

中國驗船中心

CR CLASSIFICATION SOCIETY



CR Annual Report 2016



台北總部 OPERATION CENTER

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中國驗船中心 品質政策

增進船舶及海上人命安全，防止船舶對海洋造成污染



財團法人中國驗船中心
CR CLASSIFICATION SOCIETY

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CR



CR簡介

鑒於船舶檢驗與航行安全息息相關，世界各航運大國均設立本國驗船機構以執行船舶之嚴格檢驗。我航運業、保險業及造船業各界有識之士，為求航業蓬勃發展，幾經磋商籌劃，始於民國40年2月15日在台北市成立「社團法人中國驗船協會」，英文名稱為CR Classification Society(former name: China Corporation Register of Shipping), 簡稱CR。復於民國67年7月1日接受民間捐助，改組並更名為「財團法人中國驗船中心」。

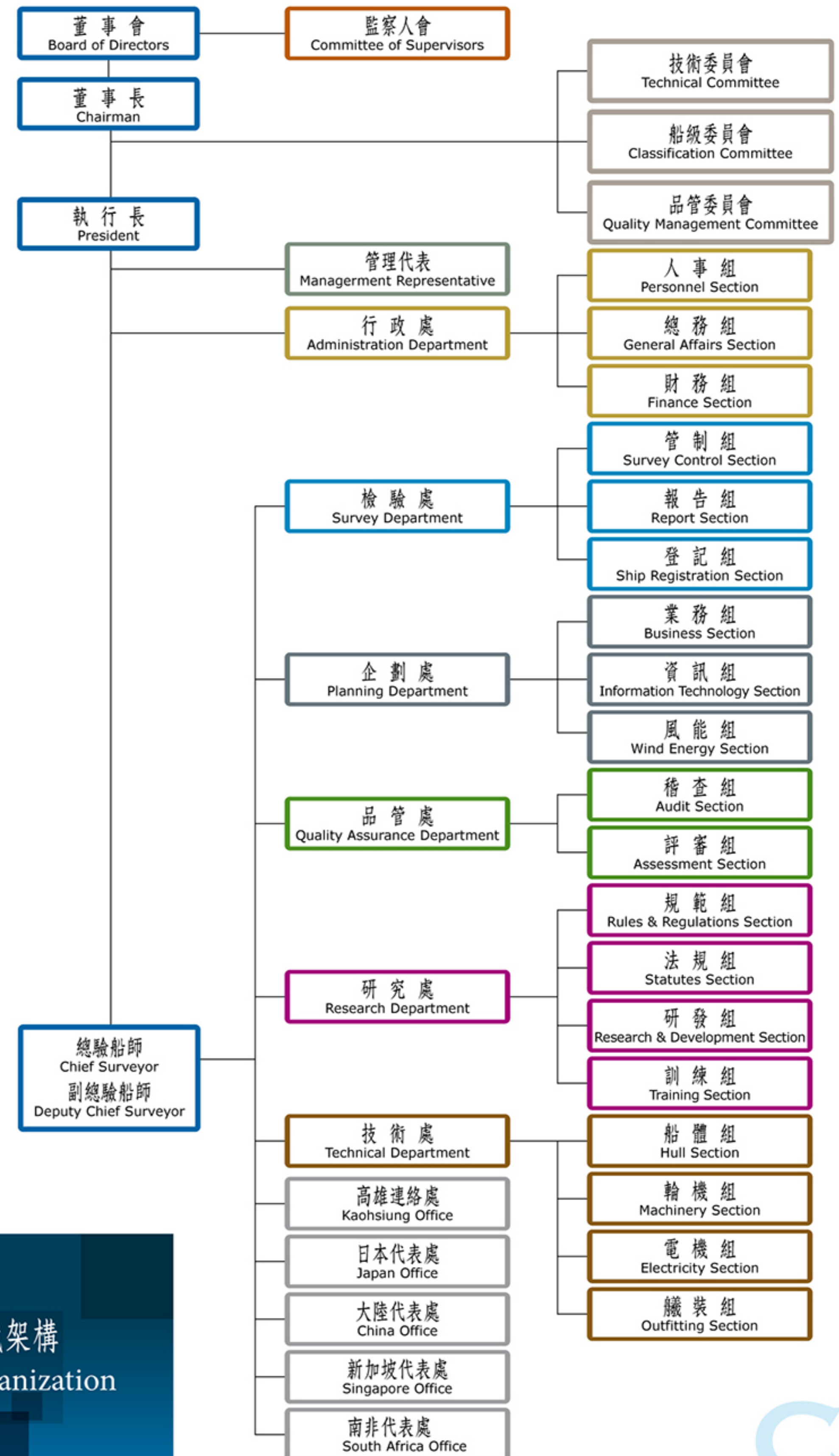
本中心為一民間純技術性，不以營利為目的之服務事業機構，其目標為提供優良之技術、高度之效率與熱忱之服務。組織型態(如下表)及工作內涵，一如世界各大驗船機構，其服務工作據點遍及世界各重要港口，為船東、造船廠及機材製造廠商提供最便捷之服務。



Brief Introduction of CR

As survey of ships and safety of navigation are closely related, countries throughout the world engaged in shipping activities have their own classification societies in order to conduct ship surveys in a strict manner. A good number of people of insight from the shipping industry, insurance industry, and shipbuilding industry in Taiwan share the same views on the importance of establishing this country's own classification society for the prosperity of its shipping industry. After repeated negotiations and adequate preparation, "CR Classification Society" (former name: China Corporation Register of Shipping), also know as CR, was founded on February 15, 1951, in Taipei City. On July 1, 1978, it was restructured after receiving financial contributions from non-governmental sources and hence changed its Chinese name.

CR is a non-governmental and nonprofit organization rendering technical services. The purpose of its work is to provide excellent techniques, high efficiency and cordial services. Its structure (see the following Organization Chart) and scope of work are similar to those of the other leading classification societies in the world, and it has a worldwide network of branch offices in important foreign ports, rendering quick services to shipowners, shipyards, and manufacturers of materials and equipment.



董事長感言



2016年航運市場面臨嚴峻的考驗，作為乾散貨船重要指標的波羅的海乾散貨指數(BDI)於2月10日創下290點歷史新低，全球第七大海運公司韓進海運於8月宣布破產，衝擊整個供應鏈包括代理公司與貨櫃場等。同時期，日本三大航商，商船三井(MOL)與日本郵船(NYK)、川崎汽船(K-Line)也宣布將彼此旗下的貨櫃船業務整併成一家貨櫃航運公司，預估此合併將成為全球第六大貨櫃航商。

航運市場經過近年的整併與調整，航商期盼未來能逐漸改善供需失衡的情形，而新法規諸如壓艙水公約，低硫或低氮排放等環保規範，預計也將加速淘汰老舊船舶，2017年後，船齡大於15年之船舶恐怕難以生存。此外，航商亦不停調整經營策略以增加競爭力，透過聯盟合作，採行更緊密的艙位交換與航線共享，甚至不排除共同採購以降低成本等，期能渡過現階段之難關，等待市場復甦之時機來臨。值此市場低迷時期，CR身為非營利之財團法人組織，各同仁始終秉持著服務為本之原則與日求精進的精神，期為台灣航運業竭盡所能，全力以赴。

2016年5月東京備忘錄(Tokyo Mou)公佈最新查驗評比，我船旗國與CR仍維持良好表現，分列白名單(White List)及高表現度(High Performance Level)之最佳成績。此外，國際海事組織要求船長在150公尺以上的油輪及散裝船應符合GBS(目標型船舶建造標準)，經中心同仁多年的努力，於2016年透過國際海事組織成員所組成的第三方驗證團隊，完成獨立驗證稽核並取得符合聲明書，證明本中心具備依據新標準執行審圖與檢驗工作之能力。



技術服務方面，2016年CR除辦理各項研討會與訓練課程外，也參與並協助政府相關單位修訂船舶法，以及海上交通安全法、客船管理規則、船舶設備規則、防火構造規則等子法。

有關離岸風電，CR於2016年承接海事擔保監督(MWS)訓練案件，提供國內廠商為符合海事擔保監督之要求之相關規定課程、文件準備與討論諮詢等，反應良好。同時，CR也加入由標準檢驗局(BSMI)領導的風能檢測驗證團隊，與國內各法人共同與國外技術單位達成業務合作共識與技術支援等，面對即將開啟的國內離岸風能市場，已有萬全準備。

本中心過去數十年來，持續自我提升並堅守初衷，為增進海上人命安全與防止海洋環境汙染，提供最專業與熱忱的服務。感謝交通部之督導以及航運界長期以來之支持，未來CR將持續為我國航運與離岸風能發展，貢獻最大之努力。

中國驗船中心
董事長

趙國標

Chairman's Speech

The shipping market has faced severe challenges in 2016. Baltic Dry Index (BDI), the crucial indicator of bulk carriers, fell to the record low on February 2. Hanjin Shipping, the seventh biggest shipping company has been declared bankrupt in August and impacted on the whole supply chain including forwarders and container yards. At the same time, the Japan's big three shipping groups, Mitsui O.S.K Lines Ltd. (MOL), Nippon Yusen Kabushiki Kaisha(NYK LINE), and Kawasaki Kisen Kaisha, Ltd. (K LINE), have announced an integration of their container shipping business with the establishment of a joint venture, which is estimated to become the sixth largest carrier in the world.

After mergers and adjustment in shipping market for recent years, shipowners anticipated that the conditions of imbalance of supply and demand can be gradually improved. New Statutes and environmental requirements such as ballast water management convention, and low-sulfur or low-nitrogen emission are estimated to speed up elimination of old vessels. The vessels over age of 15 may be probably hard to survive after 2017. Furthermore, shipowners also continued to adjust business strategies like exchange on shipping space and voyage cooperation. They may even try to purchase spare parts together to reduce cost. The shipping industry hoped to overcome the difficulty and wait for recovery of the market. CR is a non-profit juridical organization. Our staff always sticks to the principle of providing quality services and upholds the spirit of striving for a higher level of excellence as well as does our utmost for the shipping industry in Taiwan.

Tokyo MOU announced latest inspection statistics in May 2016. ROC flag and CR are respectively listed in "White List" and "High Performance" which are both the best grade. Besides, International Maritime Organization (IMO) requested oil tankers and bulk carriers longer than 150M should comply with Goal-Based Ship Construction Standards (GBS).

Due to efforts made by CR staff for many years, the third-party audit team consisting of IMO members has finished the independent certification audit and issued Statement of Compliance to CR, proving that CR has possessed the ability to conduct drawing approval and surveys in accordance with new standards.

For technical services, CR not only held several seminars and training courses in different topics, but also assist the government to revise relevant regulations.

Regarding offshore energy, CR has undertaken the training cases in Marine Warranty Survey (MWS), and provided courses related to compliance with rules of WMS, document preparation, discussion and consulting for national companies.

CR also joined the wind-energy team guided by Bureau of Standards Metrology & Inspection, M.O.E., R.O.C. (BSMI), and achieved cooperative consensus and technical support with national juridical persons and international technical organizations. CR has been well-prepared for newly-opened national market for offshore wind energy.

Over the past decades, CR has continued to strive for self-improvement, stick to our original intention, and provide the most professional and cordial services to enhance the safety of life at sea and prevent the marine environmental pollution. We would like to express our hearties appreciation to Ministry of Transportation and Communications for its guidance as well as the shipping industry for its kind support. CR will make every effort to devote ourselves to the shipping industry and development of offshore wind energy.



K. L. Chao, Chairman
CR Classification Society

CR

董事會 Board of Directors

董事會係本中心最高管理階層，共有董事23人，監察人3人，第13屆董事會任期自2015年5月18日起至2018年5月17日止，為期三年，董事長由董事會遴選之。第13屆董事會之董事及監察人如下：

The Board of Directors, which has a total of 23 directors and 3 supervisors, is the highest decision-making body of CR. Their term of service is 3 years starting May 18, 2015. The Chairman elected from among the directors is Mr. Kuo-Liang Chao. The list of the elected directors and supervisors is given below:

董事 Director	現任職務 Position
趙國樑 Kuo-Liang Chao	中國驗船中心董事長 Chairman, CR Classification Society
藍俊德 Jiun-Der Lan	四維航運股份有限公司董事長 Chairman, Shih Wei Navigation Co., Ltd.
陳進生 Jim-Sheng Chen	交通部航政司司長 Director of Department of Navigation and Aviation, Ministry of Transportation and Communications R.O.C.
葉協隆 Hsieh-Lung Yeh	交通部航政司副司長 Deputy Director of Department of Navigation and Aviation, Ministry of Transportation and Communications R.O.C.
謝謂君 Wei-Chun Hsieh	交通部航港局局長 Director-General of Maritime and Port Bureau, Ministry of Transportation and Communications R.O.C.
黃肇嘉 Chao-Chia Huang	行政院海岸巡防署參事 Counselor, Coast Guard Administration, R.O.C.
謝志堅 Chih-Chien Hsieh	陽明海運股份有限公司董事長 Chairman, Yang Ming Marine Transport Corporation
劉文慶 Wen-Ching Liu	台灣航業股份有限公司董事長 Chairman, Taiwan Navigation Co., Ltd.
李 雄 Hsiung Lee	中鋼運通股份有限公司董事長 Chairman, China Steel Express Corporation
張正鏞 Anchor Chang	長榮海運股份有限公司董事長 Chairman, Evergreen Marine Corporation
王文潮 Wilfred Wang	台塑海運股份有限公司董事長 Chairman, Formosa Plastics Marine Corporation
陳柏廷 Po-Ting Chen	萬海航運股份有限公司董事長 Chairman, Wan Hai Lines Ltd.
王書吉 C. K. Ong	裕民航運股份有限公司總經理 General Manager, U-Ming Marine Transport Corporation
彭士孝 William S. H. Peng	中國航運股份有限公司副董事長 Vice Chairman, Chinese Maritime Transport Ltd.
張瑞宗 Ray-Chung Chang	中美和石油化學股份有限公司董事長 Chairman, China American Petrochemical Co., Ltd.
黃健強 Edward Huang	台灣水泥股份有限公司資深副總經理兼達和航運公司董事 Senior Vice President, Taiwan Cement Corporation
鄭文隆 Wen-Lon Cheng	台灣國際造船股份有限公司董事長 Chairman, CSBC Corporation, Taiwan
蕭捷明 Jimmy C. Hsiao	明台輪船股份有限公司總經理 General Manager, MingTai Navigation Co., Ltd.
宋道平 Charles Sung	台灣產物保險股份有限公司總經理 General Manager, Taiwan Fire & Marine Insurance Co., Ltd.
郭義隆 I-Lung Guo	藍海海運及松光航業董事長 Chairman, OceanLance Maritime Co., Ltd. and Biggin Shipping Corporation
許志堅 Chih-Chien Hsu	益利航運股份有限公司董事長 Chairman, Eddie Steamship Co., Ltd.
陳燦煌 Steve T. H. Chen	富邦產物保險股份有限公司董事長 Chairman, Fubon Insurance Co., Ltd.
劉英如 Ying-Ru Liu	中國驗船中心執行長 President, CR Classification Society
監察人 Supervisor	現任職務 Position
辜炳珍 Pin-Jan, Ku	交通部統計長 Director of Department of Statistics, Ministry of Transportation and Communications, R.O.C.
魏家祥 James C. H. Wei	兆豐產物保險股份有限公司總經理 President, Chung Kuo Insurance Co., Ltd.
程采禾 Elizabeth T. H. Cheng	能源航運股份有限公司董事長 Chairman, Energy Shipping Co., Ltd.

船級委員會 Classification Committee

(任期自2015年5月18日起至2018年5月17日止，為期三年)

職別 Title	姓名 Name	現任職務 Position
主任委員 Chairman	盧峯海 Frank F. H. Lu	中國驗船中心船級委員會主任委員 Chairman of Classification Committee, CR Classification Society
副主任委員 Vice-Chairman	陳 籐 T. Chen	世邦海運船舶管理處董事長特助 Special Assistant to Chairman of Ship Management Dept., TVL Marine Company Limited
委員 Member	陳永雄 Y. H. Chen	中鋼運通股份有限公司總經理 President, China Steel Express Corporation
委員 Member	高雅平 Y. P. Kao	裕民航運股份有限公司副總經理 Vice President, U-Ming Marine Transport Corporation
委員 Member	陳 嘉 Charles Chen	陽明海運股份有限公司副總經理 Vice President, Yang Ming Marine Transport Corporation
委員 Member	葉陳輝 C. H. Yeh	光明海運股份有限公司董事長 Chairman, Kuang Ming Shipping Corporation
委員 Member	謝敏雄 Alan Shieh	達和航運股份有限公司總經理 President, Ta-Ho Maritime Corporation
委員 Member	張豐州 F. J. Chang	新興航運股份有限公司總經理 General Manager, Sincere Navigation Corporation
委員 Member	黃戊辰 W. C. Wu	台灣中油股份有限公司海技組組長 Section Manager, Marine Technique & Safety Section, CPC Corporation, Taiwan
委員 Member	黃崇榮 Tsun-Yung Huang	長榮海運股份有限公司造船部副總經理 Acting Executive Vice President of Shipbuilding Department, Evergreen Marine Corporation
委員 Member	何尤彥 You-Yen Ho	四維航業股份有限公司協理 Assistant Vice President, Shih Wei Navigation Co., Ltd.
委員 Member	張傑德 Jie-De Chang	台灣國際造船股份有限公司副總經理 Vice President, CSBC Corporation, Taiwan
委員 Member	徐志廷 Jyh-Tyng Shyu	慧洋海運股份有限公司技術長 Chief Technology Officer, Wisdom Marine Lines S.A.
委員 Member	賴金池 C. C. Lai	台塑海運股份有限公司協理 Assistant Vice President, Formosa Plastics Marine Corporation
委員 Member	林炯圻 Jeong-Shin Lin	萬海航運股份有限公司資深協理 Senior Assistant Vice President, Wan Hai Lines Ltd.
委員 Member	林家滄 C. K. Lin	明台輪船股份有限公司副總經理 Vice President, MingTai Navigation Co., Ltd.
委員 Member	黃崇智 Eddie C. Huang	協榮航業股份有限公司董事 Director, Glory Navigation Co., Ltd.
委員 Member	褚世傑 Dino S. J. Chuu	中國航運股份有限公司海運部協理 Vice President, Shipping Division, Chinese Maritime Transport Ltd.
委員 Member	馬耀湘 Yao-Shiang Ma	新健海運公司副總經理 Vice President, Hsin Chien Marine Co., Ltd.
委員 Member	李慶超 Steve Lee	中國驗船中心船級委員會委員 Member of Classification Committee, CR Classification Society
委員 Member	謝承宏 Arthur Hsieh	東森國際公司協理 Assistant Vice President, Eastern Media International Corporation



職別 Title	姓名 Name	現任職務 Position
主任委員 Chairman	王偉輝 W. H. Wang	國立臺灣海洋大學教授 Professor, National Taiwan Ocean University
副主任委員 Vice-Chairman	鄧運連 Y. L. Teng	中國驗船中心技術委員會副主任委員 Vice-Chairman of Technical Committee, CR Classification Society
委員 Member	劉詩宗 Shy-Tzong Liou	台灣港務股份有限公司基隆分公司總經理 President, Port of Keelung, Taiwan International Ports Corporation
委員 Member	陶自勳 Zhi Li Tao	交通部航港局船舶組組長 Director, Vessel Management Division, Maritime and Port Bureau, MOTC
委員 Member	韓碧祥 P. H. Han	中信造船股份有限公司董事長 Chairman, Jong Shyn Shipbuilding Co., Ltd.
委員 Member	洪錦榮 C. J. Hung	協同造船廠股份有限公司董事長 Chairman, Hsieh Tung Shipbuilding Co., Ltd.
委員 Member	林福堂 F. T. Lin	台灣國際造船股份有限公司業務督導 Business Supervisor, CSBC Corporation, Taiwan
委員 Member	蔡進發 J. F. Tsai	國立臺灣大學教授 Professor, National Taiwan University
委員 Member	林鴻志 Hong-Jyh Lin	財團法人船舶暨海洋產業研發中心副執行長 Vice President, Ship and Ocean Industries R&D Center
委員 Member	黃正清 C. C. Huang	國立成功大學教授 Professor, National Cheng Kung University
委員 Member	桑滿林 Man-Lin Sang	中塑海運公司執行副總經理 Executive Vice President, Simosa Shipping Co., Ltd.
委員 Member	何永順 Jackie Ho	陽明海運股份有限公司協理 Assistant Vice President, Yang Ming Marine Transport Corporation
委員 Member	黃守真 Sheldon Huang	龍德造船工業股份有限公司董事長 Chairman, Lung Teh Shipbuilding Co., Ltd.
委員 Member	林頂光 D. K. Lin	台灣中油股份有限公司儲運處造船組組長 Section Manager, Shipbuilding Section, CPC Corporation, Taiwan
委員 Member	鄭添元 T. Y. Cheng	中國鋼鐵股份有限公司冶金規範及試驗組組長 Manager of Metallurgical Specification and Testing Section, China Steel Corporation
委員 Member	戴聖堅 James S. C. Tai	東方海外貨櫃航運有限公司總經理 President, Orient Overseas Container Line Limited



品管委員會 Quality Management Committee (任期自2015年5月18日起至2018年5月17日止，為期三年)

職別 Title	姓名 Name	現任職務 Position
主任委員 Chairman	許洪烈 H. L. Hsu	中華民國輪船商業同業公會全國聯合會秘書長 Secretary General, National Association of Chinese Shipowners
副主任委員 Vice-Chairman	曹志毅 Chih-I T'sao	中華民國品質學會理事 Director, Chinese Society for Quality
委員 Member	劉佩蓉 Pei-Rong Liu	交通部航港局船員組組長 Director, Crew Management Division, Maritime and Port Bureau, MOTC
委員 Member	黃文哲 W. C. Huang	陽明海運股份有限公司副總經理 Vice President, Yang Ming Marine Transport Corporation
委員 Member	林沛樵 Pei-Chiao Lin	長榮海運股份有限公司副總經理 Executive Vice President, Evergreen Marine Co., Ltd.
委員 Member	陳木川 M. C. Chen	四維航業股份有限公司副總經理 Vice President, Shih Wei Navigation Co., Ltd.
委員 Member	陳志宏 Chih-Horng Chen	台灣航業公司工務部協理 Assistant Vice President of Technical Department, Taiwan Navigation Co., Ltd.
委員 Member	劉守麟 Shou-Lin Liu	裕民航運股份有限公司船務處經理 Manager, Marine Department, U-Ming Marine Transport Corporation
委員 Member	俞克維 K. W. Yu	高雄海洋科技大學教授 Professor, National Kaohsiung Marine University
委員 Member	林哲宏 Jei-Horng Lin	台灣中油股份有限公司儲運處航管組組長 Section Manager, Marine Management Section, CPC Corporation, Taiwan
委員 Member	陳火財 H. T. Chen	安生理算檢定公司總經理 President, Overseas adjusters and Surveyors Co., Ltd.
委員 Member	林彬 B. Lin	臺灣海洋大學教授 Professor, National Taiwan Ocean University

據點擴展

為擴展海外據點，加強對船東之服務，CR於2009年9月11日在新加坡正式成立代表處，2010年6月4日在南非正式成立代表處，由楊沛光擔任駐南非代表。CR總部及各代表處的連絡方式如下：

Network Expansion

In order to expand our overseas network and render better services to shipowners, CR officially established the Singapore Office on September 11, 2009 and the South Africa Office on June 4, 2010, represented by Mr. P. K. Yang. CR Operation Center and other offices can be reached in the following ways:



台北總部 Operation Center

104 台北市中山區南京東路3段103號8樓
8th Fl., No.103, Sec. 3, Nanking E. Rd., Jhongsan Dist.,
Taipei, 104, Taiwan R.O.C.
Tel: +886-2-2506-2711 Fax: +886-2-2507-4722
E-mail: cr.tp@crclass.org

高雄連絡處 Kaohsiung Office

802 高雄市苓雅區海邊路31號26樓之3
26th Fl.-3, No. 31, Haibian Rd., Lingya Dist., Kaohsiung, 802,
Taiwan R.O.C.
Tel: +886-7-330-5617 Fax: +886-7-330-6295
E-mail: cr.kh@crclass.org

日本代表處 Japan Office

〒650-0031 日本神戸市中央區東町116-1シテイラ
イフ三宮ビル9階
9F., No. 116-1, Higashimachi, Chuo-ku, Kobe 〒650-0031, Japan
Tel: +81-78-333-8515 Fax: +81-78-333-8506
E-mail: crskobe@silver.ocn.ne.jp

大陸代表處 China Office

廣州市經濟技術開發區青年路東園二街明珠廣場1603室
Rm. 1603, Pearl Garden Square, Qingnian Rd., Guangzhou Economic
& Technological Development Dist., Guang Dong Province, China.
Tel / Fax: +86-20-3207-0330
Mobile: +86-134-162-52949
E-mail: cr.cn@crclass.org

新加坡代表處 Singapore Office

2B, Hong San Walk, #17-06, Singapore 689048
Tel: +65-63101034 Fax: +65-68935997
E-mail: cr.sg@crclass.org

南非代表處 South Africa Office

P. O. Box 298, Plumstead 7801, Cape Town, South Africa 23,
Manson Close, Bergvliet Cape Town, South Africa
Tel: +27-21-7125382 Fax: +27-862736840
Mobile: +27-82-8813690
E-mail: frank7yang@hotmail.com

建造中入級 Classification of Ships During Construction

2016年建造中入級CR的船舶共計有25艘，分列如下：

There were a total of 25 ships classed by CR during construction in 2016 as listed below:

船東 Owner	造船廠 Shipyard	建造地點 Place	船型 Ship type	艘數 Number
金安航運 JINAN SHIPPING CO., LTD.	龍德 LUNG TEH	台灣 TAIWAN	32M 鋁合金客船 32M Passenger Ship	1
德翔海運 T. S. LINES	台船 CSBC	台灣 TAIWAN	1,800TEU 貨櫃船 1,800TEU Container Ship	2
海洋中心 TAIWAN OCEAN RESEARCH INSTITUTE	TRIYARDS	越南 VIETNAM	研究船 Research Vessel	1
中油 CPC CORPORATION, TAIWAN	中信 JONG SHYN	台灣 TAIWAN	VSP 拖船 VSP Tug Boat	2
台灣航業 TAIWAN NAVIGATION CO.	大島 OSHIMA	日本 JAPAN	81,670DWT 散裝船 81,670DWT Bulk Carrier	2
台灣航業 TAIWAN NAVIGATION CO.	大島 OSHIMA	日本 JAPAN	83,870DWT 散裝船 83,870DWT Bulk Carrier	2
慧洋海運 WISDOM MARINE GROUP	SHIMANAMI	日本 JAPAN	37,600DWT 散裝船 37,600DWT Bulk Carrier	1
台灣港務港勤股份有限公司 TIPC MARINE CORPORATION, LTD.	中信 JONG SHYN	台灣 TAIWAN	SRP 拖船 SRP Tug Boat	1
中油 CPC CORPORATION, TAIWAN	TRIYARDS	越南 VIETNAM	油輪 Oil Tanker	2
金廈海運 KING XIA MARINE CO., LTD.	GLOW MARINE	新加坡 SINGAPORE	鋁合金客船 Aluminum Passenger Ferry	1
中油 CPC CORPORATION, TAIWAN	ASL	印尼 INDONESIA	499GT 油輪 499GT Oil Tanker	3
誠翔輪船公司	龍德 LUNG TEH	台灣 TAIWAN	30M 鋁合金客船 30M Passenger Ship	1
坤龍航運公司	龍德 LUNG TEH	台灣 TAIWAN	32M 鋁合金客船 32M Passenger Ship	1
大統船務公司 TA TONG MARINE CO., LTD.	佐佐木 SASAKI	日本 JAPAN	油輪 Oil Tanker	1
台灣港務公司 TAIWAN INTERNATIONAL PORTS CORPORATION, LTD.	高鼎 JADE	台灣 TAIWAN	挖泥船 Dredgers	1
浯江輪船公司	龍德 LUNG TEH	台灣 TAIWAN	33M 鋁合金客船 33M Passenger Ship	1
中油 CPC CORPORATION, TAIWAN	高鼎 JADE	台灣 TAIWAN	VSP 拖船 VSP Tug Boat	1
中油 CPC CORPORATION, TAIWAN	高鼎 JADE	台灣 TAIWAN	600匹工作船 600PS Work Boat	1

現成船入級 Classification of Existing Ships

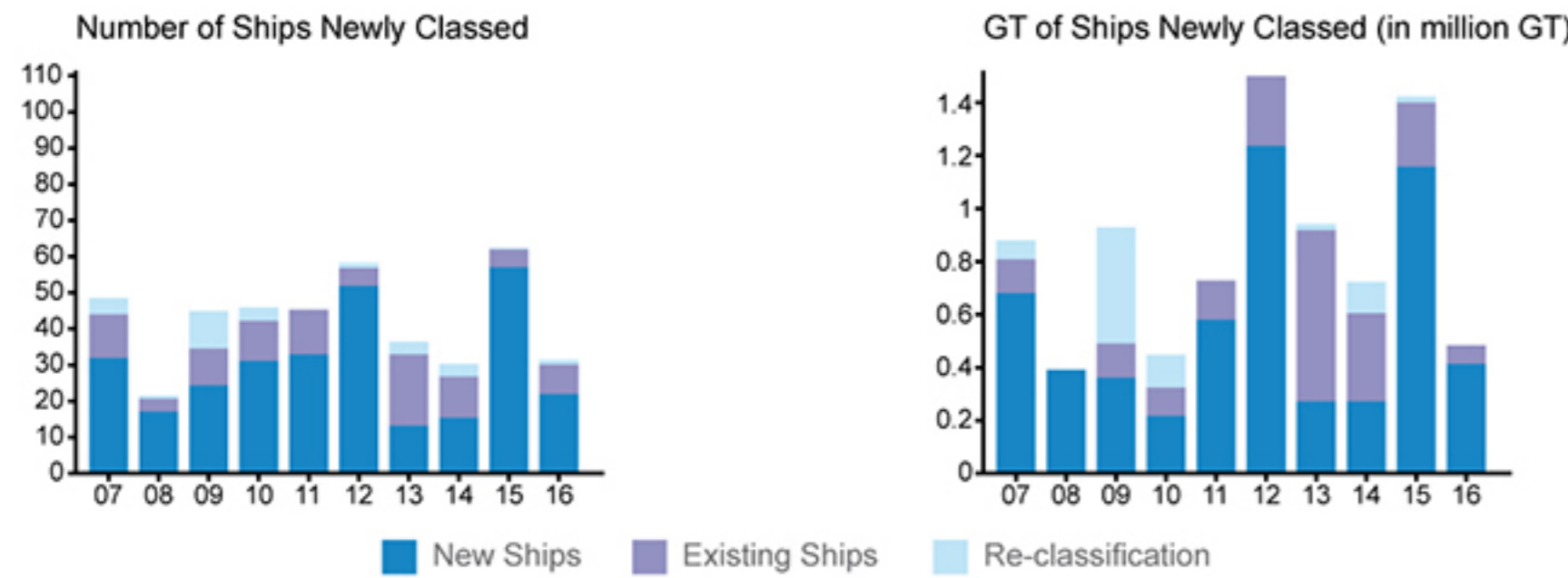
2016年現成船入級CR的船舶共計有8艘，分列如下：

There were a total of 8 existing ships classed by CR in 2016 as listed below:

船名 Ship name	船東 Owner	船旗 Flag	總噸位 GT	船型 Ship type
永康648 EC648	永康船舶股份有限公司 EVER COMFORT SHIPPING CO., LTD.	中華民國 R.O.C.	310	拖船 Tug Boat
樺緯 HWA WAY	樺棋營造股份有限公司 HWA CHI CONSTRUCTION CO., LTD.	中華民國 R.O.C.	7636	挖泥船 Dredger Ship
麥寮海洋 MAILIAO MARINE	台塑石化股份有限公司 FORMOSA PRTROCHEMICAL CORPORATION	中華民國 R.O.C.	158.16	Oil Recovery Ship
EXPLORER	SEA EXPLORER MARINE CORP.	巴拿馬 Panamanian	26449	散裝船 Bulk Carrier
臺塑貴華 FORMOSAGAS DIAMONG	台塑海運股份有限公司 FORMOSA PLASTICS MARINE CORPORATION	中華民國 R.O.C.	15175	加壓式液化瓦斯船 LPG Carrier
金星5號 GOLD STAR NO.5	大發輪船股份有限公司 DA FA MARINE CO., LTD.	中華民國 R.O.C.	310	客船 Passenger Ship
綠島之星3號 GREEN ISLAND STAR NO.3	龍鴻航業股份有限公司 LONG HUNG SHIPPING CO., LTD.	中華民國 R.O.C.	338	客船 Passenger Ship
昇春 WAN HAI 103	萬海航運股份有限公司 WAH HAI LINES LTD.	中華民國 R.O.C.	9834	貨櫃船 Container Carrier

新入級船舶 Newly Classed Ships

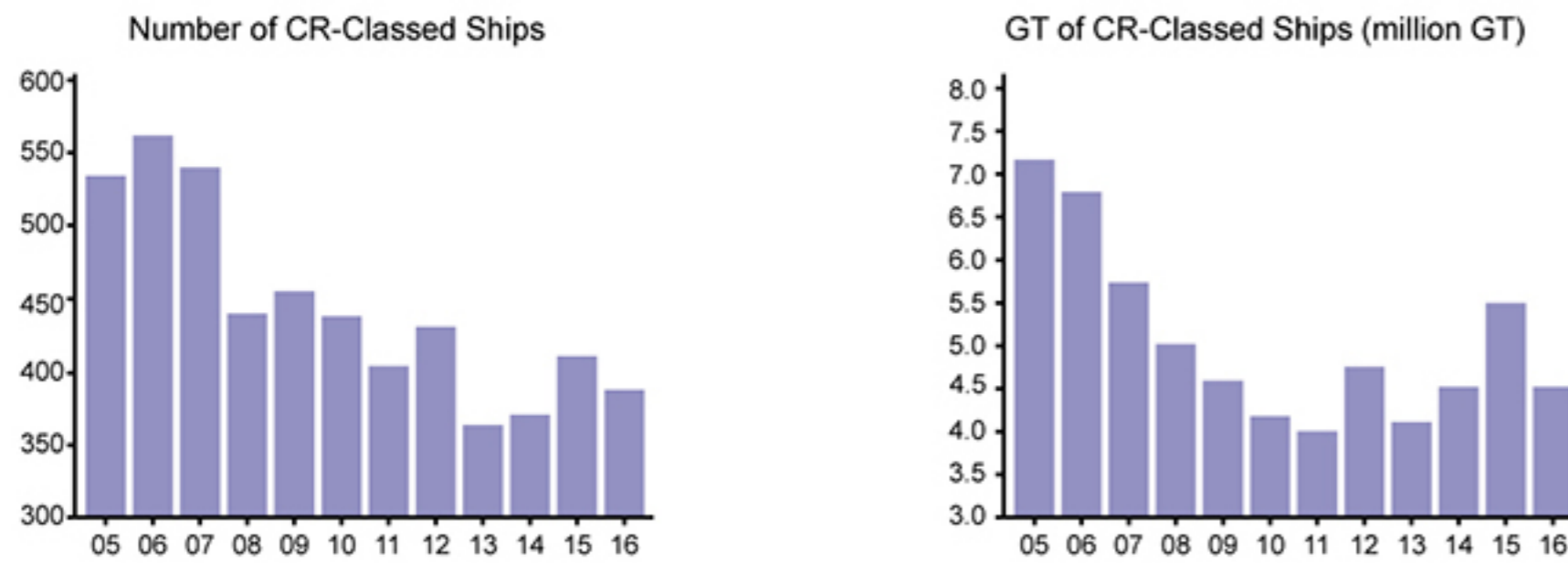
2016年經審核後正式入級的船舶有34艘共計484,977總噸，艘數為在級船舶的10.74%，其中新船入級25艘，現成船入級8艘，重新入級1艘。
After careful review, a total of 34 ships with 484,977 gross tonnage were formally classed with CR in 2016. The number of ships accounted for 10.74% of the number of those already classed with CR. Among these newly classed ships, there were 25 new ships, 8 existing ships, and 1 re-classified ships.



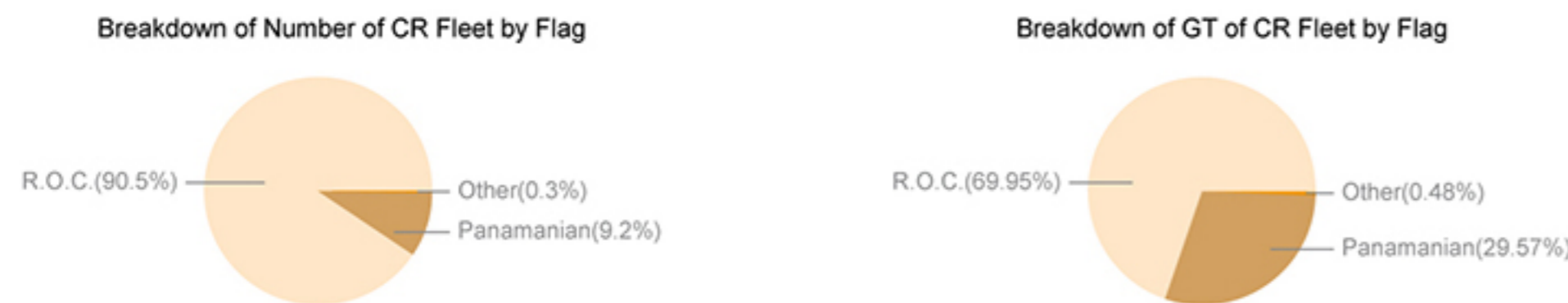
在級船舶 Classed Ships

截至2016年底，維持CR船級之船舶有389艘，共計4,512,591總噸，平均船齡為13.5年。
Up to the end of 2016 there were 389 ships maintaining CR class with 4,512,591 gross tonnage, and the average age of ships was 13.5 years.

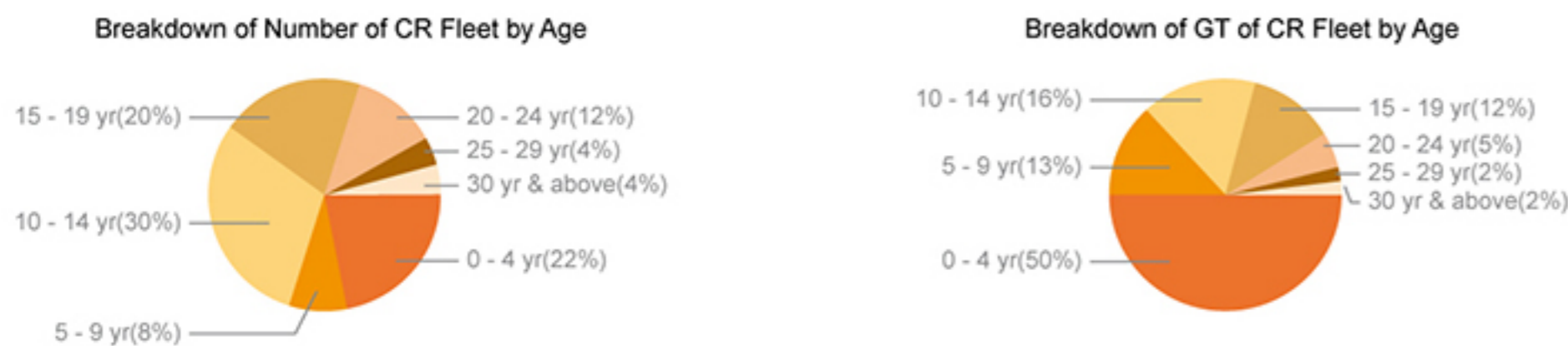
歷年在級船舶艘數及總噸位 The number of CR-classed ships over the years and their gross tonnage



在級船舶之船旗國分析 Analysis of flag states of CR-classed ships



在級船舶之船齡分析 (平均船齡13.5年) Analysis of age of CR-classed ships (the average age of ships : 13.5 years)



在級船舶之船型分析 Analysis of types of CR-classed ships



ISM, ISPS及MLC評鑑

2016年CR辦理航業公司及其所屬船舶申請國際安全管理章程(ISM)及國際船舶與港口設施保全章程(ISPS)及海事勞工公約(MLC)之評鑑及發證工作，共計符合文件(DOC)評鑑35家，船舶管理評鑑(SMC)73艘，國際船舶保全(ISPS)評鑑共78艘次及海事勞工公約(MLC)檢查共86艘。

ISM, ISPS & MLC Verifications

In 2016, CR conducted ISM, ISPS and MLC verification and certification work, carrying out DOC verifications for 35 companies, SMC verifications for 73 ships, ISPS verifications for 78 ships, and MLC inspection for 86 ships.



工廠認可及型式認可 Works Approval and Type Approval

2016年CR執行船舶用品工廠認可及產品型式認可共計47家90型，並執行危險品容器之檢驗業務，共計廠商13家，型式126型(包括小型112型及中型14型)。

In 2016, CR conducted works approval of 47 companies and type approval of 90 products for use on vessels, and also carried out certification of packagings for dangerous goods for 13 companies and 126 types(112 types of small packagings and 14 types of intermediate bull containers).

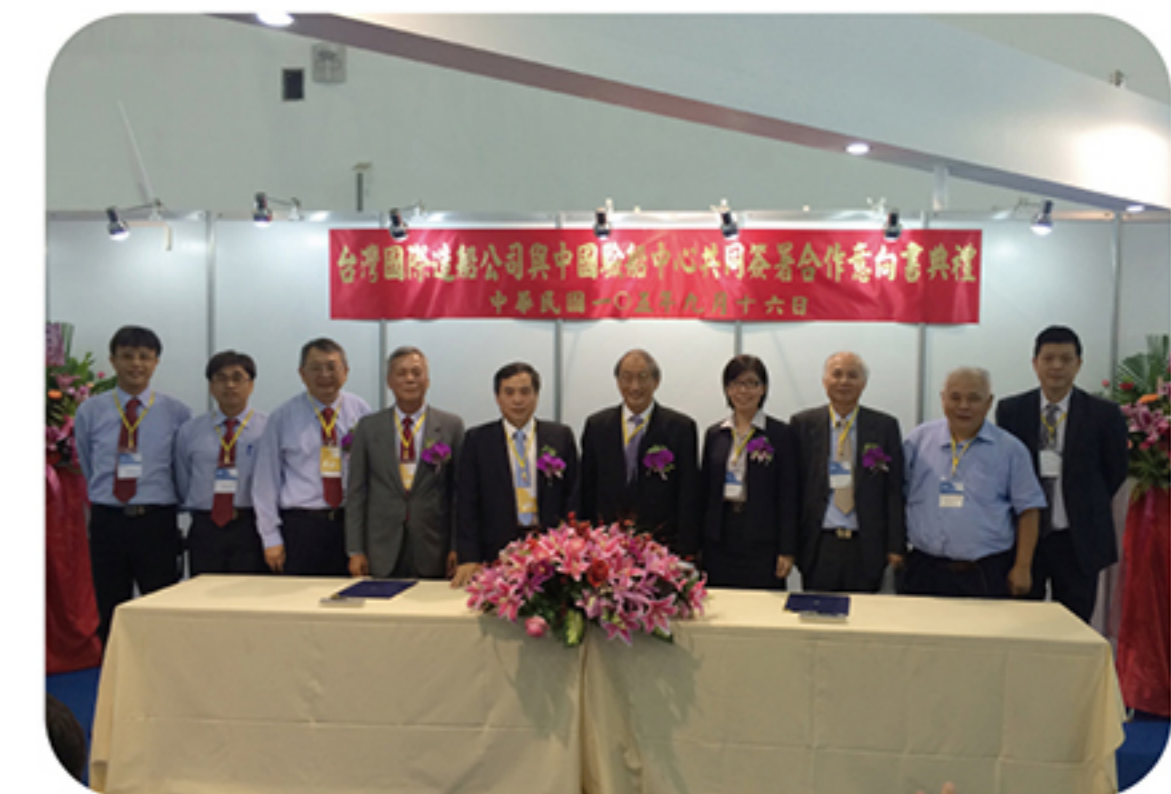
CR

港口國管制

自2006年起，為改善本中心入級船舶之PSC滯留率，特制定「現成船加強檢驗及管理辦法」及「加強管制現成船入級辦法」等二辦法以加強對高齡船舶之嚴格檢驗及入級之適當設限，如今已見成效。本中心在2013-2016年東京備忘錄(TOKYO MOU)的紀錄為高績效的表現。

Port State Control

In order to improve the detention rate of CR-classed ships, since 2006 we have established the "Rules for intensifying inspection and management of existing ships" and the "Rules for controlling Classification of existing ships" as part of our effort to enhance the inspection of aged ships and to impose proper restrictions on classification of these ships. So far, this has demonstrated effectiveness. From 2013 to 2016, the performance of CR in Tokyo MOU remains at a HIGH level.



規範研究

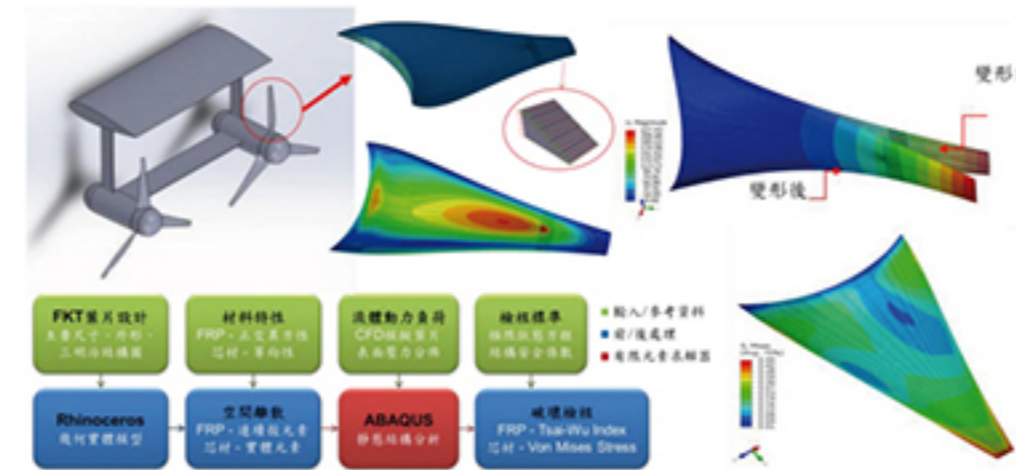
規範發展

本中心自行開發所有入級規範與認證規範，並因應最新國際法規及技術發展，每年實行規範之修訂與更新並經本中心技術委員會審查通過。目前本中心所編撰之規範有：

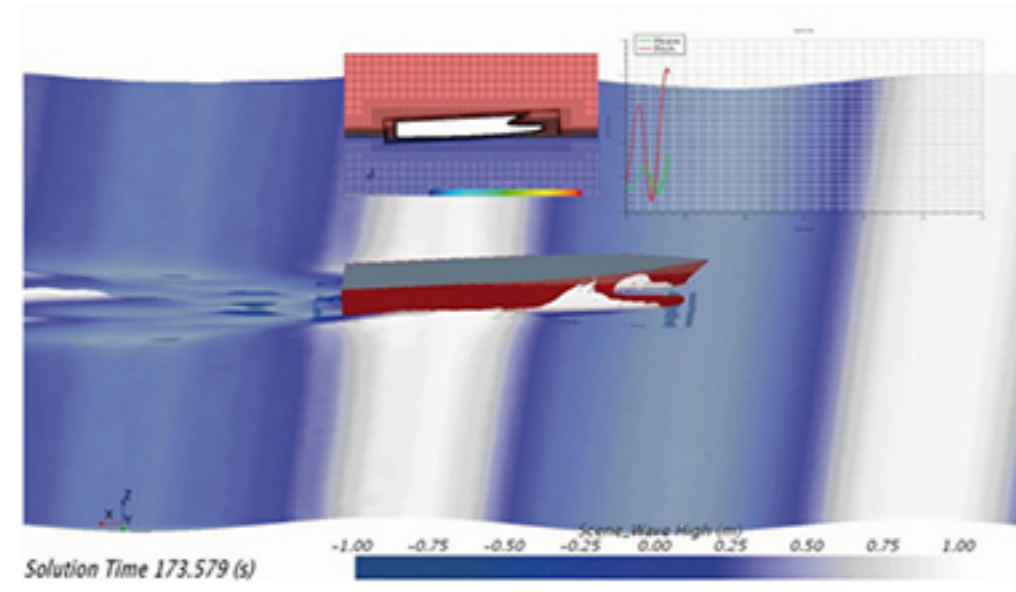
Rules Development

All the CR classification rules and certification rules are self-developed by the Society and have been revised and updated every year in response to the latest international conventions and the development of technology. In addition, the amendments of CR rules are also validated by the Technical Committee of CR. At present, we are compiling the following classification and certification rules.

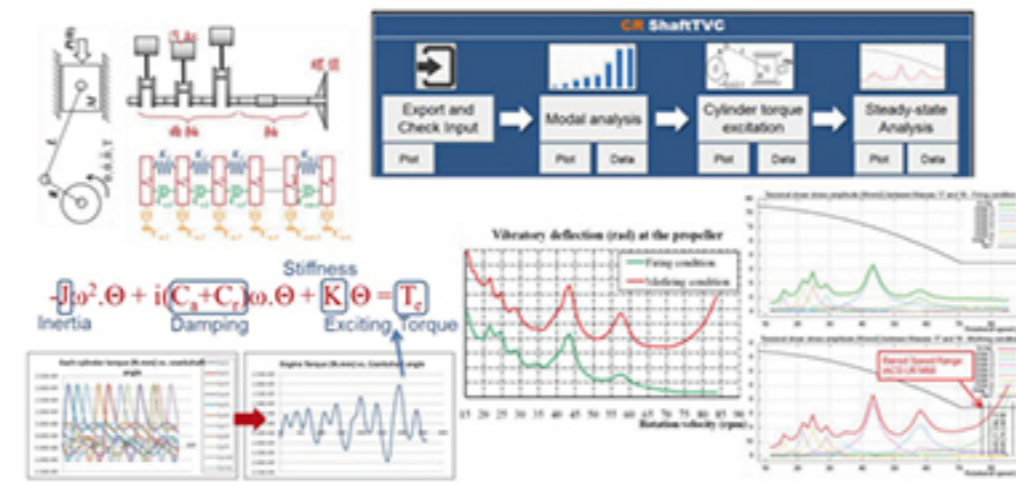
- 2017年鋼船建造與入級規範
Rules for the Construction and Classification of Steel Ships, 2017
- 2017年貨櫃建造與發證規範
Rules for the Construction and Certification of Freight Containers, 2017
- 2013年貨物裝卸設備構造與檢驗規範
Rules for the Construction and Survey of Cargo Gear, 2013
- 2017年高速船建造與入級規範
Rules for the Construction and Classification of High-Speed Craft, 2017
- 2017年鋁合金船建造與入級規範
Rules for the Construction and Classification of Aluminum Vessels, 2017
- 2017年玻璃纖維強化塑膠船建造與入級規範
Rules and Regulations for the Construction and Classification of Ships of Fibreglass Reinforced Plastics, 2017
- 2015年潛艦建造與入級規範
Rules for the Construction and Classification of Submarines, 2015
- 2016年離岸風場認證規範
Rules for the Certification of Offshore Wind Farms, 2016



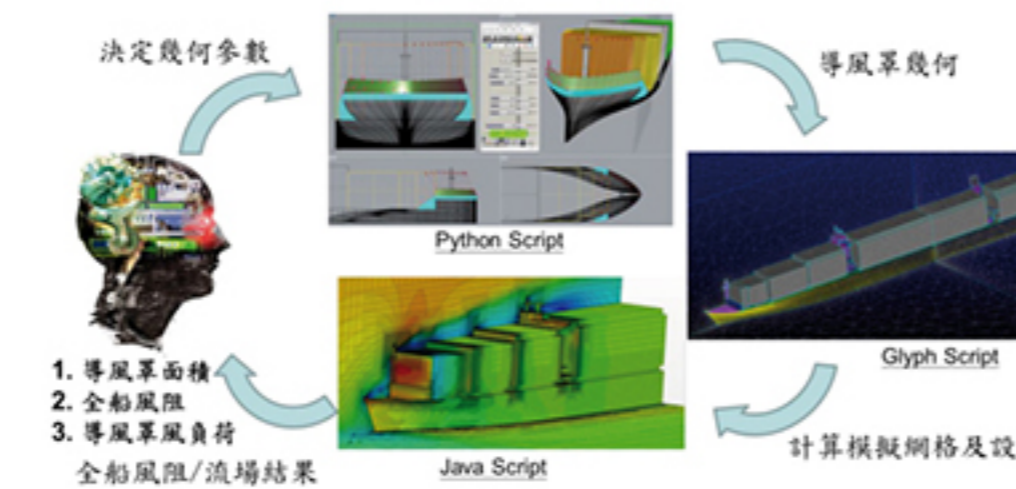
浮游式黑潮渦輪發電機FRP葉片結構分析



穿浪型雙體高速船耐海性能計算



軸系扭轉振動程式(CR ShaftTVC)



全自動化電腦建模及模擬程序控制



政府授權 Government Authorization

CR接受交通部委託，承辦本國籍船舶之國際公約檢驗。此外，本中心亦符合IMO決議案MSC.349(92)RO Code之規定，並獲得巴拿馬、貝里斯、蒙古、柬埔寨、吉里巴斯、吐瓦魯、多米尼克等政府之授權執行各該國籍船舶之國際公約檢驗。

交通部於2016年12月27日蒞臨本中心進行查核，查核重點係針對本中心之檢驗業務、組織、管理方法、設立許可、財務狀況及公益績效等各項加以評審，稽核結果符合「交通部審查交通事務財團法人設立許可及監督要點」之各項規定。

交通部航港局船舶組陶組長自勵率團於2016年12月15日前來本中心，進行遊艇驗證機構之年度查核並順利完成。國家通訊傳播委員會(NCC)於2016年11月17日及11月22日順利完成對本中心授權無線電現場稽核及委辦業務查核之年度稽查工作。

CR is authorized by the Ministry of Transportation and Communications to carry out statutory surveys of ROC ships. In addition, we have met the requirements of IMO Resolutions MSC. 349 (92) RO Code and obtained authorization from the governments of Panama, Belize, Mongolia, Cambodia, Kiribati, Tuvalu, and Dominica for conducting statutory surveys of ships registered with their respective governments.

The Ministry of Transportation and Communications performed an audit of CR at our head office on December 27, 2016, evaluating particularly our survey work, organization, management techniques, establishment permit, financial situation, and performance relating to public welfare. The audit results met all the requirements of the "Regulations of the Ministry of Transportation and Communications for Governing Supervision and Establishment of Corporations regarding Transportation Affairs."

Mr. Zih-Li Tao, Director of Vessel Management Division, Ministry of Transportation and Communications R.O.C. visited CR with an audit team to conduct annual audit on yacht inspection on December 15, 2016. The audit was smoothly completed. The annual audit on radio inspection and other authorized business by National Communications Commission(NCC) on November 17 and 22, 2016.

研究成果 Research Achievement

本中心於2016年發表九篇研討會論文，題目分別為：「套管式離岸風力機於極限颱風和地震條件下之負荷評估」、「節能裝置船艙預旋定子之疲勞負荷預估方法」、「貨櫃船之不對稱船艙的參數化設計及流場分析」、「離岸海氣象塔和風力機於極限颱風負荷之結構反應」、「船舶運動對船艙預旋定子之疲勞損傷分析」、「極限颱風負荷對離岸風力機之結構反應分析」、「以計算方法評估船舶於實海航行之失速現象」、「應用時域模擬於固定式離岸風力機套管基礎之疲勞壽命分析」、「離岸風力發電支撐結構之安全性分析」。另外完成二個外部委託研發案，分別為：台船委託之「貨櫃船導風罩之極限負荷與結構分析研究」、海洋大學委託之「浮游式黑潮渦輪發電機FRP葉片結構分析」。本中心以紮實的技術基礎為我國航運產業和再生能源產業發展提供專業服務。

In 2016, this Society has published nine conference papers, which respectively entitled as "Extreme Typhoon and Seismic Load Assessments for a Jacket-type Offshore Wind Turbine", "Evaluation of Fatigue Loads on a Pre-Swirl Stator Type of Energy Saving Device", "Parametric Design and Simulation of Asymmetric Stern for Containership", "Extreme Typhoon Loads Effect on the Structural Response of Offshore Meteorological Mast and Wind Turbine", "Ship Motions Contribution to The Fatigue Life of a Pre-Swirl Stator", "Extreme Typhoon Loads Effect on the Structural Response of an Offshore Wind Turbine", "Evaluation of the Speed Loss in Seaway by Computational Methods", "Fatigue Life Evaluation using Time-domain Simulation for Bottom-fixed Jacket Foundation of Offshore Wind Turbine", and "Security Analysis of Jacket Substructures for Offshore Wind Turbines". CR has also been authorized in 2016 to conduct research and development projects by CSBC for "Extreme load and structure analysis of a windshield on a container ship" and by NTOU for "Composite Blade Structure Analysis for Floating-type Current Turbine." Based on the sound technics CR has provided professional services for developing shipping and renewable energy industries in Taiwan.



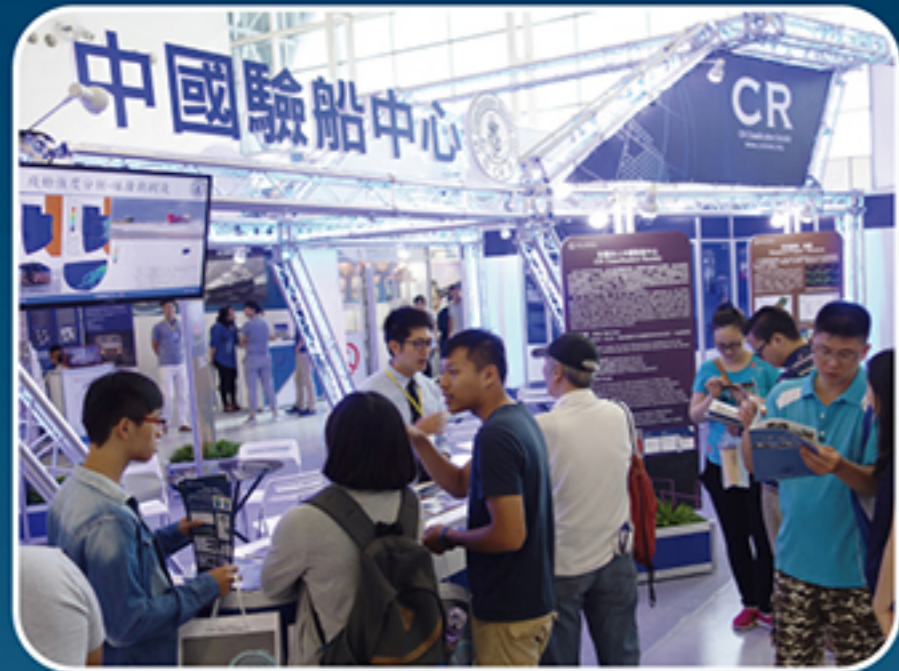
ETAS緊急技術評估服務

截至2016年底，各航運公司向本中心申請緊急技術評估服務(ETAS)的船舶共計有27艘次。

2016年12月1日至4日本中心提供台灣中油所屬康運輪擱淺深澳港之ETAS計算，協助該輪於12月4日成功脫淺。

Emergency Technical Assessment Service (ETAS)

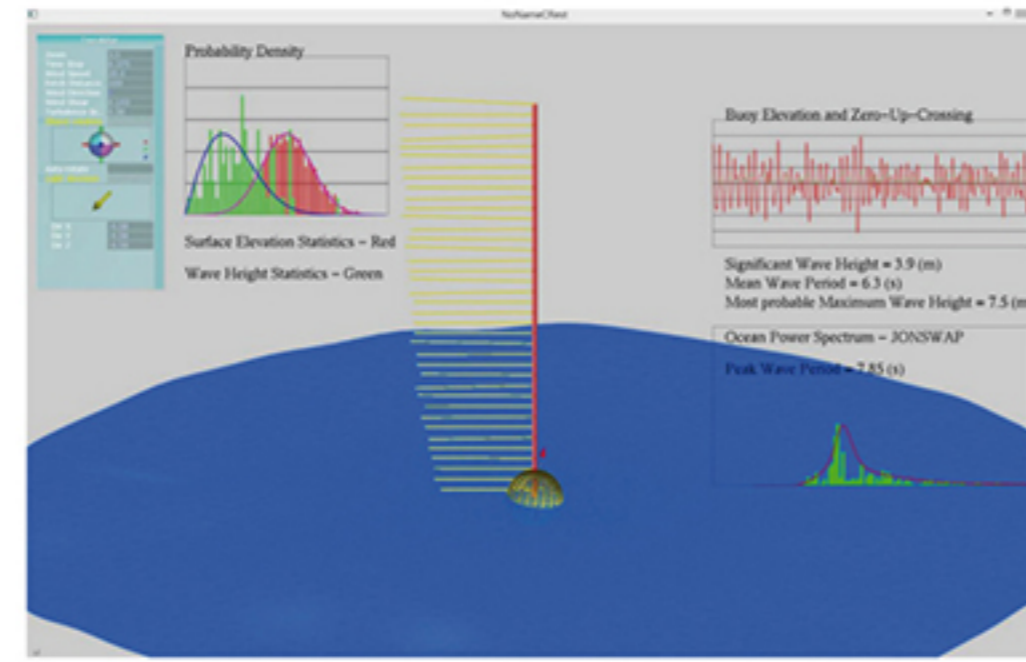
Up to the end of 2016, there are 27 ships for which the companies applied to CR for Emergency Technical Assessment Service(ETAS). CR made ETAS calculation for M/V KANG YUN, owned by CPC Corporation, Taiwan and grounded at Shenao Harbor from December 1 to 4, and assisted M/V KANG YUN to refloat successfully on December 4.



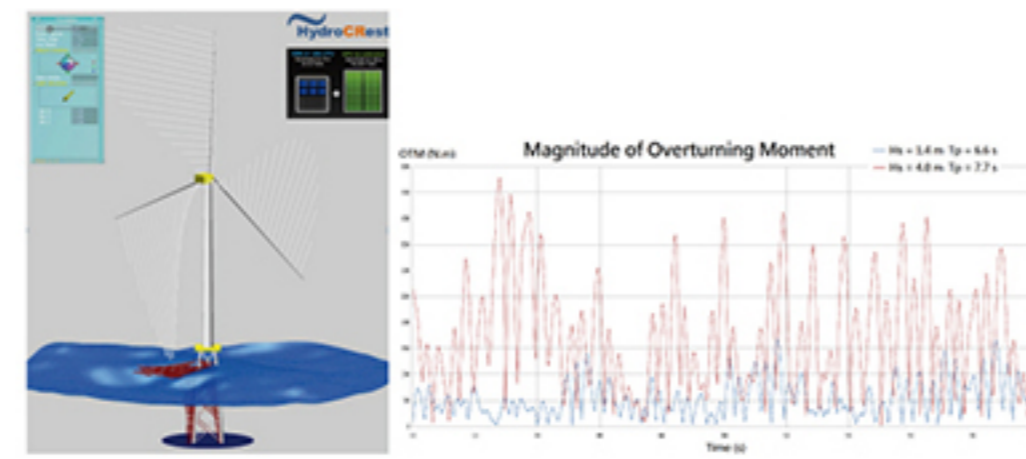
CRPA電子審圖

為加強新造船設計圖審核效率，並減少紙張印刷之資源浪費，本中心自行開發電子審圖系統(CRPA)，其功能包括由船廠傳送設計圖電子檔、本中心審核意見退審、現場驗船師查詢審圖意見、船廠處理退審意見、船東查詢送圖及審圖進度等。

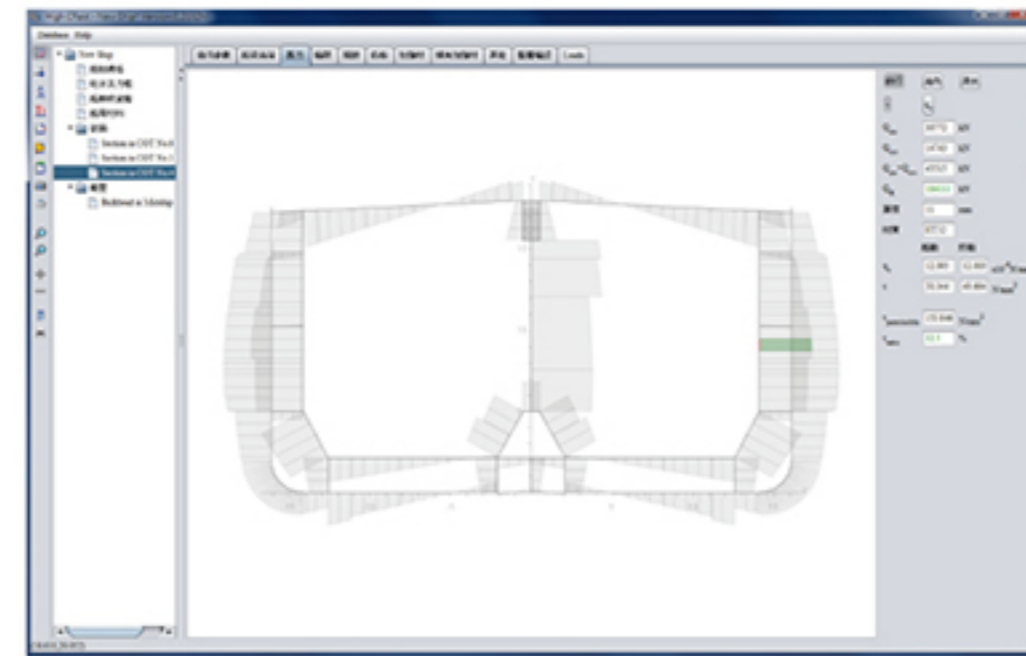
CR



短期海況模擬器



HydroCRest新增繪圖晶片加速器(OpenCL)
模擬離岸風力機之波浪負荷



符合IACS CSR-H規範之結構評估軟體開發
CR High CRest

CR Plan Approval (CRPA)

In order to enhance the efficiency of plan approval for newbuildings and to reduce paper consumption in the office, we have developed CR Plan Approval (CRPA). Its functions include submission of design drawings in electronic form by the shipyard, approval of drawings by CR with comments and return of drawings, review of approval comments by the field surveyors, handling of comments on returned drawings, and inquiries from the shipowner about submission of drawings and progress of drawing approval.

對外研討會 External Workshops

本年度對外共舉辦4次研討會，均深獲與會人士好評。

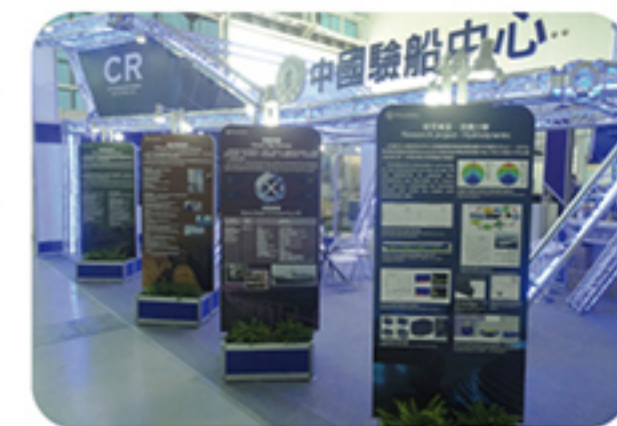
We held 4 external workshops during 2016, all of which received favorable responses from attendees.

日期 Date	研討會內容 Topic
2016.03.24	<ul style="list-style-type: none"> • 破損穩度及CR ETAS服務介紹 Introduction of Damage Stability and CR ETAS Service • 新船檢驗流程介紹 Introduction of Newbuilding Survey Procedure
2016.07.07	<ul style="list-style-type: none"> • 從PSC檢查談船舶管理 PSC Inspection and Ship Management • 離岸風能認證與船級協會的角色 Offshore Wind Certification and the Role of Classification Society
2016.08.25	<ul style="list-style-type: none"> • 船級檢驗動態、PSC統計及CIC重點檢查 CR Classification Activity, Port State Control Statistics and Concentrated Inspection Campaign • 簡介2017年生效之國際公約修正案 Introduction of International Convention's Amendments that will Come into Force in 2017
2016.12.22	<ul style="list-style-type: none"> • 最新生效國際公約與進度 Latest Enforced Convention and its Schedule • 年度研發專題報告 Annual R&D Summary

教育訓練 Training

CR應業界要求舉辦公司保全員(CSO)及港口設施保全員(PFSO)之訓練課程，本年度舉辦公司保全員共1班次計14人，及港口設施保全員共3班次計65人。另並舉辦國際安全管理(ISM)內部稽查訓練課程共2班次共計38人，教育訓練課程均深獲參與學員之好評。

In response to the request of the shipping industry, CR has offered 1 CSO training course for a total of 14 participants and 3 PFSO training courses for a total of 65 participants. Moreover, CR has also held 2 ISM Code training courses for a total of 38 participants. The above-mentioned educational training courses all drew high praise from the participants.



國際交流 International Exchange

為符合IMO目標型船舶建造標準(簡稱GBS)，協商IMO有經驗之稽核員；日本籍Mr. Koiji Yoshida和韓國籍Mr. Sei-Chang Lee，為本中心之GBS系統做獨立驗證稽核。稽核期間長達一年，結果顯示CR規範技術符合IMO GBS，並於6月1日取得GBS符合聲明書。

In order to comply with Goal-Based Ship Construction Standards(abbreviated as GBS), CR has negotiated with experienced auditors, Mr. Koiji Yoshida(Japan) and Mr. Sei-Chang Lee(Republic of Korea), to conduct an independent certification audit for GBS. The audit period lasted for one year and revealed that rules of CR are in compliance with IMO GBS. CR has already obtained Statement of Compliance for GBS on June 1.