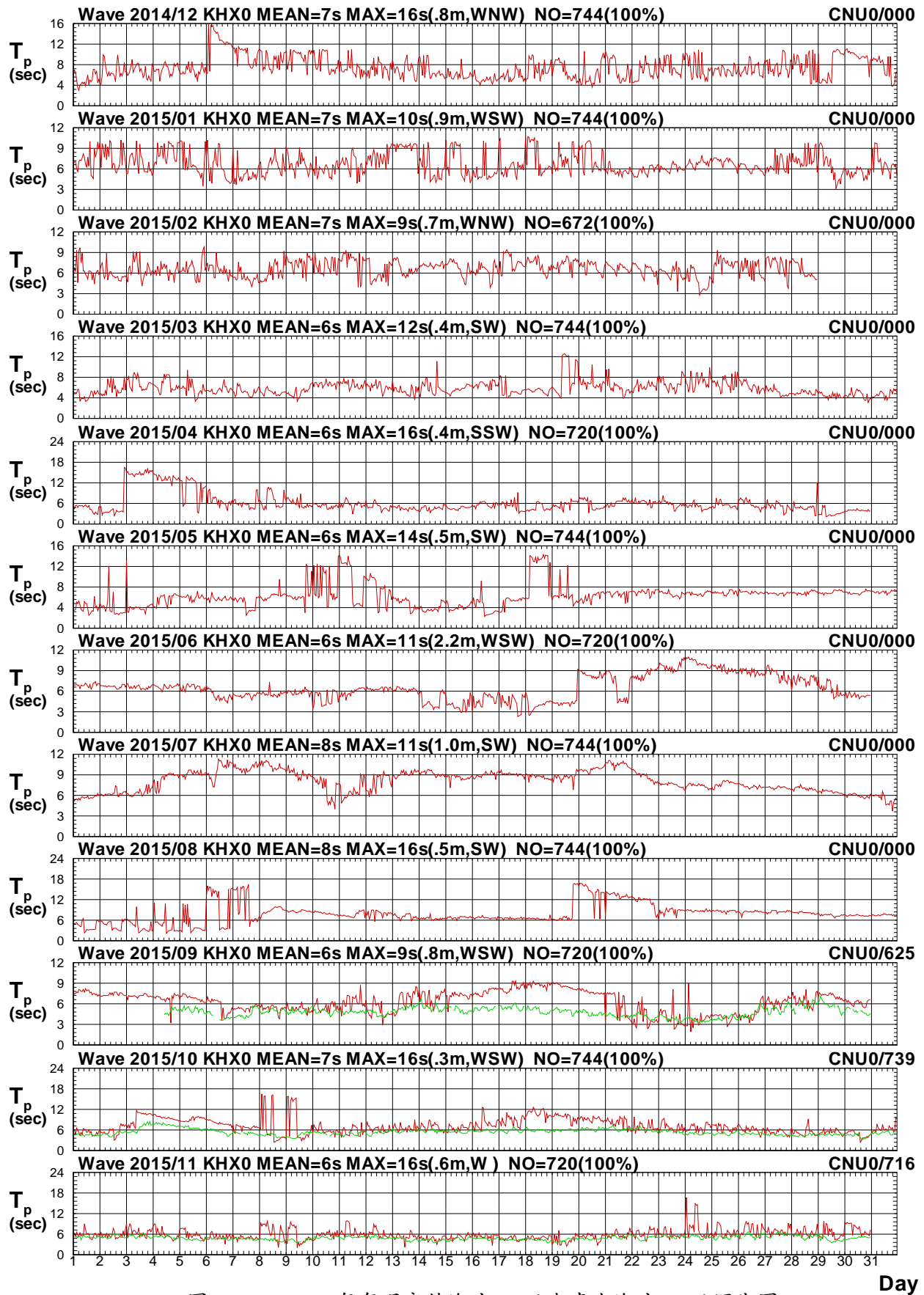


圖 2.13b 2015年每月高雄海域 X 站與嘉南海域 U 站週期圖

V14CKHX0.1HA V14CCNU0.1H0 V151KHX0.1HA V151CNU0.1H0 V152KHX0.1HA V152CNU0.1H0
 V153KHX0.1HA V153CNU0.1H0 V154KHX0.1HA V154CNU0.1H0 V155KHX0.1HA V155CNU0.1H0

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Wave Direction in Kao-Hsiung Seas of KHX0 at 2015

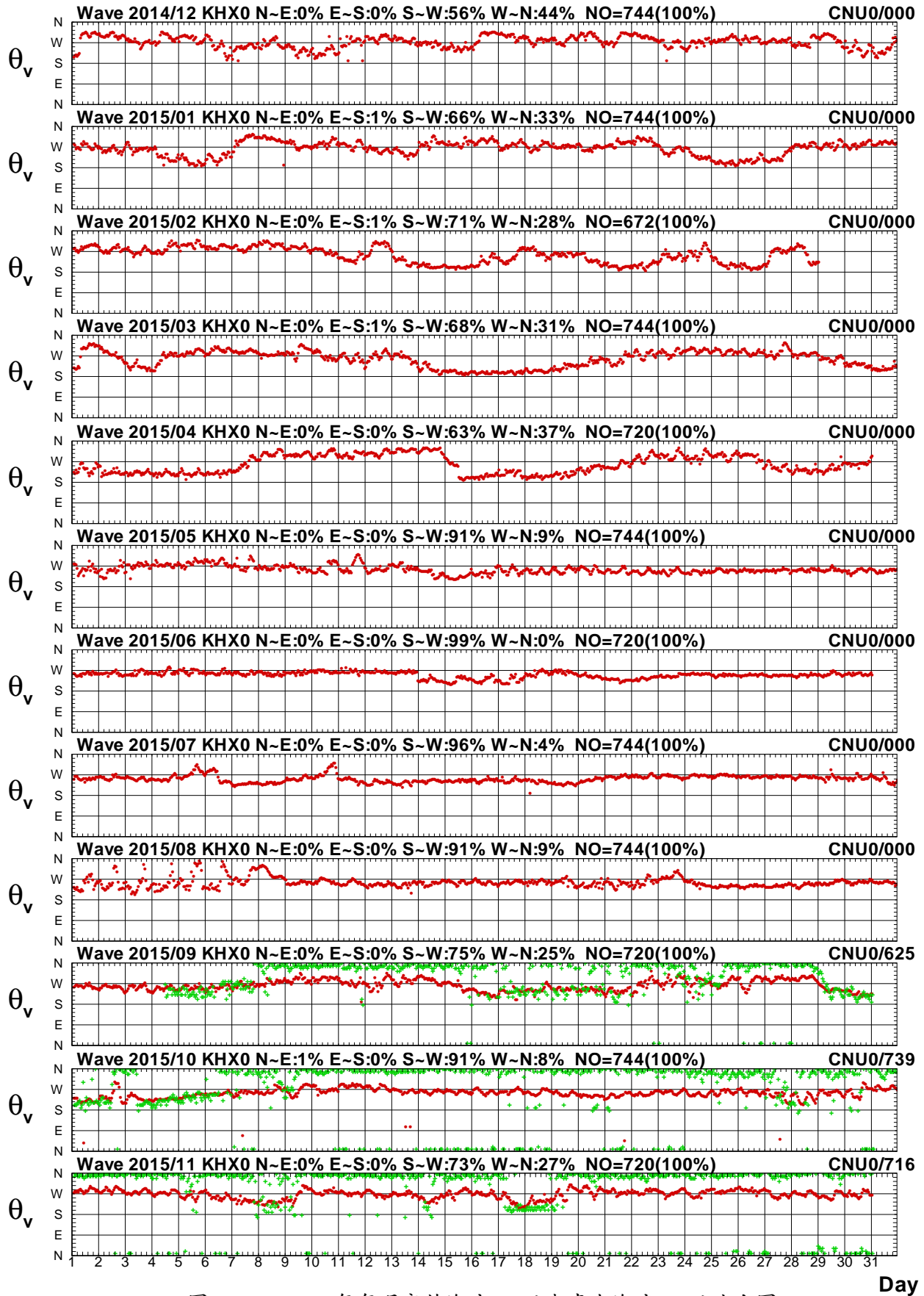


圖 2.13c 2015年每月高雄海域 X 站與嘉南海域 U 站波向圖

V14CKHX0.1HA V14CCNU0.1H0 V151KHX0.1HA V151CNU0.1H0 V152KHX0.1HA V152CNU0.1H0
 V153KHX0.1HA V153CNU0.1H0 V154KHX0.1HA V154CNU0.1H0 V155KHX0.1HA V155CNU0.1H0

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Wave H_s in Kao-Hsiung Seas of KHX0 at 2015

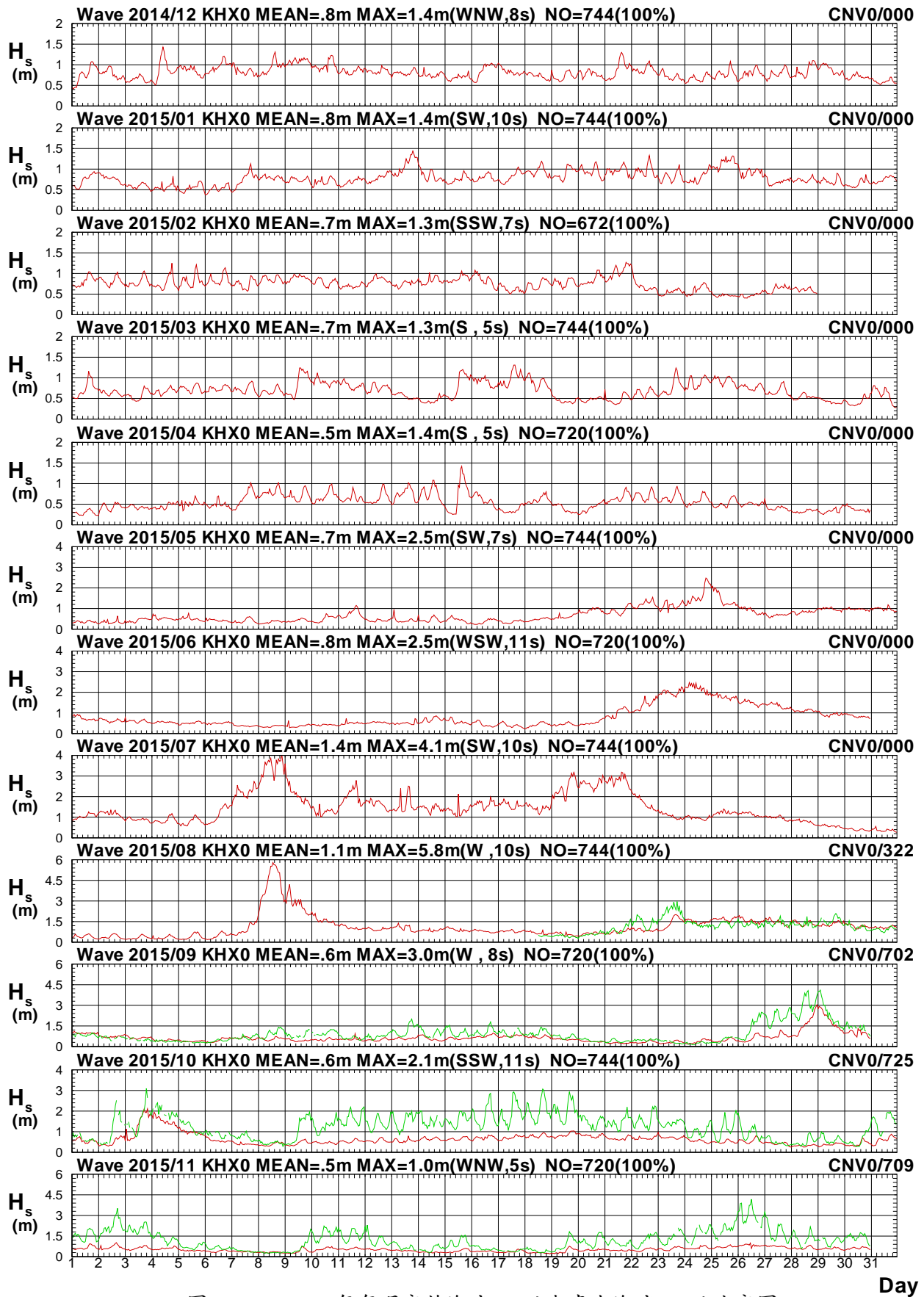


圖 2.14a 2015年每月高雄海域 X 站與嘉南海域 V 站波高圖

V14CKHX0.1HA V14CCNV0.1H0 V151KHX0.1HA V151CNV0.1H0 V152KHX0.1HA V152CNV0.1H0
 V153KHX0.1HA V153CNV0.1H0 V154KHX0.1HA V154CNV0.1H0 V155KHX0.1HA V155CNV0.1H0

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Wave T_p in Kao-Hsiung Seas of KHX0 at 2015

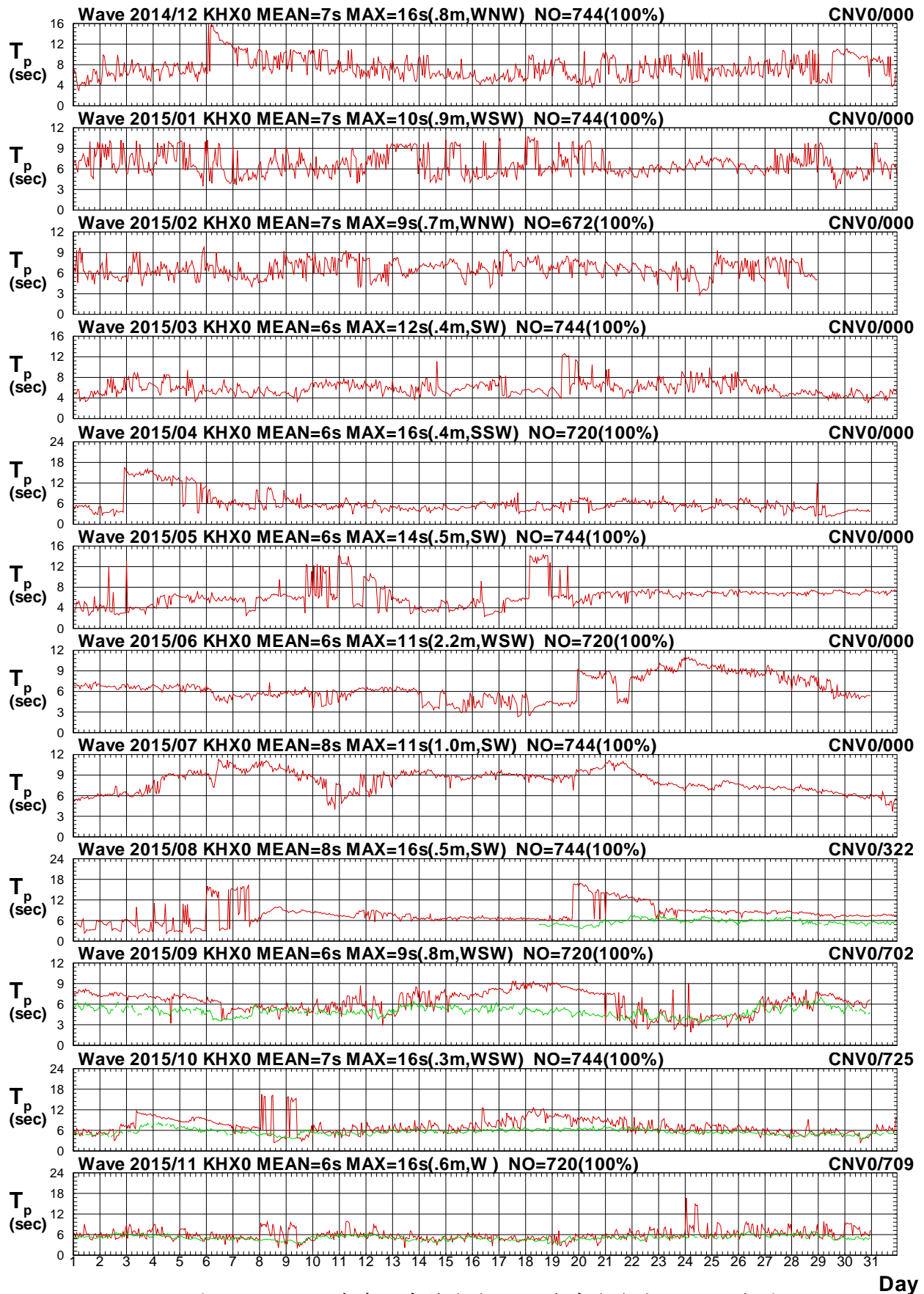


圖 2.14b 2015年每月高雄海域 X 站與嘉南海域 V 站週期圖

V14CKHX0.1HA V14CCNV0.1H0 V151KHX0.1HA V151CNV0.1H0 V152KHX0.1HA V152CNV0.1H0
 V153KHX0.1HA V153CNV0.1H0 V154KHX0.1HA V154CNV0.1H0 V155KHX0.1HA V155CNV0.1H0

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Wave Direction in Kao-Hsiung Seas of KHX0 at 2015

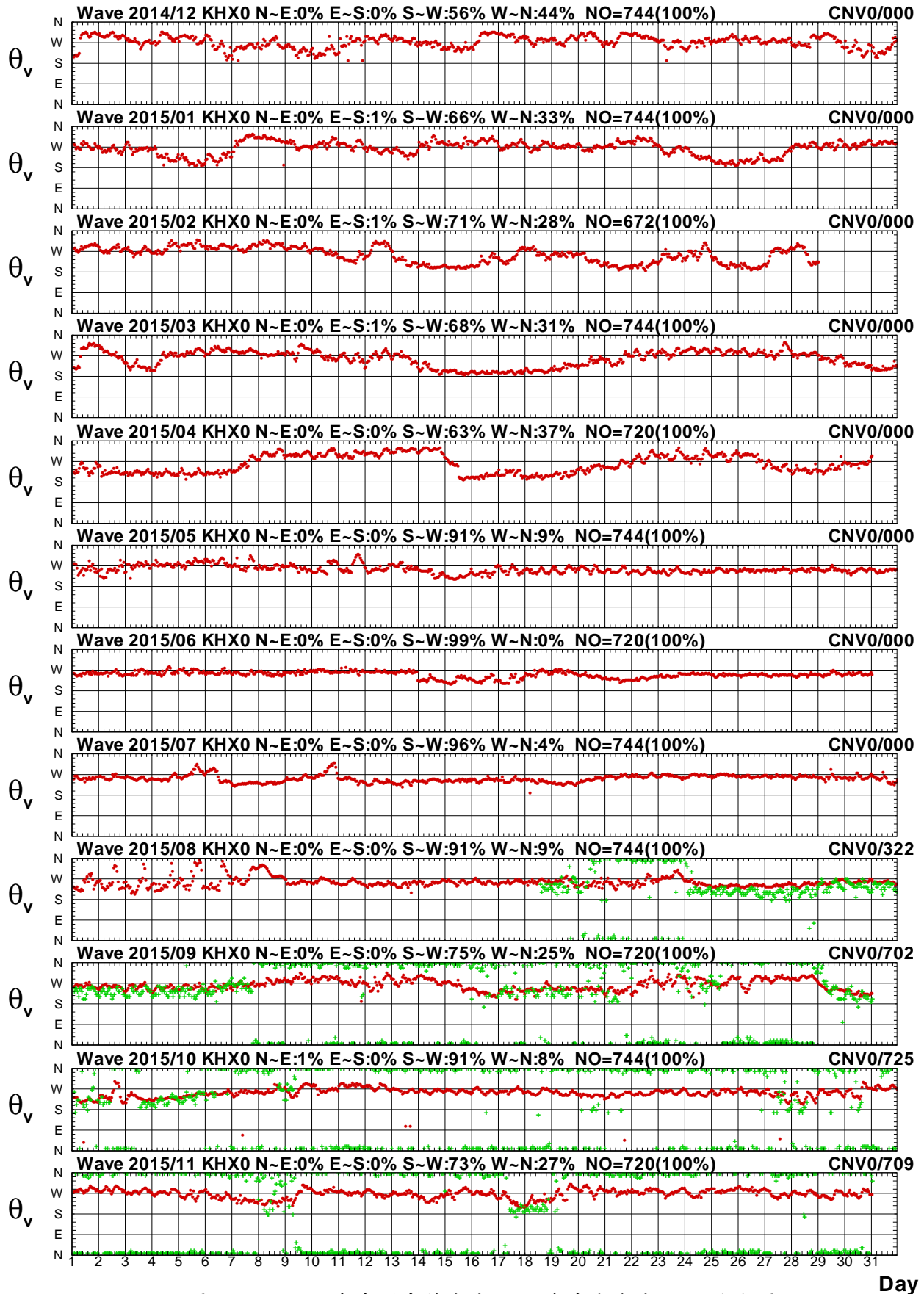


圖 2.14c 2015年每月高雄海域 X 站與嘉南海域 V 站波向圖

V14CKHX0.1HA V14CCNV0.1H0 V151KHX0.1HA V151CNV0.1H0 V152KHX0.1HA V152CNV0.1H0
 V153KHX0.1HA V153CNV0.1H0 V154KHX0.1HA V154CNV0.1H0 V155KHX0.1HA V155CNV0.1H0

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第三章 2015 年高雄海域觀測潮汐資料

高雄海域潮汐之觀測本中心於 2000 年 12 月在高雄一港口與二港口間海域(稱**測站 X0**)，其位置如附圖 3，安置 AWCP 即時傳送監測系統，也具量測水位功能，本站於 2005 年 8 月移至第二港口附近海域(稱**測站 X1**)，另於 2013 年 12 月於第一港口及第二港口附近海域(稱**測站 A** 及**測站 1**)，增設潮波儀。潮汐觀測早期 1992 年 1 月由本中心於港區安置潮位站(稱**測站 L**)，2003 年 6 月本所港研中心在 10 號碼頭(稱**測站 T**)，增加安裝一具 Water Log 公司壓力式潮位儀監測系統。高雄港附近潮汐**測站 F** 之潮汐儀屬中央氣象局所有。高雄海域各測站歷年觀測潮汐資料蒐集概況如表 3。

潮位**測站 X** 等潮波流儀，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，然後加以平均得出該小時之平均水位值。**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 高雄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	22°32'52"N	120°17'18"E	2003/06-2015/11(觀測中)	港研中心	高港 10 號碼頭
X0	22°34'23"N	120°16'09"E	2000/12-2005/08	港研中心	高雄中洲外海
X1	22°32'34"N	120°17'38"E	2005/08-2015/11(觀測中)	港研中心	高雄 2 港口外海
A	22°38'36"N	120°14'13"E	2014/04-2015/11(觀測中)	港研中心	高雄 1 港口外海
1			2014/12-2015/11(觀測中)	港研中心	高雄 2 港口外海
L		120°17'18"E	1992/06-2003/12	港研中心	高雄 2 港區
F	22°36'52"N	120°17'18"E	1988/01-2015/11(觀測中)	中央氣象局	高雄 1 港區

高雄海域

IHMT 潮位站 IHMT 波潮流站
CWB 潮位站

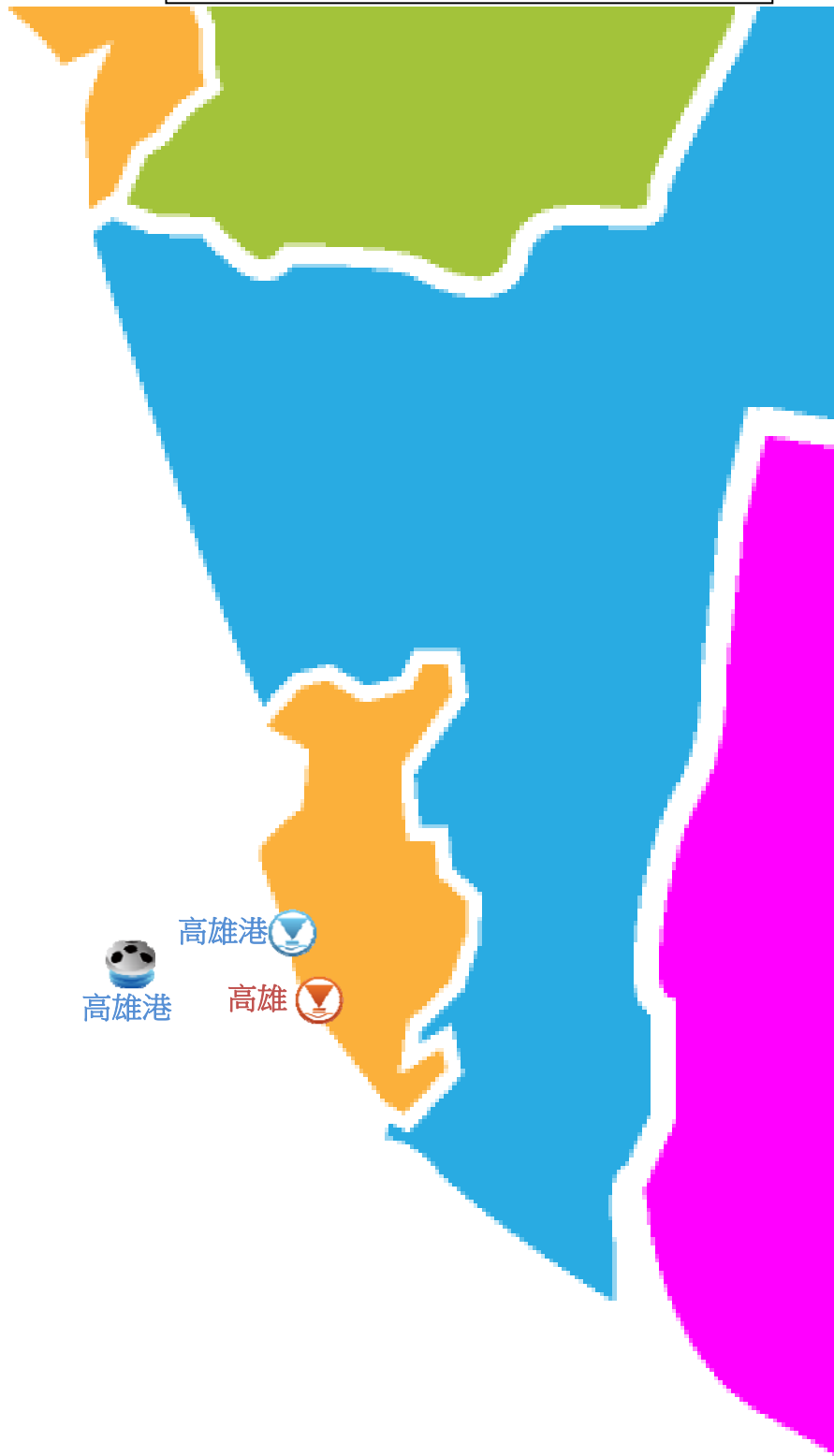


圖 3 高雄海域潮汐觀測站位置示意圖

表 3.1a 2015年每月高雄海域修補前各測站觀測潮汐資料紀錄統計表

年/月 港區	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域
測站	T	X	F	A	1	2	L	
2014/12月	367 (49.3%)	737 (99.1%)	*	743 (99.9%)	494 (66.4%)	*	*	*
2015/ 1月	743 (99.9%)	743 (99.9%)	*	744 (100%)	744 (100%)	*	*	*
2015/ 2月	671 (99.9%)	669 (99.6%)	*	672 (100%)	672 (100%)	*	*	*
2015/ 3月	743 (99.9%)	744 (100%)	*	731 (98.3%)	730 (98.1%)	*	*	*
2015/ 4月	719 (99.9%)	715 (99.3%)	*	*	*	*	*	*
2015/ 5月	743 (99.9%)	743 (99.9%)	*	*	*	*	*	*
2015/ 6月	720 (100%)	718 (99.7%)	*	*	*	*	*	*
2015/ 7月	743 (99.9%)	739 (99.3%)	*	*	*	*	*	*
2015/ 8月	743 (99.9%)	732 (98.4%)	*	*	*	*	*	*
2015/ 9月	719 (99.9%)	698 (96.9%)	*	*	*	*	*	*
2015/10月	736 (98.9%)	738 (99.2%)	*	*	*	*	*	*
2015/11月	720 (100%)	709 (98.5%)	*	*	*	*	*	*
2015/冬季	1781 (82.5%)	2149 (99.5%)	*	2159 (100.0%)	1910 (88.4%)	*	*	*
2015/春季	2205 (99.9%)	2202 (99.7%)	*	731 (33.1%)	730 (33.1%)	*	*	*
2015/夏季	2206 (99.9%)	2189 (99.1%)	*	*	*	*	*	*
2015/秋季	2175 (99.6%)	2145 (98.2%)	*	*	*	*	*	*
2015/整年	8367 (95.5%)	8685 (99.1%)	*	2890 (33.0%)	2640 (30.1%)	*	*	*
起始年月	2014/12	2014/12	*	2014/12	2014/12	*	*	*
結束年月	2015/11	2015/11	*	2015/03	2015/03	*	*	*

表3.1b 2015年每月高雄海域修補後各測站潮汐資料統計表

年/月 港區	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域
測站	T	X	F	A	1	2	L	
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%)	*	*	*	*	*	*
2015/ 5月	744 (100%)	744 (100%)	*	*	*	*	*	*
2015/ 6月	720 (100%)	720 (100%)	*	*	*	*	*	*
2015/ 7月	744 (100%)	744 (100%)	*	*	*	*	*	*
2015/ 8月	744 (100%)	744 (100%)	*	*	*	*	*	*
2015/ 9月	720 (100%)	720 (100%)	*	*	*	*	*	*
2015/10月	744 (100%)	744 (100%)	*	*	*	*	*	*
2015/11月	720 (100%)	720 (100%)	*	*	*	*	*	*
2015/冬季	2160 (100%)	2160 (100%)	*	2160 (100%)	2160 (100%)	*	*	*
2015/春季	2208 (100%)	2208 (100%)	*	744 (33.7%)	744 (33.7%)	*	*	*
2015/夏季	2208 (100%)	2208 (100%)	*	*	*	*	*	*
2015/秋季	2184 (100%)	2184 (100%)	*	*	*	*	*	*
2015/整年	8760 (100%)	8760 (100%)	*	2904 (33.2%)	2904 (33.2%)	*	*	*
起始年月	2014/12	2014/12	*	2014/12	2014/12	*	*	*
結束年月	2015/11	2015/11	*	2015/03	2015/03	*	*	*

Tidal Level in Kao-Hsiung Seas of KHT0 at 2015 1 8 15 22

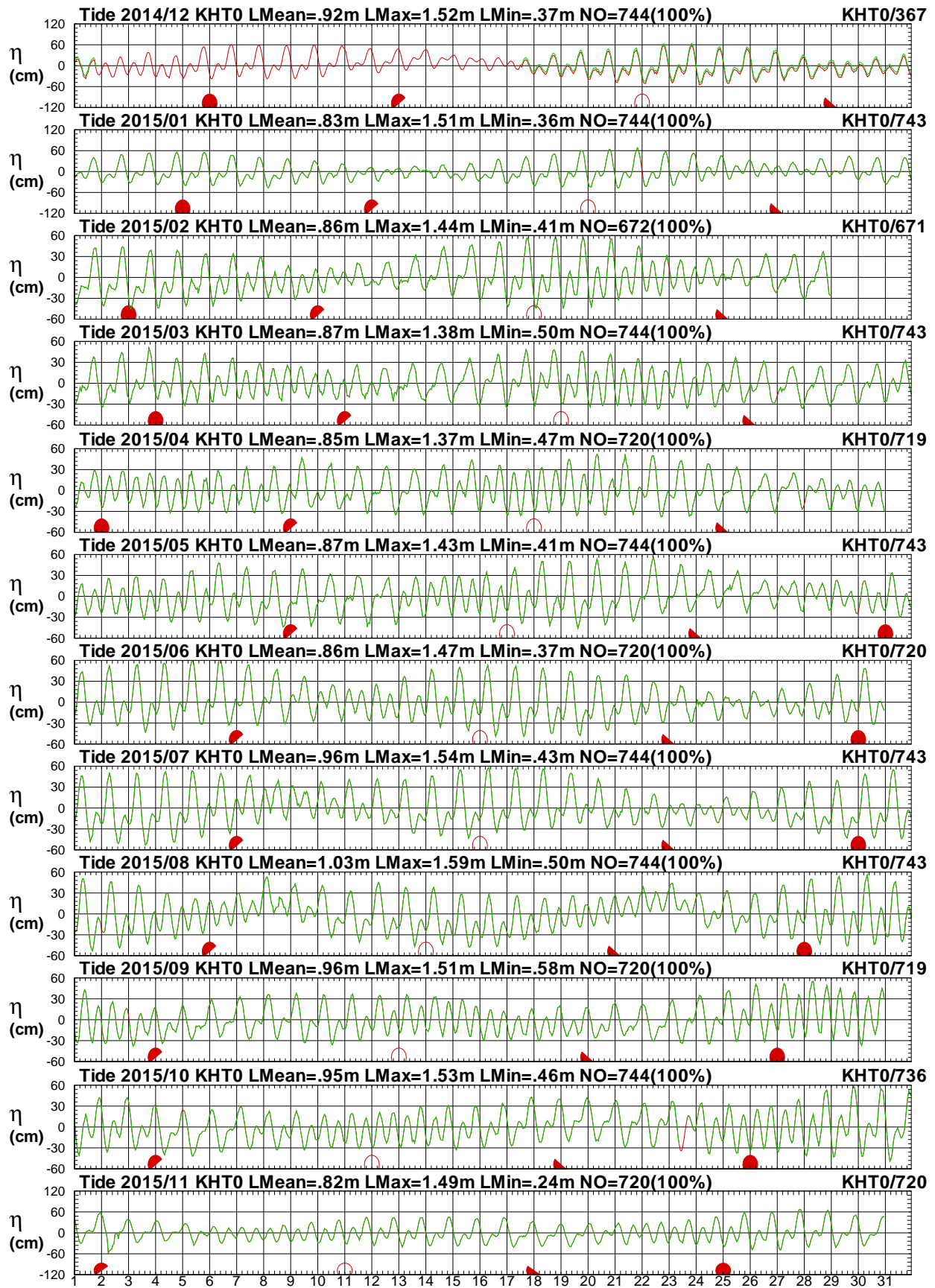


圖 3.1.1 2015年每月高雄海域 T 站修補前後之潮位比較圖

T14CKHT0.1HA T14CKHT0.1H0 T151KHT0.1HA T151KHT0.1H0 T152KHT0.1HA T152KHT0.1H0
 T153KHT0.1HA T153KHT0.1H0 T154KHT0.1HA T154KHT0.1H0 T155KHT0.1HA T155KHT0.1H0

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Tidal Level in Kao-Hsiung Seas of KHT0 at 2015 1 8 15 22

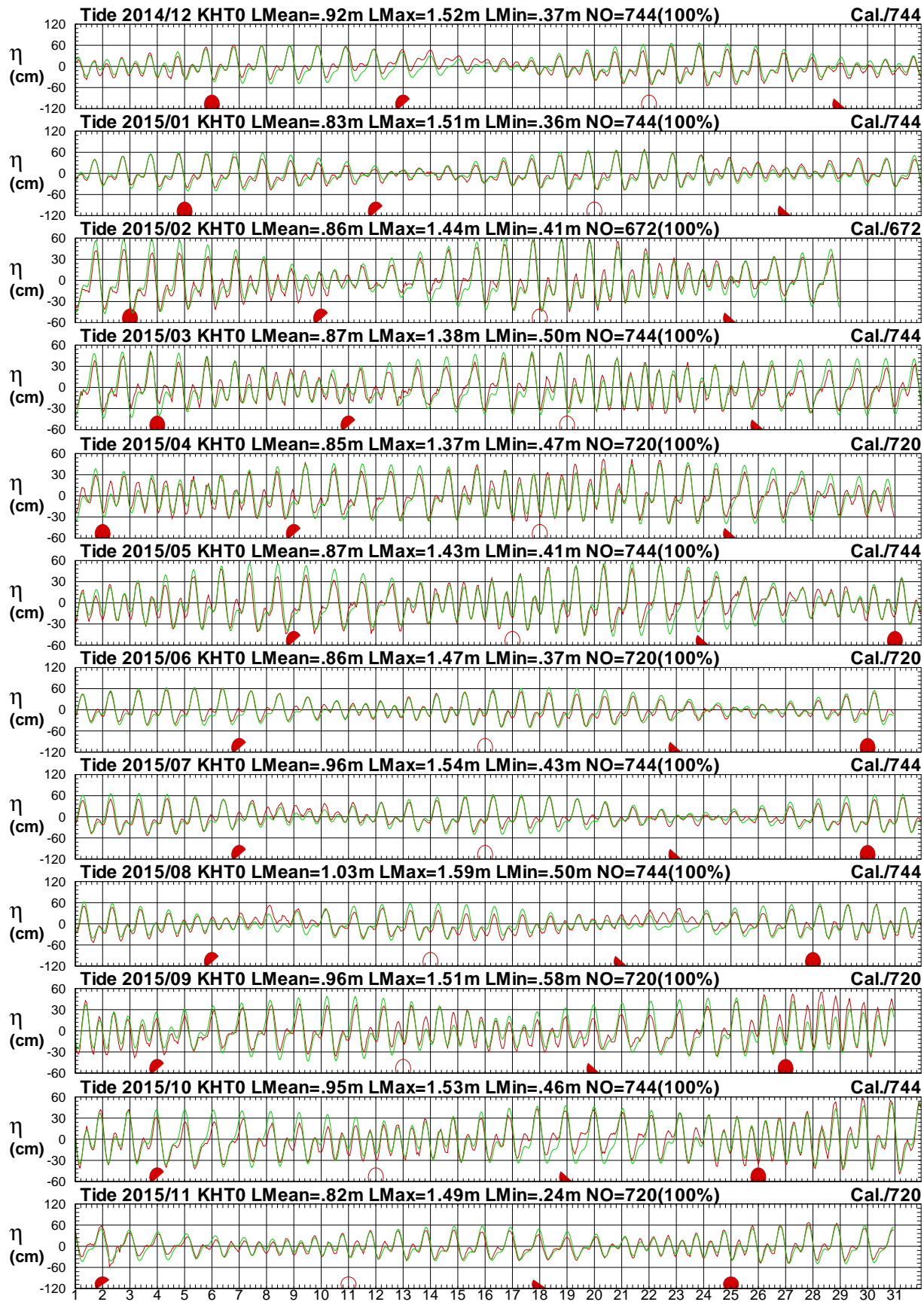


圖 3.1.2 2015年每月高雄海域 T 站潮位歷線圖 (綠線: 天文潮)

T14CKHT0.1HA T14CKHT0.1HC T151KHT0.1HA T151KHT0.1HC T152KHT0.1HA T152KHT0.1HC
 T153KHT0.1HA T153KHT0.1HC T154KHT0.1HA T154KHT0.1HC T155KHT0.1HA T155KHT0.1HC

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Tidal Level in Kao-Hsiung Seas of KHT0 at 2015 1 8 15 22

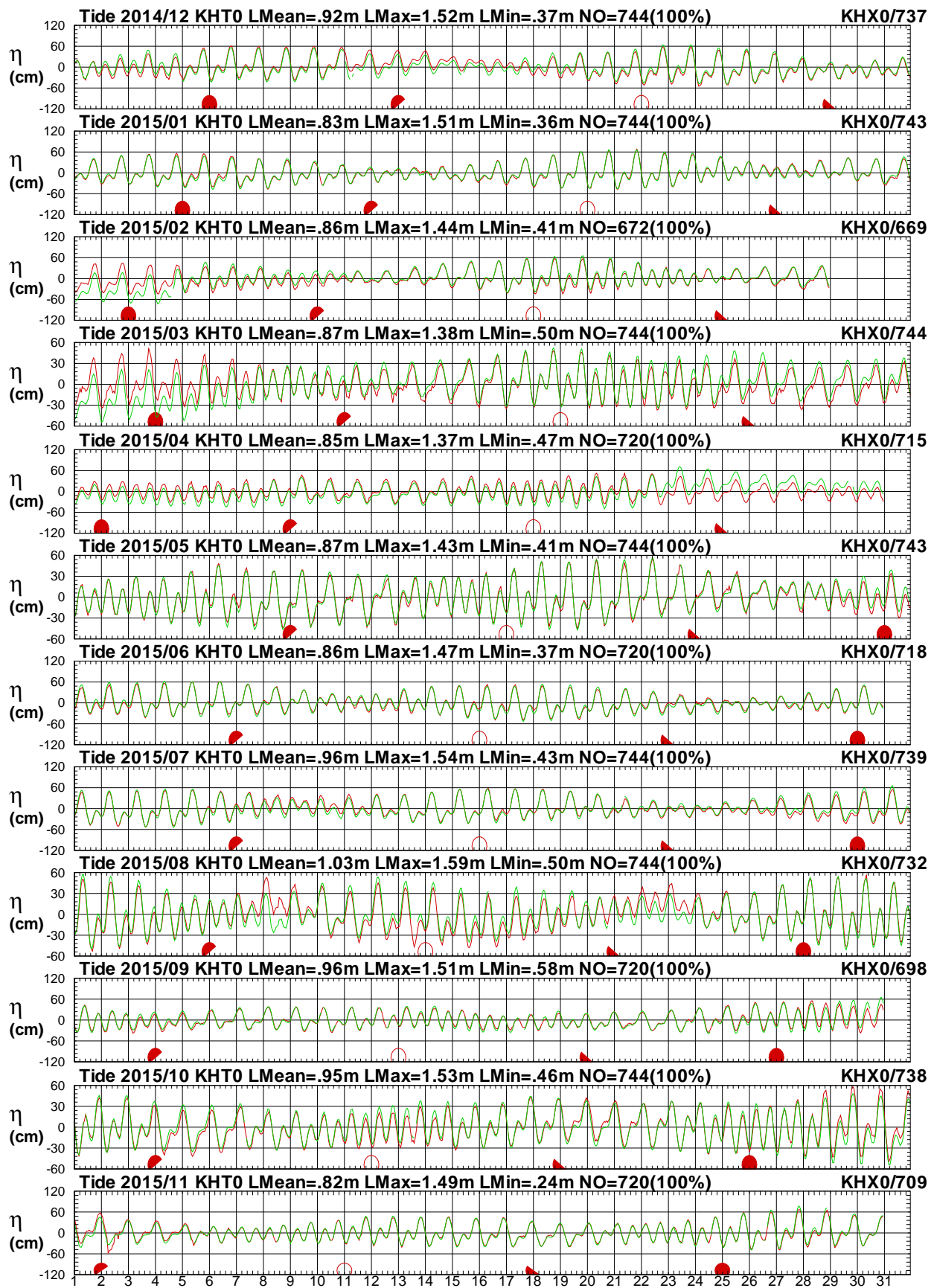


圖 3.1.3 2015年每月高雄海域 T 站與 X 站潮位比較圖

T14CKHT0.1HA T14CKHX0.1H0 T151KHT0.1HA T151KHX0.1H0 T152KHT0.1HA T152KHX0.1H0
 T153KHT0.1HA T153KHX0.1H0 T154KHT0.1HA T154KHX0.1H0 T155KHT0.1HA T155KHX0.1H0

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Tidal Level in Kao-Hsiung Seas of KHT0 at 2015 1 8 15 22

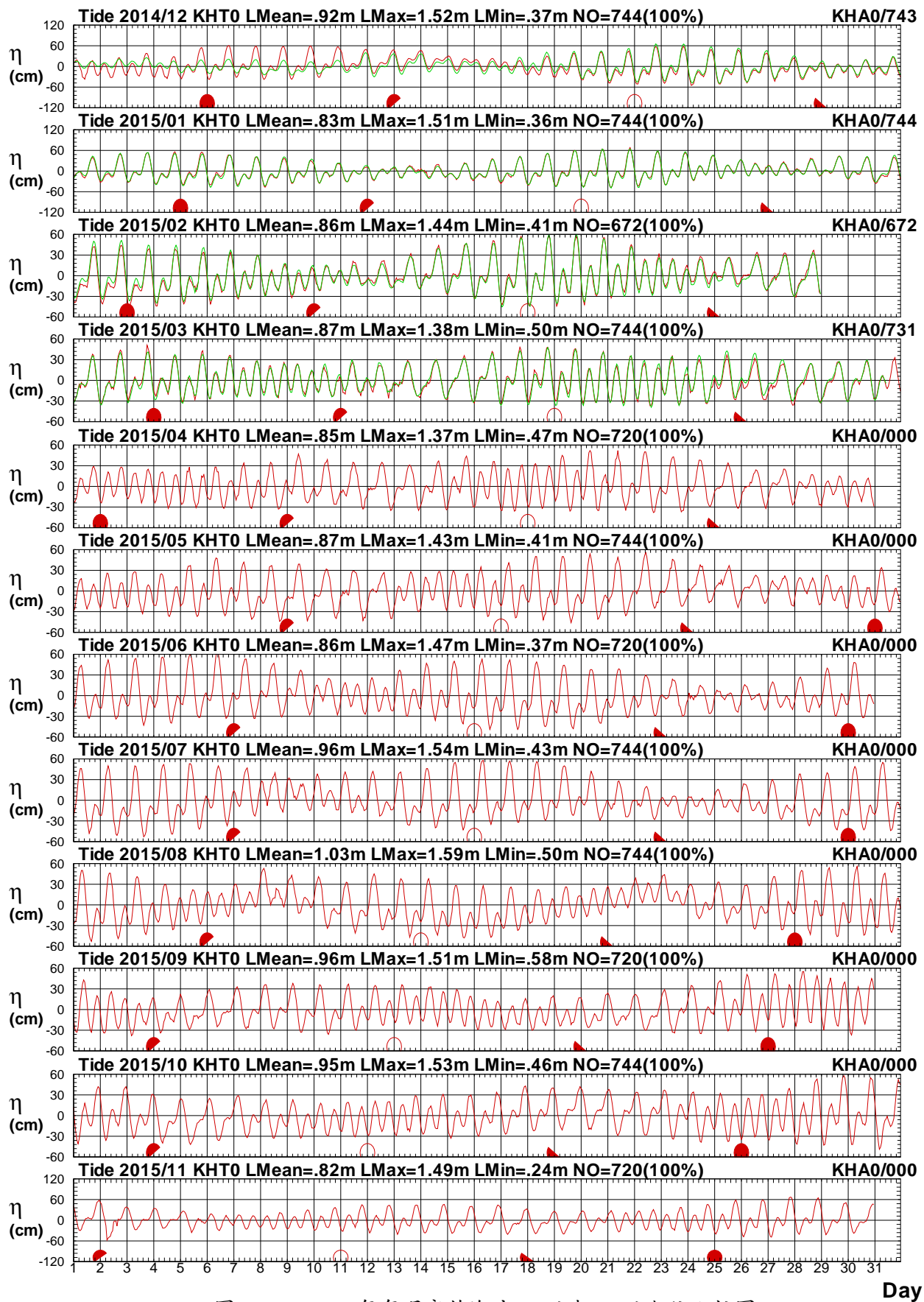


圖 3.1.4 2015年每月高雄海域 T 站與 A 站潮位比較圖

T14CKHT0.1HA T14CKHA0.1H0 T151KHT0.1HA T151KHA0.1H0 T152KHT0.1HA T152KHA0.1H0
 T153KHT0.1HA T153KHA0.1H0 T154KHT0.1HA T154KHA0.1H0 T155KHT0.1HA T155KHA0.1H0

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Tidal Level in Kao-Hsiung Seas of KHT0 at 2015 1 8 15 22

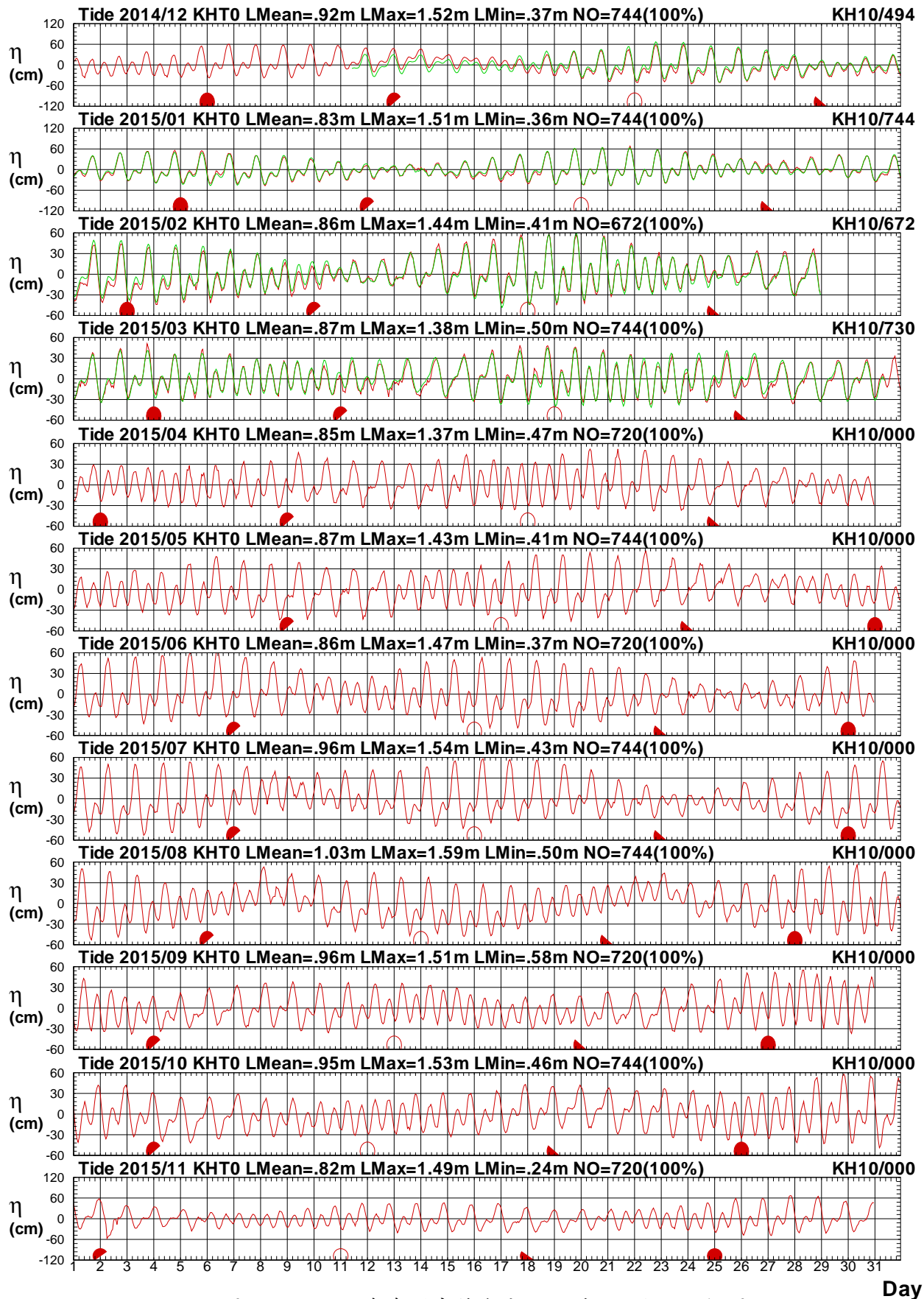


圖 3.1.5 2015年每月高雄海域 T 站與 1 站潮位比較圖

T14CKHT0.1HA T14CKH10.1H0 T151KHT0.1HA T151KH10.1H0 T152KHT0.1HA T152KH10.1H0
 T153KHT0.1HA T153KH10.1H0 T154KHT0.1HA T154KH10.1H0 T155KHT0.1HA T155KH10.1H0

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第四章 2015 年高雄海域觀測海流資料

高雄海域海流觀測係本中心(IHMT)2000 年 12 月於中區污水處理廠附近海域安置 NORTEK 公司之剖面海流與海流即時監測系統(測站 X0)，如圖 4，以進行長期觀測。本站於 2005 年 8 月移至第二港口附近海(稱測站 X1)，水深約 18m;另於 2014 年 4 月及 12 月分別於第一港口及第二港口附近海(稱測站 A 及測站 1)，增設潮波流儀。

測站 Z(彌陀外海浮標站)之海流儀則屬水利署(WRA)所有。高雄海域各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，高雄港觀測站水深間距設定為 1 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 高雄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
X0	22°34'23"N	120°16'09"E	2000/12-2005/08	港研中心	高雄中洲外海
X1	22°32'34"N	120°17'38"E	2005/08-2015/11(觀測中)	港研中心	高雄 2 港口外海
A	22°38'36"N	120°14'13"E	2014/04-2015/03	港研中心	高雄 1 港口外海
1			2014/12-2015/12	港研中心	高雄 2 港口外海
2			2015/12-2015/11	港研中心	高雄 2 港口外海
Z	22°45'50"N	120°09'49"E	2012/09-2015/11(觀測中)	水利署	彌陀外海浮標站

高雄海域



IHMT 波潮流站



WRA 浮標海流站



圖 4 高雄海域海流觀測站位置示意圖

表4.1a 2015年每月高雄海域各測站觀測海流資料紀錄統計表

年/月 港區	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域
測站	X	Z	A	1	2			
2014/12月	737 (99.1%)	709 (95.3%)	493 (66.3%)	494 (66.4%)	*	*	*	*
2015/ 1月	743 (99.9%)	719 (96.6%)	744 (100%)	744 (100%)	*	*	*	*
2015/ 2月	669 (99.6%)	611 (90.9%)	672 (100%)	671 (99.9%)	*	*	*	*
2015/ 3月	744 (100%)	701 (94.2%)	731 (98.3%)	730 (98.1%)	*	*	*	*
2015/ 4月	715 (99.3%)	695 (96.5%)	*	*	*	*	*	*
2015/ 5月	743 (99.9%)	703 (94.5%)	*	*	*	*	*	*
2015/ 6月	718 (99.7%)	642 (89.2%)	*	*	*	*	*	*
2015/ 7月	739 (99.3%)	671 (90.2%)	*	*	*	*	*	*
2015/ 8月	732 (98.4%)	669 (89.9%)	*	*	*	*	*	*
2015/ 9月	698 (96.9%)	630 (87.5%)	*	*	*	*	*	*
2015/10月	737 (99.1%)	654 (87.9%)	*	*	*	*	*	*
2015/11月	709 (98.5%)	671 (93.2%)	*	*	*	*	*	*
2015/冬季	2149 (99.5%)	2039 (94.4%)	1909 (88.4%)	1910 (88.4%)	*	*	*	*
2015/春季	2202 (99.7%)	2099 (95.1%)	731 (33.1%)	730 (33.1%)	*	*	*	*
2015/夏季	2189 (99.1%)	1982 (89.8%)	*	*	*	*	*	*
2015/秋季	2144 (98.2%)	1955 (89.5%)	*	*	*	*	*	*
2015/整年	8684 (99.1%)	8075 (92.2%)	2640 (30.1%)	2640 (30.1%)	*	*	*	*
起始年月	2014/12	2014/12	2014/12	2014/12	*	*	*	*
結束年月	2015/11	2015/11	2015/03	2015/03	*	*	*	*

ST-X: 港灣技術研究中心觀測 X 站流速資料

表 4.1b 2015年每月高雄海域計算潮流各測站資料統計表

年/月 港區	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域
測站	X	A	A	1	2			
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 Kao-Hsiung Seas of KHX0 at 2015

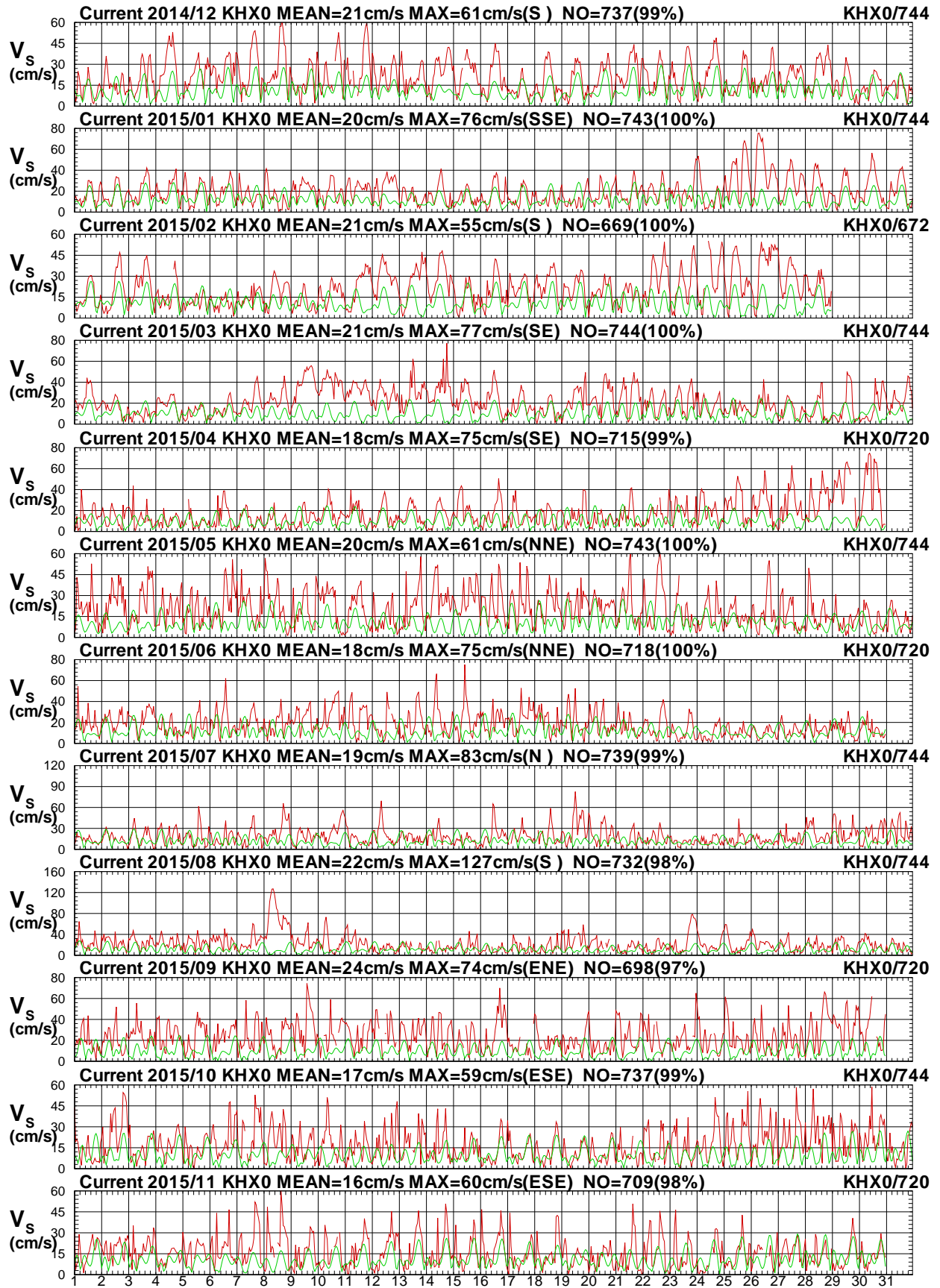


圖 4.1a 2015年每月高雄海域 X 站觀測與潮流流速比較圖

C14CKHX0.1H0 C14CKHX0.1HD C151KHX0.1H0 C151KHX0.1HD C152KHX0.1H0 C152KHX0.1HD
 C153KHX0.1H0 C153KHX0.1HD C154KHX0.1H0 C154KHX0.1HD C155KHX0.1H0 C155KHX0.1HD

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Current Direction in Kao-Hsiung Seas of KHX0 at 2015

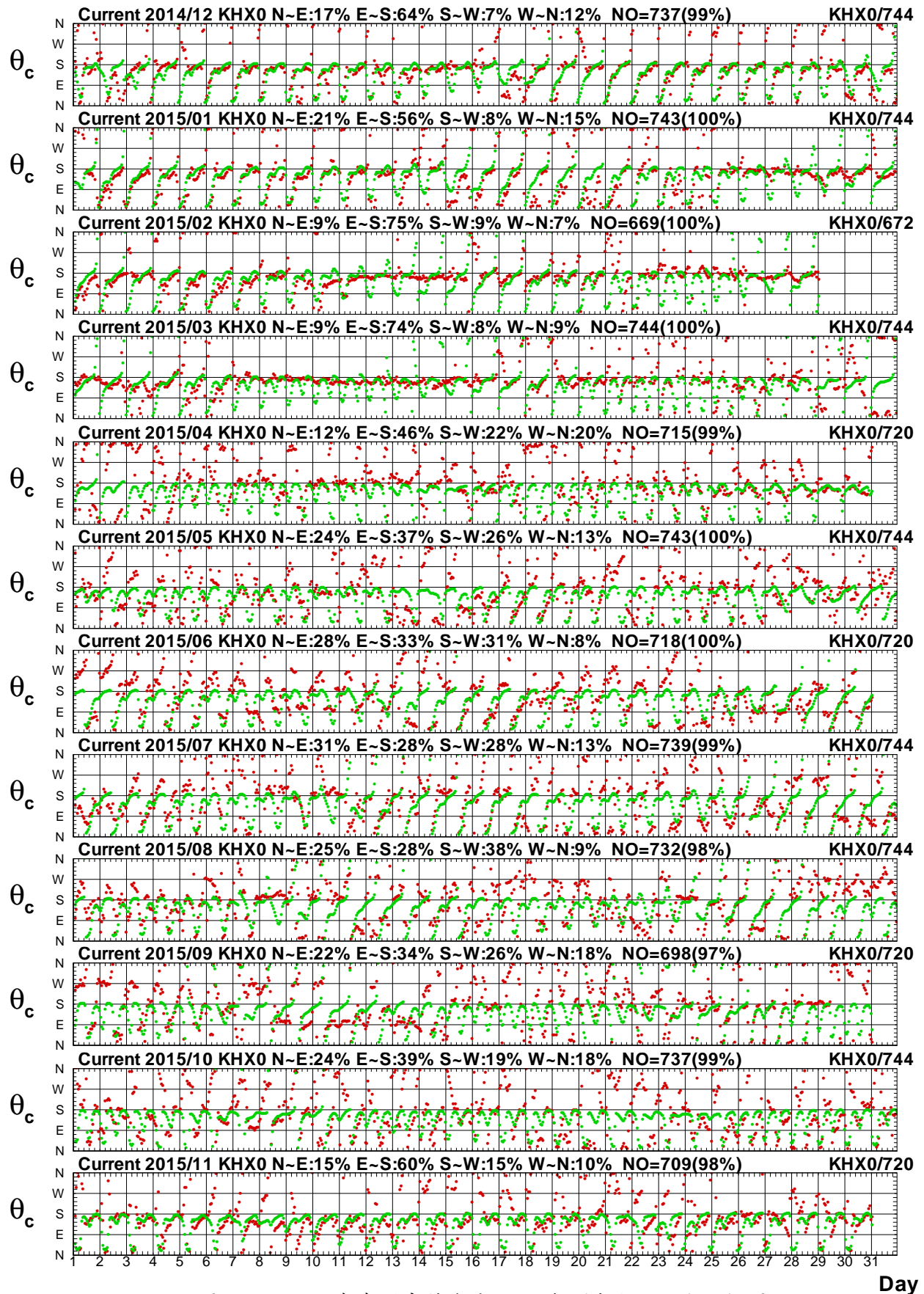


圖 4.1b 2015年每月高雄海域 X 站觀測與潮流流向比較圖

C14CKHX0.1H0 C14CKHX0.1HD C151KHX0.1H0 C151KHX0.1HD C152KHX0.1H0 C152KHX0.1HD
 C153KHX0.1H0 C153KHX0.1HD C154KHX0.1H0 C154KHX0.1HD C155KHX0.1H0 C155KHX0.1HD

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Current Speed in Kao-Hsiung Seas of KHX0 at 2015

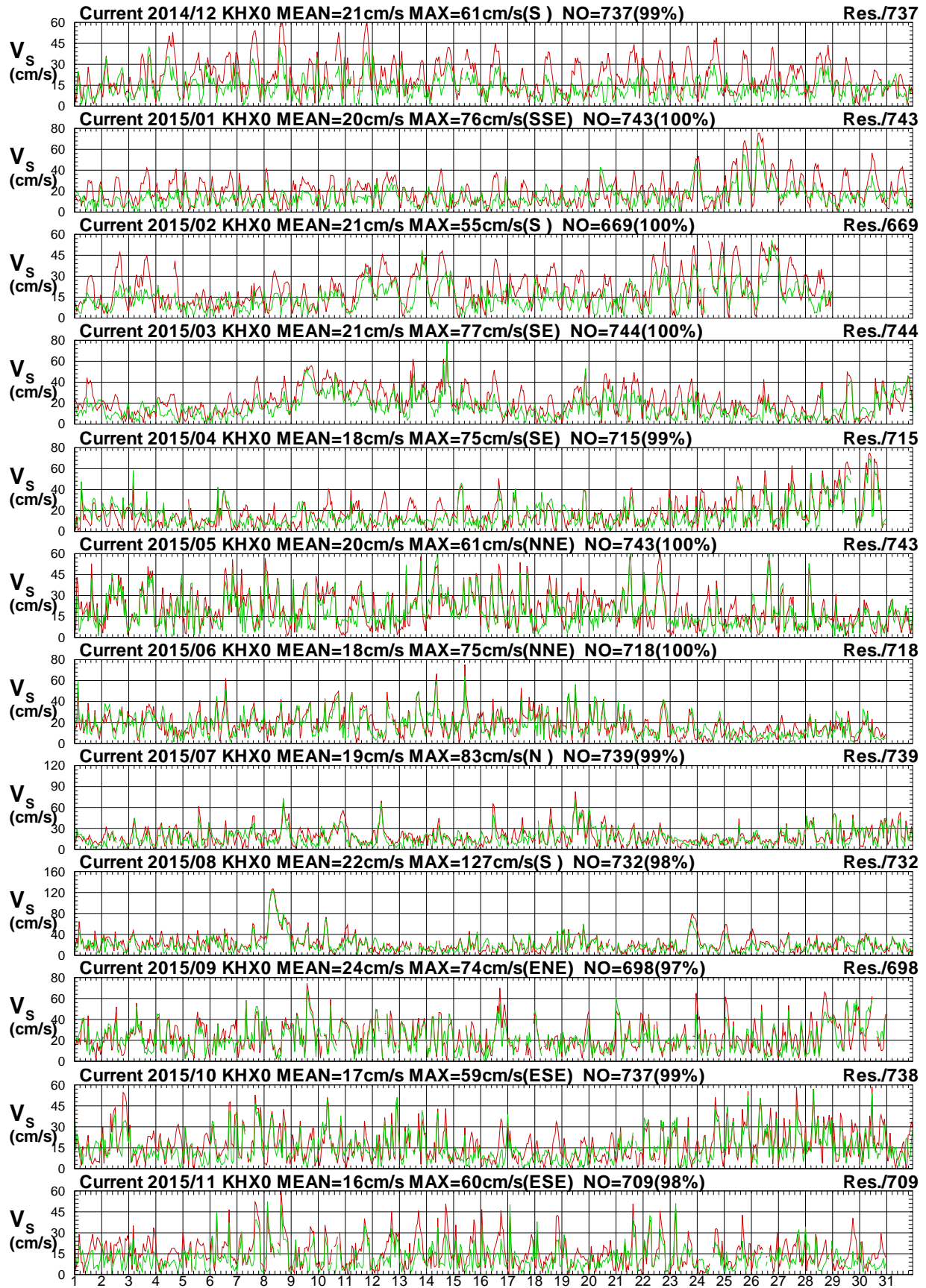


圖 4.2a 2015年每月高雄海域 X 站觀測與非潮流速比較圖

C14CKHX0.1H0 C14CKHX0.1HR C151KHX0.1H0 C151KHX0.1HR C152KHX0.1H0 C152KHX0.1HR
 C153KHX0.1H0 C153KHX0.1HR C154KHX0.1H0 C154KHX0.1HR C155KHX0.1H0 C155KHX0.1HR

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Current Direction in Kao-Hsiung Seas of KHX0 at 2015

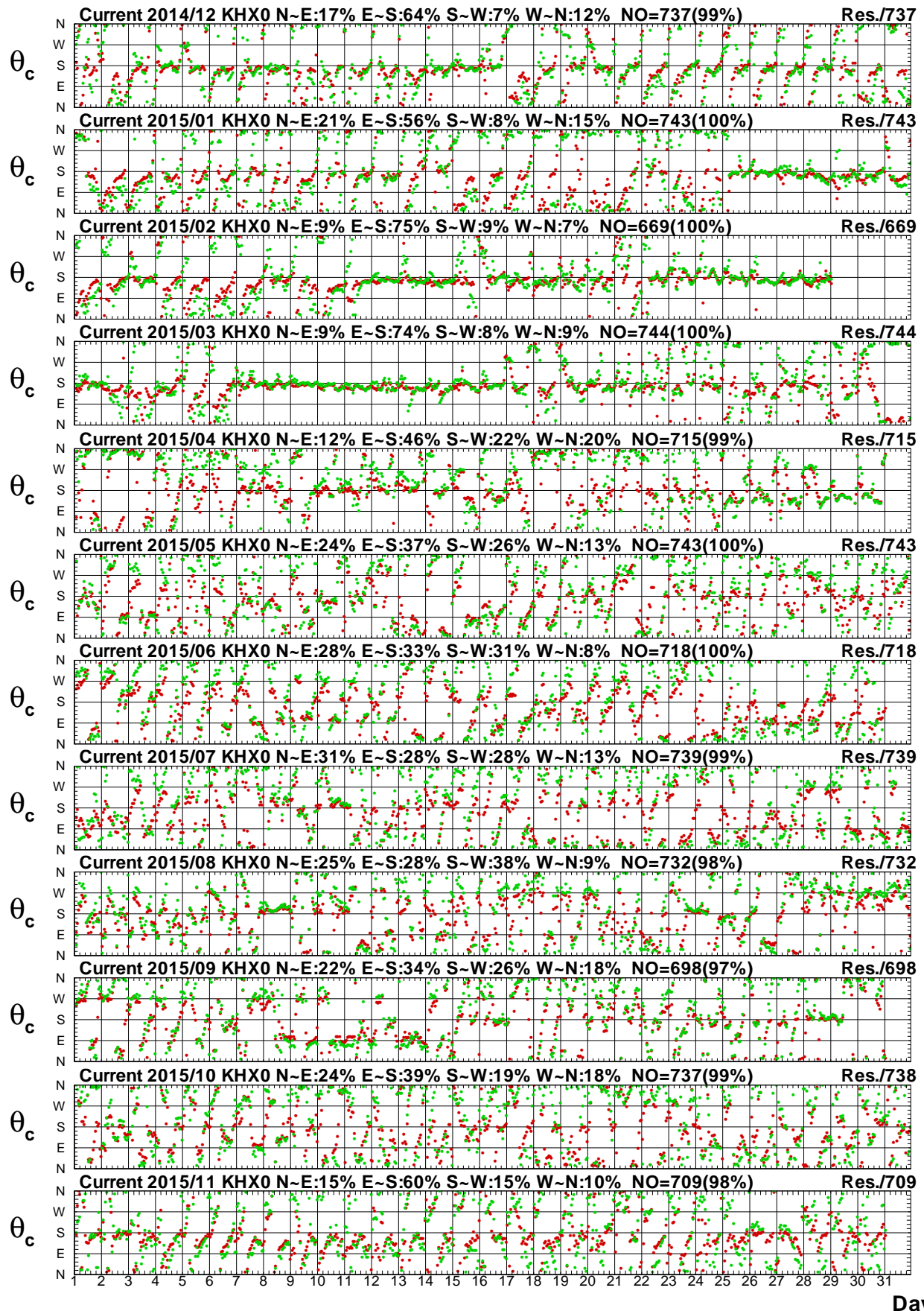


圖 4.2b 2015 年每月高雄海域 X 站觀測與非潮流向比較圖

C14CKHX0.1H0 C14CKHX0.1HR C151KHX0.1H0 C151KHX0.1HR C152KHX0.1H0 C152KHX0.1HR
 C153KHX0.1H0 C153KHX0.1HR C154KHX0.1H0 C154KHX0.1HR C155KHX0.1H0 C155KHX0.1HR

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Current Speed in Kao-Hsiung Seas of KHZ0 at 2015

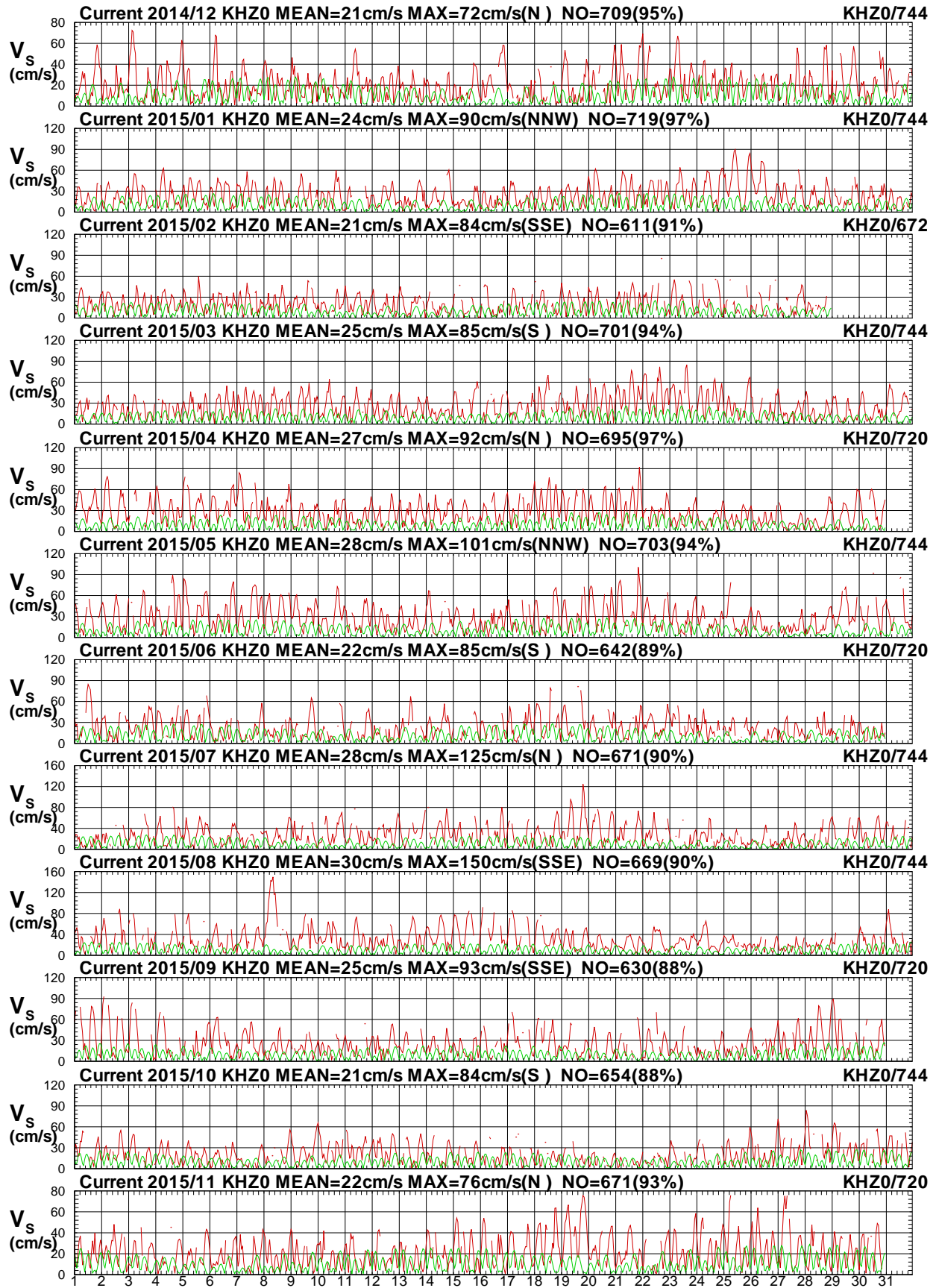


圖 4.3a 2015 年每月高雄海域 Z 站觀測與潮流流速比較圖

C14CKHZ0.1H0 C14CKHZ0.1HD C151KHZ0.1H0 C151KHZ0.1HD C152KHZ0.1H0 C152KHZ0.1HD
 C153KHZ0.1H0 C153KHZ0.1HD C154KHZ0.1H0 C154KHZ0.1HD C155KHZ0.1H0 C155KHZ0.1HD

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Current Direction in Kao-Hsiung Seas of KHZ0 at 2015

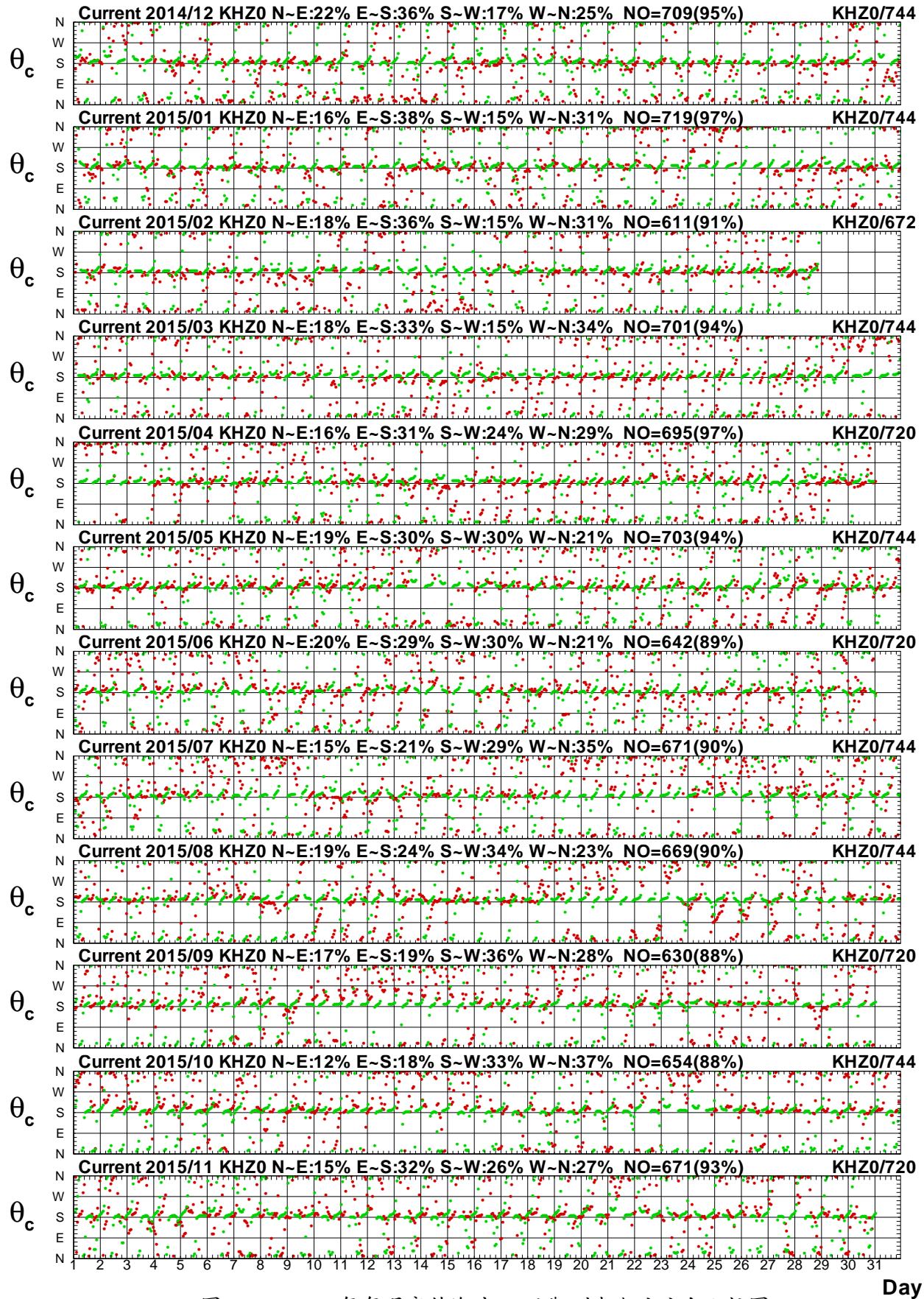


圖 4.3b 2015年每月高雄海域 Z 站觀測與潮流流向比較圖

C14CKHZ0.1H0 C14CKHZ0.1HD C151KHZ0.1H0 C151KHZ0.1HD C152KHZ0.1H0 C152KHZ0.1HD
 C153KHZ0.1H0 C153KHZ0.1HD C154KHZ0.1H0 C154KHZ0.1HD C155KHZ0.1H0 C155KHZ0.1HD

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Current Speed in Kao-Hsiung Seas of KHZ0 at 2015

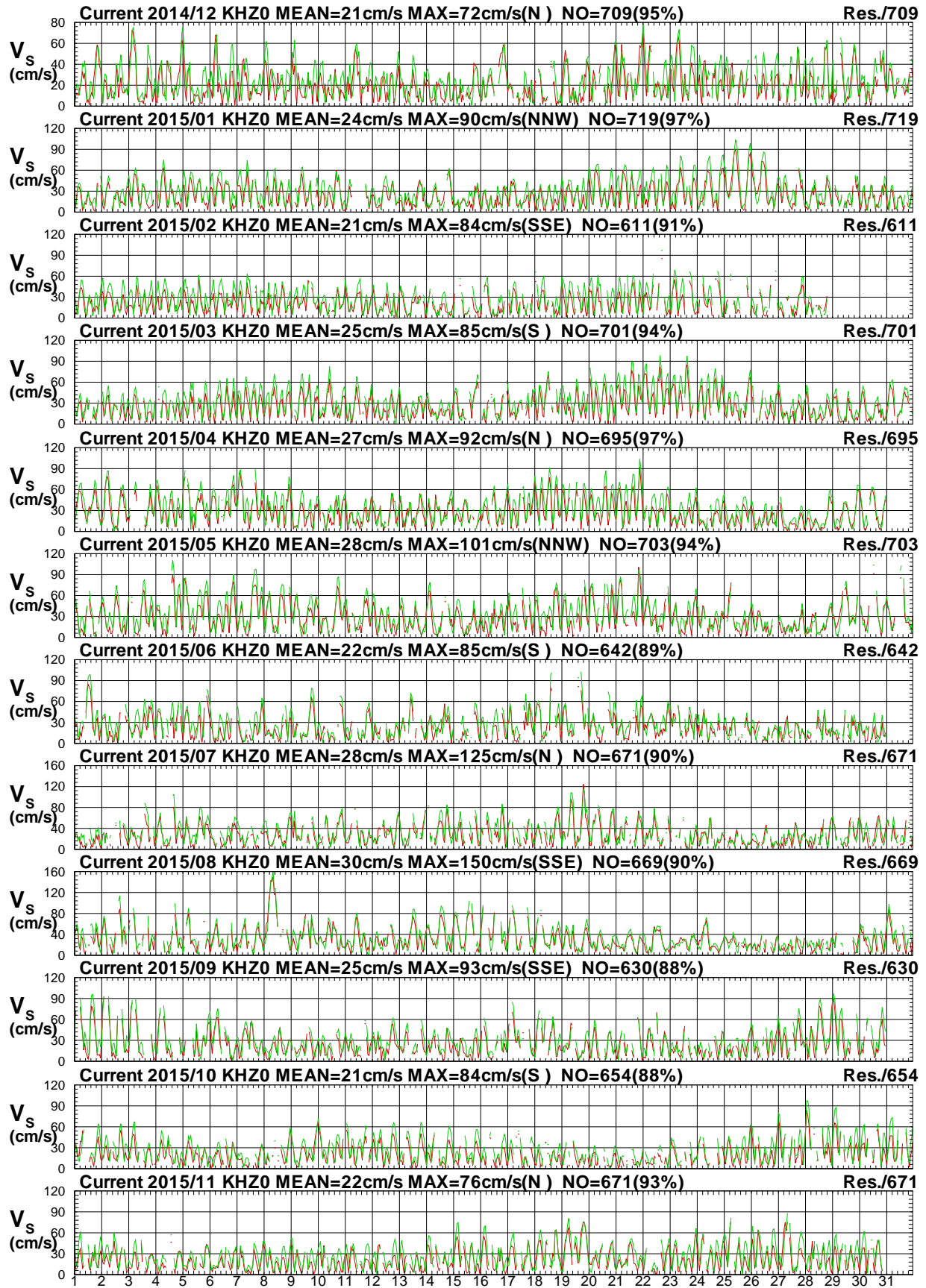


圖 4.4a 2015 年每月高雄海域 Z 站觀測與非潮流速比較圖

C14CKHZ0.1H0 C14CKHZ0.1HR C151KHZ0.1H0 C151KHZ0.1HR C152KHZ0.1H0 C152KHZ0.1HR
 C153KHZ0.1H0 C153KHZ0.1HR C154KHZ0.1H0 C154KHZ0.1HR C155KHZ0.1H0 C155KHZ0.1HR

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Current Direction in Kao-Hsiung Seas of KHZ0 at 2015

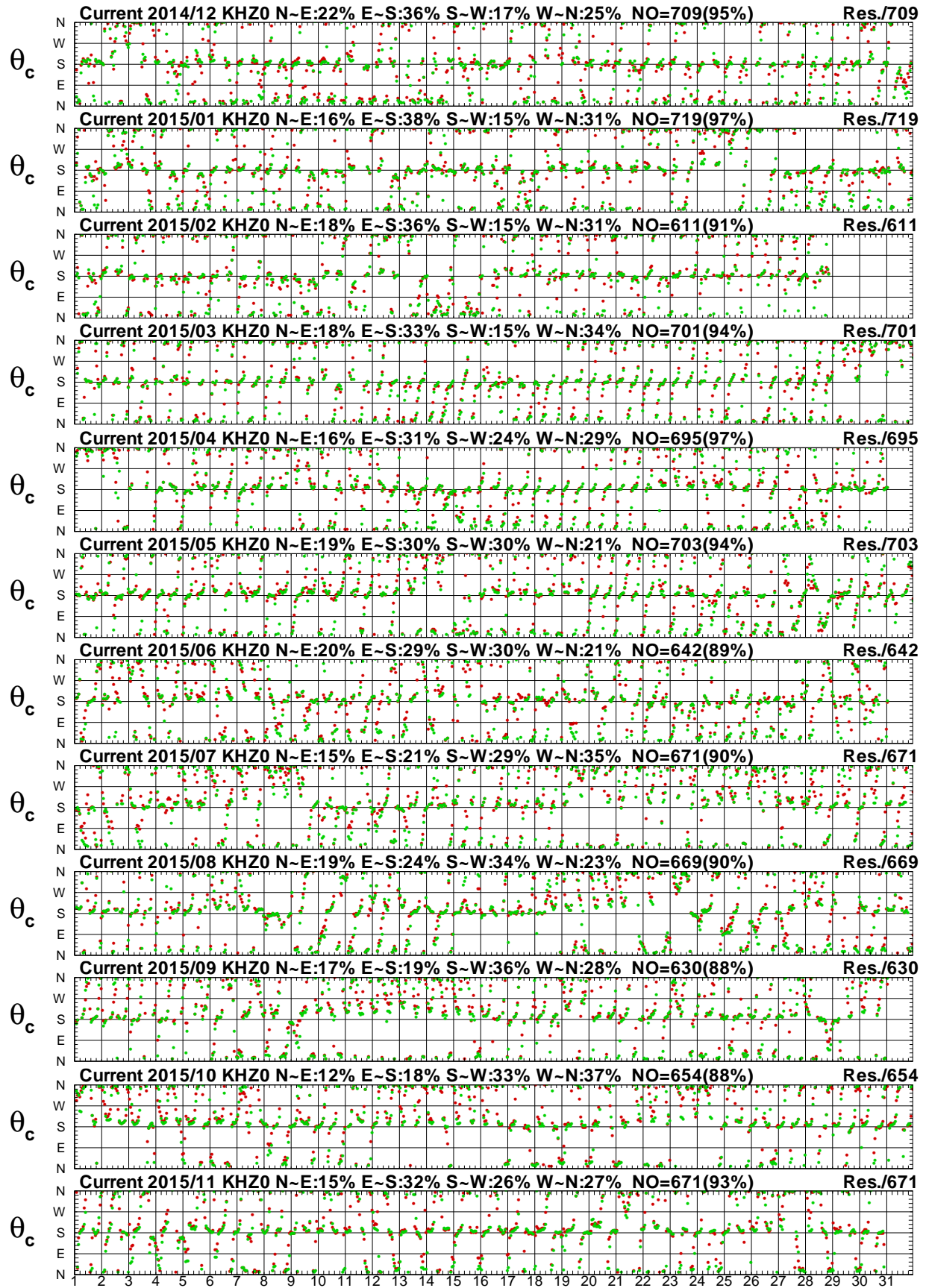


圖 4.4b 2015年每月高雄海域 Z 站觀測與非潮流向比較圖

C14CKHZ0.1H0 C14CKHZ0.1HR C151KHZ0.1H0 C151KHZ0.1HR C152KHZ0.1H0 C152KHZ0.1HR
 C153KHZ0.1H0 C153KHZ0.1HR C154KHZ0.1H0 C154KHZ0.1HR C155KHZ0.1H0 C155KHZ0.1HR

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Current Speed in Kao-Hsiung Seas of KH10 at 2015

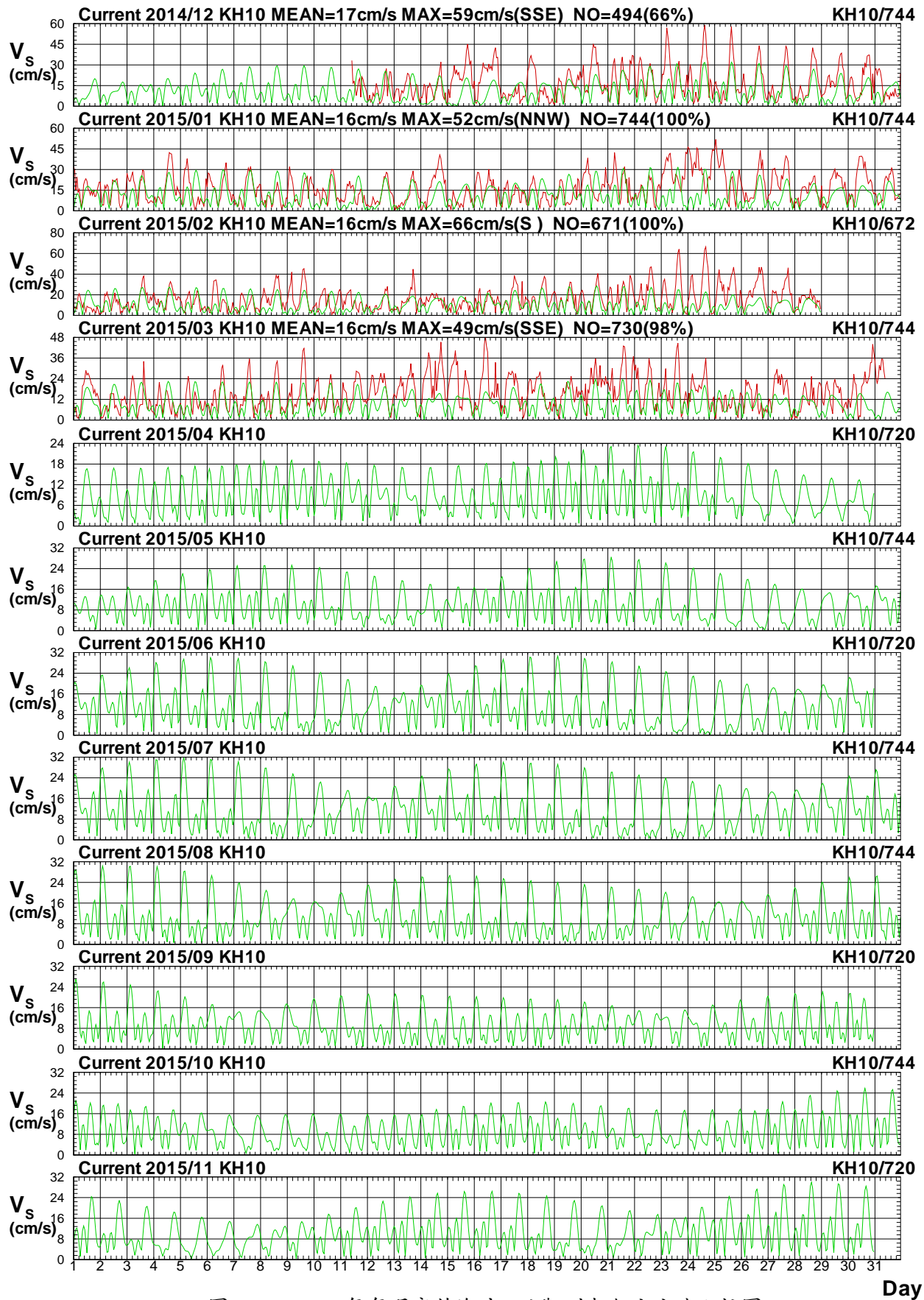


圖 4.5a 2015年每月高雄海域1站觀測與潮流流速比較圖

C14CKH10.1H0 C14CKH10.1HD C151KH10.1H0 C151KH10.1HD C152KH10.1H0 C152KH10.1HD
 C153KH10.1H0 C153KH10.1HD C154KH10.1H0 C154KH10.1HD C155KH10.1H0 C155KH10.1HD

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Current Direction in Kao-Hsiung Seas of KH10 at 2015

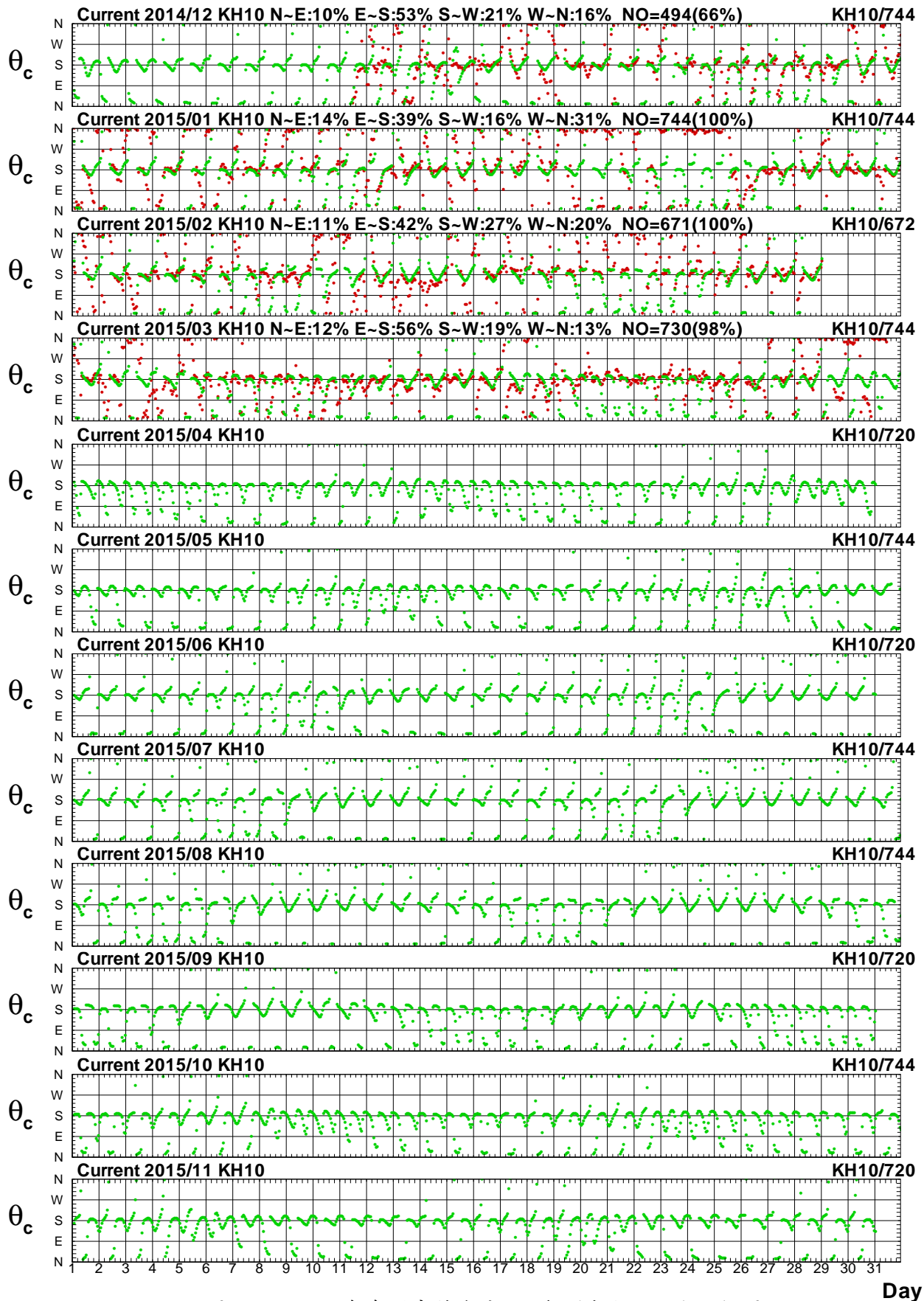


圖 4.5b 2015年每月高雄海域1站觀測與潮流流向比較圖

C14CKH10.1H0 C14CKH10.1HD C151KH10.1H0 C151KH10.1HD C152KH10.1H0 C152KH10.1HD
 C153KH10.1H0 C153KH10.1HD C154KH10.1H0 C154KH10.1HD C155KH10.1H0 C155KH10.1HD

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Current Speed in Kao-Hsiung Seas of KH10 at 2015

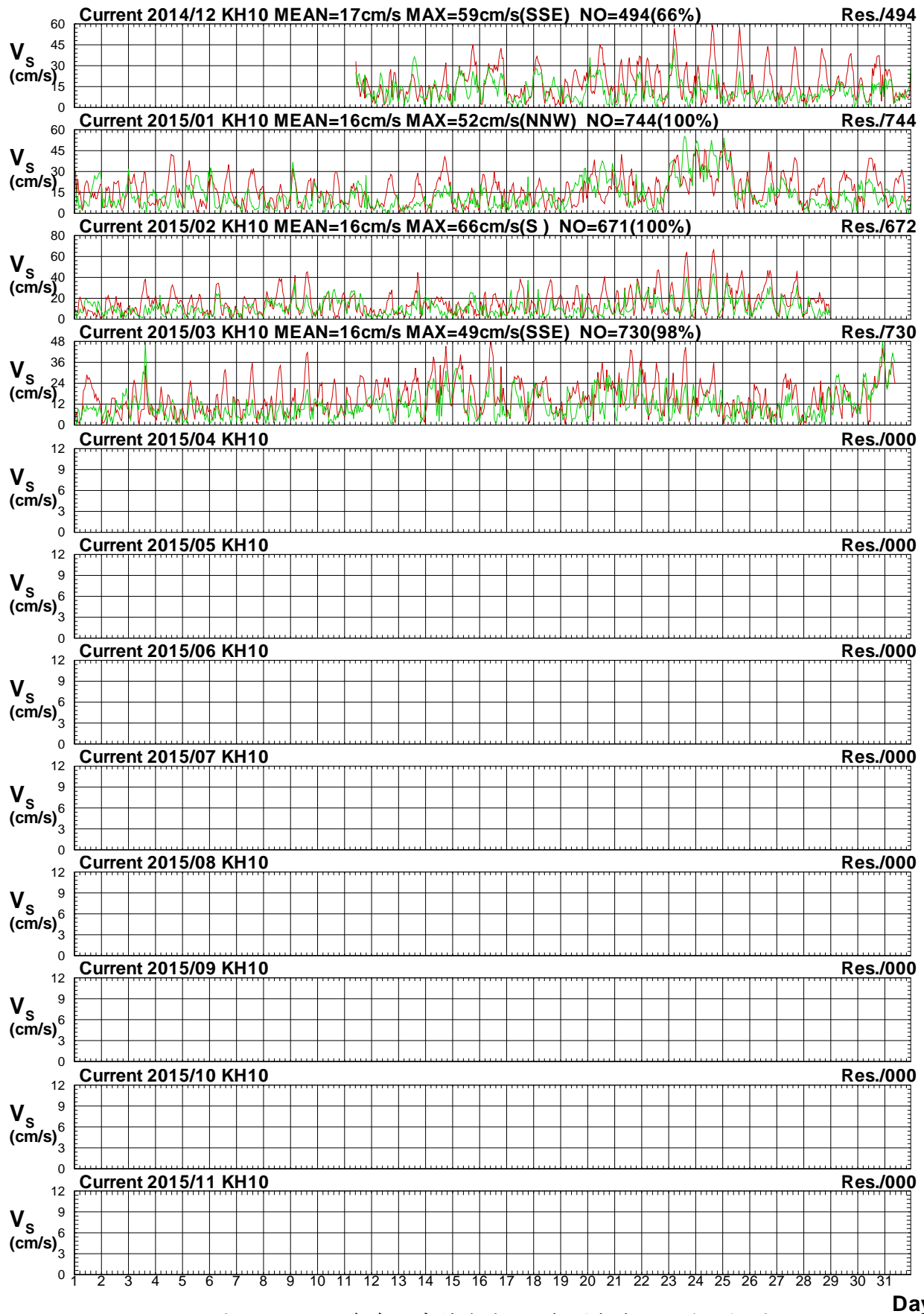


圖 4.6a 2015年每月高雄海域1站觀測與非潮流速比較圖

C14CKH10.1H0 C14CKH10.1HR C151KH10.1H0 C151KH10.1HR C152KH10.1H0 C152KH10.1HR
 C153KH10.1H0 C153KH10.1HR C154KH10.1H0 C154KH10.1HR C155KH10.1H0 C155KH10.1HR

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Current Direction in Kao-Hsiung Seas of KH10 at 2015

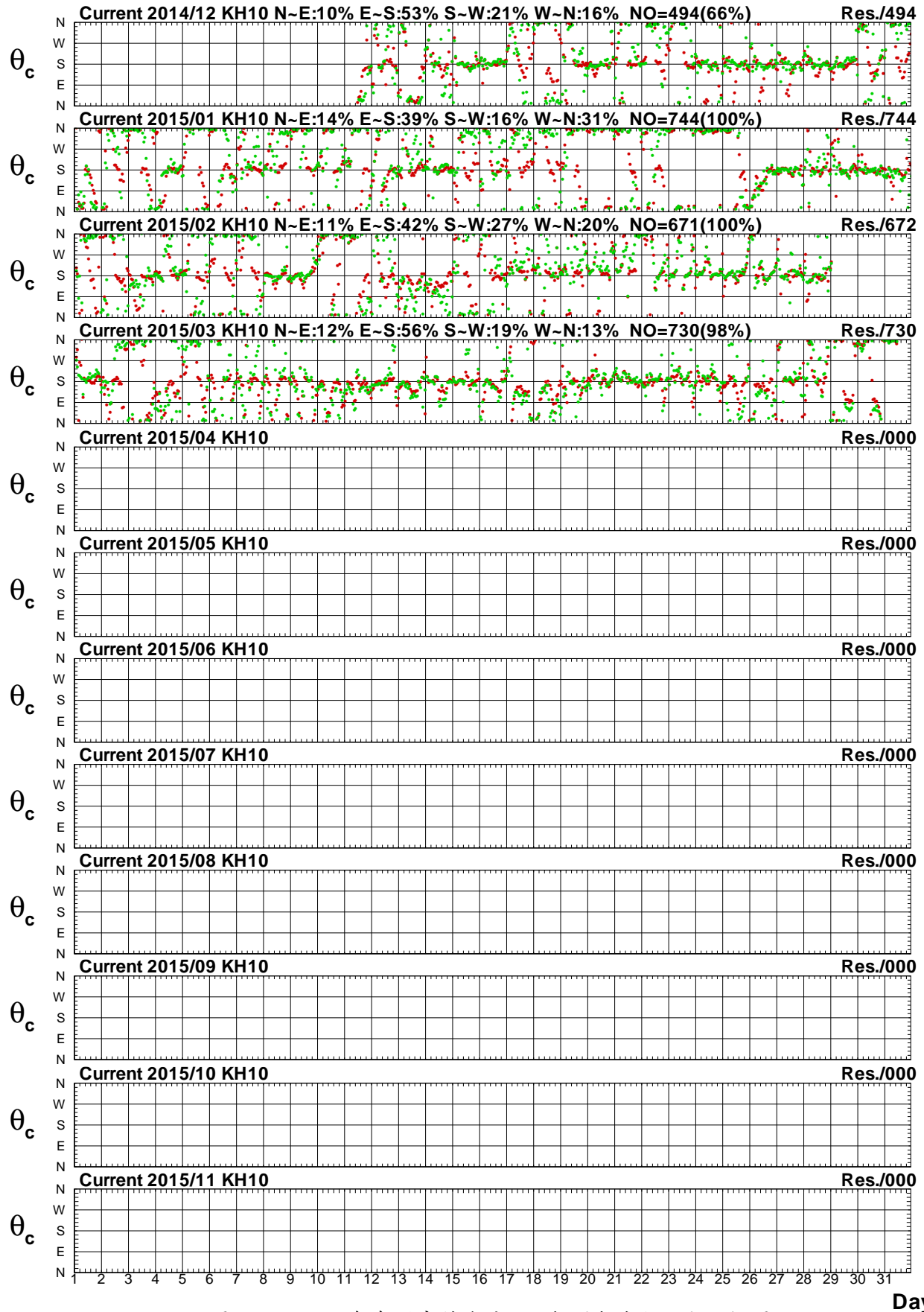


圖 4.6b 2015年每月高雄海域1站觀測與非潮流向比較圖

C14CKH10.1H0 C14CKH10.1HR C151KH10.1H0 C151KH10.1HR C152KH10.1H0 C152KH10.1HR
 C153KH10.1H0 C153KH10.1HR C154KH10.1H0 C154KH10.1HR C155KH10.1H0 C155KH10.1HR

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Current Speed in Kao-Hsiung Seas of KHX0 at 2015

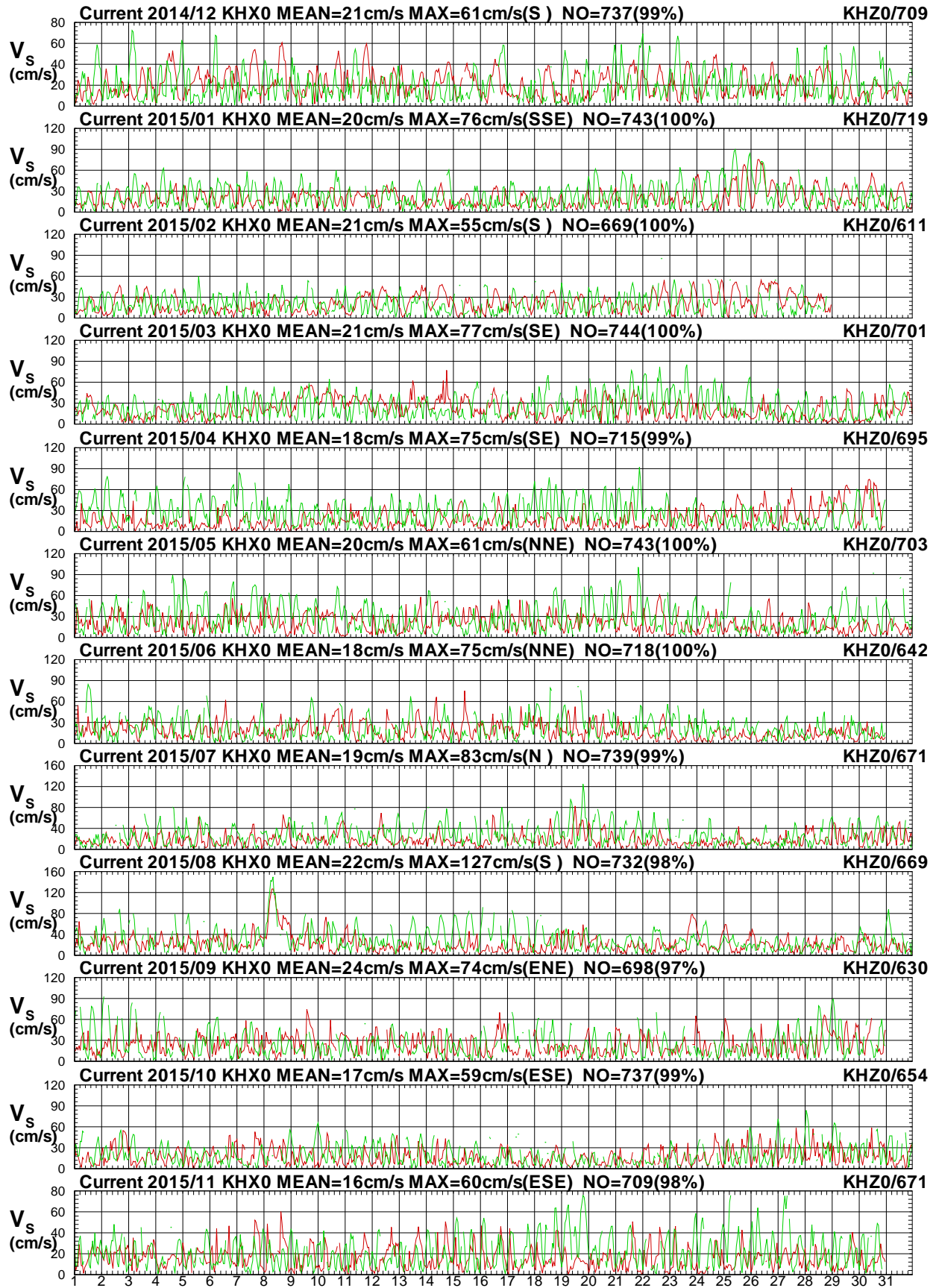


圖 4.7a 2015年每月高雄海域 X 站與 Z 站流速比較圖

C14CKHX0.1H0 C14CKHZ0.1H0 C151KHX0.1H0 C151KHZ0.1H0 C152KHX0.1H0 C152KHZ0.1H0
 C153KHX0.1H0 C153KHZ0.1H0 C154KHX0.1H0 C154KHZ0.1H0 C155KHX0.1H0 C155KHZ0.1H0

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Current Direction in Kao-Hsiung Seas of KHX0 at 2015

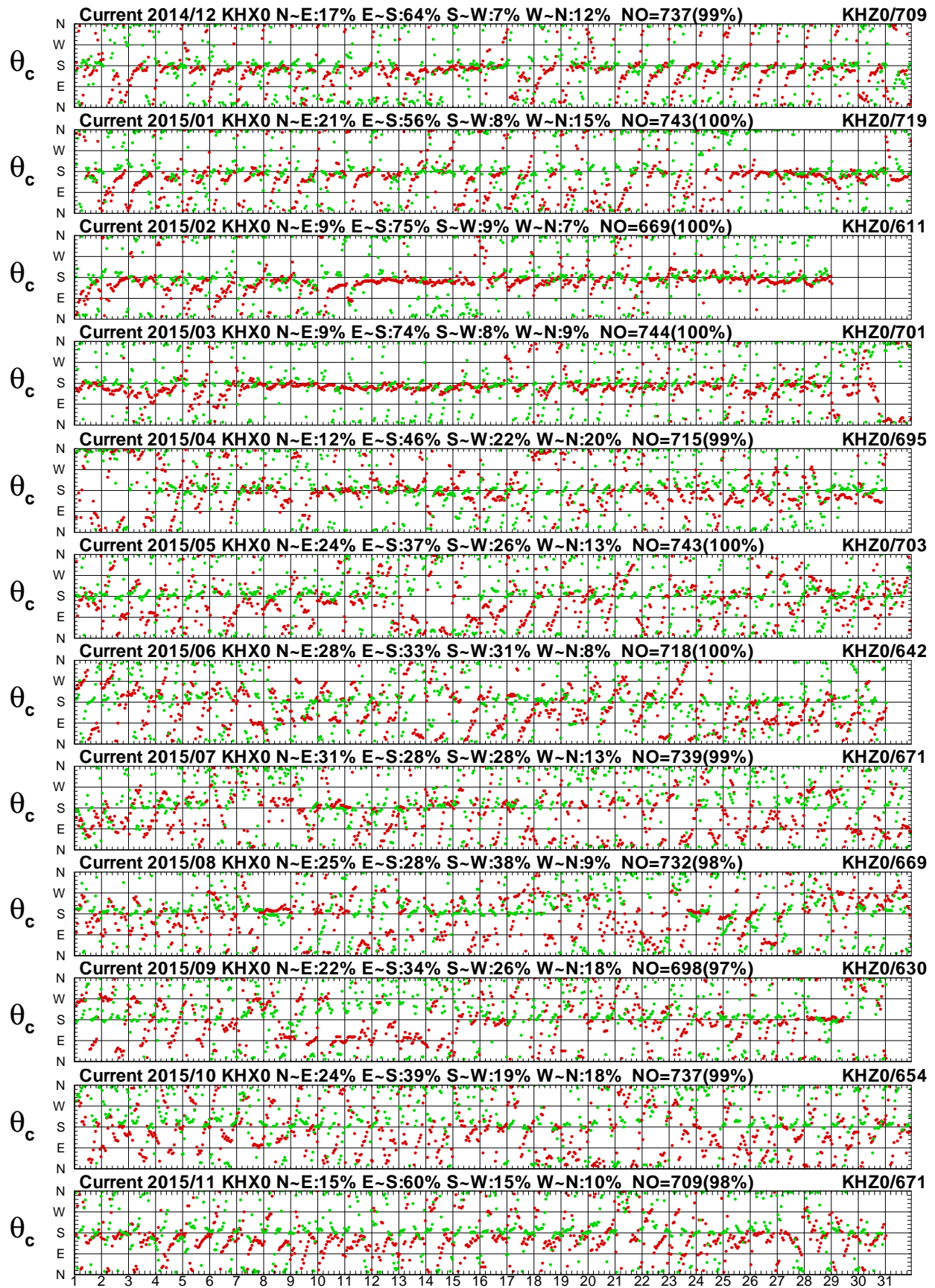


圖 4.7b 2015年每月高雄海域 X 站與 Z 站流向比較圖

C14CKHX0.1H0 C14CKHZ0.1H0 C151KHX0.1H0 C151KHZ0.1H0 C152KHX0.1H0 C152KHZ0.1H0
 C153KHX0.1H0 C153KHZ0.1H0 C154KHX0.1H0 C154KHZ0.1H0 C155KHX0.1H0 C155KHZ0.1H0

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Current Speed in Kao-Hsiung Seas of KHX0 at 2015

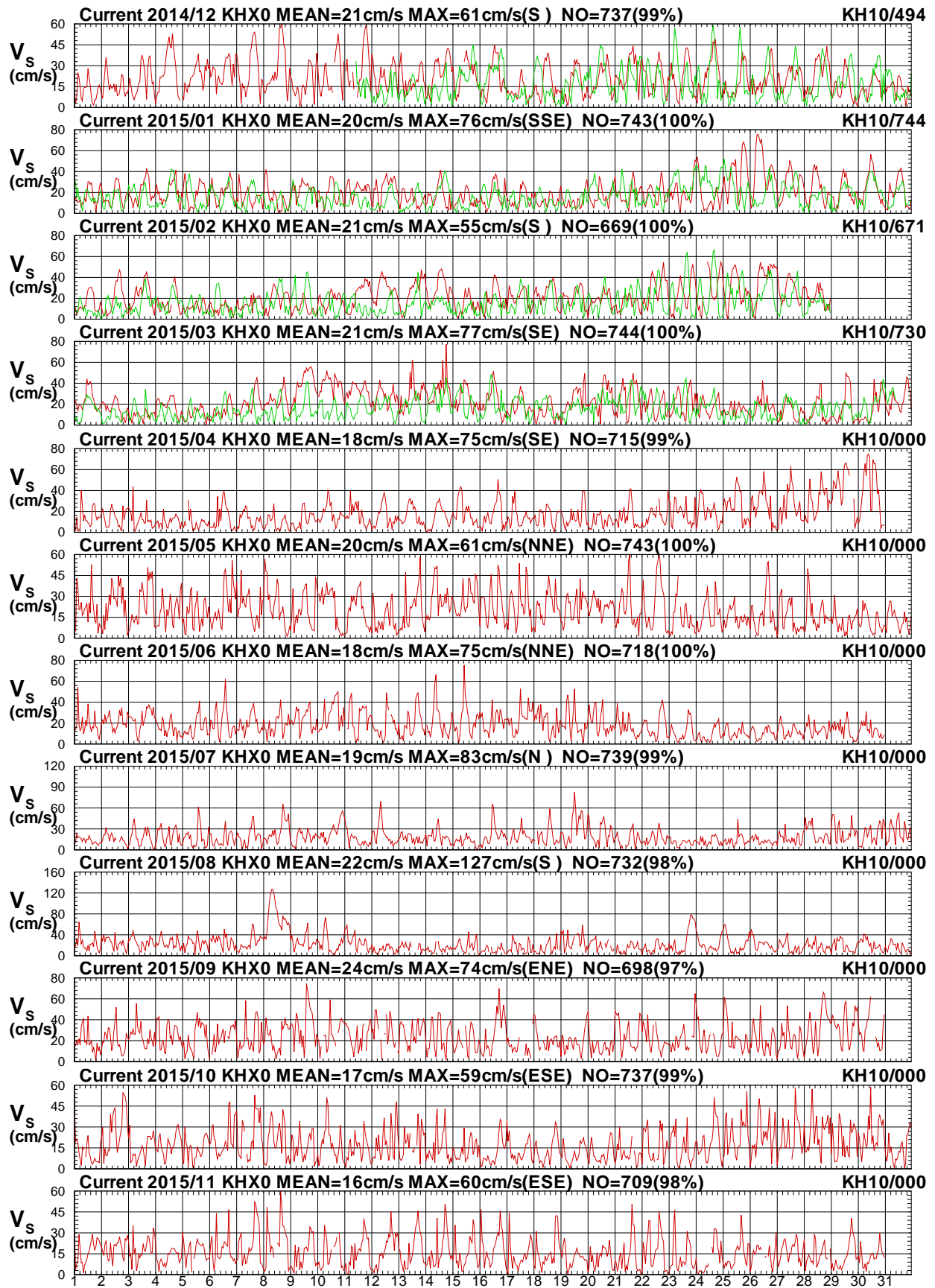


圖 4.8a 2015年每月高雄海域 X 站與 1 站流速比較圖

C14CKHX0.1H0 C14CKH10.1H0 C151KHX0.1H0 C151KH10.1H0 C152KHX0.1H0 C152KH10.1H0
 C153KHX0.1H0 C153KH10.1H0 C154KHX0.1H0 C154KH10.1H0 C155KHX0.1H0 C155KH10.1H0

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Current Direction in Kao-Hsiung Seas of KHX0 at 2015

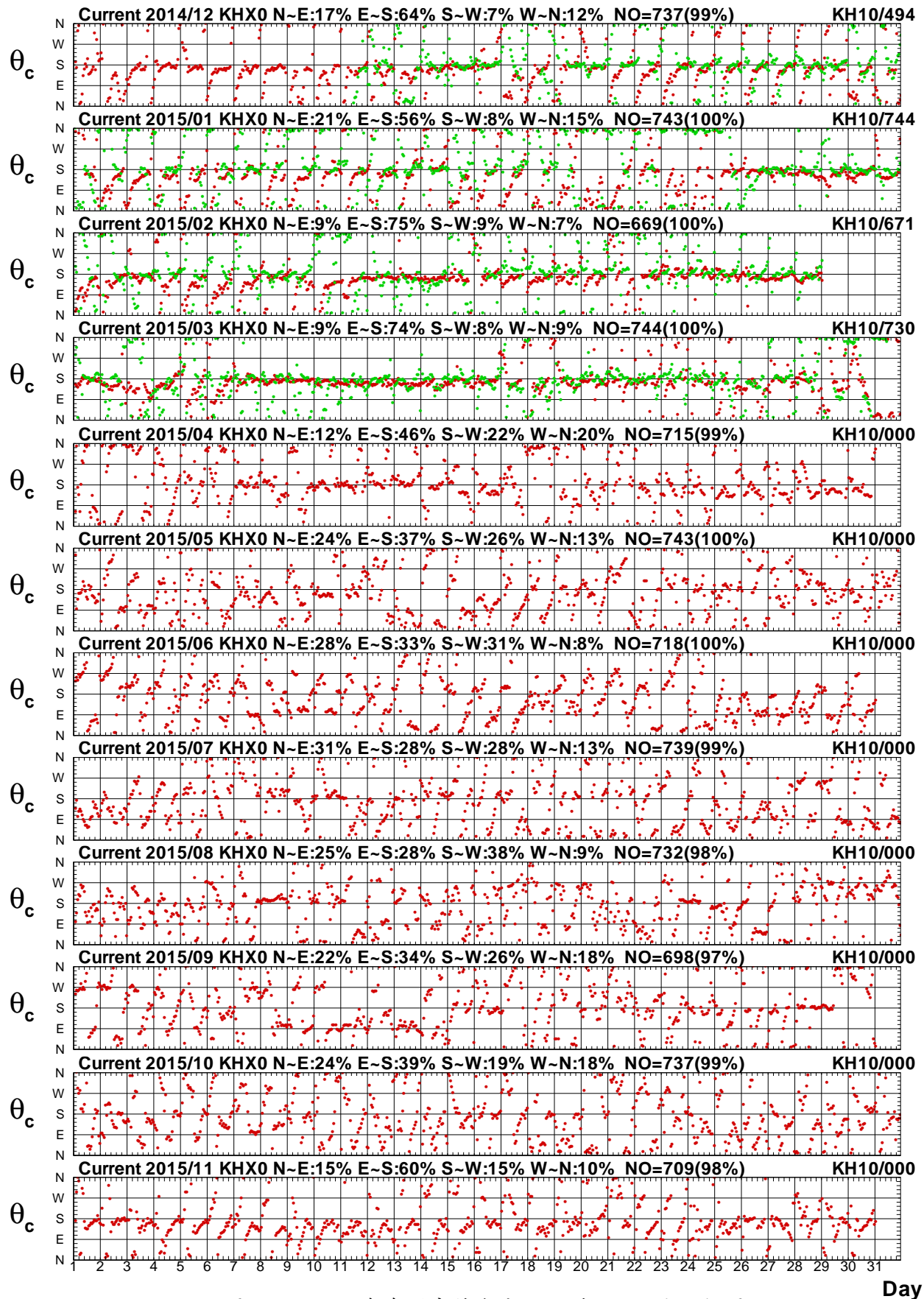


圖 4.8b 2015年每月高雄海域 X 站與 1 站流向比較圖

C14CKHX0.1H0 C14CKH10.1H0 C151KHX0.1H0 C151KH10.1H0 C152KHX0.1H0 C152KH10.1H0
 C153KHX0.1H0 C153KH10.1H0 C154KHX0.1H0 C154KH10.1H0 C155KHX0.1H0 C155KH10.1H0

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