

106-121-7976

MOTC-IOT-105-H3DA002c-A12

2015 年港灣環境資訊網觀測資料年報 (嘉南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

106-121-7976

MOTC-IOT-105-H3DA002c-A12

2015 年港灣環境資訊網觀測資料年報 (嘉南海域觀測海氣象資料)

著者：蘇青和、李俊穎、陳明宗、劉清松
傅怡釗、陳鈞彥、林珂如、謝佳紘

交通部運輸研究所

中華民國 106 年 9 月

GPN : 1010601362
定價全套 16 冊 1600 元

國家圖書館出版品預行編目(CIP)資料

臺灣環境資訊網觀測資料年報(嘉南海域觀測海氣象資料). 2015年 / 蘇青和等編輯. -- 初版. --
臺北市 : 交通部運研所, 民 106.09
面 ; 公分
ISBN 978-986-05-3431-3(平裝)

1. 海洋氣象

444.94

106015966

2015年臺灣環境資訊網觀測資料年報(嘉南海域觀測海氣象資料)

編輯：蘇青和、李俊穎、陳明宗、劉清松、傅怡釧、
陳鈞彥、林珂如、謝佳紘

出版機關：交通部運輸研究所

地址：10548 臺北市敦化北路 240 號

網址：www.ihmt.gov.tw (中文版>中心出版品)

電話：(04)26587176

出版年月：中華民國 106 年 9 月

印刷者：

版(刷)次冊數：初版一刷

本書同時登載於交通部運輸研究所臺灣技術研究中心網站

定價：全套 16 冊 1600 元

展售處：

交通部運輸研究所運輸資訊組•電話：(02)23496880

國家書店松江門市：10485 臺北市中山區松江路 209 號 F1•電話：(02)25180207

五南文化廣場：40042 臺中市中山路 6 號•電話：(04)22260330

GPN：1010601362 ISBN：978-986-05-3431-3 (全套:平裝)

著作財產權人：中華民國(代表機關：交通部運輸研究所)

本著作保留所有權利，欲利用本著作全部或部份內容者，須徵求交通部運輸研究所書面授權。

交通部運輸研究所自行研究計畫出版品摘要表

出版品名稱：2015 年港灣環境資訊網觀測資料年報(嘉南海域觀測海氣象資料)			
國際標準書號(或叢刊號) ISBN 978-986-05-3431-3 (全套:平裝)	政府出版品統一編號 1010601362	運輸研究所出版品編號 106-121-7976	計畫編號 105-H3DA002c-A12
主辦單位：港灣技術研究中心 主管：邱永芳 主持人：蘇青和 研究人員：李俊穎、陳明宗、劉清松、傅怡釗、陳鈞彥、林珂如、謝佳紘 行政助理：錢爾潔、馬維倫、陳正義 聯絡電話：04-26587175, 04-26587133, 04-26587132 傳真號碼：04-26571329			研究期間 自 105 年 01 月 至 105 年 12 月
關鍵詞港灣環境資訊網、2015 年、嘉南海域、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，包括嘉南海域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>			
出版日期	頁數	定價	本出版品取得方式
106 年 9 月	142	全套 16 冊 1600 元	凡屬機密性出版品均不對外公開。普通性出版品，公營、公益機關團體及學校可函洽本所免費贈閱；私人及私營機關團體可按定價價購。
機密等級： <input type="checkbox"/> 密 <input type="checkbox"/> 機密 <input type="checkbox"/> 極機密 <input type="checkbox"/> 絕對機密 (解密條件： <input type="checkbox"/> 年 月 日解密， <input type="checkbox"/> 公布後解密， <input type="checkbox"/> 附件抽存後解密， <input type="checkbox"/> 工作完成或會議終了時解密， <input type="checkbox"/> 另行檢討後辦理解密) <input checked="" type="checkbox"/> 普通			
備註：本研究之結論與建議不代表交通部之意見。			

**PUBLICATION ABSTRACTS OF RESEARCH PROJECTS
INSTITUTE OF TRANSPORTATION
MINISTRY OF TRANSPORTATION AND COMMUNICATIONS**

TITLE: Annual Report of Oceanographical Observation Data in Chia-Nan Offshoe Region at 2015			
ISBN(OR ISSN) 978-986-05-3431-3 (pbk)	GOVERNMENT PUBLICATIONS NUMBER 1010601362	IOT SERIAL NUMBER 106-121-7976	PROJECT NUMBER 105-H3DA002c-A12
DIVISION: HARBOR & MARINE TECHNOLOGY CENTER DIVISION DIRECTION: Yung-Fang Chiu PRINCIPAL INVESTIGATOR: Ching-Ho Su PROJECT STAFF: Lee Chun-Ying, Chen Ming-Tzong, Liu Ching-Sung, Yi-Chuan Fu, Chun-Yen Chen, Jenny Lin, Shieh Chia-Hon, Chien Er-Jier, Chen Cheng-Yi, Ma Wei-Lun ASSISTANT INVESTIGATOR: Chun-Ting Lee, Er-Jier Chien PHONE: 886-4-26587175, 886-4-26587133, 886-4-26587132 FAX: 886-4-26571329			PROJECT PERIOD FROM January 2016 TO December 2016
KEY WORDS: Harbor Environment Information Website, 2015, Annual Report, Chia-Nan 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 Chia-Nan offshoe region in Taiwan. The contents in this Annual report include the records of observation and the time series of data.</p>			
DATE OF PUBLICATION Sep. 2017	NUMBER OF PAGES 142	A SET OF SIXTEEN BOOKS 1600	CLASSIFICATION <input type="checkbox"/> RESTRICTED <input type="checkbox"/> CONFIDENTIAL <input type="checkbox"/> SECRET <input type="checkbox"/> TOP SECRET <input checked="" type="checkbox"/> UNCLASSIFIED
The views expressed in this publication are not necessarily those of the Ministry of Transportation and Communications.			

2015 年港灣環境資訊網觀測資料年報 (嘉南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 2015 年嘉南海域觀測風力資料	1-1
第二章 2015 年嘉南海域觀測波浪資料	2-1
第三章 2015 年嘉南海域觀測潮汐資料	3-1
第四章 2015 年嘉南海域觀測海流資料	4-1

誌 謝

2015 年港灣環境資訊網觀測風力資料，蒐集之嘉南海域風力資料，除本中心自行觀測之外，在七股氣象站(測站 I)、箔子寮氣象站(測站 M)、塭港氣象站(測站 Q)等觀測風力資料，係交通部中央氣象局(CWB)提供。永安氣象站(測站 H)、四草氣象站(測站 E)、外傘頂氣象站(測站 O)、七股海上浮標(測站 Y)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，蒐集之嘉南海域波浪資料，除本中心自行觀測之外，在七股海上浮標(測站 Y)、七股雷達站(測站 Z)等觀測波浪資料，係經濟部水利署(WRA)提供。灣裡海上浮標(測站 R) 觀測波浪儀，係國立成功大學水文中心(COMC)裝設。曾文溪外海浮標(測站 V)及鹿耳門溪口外海浮標(測站 U)波浪儀屬觀台灣中油(CPC)所設置，謹致謝忱。

2015 年港灣海氣象觀測潮汐資料，蒐集之嘉南海域潮汐觀測資料，除本中心自行觀測之外，在將軍(測站 K)、東石(測站 P)、塭港(測站 Q)、箔子寮(測站 M)等觀測潮汐資料，係交通部中央氣象局提供。永安(測站 J)、四草(測站 G)等觀測潮汐資料，係經濟部水利署提供，謹致謝忱。

2015 年港灣環境資訊網觀測海流資料，蒐集之嘉南海域海流資料，除本中心自行觀測之外，在七股海上浮標(測站 Y)、七股雷達站(測站 Z)等觀測海流資料，係經濟部水利署(WRA)提供。其他曾文溪外海浮標(測站 V)、鹿耳門溪口外海浮標(測站 U) 海流儀屬台灣中油(CPC)所設置，謹致謝忱。

第一章 2015 年嘉南海域觀測風力資料

嘉南海域風之觀測係本中心(IHMT)位於安平港海上觀測樁頂安裝之 Young Brand 風速計(稱測站 X0)，其位置如附圖 1。風速計安裝於觀測樁頂之高度約為海平面上 14 米，觀測資料至觀測樁於 2011 年 8 月拆除為止。2011 年 12 月於南堤增設風速計(高度約為海平面上 23 米)(稱測站 X1)。2009 年 8 月於 7 號碼頭增加安裝 Young Brand 風速計(稱測站 W)。2006 年 8 月本中心於布袋港安裝一具風速儀(稱測站 B)。

七股風力觀測站 I 屬中央氣象局(CWB)所設置，測站 Y(七股外海浮標站)、測站 H(永安氣象站)、測站 O(外傘頂氣象站)及測站 E(四草氣象站)之風速儀屬水利署(WRA)所有。曾文浮標站測站 V 之風速儀則屬臺灣中油所設置。各測站歷年觀測風資料蒐集概況如表 1。

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

本風力年報以取經檢核或修補後之 Y 站資料作為主要觀測站，2015 年主要觀測站修補前(後)每月觀測之風資料記錄期間統計表，如表 1.1a，2015 年風力次要觀測站資料(未補餘)記錄統計表，如表 1.1b，主要觀測站修補前後每月風力歷線比較圖，如圖 1.1，主要觀測站與次要觀測站(或其他觀測站)每月風力歷線比較圖，如圖 1.2 以後。

表 1 嘉南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
X0	22°56'37"N	120°08'10"E	1999/10-2011/07	港研中心	觀測樁
X1	22°57'22"N	120°08'53"E	2010/12-2015/11(觀測中)	港研中心	安平港南堤
W	22°58'09"N	120°09'54"E	2009/08-2015/11(觀測中)	港研中心	安平港信號臺
B	23°22'48"E	120°08'49"E	2006/08-2015/11(觀測中)	港研中心	布袋港
O	23°28'05"E	120°00'52"	2000/01-2009/01	水利署	外傘頂氣象站
Y	23°05'55"N	120°00'20"E	2006/06-2015/11(觀測中)	水利署	七股浮標站
H	22°49'8"N	120°11'51"E	2005/10-2015/11(觀測中)	水利署	永安氣象站
E	23°01'25"N	120°6'42"E	2014/09-2015/11(觀測中)	水利署	四草氣象站
M	23°37'07"N	120°08'15"	2015/01-2015/11(觀測中)	中央氣象局	箔子寮氣象站
Q	23°28'00"N	120°07'21"E	2015/01-2015/11(觀測中)	中央氣象局	塭港氣象站
I	23°0'52"N	120°04'09"E	2014/08-2015/11(觀測中)	中央氣象局	七股氣象站

嘉南海域



IHMT 觀測樁風速站



IHMT 風速站



CWB 風速站



WRA 風速站



WRA 浮標風速站



圖 1 嘉南海域風力觀測站位置示意圖

表 1.1a 2015年每月嘉南海域修補前各測站觀測風力資料紀錄統計表

年/月 港區	嘉南海域	嘉南海域	嘉南海域	嘉南海域	嘉南海域	嘉南海域	嘉南海域	嘉南海域	嘉南海域	嘉南海域	嘉南海域	嘉南海域
測站	X	W	Y	B	I	H	E	O	M	Q		
2014/12月	742 (99.7%)	381 (51.2%)	650 (87.4%)	743 (99.9%)	744 (100%)	744 (100%)	744 (100%)	*	*	*	*	*
2015/ 1月	732 (98.4%)	371 (49.9%)	717 (96.4%)	740 (99.5%)	743 (99.9%)	743 (99.9%)	743 (99.9%)	*	465 (62.5%)	454 (61.0%)	*	*
2015/ 2月	664 (98.8%)	635 (94.5%)	561 (83.5%)	668 (99.4%)	672 (100%)	671 (99.9%)	671 (99.9%)	*	*	*	*	*
2015/ 3月	729 (98.0%)	739 (99.3%)	634 (85.2%)	742 (99.7%)	744 (100%)	744 (100%)	744 (100%)	*	119 (16.0%)	117 (15.7%)	*	*
2015/ 4月	700 (97.2%)	712 (98.9%)	608 (84.4%)	699 (97.1%)	720 (100%)	719 (99.9%)	719 (99.9%)	*	92 (12.8%)	379 (52.6%)	*	*
2015/ 5月	723 (97.2%)	732 (98.4%)	709 (95.3%)	654 (87.9%)	744 (100%)	744 (100%)	743 (99.9%)	*	29 (3.9%)	254 (34.1%)	*	*
2015/ 6月	706 (98.1%)	716 (99.4%)	720 (100%)	665 (92.4%)	720 (100%)	719 (99.9%)	719 (99.9%)	*	*	498 (69.2%)	*	*
2015/ 7月	742 (99.7%)	742 (99.7%)	744 (100%)	732 (98.4%)	744 (100%)	744 (100%)	744 (100%)	*	*	333 (44.8%)	*	*
2015/ 8月	224 (30.1%)	744 (100%)	283 (38.0%)	713 (95.8%)	744 (100%)	743 (99.9%)	743 (99.9%)	*	*	570 (76.6%)	*	*
2015/ 9月	*	711 (98.8%)	635 (88.2%)	707 (98.2%)	499 (69.3%)	720 (100%)	717 (99.6%)	*	296 (41.1%)	588 (81.7%)	*	*
2015/10月	*	736 (98.9%)	738 (99.2%)	744 (100%)	744 (100%)	743 (99.9%)	744 (100%)	*	382 (51.3%)	381 (51.2%)	*	*
2015/11月	*	719 (99.9%)	708 (98.3%)	720 (100%)	720 (100%)	720 (100%)	720 (100%)	*	492 (68.3%)	633 (87.9%)	*	*
2015/冬季	2138 (99.0%)	1387 (64.2%)	1928 (89.3%)	2151 (99.6%)	2159 (100.0%)	2158 (99.9%)	2158 (99.9%)	*	465 (21.5%)	454 (21.0%)	*	*
2015/春季	2152 (97.5%)	2183 (98.9%)	1951 (88.4%)	2095 (94.9%)	2208 (100%)	2207 (100.0%)	2206 (99.9%)	*	240 (10.9%)	750 (34.0%)	*	*
2015/夏季	1672 (75.7%)	2202 (99.7%)	1747 (79.1%)	2110 (95.6%)	2208 (100%)	2206 (99.9%)	2206 (99.9%)	*	*	1401 (63.5%)	*	*
2015/秋季	*	2166 (99.2%)	2081 (95.3%)	2171 (99.4%)	1963 (89.9%)	2183 (100.0%)	2181 (99.9%)	*	1170 (53.6%)	1602 (73.4%)	*	*
2015/整年	5962 (68.1%)	7938 (90.6%)	7707 (88.0%)	8527 (97.3%)	8538 (97.5%)	8754 (99.9%)	8751 (99.9%)	*	1875 (21.4%)	4207 (48.0%)	*	*
起始年月	2014/12	2014/12	2014/12	2014/12	2014/12	2014/12	2014/12	*	2015/01	2015/01	*	*
結束年月	2015/08	2015/11	2015/11	2015/11	2015/11	2015/11	2015/11	*	2015/11	2015/11	*	*

表1.1b 2015年每月嘉南海域修補後各測站風力資料統計表

年/月 港區	嘉南海域	嘉南海域	嘉南海域	嘉南海域	嘉南海域	嘉南海域						
測站	X	W	Y	B	I	H	E	O	M	Q		
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	*	*	*	*	*

1-4

Wind Speed in Chia-Nan Seas of CNY0 at 2015

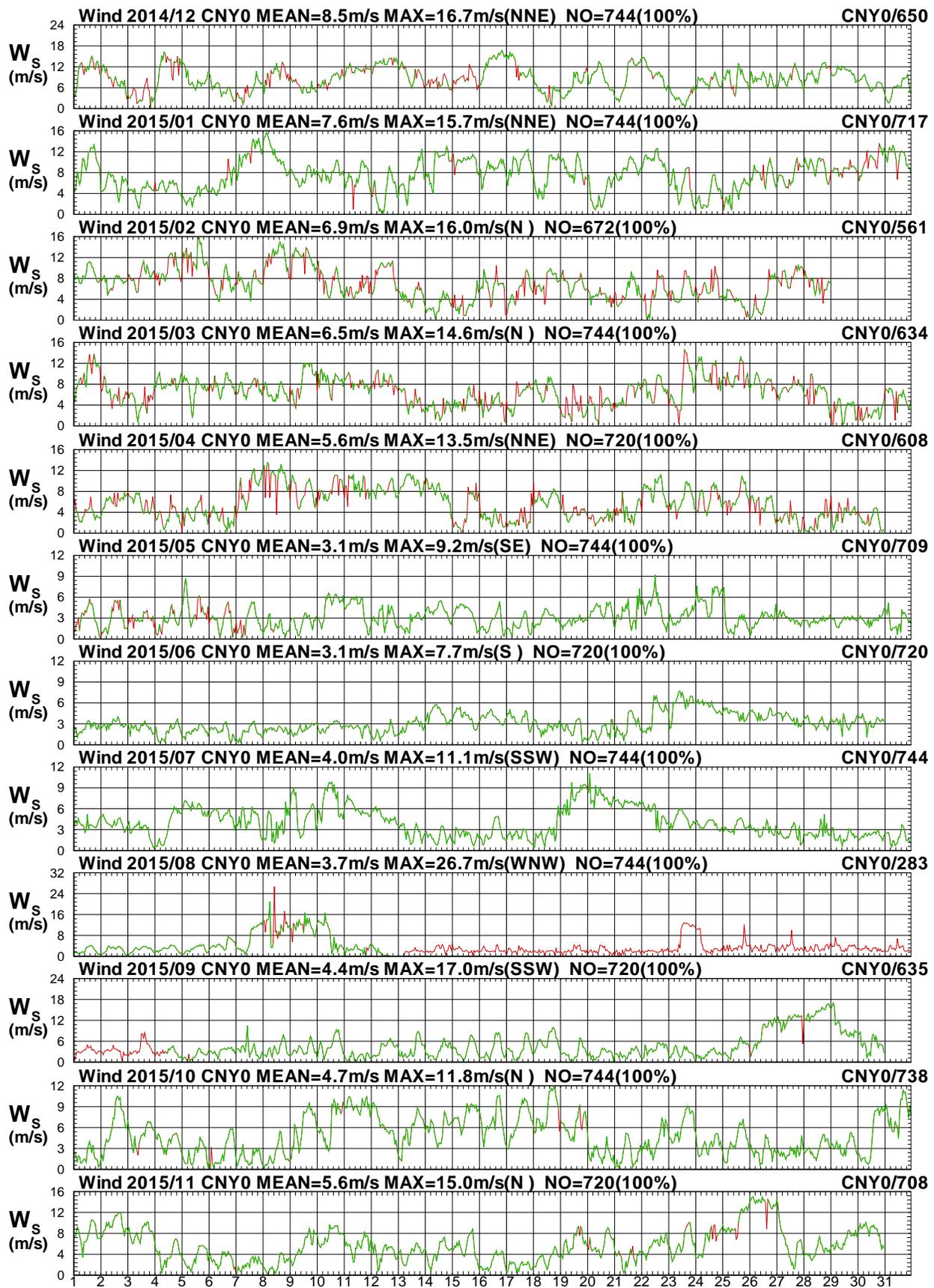


圖 1.1a 2015年每月嘉南海域 Y 站修補前後之風速比較圖

W14CCNY0.1HA W14CCNY0.1HO W151CNY0.1HA W151CNY0.1HO W152CNY0.1HA W152CNY0.1HO
W153CNY0.1HA W153CNY0.1HO W154CNY0.1HA W154CNY0.1HO W155CNY0.1HA W155CNY0.1HO

Institute of Harbor & Marine Technology

Wind Direction in Chia-Nan Seas of CNY0 at 2015

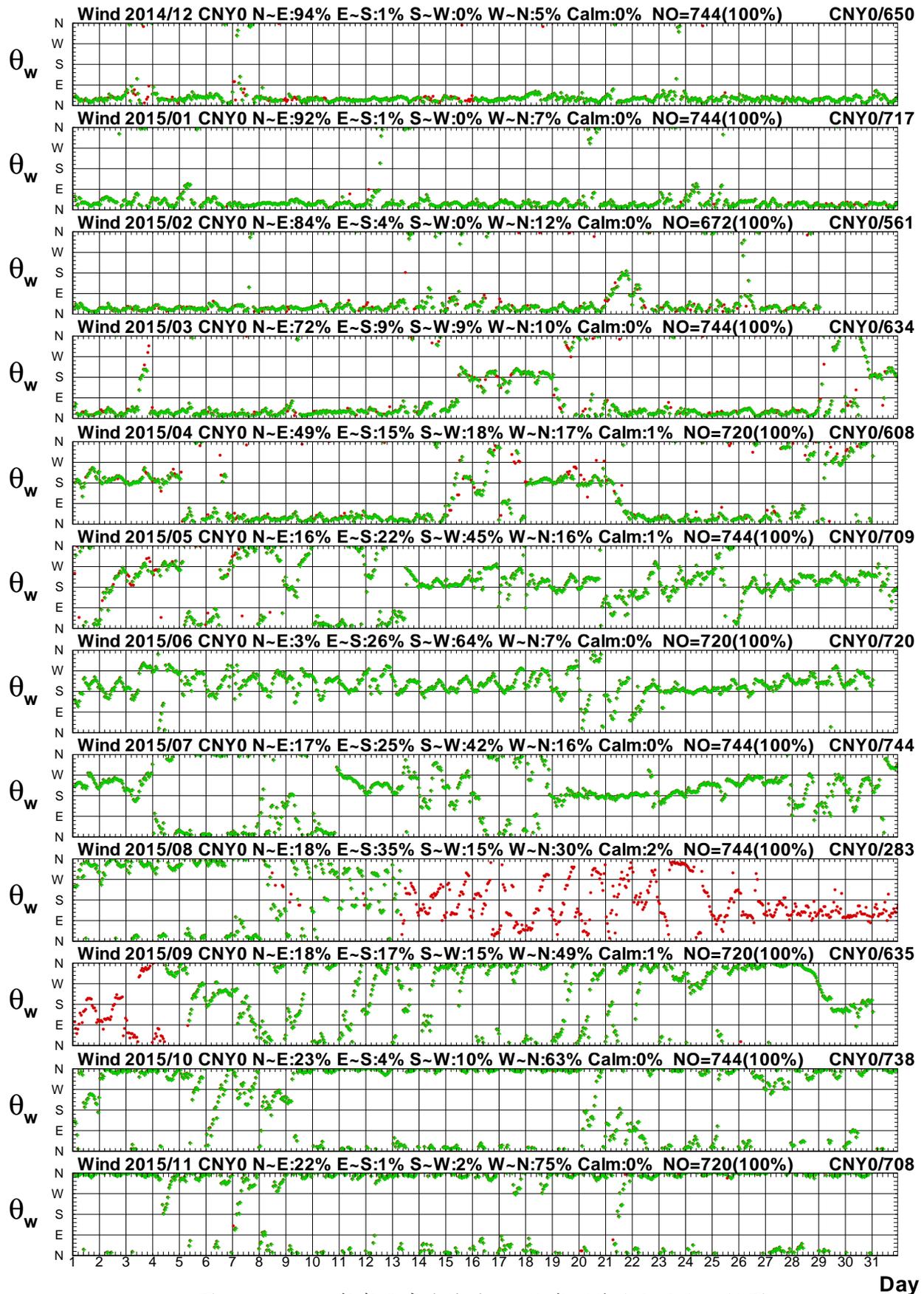


圖 1.1b 2015年每月嘉南海域 Y 站修補前後之風向比較圖

W14CCNY0.1HA W14CCNY0.1H0 W151CNY0.1HA W151CNY0.1H0 W152CNY0.1HA W152CNY0.1H0
 W153CNY0.1HA W153CNY0.1H0 W154CNY0.1HA W154CNY0.1H0 W155CNY0.1HA W155CNY0.1H0

Institute of Harbor & Marine Technology

Wind Speed in Chia-Nan Seas of CNY0 at 2015

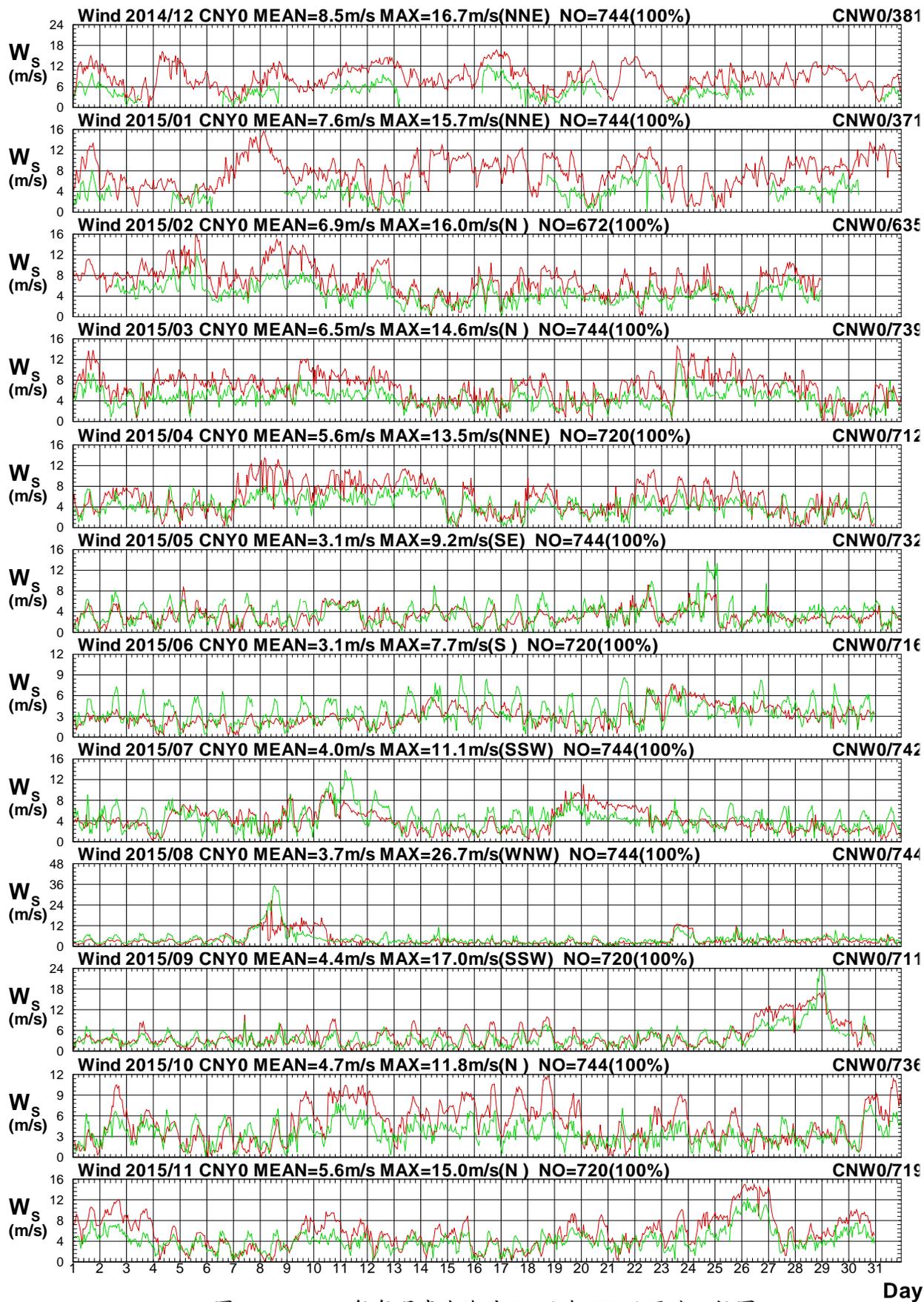


圖 1.2a 2015年每月嘉南海域 Y 站與 W 站風速比較圖

W14CCNY0.1HA W14CCNW0.1H0 W151CNY0.1HA W151CNW0.1H0 W152CNY0.1HA W152CNW0.1H0
 W153CNY0.1HA W153CNW0.1H0 W154CNY0.1HA W154CNW0.1H0 W155CNY0.1HA W155CNW0.1H0

Institute of Harbor & Marine Technology

Wind Direction in Chia-Nan Seas of CNY0 at 2015

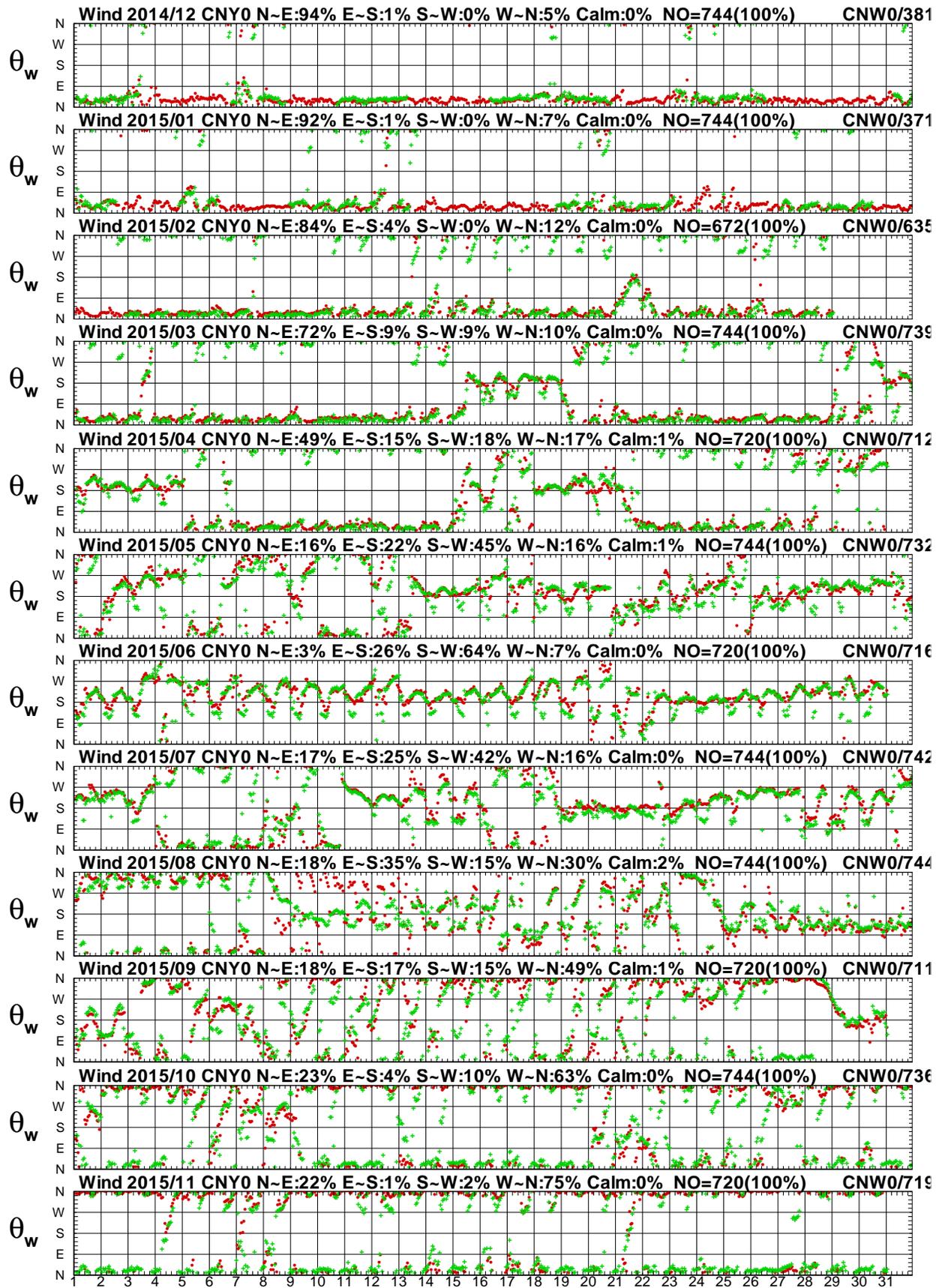


圖 1.2b 2015年每月嘉南海域 Y 站與 W 站風向比較圖

W14CCNY0.1HA W14CCNW0.1H0 W151CNY0.1HA W151CNW0.1H0 W152CNY0.1HA W152CNW0.1H0
 W153CNY0.1HA W153CNW0.1H0 W154CNY0.1HA W154CNW0.1H0 W155CNY0.1HA W155CNW0.1H0

Institute of Harbor & Marine Technology

Wind Speed in Chia-Nan Seas of CNY0 at 2015

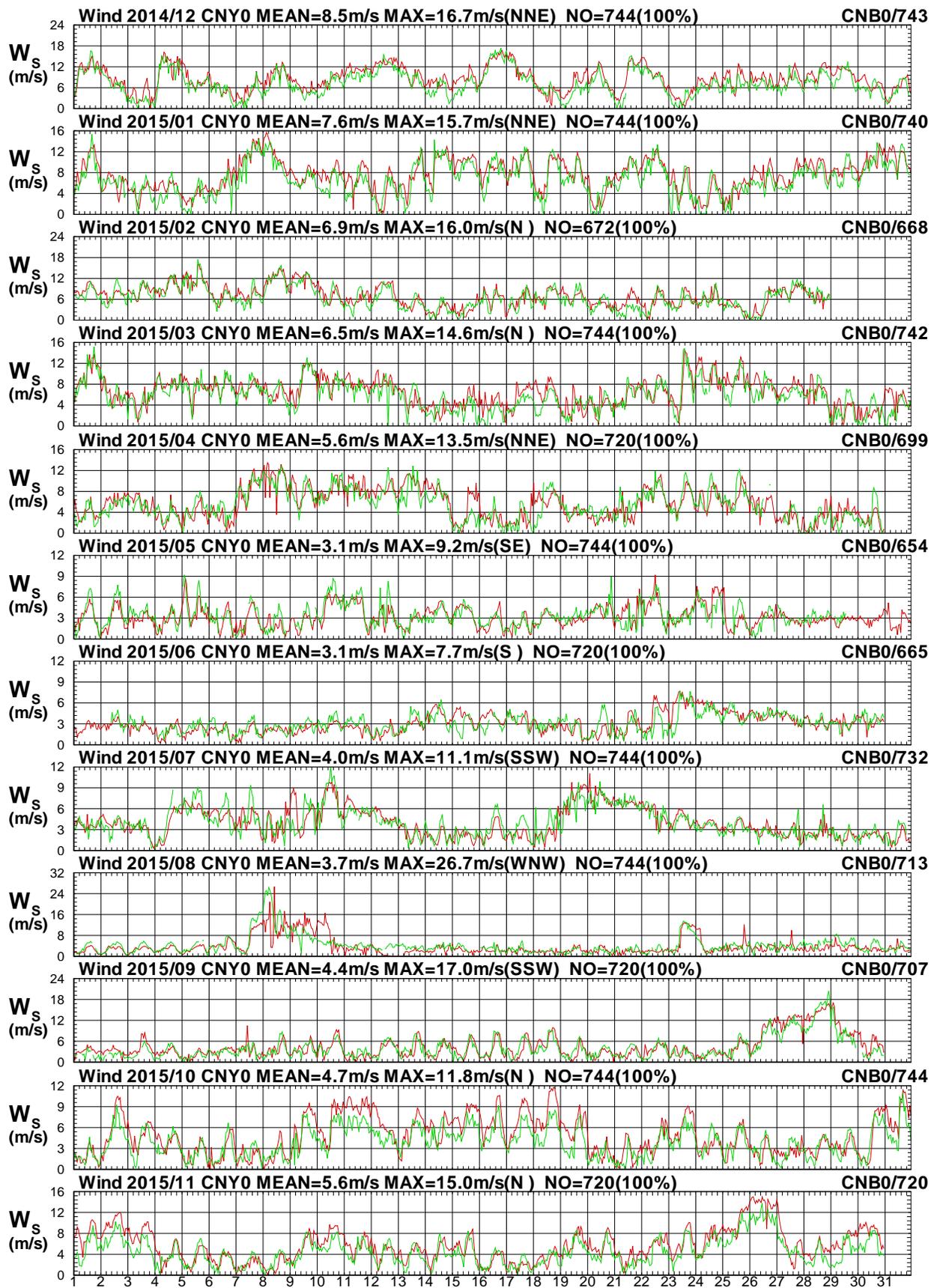


圖 1.3a 2015年每月嘉南海域 Y 站與 B 站風速比較圖

W14CCNY0.1HA W14CCNB0.1H0 W151CNY0.1HA W151CNB0.1H0 W152CNY0.1HA W152CNB0.1H0
 W153CNY0.1HA W153CNB0.1H0 W154CNY0.1HA W154CNB0.1H0 W155CNY0.1HA W155CNB0.1H0

Institute of Harbor & Marine Technology

Wind Direction in Chia-Nan Seas of CNY0 at 2015

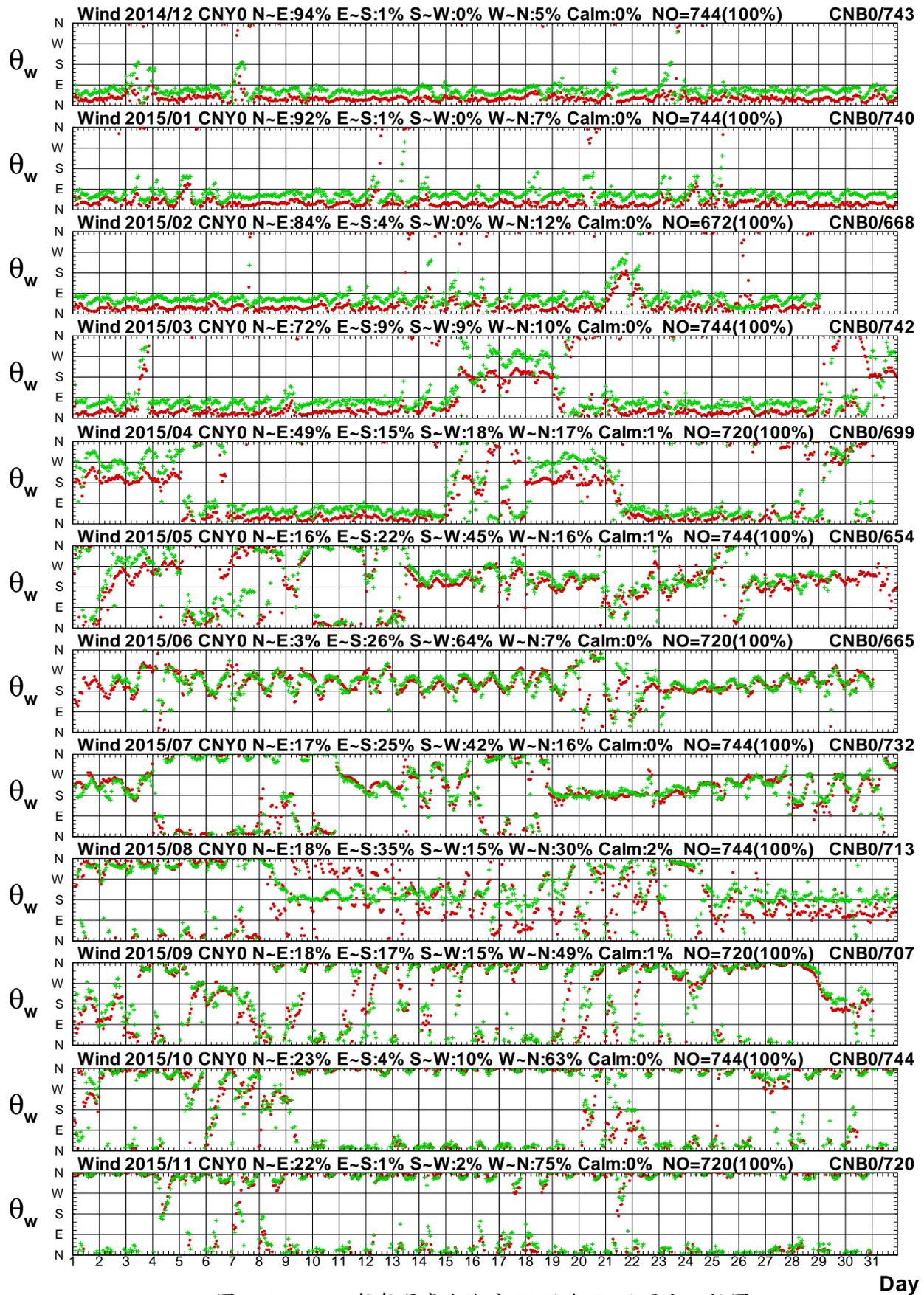


圖 1.3b 2015年每月嘉南海域 Y 站與 B 站風向比較圖

W14CCNY0.1HA W14CCNB0.1H0 W151CNY0.1HA W151CNB0.1H0 W152CNY0.1HA W152CNB0.1H0
 W153CNY0.1HA W153CNB0.1H0 W154CNY0.1HA W154CNB0.1H0 W155CNY0.1HA W155CNB0.1H0

Institute of Harbor & Marine Technology

Wind Speed in Chia-Nan Seas of CNY0 at 2015

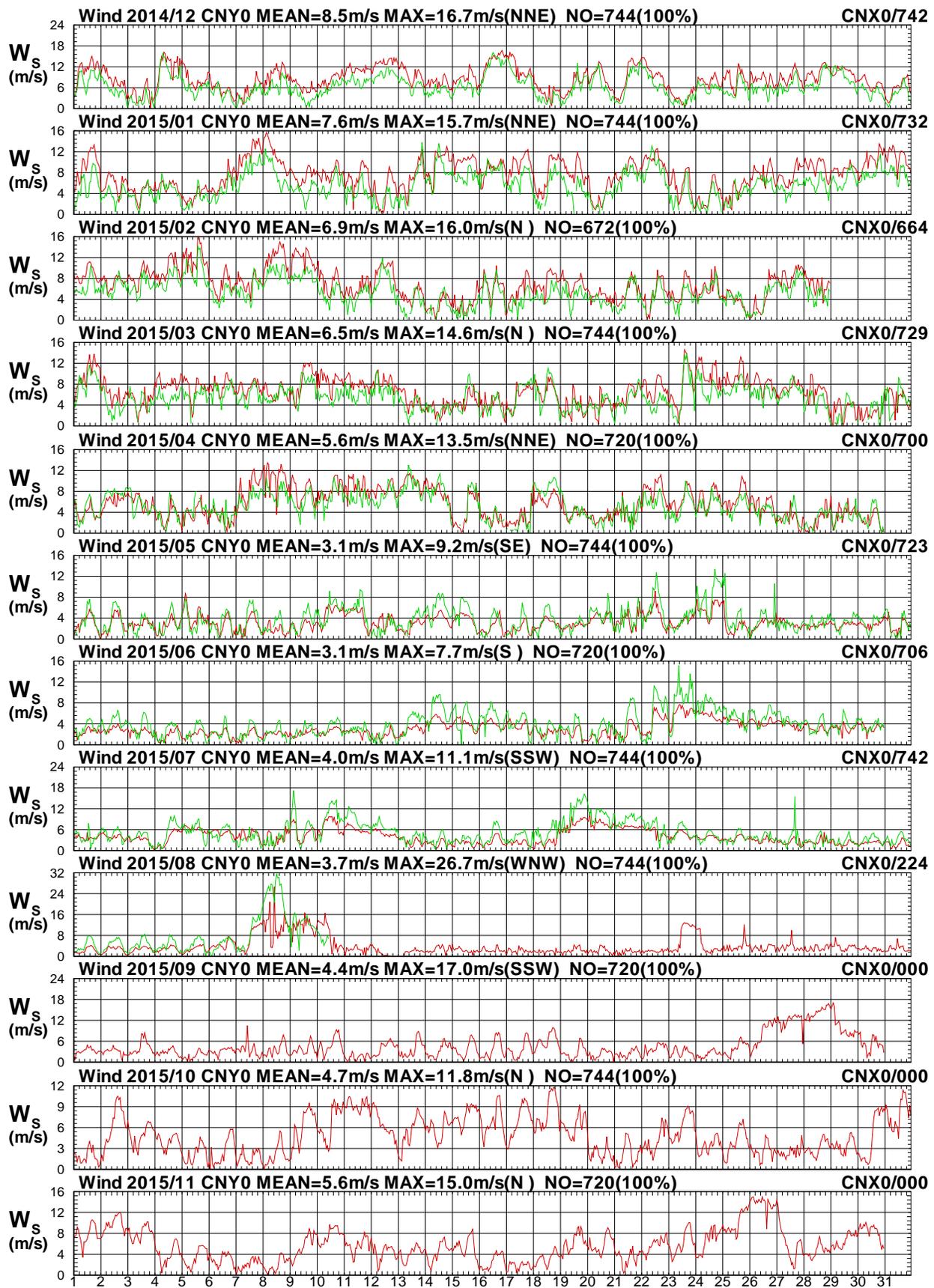


圖 1.4a 2015年每月嘉南海域 Y 站與 X 站風速比較圖

W14CCNY0.1HA W14CCNX0.1H0 W151CNY0.1HA W151CNX0.1H0 W152CNY0.1HA W152CNX0.1H0
 W153CNY0.1HA W153CNX0.1H0 W154CNY0.1HA W154CNX0.1H0 W155CNY0.1HA W155CNX0.1H0

Institute of Harbor & Marine Technology

Wind Direction in Chia-Nan Seas of CNY0 at 2015

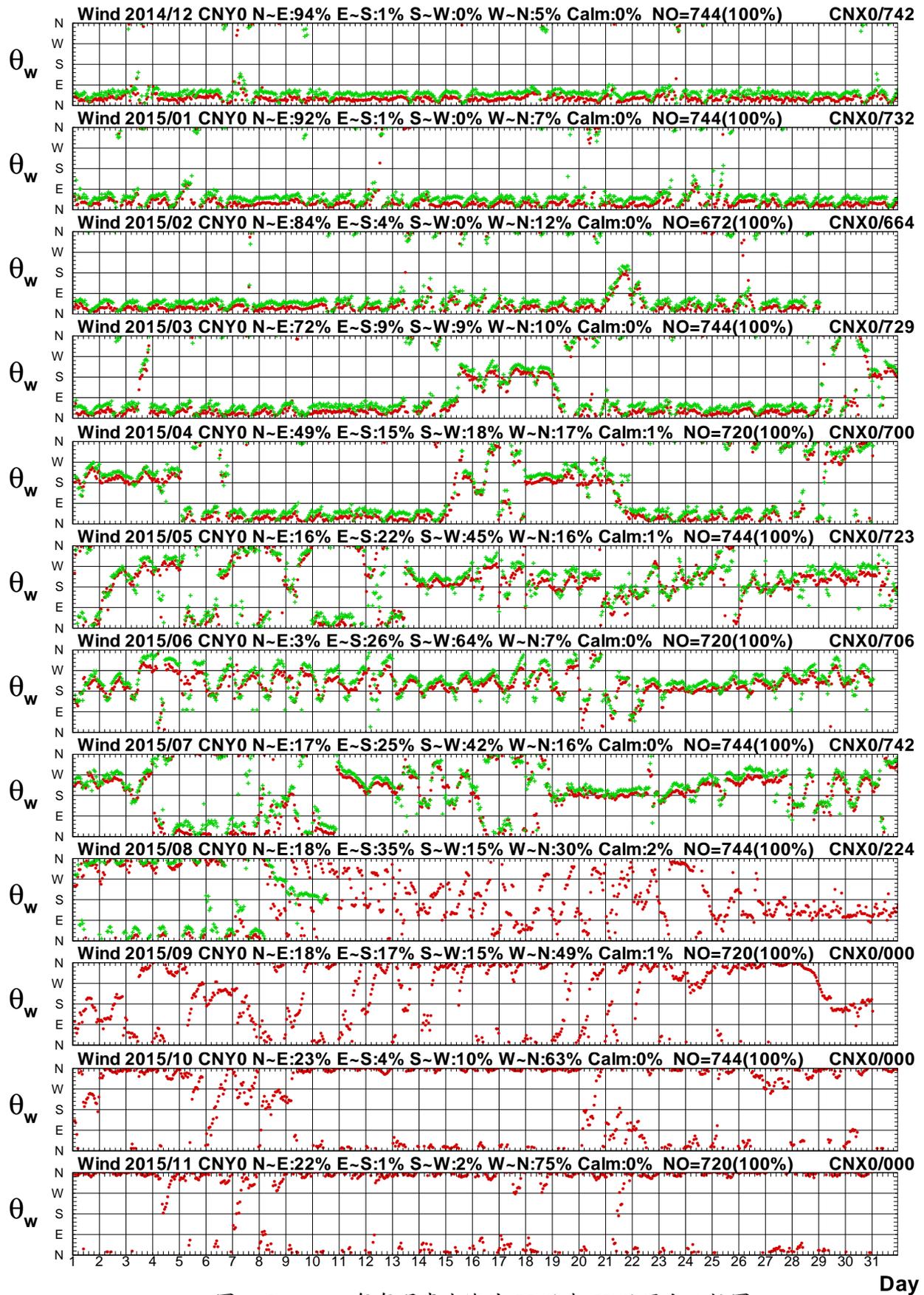


圖 1.4b 2015年每月嘉南海域 Y 站與 X 站風向比較圖

W14CCNY0.1HA W14CCNX0.1H0 W151CNY0.1HA W151CNX0.1H0 W152CNY0.1HA W152CNX0.1H0
 W153CNY0.1HA W153CNX0.1H0 W154CNY0.1HA W154CNX0.1H0 W155CNY0.1HA W155CNX0.1H0

Institute of Harbor & Marine Technology

Wind Speed in Chia-Nan Seas of CNY0 at 2015

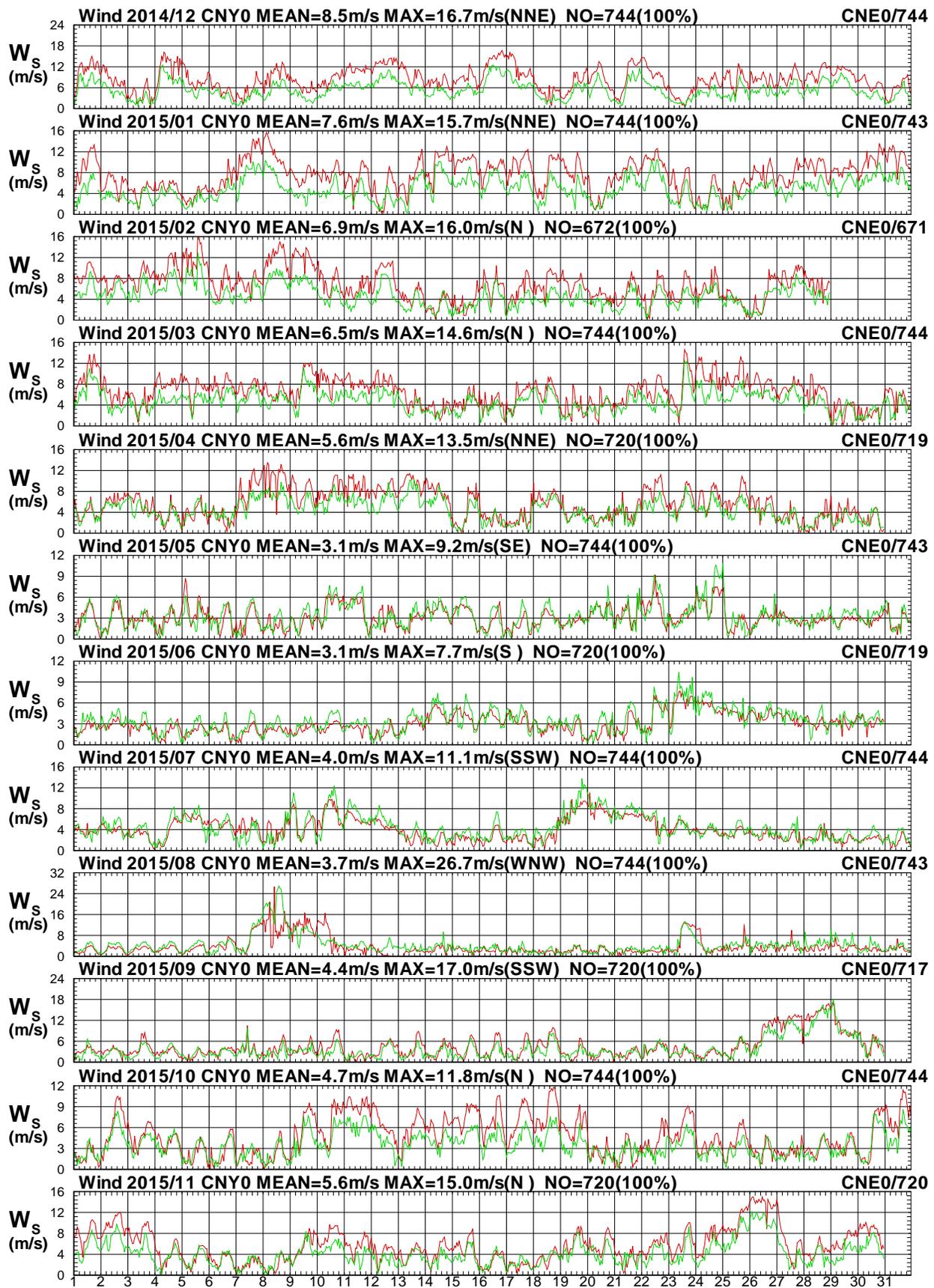


圖 1.5a 2015年每月嘉南海域 Y 站與 E 站風速比較圖

W14CCNY0.1HA W14CCNE0.1HO W151CNY0.1HA W151CNE0.1HO W152CNY0.1HA W152CNE0.1HO
 W153CNY0.1HA W153CNE0.1HO W154CNY0.1HA W154CNE0.1HO W155CNY0.1HA W155CNE0.1HO

Institute of Harbor & Marine Technology

Wind Direction in Chia-Nan Seas of CNY0 at 2015

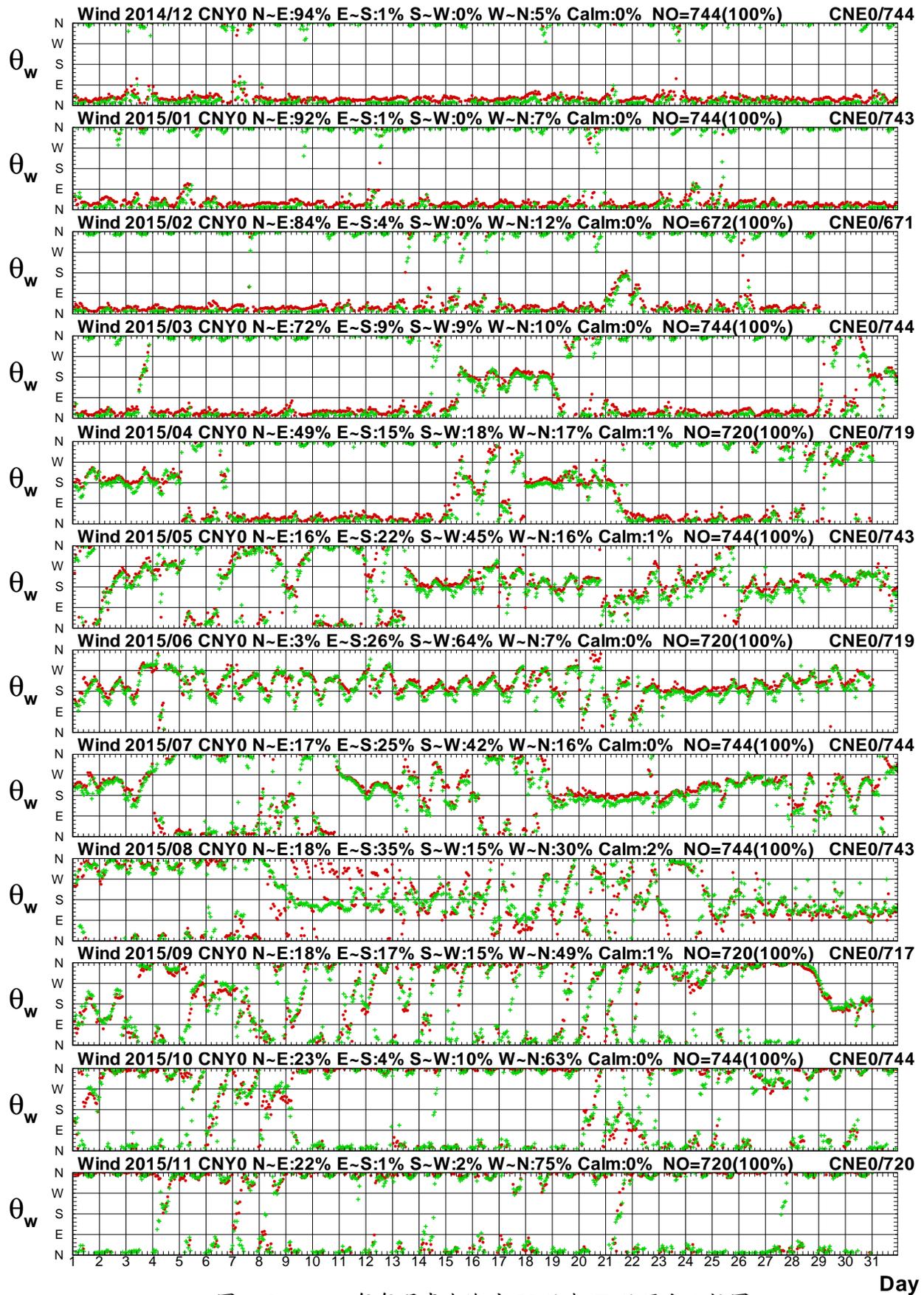


圖 1.5b 2015年每月嘉南海域 Y 站與 E 站風向比較圖

W14CCNY0.1HA W14CCNE0.1H0 W151CNY0.1HA W151CNE0.1H0 W152CNY0.1HA W152CNE0.1H0
 W153CNY0.1HA W153CNE0.1H0 W154CNY0.1HA W154CNE0.1H0 W155CNY0.1HA W155CNE0.1H0

Institute of Harbor & Marine Technology

Wind Speed in Chia-Nan Seas of CNY0 at 2015

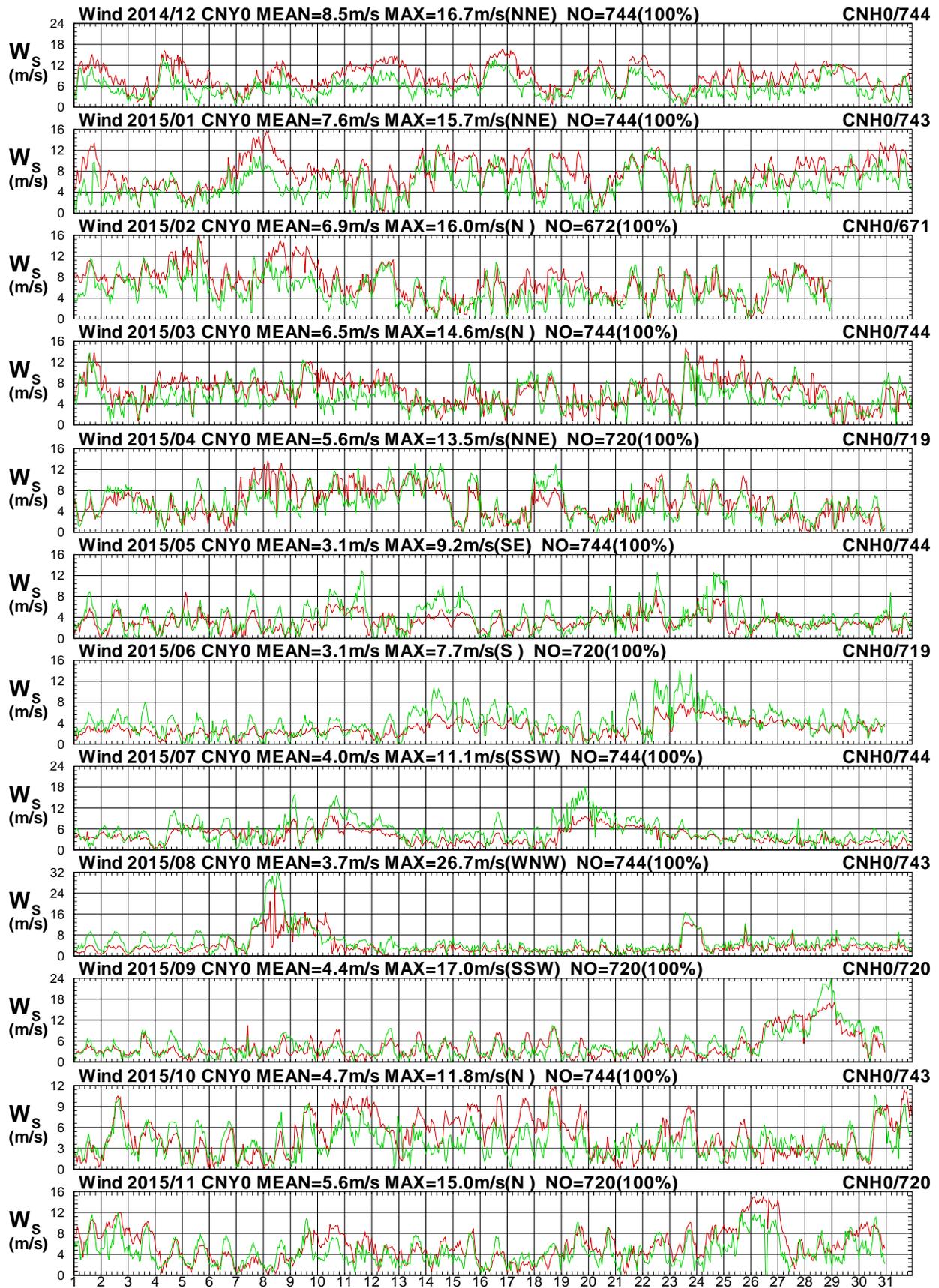


圖 1.6a 2015年每月嘉南海域 Y 站與 H 站風速比較圖

W14CCNY0.1HA W14CCNH0.1HO W151CNY0.1HA W151CNH0.1HO W152CNY0.1HA W152CNH0.1HO
W153CNY0.1HA W153CNH0.1HO W154CNY0.1HA W154CNH0.1HO W155CNY0.1HA W155CNH0.1HO

Institute of Harbor & Marine Technology

Wind Direction in Chia-Nan Seas of CNY0 at 2015

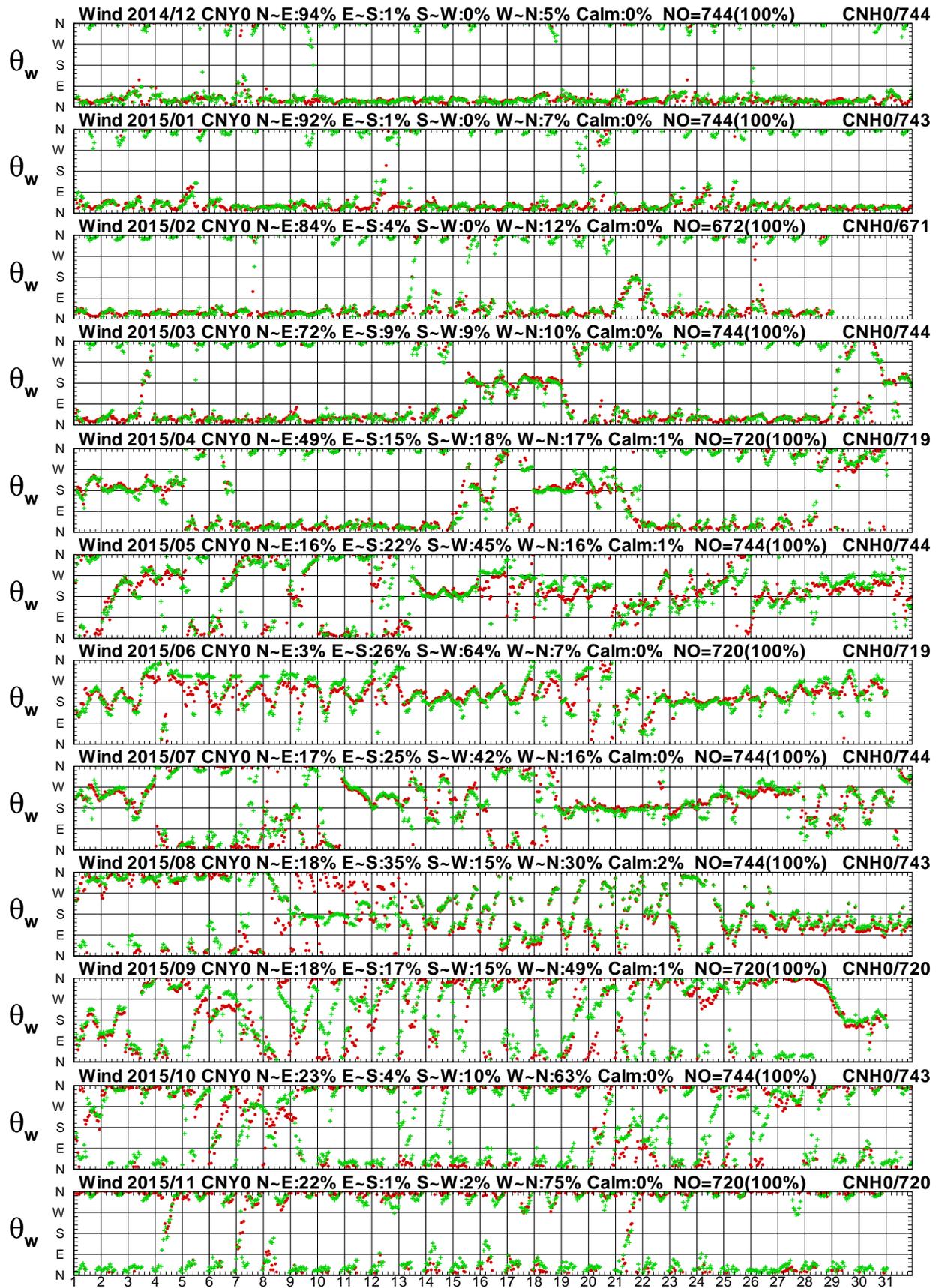


圖 1.6b 2015年每月嘉南海域 Y 站與 H 站風向比較圖

W14CCNY0.1HA W14CCNH0.1HO W151CNY0.1HA W151CNH0.1HO W152CNY0.1HA W152CNH0.1HO
 W153CNY0.1HA W153CNH0.1HO W154CNY0.1HA W154CNH0.1HO W155CNY0.1HA W155CNH0.1HO

Institute of Harbor & Marine Technology

Wind Speed in Chia-Nan Seas of CNY0 at 2015

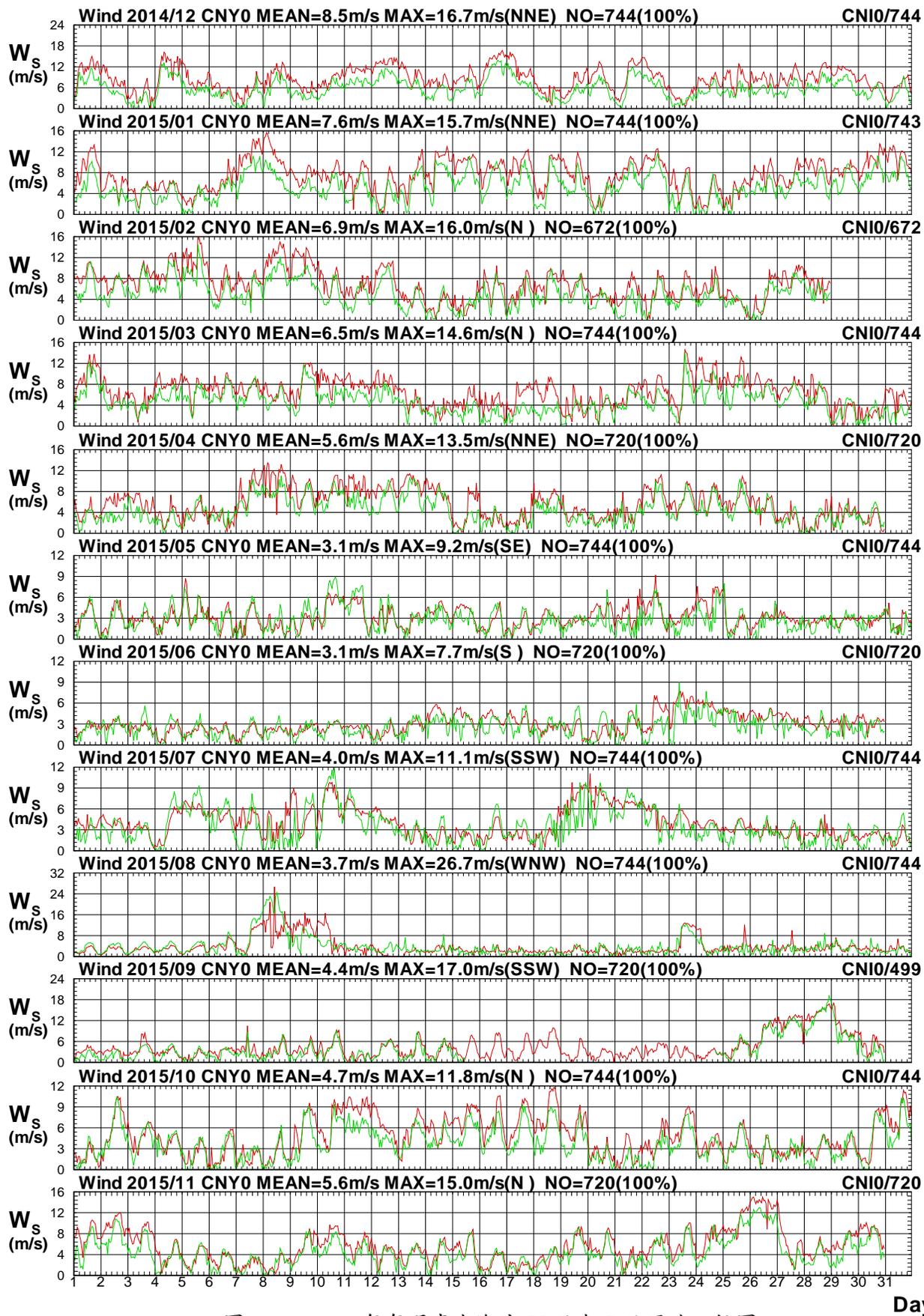


圖 1.7a 2015年每月嘉南海域 Y 站與 I 站風速比較圖

W14CCNY0.1HA W14CCNI0.1H0 W151CNY0.1HA W151CNI0.1H0 W152CNY0.1HA W152CNI0.1H0
 W153CNY0.1HA W153CNI0.1H0 W154CNY0.1HA W154CNI0.1H0 W155CNY0.1HA W155CNI0.1H0

Institute of Harbor & Marine Technology

Wind Direction in Chia-Nan Seas of CNY0 at 2015

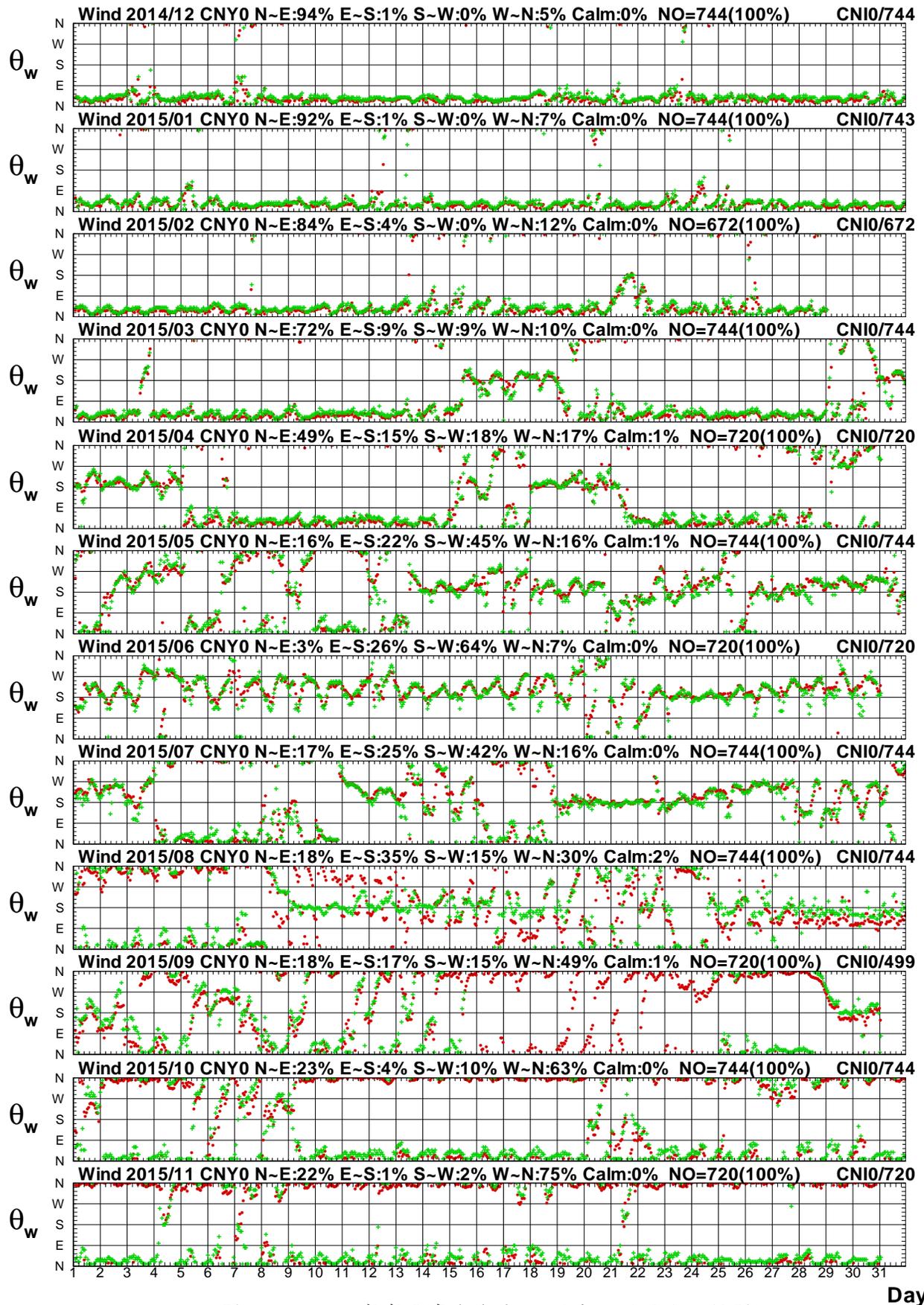


圖 1.7b 2015年每月嘉南海域 Y 站與 I 站風向比較圖

W14CCNY0.1HA W14CCNI0.1H0 W151CNY0.1HA W151CNI0.1H0 W152CNY0.1HA W152CNI0.1H0
 W153CNY0.1HA W153CNI0.1H0 W154CNY0.1HA W154CNI0.1H0 W155CNY0.1HA W155CNI0.1H0

Institute of Harbor & Marine Technology

Wind Speed in Chia-Nan Seas of CNY0 at 2015

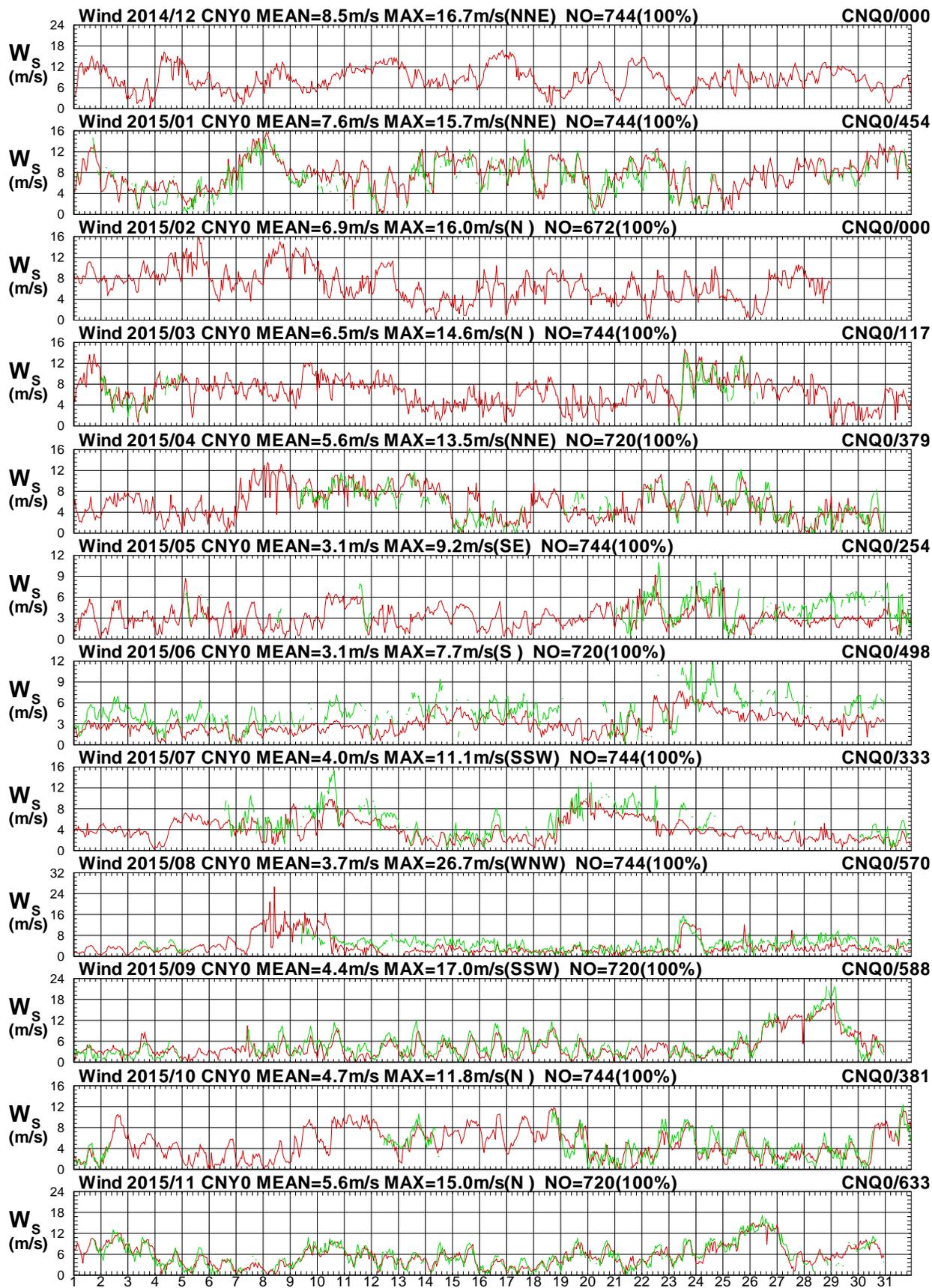


圖 1.8a 2015年每月嘉南海域 Y 站與 Q 站風速比較圖

W14CCNY0.1HA W14CCNQ0.1H0 W151CNY0.1HA W151CNQ0.1H0 W152CNY0.1HA W152CNQ0.1H0
 W153CNY0.1HA W153CNQ0.1H0 W154CNY0.1HA W154CNQ0.1H0 W155CNY0.1HA W155CNQ0.1H0

Institute of Harbor & Marine Technology

Wind Direction in Chia-Nan Seas of CNY0 at 2015

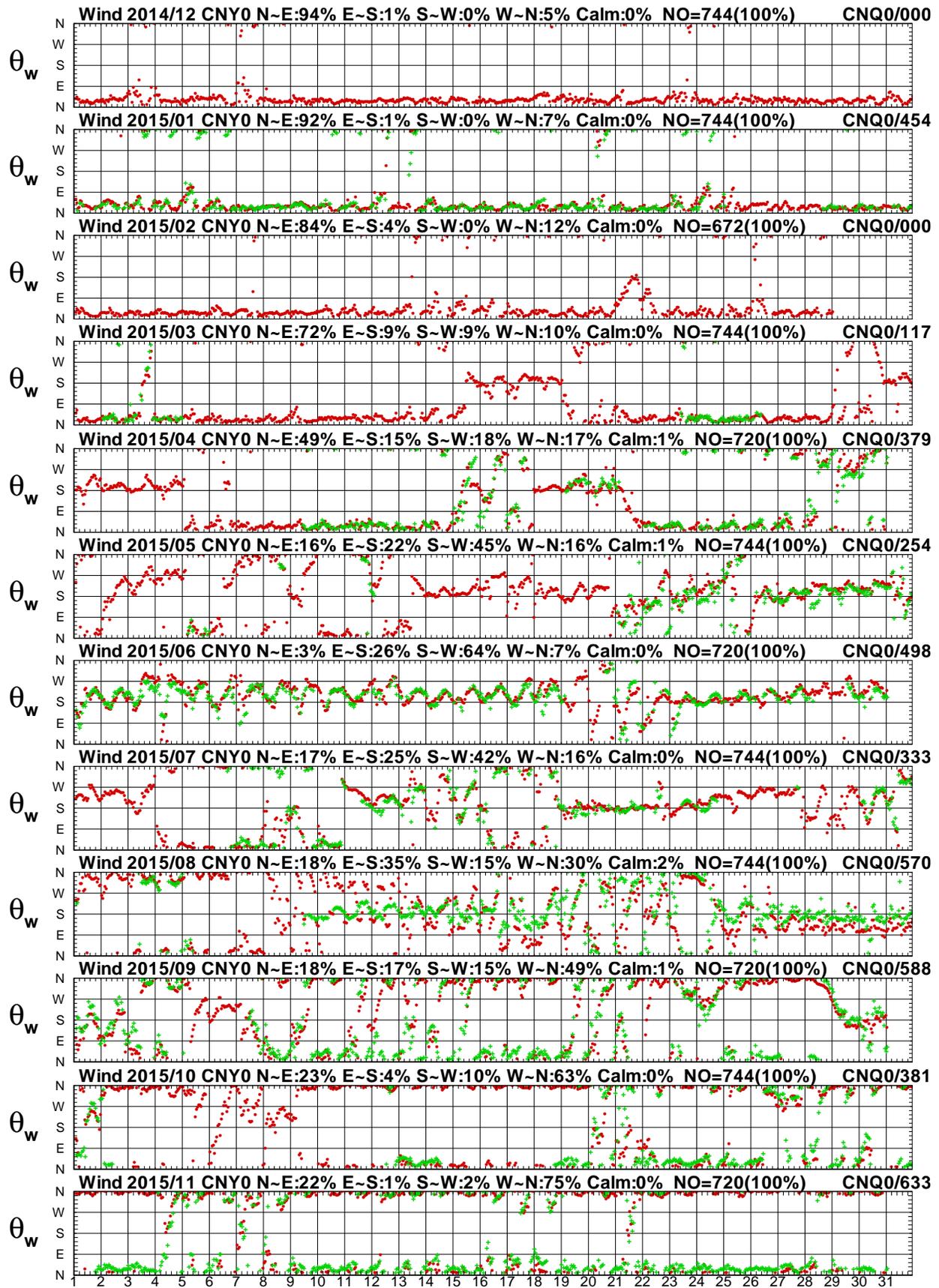


圖 1.8b 2015年每月嘉南海域 Y 站與 Q 站風向比較圖

Day

W14CCNY0.1HA W14CCNQ0.1H0 W151CNY0.1HA W151CNQ0.1H0 W152CNY0.1HA W152CNQ0.1H0
 W153CNY0.1HA W153CNQ0.1H0 W154CNY0.1HA W154CNQ0.1H0 W155CNY0.1HA W155CNQ0.1H0

Institute of Harbor & Marine Technology

Wind Speed in Chia-Nan Seas of CNY0 at 2015

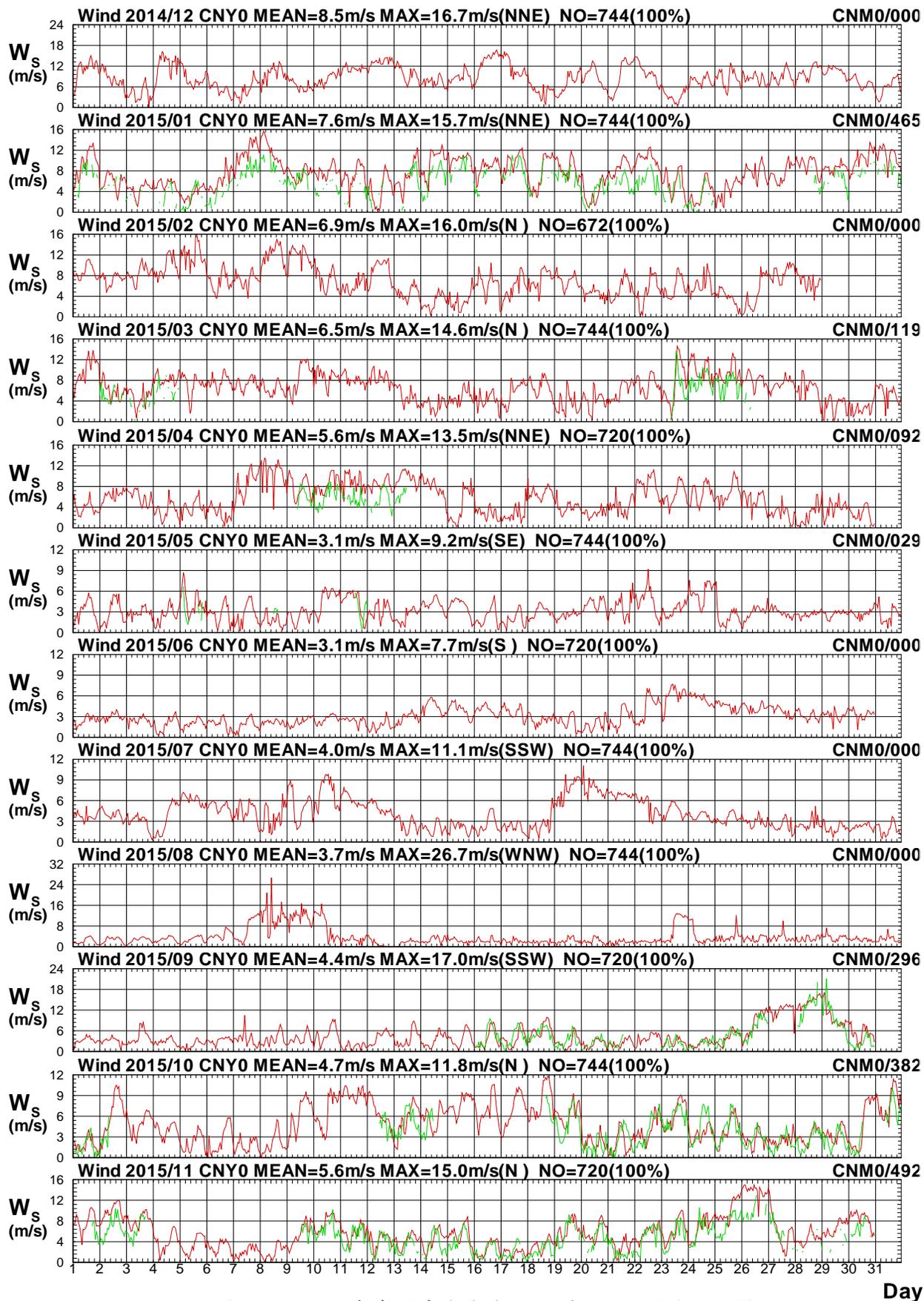


圖 1.9a 2015年每月嘉南海域 Y 站與 M 站風速比較圖

W14CCNY0.1HA W14CCNM0.1HO W151CNY0.1HA W151CNM0.1HO W152CNY0.1HA W152CNM0.1HO
 W153CNY0.1HA W153CNM0.1HO W154CNY0.1HA W154CNM0.1HO W155CNY0.1HA W155CNM0.1HO

Institute of Harbor & Marine Technology

Wind Direction in Chia-Nan Seas of CNY0 at 2015

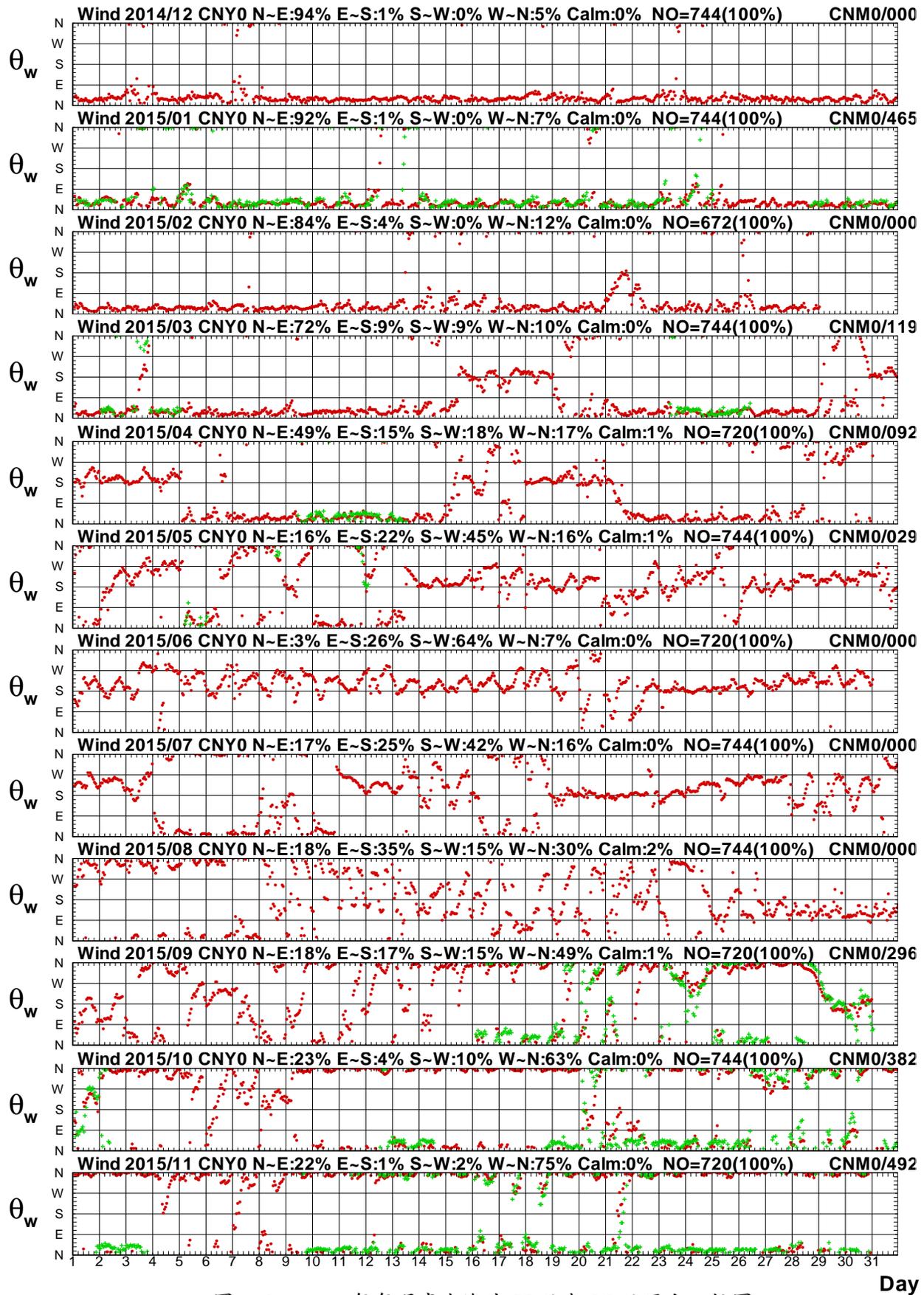


圖 1.9b 2015年每月嘉南海域 Y 站與 M 站風向比較圖

W14CCNY0.1HA W14CCNM0.1H0 W151CNY0.1HA W151CNM0.1H0 W152CNY0.1HA W152CNM0.1H0
 W153CNY0.1HA W153CNM0.1H0 W154CNY0.1HA W154CNM0.1H0 W155CNY0.1HA W155CNM0.1H0

Institute of Harbor & Marine Technology

Wind Speed in Chia-Nan Seas of CNY0 at 2015

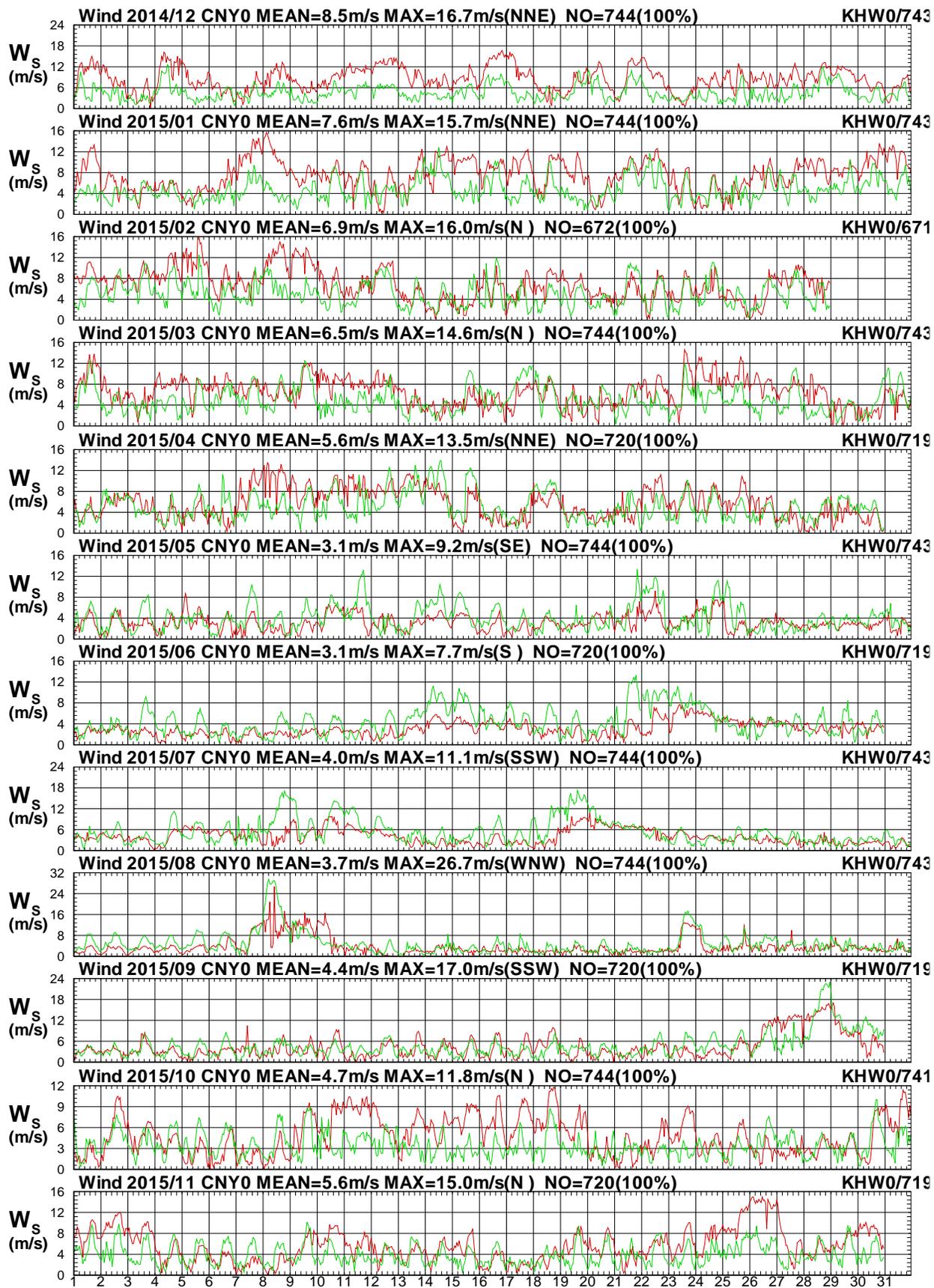


圖 1.10a 2015年每月嘉南海域 Y 站與高雄海域 W 站風速圖

Day

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

Institute of Harbor & Marine Technology

Wind Direction in Chia-Nan Seas of CNY0 at 2015

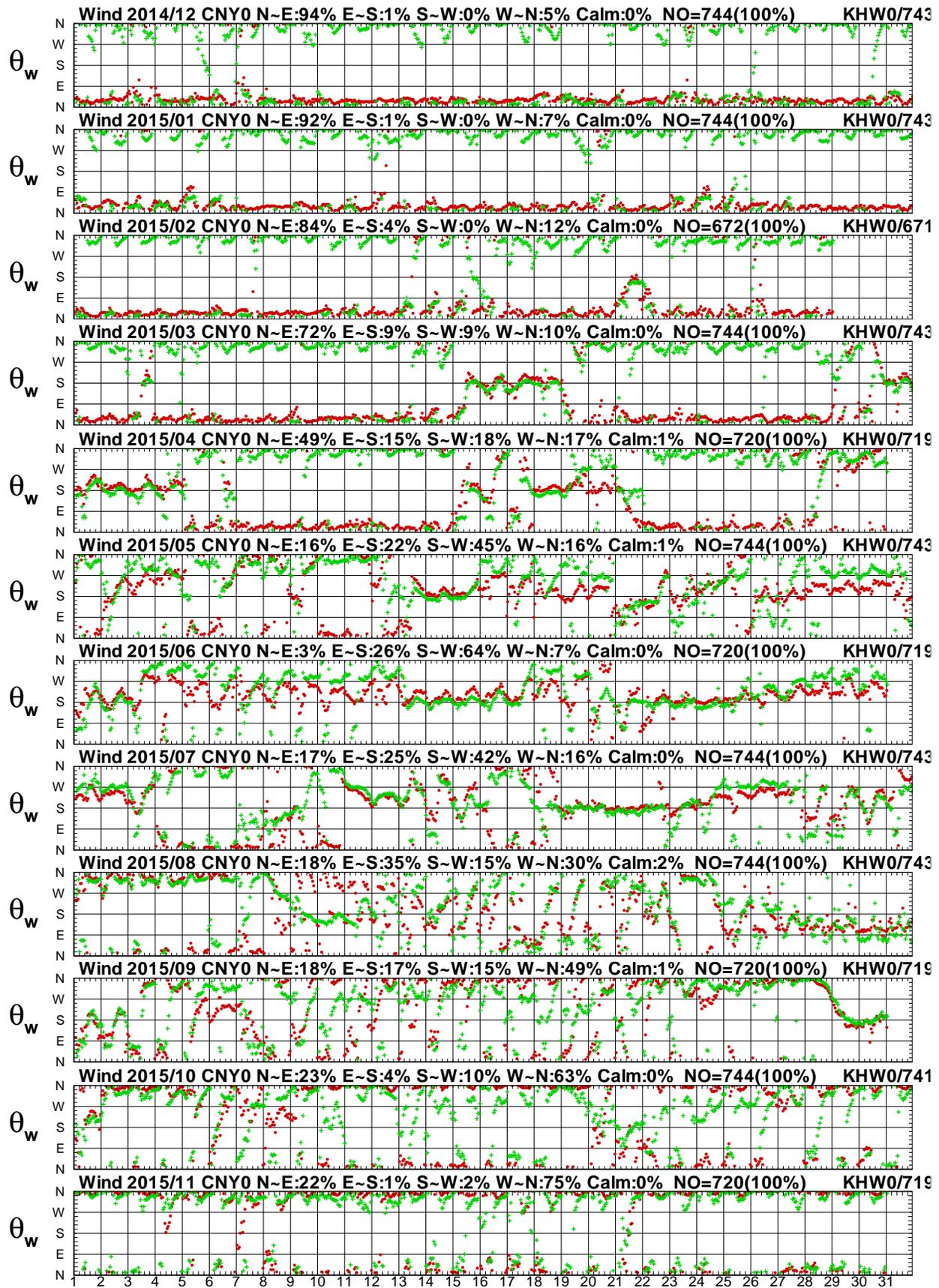


圖 1.10b 2015年每月嘉南海域 Y 站與高雄海域 W 站風向圖

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

Institute of Harbor & Marine Technology

Wind Speed in Chia-Nan Seas of CNY0 at 2015

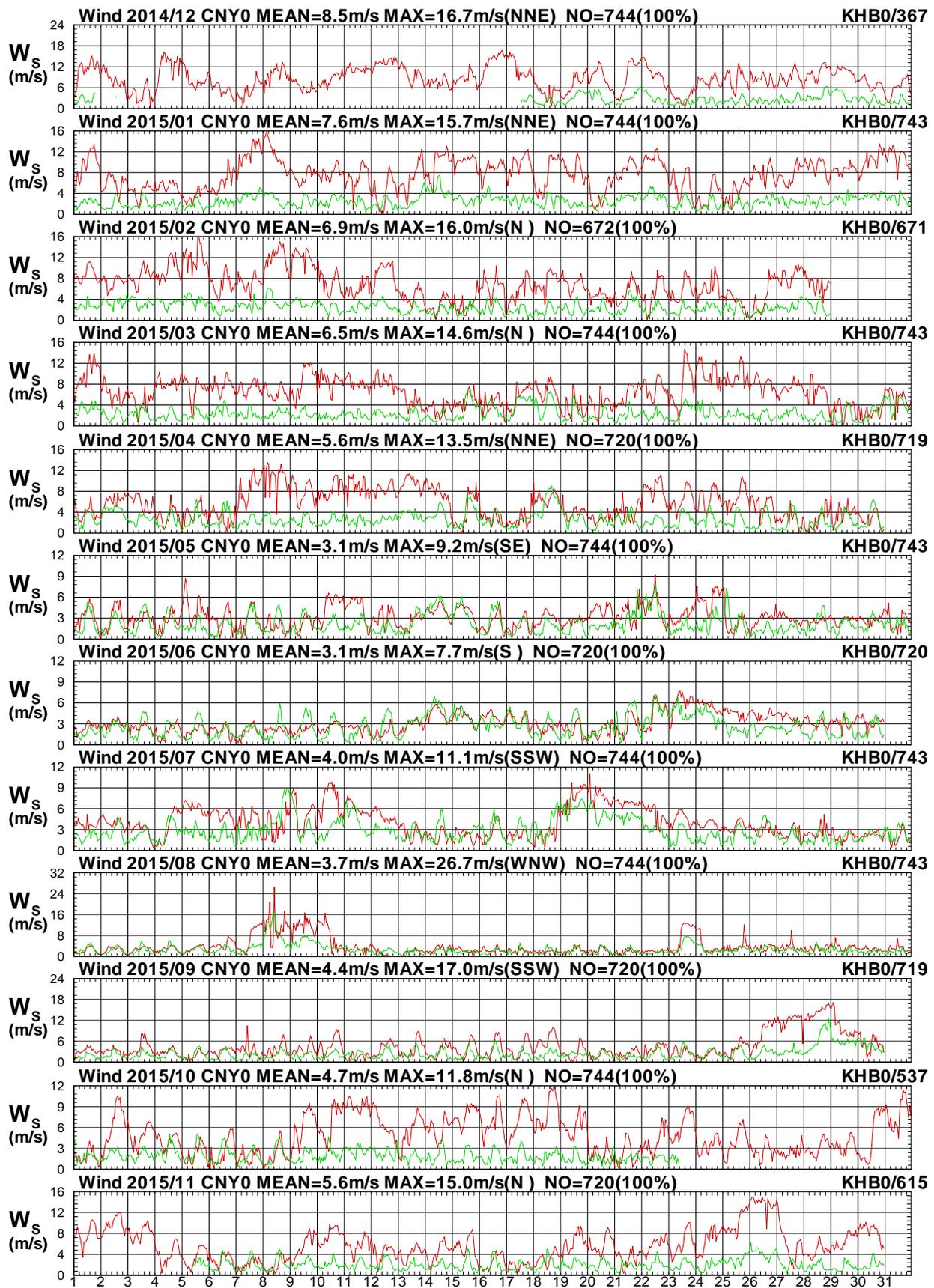


圖 1.11a 2015年每月嘉南海域 Y 站與高雄海域 B 站風速圖

W14CCNY0.1HA W14CKHB0.1H0 W151CNY0.1HA W151KHB0.1H0 W152CNY0.1HA W152KHB0.1H0
 W153CNY0.1HA W153KHB0.1H0 W154CNY0.1HA W154KHB0.1H0 W155CNY0.1HA W155KHB0.1H0

Institute of Harbor & Marine Technology

Wind Direction in Chia-Nan Seas of CNY0 at 2015

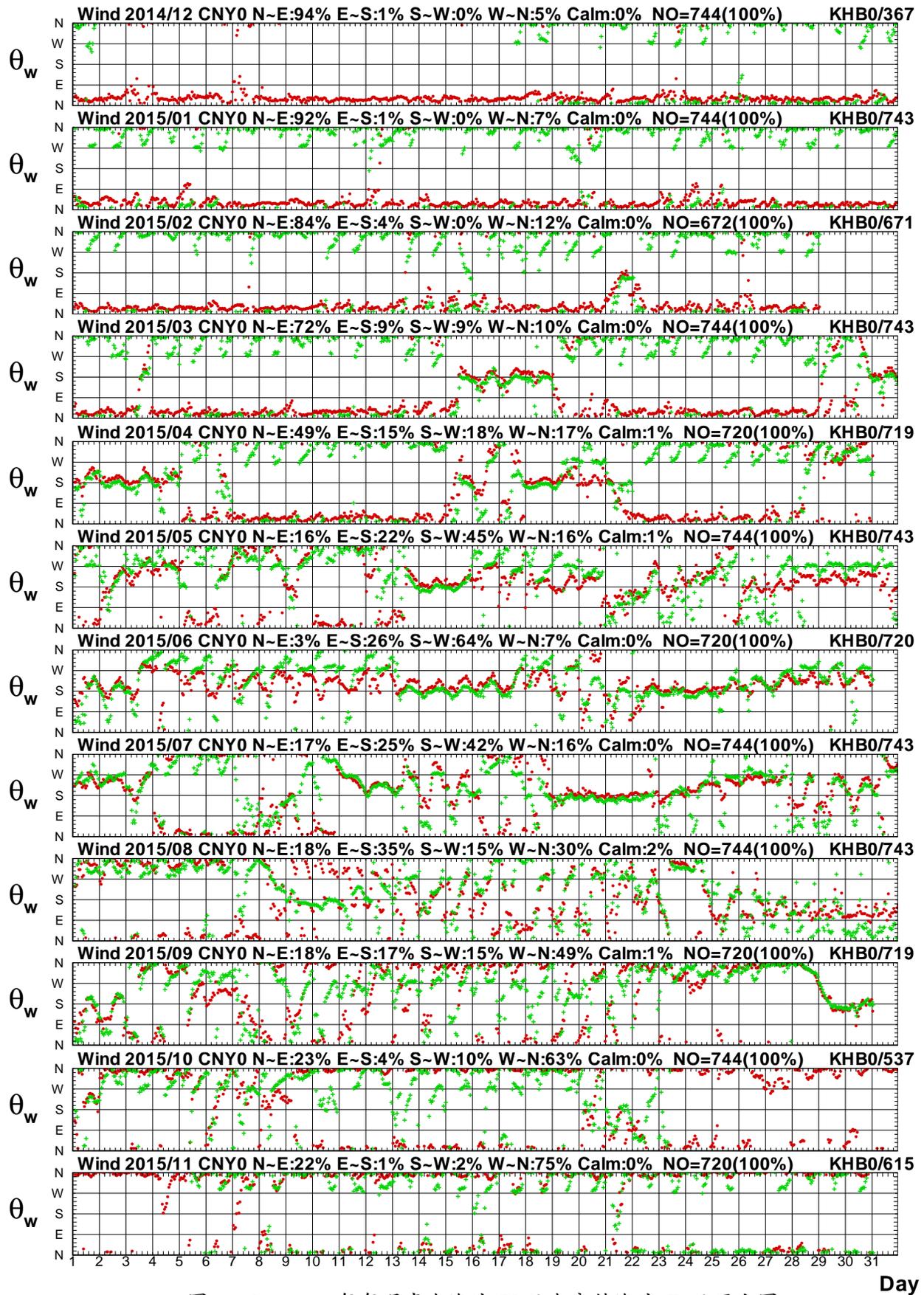


圖 1.11b 2015年每月嘉南海域 Y 站與高雄海域 B 站風向圖

W14CCNY0.1HA W14CKHB0.1H0 W151CNY0.1HA W151KHB0.1H0 W152CNY0.1HA W152KHB0.1H0
 W153CNY0.1HA W153KHB0.1H0 W154CNY0.1HA W154KHB0.1H0 W155CNY0.1HA W155KHB0.1H0

Institute of Harbor & Marine Technology

Wind Speed in Chia-Nan Seas of CNY0 at 2015

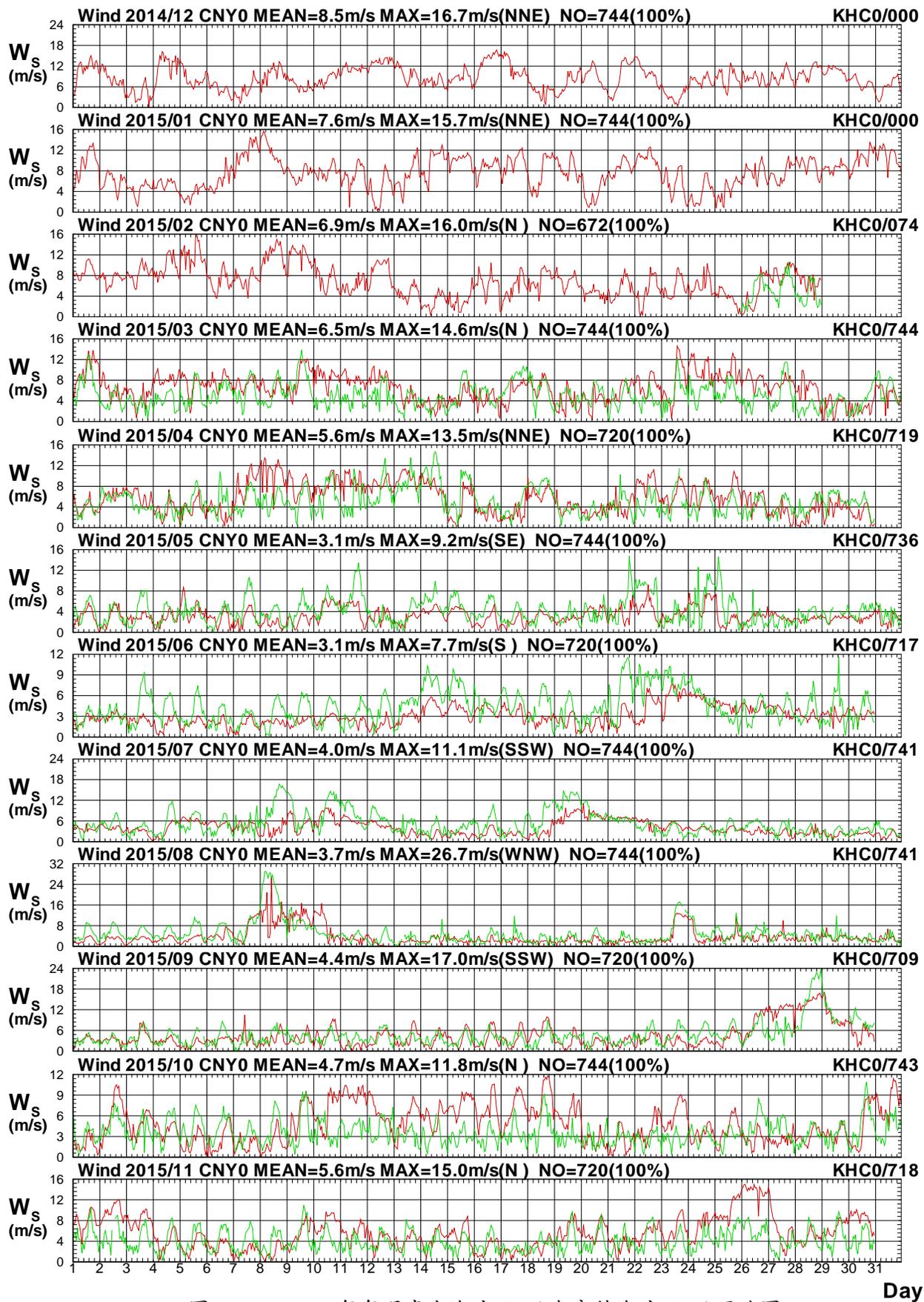


圖 1.12a 2015年每月嘉南海域 Y 站與高雄海域 C 站風速圖

W14CCNY0.1HA W14CKHC0.1H0 W151CNY0.1HA W151KHC0.1H0 W152CNY0.1HA W152KHC0.1H0
 W153CNY0.1HA W153KHC0.1H0 W154CNY0.1HA W154KHC0.1H0 W155CNY0.1HA W155KHC0.1H0

Institute of Harbor & Marine Technology

Wind Direction in Chia-Nan Seas of CNY0 at 2015

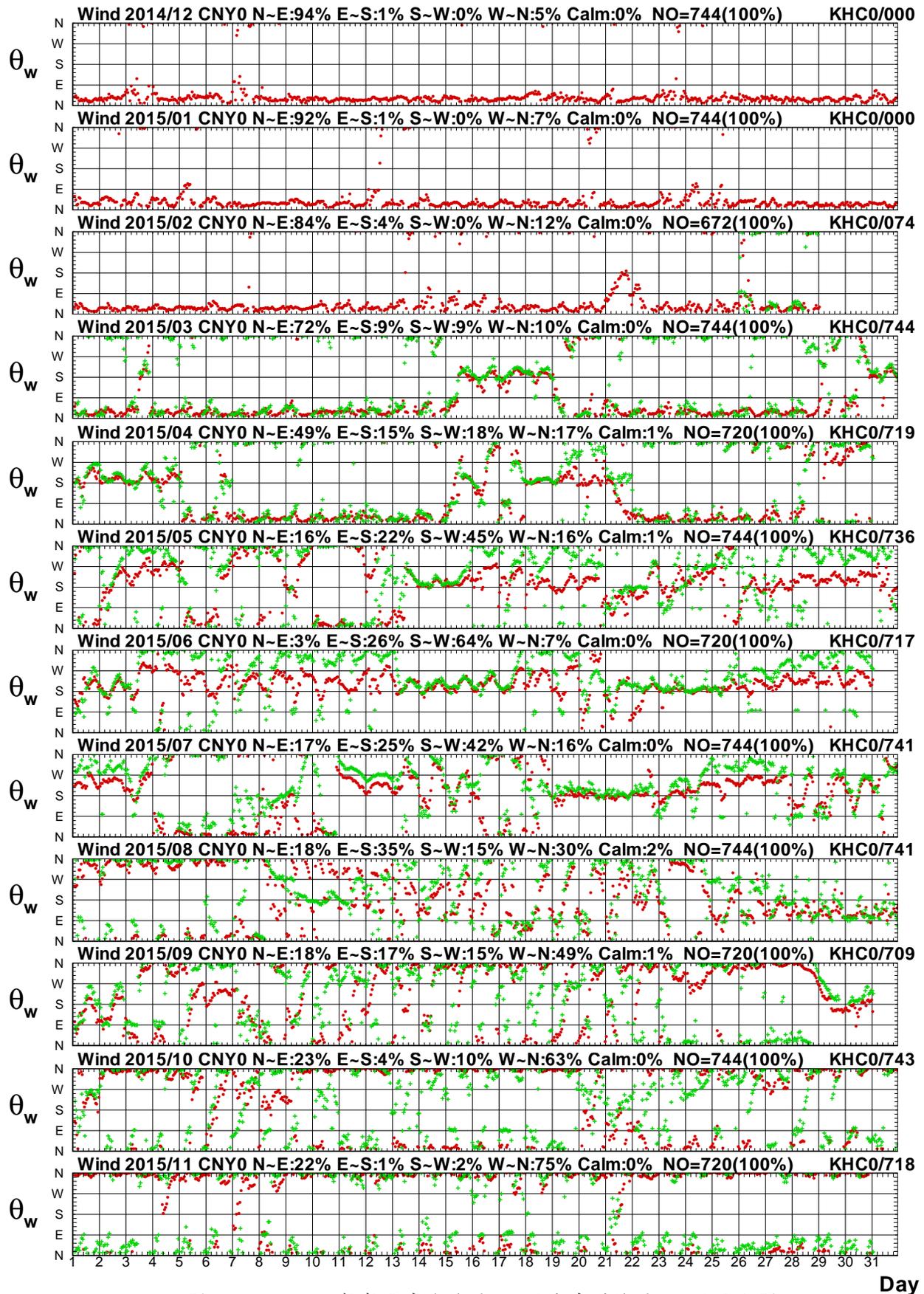


圖 1.12b 2015年每月嘉南海域 Y 站與高雄海域 C 站風向圖

W14CCNY0.1HA W14CKHC0.1HO W151CNY0.1HA W151KHC0.1HO W152CNY0.1HA W152KHC0.1HO
 W153CNY0.1HA W153KHC0.1HO W154CNY0.1HA W154KHC0.1HO W155CNY0.1HA W155KHC0.1HO

Institute of Harbor & Marine Technology

Wind Speed in Chia-Nan Seas of CNY0 at 2015

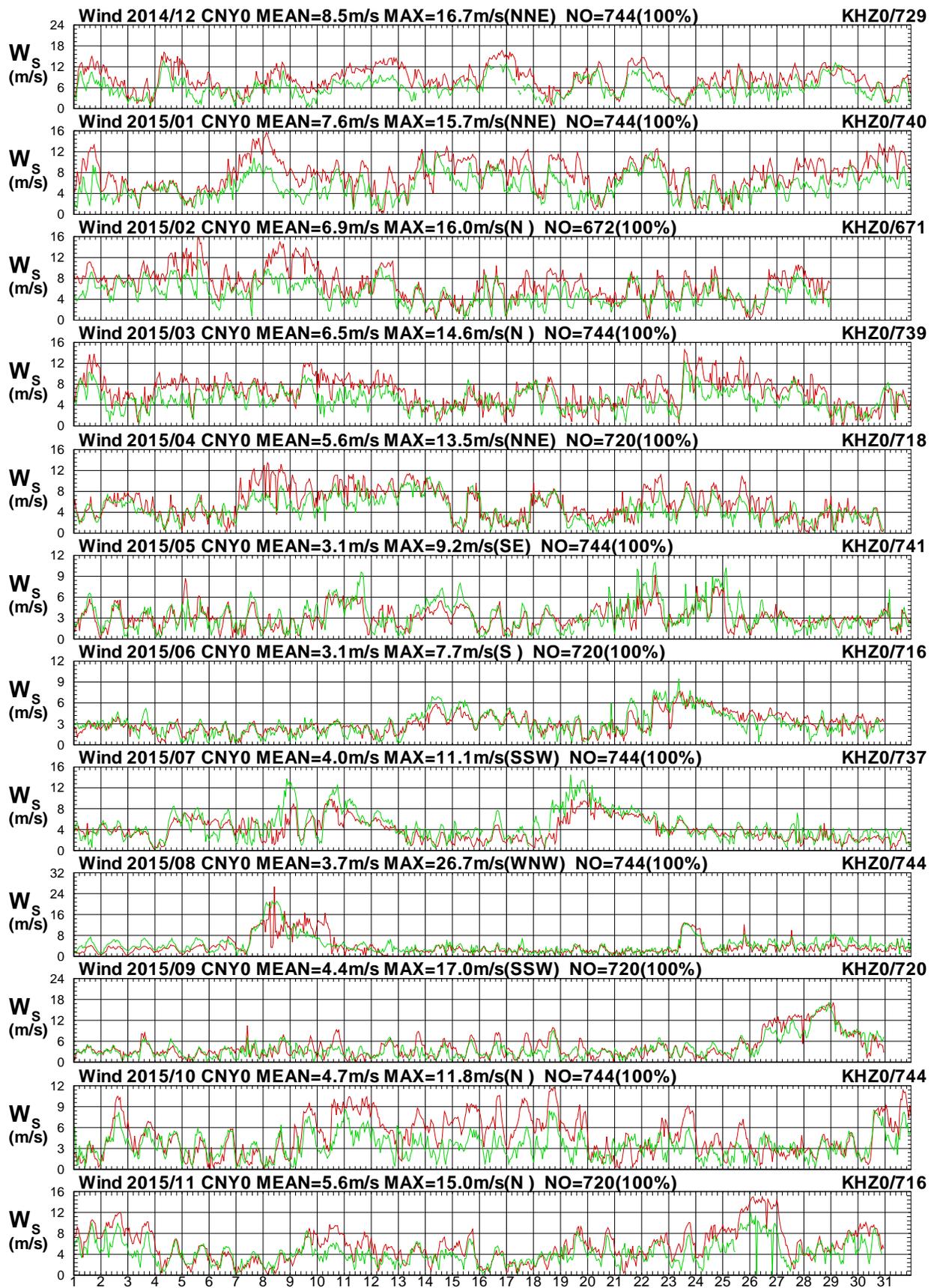


圖 1.13a 2015年每月嘉南海域 Y 站與高雄海域 Z 站風速圖

W14CCNY0.1HA W14CKHZ0.1H0 W151CNY0.1HA W151KHZ0.1H0 W152CNY0.1HA W152KHZ0.1H0
 W153CNY0.1HA W153KHZ0.1H0 W154CNY0.1HA W154KHZ0.1H0 W155CNY0.1HA W155KHZ0.1H0

Institute of Harbor & Marine Technology

Wind Direction in Chia-Nan Seas of CNY0 at 2015

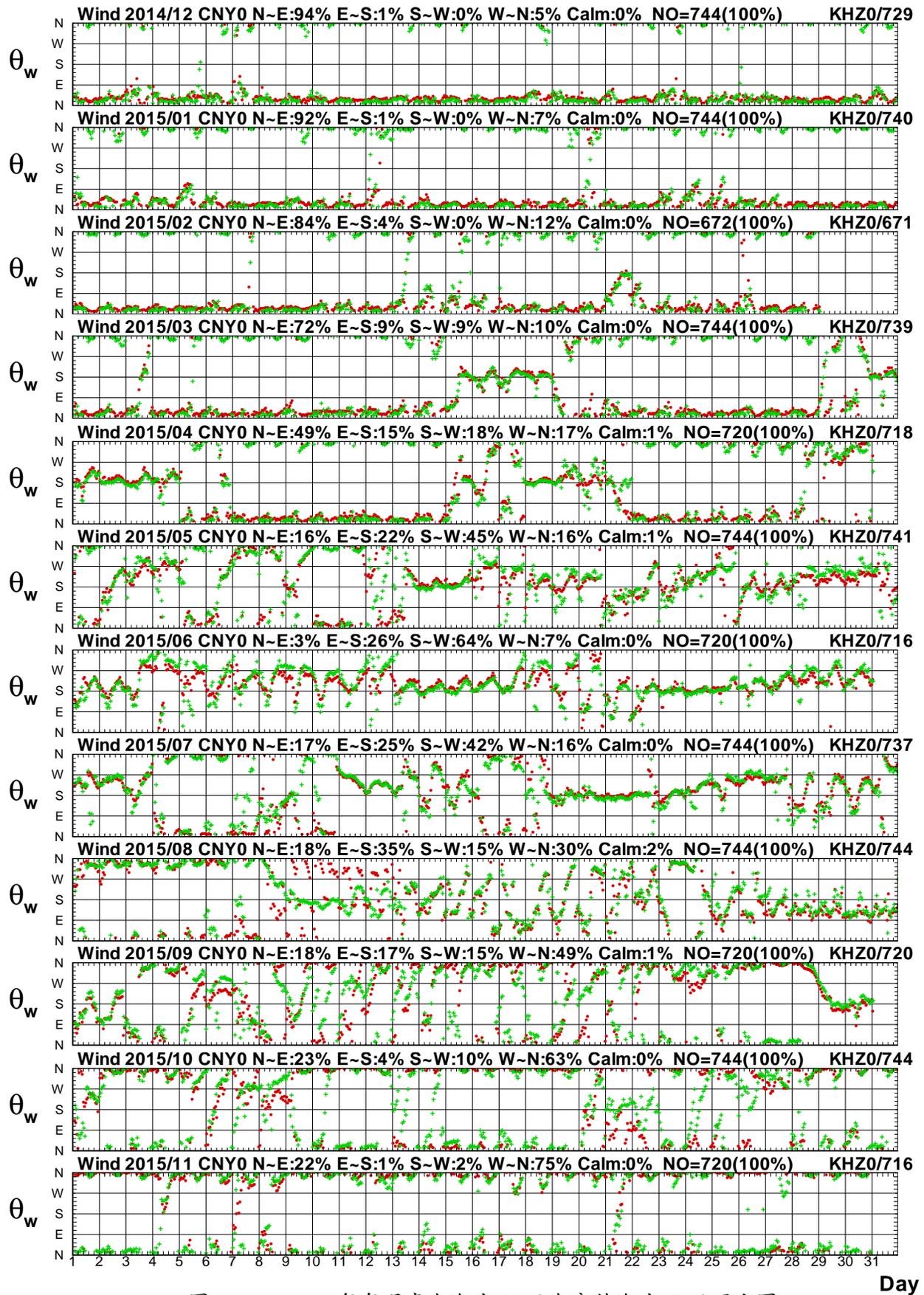


圖 1.13b 2015年每月嘉南海域 Y 站與高雄海域 Z 站風向圖

W14CCNY0.1HA W14CKHZ0.1H0 W151CNY0.1HA W151KHZ0.1H0 W152CNY0.1HA W152KHZ0.1H0
 W153CNY0.1HA W153KHZ0.1H0 W154CNY0.1HA W154KHZ0.1H0 W155CNY0.1HA W155KHZ0.1H0

Institute of Harbor & Marine Technology

Wind Speed in Chia-Nan Seas of CNY0 at 2015

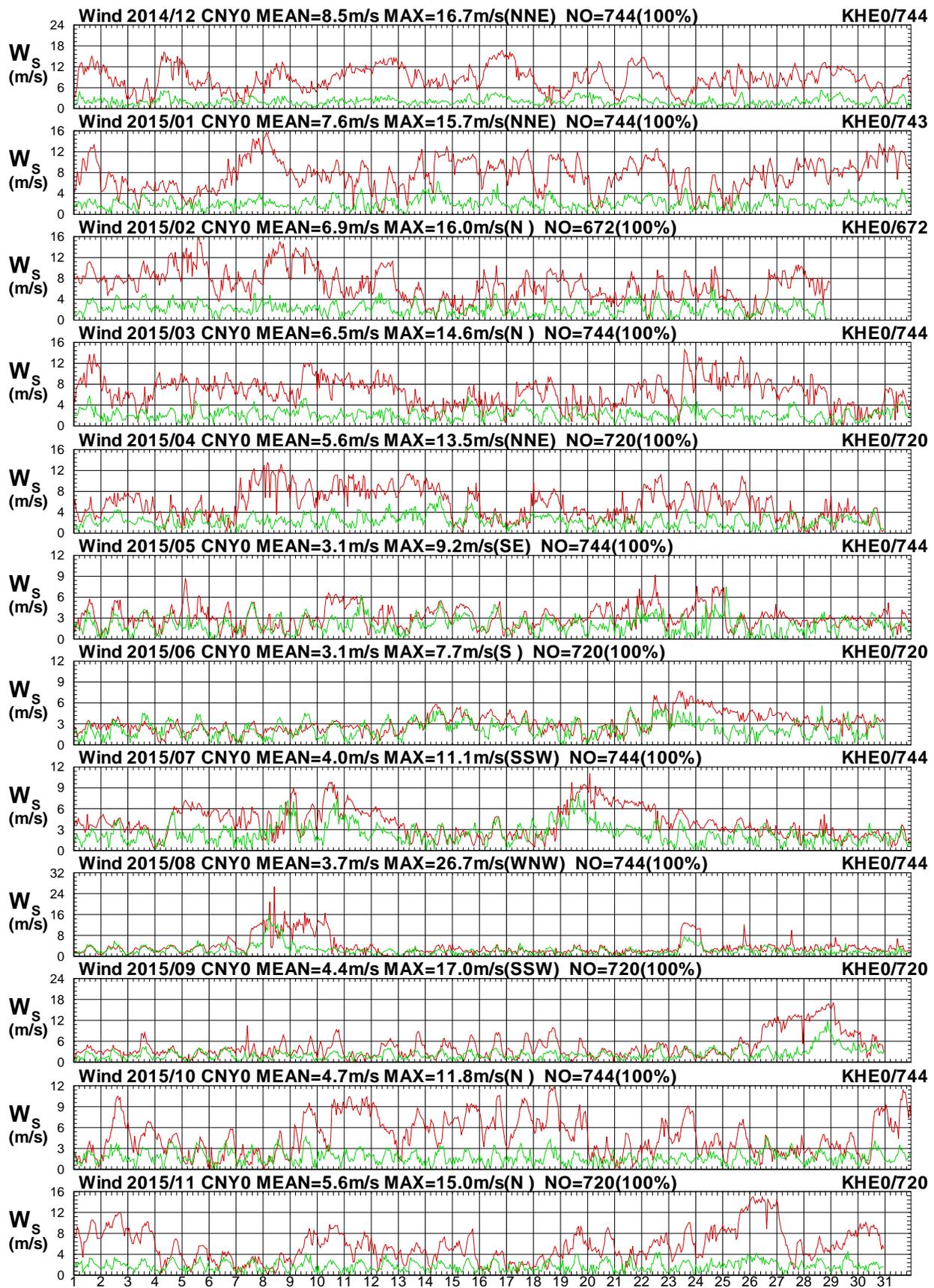


圖 1.14a 2015 年每月嘉南海域 Y 站與高雄海域 E 站風速圖

W14CCNY0.1HA W14CKHE0.1H0 W151CNY0.1HA W151KHE0.1H0 W152CNY0.1HA W152KHE0.1H0
 W153CNY0.1HA W153KHE0.1H0 W154CNY0.1HA W154KHE0.1H0 W155CNY0.1HA W155KHE0.1H0

Institute of Harbor & Marine Technology

Wind Direction in Chia-Nan Seas of CNY0 at 2015

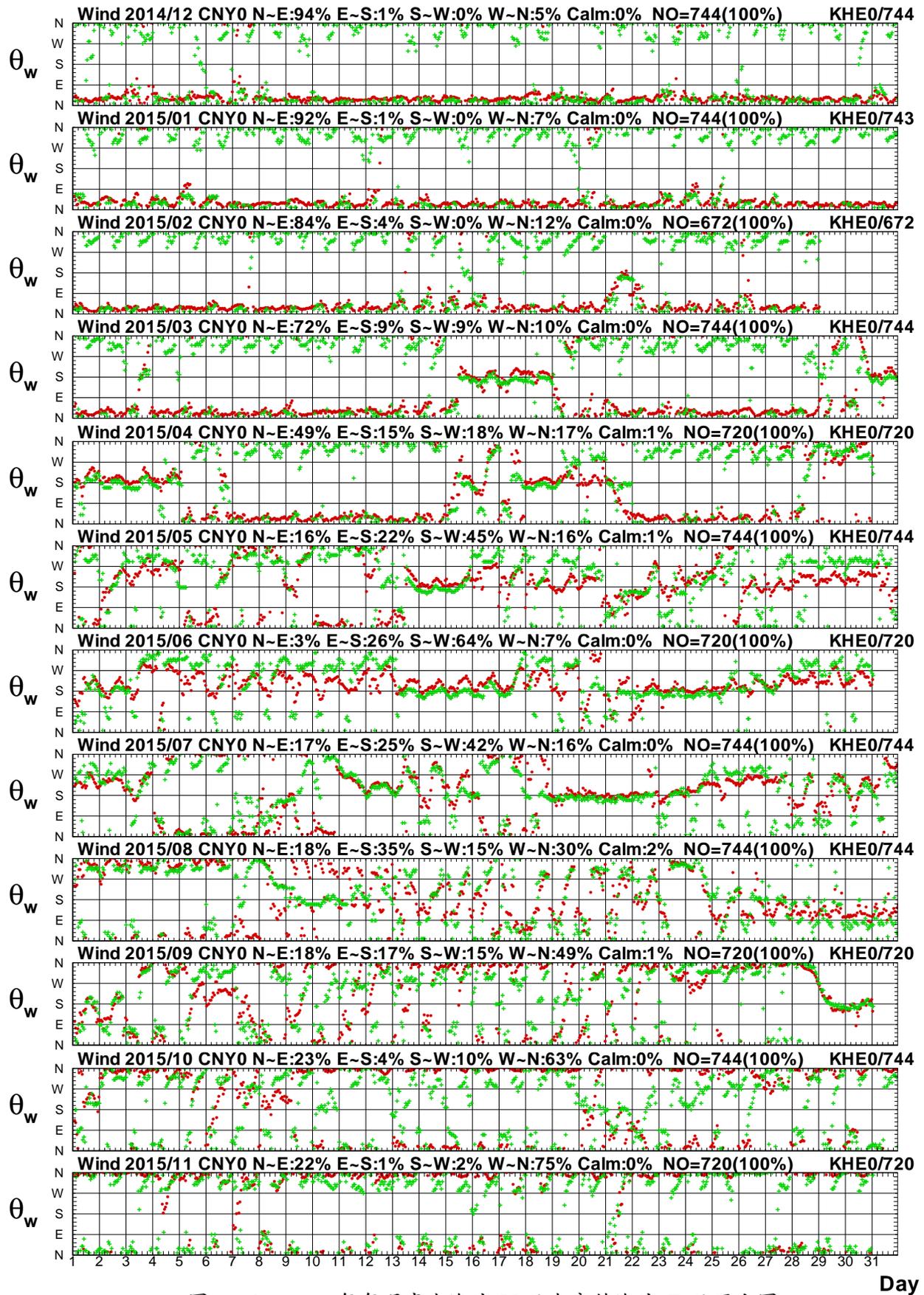


圖 1.14b 2015年每月嘉南海域 Y 站與高雄海域 E 站風向圖

W14CCNY0.1HA W14CKHE0.1H0 W151CNY0.1HA W151KHE0.1H0 W152CNY0.1HA W152KHE0.1H0
 W153CNY0.1HA W153KHE0.1H0 W154CNY0.1HA W154KHE0.1H0 W155CNY0.1HA W155KHE0.1H0

Institute of Harbor & Marine Technology

Wind Speed in Chia-Nan Seas of CNY0 at 2015

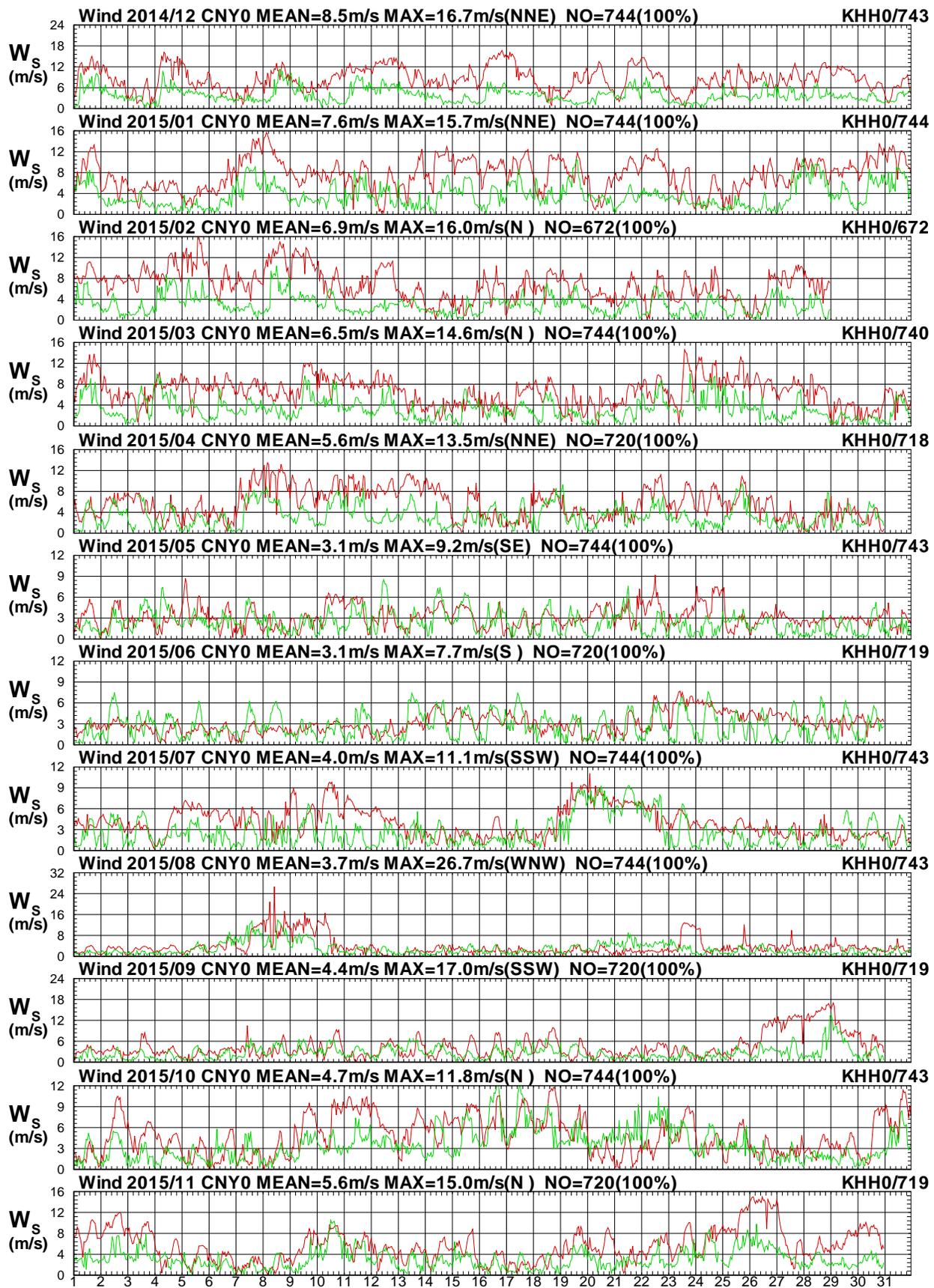


圖 1.15a 2015年每月嘉南海域 Y 站與高雄海域 H 站風速圖

W14CCNY0.1HA W14CKHH0.1H0 W151CNY0.1HA W151KHH0.1H0 W152CNY0.1HA W152KHH0.1H0
 W153CNY0.1HA W153KHH0.1H0 W154CNY0.1HA W154KHH0.1H0 W155CNY0.1HA W155KHH0.1H0

Institute of Harbor & Marine Technology

Wind Direction in Chia-Nan Seas of CNY0 at 2015

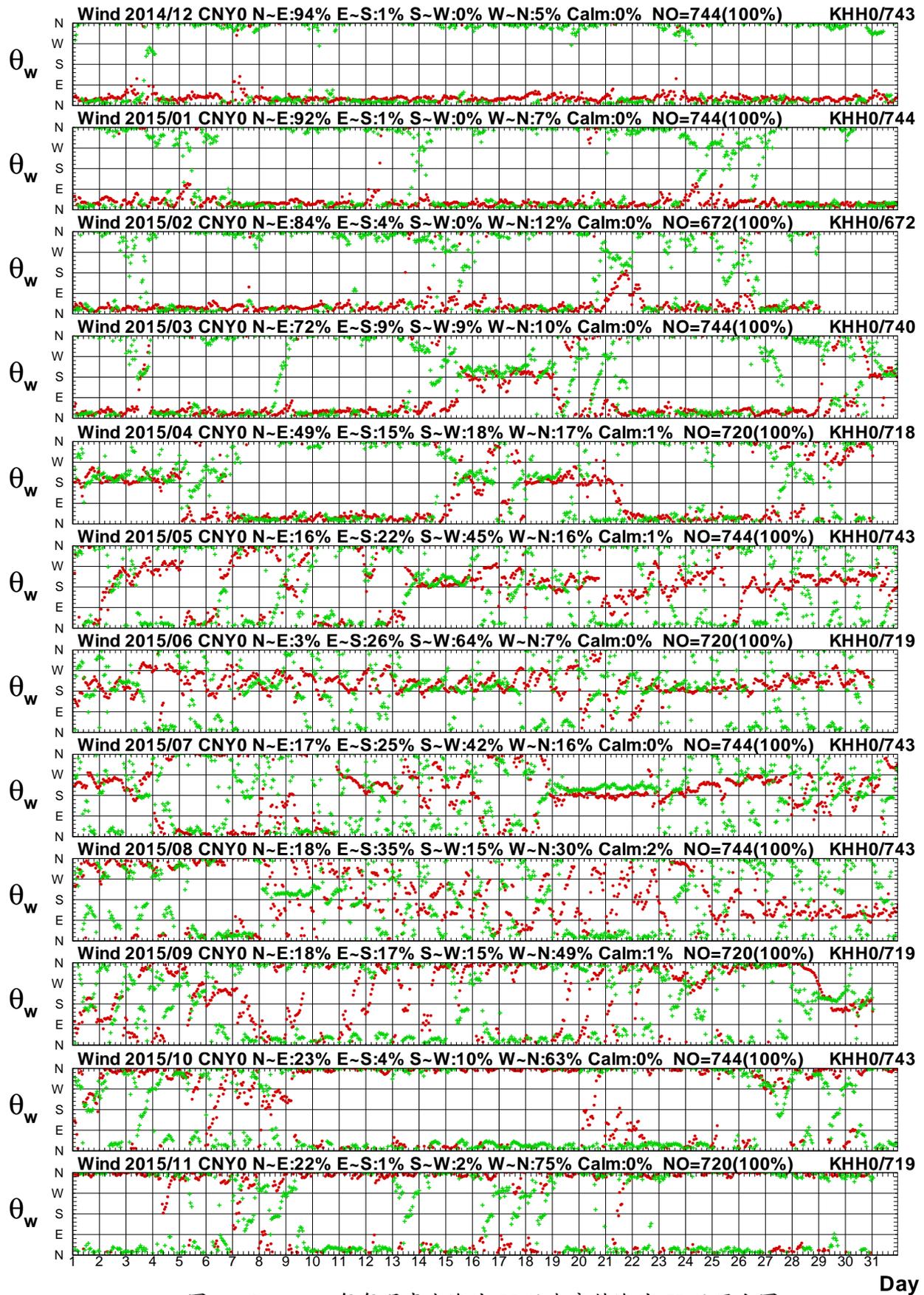


圖 1.15b 2015年每月嘉南海域 Y 站與高雄海域 H 站風向圖

W14CCNY0.1HA W14CKHH0.1H0 W151CNY0.1HA W151KHH0.1H0 W152CNY0.1HA W152KHH0.1H0
 W153CNY0.1HA W153KHH0.1H0 W154CNY0.1HA W154KHH0.1H0 W155CNY0.1HA W155KHH0.1H0

Institute of Harbor & Marine Technology

Wind Speed in Chia-Nan Seas of CNY0 at 2015

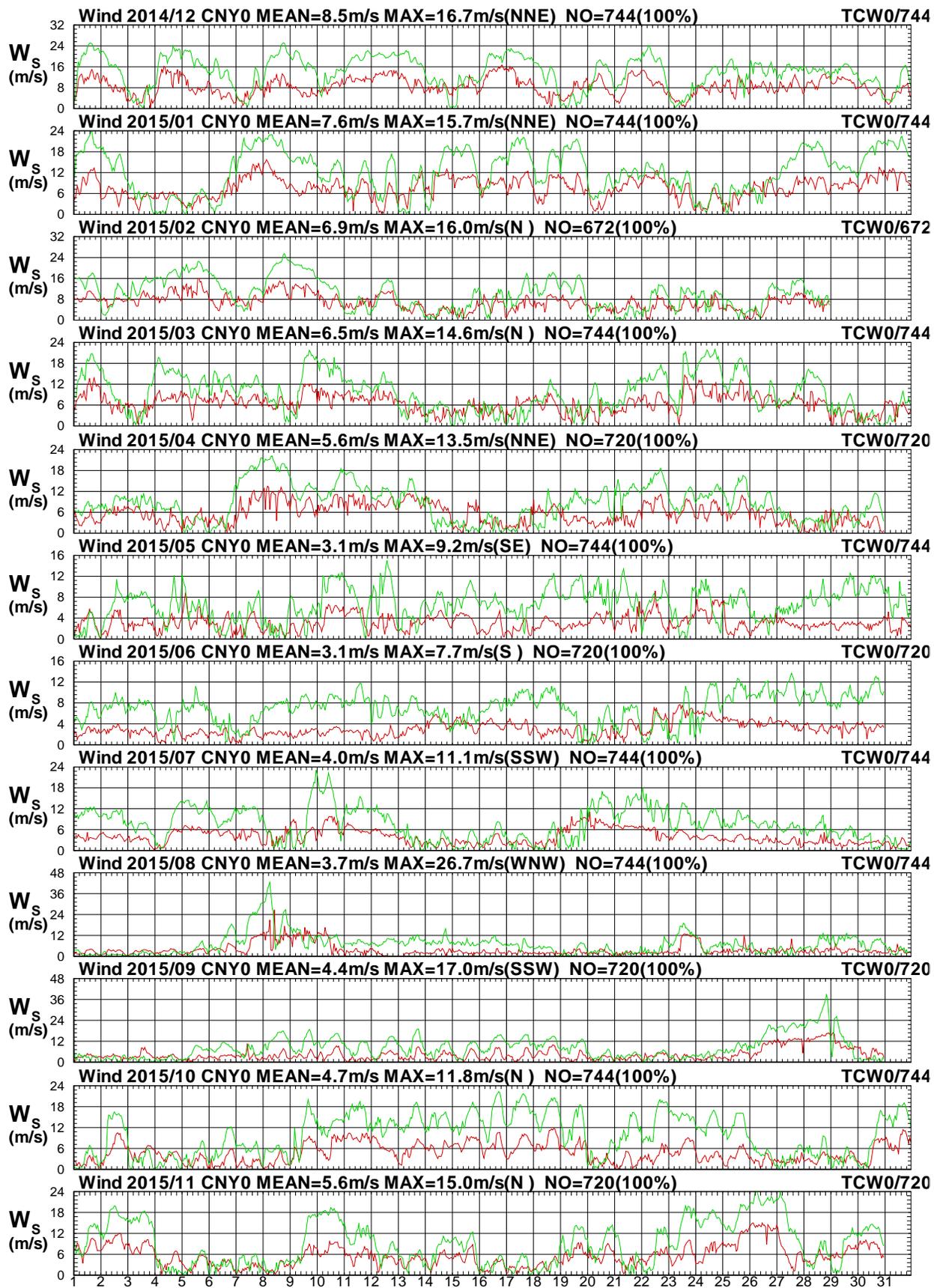


圖 1.16a 2015年每月嘉南海域 Y 站與中雲海域 W 站風速圖

W14CCNY0.1HA W14CTCW0.1H0 W151CNY0.1HA W151TCW0.1H0 W152CNY0.1HA W152TCW0.1H0
 W153CNY0.1HA W153TCW0.1H0 W154CNY0.1HA W154TCW0.1H0 W155CNY0.1HA W155TCW0.1H0

Institute of Harbor & Marine Technology

Wind Direction in Chia-Nan Seas of CNY0 at 2015

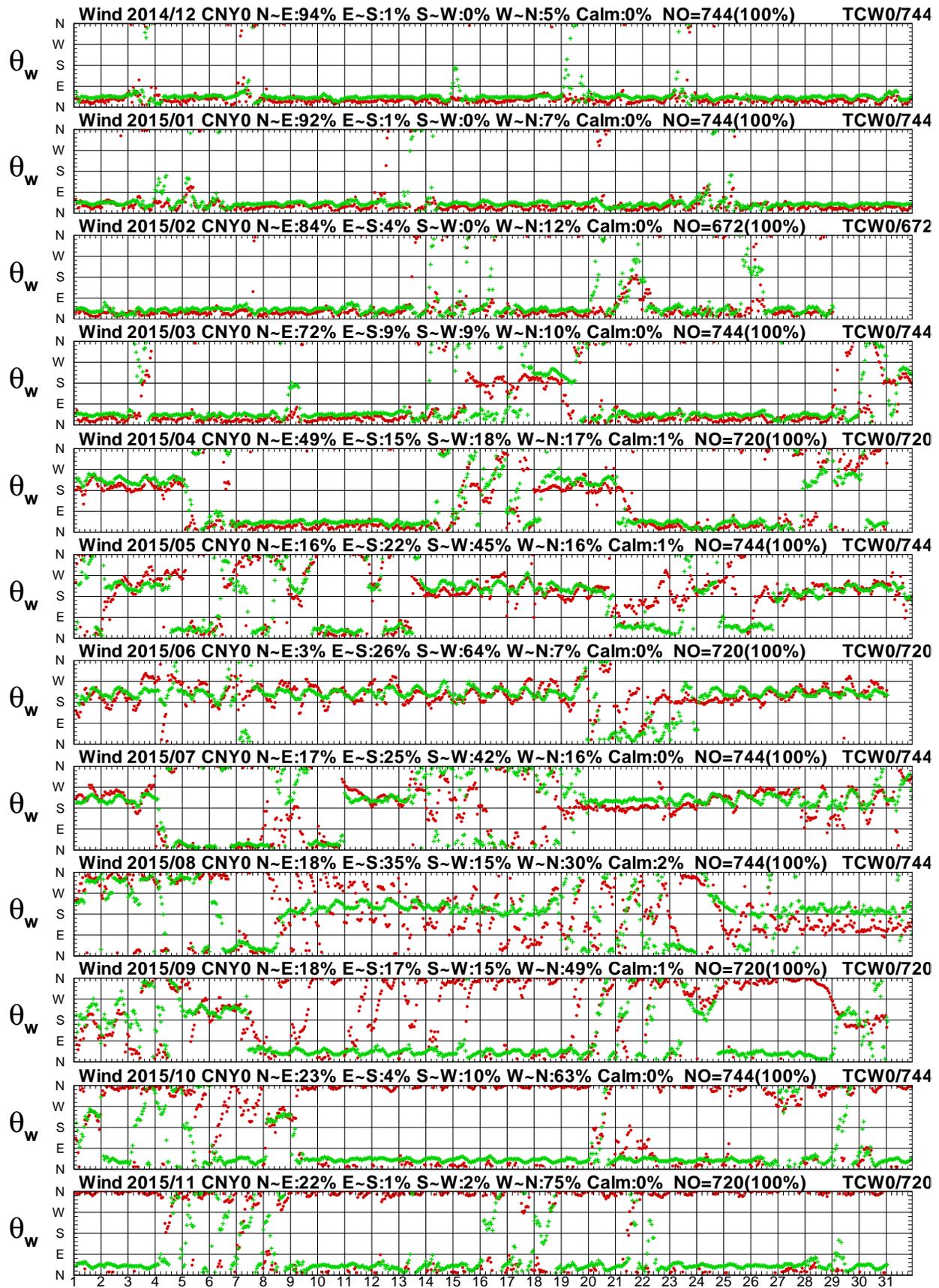


圖 1.16b 2015年每月嘉南海域 Y 站與中雲海域 W 站風向圖

W14CCNY0.1HA W14CTCW0.1H0 W151CNY0.1HA W151TCW0.1H0 W152CNY0.1HA W152TCW0.1H0
 W153CNY0.1HA W153TCW0.1H0 W154CNY0.1HA W154TCW0.1H0 W155CNY0.1HA W155TCW0.1H0

Institute of Harbor & Marine Technology

Wind Speed in Chia-Nan Seas of CNY0 at 2015

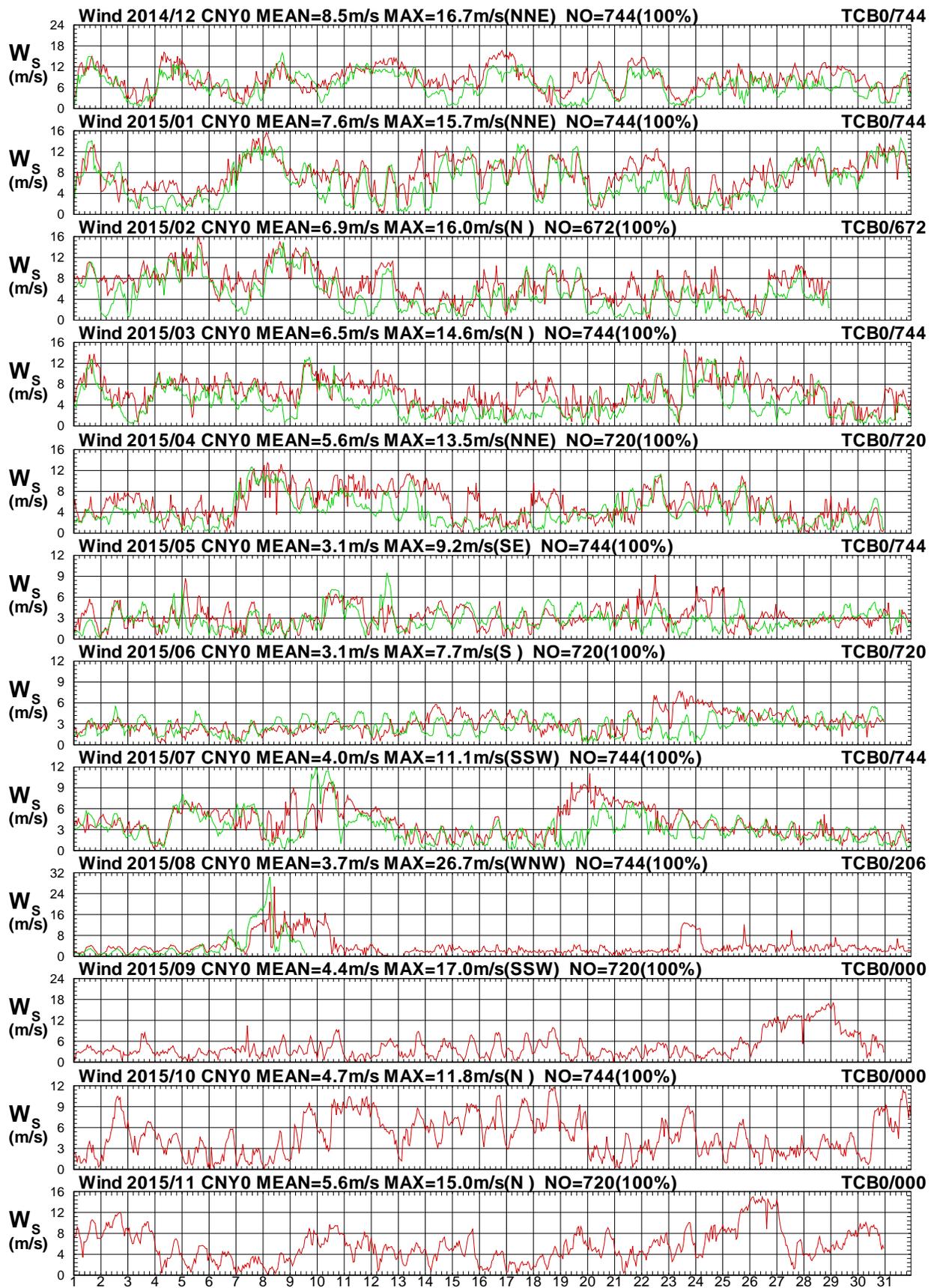


圖 1.17a 2015年每月嘉南海域 Y 站與中雲海域 B 站風速圖

W14CCNY0.1HA W14CTCB0.1H0 W151CNY0.1HA W151TCB0.1H0 W152CNY0.1HA W152TCB0.1H0
 W153CNY0.1HA W153TCB0.1H0 W154CNY0.1HA W154TCB0.1H0 W155CNY0.1HA W155TCB0.1H0

Institute of Harbor & Marine Technology

Wind Direction in Chia-Nan Seas of CNY0 at 2015

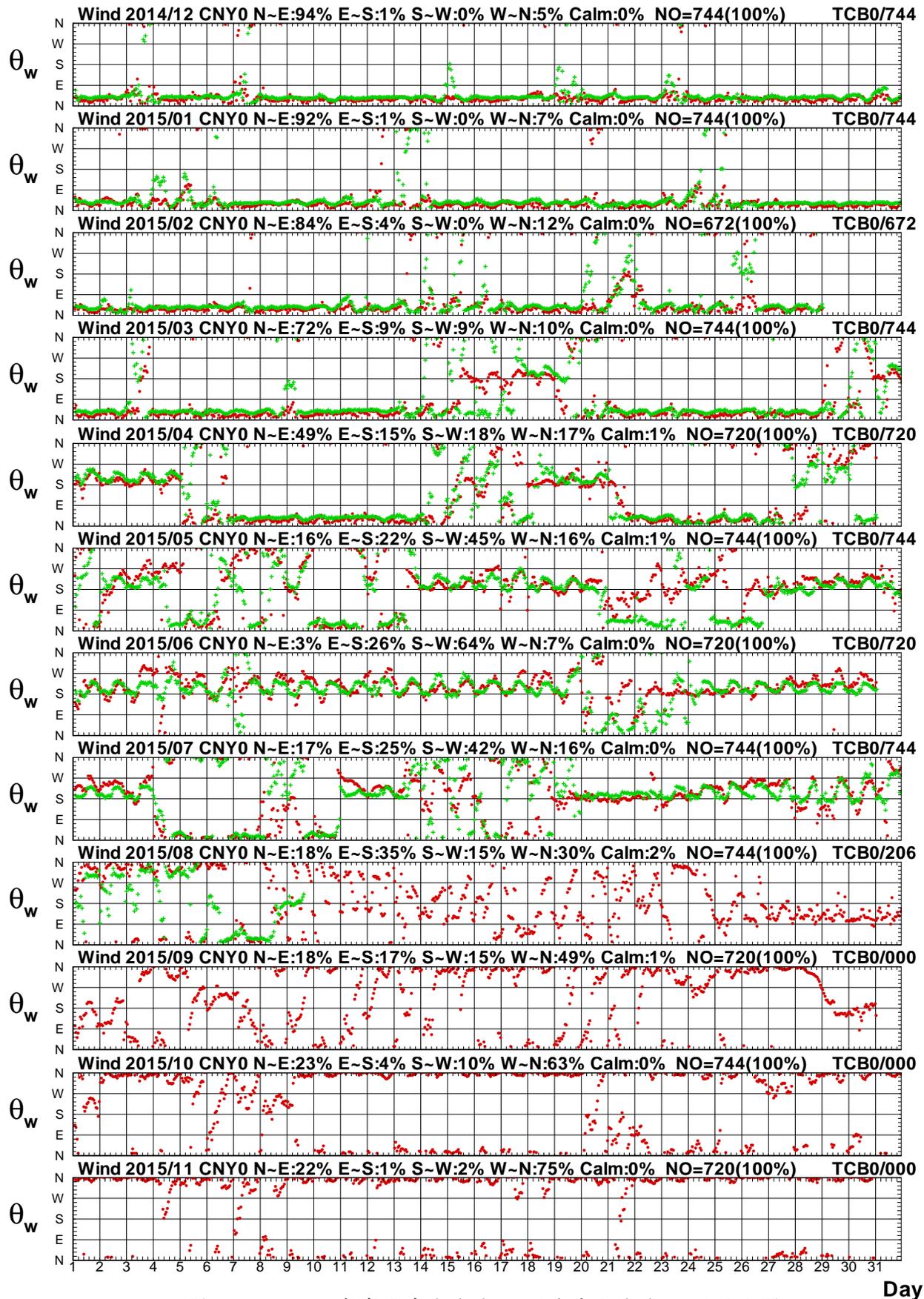


圖 1.17b 2015年每月嘉南海域 Y 站與中雲海域 B 站風向圖

W14CCNY0.1HA W14CTCB0.1H0 W151CNY0.1HA W151TCB0.1H0 W152CNY0.1HA W152TCB0.1H0
 W153CNY0.1HA W153TCB0.1H0 W154CNY0.1HA W154TCB0.1H0 W155CNY0.1HA W155TCB0.1H0

Institute of Harbor & Marine Technology

Wind Speed in Chia-Nan Seas of CNY0 at 2015

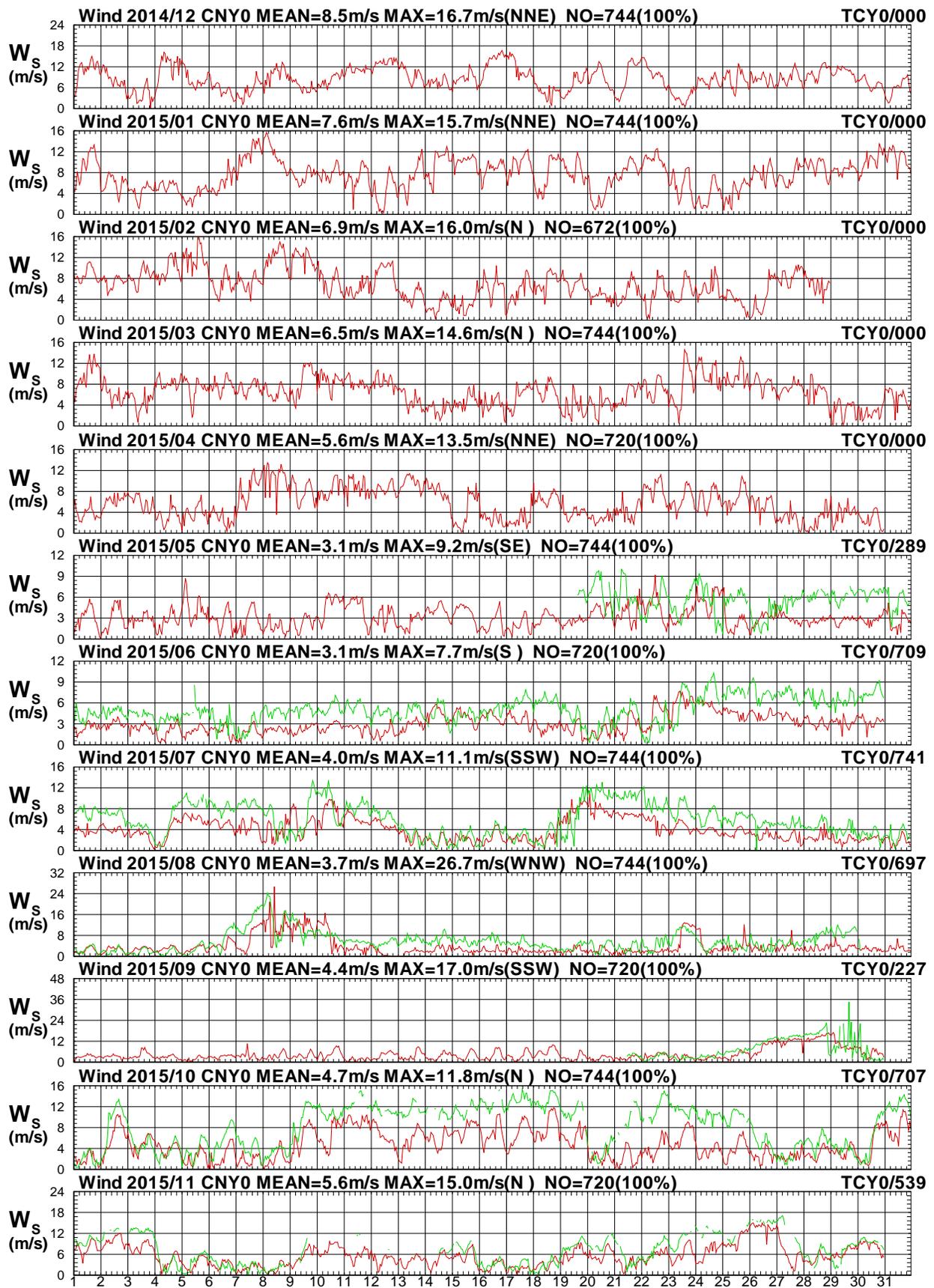


圖 1.18a 2015年每月嘉南海域 Y 站與中雲海域 Y 站風速圖

W14CCNY0.1HA W14CTCY0.1H0 W151CNY0.1HA W151TCY0.1H0 W152CNY0.1HA W152TCY0.1H0
 W153CNY0.1HA W153TCY0.1H0 W154CNY0.1HA W154TCY0.1H0 W155CNY0.1HA W155TCY0.1H0

Institute of Harbor & Marine Technology

Wind Direction in Chia-Nan Seas of CNY0 at 2015

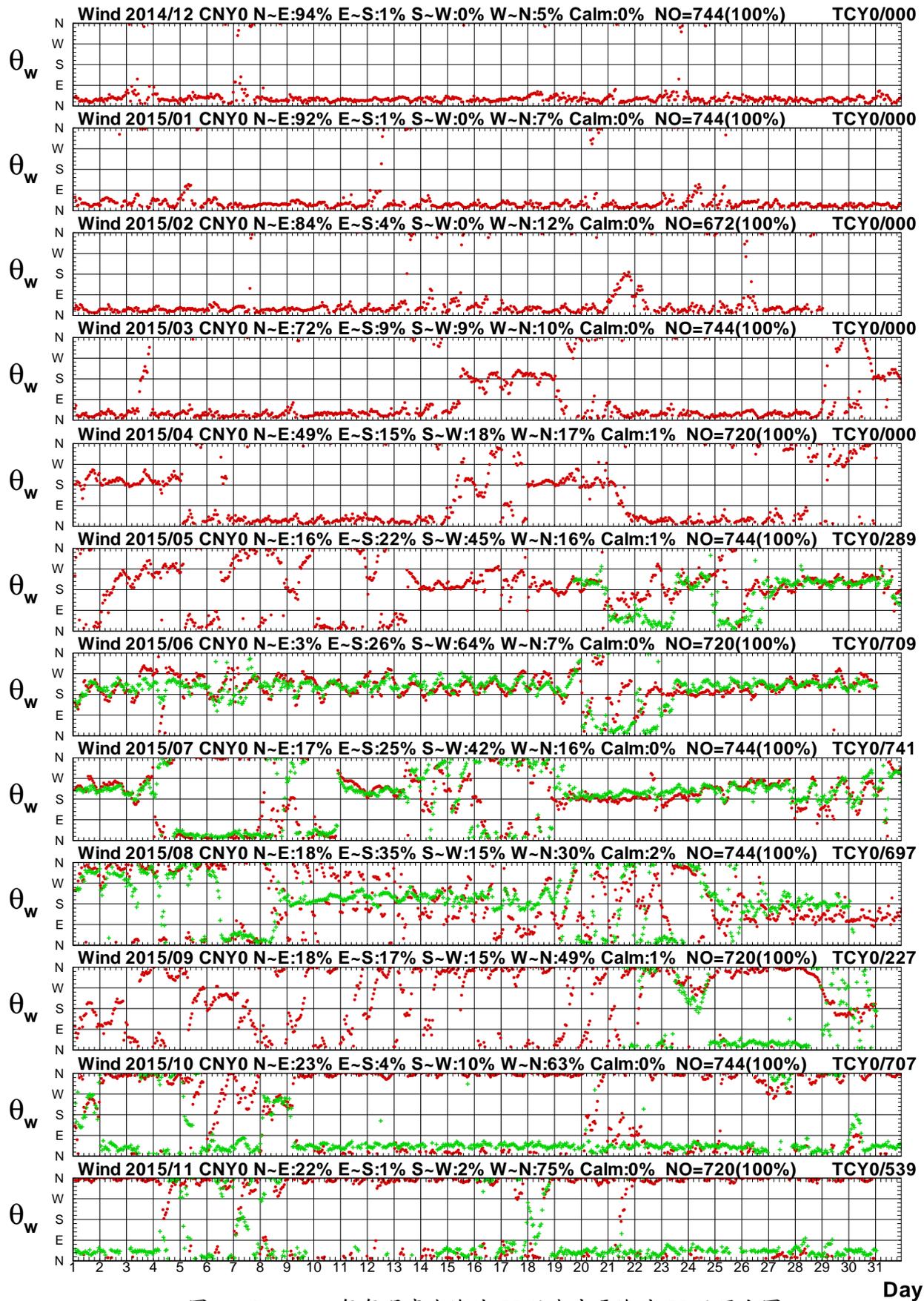


圖 1.18b 2015年每月嘉南海域 Y 站與中雲海域 Y 站風向圖

W14CCNY0.1HA W14CTCY0.1H0 W151CNY0.1HA W151TCY0.1H0 W152CNY0.1HA W152TCY0.1H0
 W153CNY0.1HA W153TCY0.1H0 W154CNY0.1HA W154TCY0.1H0 W155CNY0.1HA W155TCY0.1H0

Institute of Harbor & Marine Technology

Wind Speed in Chia-Nan Seas of CNY0 at 2015

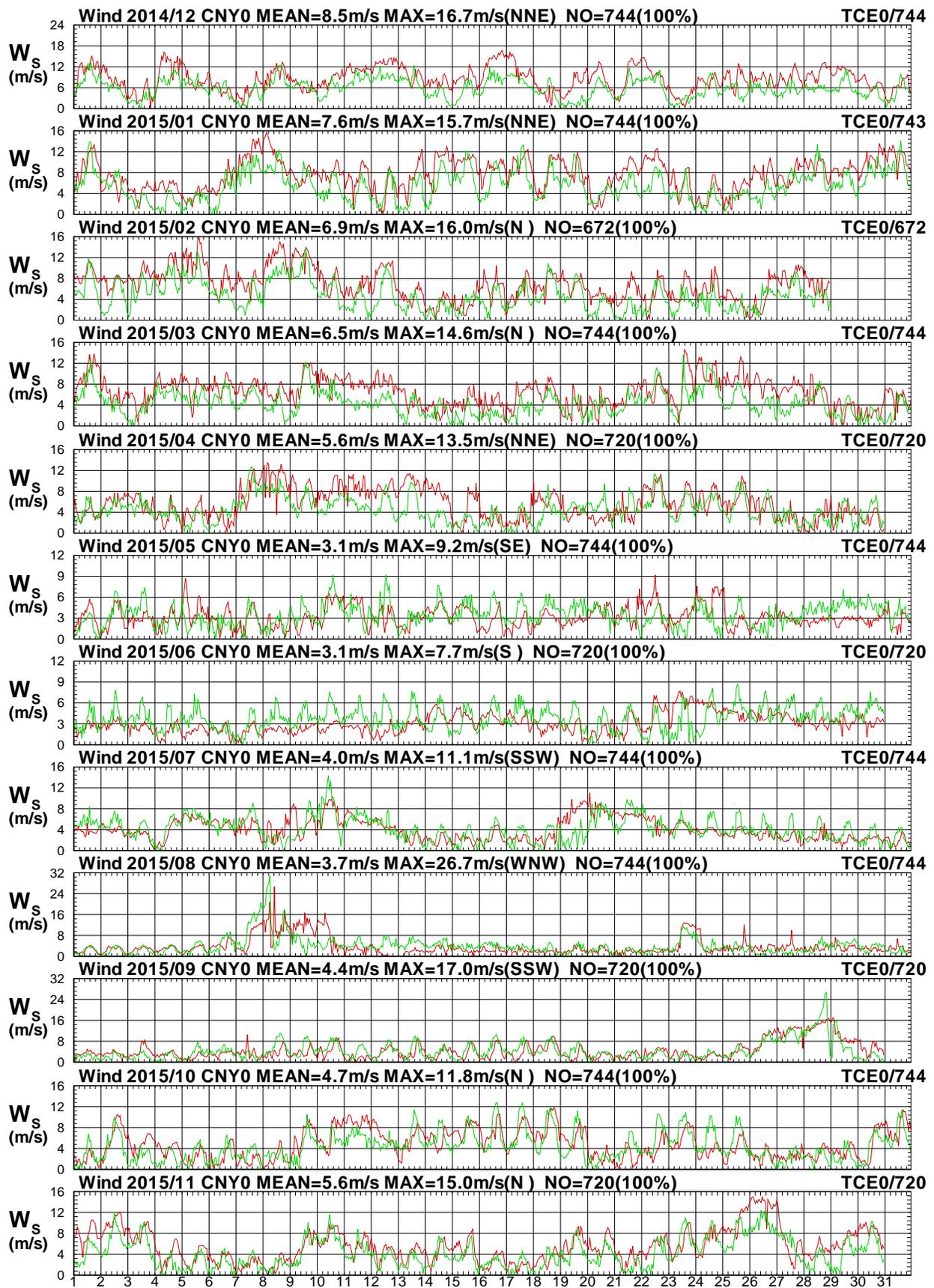


圖 1.19a 2015 年每月嘉南海域 Y 站與中雲海域 E 站風速圖

W14CCNY0.1HA W14CTCE0.1H0 W151CNY0.1HA W151TCE0.1H0 W152CNY0.1HA W152TCE0.1H0
 W153CNY0.1HA W153TCE0.1H0 W154CNY0.1HA W154TCE0.1H0 W155CNY0.1HA W155TCE0.1H0

Institute of Harbor & Marine Technology

Wind Direction in Chia-Nan Seas of CNY0 at 2015

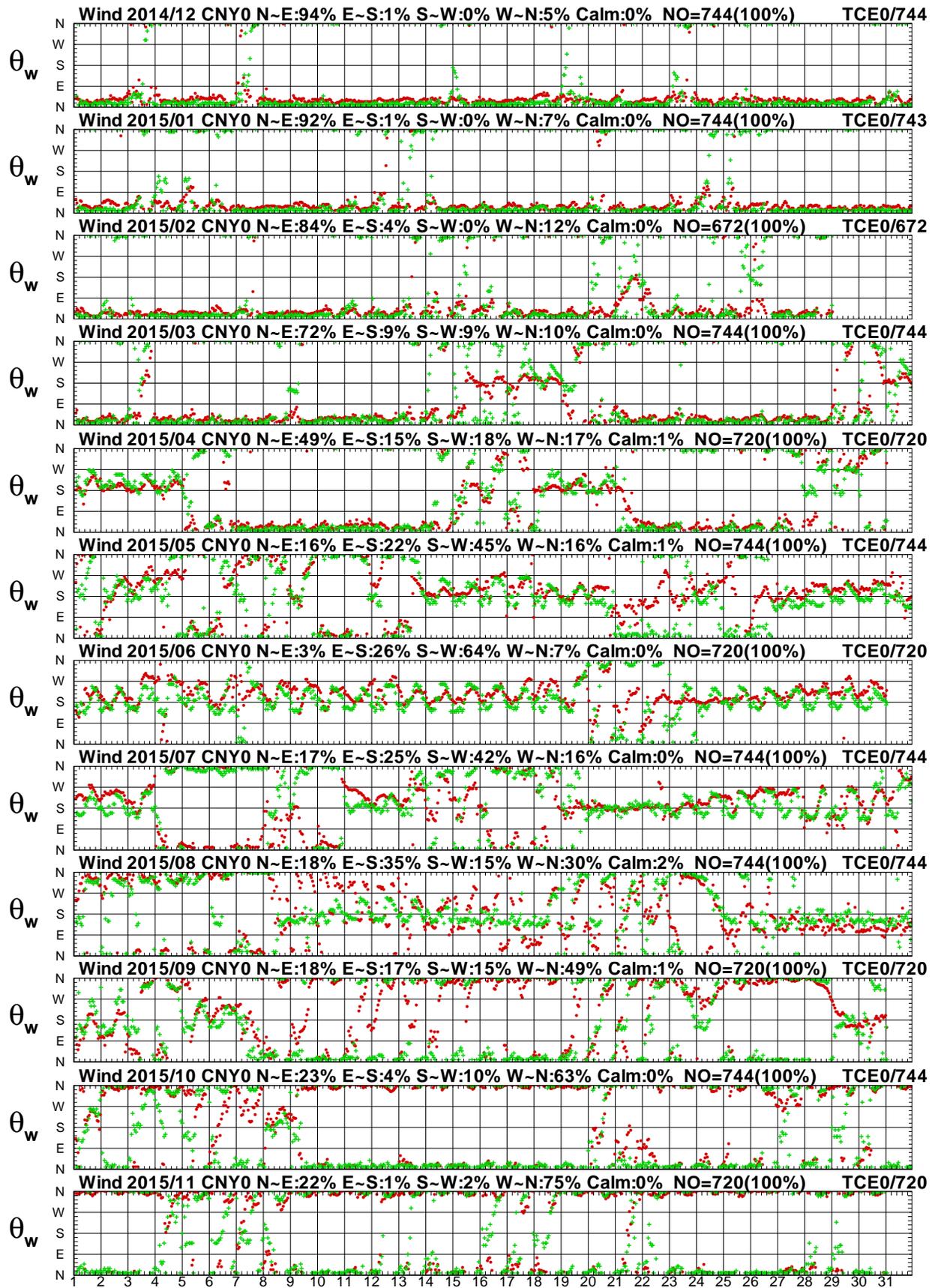


圖 1.19b 2015年每月嘉南海域 Y 站與中雲海域 E 站風向圖

W14CCNY0.1HA W14CTCE0.1H0 W151CNY0.1HA W151TCE0.1H0 W152CNY0.1HA W152TCE0.1H0
 W153CNY0.1HA W153TCE0.1H0 W154CNY0.1HA W154TCE0.1H0 W155CNY0.1HA W155TCE0.1H0

Institute of Harbor & Marine Technology

Wind Speed in Chia-Nan Seas of CNY0 at 2015

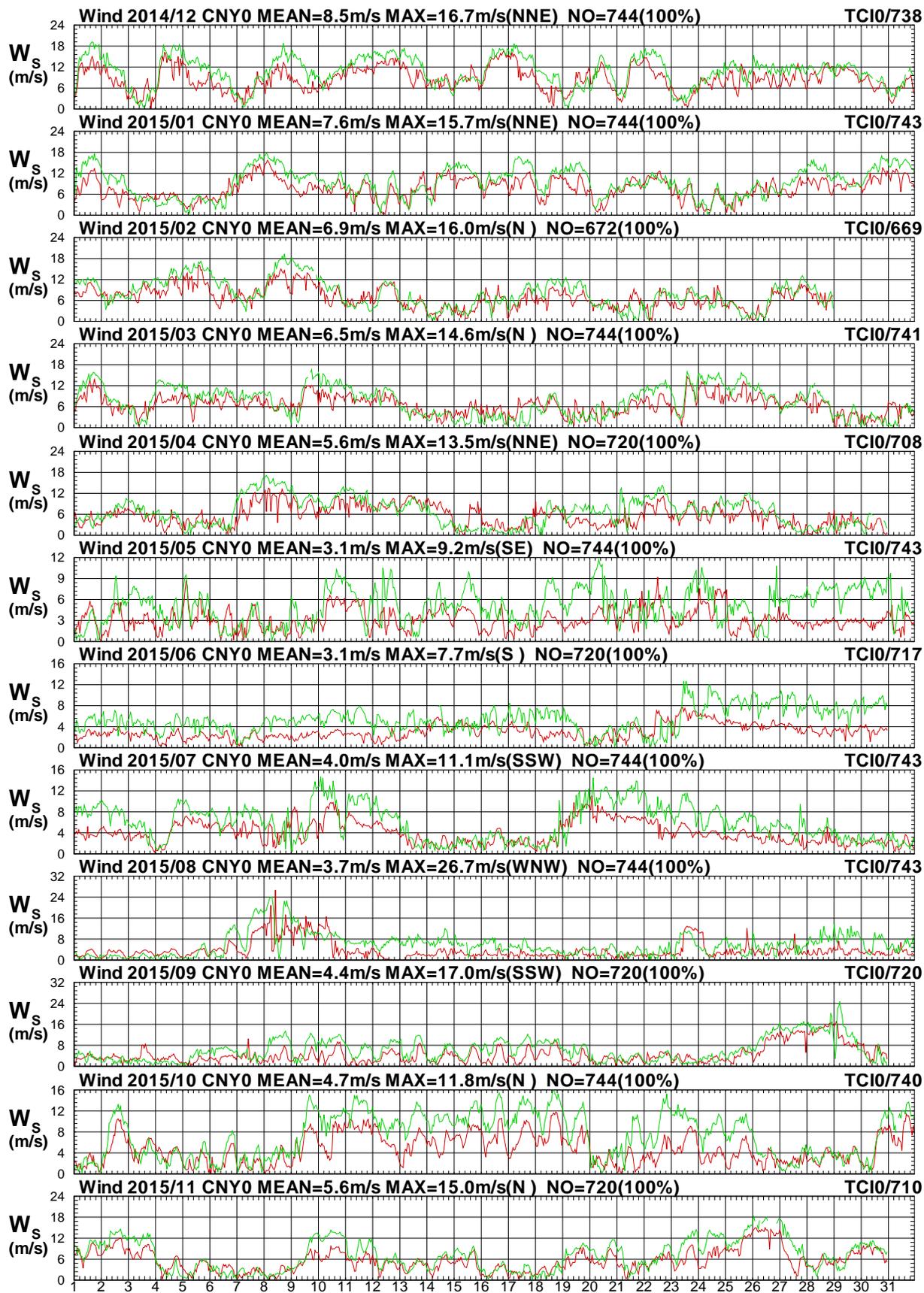


圖 1.20a 2015年每月嘉南海域 Y 站與中雲海域 I 站風速圖

Day

W14CCNY0.1HA W14CTCI0.1HO W151CNY0.1HA W151TCI0.1HO W152CNY0.1HA W152TCI0.1HO
W153CNY0.1HA W153TCI0.1HO W154CNY0.1HA W154TCI0.1HO W155CNY0.1HA W155TCI0.1HO

Institute of Harbor & Marine Technology

Wind Direction in Chia-Nan Seas of CNY0 at 2015

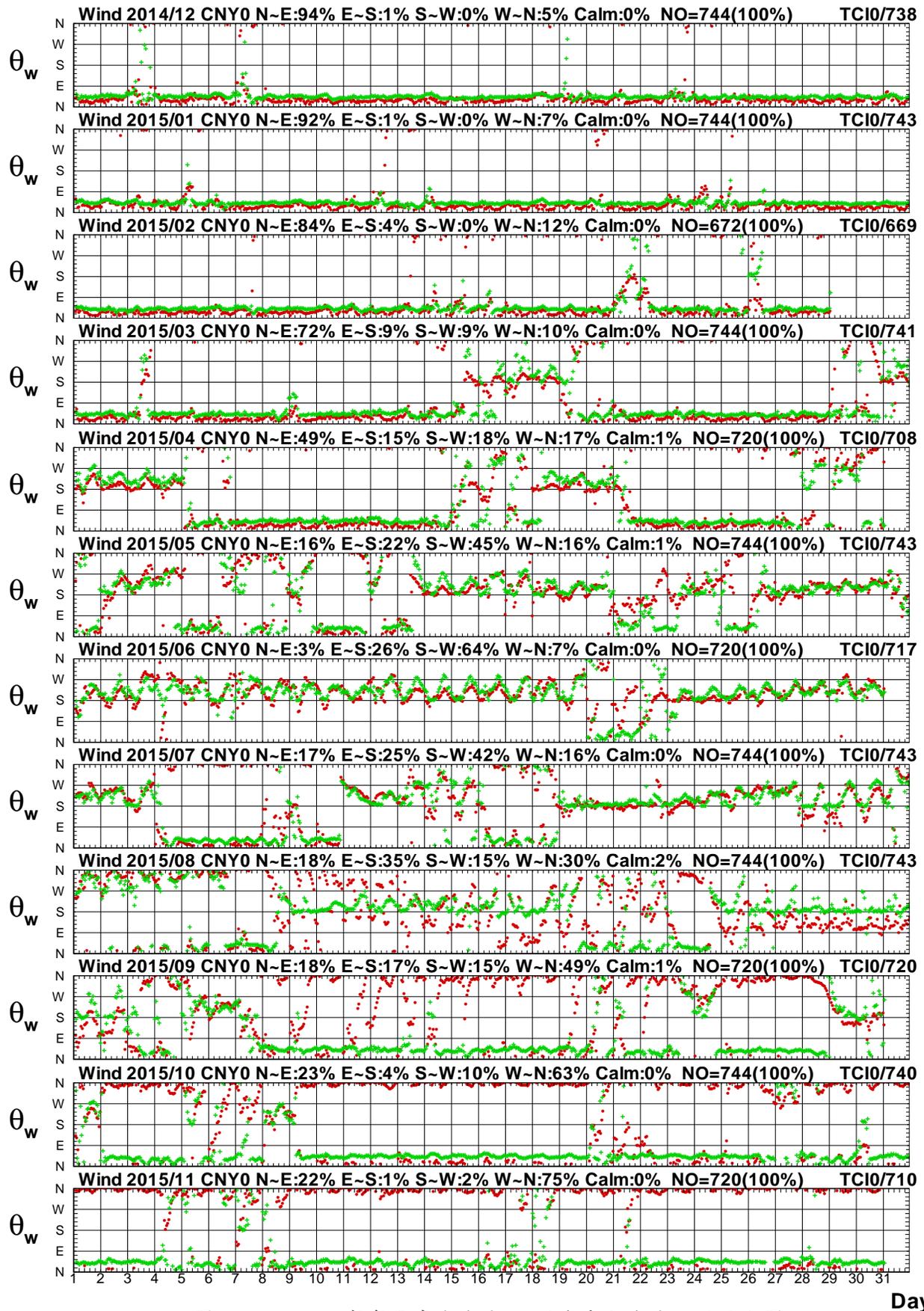


圖 1.20b 2015年每月嘉南海域 Y 站與中雲海域 I 站風向圖

W14CCNY0.1HA W14CTCI0.1H0 W151CNY0.1HA W151TCI0.1H0 W152CNY0.1HA W152TCI0.1H0
 W153CNY0.1HA W153TCI0.1H0 W154CNY0.1HA W154TCI0.1H0 W155CNY0.1HA W155TCI0.1H0

Institute of Harbor & Marine Technology

第二章 2015 年嘉南海域觀測波浪資料

嘉南海域波浪觀測係本中心(IHMT)係利用位於安平港海上觀測樁頂水下 5 米處(稱**測站 X0**)之 Inter Ocean S-4ADW 潮波儀所測得，如附圖 2，因 S-4 觀測儀器老舊，目前已更換為 NORTEK 公司之剖面海流表面波浪與潮汐之監測系統(AWCP)，觀測資料至觀測樁於 2011 年 7 月拆除為止。2011 年 7 月於南堤外海增設(AWCP (稱**測站 X1**))。本中心 2006 年 6 月於布袋港外附近(稱**測站 A**)水深約 7 公尺處設置 AWCP

測站 Y(七股外海浮標站)及**測站 Z**(七股雷達站)之波浪儀屬水利署(WRA)所有；曾文溪外海浮標(**測站 V**)、鹿耳門溪口外海浮標(**測站 U**)波浪儀屬觀台灣中油(CPC)所設置。灣裡海上浮標(**測站 R**)觀測波浪儀，係國立成功大學水文中心(COMC)裝設。嘉南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 波向量測的參數為：平均波向及波向分佈，波向單位為度。

本波浪年報以取經檢核或修補後之 **Y 站** 資料作為**主要觀測站**，2015 年主要觀測站修補前(後)每月觀測之波浪資料記錄期間統計表，如表 2.1a，2015 年波浪**次要觀測站**資料(未補餘)記錄統計表，如表 2.1b，**主要觀測站修補前後**每月波浪歷線比較圖，如圖 2.1，**主要觀測站與次要觀測站**(或**其他觀測站**)每月波浪歷線比較圖，如圖 2.2 以後。

表 2 嘉南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°56'37"N	120°08'10"E	1999/10-2011/07	港研中心	安平港觀測樁
X1	22°57'22"N	120°08'53"E	2010/12-2015/11(觀測中)	港研中心	安平港南堤
Y	23°05'55"	120°00'20"E	2006/06-2015/11(觀測中)	水利署	七股浮標站
Z	23°06'48"	120°03'8"E	2005/10-2015/11(觀測中)	水利署	七股雷達站
A0	23°22'49"N	120°07'29" E	2006/06-2010/03	港研中心	AWCP 布袋港
A1	23°22'37"N	120°07'26"E	2012/08-2014/11(觀測中)	港研中心	AWCP 布袋港
V	23°04'29"N	119°57'40"E	2013/08-2014/09	臺灣中油	曾文浮標站
U	22°59'22"N	120°02'26"E	2015/09-2015/11(觀測中)	臺灣中油	鹿耳門浮標站
R	22°54'54"N	129°09'55"E	2015/06-2015/11(觀測中)	水文中心	灣裡浮標站

嘉南海域

 IHMT 波潮流站	 IHMT 觀測樁波潮流站
 WRA 浮標波浪站	 CPC 及 COMC 浮標波浪站



圖 2 嘉南海域波浪觀測站位置示意圖

表 2.1a 2015年每月嘉南海域修補前各測站觀測波浪資料紀錄統計表

年/月 港區	嘉南海域	嘉南海域						
測站	X	Y	A	Z	V	U	R	
2014/12月	742 (99.7%)	597 (80.2%)	*	731 (98.3%)	*	*	*	*
2015/ 1月	739 (99.3%)	680 (91.4%)	*	*	*	*	*	*
2015/ 2月	670 (99.7%)	534 (79.5%)	*	*	*	*	*	*
2015/ 3月	671 (90.2%)	614 (82.5%)	*	*	*	*	*	*
2015/ 4月	560 (77.8%)	601 (83.5%)	556 (77.2%)	*	*	*	*	*
2015/ 5月	730 (98.1%)	695 (93.4%)	631 (84.8%)	*	*	*	*	*
2015/ 6月	715 (99.3%)	695 (96.5%)	591 (82.1%)	*	*	*	454 (63.1%)	*
2015/ 7月	667 (89.7%)	729 (98.0%)	632 (84.9%)	*	*	*	471 (63.3%)	*
2015/ 8月	737 (99.1%)	703 (94.5%)	620 (83.3%)	*	322 (43.3%)	*	123 (16.5%)	*
2015/ 9月	343 (47.6%)	674 (93.6%)	676 (93.9%)	*	702 (97.5%)	625 (86.8%)	*	*
2015/10月	*	689 (92.6%)	726 (97.6%)	*	725 (97.4%)	739 (99.3%)	293 (39.4%)	*
2015/11月	*	627 (87.1%)	647 (89.9%)	679 (94.3%)	709 (98.5%)	716 (99.4%)	243 (33.8%)	*
2015/冬季	2151 (99.6%)	1811 (83.8%)	*	731 (33.8%)	*	*	*	*
2015/春季	1961 (88.8%)	1910 (86.5%)	1187 (53.8%)	*	*	*	*	*
2015/夏季	2119 (96.0%)	2127 (96.3%)	1843 (83.5%)	*	322 (14.6%)	*	1048 (47.5%)	*
2015/秋季	343 (15.7%)	1990 (91.1%)	2049 (93.8%)	679 (31.1%)	2136 (97.8%)	2080 (95.2%)	536 (24.5%)	*
2015/整年	6574 (75.0%)	7838 (89.5%)	5079 (58.0%)	1410 (16.1%)	2458 (28.1%)	2080 (23.7%)	1584 (18.1%)	*
起始年月	2014/12	2014/12	2015/04	2014/12	2015/08	2015/09	2015/06	*
結束年月	2015/09	2015/11	2015/11	2015/11	2015/11	2015/11	2015/11	*

表 2.1b 2015年每月嘉南海域修補後各測站波浪資料統計表

年/月 港區	嘉南海域	嘉南海域	嘉南海域	嘉南海域	嘉南海域	嘉南海域	嘉南海域	嘉南海域
測站	X	Y	A	Z	V	U	R	
2014/12月	744 (100%)	744 (100%)	*	*	*	*	*	*
2015/ 1月	744 (100%)	744 (100%)	*	*	*	*	*	*
2015/ 2月	672 (100%)	672 (100%)	*	*	*	*	*	*
2015/ 3月	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%)	*	*	*	*	*	*
2015/春季	2208 (100%)	2208 (100%)	*	*	*	*	*	*
2015/夏季	2208 (100%)	2208 (100%)	*	*	*	*	*	*
2015/秋季	2184 (100%)	2184 (100%)	*	*	*	*	*	*
2015/整年	8760 (100%)	8760 (100%)	*	*	*	*	*	*
起始年月	2014/12	2014/12	*	*	*	*	*	*
結束年月	2015/11	2015/11	*	*	*	*	*	*

Wave H_s in Chia-Nan Seas of CNX0 at 2015

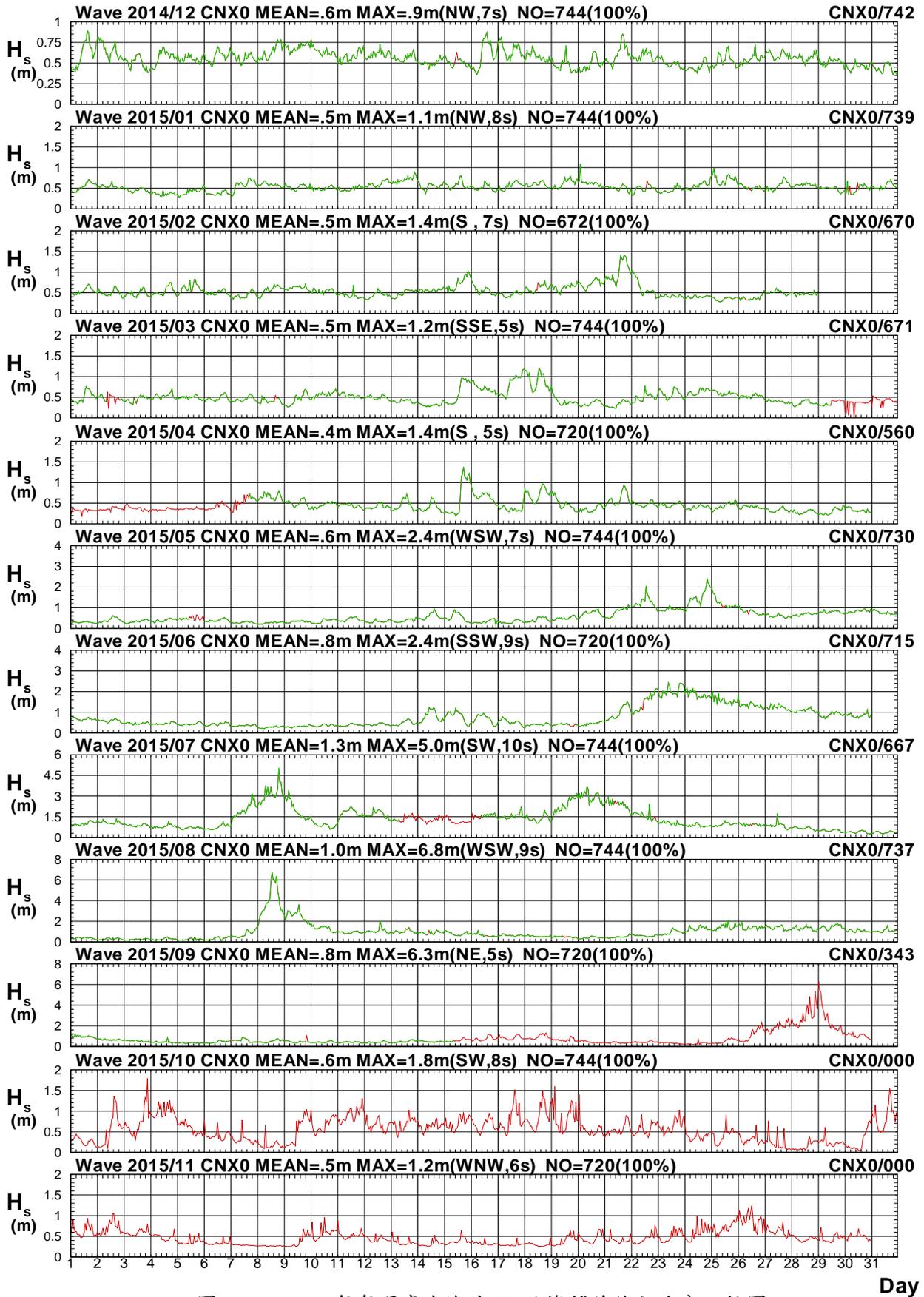


圖 2.1a 2015年每月嘉南海域 X 站修補前後之波高比較圖

V14CCNX0.1HA V14CCNX0.1H0 V151CNX0.1HA V151CNX0.1H0 V152CNX0.1HA V152CNX0.1H0
 V153CNX0.1HA V153CNX0.1H0 V154CNX0.1HA V154CNX0.1H0 V155CNX0.1HA V155CNX0.1H0

Institute of Harbor & Marine Technology

Wave T_p in Chia-Nan Seas of CNX0 at 2015

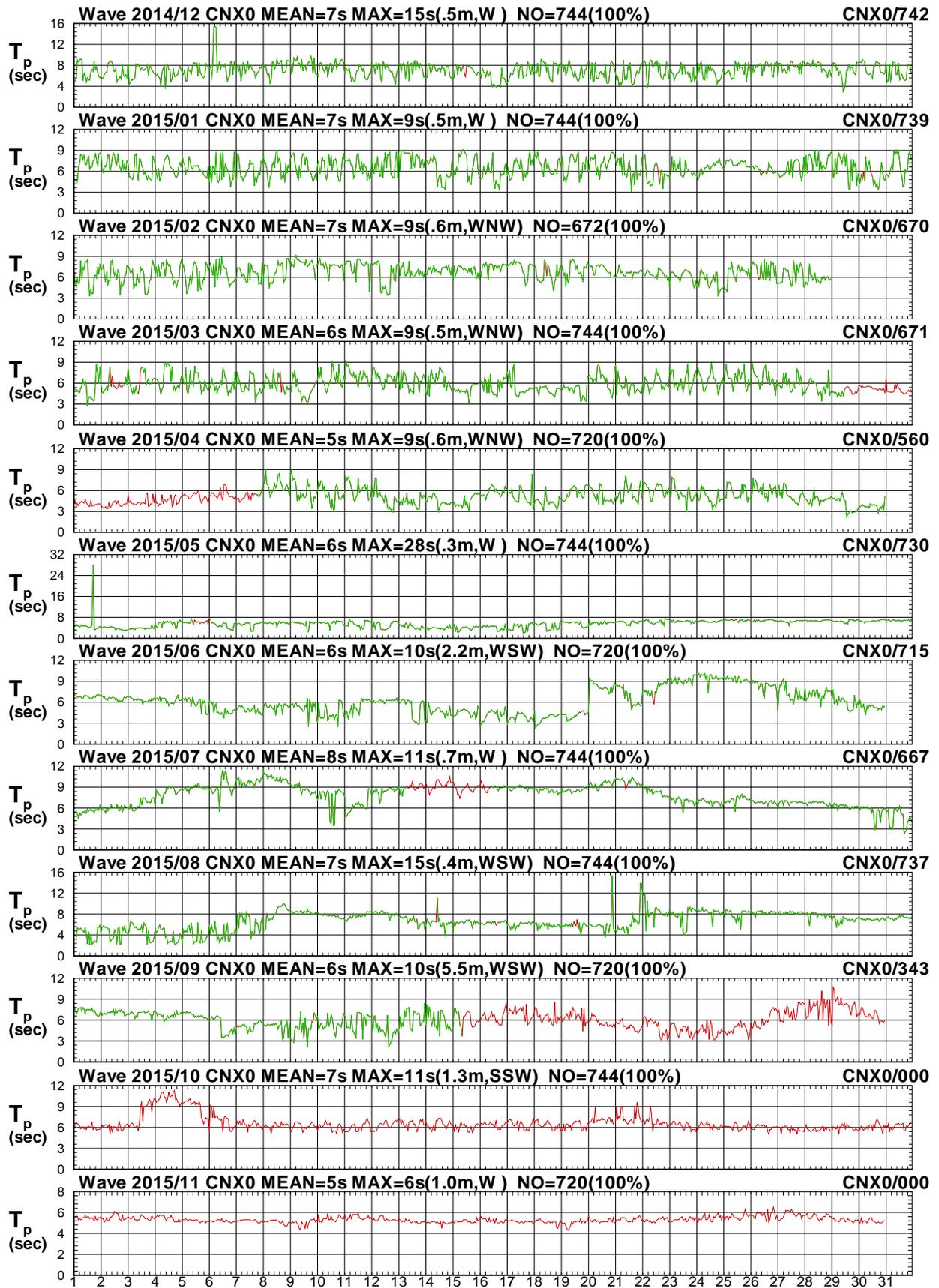


圖 2.1b 2015年每月嘉南海域 X 站修補前後之週期比較圖

V14CCNX0.1HA V14CCNX0.1H0 V151CNX0.1HA V151CNX0.1H0 V152CNX0.1HA V152CNX0.1H0
 V153CNX0.1HA V153CNX0.1H0 V154CNX0.1HA V154CNX0.1H0 V155CNX0.1HA V155CNX0.1H0

Institute of Harbor & Marine Technology

Wave Direction in Chia-Nan Seas of CNX0 at 2015

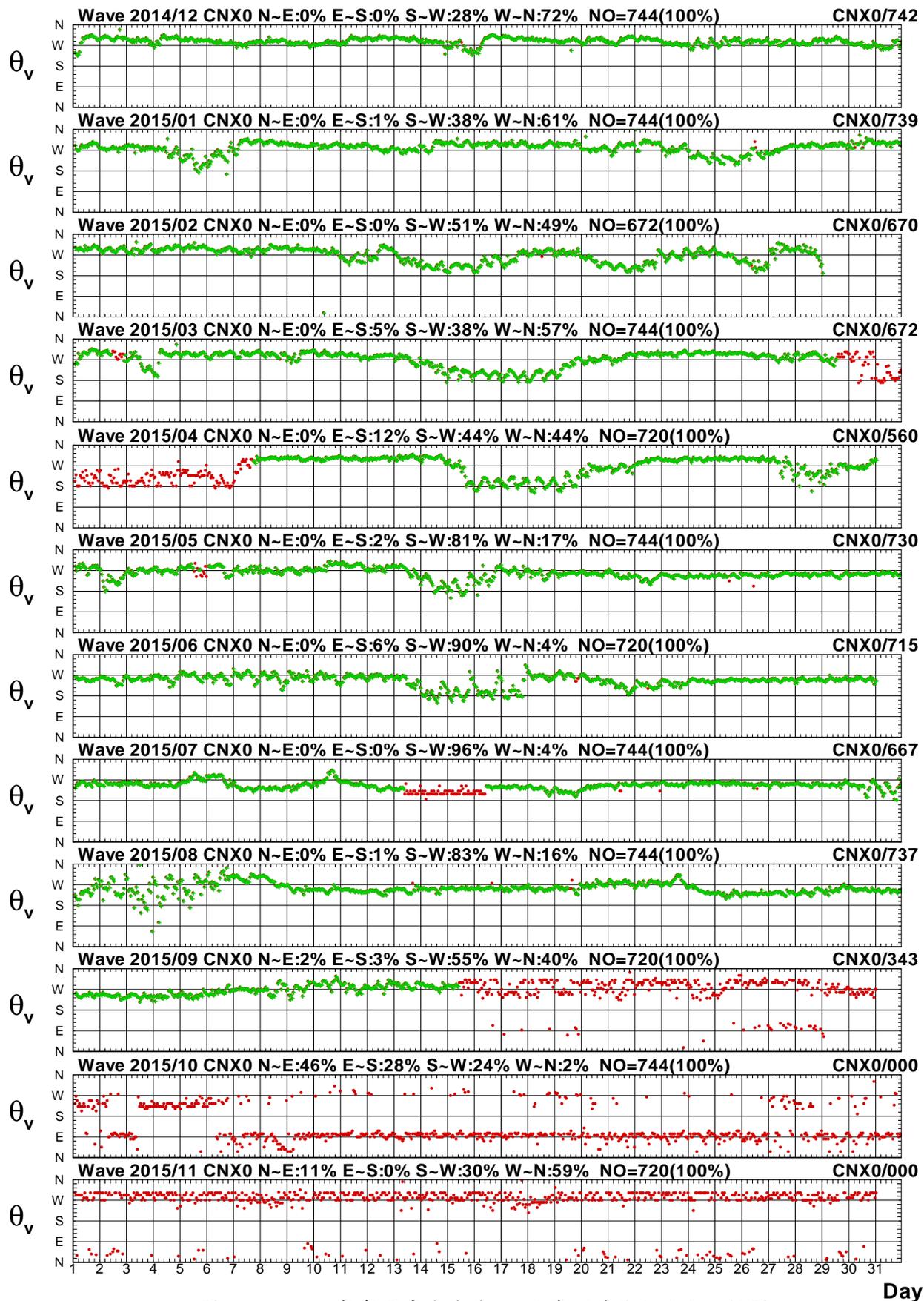


圖 2.1c 2015年每月嘉南海域 X 站修補前後之波向比較圖

V14CCNX0.1HA V14CCNX0.1HO V151CNX0.1HA V151CNX0.1HO V152CNX0.1HA V152CNX0.1HO
 V153CNX0.1HA V153CNX0.1HO V154CNX0.1HA V154CNX0.1HO V155CNX0.1HA V155CNX0.1HO

Institute of Harbor & Marine Technology

Wave H_s in Chia-Nan Seas of CNX0 at 2015

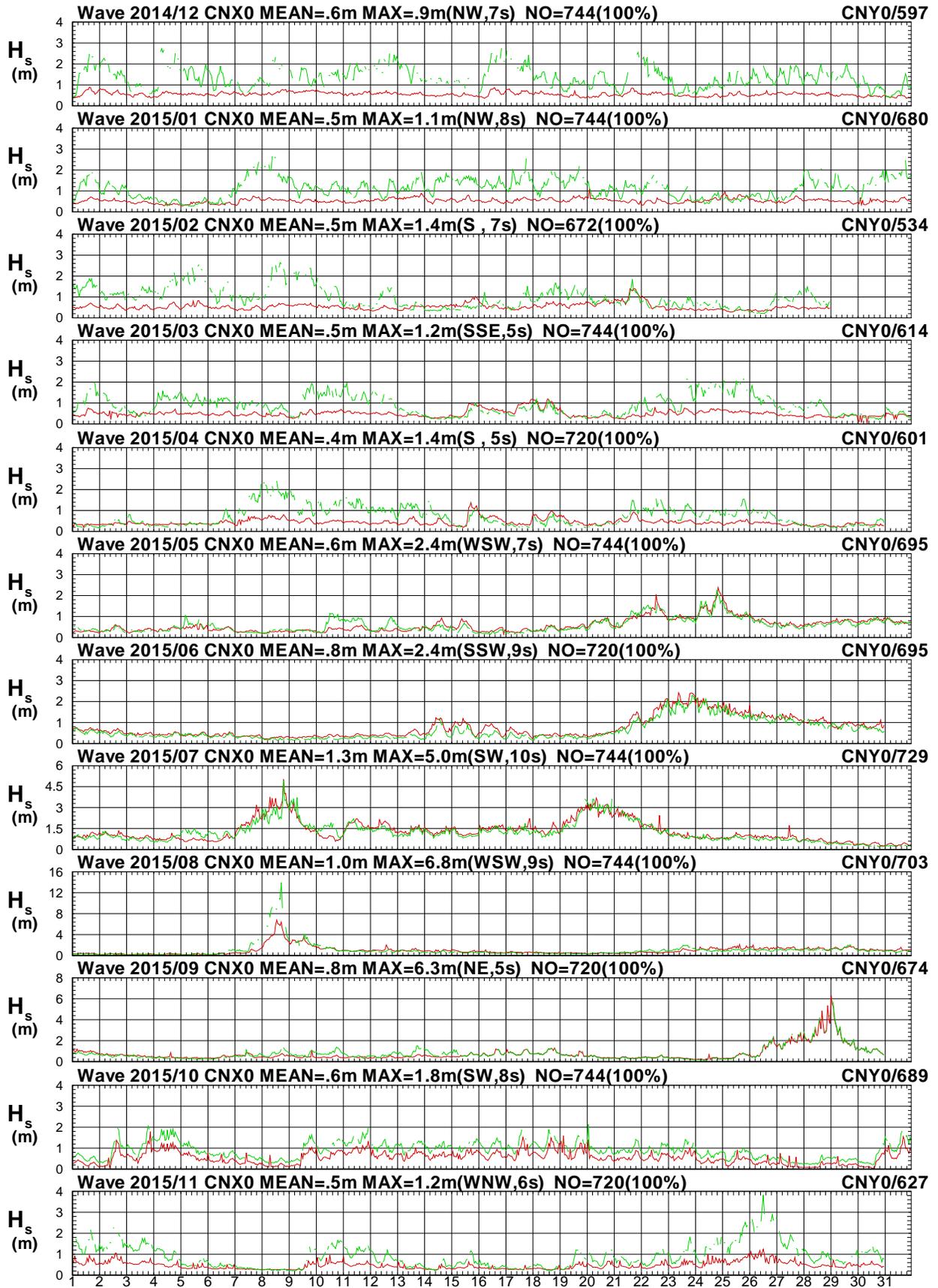


圖 2.2a 2015年每月嘉南海域 X 站與 Y 站波高比較圖

V14CCNX0.1HA V14CCNY0.1H0 V151CNX0.1HA V151CNY0.1H0 V152CNX0.1HA V152CNY0.1H0
 V153CNX0.1HA V153CNY0.1H0 V154CNX0.1HA V154CNY0.1H0 V155CNX0.1HA V155CNY0.1H0

Institute of Harbor & Marine Technology

Wave T_p in Chia-Nan Seas of CNX0 at 2015

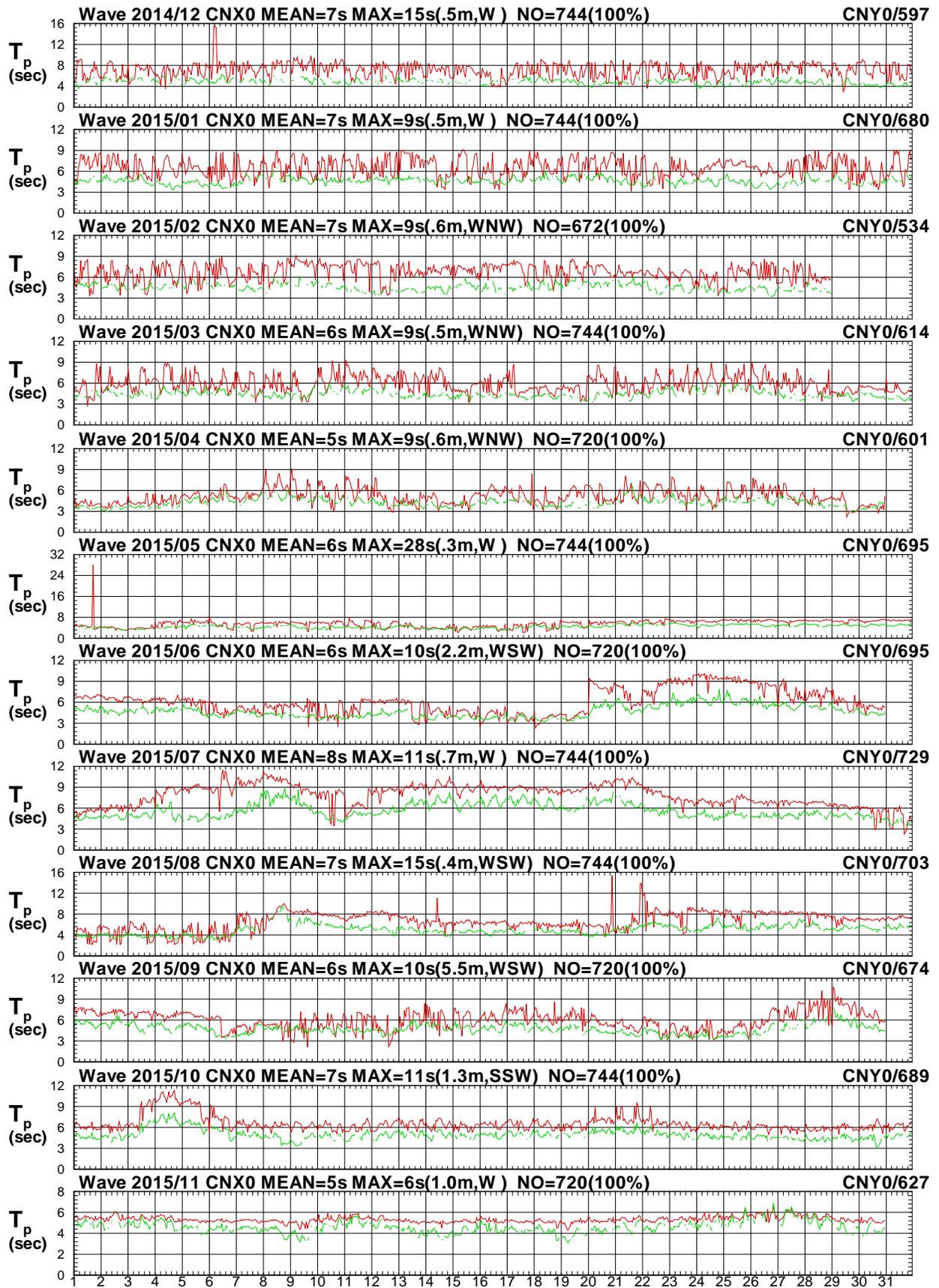


圖 2.2b 2015年每月嘉南海域 X 站與 Y 站週期比較圖

Day

V14CCNX0.1HA V14CCNY0.1H0 V151CNX0.1HA V151CNY0.1H0 V152CNX0.1HA V152CNY0.1H0
 V153CNX0.1HA V153CNY0.1H0 V154CNX0.1HA V154CNY0.1H0 V155CNX0.1HA V155CNY0.1H0

Institute of Harbor & Marine Technology

Wave Direction in Chia-Nan Seas of CNX0 at 2015

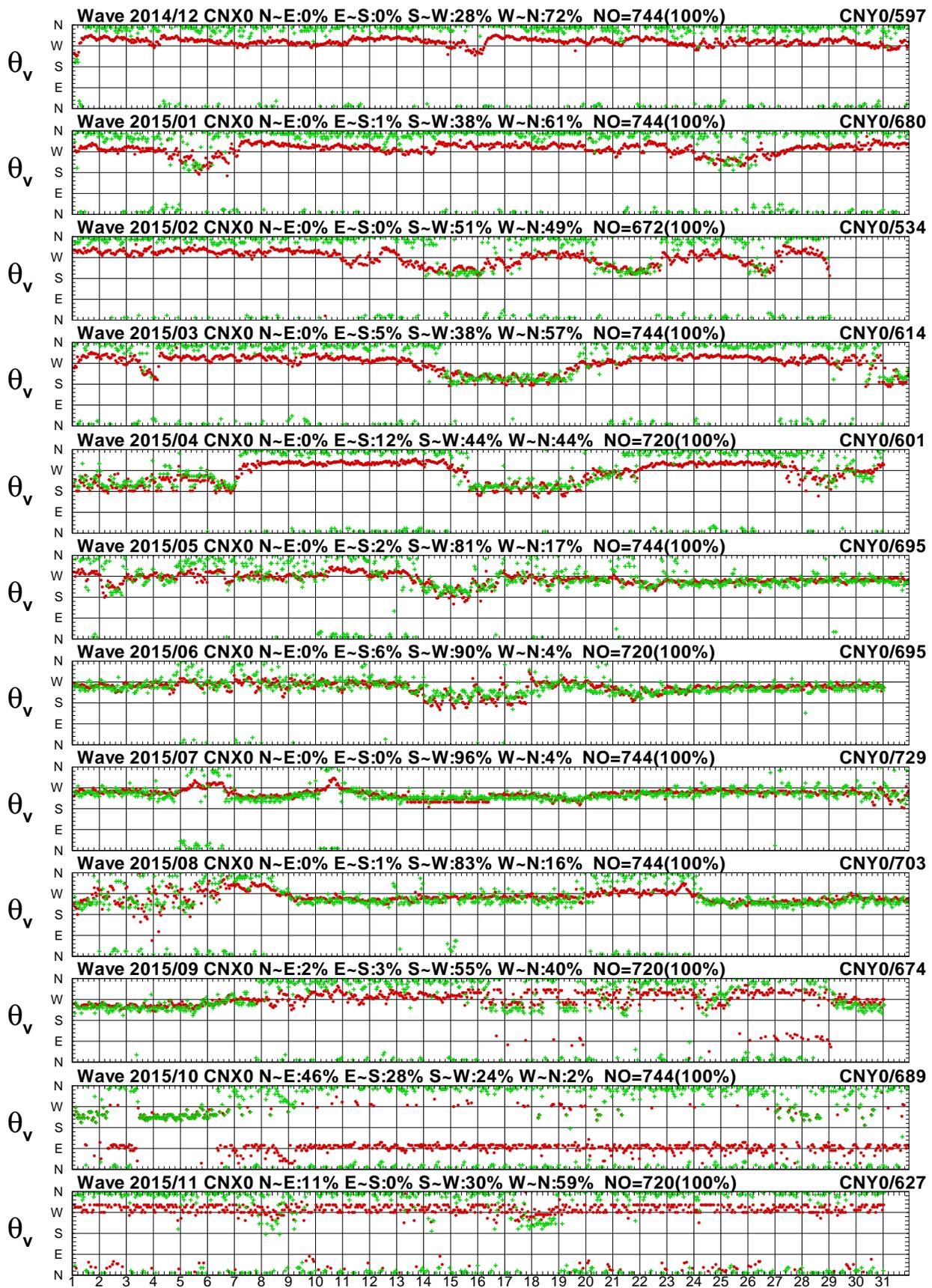


圖 2.2c 2015年每月嘉南海域 X 站與 Y 站波向比較圖

V14CCNX0.1HA V14CCNY0.1HO V151CNX0.1HA V151CNY0.1HO V152CNX0.1HA V152CNY0.1HO
 V153CNX0.1HA V153CNY0.1HO V154CNX0.1HA V154CNY0.1HO V155CNX0.1HA V155CNY0.1HO

Institute of Harbor & Marine Technology

Wave H_s in Chia-Nan Seas of CNX0 at 2015

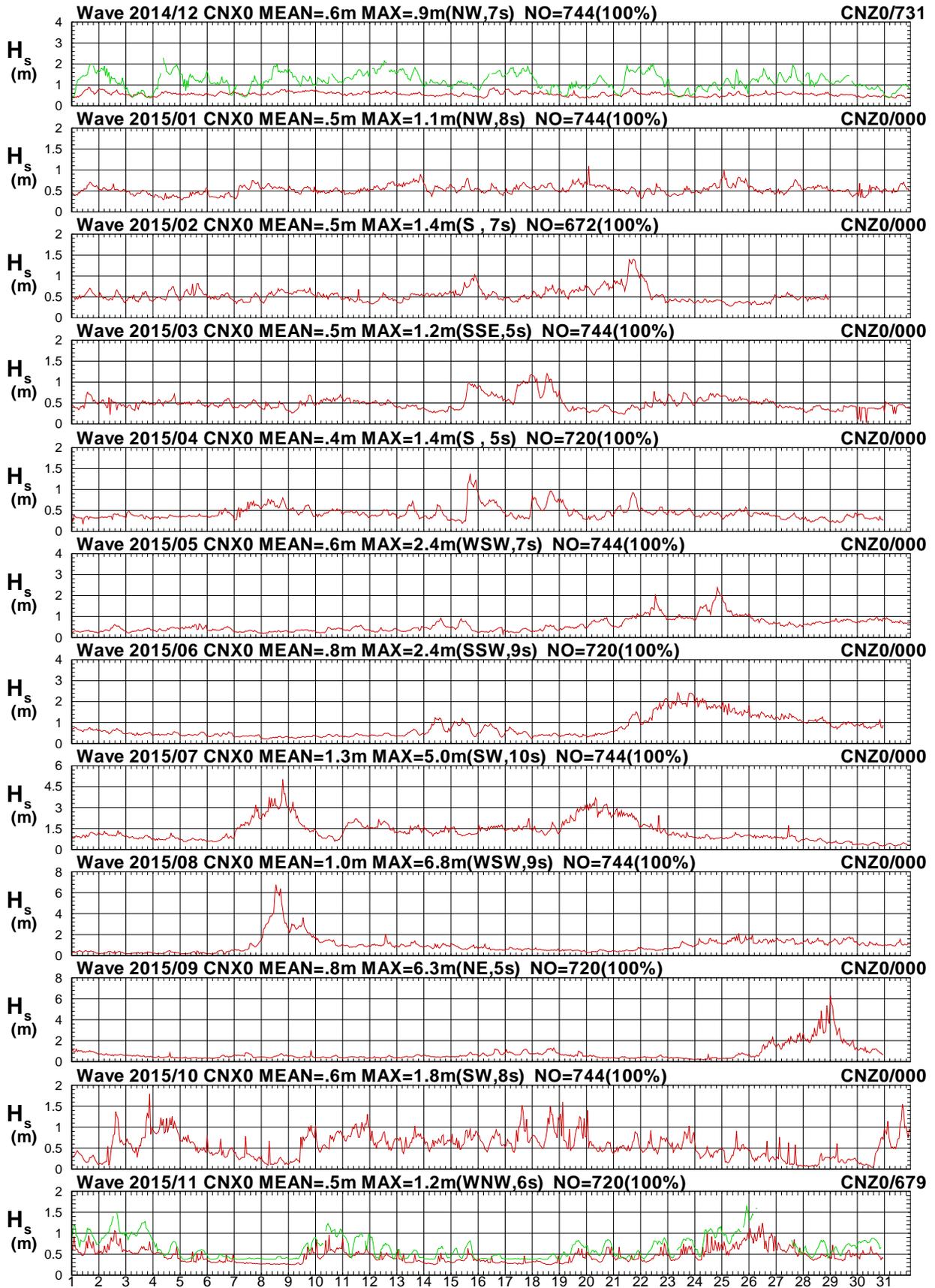


圖 2.3a 2015年每月嘉南海域 X 站與 Z 站波高比較圖

V14CCNX0.1HA V14CCNZ0.1H0 V151CNX0.1HA V151CNZ0.1H0 V152CNX0.1HA V152CNZ0.1H0
 V153CNX0.1HA V153CNZ0.1H0 V154CNX0.1HA V154CNZ0.1H0 V155CNX0.1HA V155CNZ0.1H0

Institute of Harbor & Marine Technology

Wave T_p in Chia-Nan Seas of CNX0 at 2015

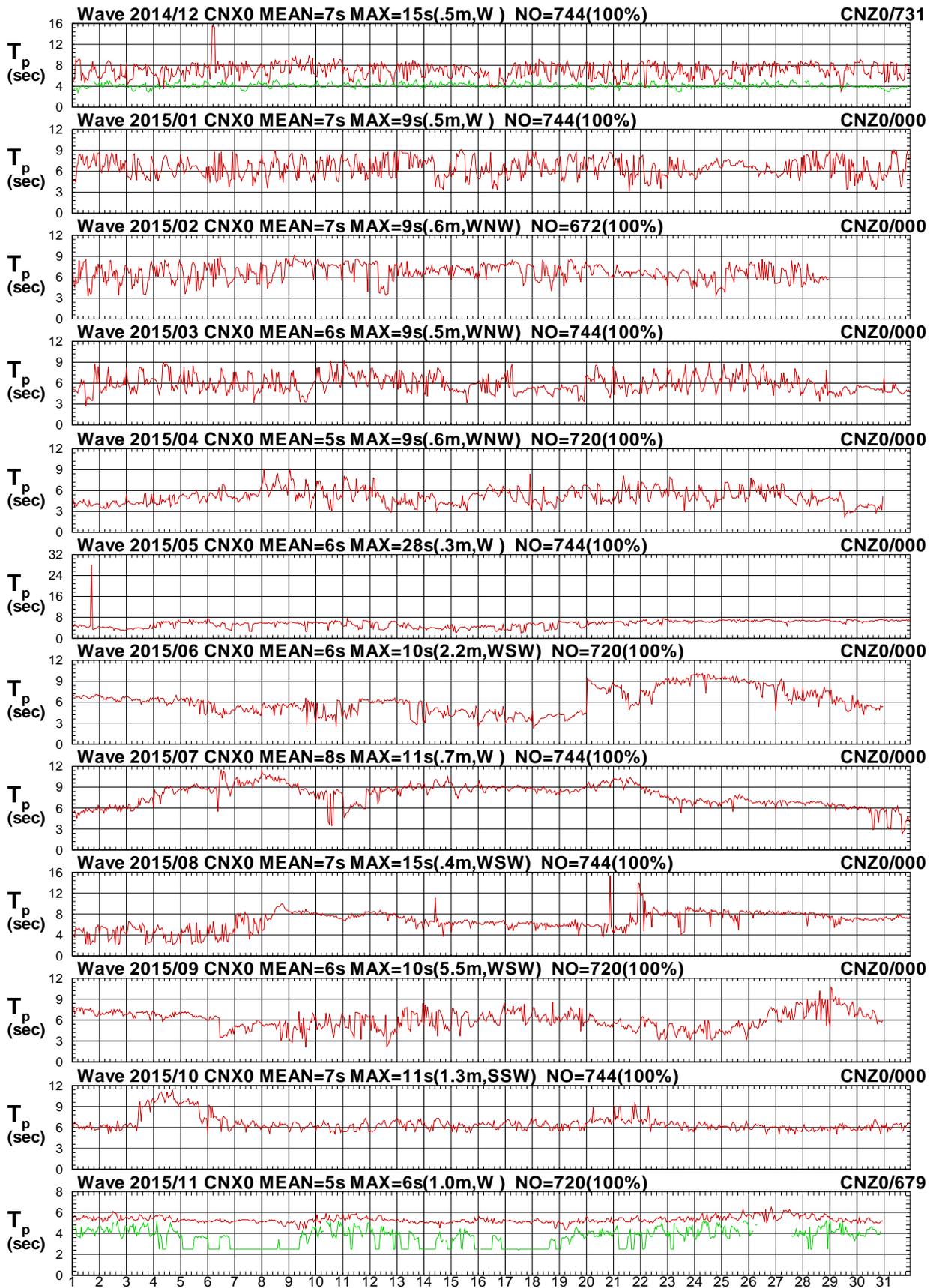


圖 2.3b 2015年每月嘉南海域 X 站與 Z 站週期比較圖

V14CCNX0.1HA V14CCNZ0.1H0 V151CNX0.1HA V151CNZO.1H0 V152CNX0.1HA V152CNZO.1H0
 V153CNX0.1HA V153CNZO.1H0 V154CNX0.1HA V154CNZO.1H0 V155CNX0.1HA V155CNZO.1H0

Institute of Harbor & Marine Technology

Wave Direction in Chia-Nan Seas of CNX0 at 2015

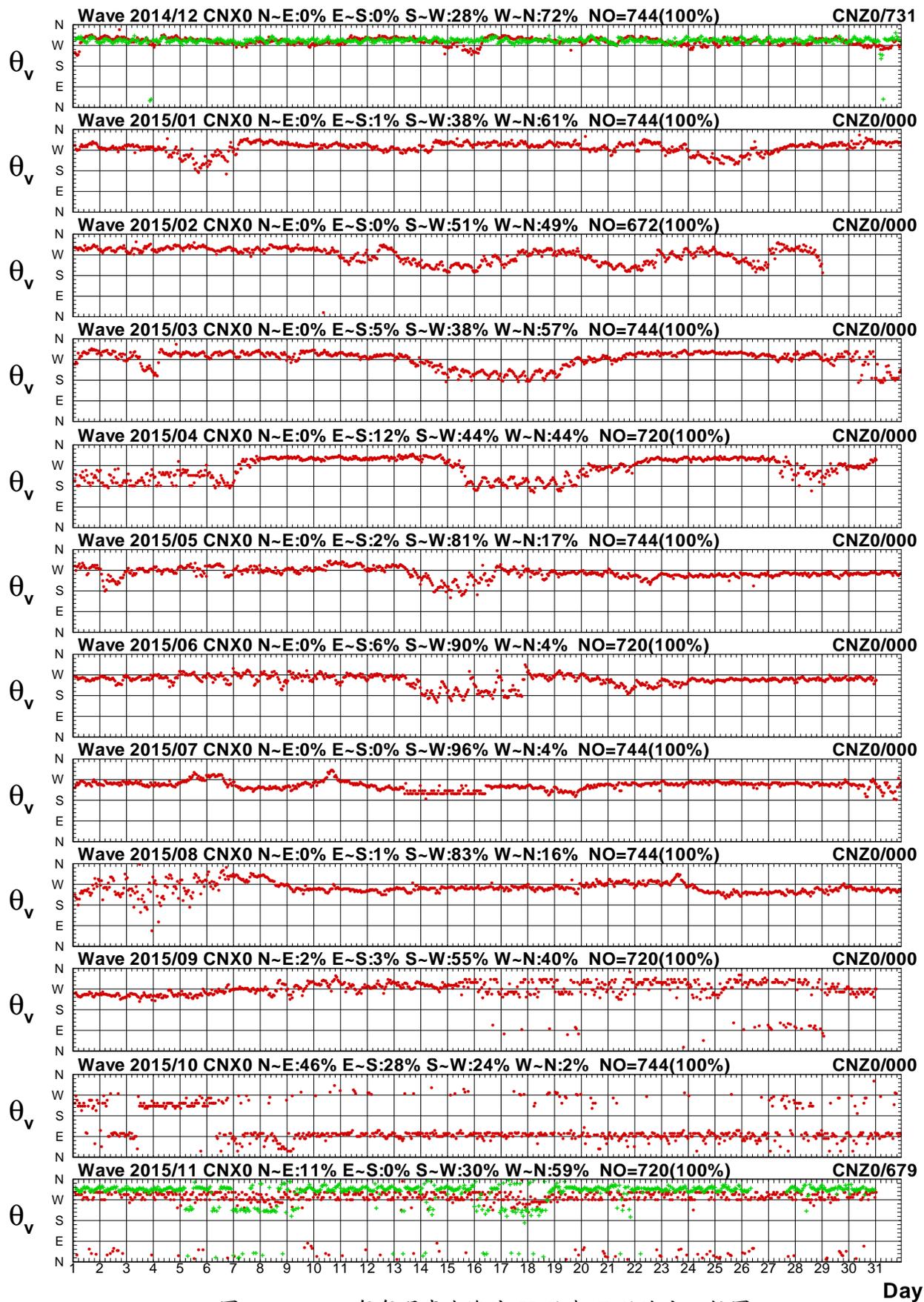


圖 2.3c 2015年每月嘉南海域 X 站與 Z 站波向比較圖

V14CCNX0.1HA V14CCNZ0.1H0 V151CNX0.1HA V151CNZ0.1H0 V152CNX0.1HA V152CNZ0.1H0
 V153CNX0.1HA V153CNZ0.1H0 V154CNX0.1HA V154CNZ0.1H0 V155CNX0.1HA V155CNZ0.1H0

Institute of Harbor & Marine Technology

Wave H_s in Chia-Nan Seas of CNX0 at 2015

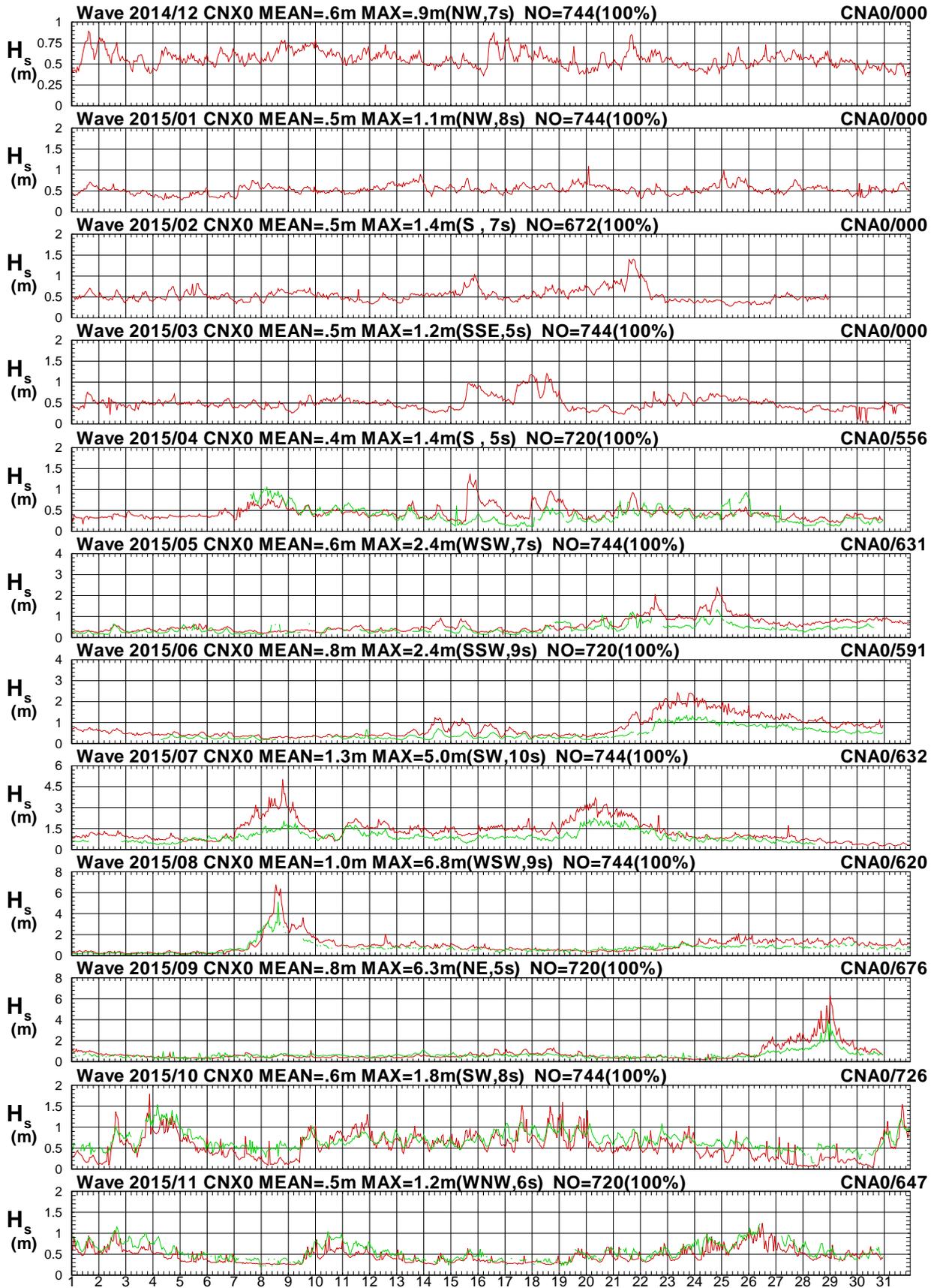


圖 2.4a 2015年每月嘉南海域 X 站與 A 站波高比較圖

V14CCNX0.1HA V14CCNA0.1H0 V151CNX0.1HA V151CNA0.1H0 V152CNX0.1HA V152CNA0.1H0
 V153CNX0.1HA V153CNA0.1H0 V154CNX0.1HA V154CNA0.1H0 V155CNX0.1HA V155CNA0.1H0

Institute of Harbor & Marine Technology

Wave T_p in Chia-Nan Seas of CNX0 at 2015

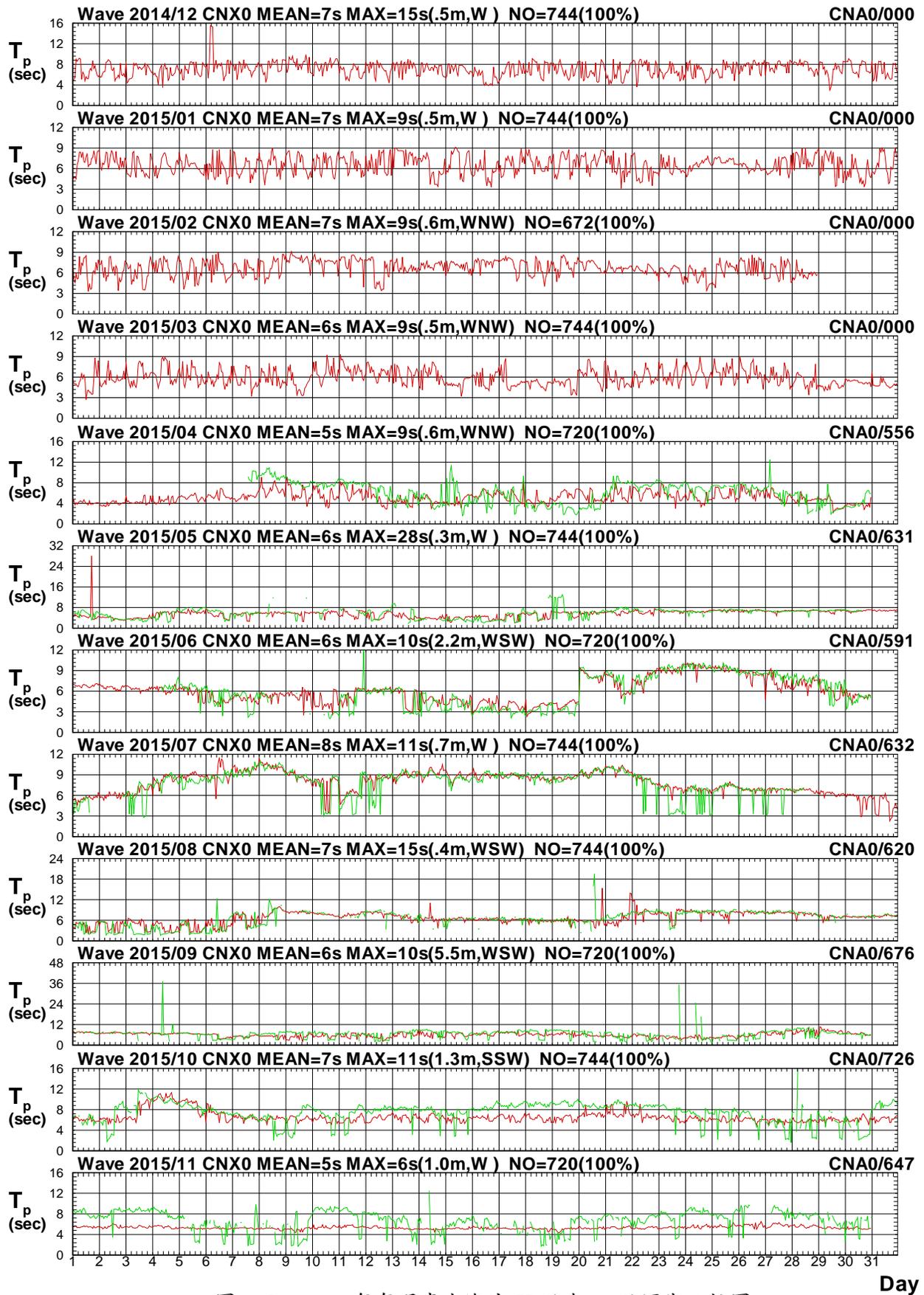


圖 2.4b 2015 年每月嘉南海域 X 站與 A 站週期比較圖

V14CCNX0.1HA V14CCNA0.1H0 V151CNX0.1HA V151CNA0.1H0 V152CNX0.1HA V152CNA0.1H0
 V153CNX0.1HA V153CNA0.1H0 V154CNX0.1HA V154CNA0.1H0 V155CNX0.1HA V155CNA0.1H0

Institute of Harbor & Marine Technology

Wave Direction in Chia-Nan Seas of CNX0 at 2015

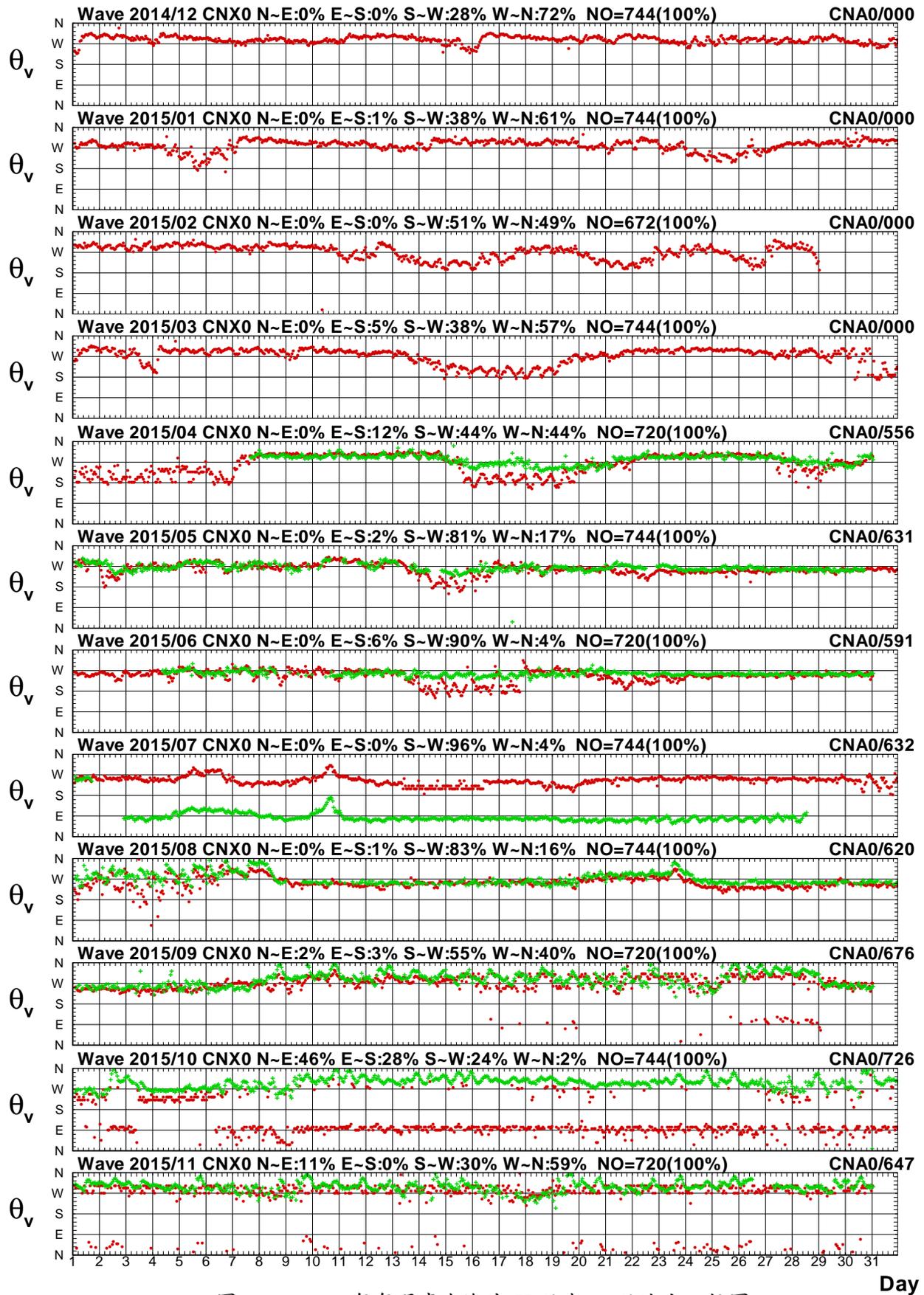


圖 2.4c 2015年每月嘉南海域 X 站與 A 站波向比較圖

V14CCNX0.1HA V14CCNA0.1H0 V151CNX0.1HA V151CNA0.1H0 V152CNX0.1HA V152CNA0.1H0
 V153CNX0.1HA V153CNA0.1H0 V154CNX0.1HA V154CNA0.1H0 V155CNX0.1HA V155CNA0.1H0

Institute of Harbor & Marine Technology

Wave H_s in Chia-Nan Seas of CNX0 at 2015

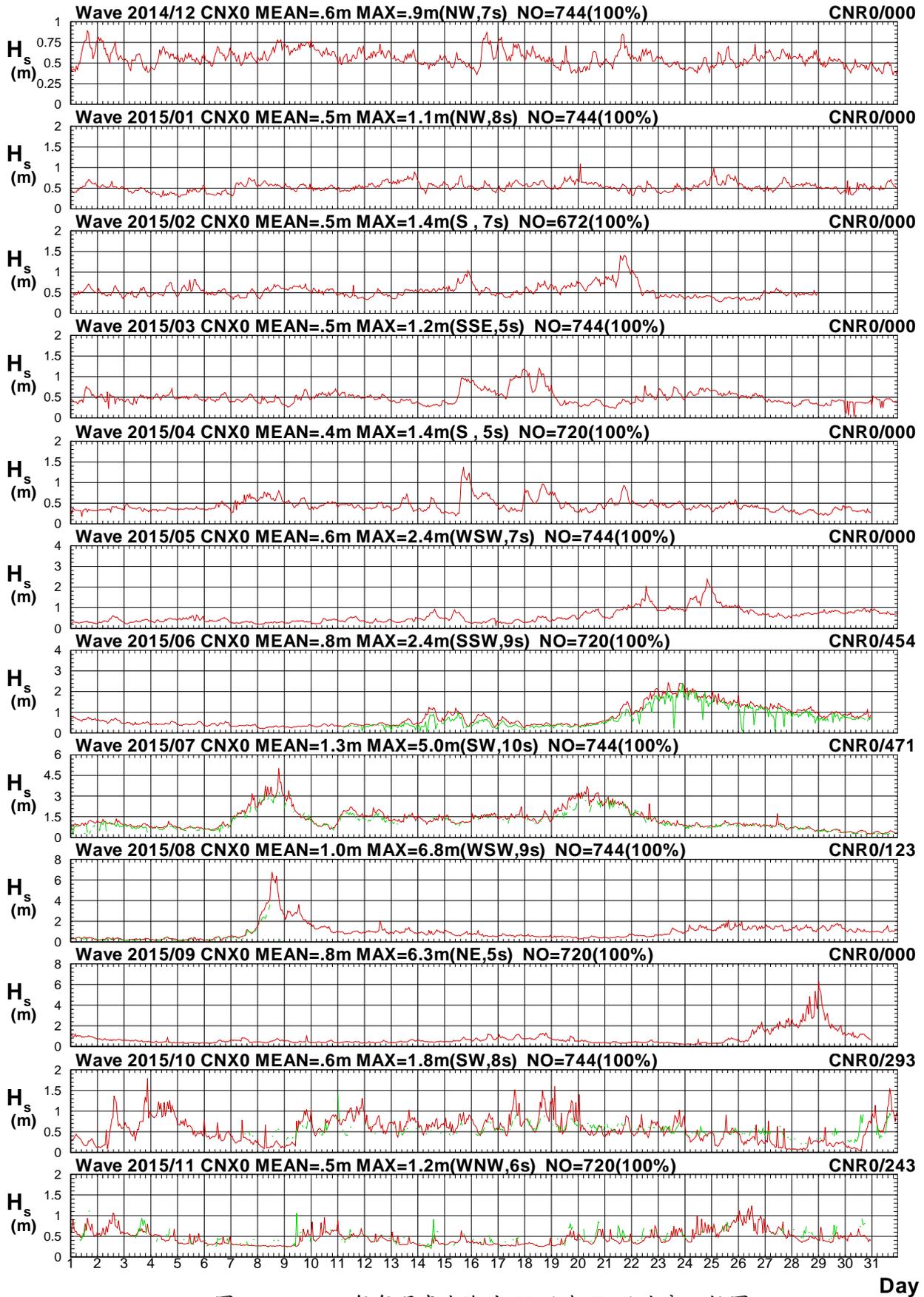


圖 2.5a 2015年每月嘉南海域 X 站與 R 站波高比較圖

V14CCNX0.1HA V14CCNR0.1H0 V151CNX0.1HA V151CNR0.1H0 V152CNX0.1HA V152CNR0.1H0
 V153CNX0.1HA V153CNR0.1H0 V154CNX0.1HA V154CNR0.1H0 V155CNX0.1HA V155CNR0.1H0

Institute of Harbor & Marine Technology

Wave T_p in Chia-Nan Seas of CNX0 at 2015

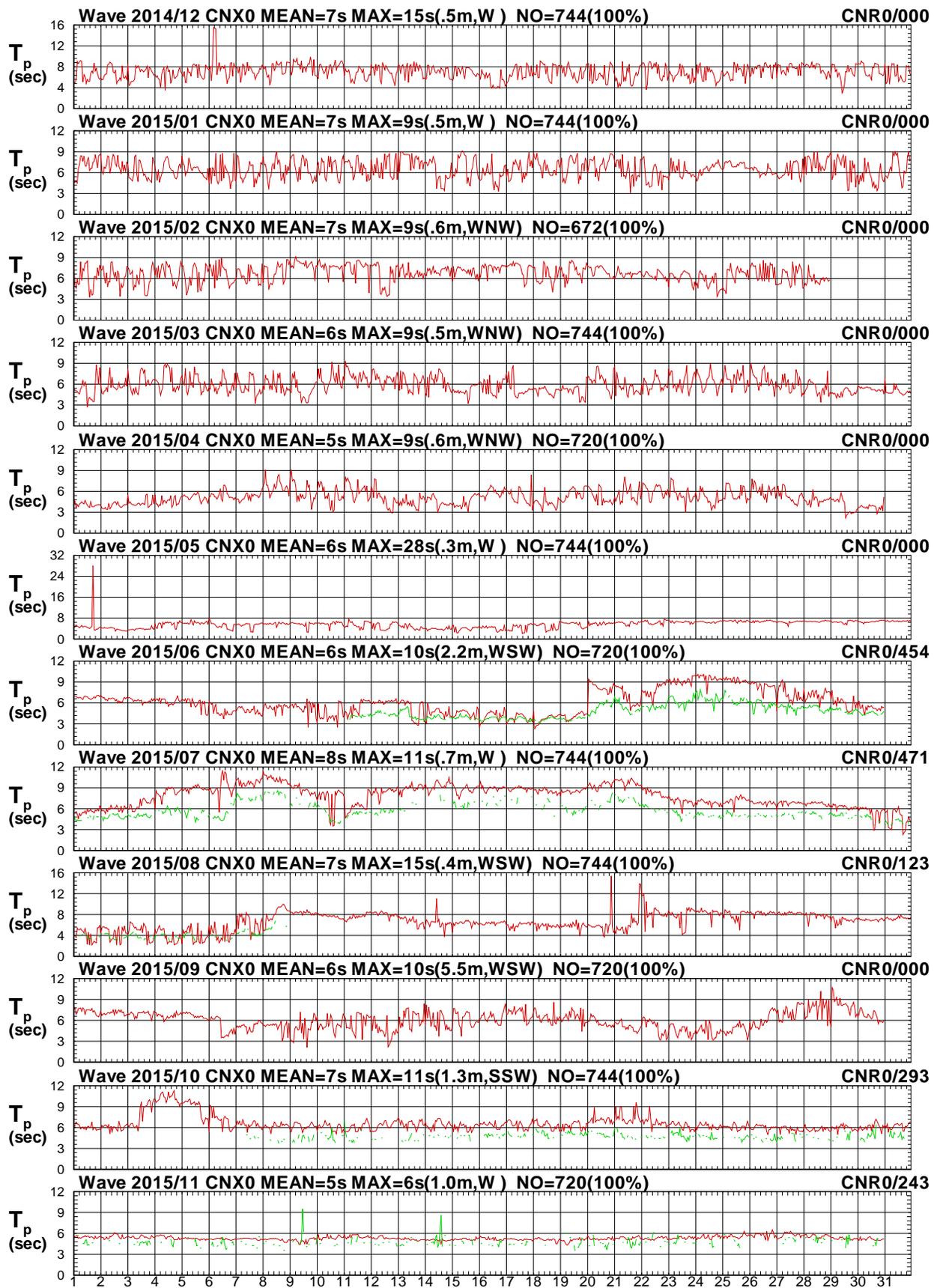


圖 2.5b 2015年每月嘉南海域 X 站與 R 站週期比較圖

V14CCNX0.1HA V14CCNR0.1H0 V151CNX0.1HA V151CNR0.1H0 V152CNX0.1HA V152CNR0.1H0
 V153CNX0.1HA V153CNR0.1H0 V154CNX0.1HA V154CNR0.1H0 V155CNX0.1HA V155CNR0.1H0

Institute of Harbor & Marine Technology

Wave Direction in Chia-Nan Seas of CNX0 at 2015

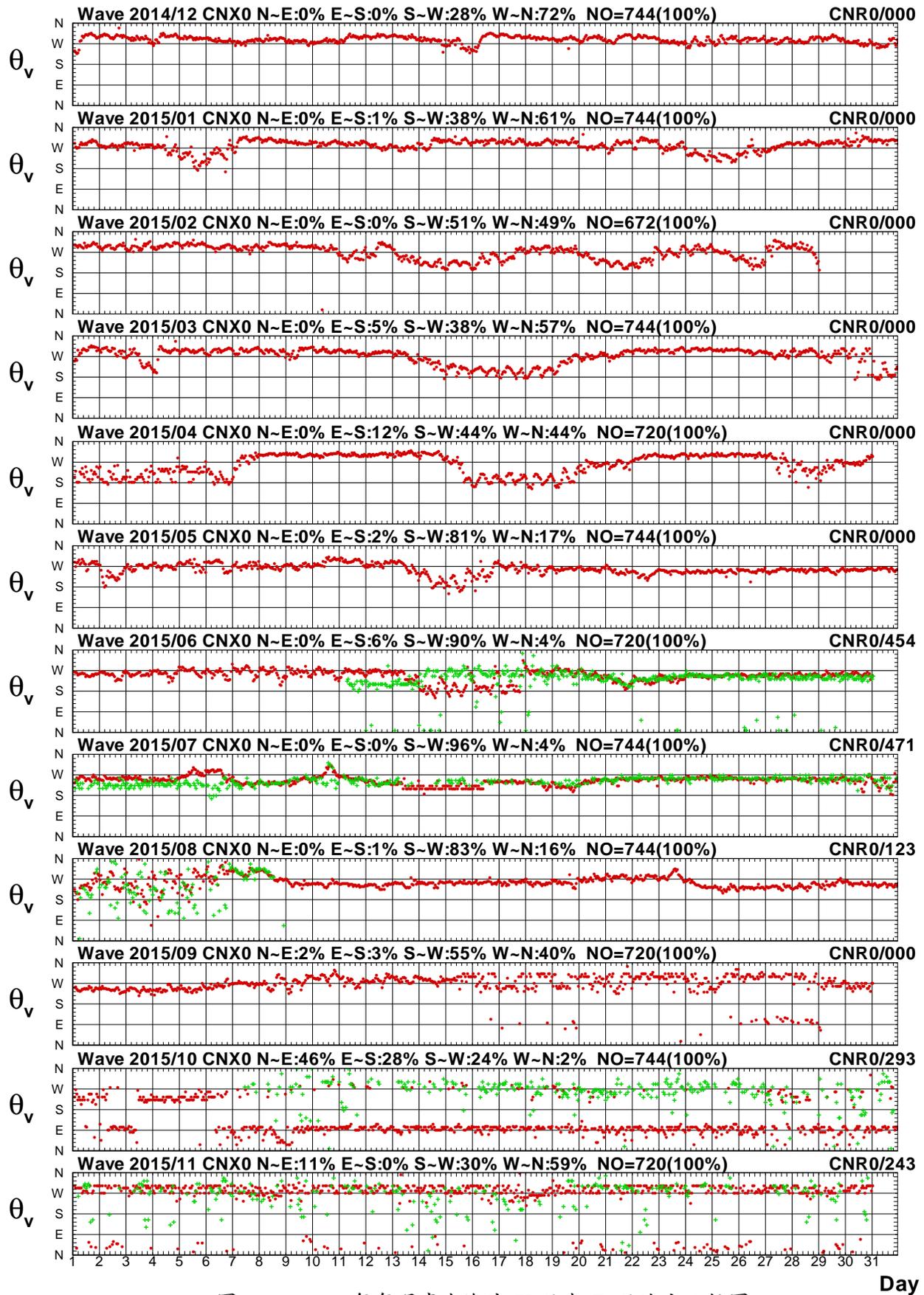


圖 2.5c 2015年每月嘉南海域 X 站與 R 站波向比較圖

V14CCNX0.1HA V14CCNR0.1H0 V151CNX0.1HA V151CNR0.1H0 V152CNX0.1HA V152CNR0.1H0
 V153CNX0.1HA V153CNR0.1H0 V154CNX0.1HA V154CNR0.1H0 V155CNX0.1HA V155CNR0.1H0

Institute of Harbor & Marine Technology

Wave H_s in Chia-Nan Seas of CNX0 at 2015

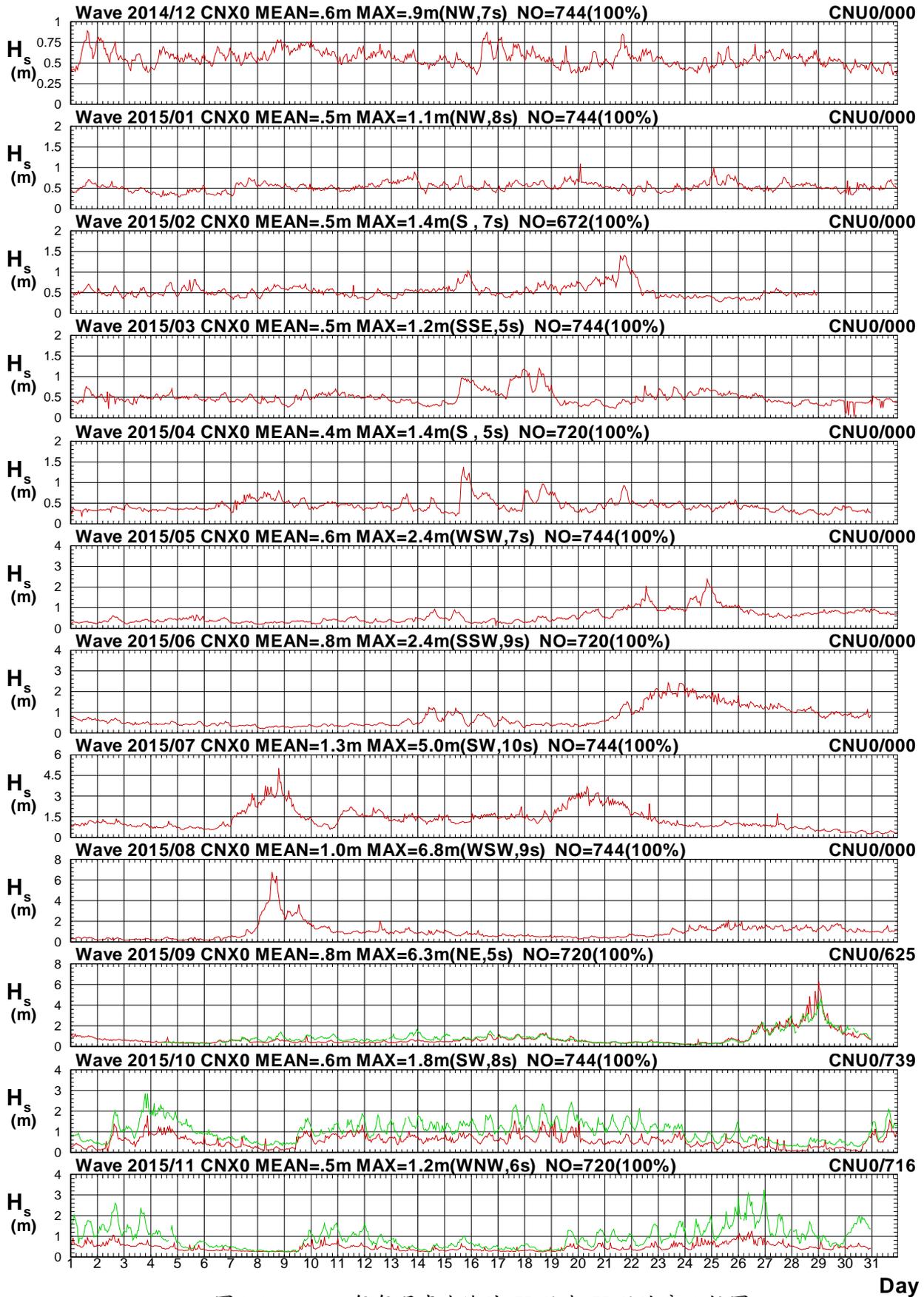


圖 2.6a 2015年每月嘉南海域 X 站與 U 站波高比較圖

V14CCNX0.1HA V14CCNU0.1H0 V151CNX0.1HA V151CNU0.1H0 V152CNX0.1HA V152CNU0.1H0
 V153CNX0.1HA V153CNU0.1H0 V154CNX0.1HA V154CNU0.1H0 V155CNX0.1HA V155CNU0.1H0

Institute of Harbor & Marine Technology

Wave T_p in Chia-Nan Seas of CNX0 at 2015

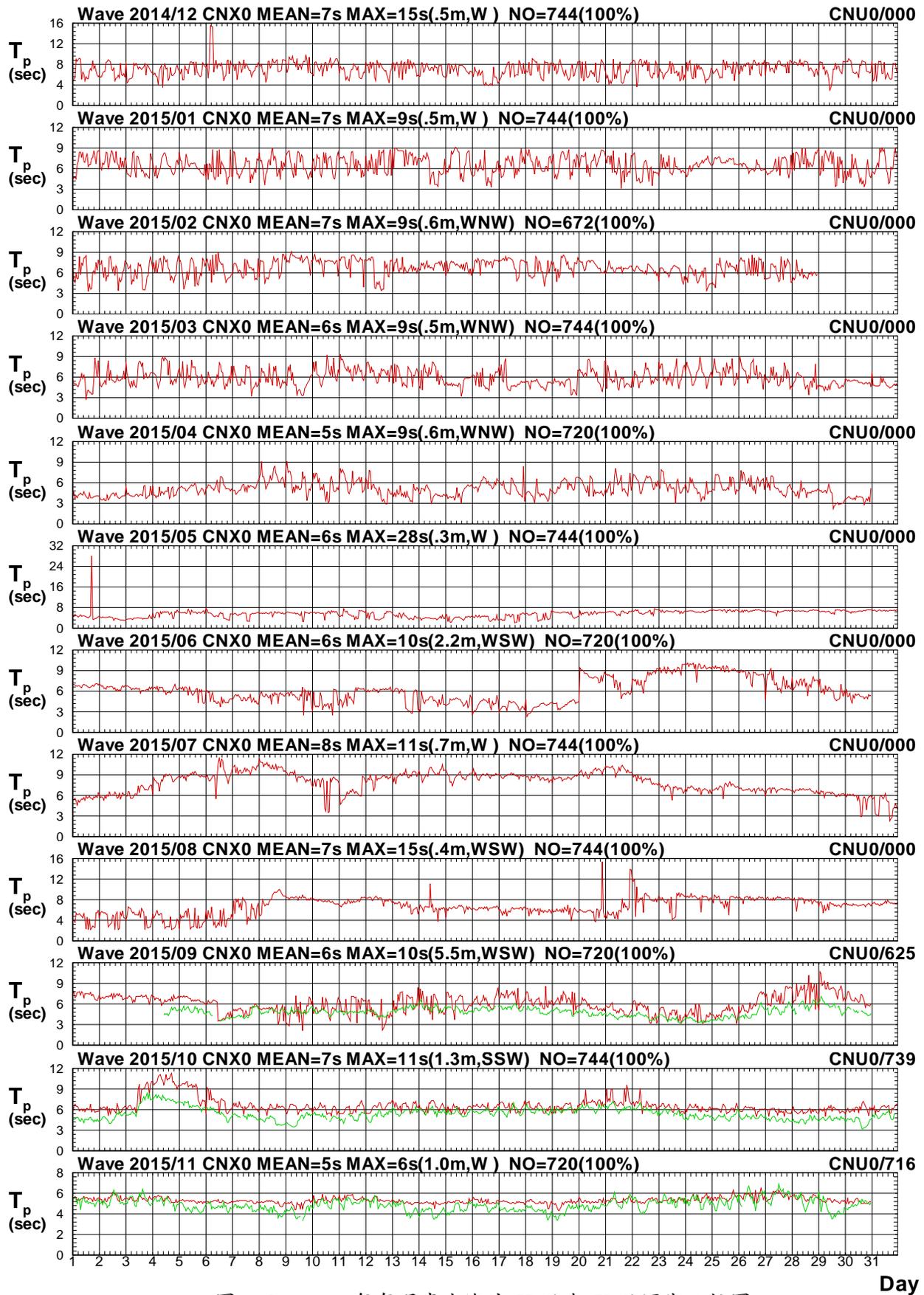


圖 2.6b 2015年每月嘉南海域 X 站與 U 站週期比較圖

V14CCNX0.1HA V14CCNU0.1H0 V151CNX0.1HA V151CNU0.1H0 V152CNX0.1HA V152CNU0.1H0
 V153CNX0.1HA V153CNU0.1H0 V154CNX0.1HA V154CNU0.1H0 V155CNX0.1HA V155CNU0.1H0

Institute of Harbor & Marine Technology

Wave Direction in Chia-Nan Seas of CNX0 at 2015

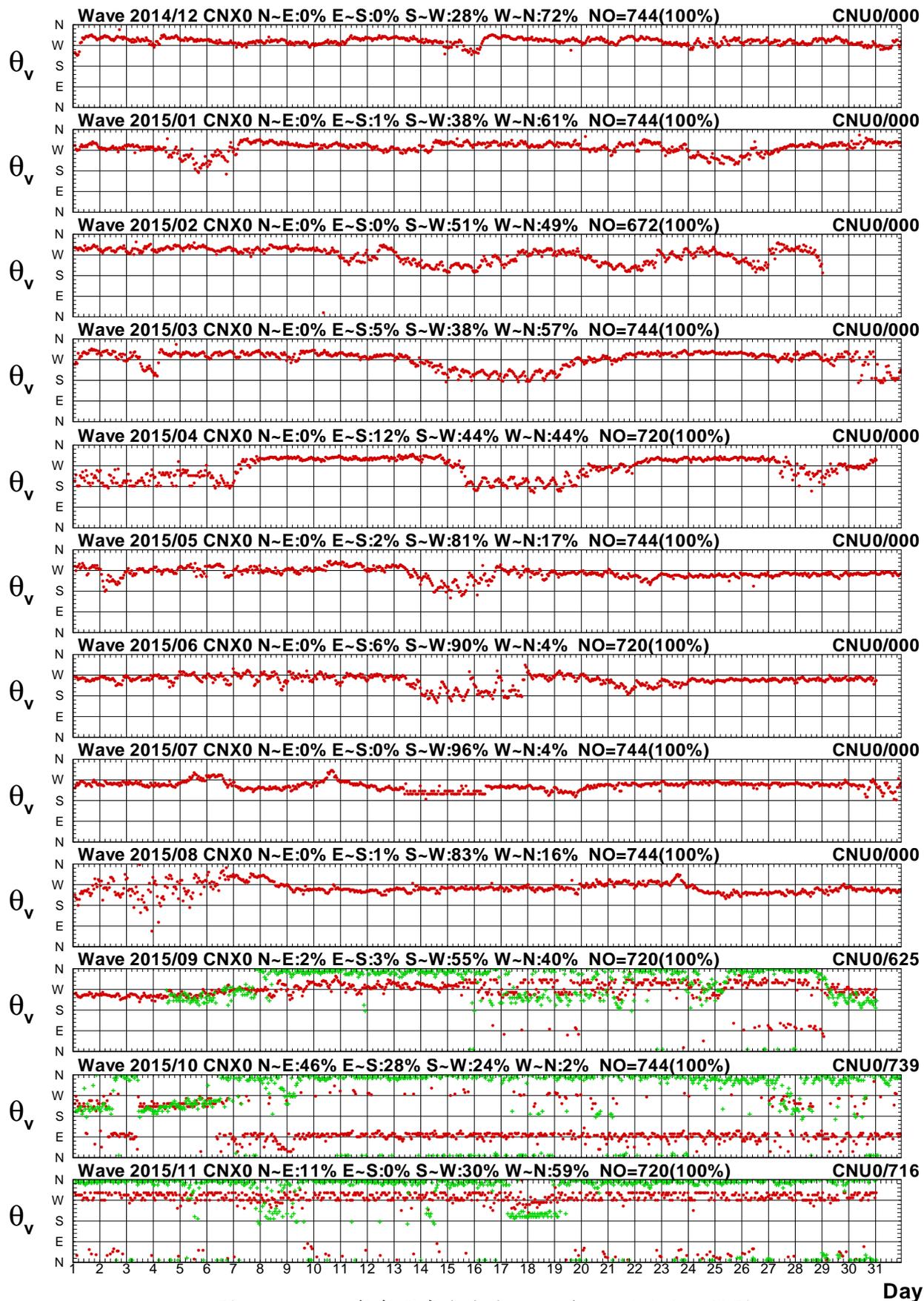


圖 2.6c 2015年每月嘉南海域 X 站與 U 站波向比較圖

V14CCNX0.1HA V14CCNU0.1H0 V151CNX0.1HA V151CNU0.1H0 V152CNX0.1HA V152CNU0.1H0
 V153CNX0.1HA V153CNU0.1H0 V154CNX0.1HA V154CNU0.1H0 V155CNX0.1HA V155CNU0.1H0

Institute of Harbor & Marine Technology

Wave H_s in Chia-Nan Seas of CNX0 at 2015

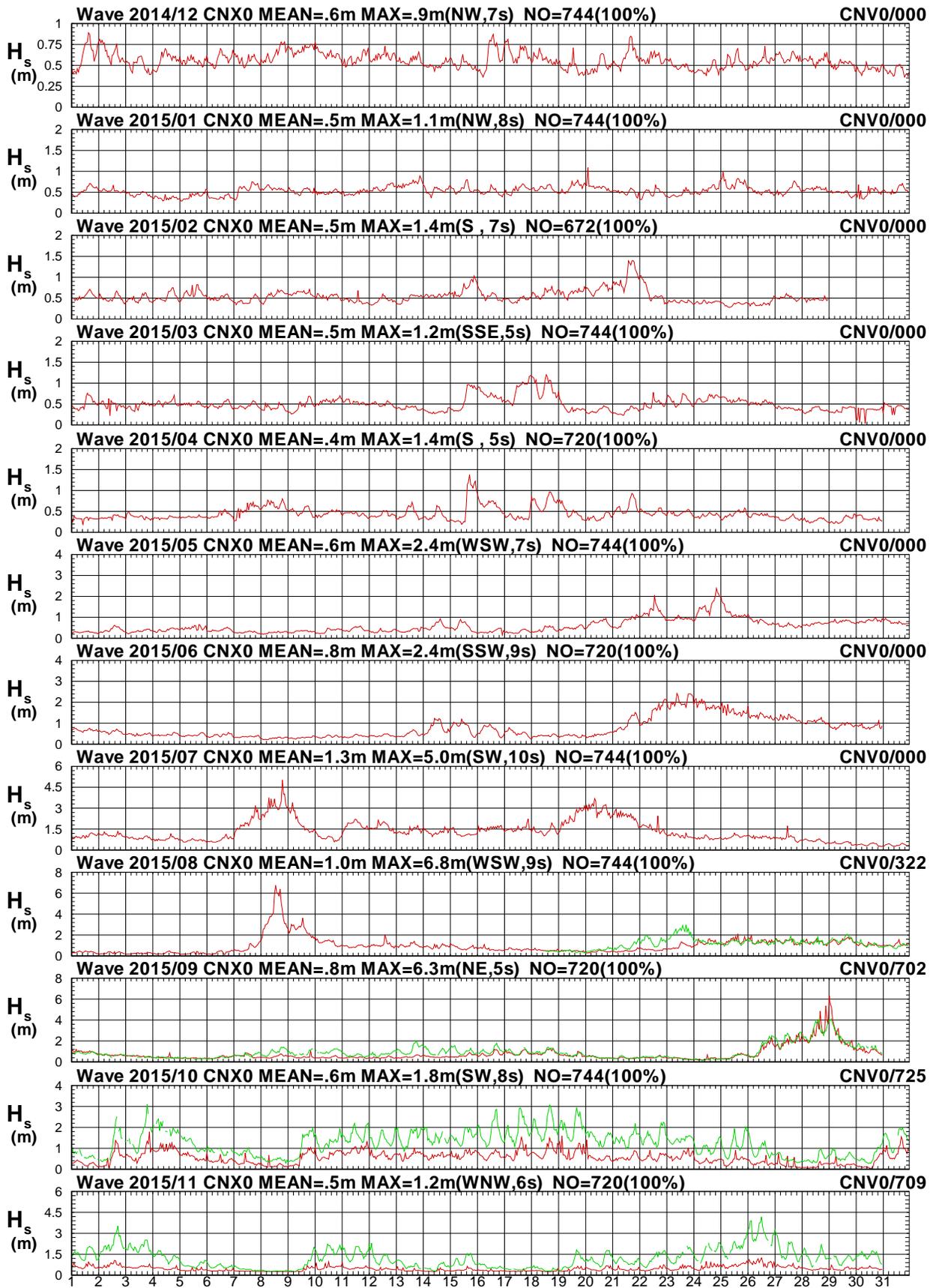


圖 2.7a 2015年每月嘉南海域 X 站與 V 站波高比較圖

V14CCNX0.1HA V14CCNV0.1H0 V151CNX0.1HA V151CNV0.1H0 V152CNX0.1HA V152CNV0.1H0
 V153CNX0.1HA V153CNV0.1H0 V154CNX0.1HA V154CNV0.1H0 V155CNX0.1HA V155CNV0.1H0

Institute of Harbor & Marine Technology

Wave T_p in Chia-Nan Seas of CNX0 at 2015

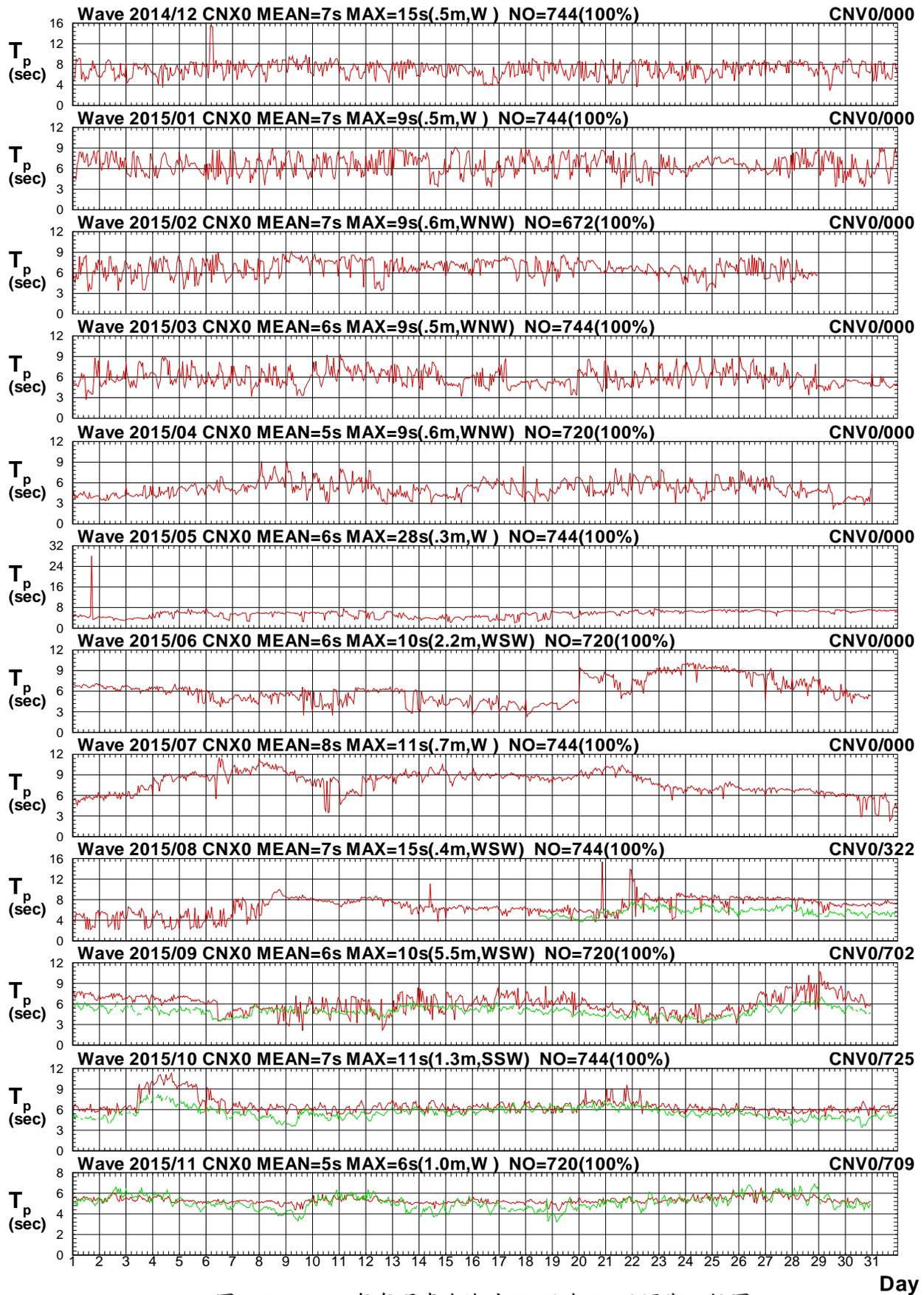


圖 2.7b 2015年每月嘉南海域 X 站與 V 站週期比較圖

Day

V14CCNX0.1HA V14CCNV0.1H0 V151CNX0.1HA V151CNV0.1H0 V152CNX0.1HA V152CNV0.1H0
 V153CNX0.1HA V153CNV0.1H0 V154CNX0.1HA V154CNV0.1H0 V155CNX0.1HA V155CNV0.1H0

Institute of Harbor & Marine Technology

Wave Direction in Chia-Nan Seas of CNX0 at 2015

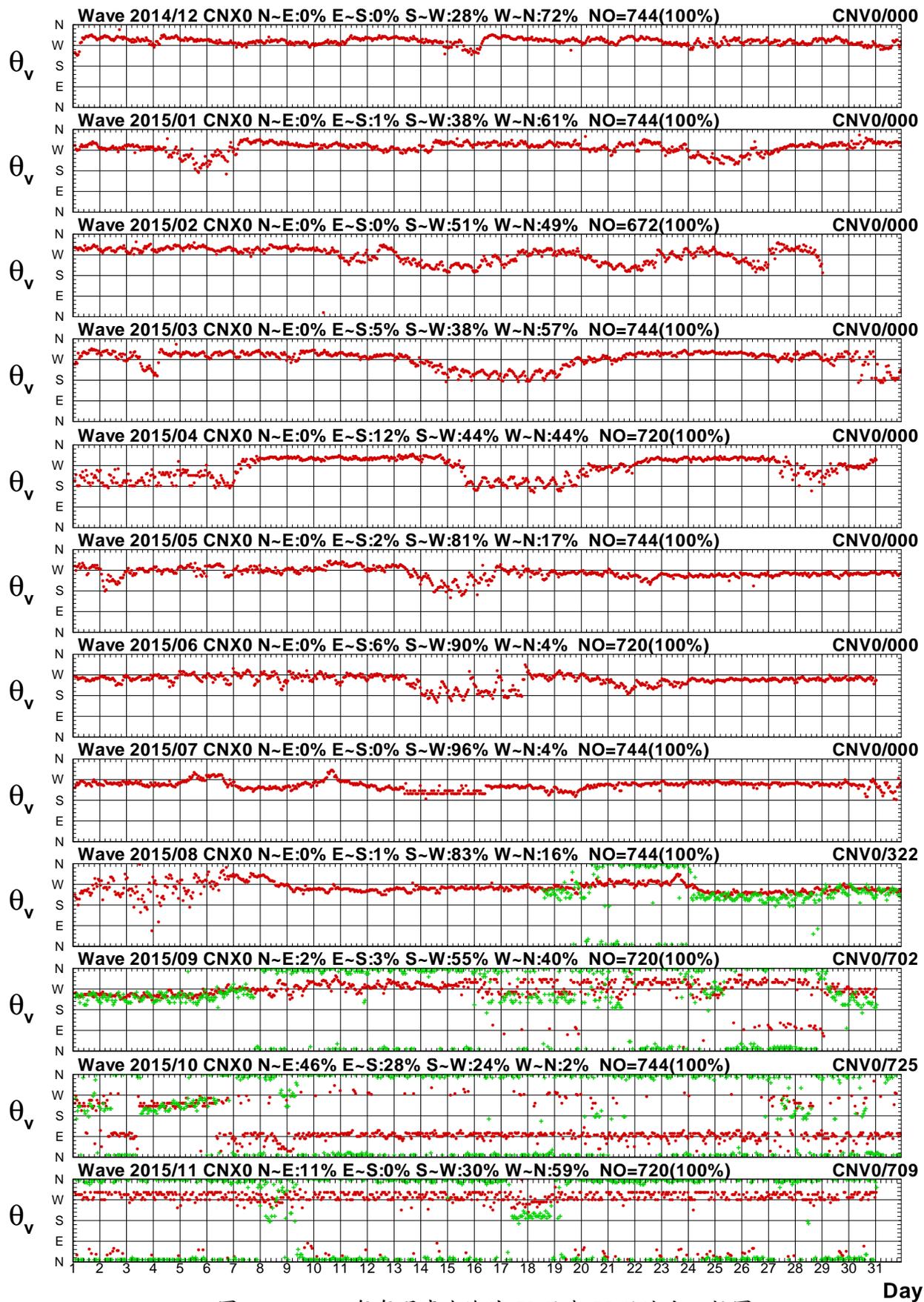


圖 2.7c 2015年每月嘉南海域 X 站與 V 站波向比較圖

V14CCNX0.1HA V14CCNV0.1H0 V151CNX0.1HA V151CNV0.1H0 V152CNX0.1HA V152CNV0.1H0
 V153CNX0.1HA V153CNV0.1H0 V154CNX0.1HA V154CNV0.1H0 V155CNX0.1HA V155CNV0.1H0

Institute of Harbor & Marine Technology

Wave H_s in Chia-Nan Seas of CNX0 at 2015

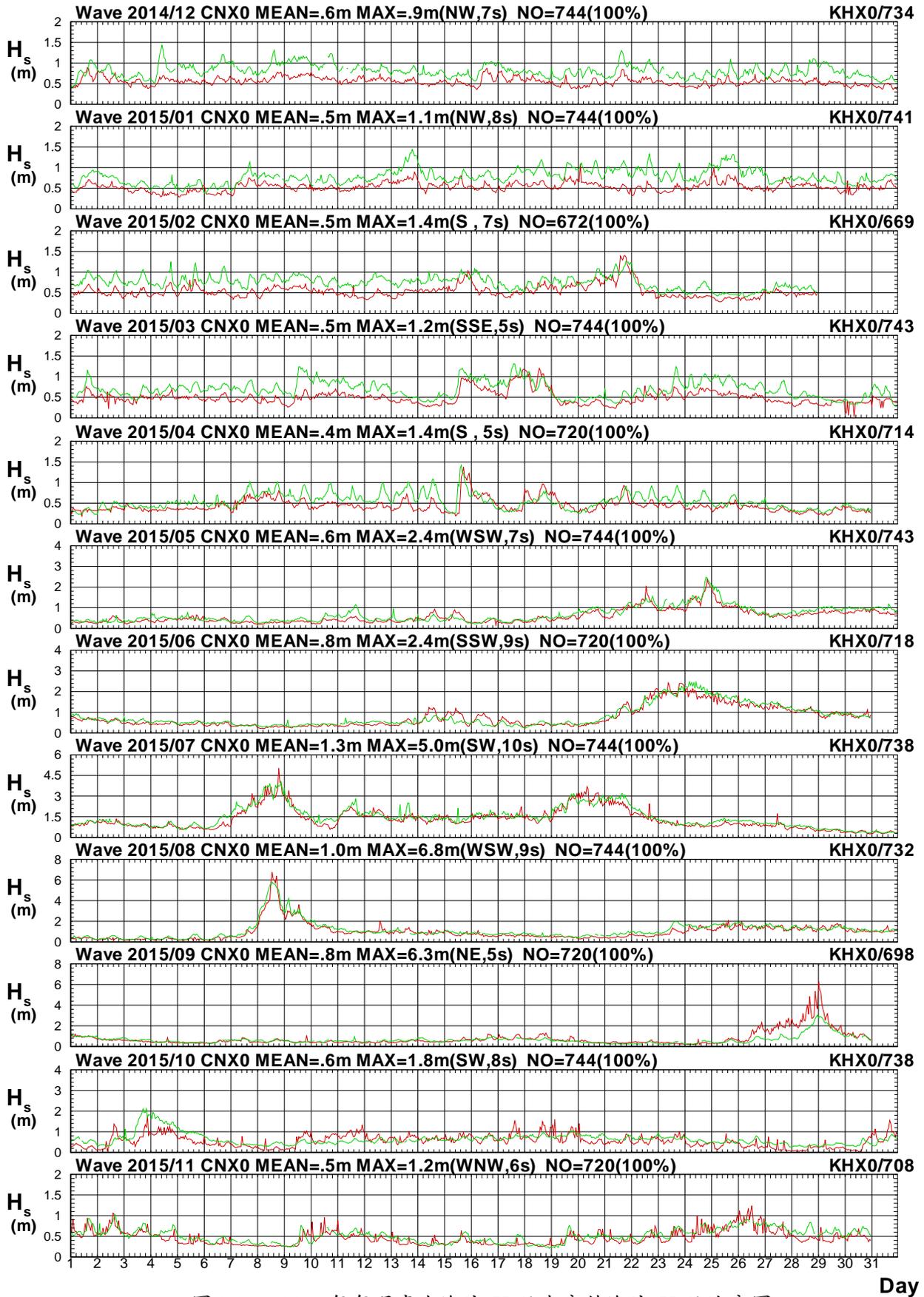


圖 2.8a 2015年每月嘉南海域 X 站與高雄海域 X 站波高圖

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

Institute of Harbor & Marine Technology

Wave T_p in Chia-Nan Seas of CNX0 at 2015

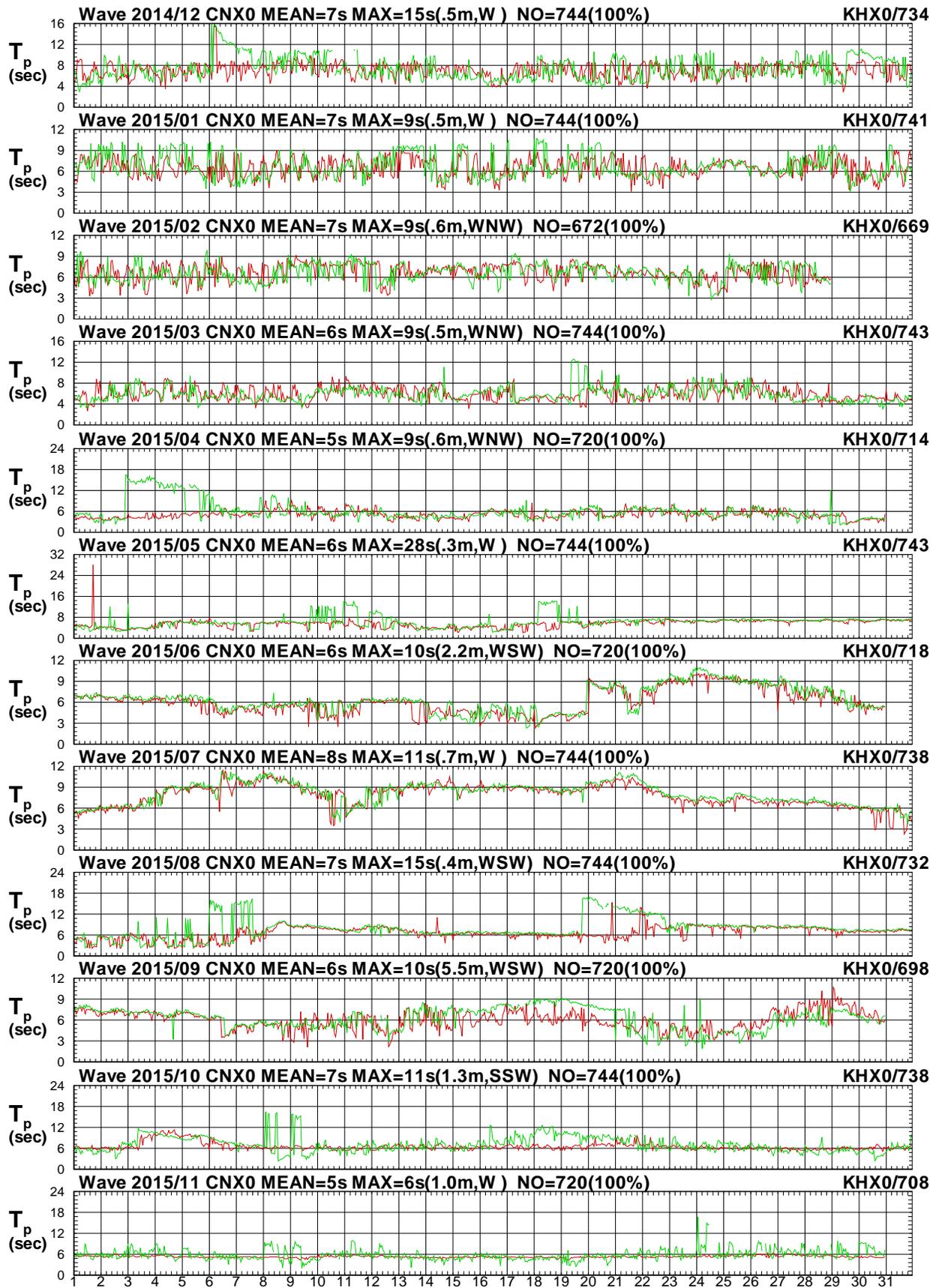


圖 2.8b 2015年每月嘉南海域 X 站與高雄海域 X 站週期圖

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

Institute of Harbor & Marine Technology

Wave Direction in Chia-Nan Seas of CNX0 at 2015

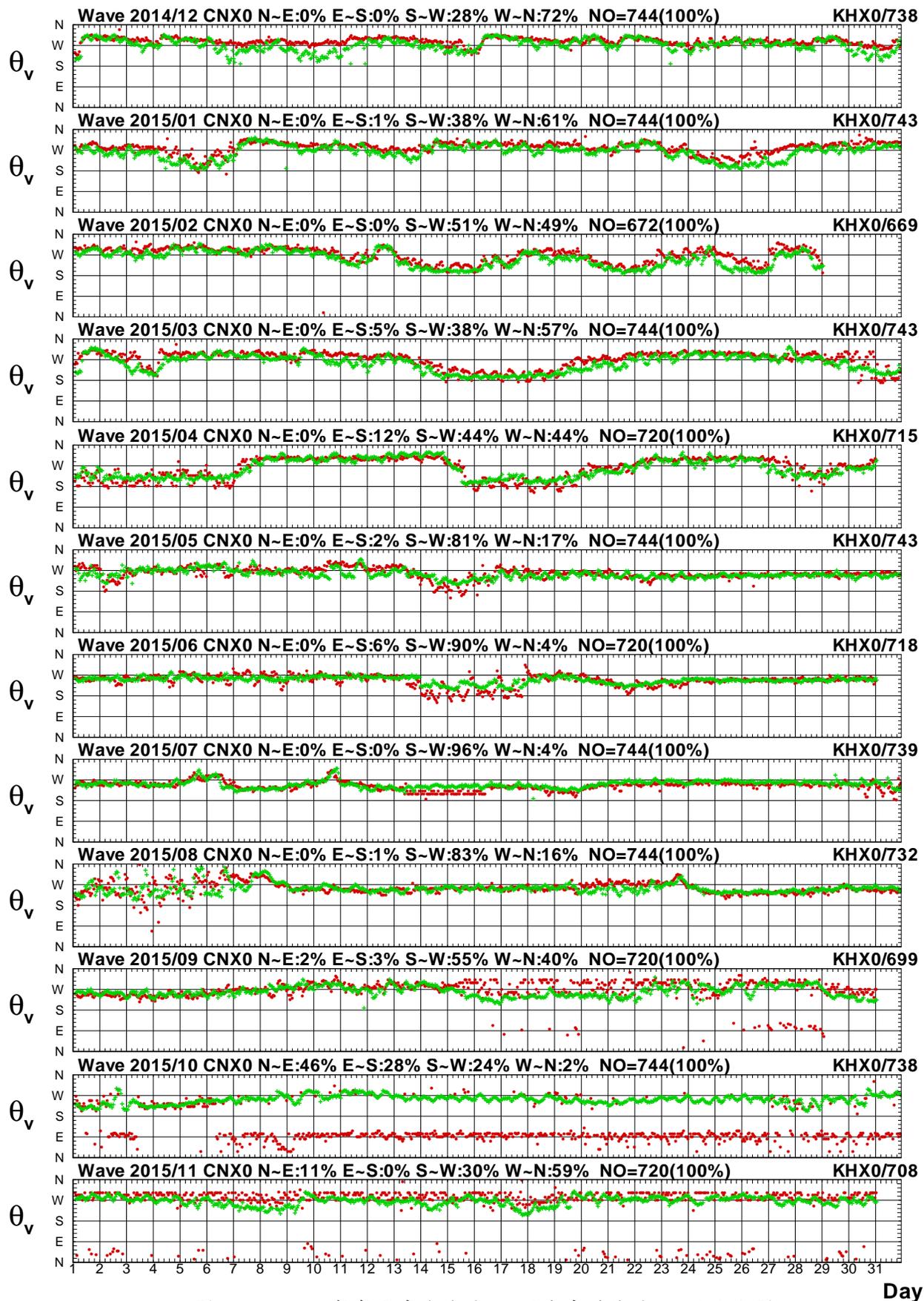


圖 2.8c 2015年每月嘉南海域 X 站與高雄海域 X 站波向圖

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

Institute of Harbor & Marine Technology

Wave H_s in Chia-Nan Seas of CNX0 at 2015

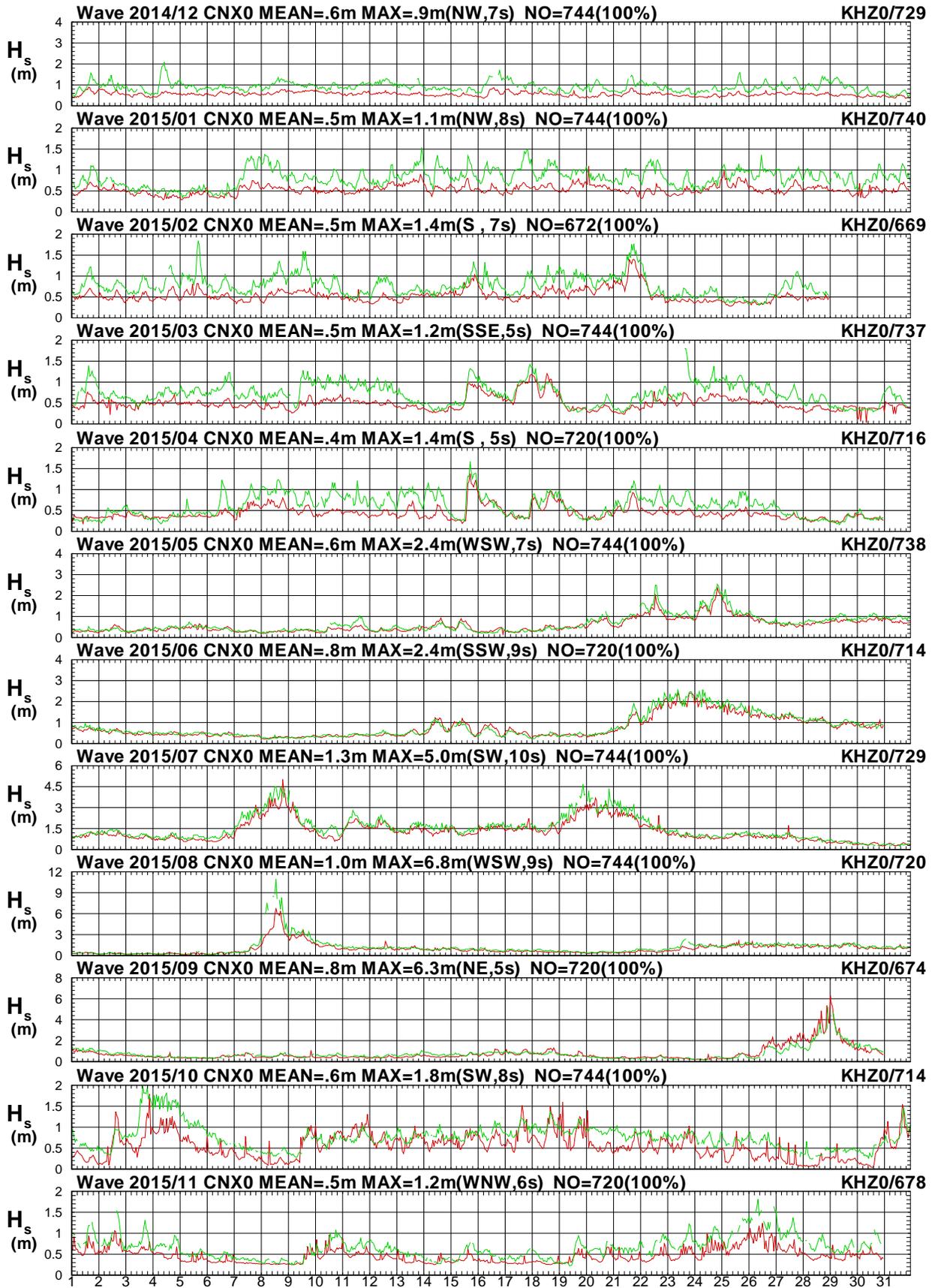


圖 2.9a 2015年每月嘉南海域 X 站與高雄海域 Z 站波高圖

V14CCNX0.1HA V14CKHZ0.1H0 V151CNX0.1HA V151KHZ0.1H0 V152CNX0.1HA V152KHZ0.1H0
 V153CNX0.1HA V153KHZ0.1H0 V154CNX0.1HA V154KHZ0.1H0 V155CNX0.1HA V155KHZ0.1H0

Institute of Harbor & Marine Technology

Wave T_p in Chia-Nan Seas of CNX0 at 2015

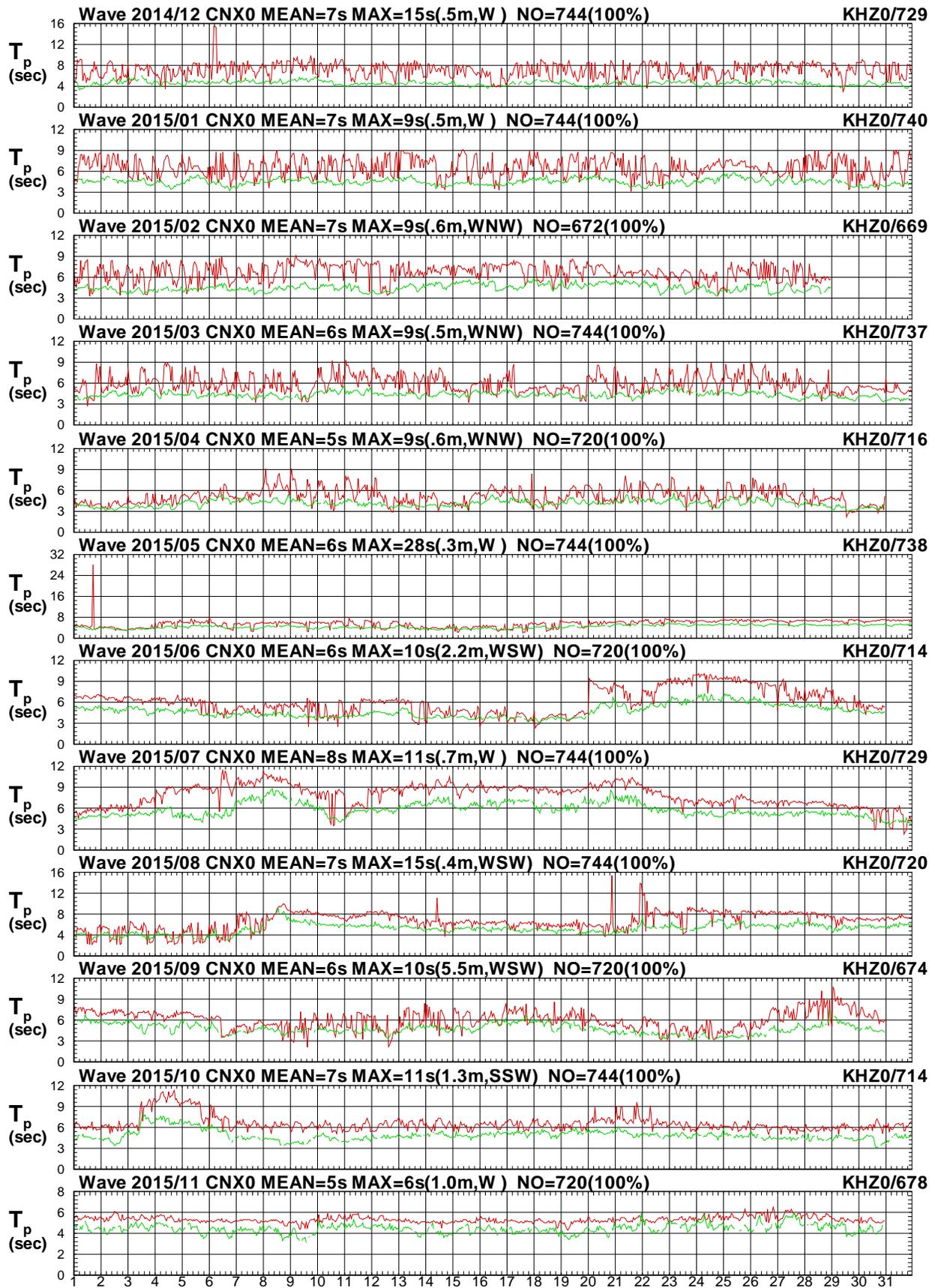


圖 2.9b 2015年每月嘉南海域 X 站與高雄海域 Z 站週期圖

V14CCNX0.1HA V14CKHZ0.1H0 V151CNX0.1HA V151KHZ0.1H0 V152CNX0.1HA V152KHZ0.1H0
 V153CNX0.1HA V153KHZ0.1H0 V154CNX0.1HA V154KHZ0.1H0 V155CNX0.1HA V155KHZ0.1H0

Institute of Harbor & Marine Technology

Wave Direction in Chia-Nan Seas of CNX0 at 2015

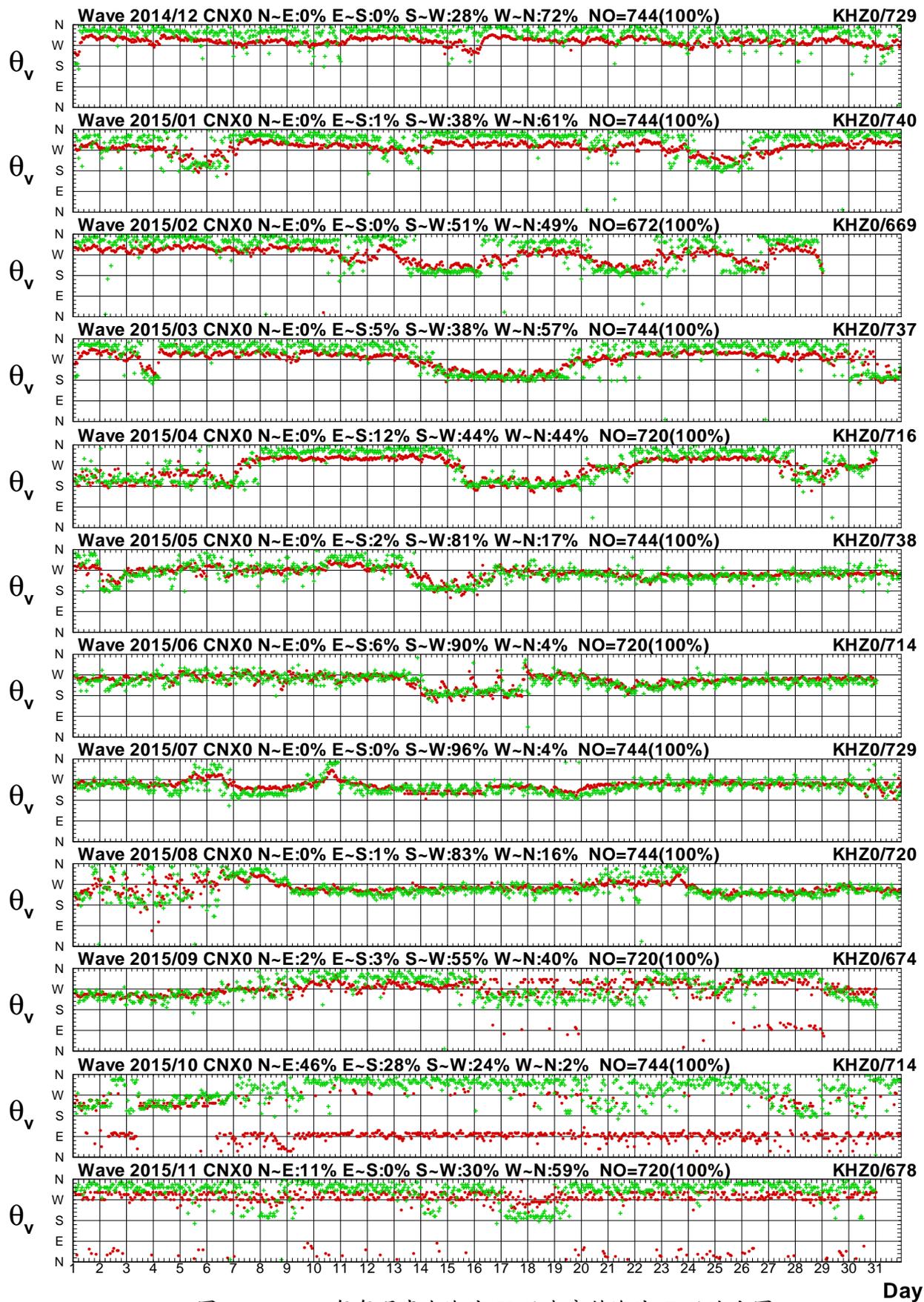


圖 2.9c 2015年每月嘉南海域 X 站與高雄海域 Z 站波向圖

V14CCNX0.1HA V14CKHZ0.1H0 V151CNX0.1HA V151KHZ0.1H0 V152CNX0.1HA V152KHZ0.1H0
 V153CNX0.1HA V153KHZ0.1H0 V154CNX0.1HA V154KHZ0.1H0 V155CNX0.1HA V155KHZ0.1H0

Institute of Harbor & Marine Technology

Wave H_s in Chia-Nan Seas of CNX0 at 2015

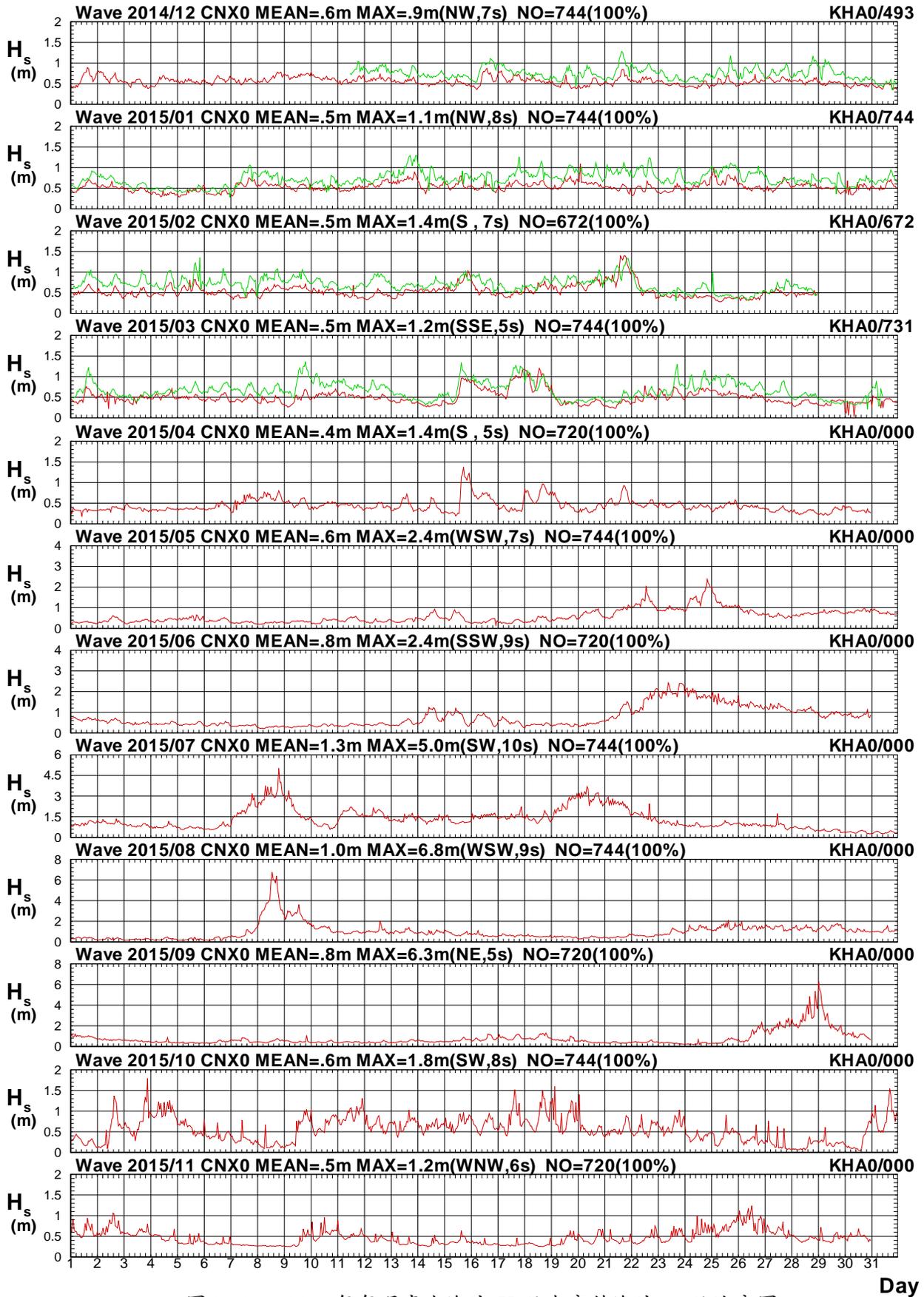


圖 2.10a 2015年每月嘉南海域 X 站與高雄海域 A 站波高圖

V14CCNX0.1HA V14CKHA0.1H0 V151CNX0.1HA V151KHA0.1H0 V152CNX0.1HA V152KHA0.1H0
 V153CNX0.1HA V153KHA0.1H0 V154CNX0.1HA V154KHA0.1H0 V155CNX0.1HA V155KHA0.1H0

Institute of Harbor & Marine Technology

Wave T_p in Chia-Nan Seas of CNX0 at 2015

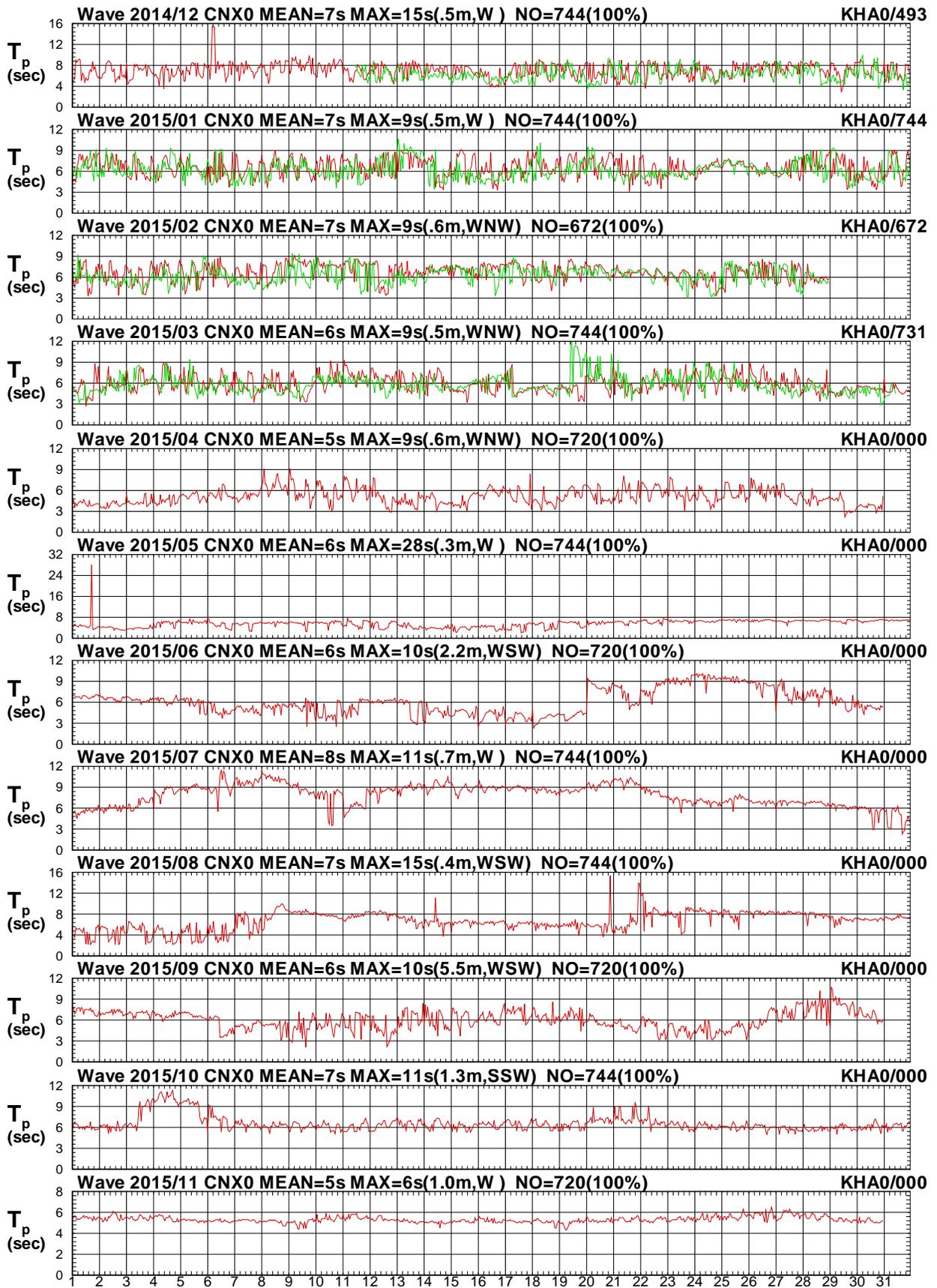


圖 2.10b 2015年每月嘉南海域 X 站與高雄海域 A 站週期圖

V14CCNX0.1HA V14CKHA0.1H0 V151CNX0.1HA V151KHA0.1H0 V152CNX0.1HA V152KHA0.1H0
 V153CNX0.1HA V153KHA0.1H0 V154CNX0.1HA V154KHA0.1H0 V155CNX0.1HA V155KHA0.1H0

Institute of Harbor & Marine Technology

Wave Direction in Chia-Nan Seas of CNX0 at 2015

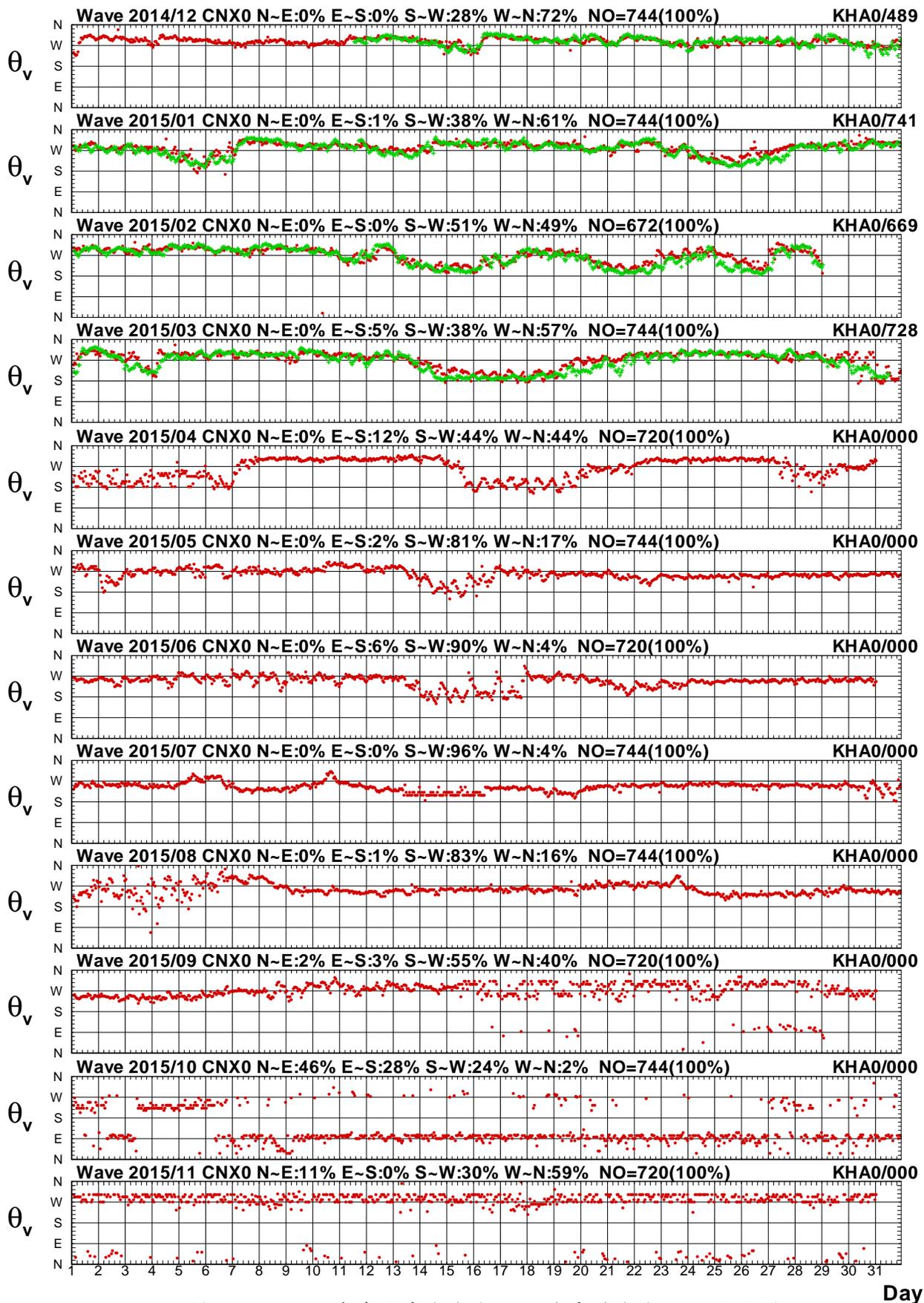


圖 2.10c 2015年每月嘉南海域 X 站與高雄海域 A 站波向圖

V14CCNX0.1HA V14CKHA0.1HO V151CNX0.1HA V151KHA0.1HO V152CNX0.1HA V152KHA0.1HO
 V153CNX0.1HA V153KHA0.1HO V154CNX0.1HA V154KHA0.1HO V155CNX0.1HA V155KHA0.1HO

Institute of Harbor & Marine Technology

Wave H_s in Chia-Nan Seas of CNX0 at 2015

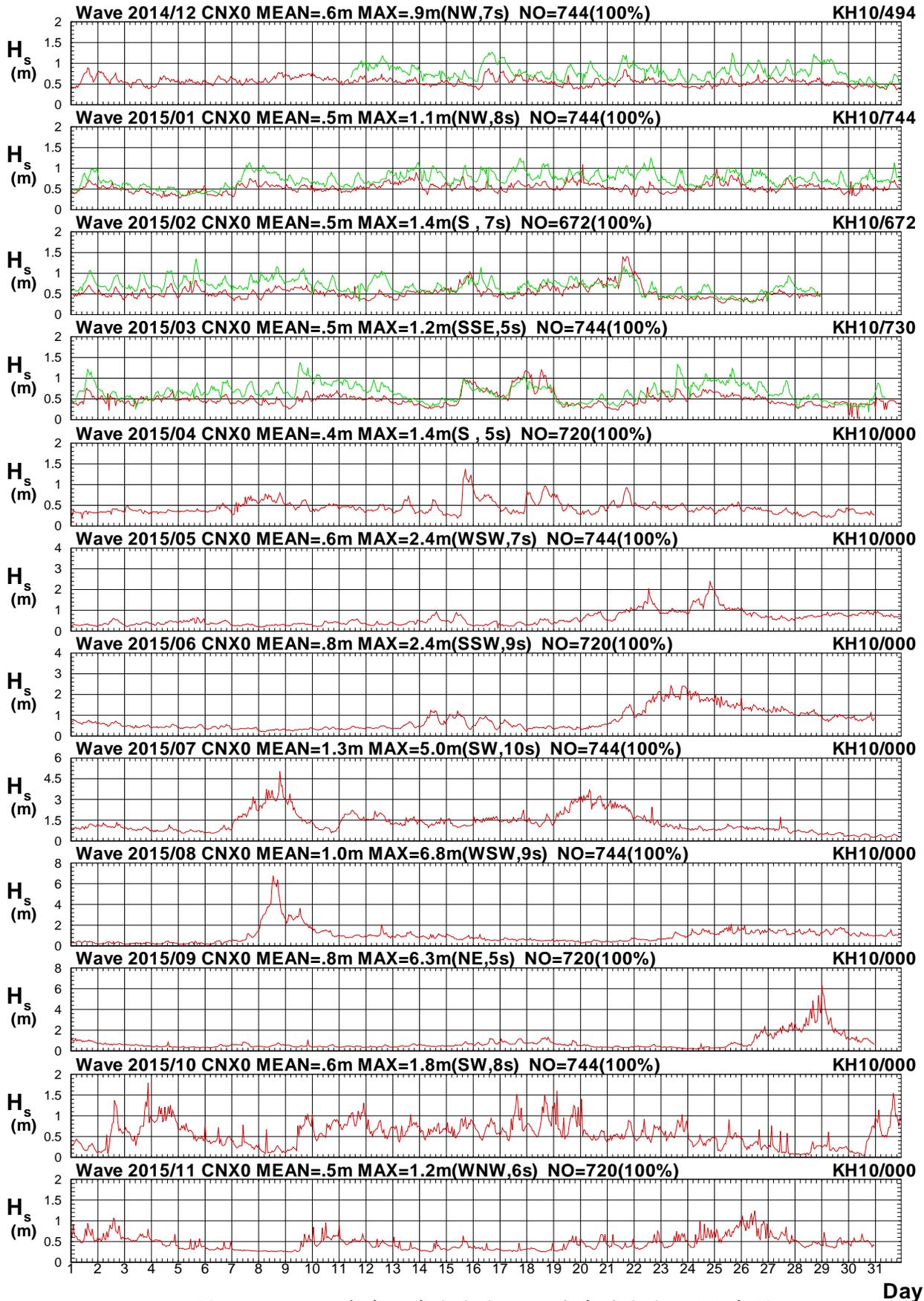


圖 2.11a 2015 年每月嘉南海域 X 站與高雄海域 1 站波高圖

V14CCNX0.1HA V14CKH10.1H0 V151CNX0.1HA V151KH10.1H0 V152CNX0.1HA V152KH10.1H0
 V153CNX0.1HA V153KH10.1H0 V154CNX0.1HA V154KH10.1H0 V155CNX0.1HA V155KH10.1H0

Institute of Harbor & Marine Technology

Wave T_p in Chia-Nan Seas of CNX0 at 2015

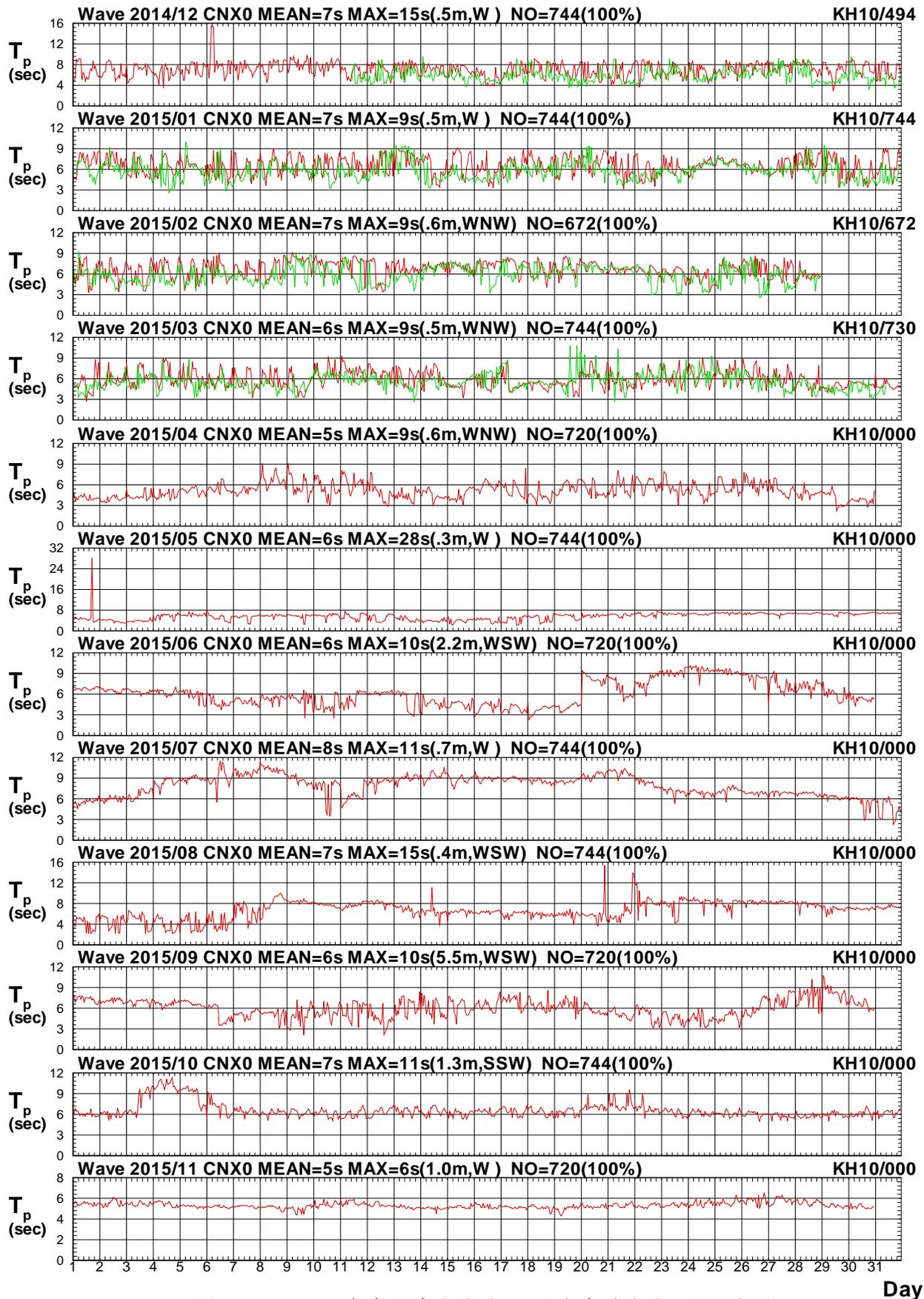


圖 2.11b 2015年每月嘉南海域 X 站與高雄海域 1 站週期圖

V14CCNX0.1HA V14CKH10.1H0 V151CNX0.1HA V151KH10.1H0 V152CNX0.1HA V152KH10.1H0
 V153CNX0.1HA V153KH10.1H0 V154CNX0.1HA V154KH10.1H0 V155CNX0.1HA V155KH10.1H0

Institute of Harbor & Marine Technology

Wave Direction in Chia-Nan Seas of CNX0 at 2015

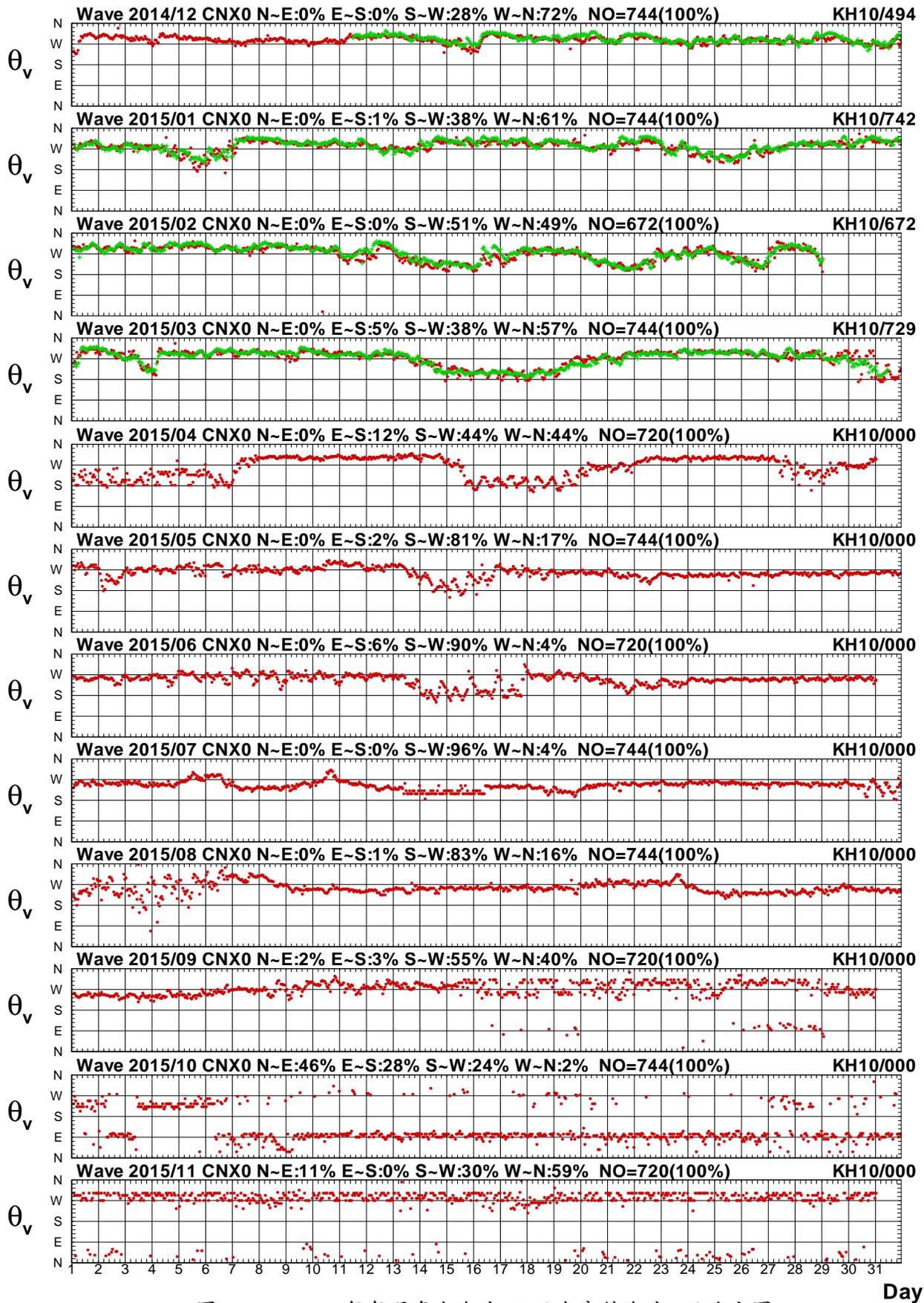


圖 2.11c 2015 年每月嘉南海域 X 站與高雄海域 1 站波向圖

V14CCNX0.1HA V14CKH10.1H0 V151CNX0.1HA V151KH10.1H0 V152CNX0.1HA V152KH10.1H0
 V153CNX0.1HA V153KH10.1H0 V154CNX0.1HA V154KH10.1H0 V155CNX0.1HA V155KH10.1H0

Institute of Harbor & Marine Technology

Wave H_s in Chia-Nan Seas of CNX0 at 2015

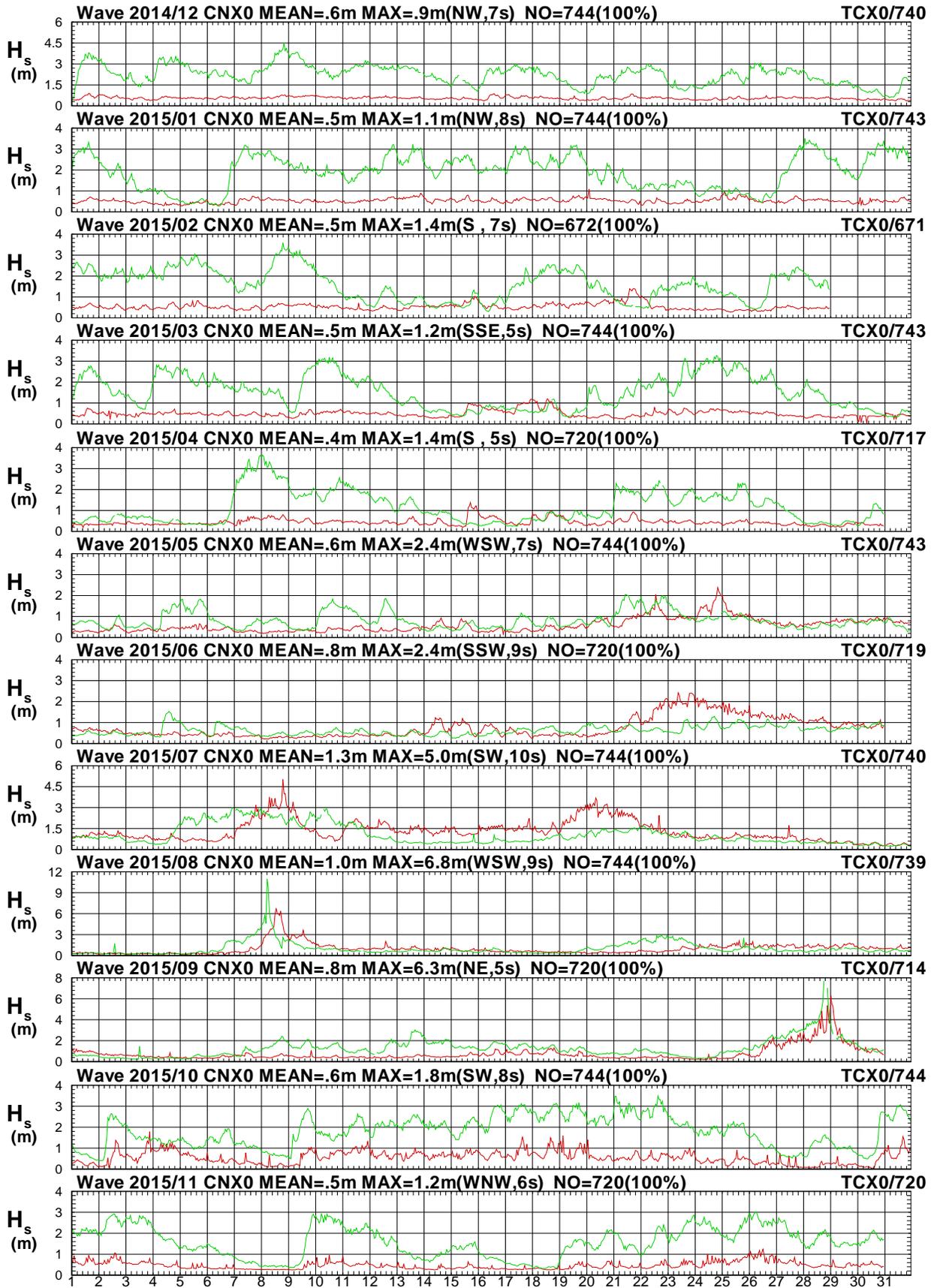


圖 2.12a 2015年每月嘉南海域 X 站與中雲海域 X 站波高圖

Day

V14CCNX0.1HA V14CTCX0.1H0 V151CNX0.1HA V151TCX0.1H0 V152CNX0.1HA V152TCX0.1H0
 V153CNX0.1HA V153TCX0.1H0 V154CNX0.1HA V154TCX0.1H0 V155CNX0.1HA V155TCX0.1H0

Institute of Harbor & Marine Technology

Wave T_p in Chia-Nan Seas of CNX0 at 2015

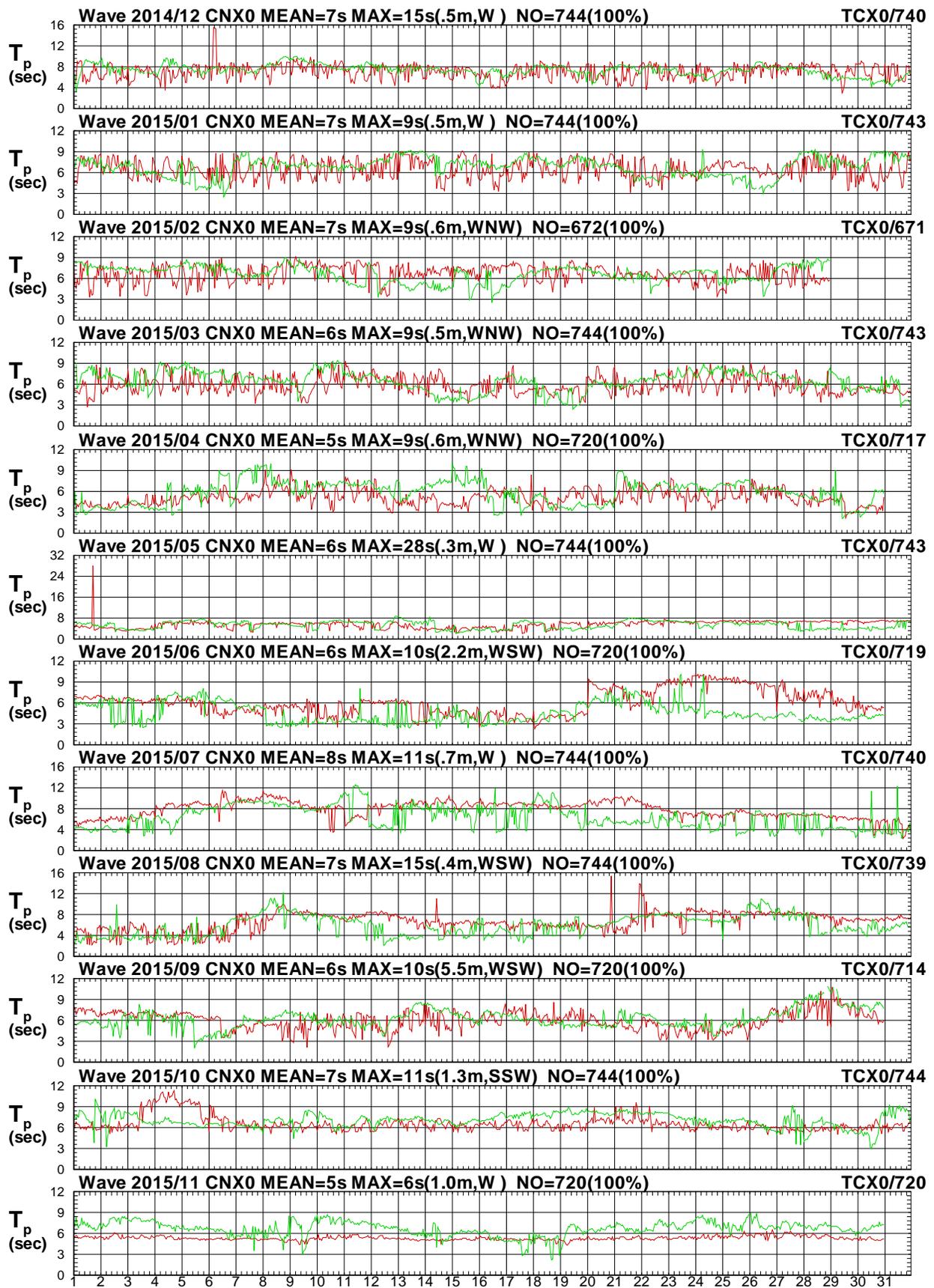


圖 2.12b 2015年每月嘉南海域 X 站與中雲海域 X 站週期圖

Day

V14CCNX0.1HA V14CTCX0.1H0 V151CNX0.1HA V151TCX0.1H0 V152CNX0.1HA V152TCX0.1H0
 V153CNX0.1HA V153TCX0.1H0 V154CNX0.1HA V154TCX0.1H0 V155CNX0.1HA V155TCX0.1H0

Institute of Harbor & Marine Technology

Wave Direction in Chia-Nan Seas of CNX0 at 2015

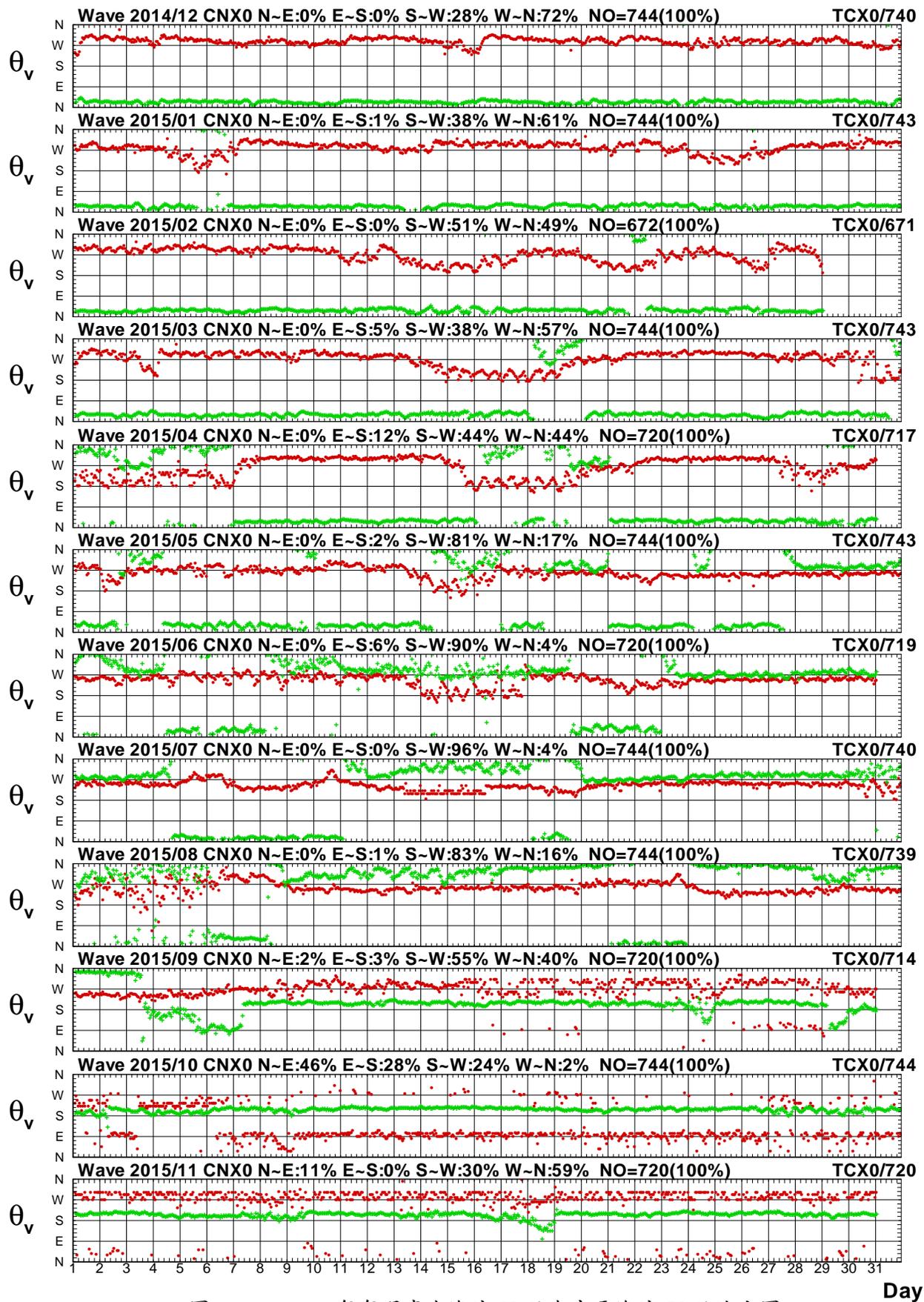


圖 2.12c 2015年每月嘉南海域 X 站與中雲海域 X 站波向圖

V14CCNX0.1HA V14CTCX0.1H0 V151CNX0.1HA V151TCX0.1H0 V152CNX0.1HA V152TCX0.1H0
 V153CNX0.1HA V153TCX0.1H0 V154CNX0.1HA V154TCX0.1H0 V155CNX0.1HA V155TCX0.1H0

Institute of Harbor & Marine Technology

Wave H_s in Chia-Nan Seas of CNX0 at 2015

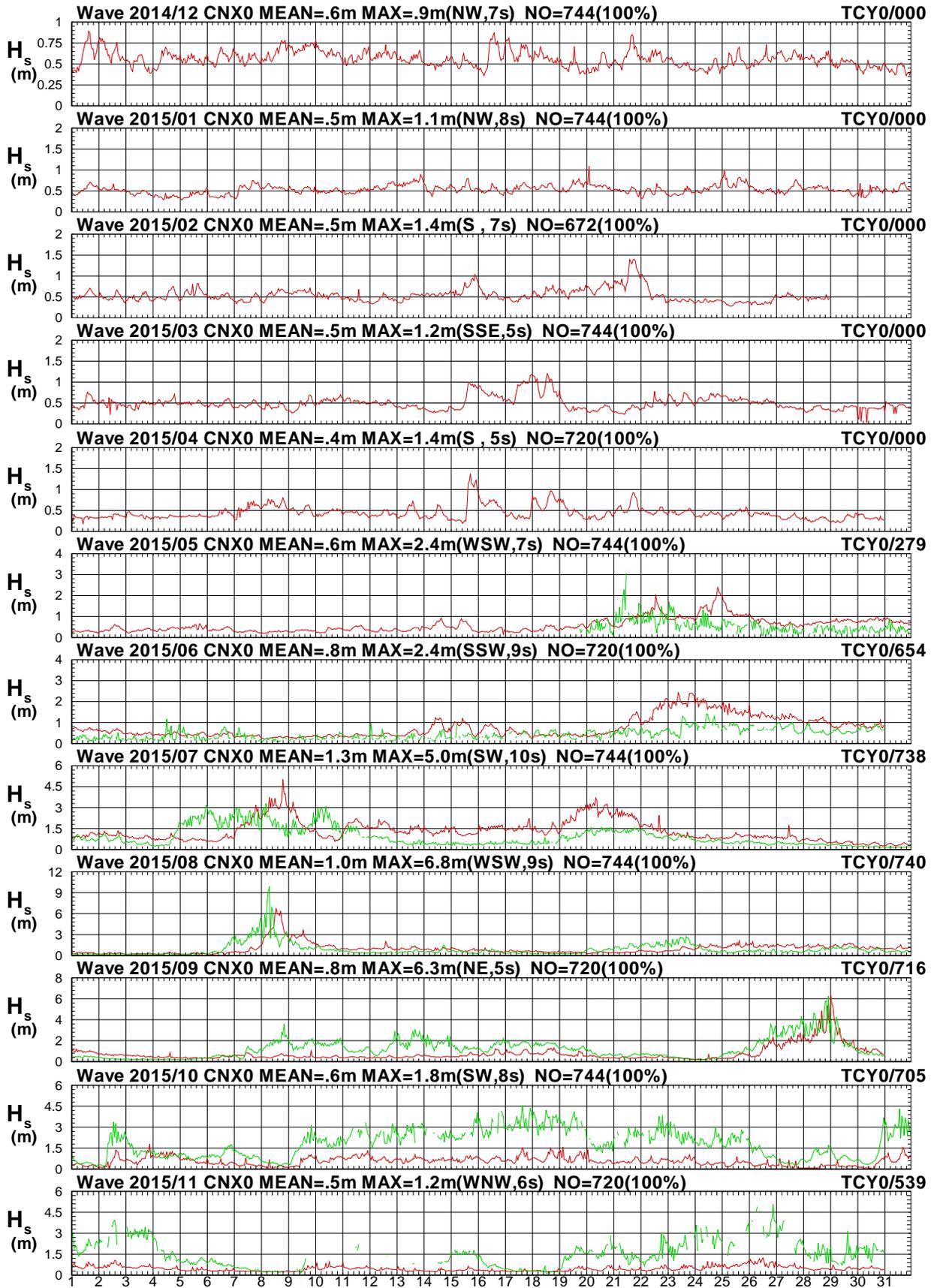


圖 2.13a 2015年每月嘉南海域 X 站與中雲海域 Y 站波高圖

V14CCNX0.1HA V14CTCY0.1H0 V151CNX0.1HA V151TCY0.1H0 V152CNX0.1HA V152TCY0.1H0
 V153CNX0.1HA V153TCY0.1H0 V154CNX0.1HA V154TCY0.1H0 V155CNX0.1HA V155TCY0.1H0

Institute of Harbor & Marine Technology

Wave T_p in Chia-Nan Seas of CNX0 at 2015

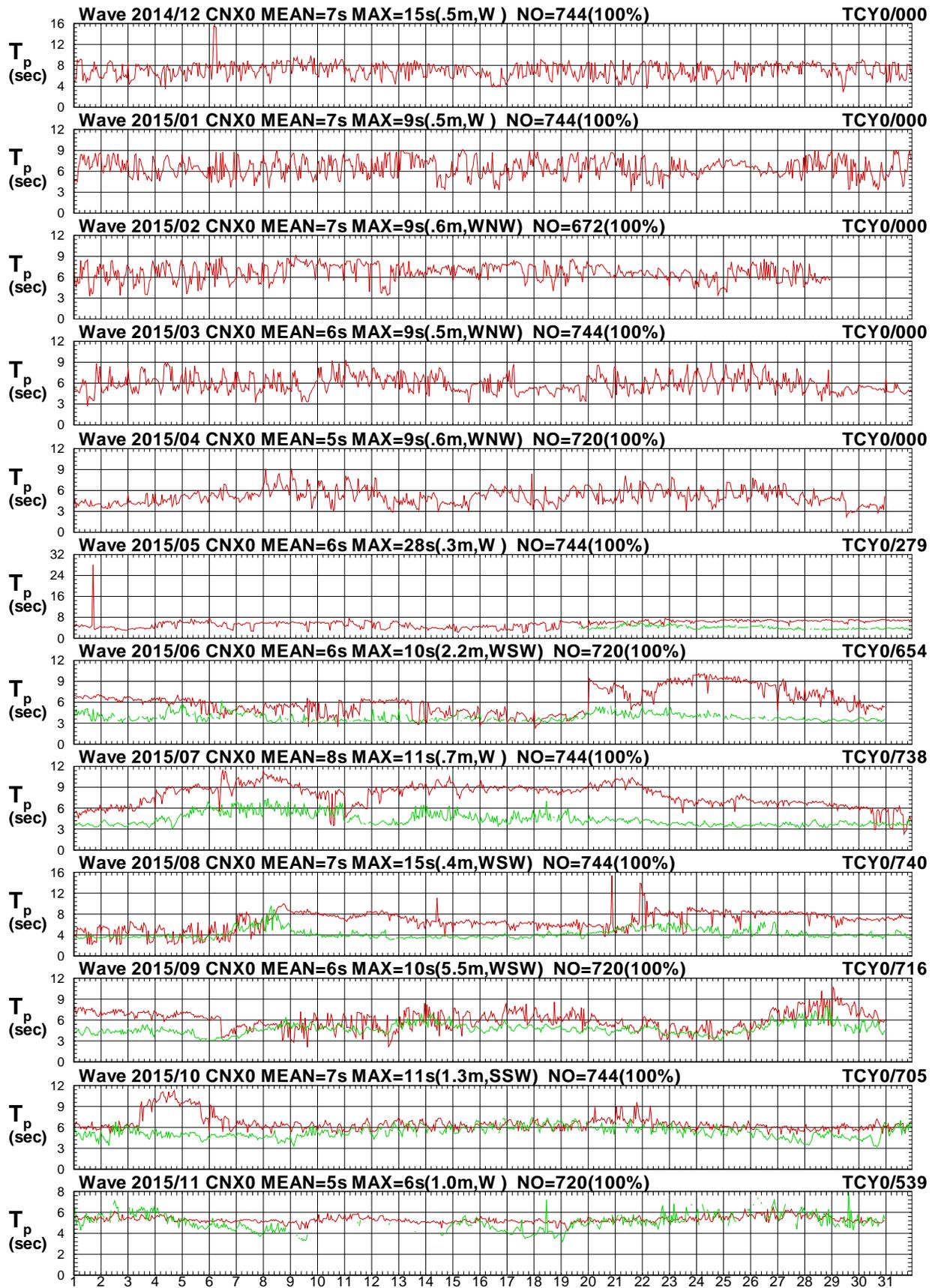


圖 2.13b 2015年每月嘉南海域 X 站與中雲海域 Y 站週期圖

V14CCNX0.1HA V14CTCY0.1H0 V151CNX0.1HA V151TCY0.1H0 V152CNX0.1HA V152TCY0.1H0
 V153CNX0.1HA V153TCY0.1H0 V154CNX0.1HA V154TCY0.1H0 V155CNX0.1HA V155TCY0.1H0

Institute of Harbor & Marine Technology

Wave Direction in Chia-Nan Seas of CNX0 at 2015

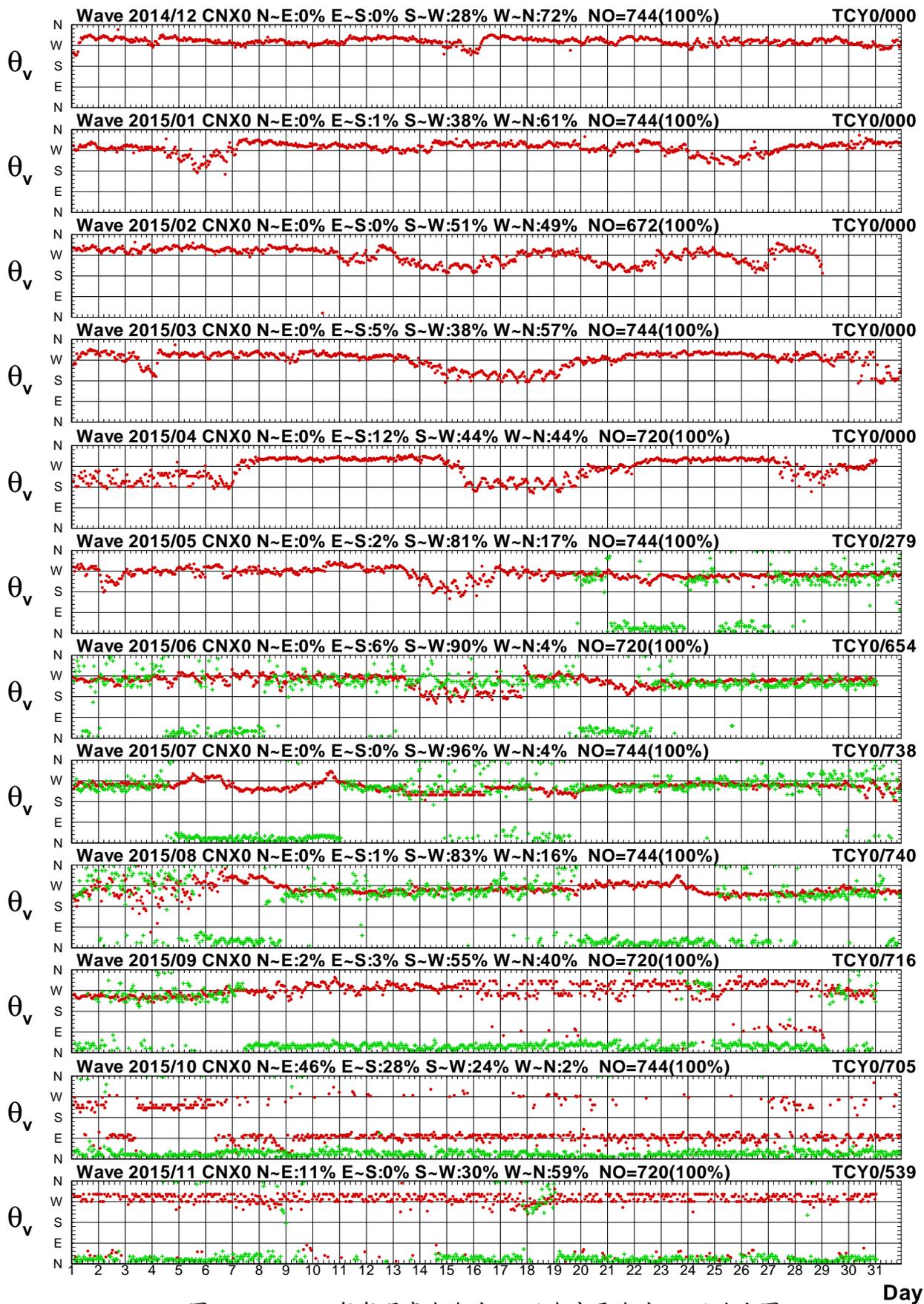


圖 2.13c 2015年每月嘉南海域 X 站與中雲海域 Y 站波向圖

V14CCNX0.1HA V14CTCY0.1H0 V151CNX0.1HA V151TCY0.1H0 V152CNX0.1HA V152TCY0.1H0
 V153CNX0.1HA V153TCY0.1H0 V154CNX0.1HA V154TCY0.1H0 V155CNX0.1HA V155TCY0.1H0

Institute of Harbor & Marine Technology

第三章 2015 年嘉南海域觀測潮汐資料

嘉南海域潮汐之觀測 1979 年港務局於安平港設有水位觀測(稱**測站 T1**)，2008 年 8 月本中心於港內增設水位觀測(稱**測站 T2**)，其位置如附圖 3。本中心 1999 年於安平港海上觀測樁(稱**測站 X0**) S-4ADW 潮波儀測得潮位，後改為安置 AWCP 系統，至觀測樁於 2011 年 7 月拆除為止。2011 年 7 月另於南堤外海增設 AWAC 系統(稱**測站 X1**)。**測站 J**(永安潮位站)、**四草(測站 G)**屬水利署。**東石(測站 P)**、**溫港(測站 Q)**、**箔子寮(測站 M)**及**將軍(測站 K)**之潮汐儀則屬中央氣象局所有。2008 年 8 月本中心於布袋港內碼頭(**測站 S0**)增設長期水位觀測，2011 年 8 月移至港內碼頭(**測站 S1**)。本中心於 2006 年 6 月於布袋港外(稱**測站 A**)設置 AWCP 系統。嘉南海域各觀測潮汐資料蒐集概況如表 3。

潮波流儀，取樣方式為每一小時取前 10 分鐘，然後加以平均得出平均水位值。**測站 T** 及 **測站 S** 潮位資料取樣方式為每 6 分鐘量測一次。

本潮汐年報以取經檢核或修補後之 **T 站、Q 站、S 站、及 M 站** 資料作為**主要觀測站**，2015 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，**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.?.2，**主要觀測站與次要觀測站**每月潮汐歷線比較圖，如圖 3.?.3 以後。

表 3 嘉南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
T0	22°58'43"N	120°10'33"E	1979/03-1993/06	港務局	
T1	22°58'43"N	120°10'32"E	2008/08-2015/11(觀測中)	港研中心	安平港潮位計
X0	22°56'37"N	120°08'10"E	1999/10-2011/07	港研中心	安平港觀測樁
X1	22°57'22"N	120°08'53"E	2010/12-2015/11(觀測中)	港研中心	安平港南堤
J	22°49'08"N	120°11'51"E	2009/01-2015/11(觀測中)	水利署	永安潮位站
G			2011/09-2015/11(觀測中)	水利署	四草潮位站
A0	23°22'49"N	120°07'29" E	2006/06-2010/03	港研中心	AWCP 布袋港
A1	23°22'37"N	120°07'26"E	2012/08-2015/11(觀測中)	港研中心	AWCP 布袋港
S1	22°58'43"N	120°10'33"E	2008/08-2015/11(觀測中)	港研中心	布袋港潮位計
P	23°26'59"N	120°08'22"E	2013/12-2015/11(觀測中)	中央氣象局	東石潮位站
K	23°13'05"N	120°06'00"E	2014/12-2015/11(觀測中)	中央氣象局	將軍潮位站
Q			2013/12-2015/11(觀測中)	中央氣象局	溫港潮位站
M			2013/12-2015/11(觀測中)	中央氣象局	箔子寮潮位站

嘉南海域

 IHMT 潮位站	 IHMT 波潮流站
 CWB 潮位站	 WRA 潮位站

 IHMT 觀測樁波潮流站
--



圖 3 嘉南海域潮汐觀測站位置示意圖

表 3.1a 2015年每月嘉南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											
測站	T	X	A	J	G	S	A	K	P	Q	M		
2014/12月	744 (100%)	742 (99.7%)	*	646 (86.8%)	731 (98.3%)	522 (70.2%)	*	743 (99.9%)	744 (100%)	582 (78.2%)	744 (100%)	*	
2015/ 1月	743 (99.9%)	741 (99.6%)	*	707 (95.0%)	744 (100%)	744 (100%)	*	505 (67.9%)	553 (74.3%)	454 (61.0%)	465 (62.5%)	*	
2015/ 2月	671 (99.9%)	672 (100%)	*	635 (94.5%)	672 (100%)	672 (100%)	*	*	*	*	*	*	
2015/ 3月	744 (100%)	673 (90.5%)	*	744 (100%)	744 (100%)	744 (100%)	*	124 (16.7%)	133 (17.9%)	117 (15.7%)	119 (16.0%)	*	
2015/ 4月	720 (100%)	560 (77.8%)	556 (77.2%)	720 (100%)	720 (100%)	720 (100%)	556 (77.2%)	383 (53.2%)	353 (49.0%)	380 (52.8%)	92 (12.8%)	*	
2015/ 5月	719 (96.6%)	731 (98.3%)	631 (84.8%)	744 (100%)	744 (100%)	744 (100%)	631 (84.8%)	249 (33.5%)	218 (29.3%)	254 (34.1%)	29 (3.9%)	*	
2015/ 6月	720 (100%)	715 (99.3%)	591 (82.1%)	720 (100%)	720 (100%)	720 (100%)	591 (82.1%)	501 (69.6%)	372 (51.7%)	500 (69.4%)	*	*	
2015/ 7月	743 (99.9%)	668 (89.8%)	632 (84.9%)	744 (100%)	744 (100%)	744 (100%)	632 (84.9%)	334 (44.9%)	258 (34.7%)	335 (45.0%)	3 (.4%)	*	
2015/ 8月	461 (62.0%)	740 (99.5%)	629 (84.5%)	744 (100%)	744 (100%)	698 (93.8%)	629 (84.5%)	573 (77.0%)	510 (68.5%)	570 (76.6%)	*	*	
2015/ 9月	530 (73.6%)	345 (47.9%)	699 (97.1%)	711 (98.8%)	719 (99.9%)	11 (1.5%)	699 (97.1%)	593 (82.4%)	559 (77.6%)	589 (81.8%)	297 (41.3%)	*	
2015/10月	725 (97.4%)	*	740 (99.5%)	735 (98.8%)	744 (100%)	*	740 (99.5%)	383 (51.5%)	370 (49.7%)	381 (51.2%)	382 (51.3%)	*	
2015/11月	632 (87.8%)	*	693 (96.3%)	707 (98.2%)	719 (99.9%)	*	693 (96.3%)	620 (86.1%)	580 (80.6%)	633 (87.9%)	491 (68.2%)	*	
2015/冬季	2158 (99.9%)	2155 (99.8%)	*	1988 (92.0%)	2147 (99.4%)	1938 (89.7%)	*	1248 (57.8%)	1297 (60.0%)	1036 (48.0%)	1209 (56.0%)	*	
2015/春季	2183 (98.9%)	1964 (88.9%)	1187 (53.8%)	2208 (100%)	2208 (100%)	2208 (100%)	1187 (53.8%)	756 (34.2%)	704 (31.9%)	751 (34.0%)	240 (10.9%)	*	
2015/夏季	1924 (87.1%)	2123 (96.2%)	1852 (83.9%)	2208 (100%)	2208 (100%)	2162 (97.9%)	1852 (83.9%)	1408 (63.8%)	1140 (51.6%)	1405 (63.6%)	3 (.1%)	*	
2015/秋季	1887 (86.4%)	345 (15.8%)	2132 (97.6%)	2153 (98.6%)	2182 (99.9%)	11 (.5%)	2132 (97.6%)	1596 (73.1%)	1509 (69.1%)	1603 (73.4%)	1170 (53.6%)	*	
2015/整年	8152 (93.1%)	6587 (75.2%)	5171 (59.0%)	8557 (97.7%)	8745 (99.8%)	6319 (72.1%)	5171 (59.0%)	5008 (57.2%)	4650 (53.1%)	4795 (54.7%)	2622 (29.9%)	*	
起始年月	2014/12	2014/12	2015/04	2014/12	2014/12	2014/12	2015/04	2014/12	2014/12	2014/12	2014/12	*	
結束年月	2015/11	2015/09	2015/11	2015/11	2015/11	2015/09	2015/11	2015/11	2015/11	2015/11	2015/11	*	

表3.1b 2015年每月嘉南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	高雄海域	高雄海域	高雄海域	高雄海域	高雄海域
測站	T	X	A	J	G	S	A	K	P	Q	M		
2014/12月	744 (100%)	744 (100%)	*	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%)	744 (100%)	744 (100%)	*	
2015/ 2月	672 (100%)	672 (100%)	*	672 (100%)	672 (100%)	672 (100%)	*	*	*	*	*	*	
2015/ 3月	744 (100%)	744 (100%)	*	744 (100%)	744 (100%)	744 (100%)	*	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%)	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%)	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%)	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%)	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%)	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%)	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%)	744 (100%)	744 (100%)	744 (100%)	*
2015/11月	720 (100%)	*	720 (100%)	720 (100%)	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%)	*	1488 (68.9%)	1488 (68.9%)	1488 (68.9%)	1488 (68.9%)	1488 (68.9%)	*
2015/春季	2208 (100%)	2208 (100%)	1464 (66.3%)	2208 (100%)	2208 (100%)	2208 (100%)	1464 (66.3%)	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%)	2208 (100%)	2208 (100%)	2208 (100%)	2208 (100%)	744 (33.7%)	*
2015/秋季	2184 (100%)	720 (33.0%)	2184 (100%)	2184 (100%)	2184 (100%)	720 (33.0%)	2184 (100%)	2184 (100%)	2184 (100%)	2184 (100%)	2184 (100%)	2184 (100%)	*
2015/整年	8760 (100%)	7296 (83.3%)	5856 (66.8%)	8760 (100%)	8760 (100%)	7296 (83.3%)	5856 (66.8%)	8088 (92.3%)	8088 (92.3%)	8088 (92.3%)	6624 (75.6%)		*
起始年月	2014/12	2014/12	2015/04	2014/12	2014/12	2014/12	2015/04	2014/12	2014/12	2014/12	2014/12		*
結束年月	2015/11	2015/09	2015/11	2015/11	2015/11	2015/09	2015/11	2015/11	2015/11	2015/11	2015/11		*

Tidal Level in Chia-Nan Seas of CNT0 at 2015

1 ○ 8 ● 15 ● 22 ●

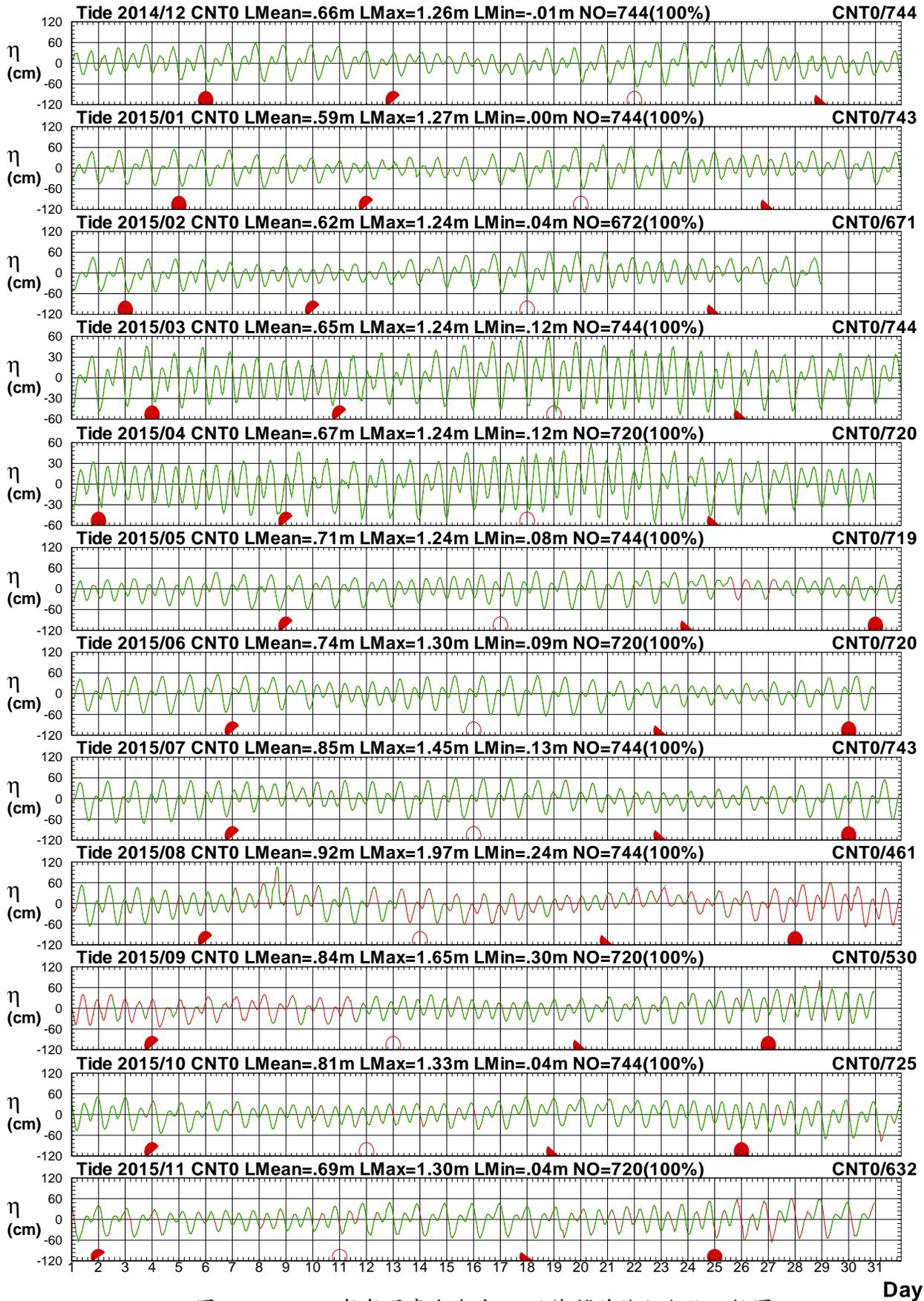


圖 3.1.1 2015年每月嘉南海域 T 站修補前後之潮位比較圖

T14CCNT0.1HA T14CCNT0.1H0 T151CNT0.1HA T151CNT0.1H0 T152CNT0.1HA T152CNT0.1H0
 T153CNT0.1HA T153CNT0.1H0 T154CNT0.1HA T154CNT0.1H0 T155CNT0.1HA T155CNT0.1H0

Institute of Harbor & Marine Technology

Tidal Level in Chia-Nan Seas of CNT0 at 2015

1 ○ 8 ● 15 ● 22 ●

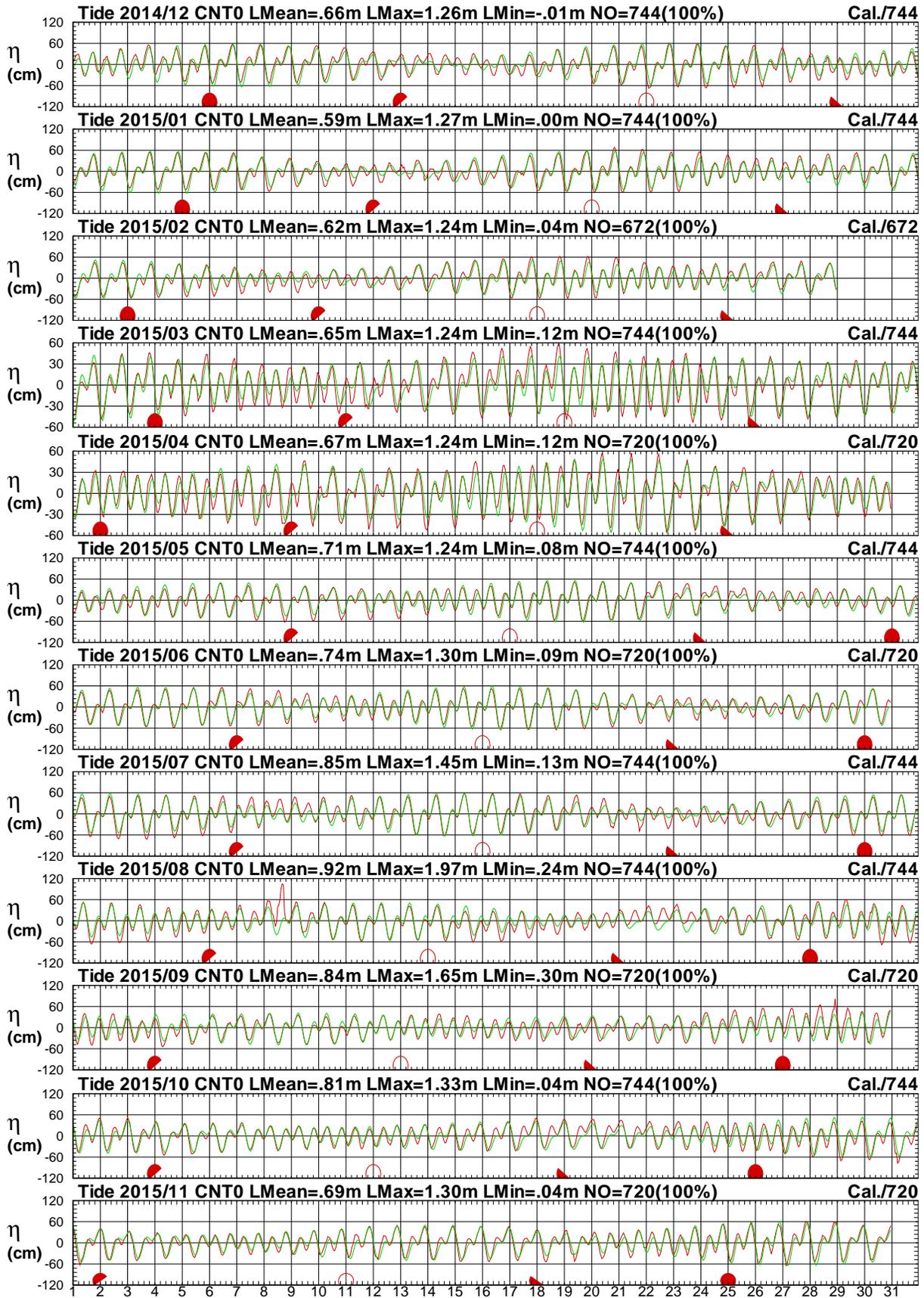


圖 3.1.2 2015年每月嘉南海域 T 站潮位歷線圖 (綠線: 天文潮)

Day

T14CCNT0.1HA T14CCNT0.1HC T151CNT0.1HA T151CNT0.1HC T152CNT0.1HA T152CNT0.1HC
T153CNT0.1HA T153CNT0.1HC T154CNT0.1HA T154CNT0.1HC T155CNT0.1HA T155CNT0.1HC

Institute of Harbor & Marine Technology

Tidal Level in Chia-Nan Seas of CNT0 at 2015

1 ○ 8 ● 15 ● 22 ●

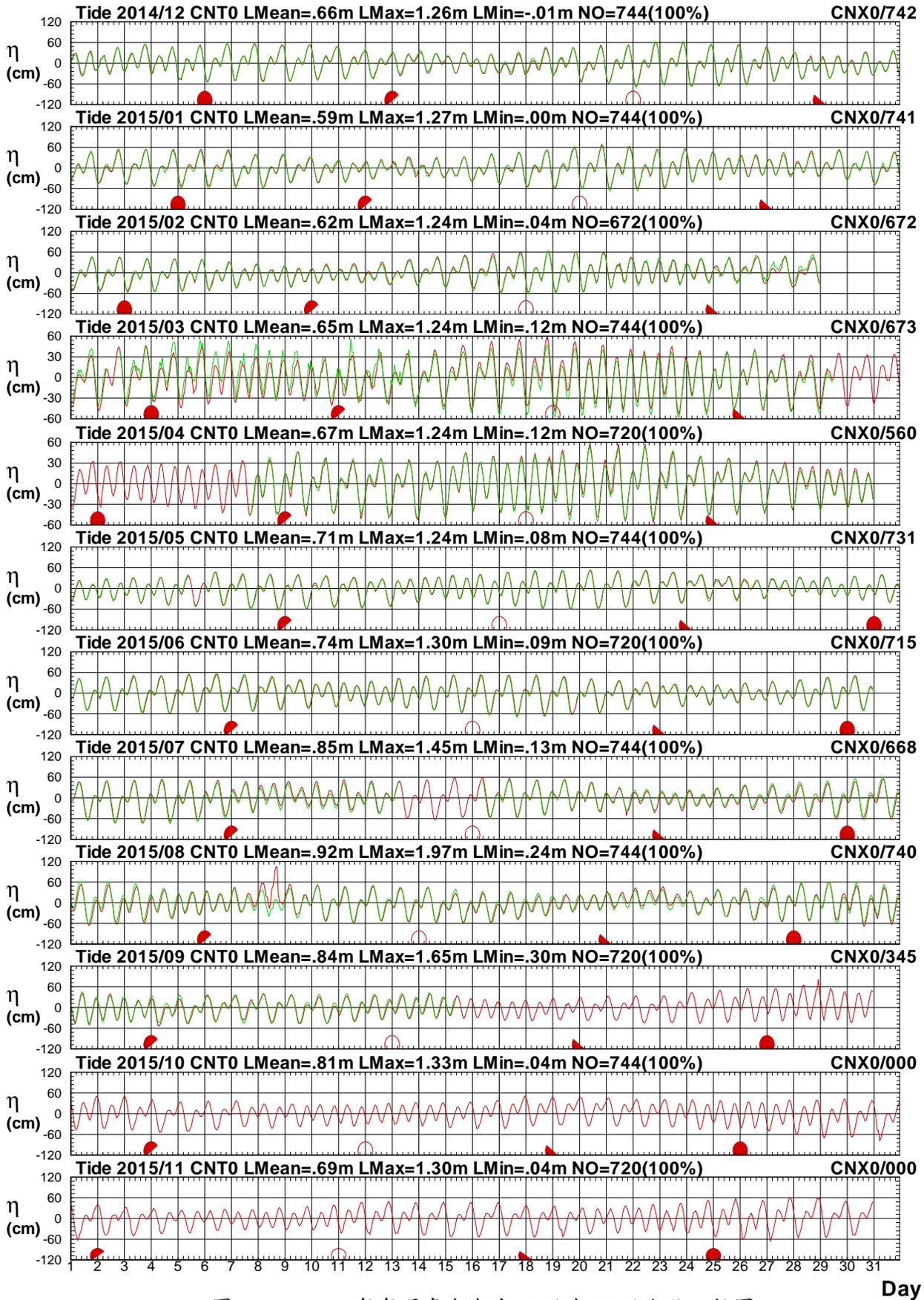


圖 3.1.3 2015年每月嘉南海域 T 站與 X 站潮位比較圖

T14CCNT0.1HA T14CCNX0.1H0 T151CNT0.1HA T151CNX0.1H0 T152CNT0.1HA T152CNX0.1H0
 T153CNT0.1HA T153CNX0.1H0 T154CNT0.1HA T154CNX0.1H0 T155CNT0.1HA T155CNX0.1H0

Institute of Harbor & Marine Technology

Tidal Level in Chia-Nan Seas of CNT0 at 2015

1 ○ 8 ● 15 ● 22 ●

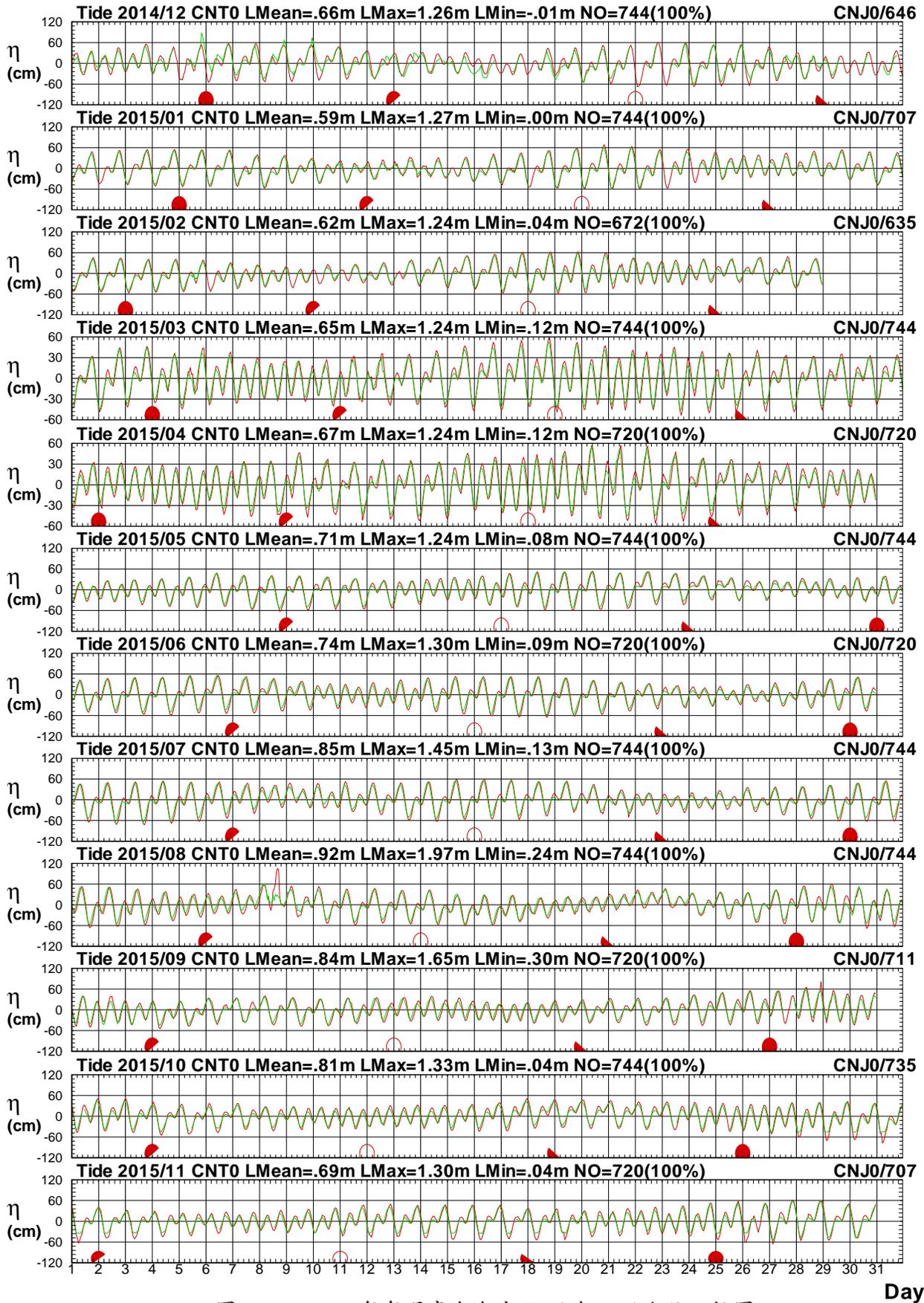


圖 3.1.4 2015年每月嘉南海域 T 站與 J 站潮位比較圖

T14CCNT0.1HA T14CCNJ0.1H0 T151CNT0.1HA T151CNJ0.1H0 T152CNT0.1HA T152CNJ0.1H0
 T153CNT0.1HA T153CNJ0.1H0 T154CNT0.1HA T154CNJ0.1H0 T155CNT0.1HA T155CNJ0.1H0

Institute of Harbor & Marine Technology

Tidal Level in Chia-Nan Seas of CNT0 at 2015

1 ○ 8 ● 15 ● 22 ●

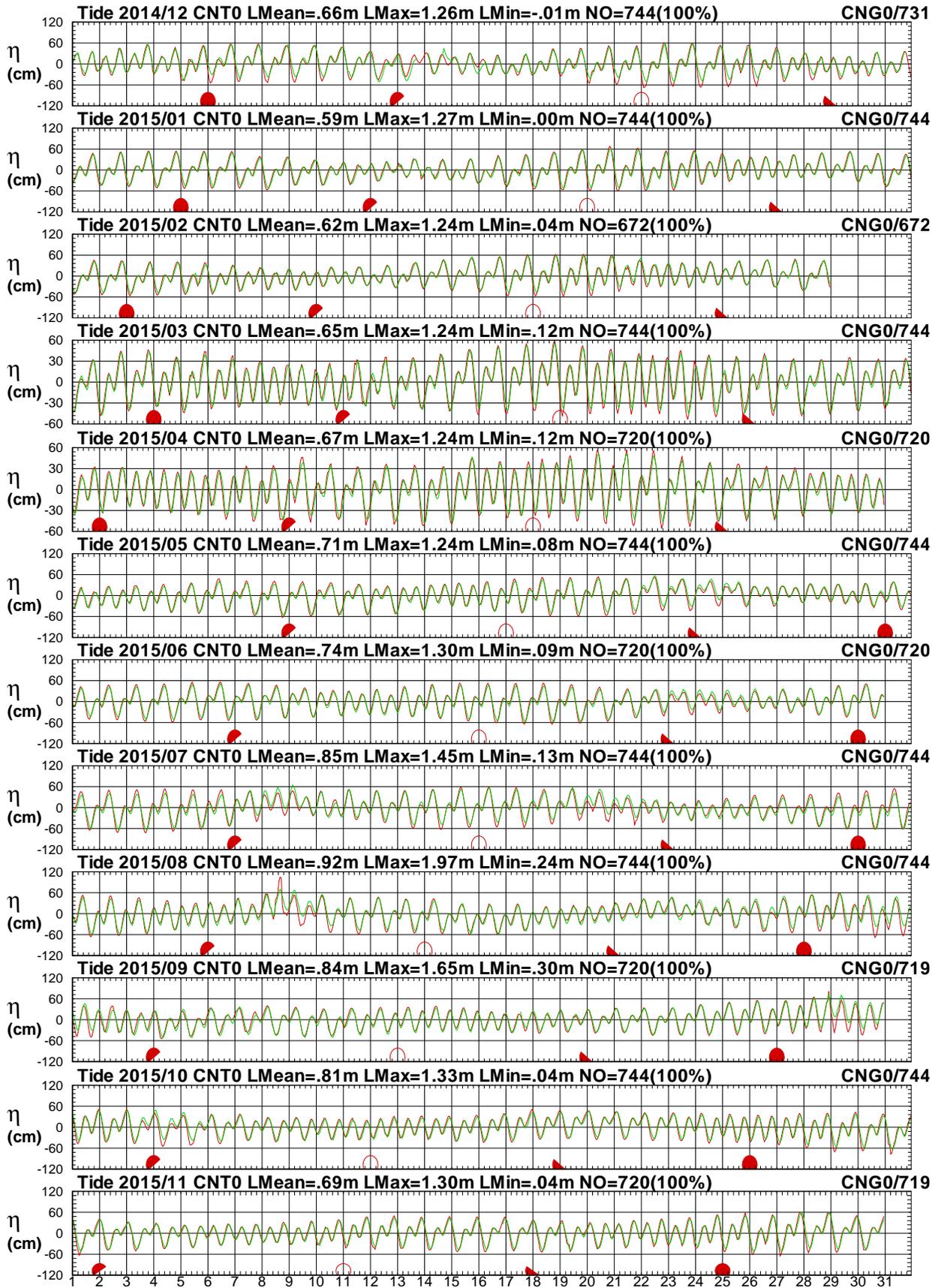


圖 3.1.5 2015年每月嘉南海域 T 站與 G 站潮位比較圖

T14CCNT0.1HA T14CCNG0.1H0 T151CNT0.1HA T151CNG0.1H0 T152CNT0.1HA T152CNG0.1H0
 T153CNT0.1HA T153CNG0.1H0 T154CNT0.1HA T154CNG0.1H0 T155CNT0.1HA T155CNG0.1H0

Institute of Harbor & Marine Technology

Tidal Level in Chia-Nan Seas of CNS0 at 2015

1 ○ 8 ● 15 ● 22 ●

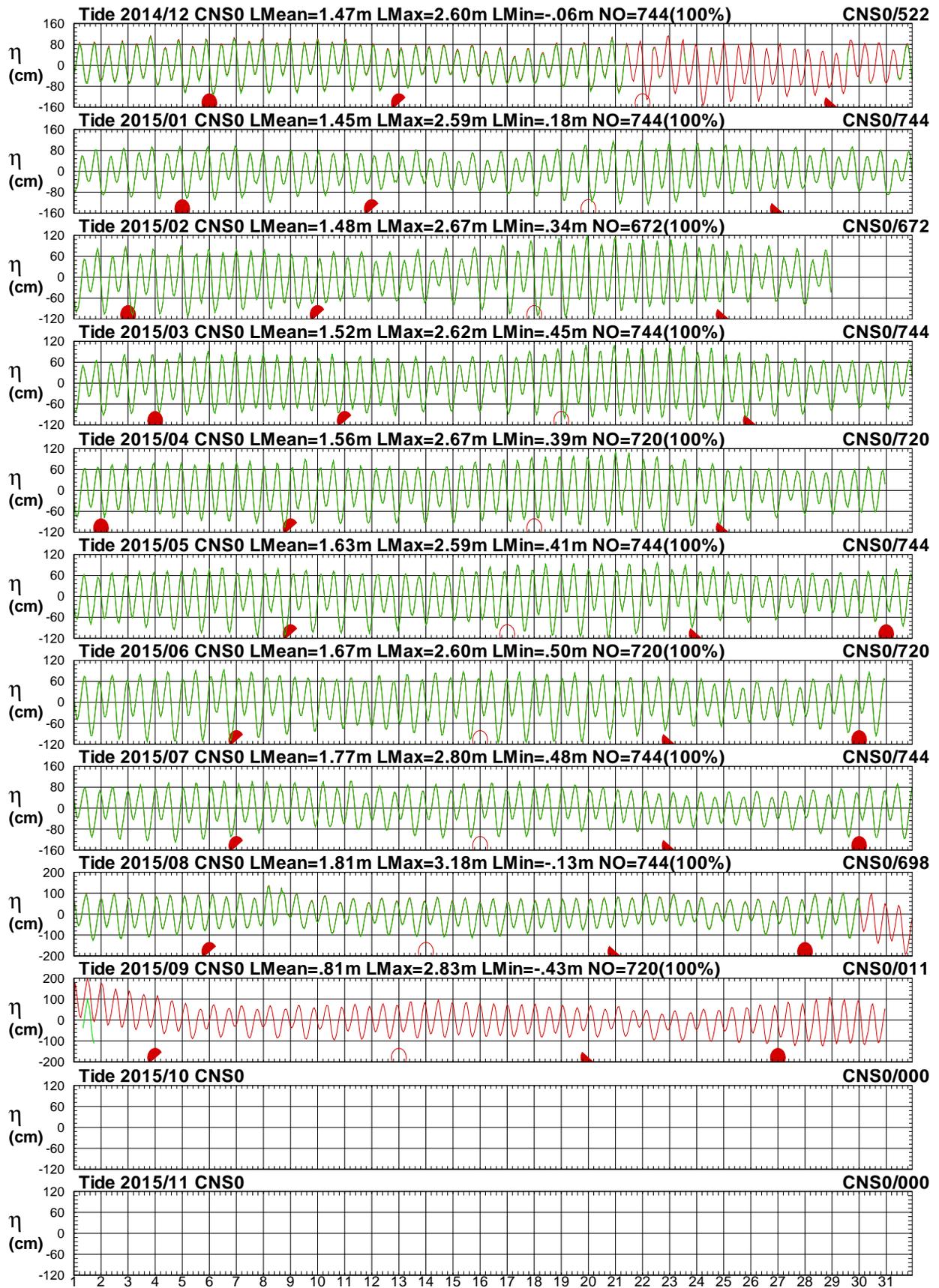


圖 3.2.1 2015年每月嘉南海域 S 站修補前後之潮位比較圖

T14CCNS0.1HA T14CCNS0.1H0 T151CNS0.1HA T151CNS0.1H0 T152CNS0.1HA T152CNS0.1H0
 T153CNS0.1HA T153CNS0.1H0 T154CNS0.1HA T154CNS0.1H0 T155CNS0.1HA T155CNS0.1H0

Institute of Harbor & Marine Technology

Tidal Level in Chia-Nan Seas of CNS0 at 2015

1 ○ 8 ● 15 ● 22 ●

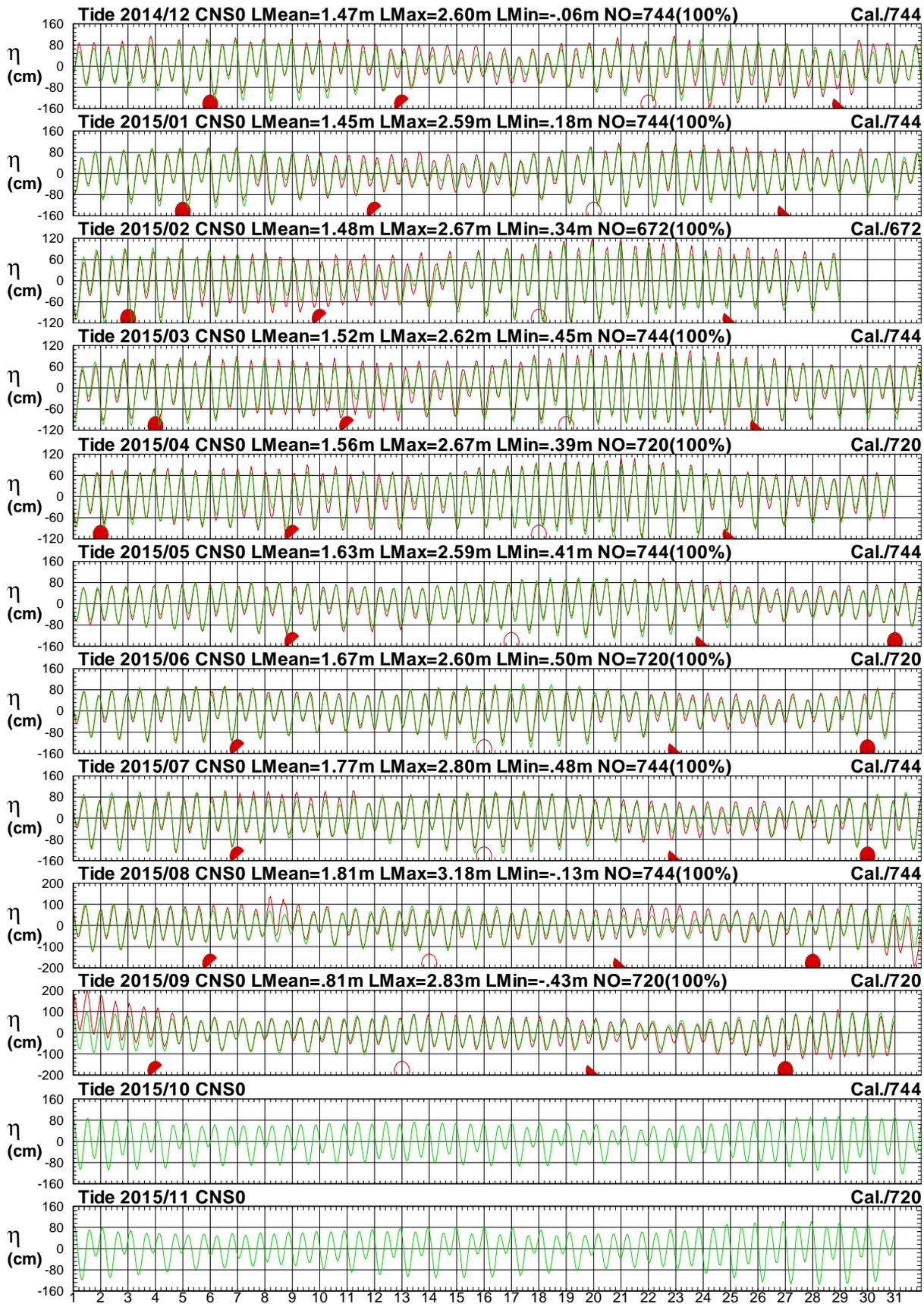


圖 3.2.2 2015 年每月嘉南海域 S 站潮位歷線圖 (綠線: 天文潮)

T14CCNS0.1HA T14CCNS0.1HC T151CNS0.1HA T151CNS0.1HC T152CNS0.1HA T152CNS0.1HC
T153CNS0.1HA T153CNS0.1HC T154CNS0.1HA T154CNS0.1HC T155CNS0.1HA T155CNS0.1HC

Institute of Harbor & Marine Technology

Tidal Level in Chia-Nan Seas of CNS0 at 2015

1 ○ 8 ● 15 ● 22 ●

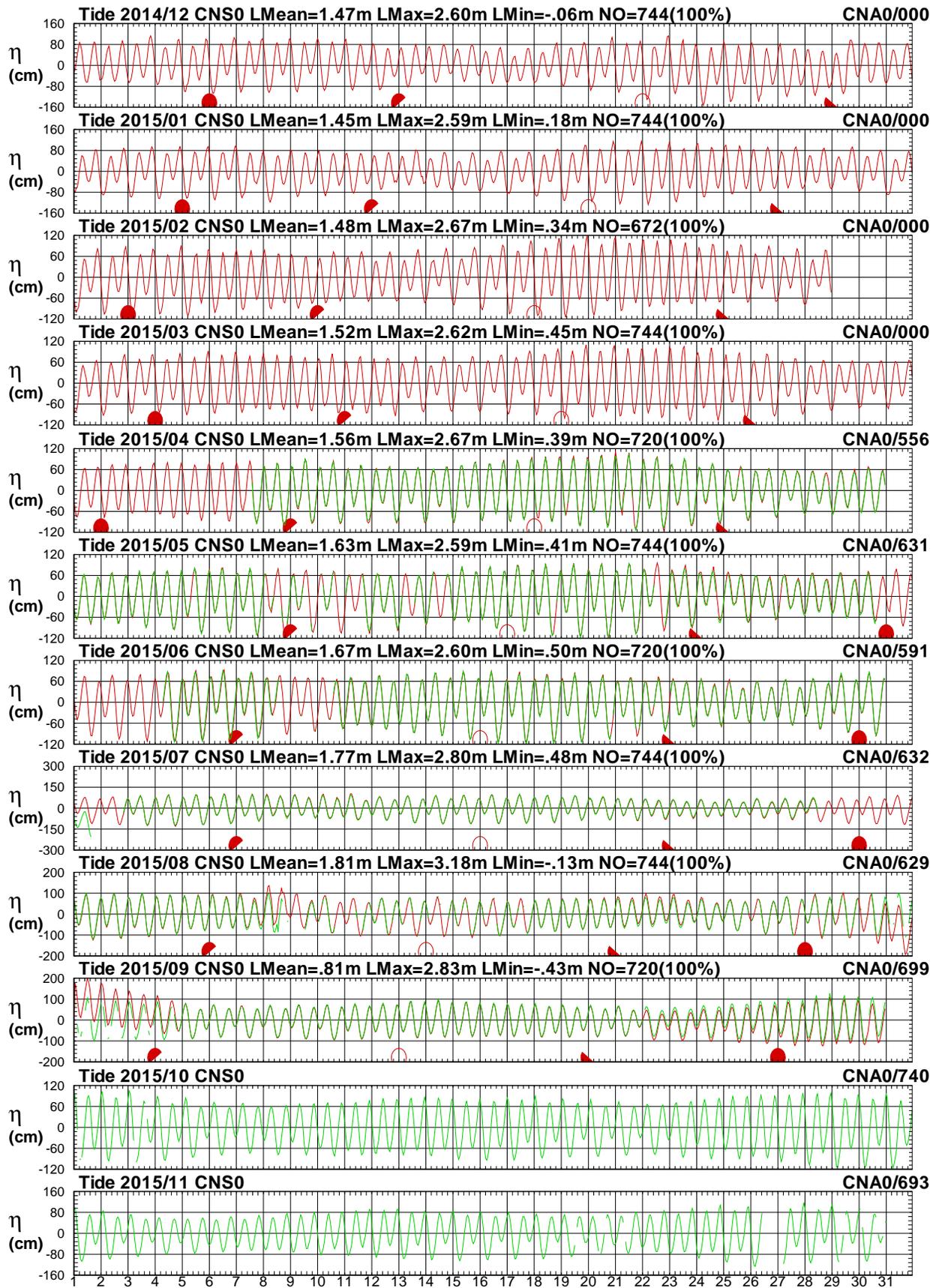


圖 3.2.3 2015年每月嘉南海域 S 站與 A 站潮位比較圖

Day

T14CCNS0.1HA T14CCNA0.1H0 T151CNS0.1HA T151CNA0.1H0 T152CNS0.1HA T152CNA0.1H0
 T153CNS0.1HA T153CNA0.1H0 T154CNS0.1HA T154CNA0.1H0 T155CNS0.1HA T155CNA0.1H0

Institute of Harbor & Marine Technology

Tidal Level in Chia-Nan Seas of CNS0 at 2015

1 ○ 8 ● 15 ● 22 ●

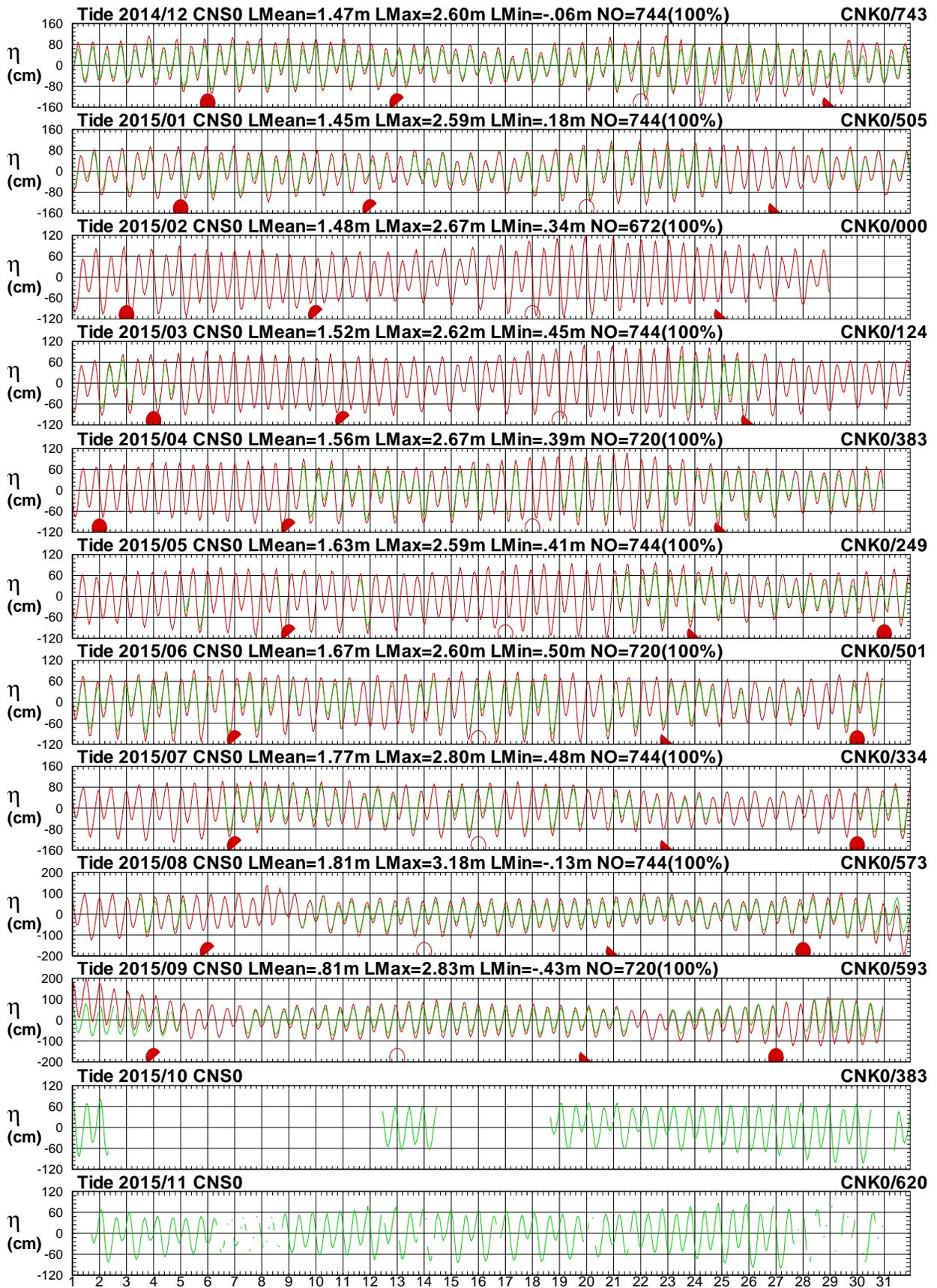


圖 3.2.4 2015年每月嘉南海域 S 站與 K 站潮位比較圖

T14CCNS0.1HA T14CCNK0.1H0 T151CNS0.1HA T151CNK0.1H0 T152CNS0.1HA T152CNK0.1H0
 T153CNS0.1HA T153CNK0.1H0 T154CNS0.1HA T154CNK0.1H0 T155CNS0.1HA T155CNK0.1H0

Institute of Harbor & Marine Technology

Tidal Level in Chia-Nan Seas of CNS0 at 2015

1 ○ 8 ● 15 ● 22 ●

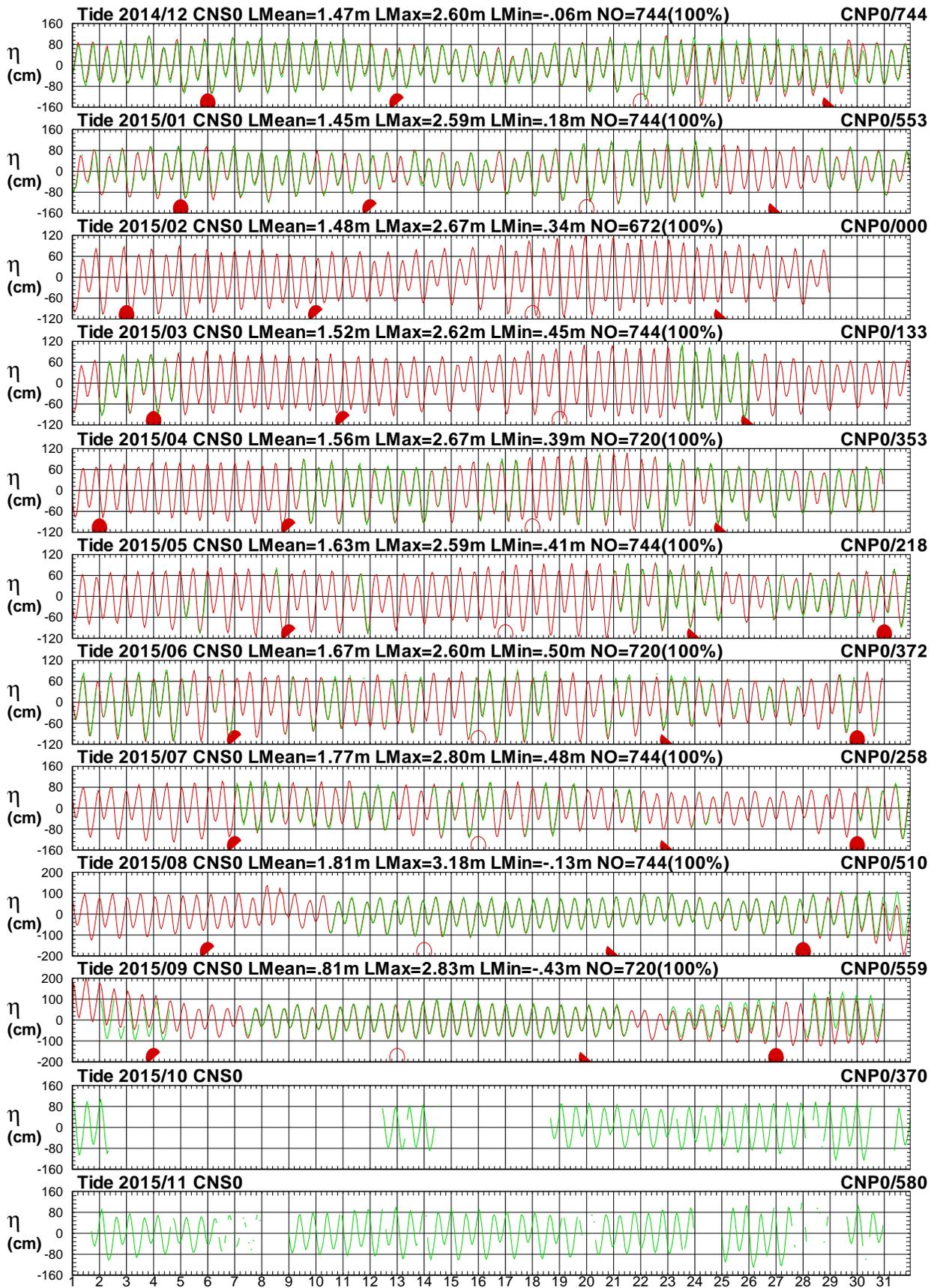


圖 3.2.5 2015年每月嘉南海域 S 站與 P 站潮位比較圖

T14CCNS0.1HA T14CCNP0.1H0 T151CNS0.1HA T151CNP0.1H0 T152CNS0.1HA T152CNP0.1H0
 T153CNS0.1HA T153CNP0.1H0 T154CNS0.1HA T154CNP0.1H0 T155CNS0.1HA T155CNP0.1H0

Institute of Harbor & Marine Technology

Tidal Level in Chia-Nan Seas of CNS0 at 2015

1 ○ 8 ● 15 ● 22 ●

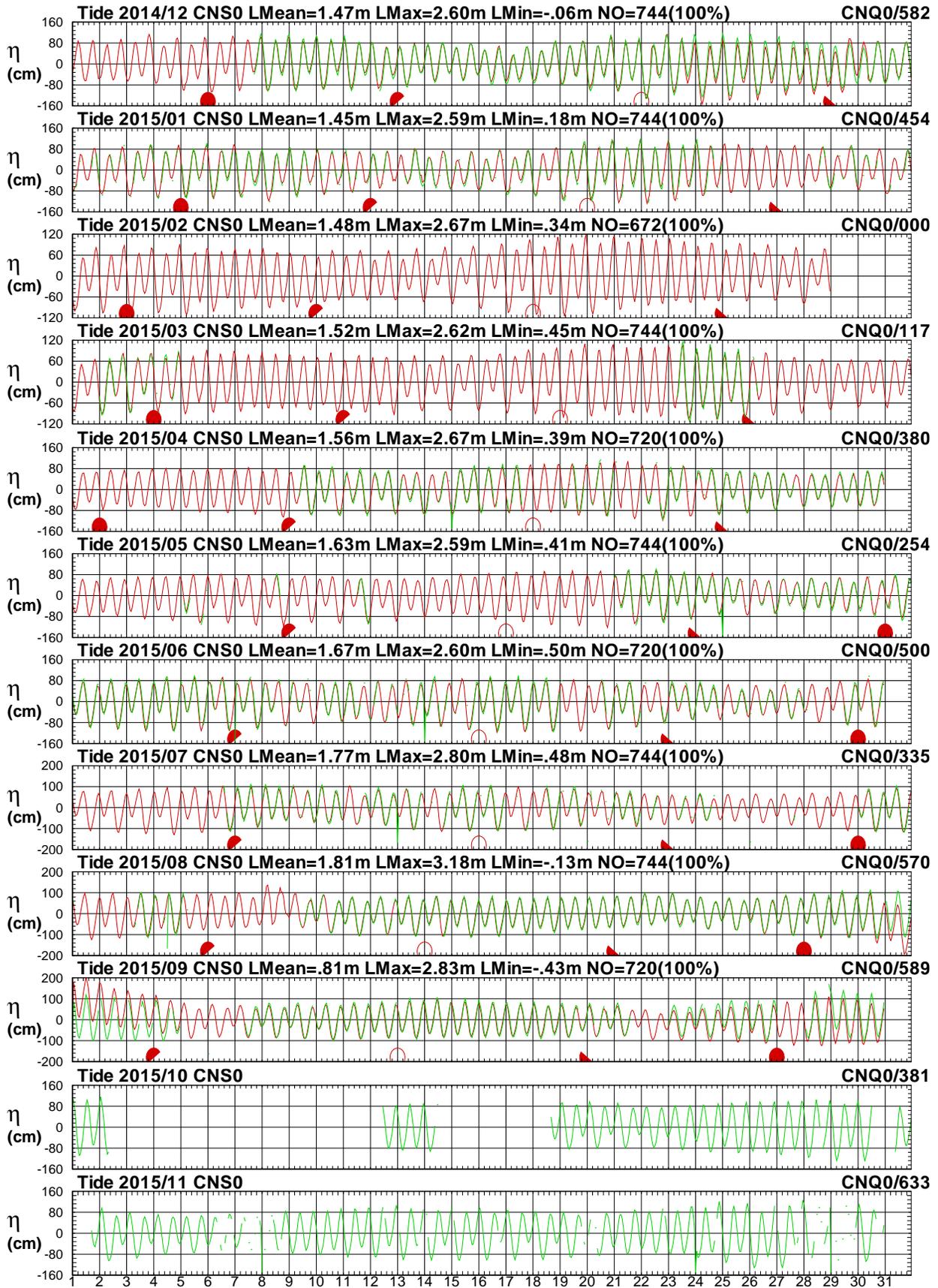


圖 3.2.6 2015年每月嘉南海域 S 站與 Q 站潮位比較圖

Day

T14CCNS0.1HA T14CCNQ0.1H0 T151CNS0.1HA T151CNQ0.1H0 T152CNS0.1HA T152CNQ0.1H0
T153CNS0.1HA T153CNQ0.1H0 T154CNS0.1HA T154CNQ0.1H0 T155CNS0.1HA T155CNQ0.1H0

Institute of Harbor & Marine Technology

Tidal Level in Chia-Nan Seas of CNM0 at 2015

1 ○ 8 ● 15 ● 22 ●

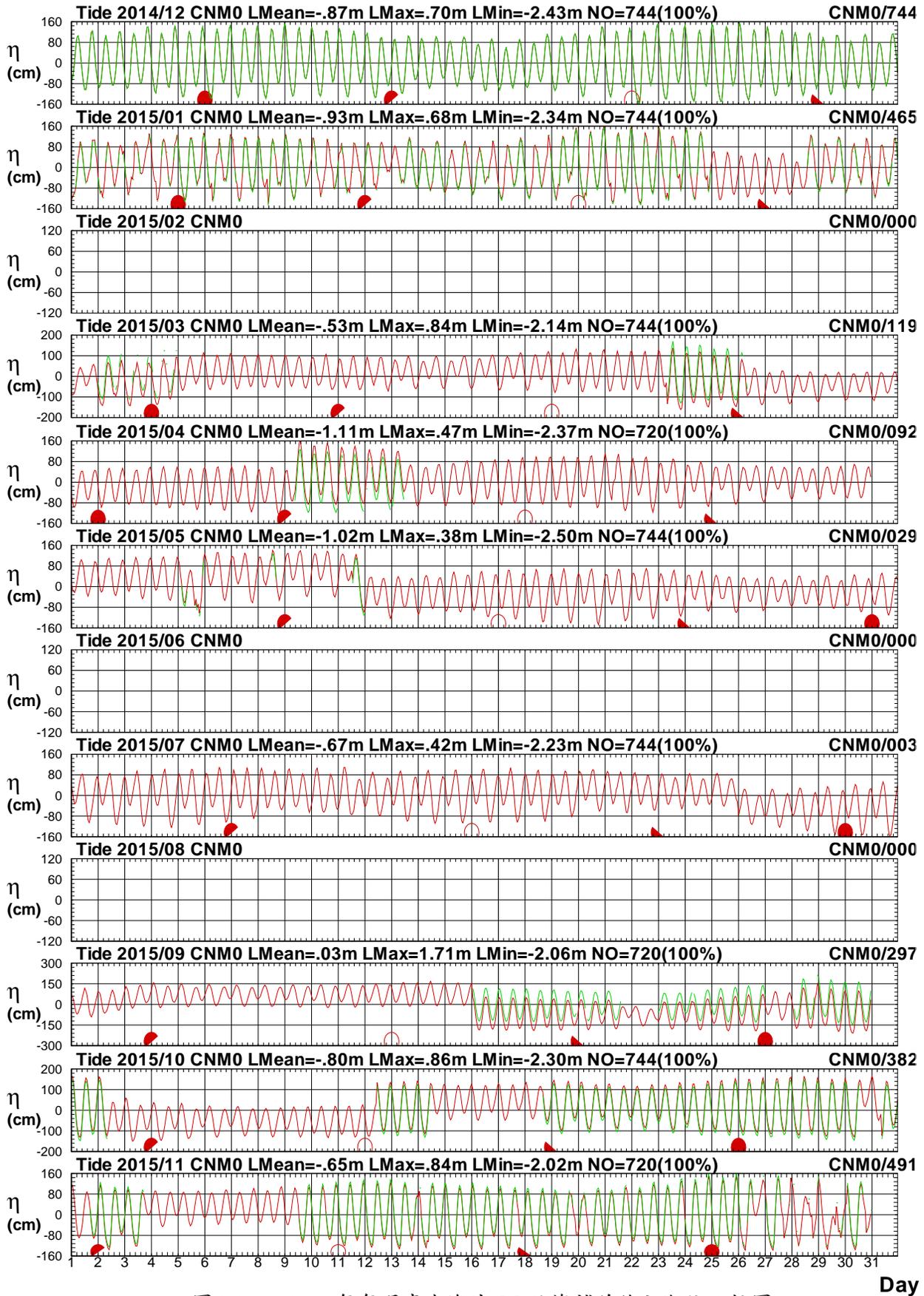


圖 3.3.1 2015年每月嘉南海域 M 站修補前後之潮位比較圖

T14CCNM0.1HA T14CCNM0.1H0 T151CNM0.1HA T151CNM0.1H0 T152CNM0.1HA T152CNM0.1H0
 T153CNM0.1HA T153CNM0.1H0 T154CNM0.1HA T154CNM0.1H0 T155CNM0.1HA T155CNM0.1H0

Institute of Harbor & Marine Technology

Tidal Level in Chia-Nan Seas of CNM0 at 2015

1 ○ 8 ● 15 ● 22 ●

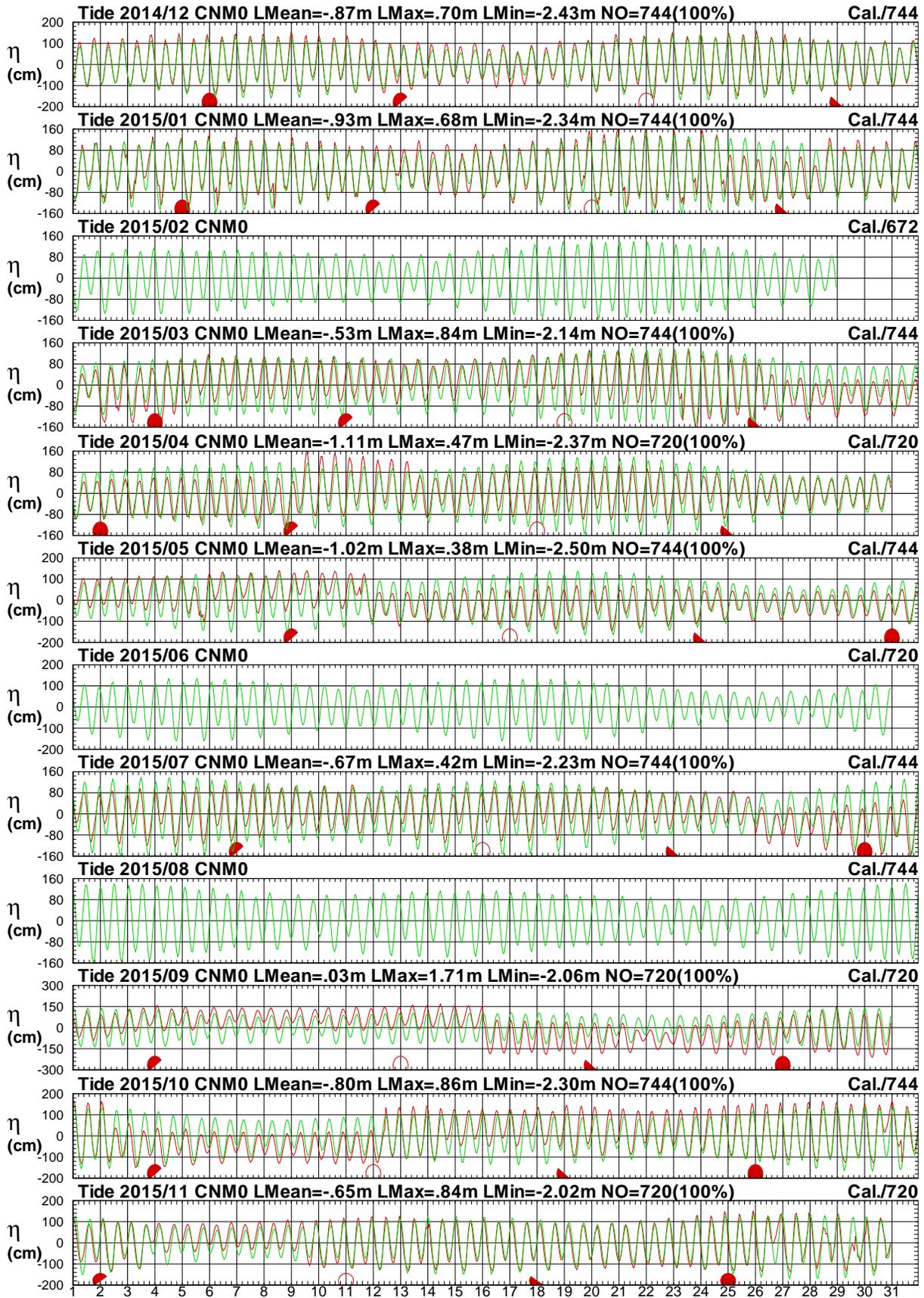


圖 3.3.2 2015年每月嘉南海域 M 站潮位歷線圖 (綠線: 天文潮)

Day

T14CCNM0.1HA T14CCNM0.1HC T151CNM0.1HA T151CNM0.1HC T152CNM0.1HA T152CNM0.1HC
T153CNM0.1HA T153CNM0.1HC T154CNM0.1HA T154CNM0.1HC T155CNM0.1HA T155CNM0.1HC

Institute of Harbor & Marine Technology

第四章 2015 年嘉南海域觀測海流資料

嘉南海域海流之觀測係本中心係利用位於安平港海上觀測樁頂水下 5 米處(稱**測站 X0**)之 Inter Ocean S-4ADW 潮波儀所測得，如附圖 4，因 S-4 觀測儀器老舊，目前已更換為 NORTEK 公司之剖面海流表面海流與潮汐之監測系統(AWCP)，觀測資料至觀測樁於 2011 年 7 月拆除為止，2011 年 7 月於南堤外海增設剖面海流表面波浪與潮汐之監測系統(AWCP)(稱**測站 A1**)。另本中心於 2006 年 6 月於布袋港外附近(稱**測站 A**)水深約 7 公尺處設置挪威 NORTEK 公司之剖面海流與表面波浪(波高、週期及波向)即時傳送監測系統(簡稱 AWCP)觀測站。

測站 Y(七股外海浮標站)及**測站 Z**(七股雷達站)海流儀屬水利署所有。曾文浮標站**測站 V**、鹿耳門溪口外海浮標(**測站 U**)海流儀則屬臺灣中油所設置。安平海域各測站歷年觀測海流資料蒐集概況如表 4。

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 嘉南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°56'37"N	120°08'10"E	1999/10-2011/07	港研中心	安平港觀測樁
X1	22°57'22"N	120°08'53"E	2010/12-2015/11(觀測中)	港研中心	安平港南堤
Y	23°05'55"	120°00'20"E	2006/06-2015/11(觀測中)	水利署	七股浮標站
Z	23°06'48"	120°03'8"E	2005/10-2015/11(觀測中)	水利署	七股雷達站
A0	23°22'49"N	120°07'29" E	2006/06-2010/03	港研中心	AWCP 布袋港
A1	23°22'37"N	120°07'26"E	2012/08-2015/11(觀測中)	港研中心	AWCP 布袋港
V	23°04'29"N	119°57'40"E	2013/08-2015/09	臺灣中油	曾文浮標站
U	22°59'22"N	120°02'26"E	2015/09-2015/09(觀測中)	臺灣中油	鹿耳門浮標站

嘉南海域

 IHMT 波潮流站	 IHMT 觀測樁波潮流站
 WRA 浮標海流站	 CPC 浮標海流站



圖 4 嘉南海域海流觀測站位置示意圖

表4.1a 2015年每月嘉南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	Y	A	Z	V	U		
2014/12月	742 (99.7%)	558 (75.0%)	*	582 (78.2%)	*	*	*	*
2015/ 1月	741 (99.6%)	435 (58.5%)	*	*	*	*	*	*
2015/ 2月	672 (100%)	347 (51.6%)	*	*	*	*	*	*
2015/ 3月	673 (90.5%)	355 (47.7%)	*	*	*	*	*	*
2015/ 4月	560 (77.8%)	336 (46.7%)	9 (1.3%)	*	*	*	*	*
2015/ 5月	731 (98.3%)	568 (76.3%)	*	*	*	*	*	*
2015/ 6月	715 (99.3%)	620 (86.1%)	*	*	*	*	*	*
2015/ 7月	668 (89.8%)	656 (88.2%)	616 (82.8%)	*	*	*	*	*
2015/ 8月	740 (99.5%)	709 (95.3%)	629 (84.5%)	*	322 (43.3%)	*	*	*
2015/ 9月	345 (47.9%)	697 (96.8%)	699 (97.1%)	*	633 (87.9%)	469 (65.1%)	*	*
2015/10月	*	733 (98.5%)	740 (99.5%)	*	558 (75.0%)	498 (66.9%)	*	*
2015/11月	*	664 (92.2%)	693 (96.3%)	533 (74.0%)	469 (65.1%)	438 (60.8%)	*	*
2015/冬季	2155 (99.8%)	1340 (62.0%)	*	582 (26.9%)	*	*	*	*
2015/春季	1964 (88.9%)	1259 (57.0%)	1187 (53.8%)	*	*	*	*	*
2015/夏季	2123 (96.2%)	1985 (89.9%)	1852 (83.9%)	*	322 (14.6%)	*	*	*
2015/秋季	345 (15.8%)	2094 (95.9%)	2132 (97.6%)	533 (24.4%)	1660 (76.0%)	1405 (64.3%)	*	*
2015/整年	6587 (75.2%)	6678 (76.2%)	5171 (59.0%)	1115 (12.7%)	1982 (22.6%)	1405 (16.0%)	*	*
起始年月	2014/12	2014/12	2015/04	2014/12	2015/08	2015/09	*	*
結束年月	2015/09	2015/11	2015/11	2015/11	2015/11	2015/11	*	*

ST-X: 港灣技術研究中心觀測 X 站流速資料

表4.1b 2015年每月嘉南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	
測站	X	Y	A	Z	V	U				
2014/12月	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%)	*	*		
2015/ 2月	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%)	*	*		
2015/ 4月	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%)	*	*		
2015/ 6月	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%)	*	*		
2015/ 8月	744 (100%)	744 (100%)	744 (100%)	744 (100%)	744 (100%)	744 (100%)	*	*		
2015/ 9月	720 (100%)	720 (100%)	720 (100%)	720 (100%)	720 (100%)	720 (100%)	*	*		
2015/10月	744 (100%)	744 (100%)	744 (100%)	744 (100%)	744 (100%)	744 (100%)	*	*		
2015/11月	720 (100%)	720 (100%)	720 (100%)	720 (100%)	720 (100%)	720 (100%)	*	*		
2015/冬季	*	*	*	*	*	*	*	*		
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 Chia-Nan Seas of CNX0 at 2015

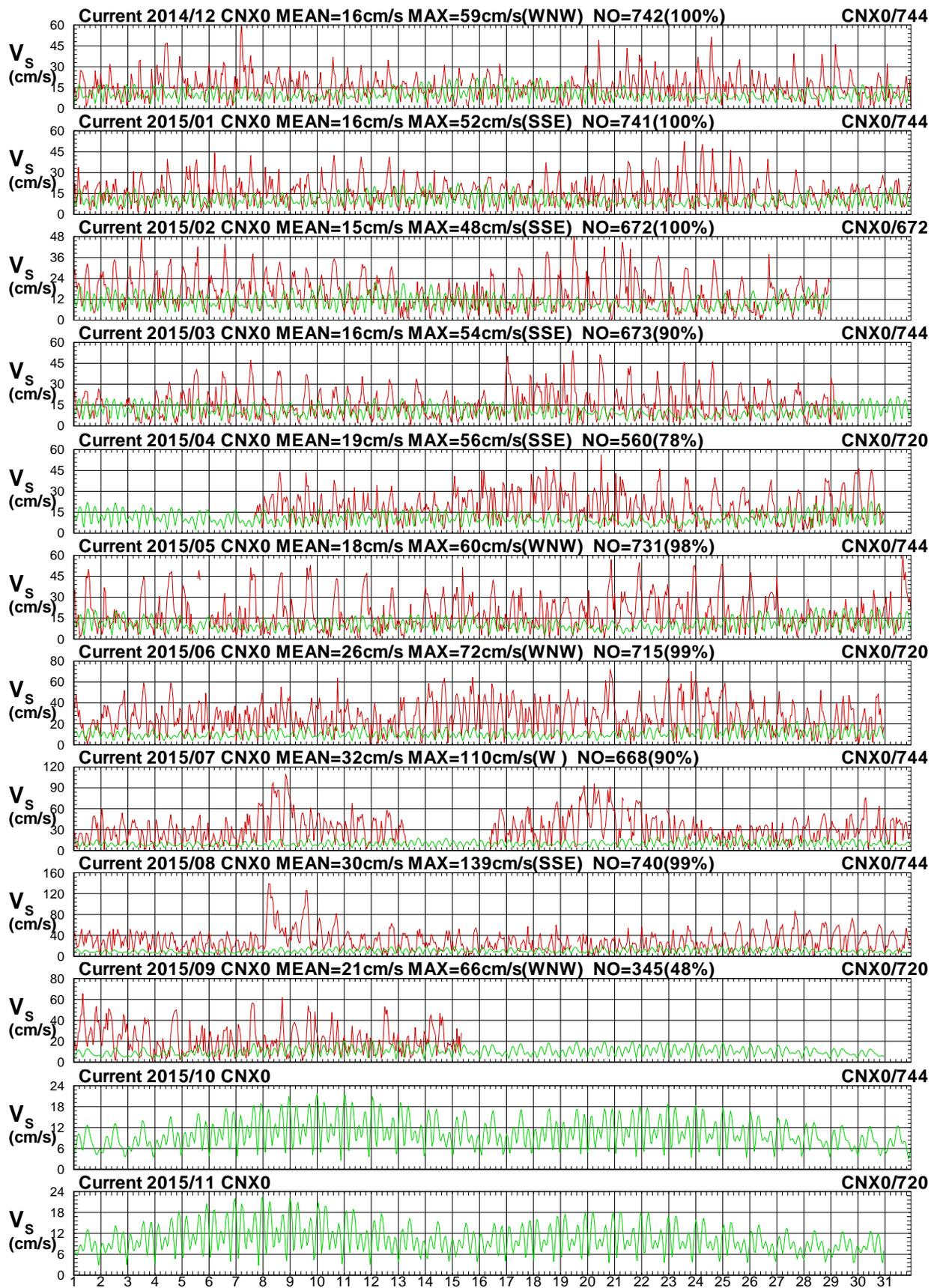


圖 4.1a 2015年每月嘉南海域 X 站觀測與潮流流速比較圖

C14CCNX0.1HD C14CCNX0.1HD C151CNX0.1HD C151CNX0.1HD C152CNX0.1HD C152CNX0.1HD
 C153CNX0.1HD C153CNX0.1HD C154CNX0.1HD C154CNX0.1HD C155CNX0.1HD C155CNX0.1HD

Institute of Harbor & Marine Technology

Current Direction in Chia-Nan Seas of CNX0 at 2015

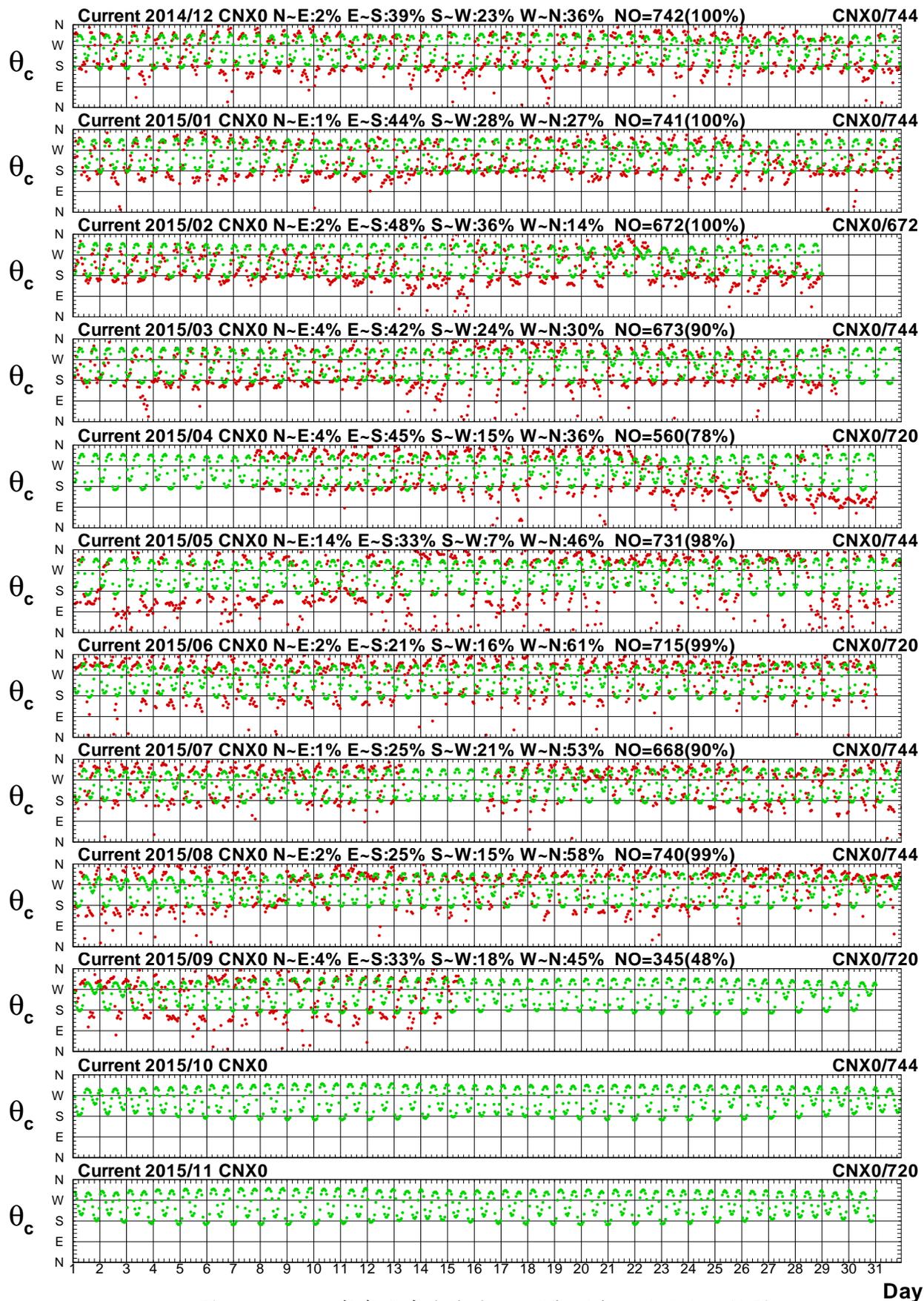


圖 4.1b 2015年每月嘉南海域 X 站觀測與潮流流向比較圖

C14CCNX0.1H0 C14CCNX0.1HD C151CNX0.1H0 C151CNX0.1HD C152CNX0.1H0 C152CNX0.1HD
 C153CNX0.1H0 C153CNX0.1HD C154CNX0.1H0 C154CNX0.1HD C155CNX0.1H0 C155CNX0.1HD

Institute of Harbor & Marine Technology

Current Speed in Chia-Nan Seas of CNX0 at 2015

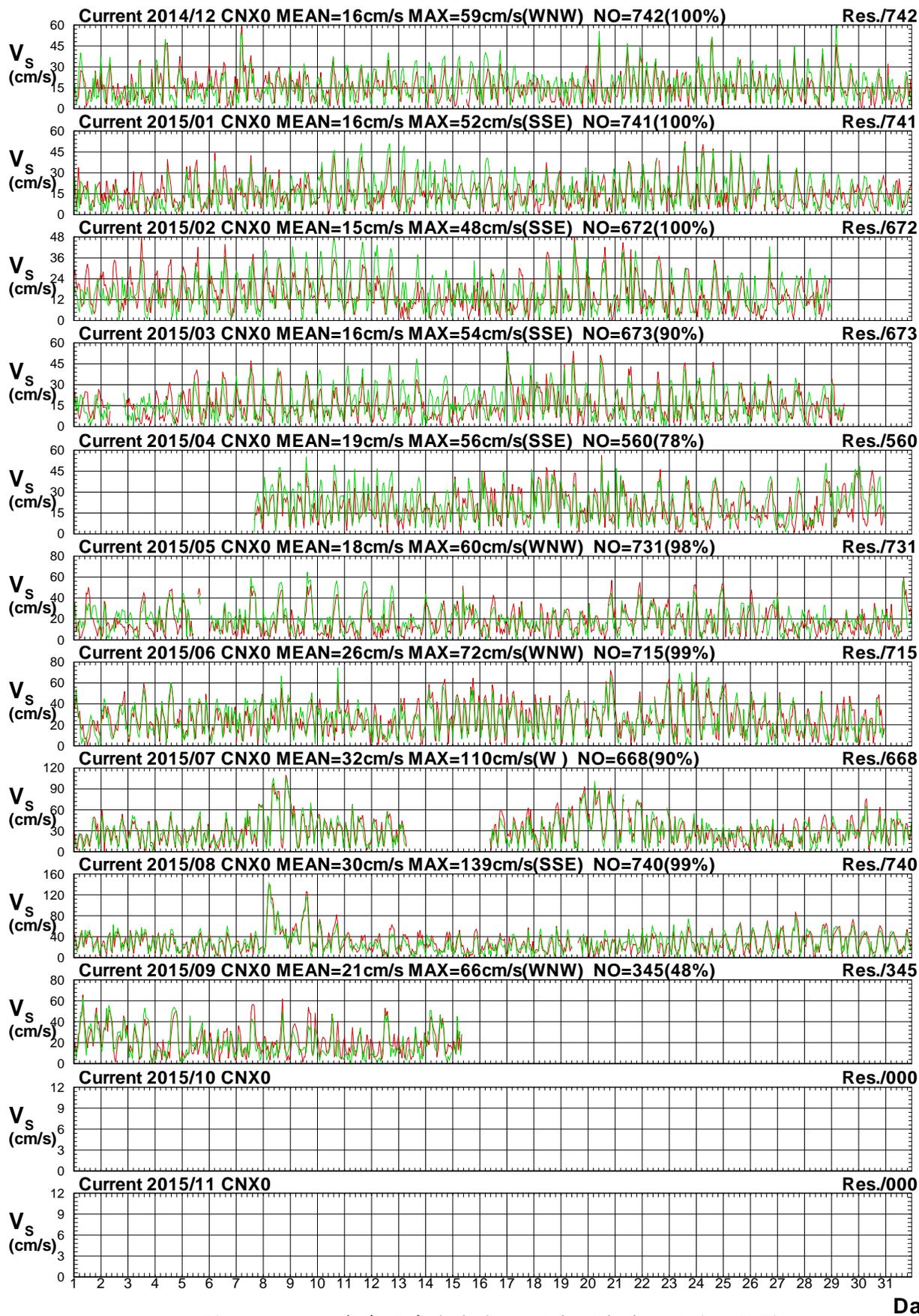


圖 4.2a 2015年每月嘉南海域 X 站觀測與非潮流速比較圖

C14CCNX0.1H0 C14CCNX0.1HR C151CNX0.1H0 C151CNX0.1HR C152CNX0.1H0 C152CNX0.1HR
 C153CNX0.1H0 C153CNX0.1HR C154CNX0.1H0 C154CNX0.1HR C155CNX0.1H0 C155CNX0.1HR

Institute of Harbor & Marine Technology

Current Direction in Chia-Nan Seas of CNX0 at 2015

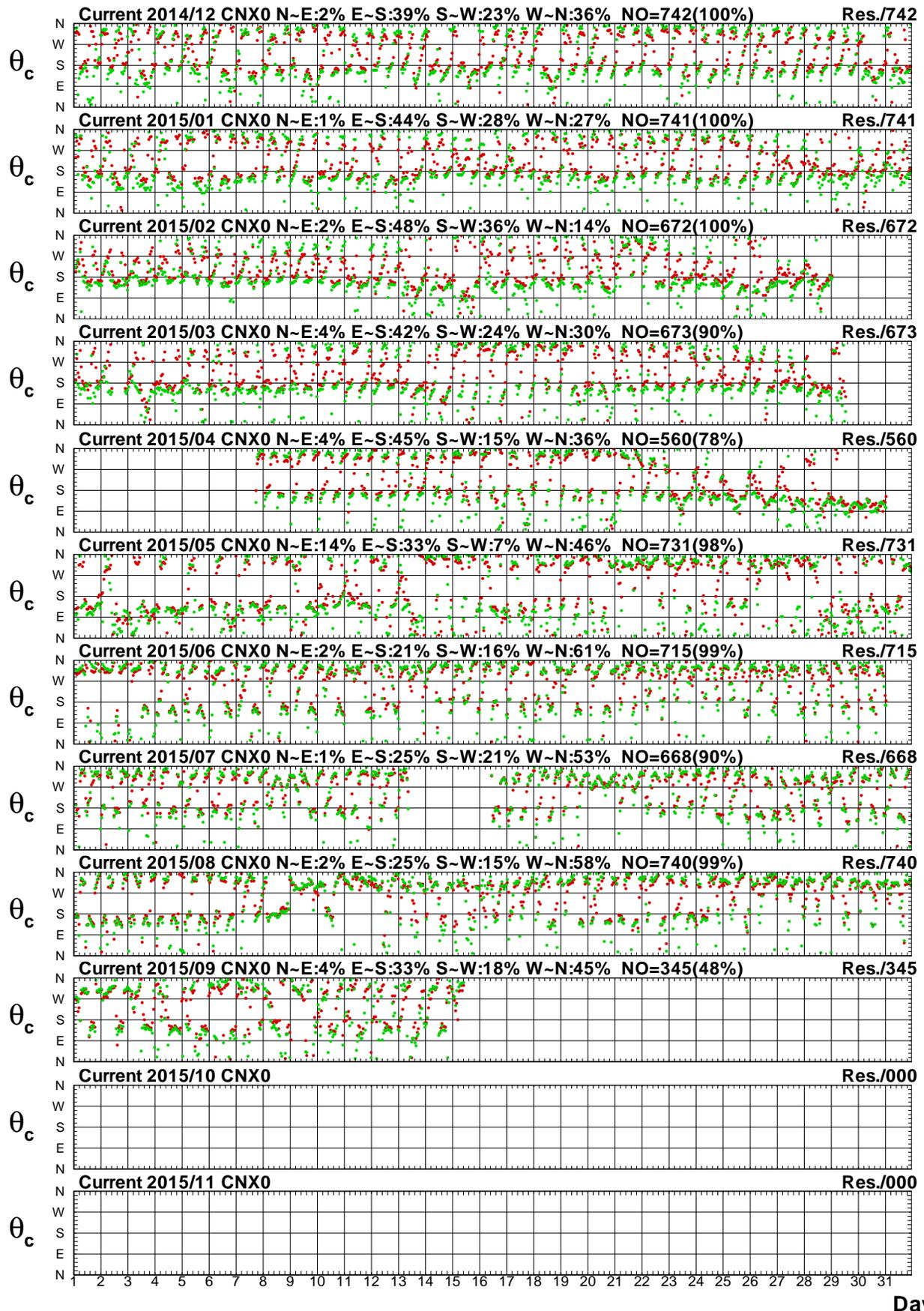


圖 4.2b 2015年每月嘉南海域 X 站觀測與非潮流向比較圖

C14CCNX0.1H0 C14CCNX0.1HR C151CNX0.1H0 C151CNX0.1HR C152CNX0.1H0 C152CNX0.1HR
 C153CNX0.1H0 C153CNX0.1HR C154CNX0.1H0 C154CNX0.1HR C155CNX0.1H0 C155CNX0.1HR

Institute of Harbor & Marine Technology

Current Speed in Chia-Nan Seas of CNYO at 2015

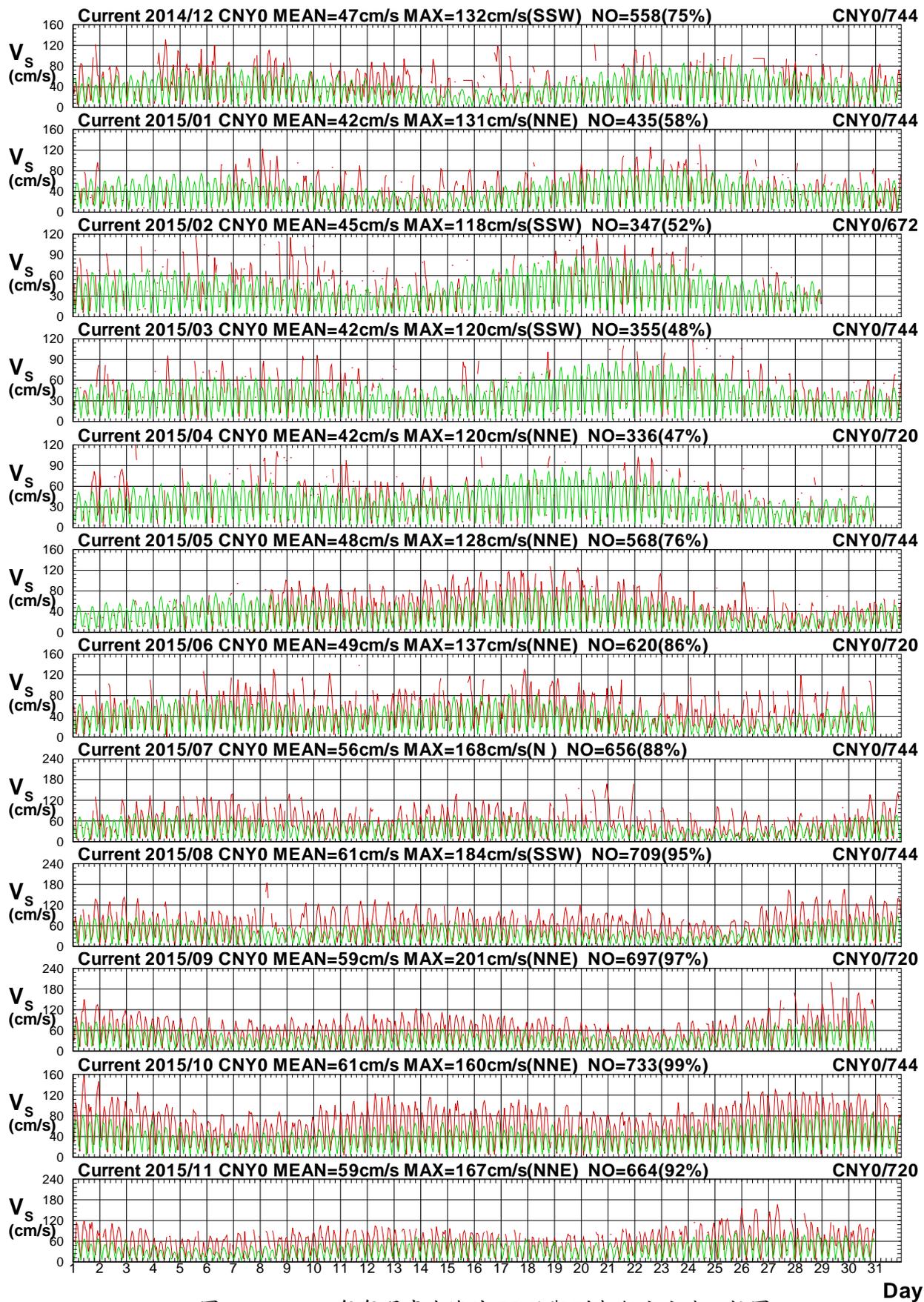


圖 4.3a 2015年每月嘉南海域 Y 站觀測與潮流流速比較圖

C14CCNY0.1H0 C14CCNY0.1HD C151CNY0.1H0 C151CNY0.1HD C152CNY0.1H0 C152CNY0.1HD
 C153CNY0.1H0 C153CNY0.1HD C154CNY0.1H0 C154CNY0.1HD C155CNY0.1H0 C155CNY0.1HD

Institute of Harbor & Marine Technology

Current Direction in Chia-Nan Seas of CNY0 at 2015

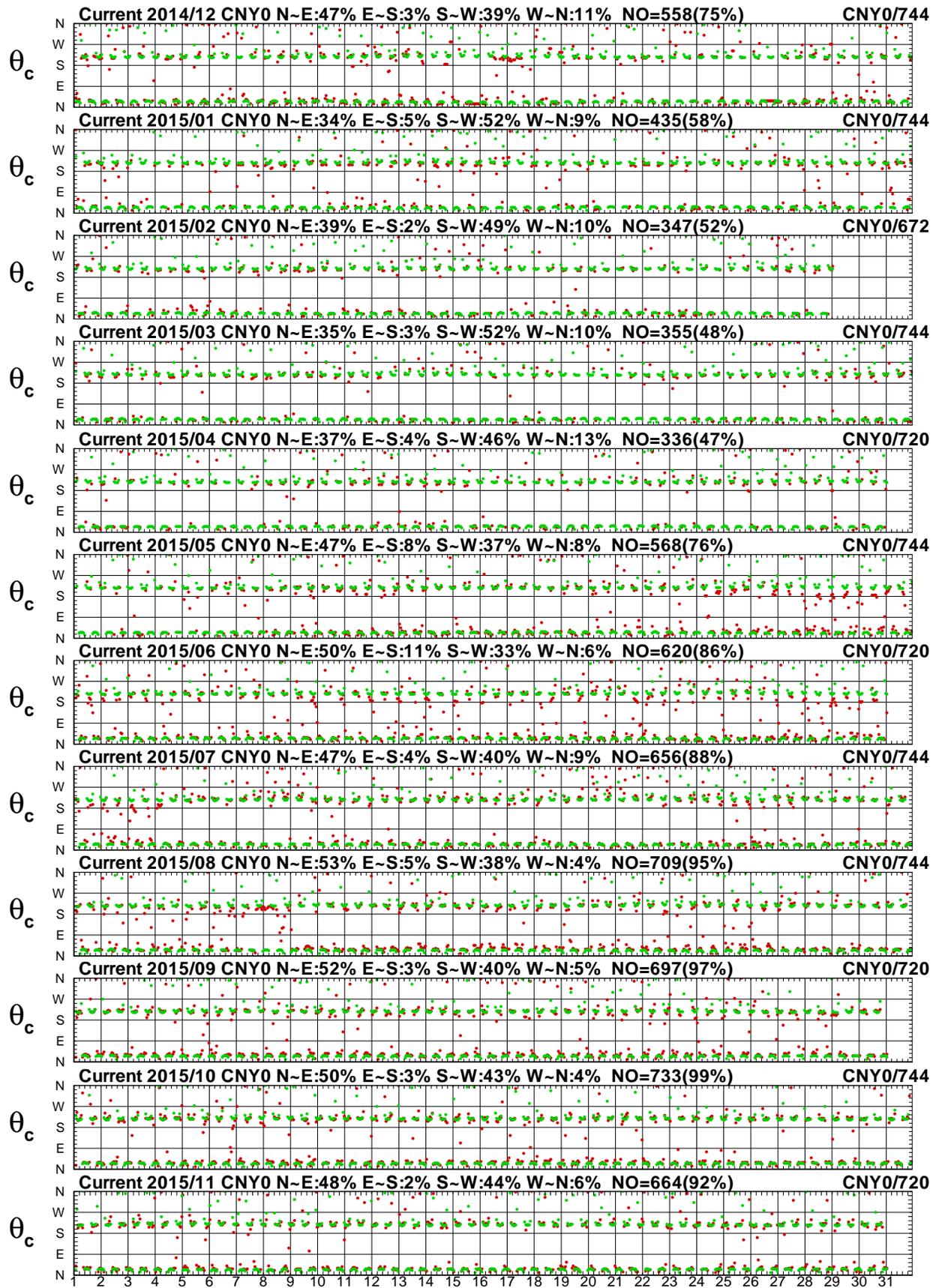


圖 4.3b 2015年每月嘉南海域 Y 站觀測與潮流流向比較圖

C14CCNY0.1H0 C14CCNY0.1HD C151CNY0.1H0 C151CNY0.1HD C152CNY0.1H0 C152CNY0.1HD
 C153CNY0.1H0 C153CNY0.1HD C154CNY0.1H0 C154CNY0.1HD C155CNY0.1H0 C155CNY0.1HD

Institute of Harbor & Marine Technology

Current Speed in Chia-Nan Seas of CNYO at 2015

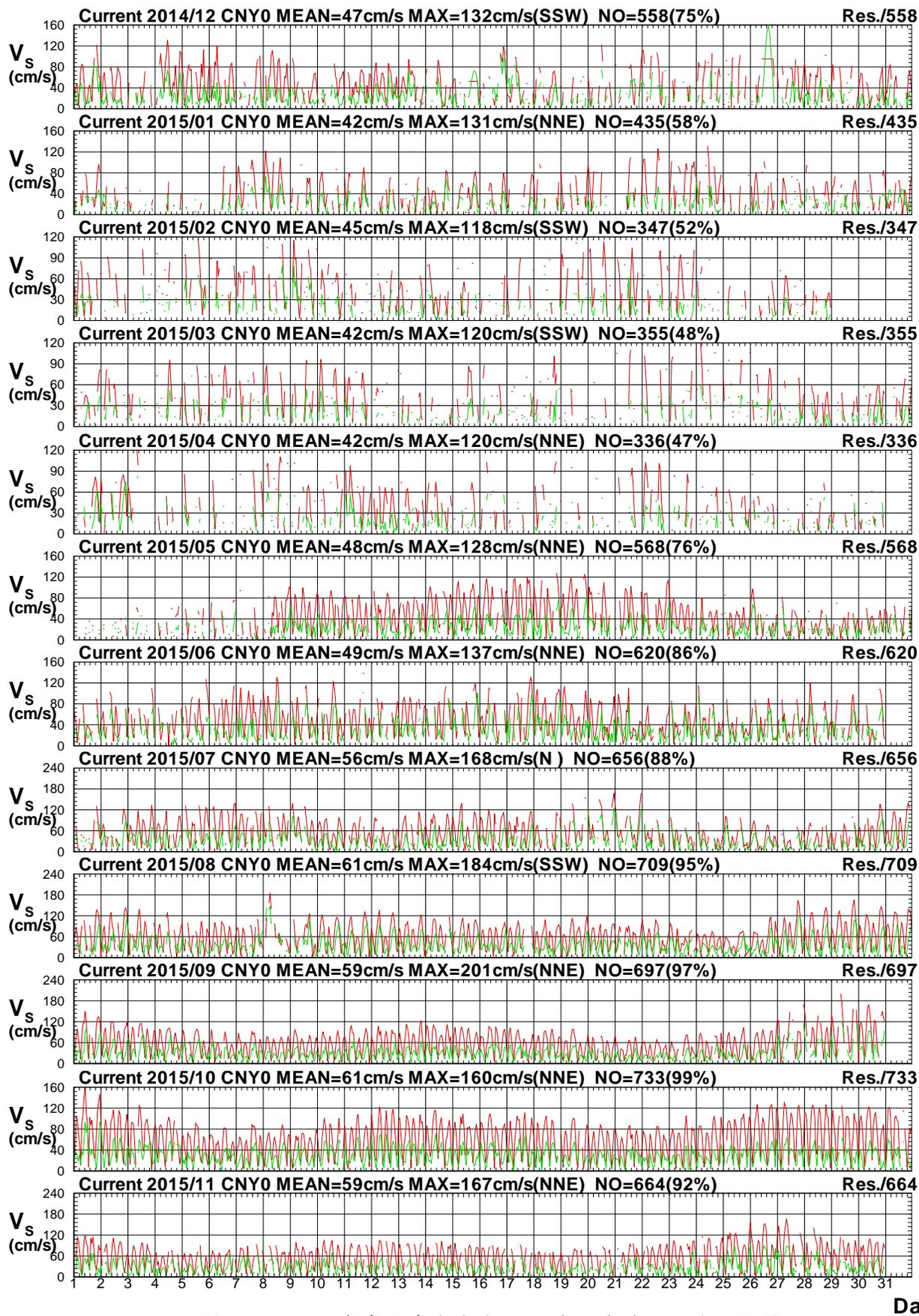


圖 4.4a 2015年每月嘉南海域 Y 站觀測與非潮流速比較圖

C14CCNY0.1H0 C14CCNY0.1HR C151CNY0.1H0 C151CNY0.1HR C152CNY0.1H0 C152CNY0.1HR
 C153CNY0.1H0 C153CNY0.1HR C154CNY0.1H0 C154CNY0.1HR C155CNY0.1H0 C155CNY0.1HR

Institute of Harbor & Marine Technology

Current Direction in Chia-Nan Seas of CNY0 at 2015

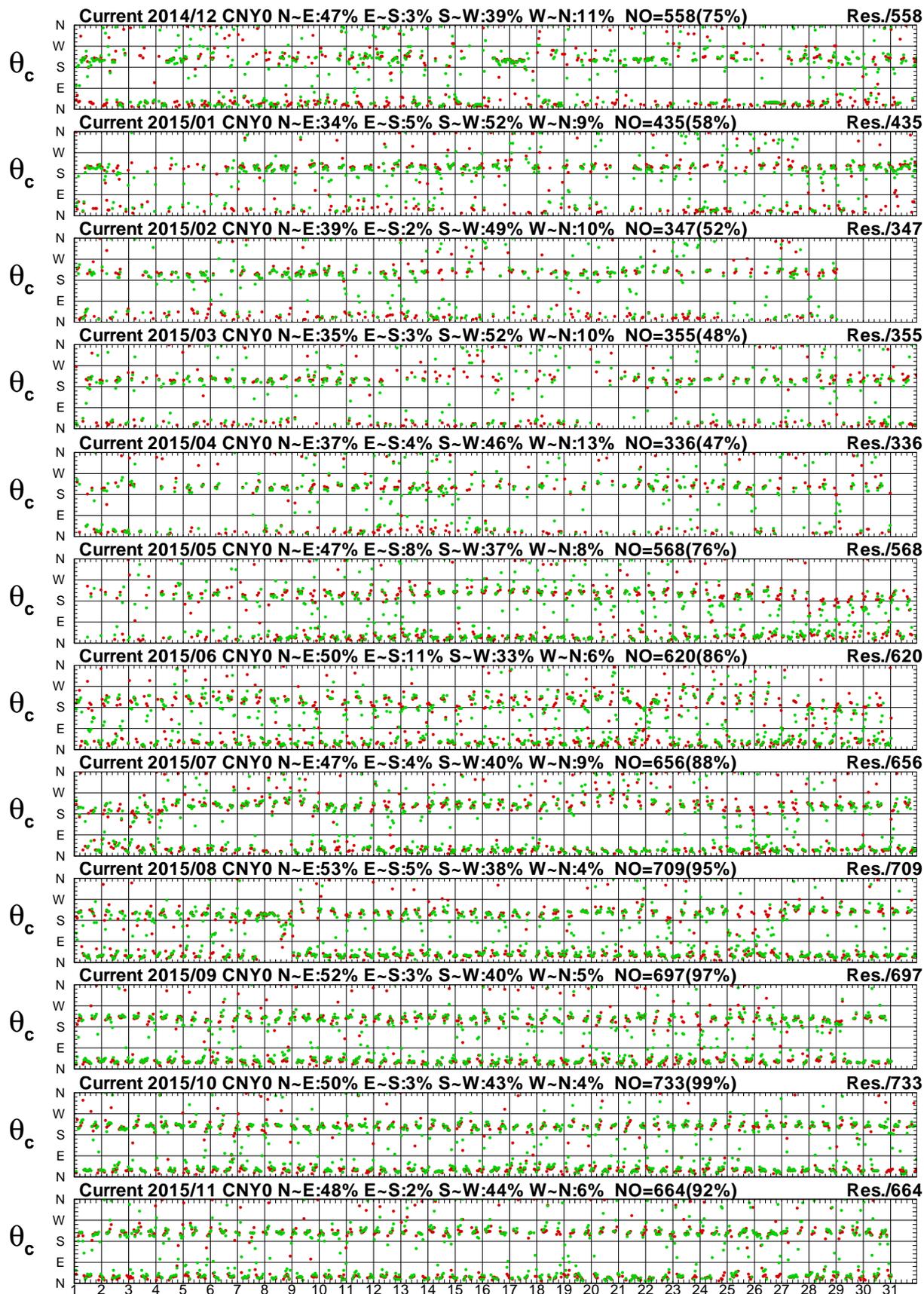


圖 4.4b 2015年每月嘉南海域 Y 站觀測與非潮流向比較圖

C14CCNY0.1H0 C14CCNY0.1HR C151CNY0.1H0 C151CNY0.1HR C152CNY0.1H0 C152CNY0.1HR
 C153CNY0.1H0 C153CNY0.1HR C154CNY0.1H0 C154CNY0.1HR C155CNY0.1H0 C155CNY0.1HR

Institute of Harbor & Marine Technology

Current Speed in Chia-Nan Seas of CNAO at 2015

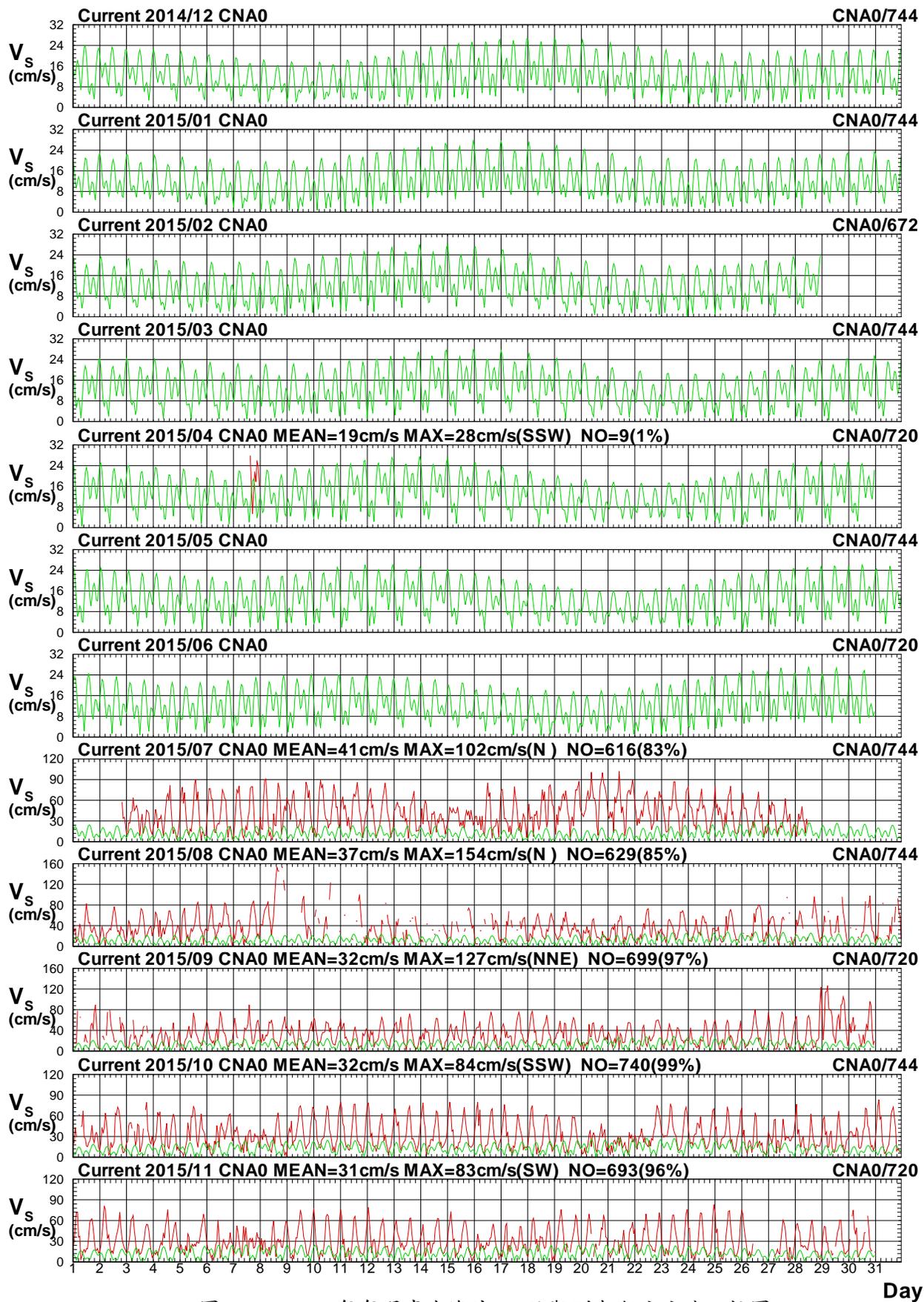


圖 4.5a 2015年每月嘉南海域 A 站觀測與潮流流速比較圖

C14CCNA0.1HD C14CCNA0.1HD C151CNA0.1HD C151CNA0.1HD C152CNA0.1HD C152CNA0.1HD
 C153CNA0.1HD C153CNA0.1HD C154CNA0.1HD C154CNA0.1HD C155CNA0.1HD C155CNA0.1HD

Institute of Harbor & Marine Technology

Current Direction in Chia-Nan Seas of CNA0 at 2015

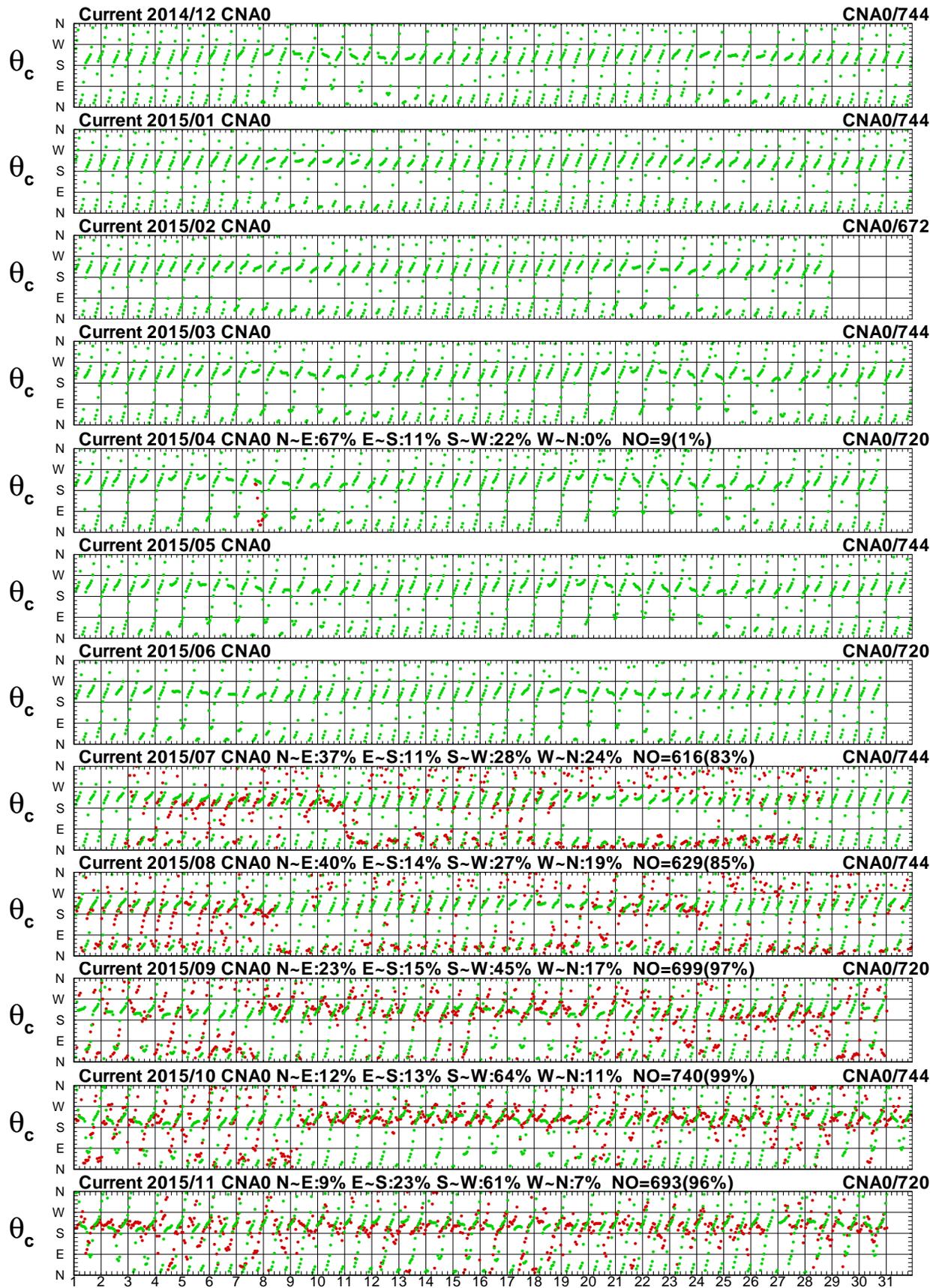


圖 4.5b 2015年每月嘉南海域 A 站觀測與潮流流向比較圖

C14CCNA0.1H0 C14CCNA0.1HD C151CNA0.1H0 C151CNA0.1HD C152CNA0.1H0 C152CNA0.1HD
 C153CNA0.1H0 C153CNA0.1HD C154CNA0.1H0 C154CNA0.1HD C155CNA0.1H0 C155CNA0.1HD

Institute of Harbor & Marine Technology

Current Speed in Chia-Nan Seas of CNA0 at 2015

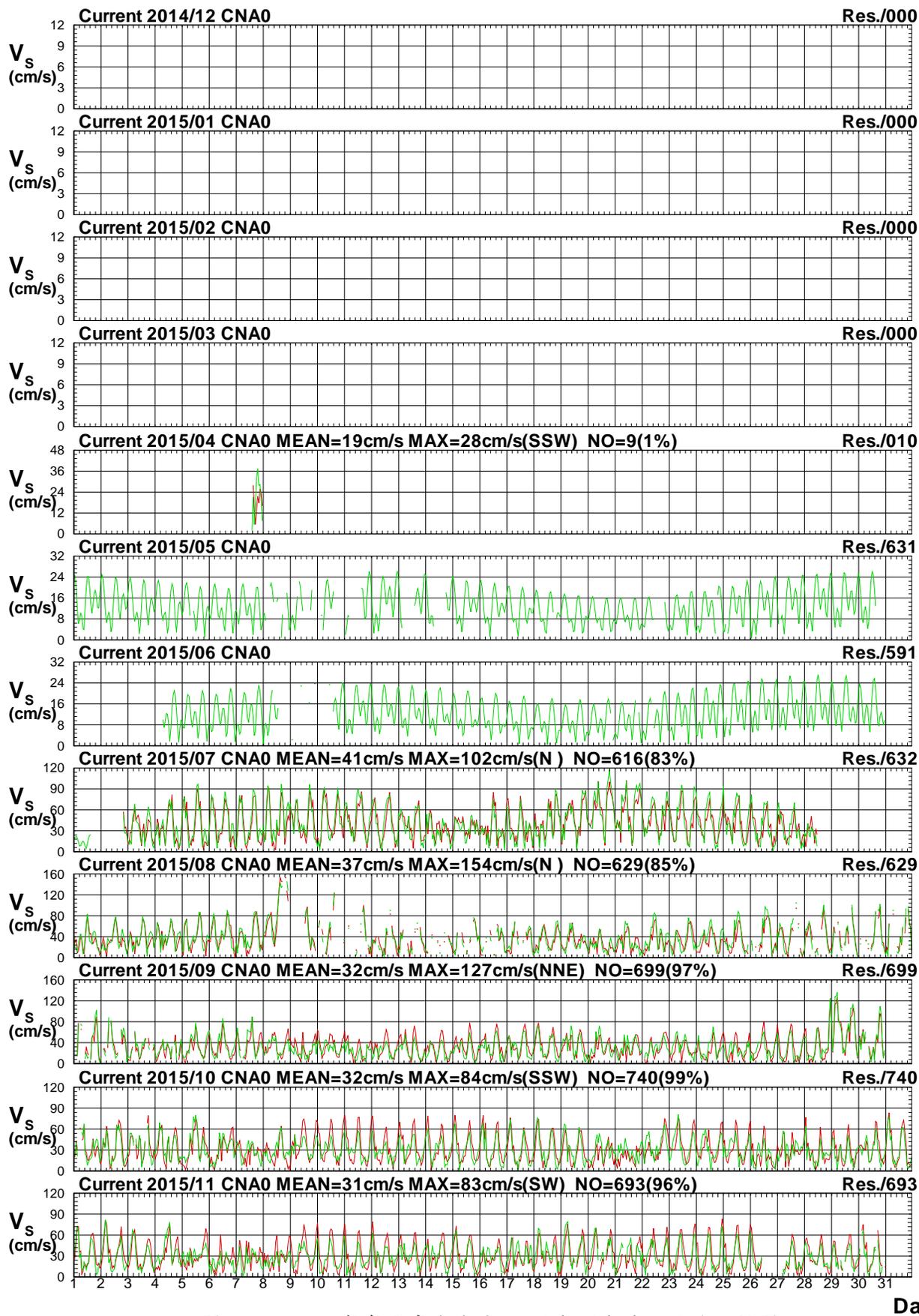


圖 4.6a 2015年每月嘉南海域 A 站觀測與非潮流速比較圖

C14CCNA0.1H0 C14CCNA0.1HR C151CNA0.1H0 C151CNA0.1HR C152CNA0.1H0 C152CNA0.1HR
 C153CNA0.1H0 C153CNA0.1HR C154CNA0.1H0 C154CNA0.1HR C155CNA0.1H0 C155CNA0.1HR

Institute of Harbor & Marine Technology

Current Direction in Chia-Nan Seas of CNA0 at 2015

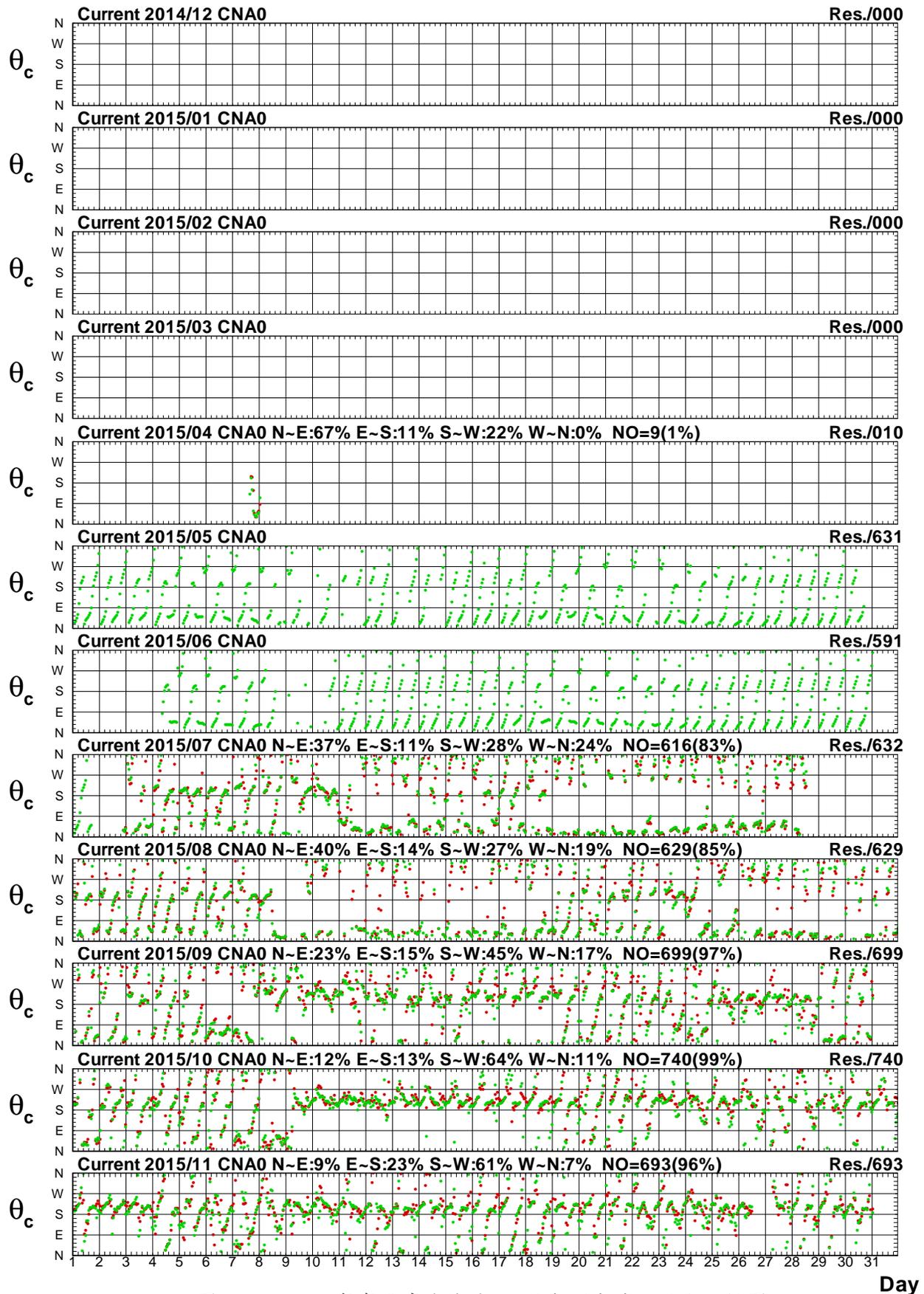


圖 4.6b 2015 年每月嘉南海域 A 站觀測與非潮流向比較圖

C14CCNA0.1H0 C14CCNA0.1HR C151CNA0.1H0 C151CNA0.1HR C152CNA0.1H0 C152CNA0.1HR
 C153CNA0.1H0 C153CNA0.1HR C154CNA0.1H0 C154CNA0.1HR C155CNA0.1H0 C155CNA0.1HR

Institute of Harbor & Marine Technology

Current Speed in Chia-Nan Seas of CNZO at 2015

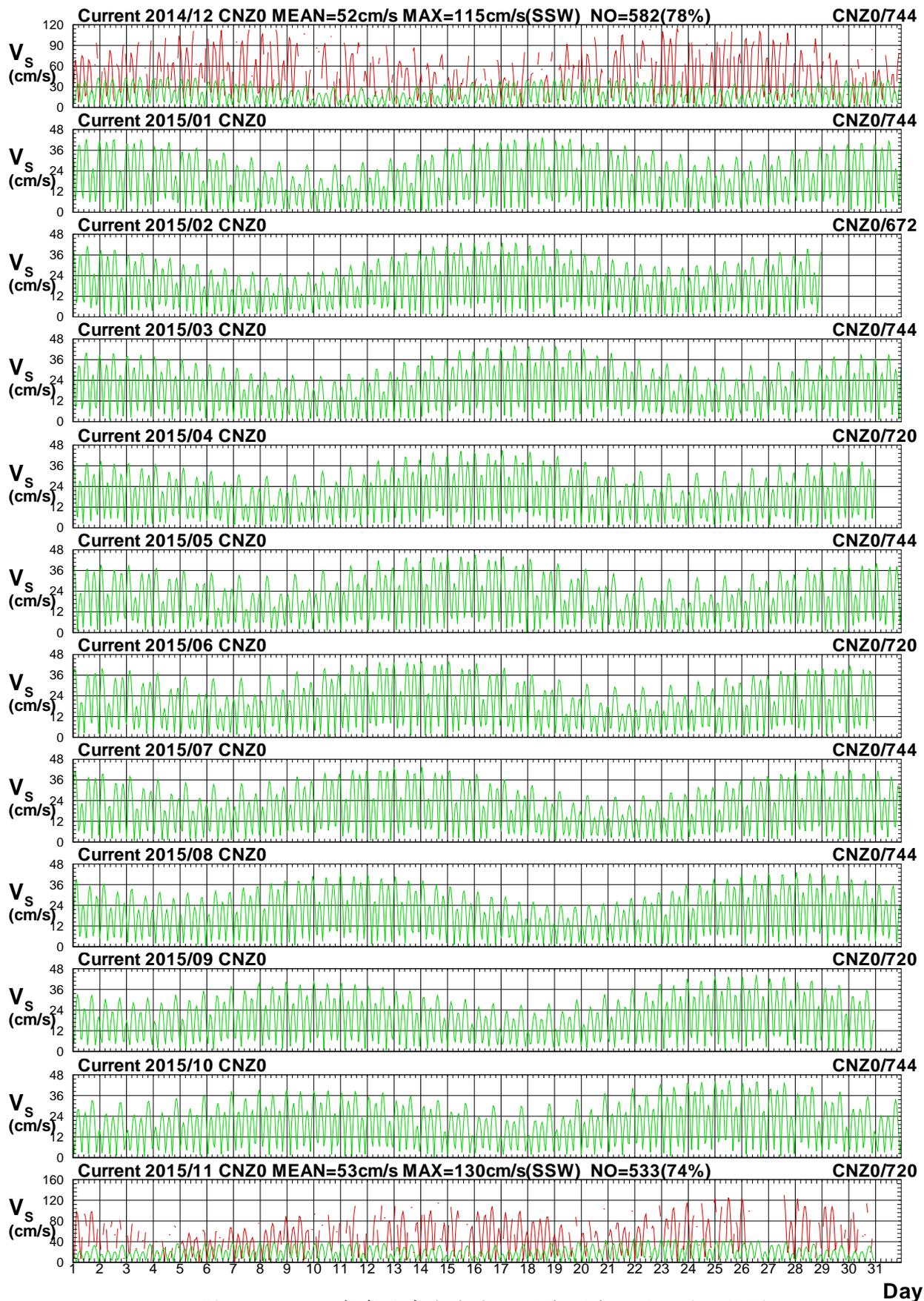


圖 4.7a 2015 年每月嘉南海域 Z 站觀測與潮流流速比較圖

C14CCNZ0.1H0 C14CCNZ0.1HD C151CNZ0.1H0 C151CNZ0.1HD C152CNZ0.1H0 C152CNZ0.1HD
 C153CNZ0.1H0 C153CNZ0.1HD C154CNZ0.1H0 C154CNZ0.1HD C155CNZ0.1H0 C155CNZ0.1HD

Institute of Harbor & Marine Technology

Current Direction in Chia-Nan Seas of CNZO at 2015

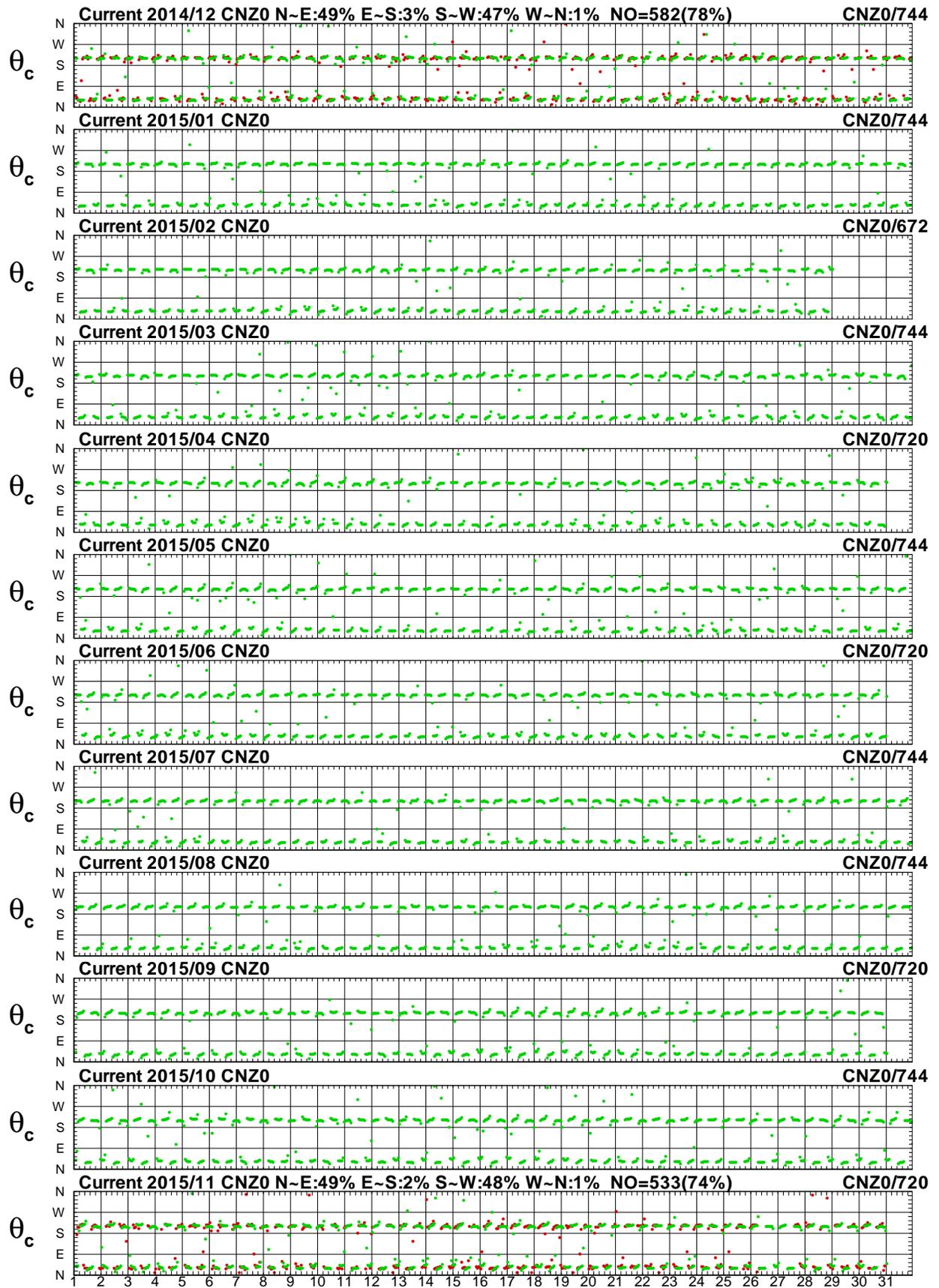


圖 4.7b 2015年每月嘉南海域 Z 站觀測與潮流流向比較圖

C14CCNZ0.1H0 C14CCNZ0.1HD C151CNZO.1H0 C151CNZO.1HD C152CNZO.1H0 C152CNZO.1HD
 C153CNZO.1H0 C153CNZO.1HD C154CNZO.1H0 C154CNZO.1HD C155CNZO.1H0 C155CNZO.1HD

Institute of Harbor & Marine Technology

Current Speed in Chia-Nan Seas of CNZO at 2015

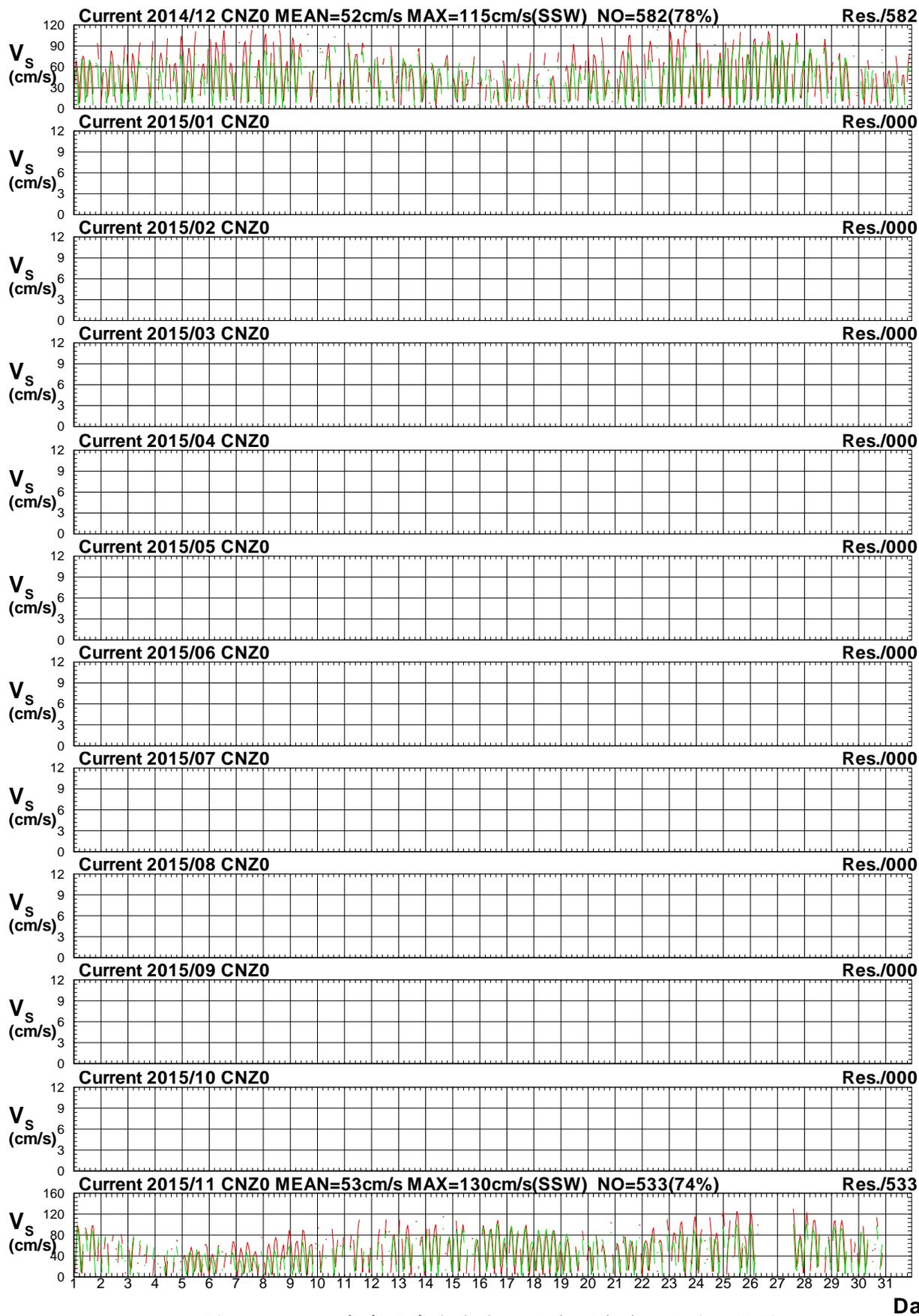


圖 4.8a 2015 年每月嘉南海域 Z 站觀測與非潮流速比較圖

C14CCNZ0.1H0 C14CCNZ0.1HR C151CNZ0.1H0 C151CNZ0.1HR C152CNZ0.1H0 C152CNZ0.1HR
 C153CNZ0.1H0 C153CNZ0.1HR C154CNZ0.1H0 C154CNZ0.1HR C155CNZ0.1H0 C155CNZ0.1HR

Institute of Harbor & Marine Technology

Current Direction in Chia-Nan Seas of CNZ0 at 2015

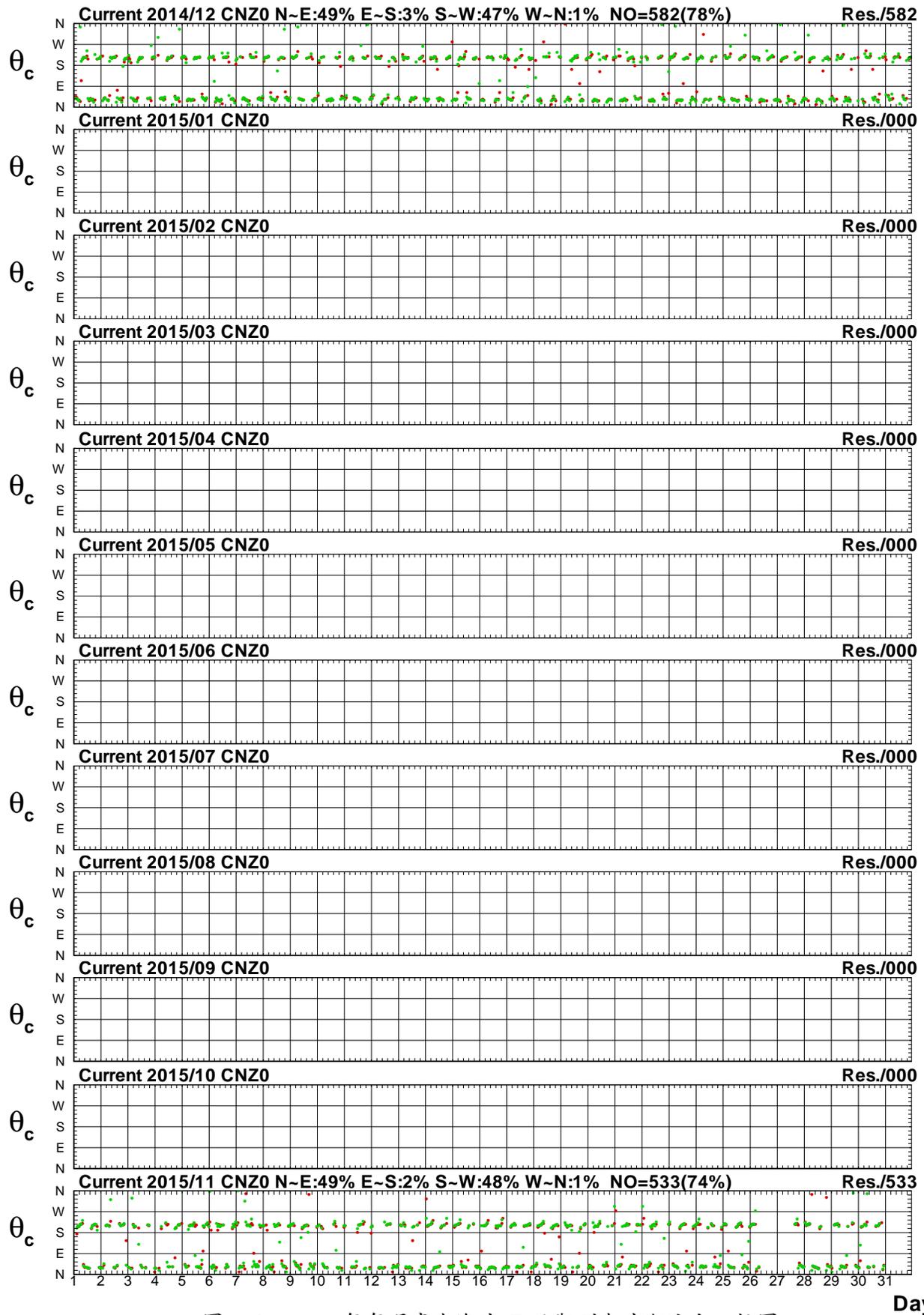


圖 4.8b 2015年每月嘉南海域 Z 站觀測與非潮流向比較圖

C14CCNZ0.1H0 C14CCNZ0.1HR C151CNZ0.1H0 C151CNZ0.1HR C152CNZ0.1H0 C152CNZ0.1HR
 C153CNZ0.1H0 C153CNZ0.1HR C154CNZ0.1H0 C154CNZ0.1HR C155CNZ0.1H0 C155CNZ0.1HR

Institute of Harbor & Marine Technology

Current Speed in Chia-Nan Seas of CNV0 at 2015

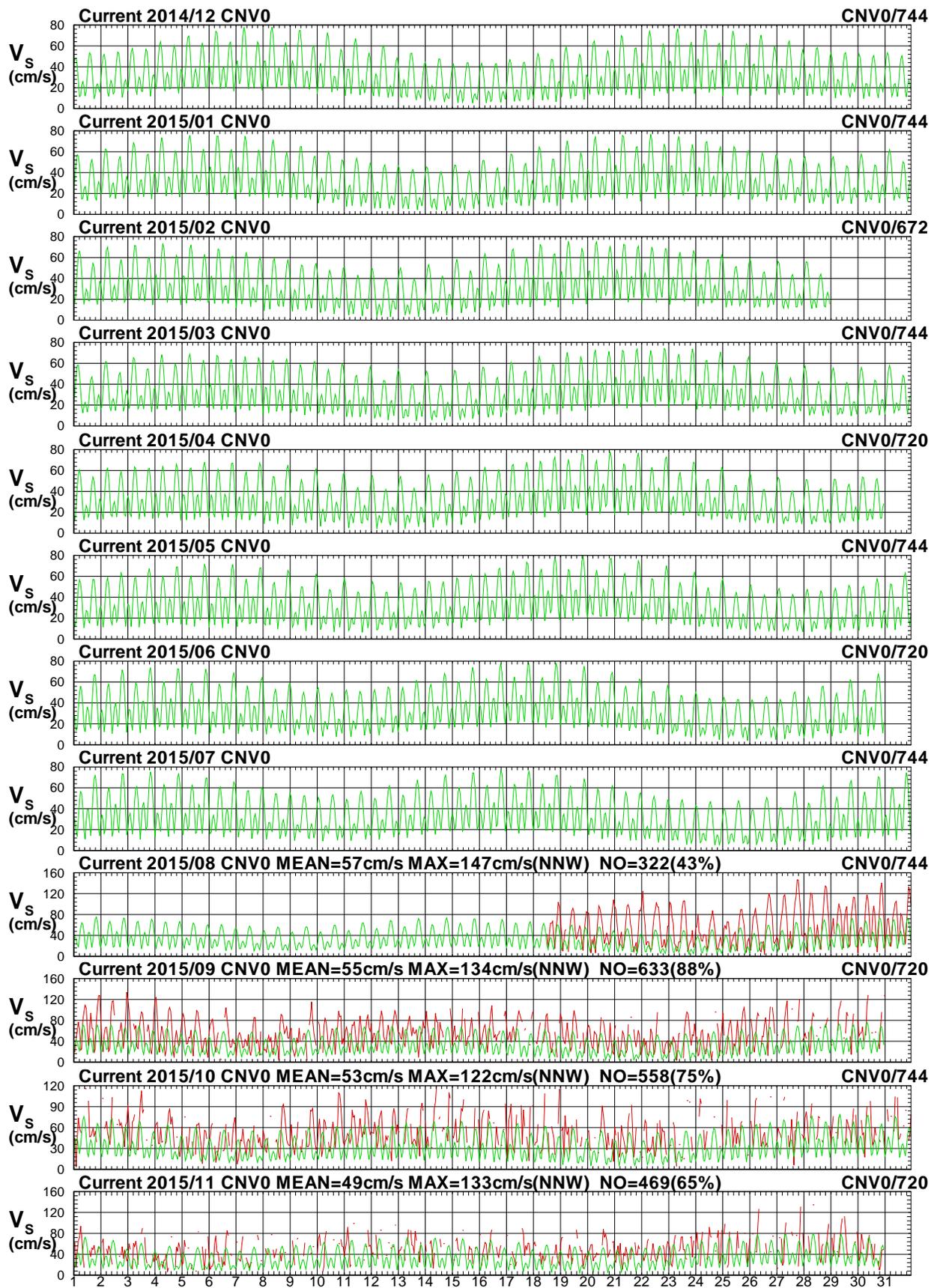


圖 4.9a 2015年每月嘉南海域 V 站觀測與潮流流速比較圖

C14CCNV0.1H0 C14CCNV0.1HD C151CNV0.1H0 C151CNV0.1HD C152CNV0.1H0 C152CNV0.1HD
 C153CNV0.1H0 C153CNV0.1HD C154CNV0.1H0 C154CNV0.1HD C155CNV0.1H0 C155CNV0.1HD

Institute of Harbor & Marine Technology

Current Direction in Chia-Nan Seas of CNV0 at 2015

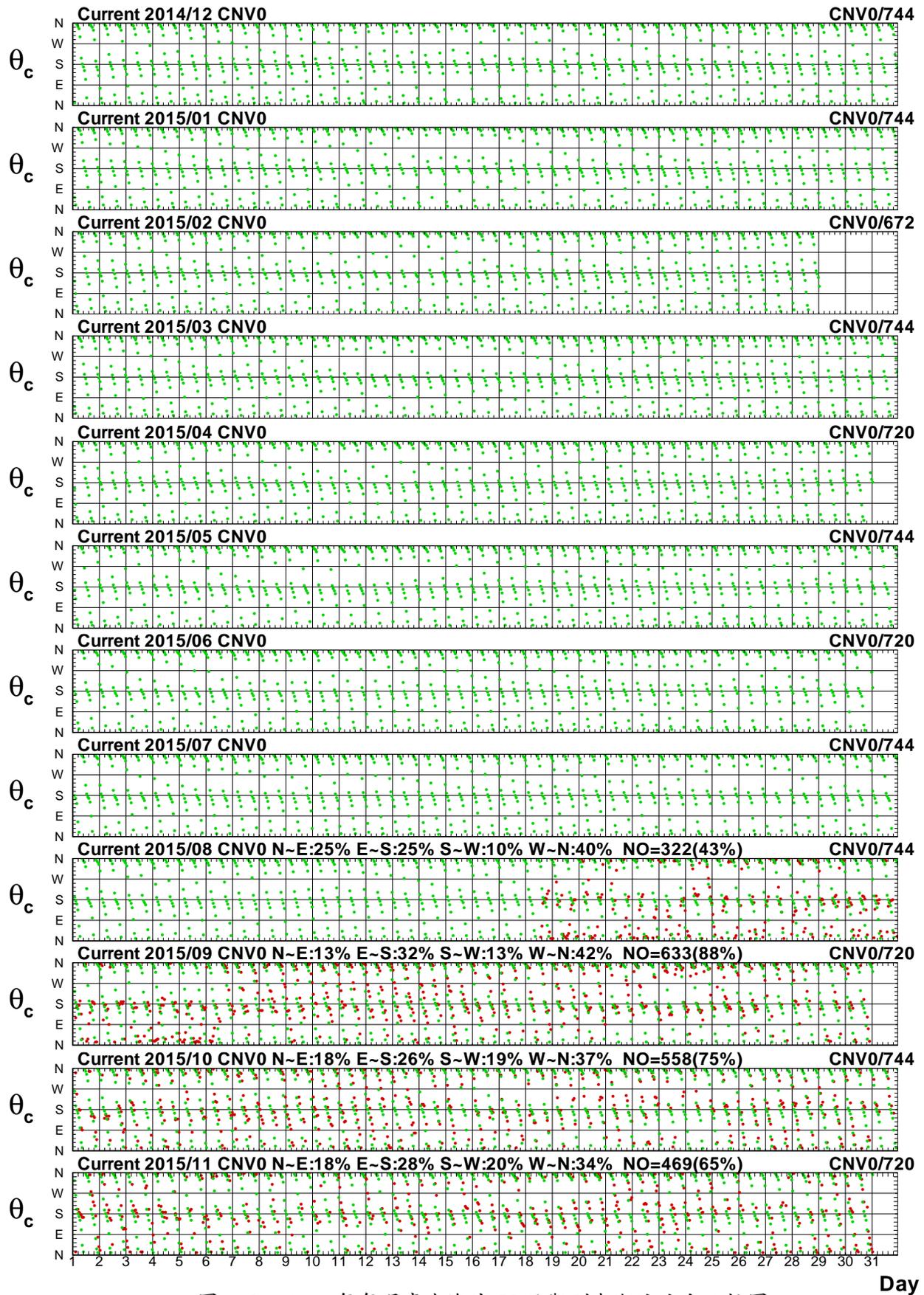


圖 4.9b 2015年每月嘉南海域 V 站觀測與潮流流向比較圖

C14CCNV0.1H0 C14CCNV0.1HD C151CNV0.1H0 C151CNV0.1HD C152CNV0.1H0 C152CNV0.1HD
 C153CNV0.1H0 C153CNV0.1HD C154CNV0.1H0 C154CNV0.1HD C155CNV0.1H0 C155CNV0.1HD

Institute of Harbor & Marine Technology

Current Speed in Chia-Nan Seas of CNV0 at 2015

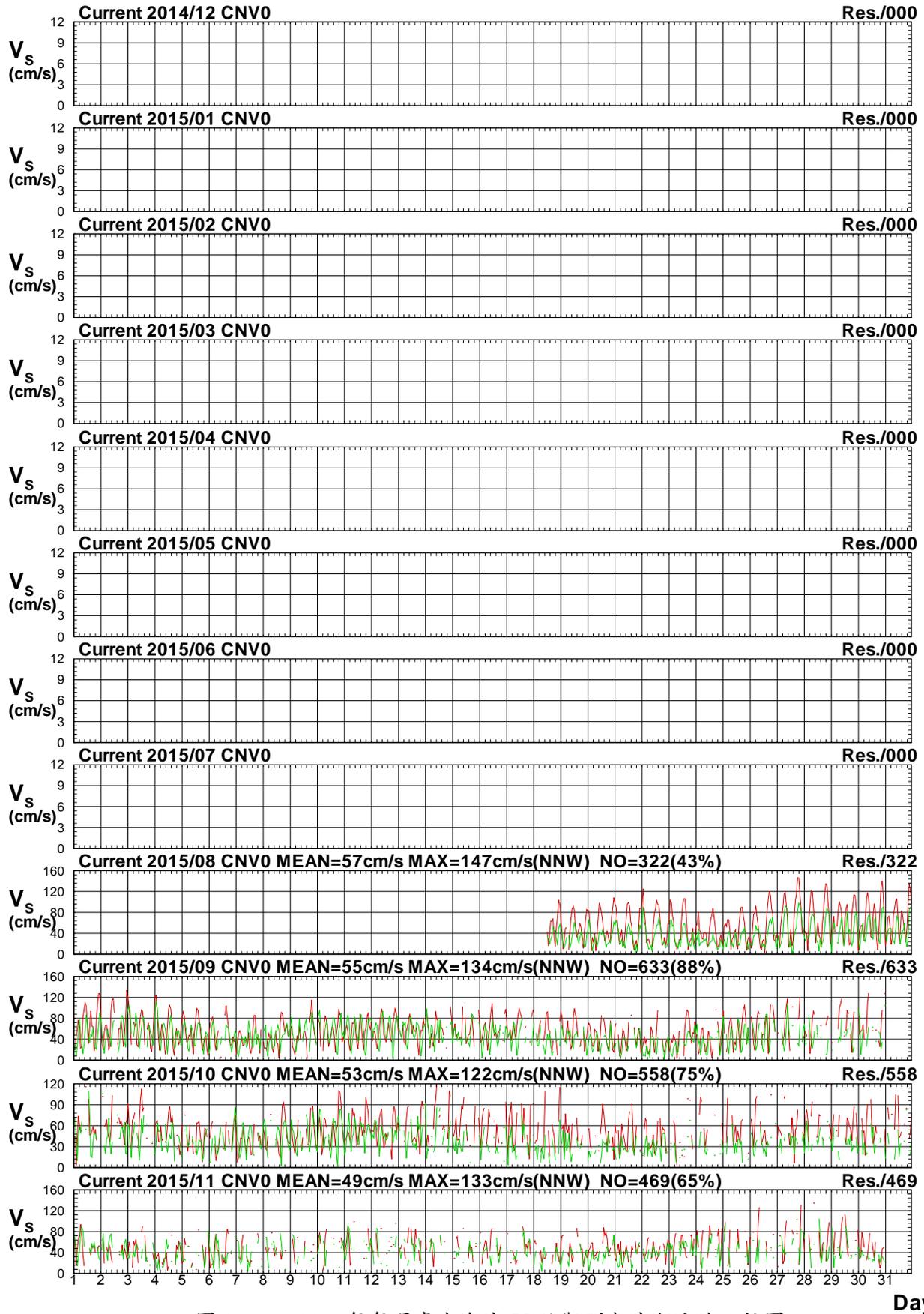


圖 4.10a 2015年每月嘉南海域 V 站觀測與非潮流速比較圖

C14CCNV0.1H0 C14CCNV0.1HR C151CNV0.1H0 C151CNV0.1HR C152CNV0.1H0 C152CNV0.1HR
 C153CNV0.1H0 C153CNV0.1HR C154CNV0.1H0 C154CNV0.1HR C155CNV0.1H0 C155CNV0.1HR

Institute of Harbor & Marine Technology

Current Direction in Chia-Nan Seas of CNV0 at 2015

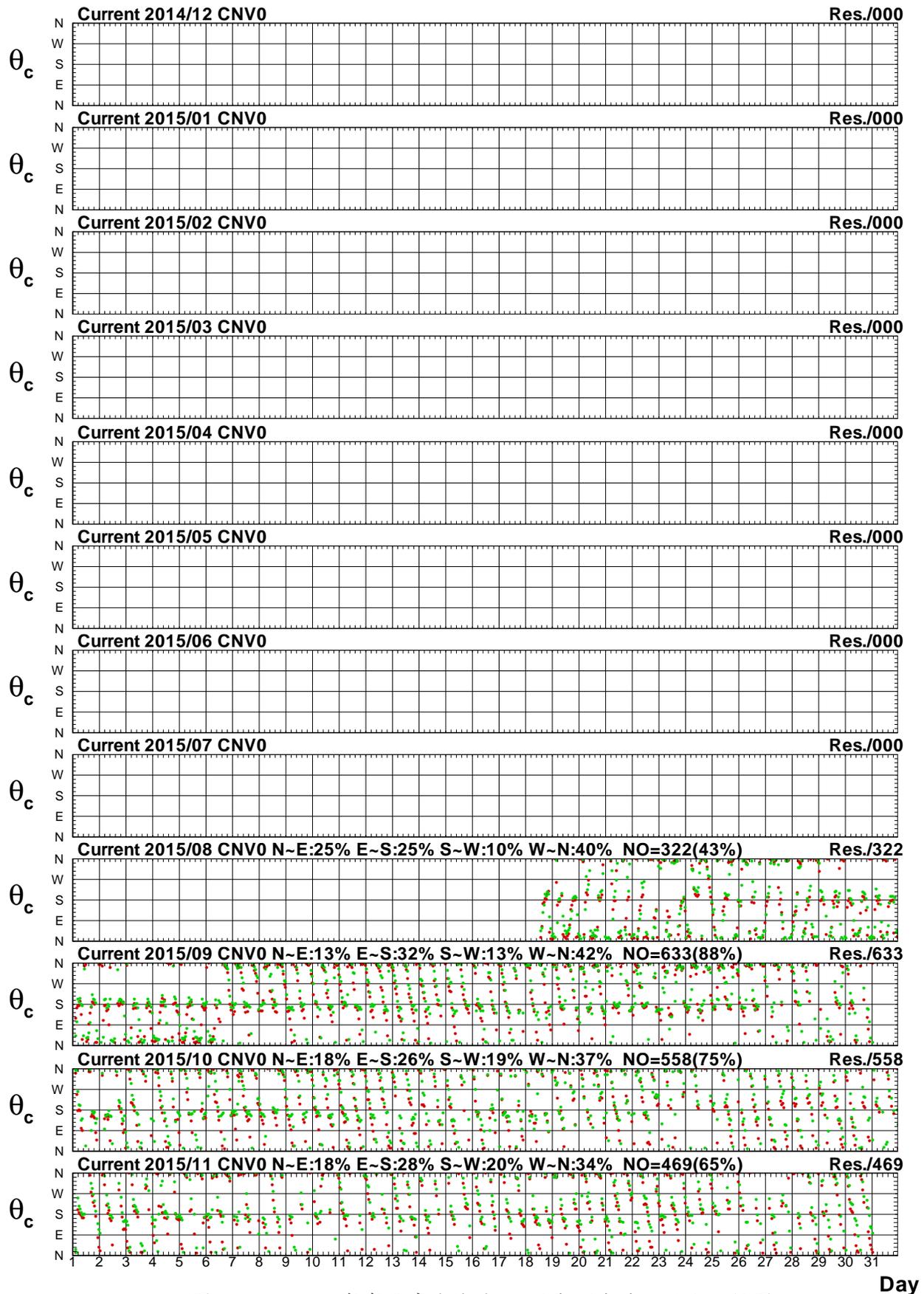


圖 4.10b 2015年每月嘉南海域 V 站觀測與非潮流向比較圖

C14CCNV0.1H0 C14CCNV0.1HR C151CNV0.1H0 C151CNV0.1HR C152CNV0.1H0 C152CNV0.1HR
 C153CNV0.1H0 C153CNV0.1HR C154CNV0.1H0 C154CNV0.1HR C155CNV0.1H0 C155CNV0.1HR

Institute of Harbor & Marine Technology

Current Speed in Chia-Nan Seas of CNU0 at 2015

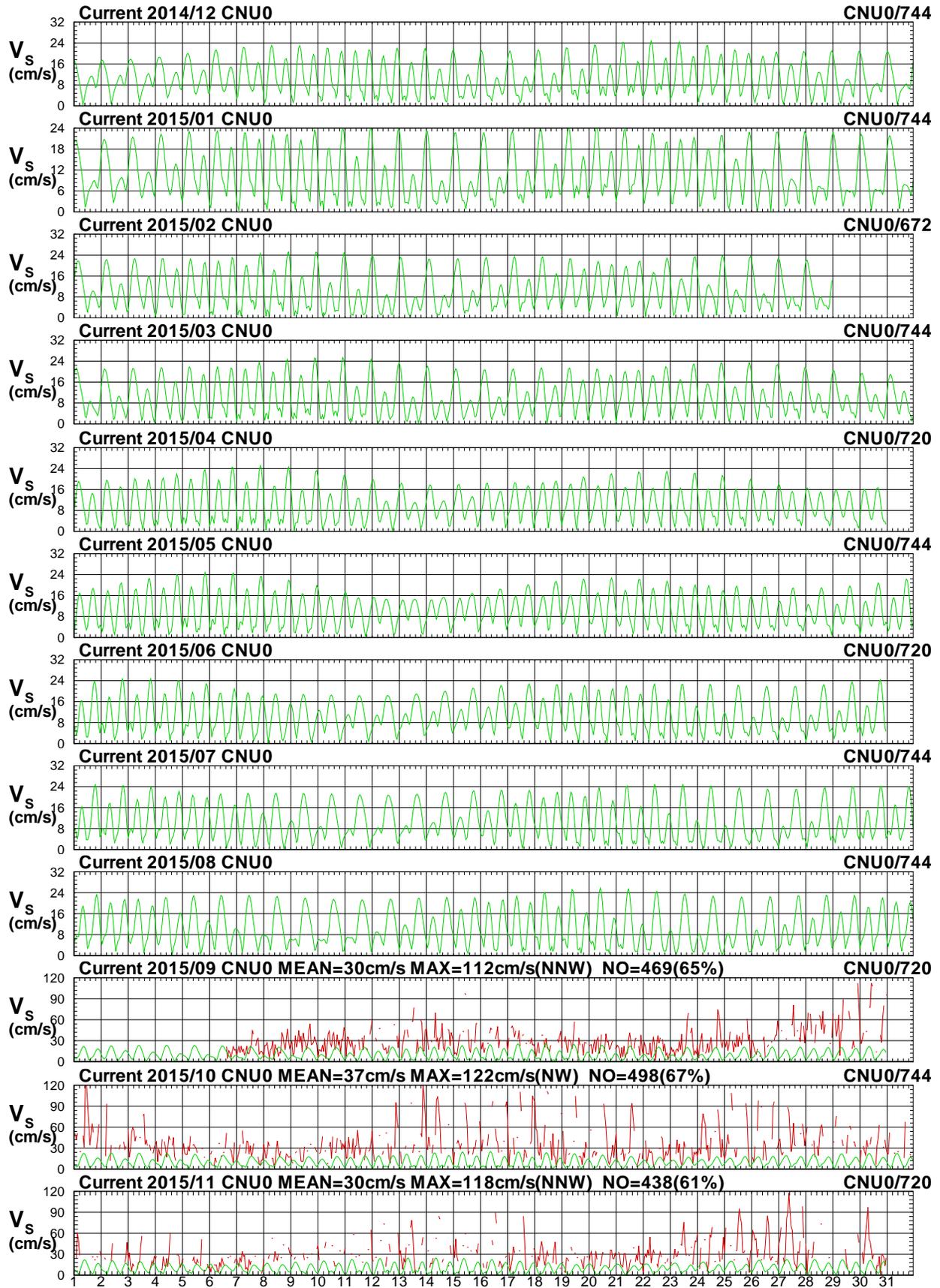


圖 4.11a 2015年每月嘉南海域 U 站觀測與潮流流速比較圖

C14CCNU0.1H0 C14CCNU0.1HD C151CNU0.1H0 C151CNU0.1HD C152CNU0.1H0 C152CNU0.1HD
 C153CNU0.1H0 C153CNU0.1HD C154CNU0.1H0 C154CNU0.1HD C155CNU0.1H0 C155CNU0.1HD

Institute of Harbor & Marine Technology

Current Direction in Chia-Nan Seas of CNU0 at 2015

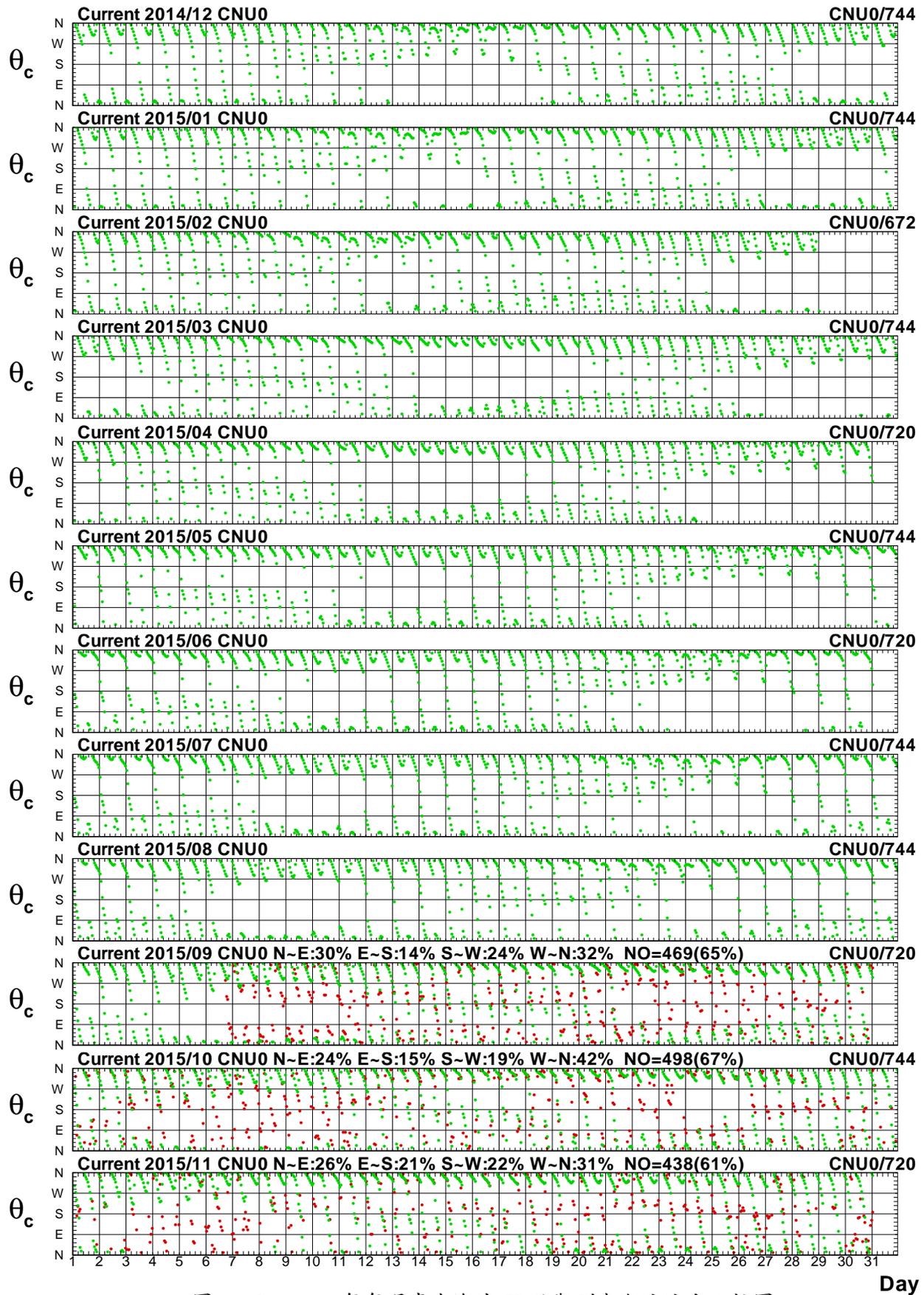


圖 4.11b 2015年每月嘉南海域 U 站觀測與潮流流向比較圖

C14CCNU0.1H0 C14CCNU0.1HD C151CNU0.1H0 C151CNU0.1HD C152CNU0.1H0 C152CNU0.1HD
 C153CNU0.1H0 C153CNU0.1HD C154CNU0.1H0 C154CNU0.1HD C155CNU0.1H0 C155CNU0.1HD

Institute of Harbor & Marine Technology

Current Speed in Chia-Nan Seas of CNU0 at 2015

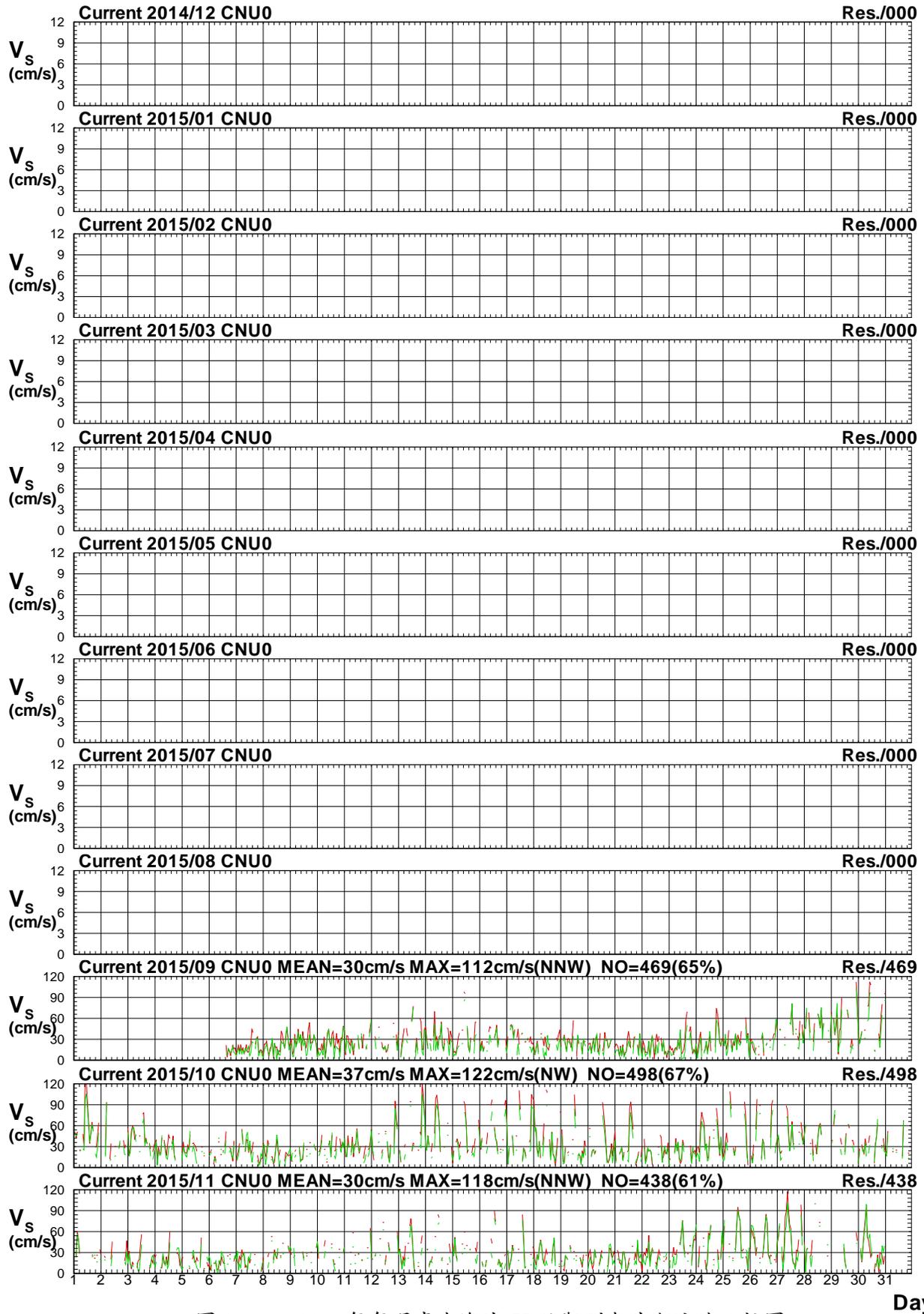


圖 4.12a 2015年每月嘉南海域 U 站觀測與非潮流速比較圖

C14CCNU0.1H0 C14CCNU0.1HR C151CNU0.1H0 C151CNU0.1HR C152CNU0.1H0 C152CNU0.1HR
 C153CNU0.1H0 C153CNU0.1HR C154CNU0.1H0 C154CNU0.1HR C155CNU0.1H0 C155CNU0.1HR

Institute of Harbor & Marine Technology

Current Direction in Chia-Nan Seas of CNU0 at 2015

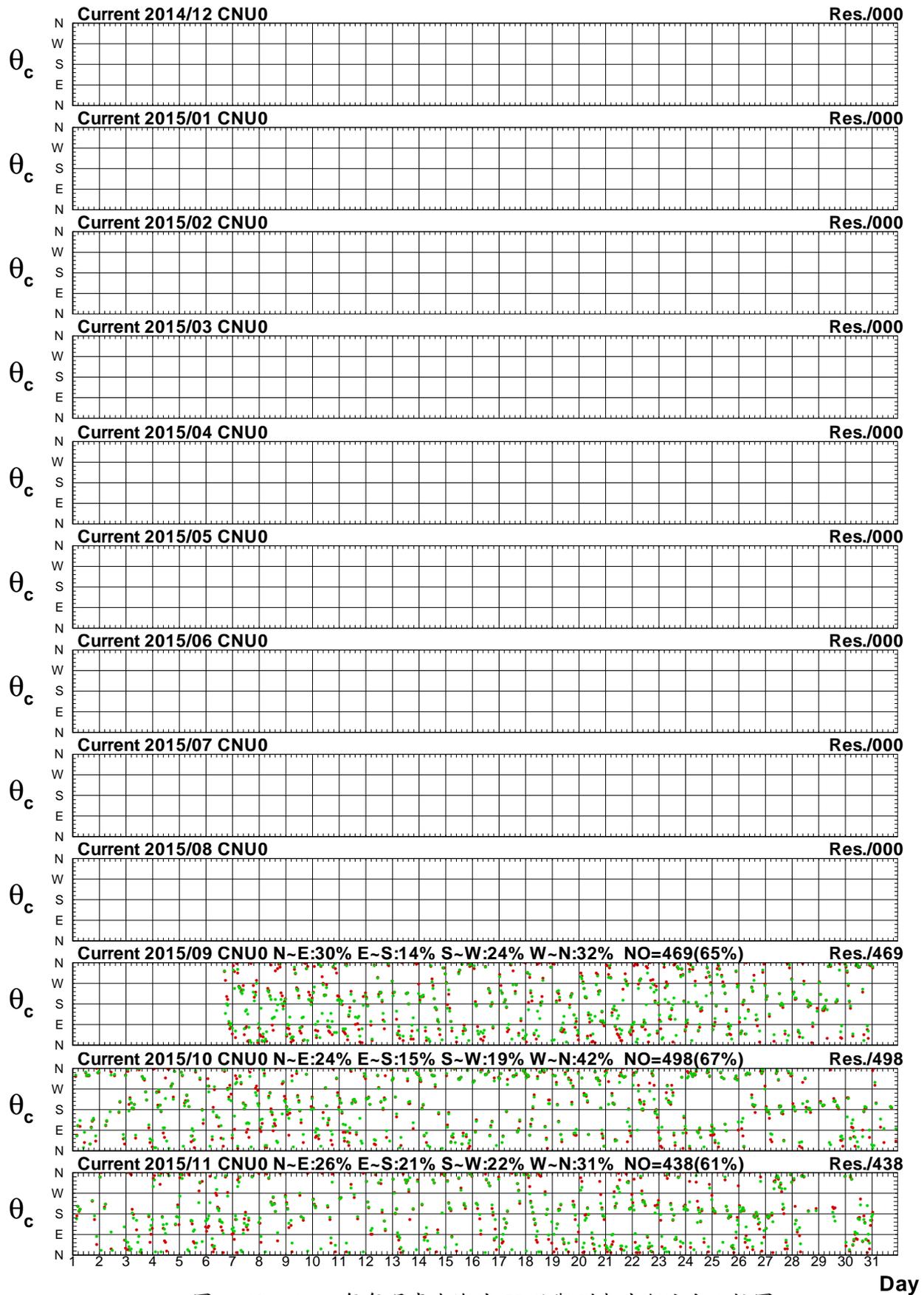


圖 4.12b 2015年每月嘉南海域 U 站觀測與非潮流向比較圖

C14CCNU0.1H0 C14CCNU0.1HR C151CNU0.1H0 C151CNU0.1HR C152CNU0.1H0 C152CNU0.1HR
 C153CNU0.1H0 C153CNU0.1HR C154CNU0.1H0 C154CNU0.1HR C155CNU0.1H0 C155CNU0.1HR

Institute of Harbor & Marine Technology