

正本

檔 號：
保存年限：

交通部民用航空局 書函

10569
台北市南京東路5段343號8樓之3

受文者：台北市航空貨運承攬商業
同業公會

機關地址：台北市敦化北路340號
傳真：(02)2349-6031
聯絡人：劉欽瑜
聯絡電話：(02)2349-6020
電子郵件：kf0701@mail.caa.gov.tw

發文日期：中華民國108年8月15日
發文字號：企研字第1085020239號
速別：普通件
密等及解密條件或保密期限：
附件：如文(民航局107年年報)

主旨：檢送「交通部民用航空局107年年報」如附件，請參閱。

正本：交通部、國家運輸安全調查委員會、交通部運輸研究所、桃園國際機場股份有限公司、交通部航港局、交通部觀光局、交通部中央氣象局、國家發展委員會、國防部空軍司令部、空軍松山基地指揮部、內政部警政署航空警察局、航空醫務中心、中華航空股份有限公司、長榮航空股份有限公司、華信航空股份有限公司、立榮航空股份有限公司、遠東航空股份有限公司、德安航空股份有限公司、台灣虎航股份有限公司、凌天航空股份有限公司、大鵬航空股份有限公司、騰達航空股份有限公司、群鷹翔國土資源航空股份有限公司、漢翔航空工業股份有限公司、華捷商務航空股份有限公司、飛特立航空股份有限公司、前進航空股份有限公司、天際航空股份有限公司、華儲股份有限公司、永儲股份有限公司、長榮空運倉儲股份有限公司、遠雄航空自由貿易港區股份有限公司、中科國際物流股份有限公司、臺灣航勤股份有限公司、桃園航勤股份有限公司、長榮航勤股份有限公司、長榮空廚股份有限公司、高雄空廚股份有限公司、復興空廚股份有限公司、華膳空廚股份有限公司、華夏航科國際股份有限公司、長榮航太科技股份有限公司、亞洲航空股份有限公司、安博全球航太科技股份有限公司、臺灣飛機維修股份有限公司、安捷飛航訓練中心股份有限公司、中華航空公司附設飛機修護訓練中心、中華科技大學航空維修教育中心、國立虎尾科技大學附設航空維修訓練中心、澳亞飛航訓練中心股份有限公司、台北市航空貨運承攬商業同業公會、高雄市航空貨運承攬商業同業公會、台北市航空運輸商業同業公會、國立臺灣圖書館、國家圖書館、立法院國會圖書館、國立公共資訊圖書館、臺北市立圖書館、臺南市立圖書館、國立臺灣大學圖書館、國立交通大學圖書館、國立東華大學圖書館、行政院秘書處（圖書室）、中央研究院經濟研究所圖書館、高雄市立圖書館、國立成功大學圖書館、國立清華大學圖書館、國立臺灣師範大學圖書館、國立臺北大學圖書館、國立中央大學中正圖書館、國立中正大學圖書館、國立中山大學圖書館、國立中興大學圖書館、國立暨南國際大學圖書館、國立臺灣海洋大學圖書館、國立彰化師範大學圖書與資訊處、國立交通大學臺北校區圖書室、國立臺灣科技大學圖書館、國立臺北科技大學圖書館、國立高雄科技大學圖書館、國立雲林科技大學圖書館、國立屏東科技大學玉崗紀念圖書館、國立澎湖科技大學圖書館、國



立虎尾科技大學圖書館、國立高雄餐旅大學圖書資訊館、國防大學資圖中心、中華民國空軍官校資訊圖書中心、空軍航空技術學院圖書館、陸軍軍官學校資圖中心、中央警察大學圖書館、真理大學圖書館、淡江大學覺生紀念圖書館、中原大學圖書館、開南大學圖書館、中華大學圖書館、逢甲大學圖書館、長榮大學圖書館、大漢技術學院圖書館、財團法人國家實驗研究院科技政策研究與資訊中心、財團法人航空事務教育基金會、財團法人中華航空事業發展基金會、經濟部航空產業發展推動小組、中華民國航空學會、中華民國運輸學會、中華民國航空太空學會、財團法人中華民國台灣飛行安全基金會、台灣區航太工業同業公會、台灣經濟研究院圖書館、財團法人中華經濟研究院圖書室、臺灣綜合研究院圖書館、台灣世曦工程顧問股份有限公司

副本：本局所屬各機關(含丁等航空站)、本局各組室(不含本單位)(均含附件)



交通部民用航空局



交通部民用航空局107年年報

CIVIL AERONAUTICS ADMINISTRATION 2018 ANNUAL REPORT

107 年 年 報

交通部 民用航空局

Civil Aeronautics Administration

2018 Annual Report

ISSN 1819-9437



交通部民用航空局

CIVIL AERONAUTICS
ADMINISTRATION
2018 ANNUAL REPORT

<https://www.caa.gov.tw/>

定價：新臺幣200元
Price：NTD\$200
GPN：2009006878

中華民國 108 年 7 月 July 2019



交通部 民用航空局

107 年 年 報

CIVIL AERONAUTICS
ADMINISTRATION
2018 ANNUAL REPORT

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1 局長的話

Words from the Director General



107 年是我國民航發展成果豐收的一年，臺灣雖身處競爭最激烈的亞太空運市場，但憑藉著位居東亞要衝的交通地理優勢，及在民航同業持續不懈的努力下，不論在國際航網，抑或是客貨運量，均有亮麗的成績，這些成果均非一蹴可及，都是靠著一步一腳印、不間斷規劃推動而成；而因應新興科技 - 遙控無人機的發展，我們參考歐美各國經驗，並整合國內各方意見，於我國民用航空法增訂「遙控無人機」專章，展開無人機管理嶄新的一頁。

我國空運目標為發展成為東亞空運樞紐，近年成果豐碩，又為配合新南向政策，加速經貿合作、促進觀光交流，已陸續拓展越南、菲律賓及泰國等新南向國家航空市場，另亦成功促使法國航空、紐西蘭航空及汶萊皇家航空再度來臺營運，使臺灣的天空更熱鬧、民眾選擇更多元。至 107 年底，我國共與 57 個國家地區簽署通航協定，經營定期客運及貨運航線達 313 條，連結全球 149 個城市，全年旅客人數高達 6,890 萬人次，再創歷史新高。

飛航安全是民航發展的核心基石，也是我們絕不妥協的堅持。除了透過安全管理系統，協助國籍航空公司、維修廠定期監控風險、提升飛航安全外，並與時俱進檢討法規及作業。另重新檢討航空公司設立條件門檻，強化空運管理與消費者權益保護，對業者停業程序、機齡限制、社會公益責任及訂票旅客權益等面向增修訂相關法規，提供更安全、多元且具保障的飛航服務，穩健空運市場發展。

同時為使民航服務更舒適、便捷，在機場規劃與場站建設方面我們亦同樣努力不懈。107 年已完成高雄國際機場及臺中機場 2035 年整體規劃，並啟動「臺灣地區民用機場 2040 年整體規劃」，配合國土與區域發展、地方需求及優勢產業，賦予不同的機場經營定位，並持續推動機場建設。而在飛航服務方面，除了持續規劃性能導航航路並陸續啟用，以提升飛航安全及效率外，桃園國際機場新塔臺也接近完工，目前正進入新、舊塔台作業轉移及人員訓練等階段，再結合桃園航空城用地取得作業，可為桃園國際機場未來 20 年發展做足準備。

面對全球航空市場的競爭及發展變化，及民眾對優質民航服務的高度期待，我們的腳步不能停滯，必須持續了解國際情勢、掌握市場趨勢，積極培養民航專業人才，並妥善發揮我國各機場所在優勢，以飛航安全為優先，深化飛安監理，強化航空保安，並不斷地在服務品質及效率上精益求精，以提升我國民航產業的競爭力，讓臺灣的天空持續璀璨耀眼！

交通部民用航空局 局長

林田雄



Words from the Director General

2018 has been a thriving year for Taiwan's civil aviation industry. With its geographical advantage as the transportation hub in East Asia and the joint efforts of the civil aviation industry, we have had phenomenal achievements both in terms of international air transport networks as well as the passenger and cargo volumes, despite locating in the intensively competitive aviation market of the Asia Pacific region. These accomplishments are made by step-by-step efforts, perpetual planning and implementation. Moreover, in response to the development of the emerging technology- drones, a new and special chapter has been added in the Civil Aviation Act, with reference to the regulations and experiences worldwide and integration of opinions from domestic experts. A new day has begun for drone management in Taiwan.



Becoming the air transport hub of East Asia has been the ultimate goal of our air transport development. In order to carry out the New Southbound Policy, boost economic and trade cooperation, and promote tourism, we have closer ties with Vietnam, the Philippines, and Thailand, and expand the new routes with these aviation markets. Furthermore, Air France, Air New Zealand and Royal Brunei Airlines also resumed their airline services to Taiwan, bringing more vitality to Taiwan's aviation network and more alternatives for the consumers. As of the end of 2018, we had signed air services agreements with 57 countries or areas, and operated 313 scheduled passenger and cargo routes connecting 149 cities worldwide. A new record high annual volume of 68.9 million passengers was reached.

Flight safety is the core of the civil aviation development, and it has never been compromised. In addition to periodically monitor risk management of the national airlines as well as the aircraft repair and maintenance stations, we facilitate the aviation industry enhancing flight safety through the Safety Management System. In the meanwhile, we review and update the relevant regulations and operations. Moreover, we also scrutinize the airline set-up qualification, strengthen air transport management and consumer protection, and amend the related regulations for suspension procedures of the operators, age limit of aircraft, Corporate Social Responsibility and the interests for passengers. In all of the coordinated safety activities, we constantly strive to provide safer, more diverse and more secure air traffic services, which could lead to a prosperous air transport market.



In the meantime, with the aim of providing more convenient and accessible aviation services, we have been around the clock in airport planning and terminal construction. The Master Plan 2035 for Kaohsiung International Airport and Taichung Airport were accomplished, and the "Taiwan Civil Airport System Plan 2040" was officially launched. These leading projects align with national and regional development, meet local needs, and move up the values for industries. Furthermore, these projects, through continual upgrade on airport infrastructure, also serve to differentiate each airport with distinctive operational positioning. With respect to the air traffic services, we continue to implement Performance Based Navigation (PBN) to ensure the safety and efficiency amidst the ever busier sky. The construction of a new air traffic control tower of Taoyuan International Airport will be completed in 2019. Meanwhile, we are working on the seamless operations transfer and personnel training. Apart from these efforts, with the land acquisition for Taoyuan Aerotropolis, the capacity and development of the Taoyuan International Airport is scaled up next 20 years.

While facing the intense competition and incremental changes in the global aviation sector, also with the high anticipation of our passengers for better services and flight experiences, we shall pick up the pace on being fully aware of the international environment as well as staying on top of the market trends. At the same time, the CAA continues to not only cultivate the aviation professionals, but also define the positioning and advantages of each domestic airport. We will continue in pursuit of excellence in service quality and efficiency with prioritized flight safety, strengthened safety oversight and consolidated aviation security. Thereby, we are determined to unceasingly enhance the competitiveness of domestic civil aviation industry. We will further promote Taiwan to be an aviation hub in Asia.

Director General
Civil Aeronautics Administration

Lin. Kuashian



2 宏觀思維 與國際接軌

Macro Thinking;
Reach Out to the World

發展

Development

我國民航現況簡介

Overview of Civil Aviation in Taiwan

空中交通東亞樞紐

臺灣位居亞洲及西太平洋的交通要衝，亦是東北亞、東南亞往來必經航路，可連結東京、首爾、上海、北京、香港、新加坡及曼谷等國際經貿城市，為亞太地區運輸的重要樞紐。至 107 年底我國已與 57 個國家地區簽署通航協定，在臺營運的航空公司共有 92 家，經營定期客運及貨運航線達 313 條，連結全球 149 個城市，全年旅客人數高達 6,890 萬人次。

「臺北飛航情報區」(Taipei Flight Information Region, 簡稱 Taipei FIR) 共有 18 條國際航路及 4 條國內航路，銜接福岡、馬尼拉、香港及上海飛航情報區，107 年提供的飛航服務超過 175 萬管制架次，為東亞航空運輸往來不可或缺的一環。

The Air Traffic Hub of East Asia

Taiwan is situated at the hub of the Asian and the West Pacific region and sits in routes to the North East Asia and South East Asia, connecting international business cities such as Tokyo, Seoul, Shanghai, Beijing, Hong Kong, Singapore and Bangkok, which is a crucial pivot for the Asia-Pacific transportation. By the end of 2018, Taiwan has signed air services agreements with 57 countries and areas; 92 domestic and foreign airlines operating in Taiwan that ran 313 scheduled passenger and cargo routes, connecting 149 cities worldwide with an annual passengers up to 68.9 million.

In Taipei Flight Information Region (Taipei FIR), there are 18 international and 4 domestic routes. It connects to the FIRs of Fukuoka, Manila, Hong Kong, and Shanghai. In 2018, Taipei FIR provided air traffic service to over 1.75 million flights and played an essential role in East Asian air transport.



飛安監理接軌國際

我國的飛航安全監理機制與世界同步，本局持續依循國際民航組織 (International Civil Aviation Organization, 簡稱 ICAO) 相關規範，並建置國家民用航空安全計畫 (State Safety Program, 簡稱 SSP) 及國家民用航空保安計畫 (National Civil Aviation Security Program, 簡稱 NCASP)，據以推動並落實相關飛安、保安管理措施。

我國渦輪噴射飛機全毀 5 年 (103 至 107 年) 移動平均失事率為 0 次 / 百萬離場次，優於全球近 5 年 0.24 次 / 百萬離場次；惟我國渦輪螺旋槳飛機全毀 5 年 (103 至 107 年) 移動平均失事率為 6.33 次 / 百萬離場次，仍受 2 次 ATR72 型機失事影響及總營運架次減少等因素，較全球近 5 年 1.31 次 / 百萬離場次高。本局將持續落實飛安監理制度，以提供更安全的民航服務。

籌策機場發展先機

臺灣地區有 17 座機場提供民航服務，考量國家整體經濟與資源最適配置，本局以宏觀及前瞻思維勾勒各機場發展藍圖。桃園國際機場為我國最主要國家門戶，以成為東亞樞紐

機場為目標；臺北松山機場為首都商務機場，並擔當國內航線樞紐機場；臺中機場與高雄國際機場配合區域發展及優勢產業，拓展國際空運服務網絡，並提供中、南部地區國內航空服務；而花蓮、臺東、金門、澎湖、臺南與嘉義等 6 座機場負責國內運輸，並具備飛航國際及兩岸包機能力；至於南竿、北竿、蘭嶼、綠島、七美及望安等 6 座機場，則提供離島偏遠地區與臺灣本島空運服務。另為共同協助地方產業及觀光發展，恆春機場亦於 106 年起試辦國際及兩岸包機。

民航事業蓬勃發展

依據我國民用航空法成立之民用航空事業，截至 107 年底，共有民用航空運輸業 8 家及普通航空業 10 家，適航國籍民用航空器共計 275 架；航空站地勤業 7 家 (另有 2 家單項經營空橋操作、1 家單項經營機艙清潔)、空廚業 4 家、航空貨運承攬業 1,280 家、航空貨物集散站經營業 6 家 (另有 2 家外籍航空公司自營其承運貨物)。此外，檢定合格之航空產品與其各項裝備及零組件維修廠 (含外籍) 計 25 家，民用航空人員訓練機構計 6 家，其中飛航駕駛員訓練機構 2 家。



Flight Safety Oversight in Line With the International Standards

Taiwan's flight safety oversight mechanism is in sync with the rest of the world. Pursuant to the regulations of the International Civil Aviation Organization (ICAO), the Civil Aeronautics Administration (CAA) has established the State Safety Program (SSP) and the National Civil Aviation Security Program (NCASP) to promote and implement the pertaining flight safety and security measures.

5-year (2014–2018) moving average hull loss occurrence rate of turbojet aircraft in Taiwan was 0 per million departures, lower than the global average of 0.24 per million departures in the past 5 years. However, the figure for turboprop aircraft was 6.33 per million departures owing to the 2 ATR72-type aircraft accidents and a decreased total number of services in recent years, which is higher than the global average of 1.31 per million departures, nevertheless. The CAA shall continue to enforce relevant flight safety measures to provide safer civil aviation services.

Airports Planning to Seize Development Opportunities

Civil aviation services are provided in the 17 airports in Taiwan. Considering the national economy and the optimal resource allocation, the CAA outlines blueprints for the airports respectively on the basis of macroscopic and forward-looking mindset. Serving as Taiwan's primary international gateway, Taoyuan International Airport aims to become a hub airport of East Asia. Identified as the commercial airport for the capital, Taipei Songshan Airport serves

as the hub for domestic flights. Taichung Airport and Kaohsiung International Airport are expanding their international service networks and providing domestic services for Central and Southern Taiwan in line with the regional development and local competitive industries. The 6 airports in Hualien, Taitung, Kinmen, Penghu, Tainan and Chiayi are tasked with the domestic transport responsibility with the capability of providing the international and cross-strait charter services. As for the six other airports, namely Nangan, Beigan, Lanyu, Lyudao, Qimei and Wangan, these airports provide services between offshore remote areas and Taiwan Island. In 2017, Hengchun Airport launched trial flights for international and cross-strait charter services to facilitate the developments of local industries and tourism.

Booming Civil Aviation Industry

As of the end of 2018, for the civil air transport enterprise established in compliance with the Civil Aviation Act of Taiwan, there were 8 civil air transport enterprises and 10 general aviation enterprises that owned and operated a total of 275 airworthy civil aircraft, 7 airport ground handling service providers (with 2 additional providers operating specifically in aerobridge operation and 1 provider in cabin cleaning), 4 catering service providers, 1,280 air freight forwarders and 6 air cargo entrepots (with 2 additional self-handling entrepots operated by foreign airlines). There were also 25 certified aircraft repair stations that perform maintenance on aviation products, appliances and parts (foreign ones included) and 6 private civil aviation training institutions, including 2 pilot schools.

57 個

國家地區簽署通航協定
Air Service Agreements signed
with Countries and Areas

92 家

在臺營運航空公司
Airlines Operating
in Taiwan

313 條

經營定期客運及貨運航線
Scheduled Passenger
and Cargo Routes

149 個

連結全球城市
Connecting Cities

68.9 百萬人次

全年旅客人數
Passenger Volume
(million)

1.75 百萬架次

飛航服務管制架次
Air Traffic Movements
(million)

17 座

機場
Airports

8 家

民用航空運輸業
Civil Air Transport
Enterprises

10 家

普通航空業
General Aviation
Enterprises

275 架

適航國籍民用航空器
Airworthy National
Civil Aircraft

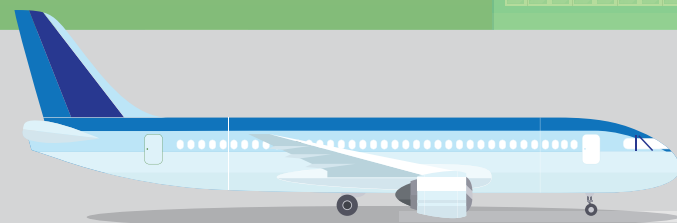
25 家

航空產品與各項裝備及
零組件維修廠
Aircraft Repair Stations

6 家

民用航空人員訓練機構
Civil Aviation
Training Institutions

2018



組織架構 Organization Structure



國際及兩岸航網

International and Cross-strait Air Network

美加地區 United States & Canada

美國 USA	休士頓、安大略、安克拉治*、西雅圖、辛辛那提*、里肯巴克*、亞特蘭大*、芝加哥、洛杉磯、紐約、曼菲斯*、達拉斯*、檀香山、邁阿密*、舊金山、關島、奧克蘭*
加拿大 Canada	Houston, Ontario, Anchorage*, Seattle, Cincinnati*, Rickenbacker*, Atlanta*, Chicago, Los Angeles, New York, Memphis*, Dallas*, Honolulu, Miami*, San Francisco, Guam, Oakland*

多倫多、溫哥華
Toronto, Vancouver

歐洲地區 Europe

荷蘭 Netherlands	阿姆斯特丹 Amsterdam
義大利 Italy	羅馬 Rome
盧森堡 Luxembourg	盧森堡* Luxembourg*
奧地利 Austria	維也納 Vienna
英國 UK	倫敦 (希斯洛、蓋威克) London (Heathlow, Gatwick)
法國 France	巴黎 Paris
德國 Germany	法蘭克福、科隆* Frankfurt, Cologne*
捷克 Czech Republic	布拉格* Prague*
喬治亞 Georgia	提比里斯* Tbilisi*

亞洲地區 Asia

日本 Japan	大阪、小松、仙台、北九州、札幌、石垣島、名古屋、旭川、佐賀、函館、岡山、東京 (成田、羽田)、花卷、宮崎、琉球、茨城、高松、鹿兒島、富山、新潟、熊本、福岡、廣島、靜岡
Osaka, Komatsu, Sendai, Kitakyushu, Sapporo, Ishigaki, Nagoya, Asahikawa, Saga, Hakodate, Okayama, Tokyo (Narita, Haneda), Hanamaki, Miyazaki, Okinawa, Ibaraki, Takamatsu, Kagoshima, Toyama, Niigata, Kumamoto, Fukuoka, Hiroshima, Shizuoka	

韓國 South Korea	大邱、首爾 (仁川、金浦)、釜山、務安、清州、濟州
Daegu, Seoul (Incheon, Gimpo), Busan, Muan, Cheongju, Jeju	

香港 Hong Kong	香港 Hong Kong
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澳門 Macao	澳門 Macao
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泰國 Thailand	曼谷 (廊曼、蘇凡納布)、清邁
Bangkok (Don Mueang, Suvarnabhumi), Chiang Mai	

菲律賓 Philippines	公主港、克拉克、長灘島、馬尼拉、宿霧
Puerto Princesa, Clark, Boracay, Manila, Cebu	

亞洲地區 Asia

馬來西亞 Malaysia	古晉*、吉隆坡、亞庇、檳城 Kuching*, Kuala Lumpur, Kota Kinabalu, Penang
新加坡 Singapore	新加坡 Singapore
印尼 Indonesia	泗水、峇里島、雅加達 Surabaya, Bali, Jakarta
越南 Vietnam	河內、胡志明市、峴港 Hanoi, Ho Chi Minh City, Danang
印度 India	孟買*、德里 Mumbai*, Delhi
柬埔寨 Cambodia	金邊 Phnom Penh
俄羅斯 Russia	莫斯科 (多莫傑多沃、謝列梅捷沃*)、新西伯利亞* Moscow (Domodedovo, Sheremetyevo*), Novosibirsk*
土庫曼 Turkmenistan	土庫曼巴西* Turkmenbashi*
土耳其 Turkey	伊斯坦堡 Istanbul
汶萊 Brunei	汶萊 Brunei
哈薩克 Kazakhstan	阿拉木圖* Almaty*
烏茲別克 Uzbekistan	塔什干* Tashkent*
阿拉伯 聯合大公國 United Arab Emirates	杜拜 (杜拜、阿勒馬克圖姆*) Dubai (Dubai, Al Maktoum*)

亞洲地區 Asia

中國大陸 Mainland China	三亞、上海 (虹橋、浦東)、大連、天津、太原、北京、石家莊、合肥、成都、汕頭、西安、西寧、呼和浩特、昆明、杭州、武漢、長沙、長春、青島、南京、南昌、南通、南寧、哈爾濱、威海、泉州、重慶、徐州、桂林、海口、烏魯木齊、常州、張家界、淮安、深圳、揚州、無錫、貴陽、黃山、廈門、溫州、煙臺、義烏、寧波、福州、銀川、廣州、鄭州、濟南、瀋陽、麗江、蘭州、鹽城
Sanya, Shanghai (Hongqiao, Pudong), Dalian, Tianjin, Taiyuan, Beijing, Shijiazhuang, Hefei, Chengdu, Shantou, Xi'an, Xining, Hohhot, Kunming, Hangzhou, Wuhan, Changsha, Changchun, Qingdao, Nanjing, Nanchang, Nantong, Nanning, Harbin, Weihai, Quanzhou, Chongqing, Xuzhou, Guilin, Haikou, Urumqi, Changzhou, Zhangjiajie, Huai'an, Shenzhen, Yangzhou, Wuxi, Guiyang, Huangshan, Xiamen, Wenzhou, Yantai, Yiwu, Ningbo, Fuzhou, Yinchuan, Guangzhou, Zhengzhou, Jinan, Shenyang, Lijiang, Lanzhou, Yancheng	

大洋洲地區 Oceania

澳大利亞 Australia	布里斯本、雪梨、墨爾本 Brisbane, Sydney, Melbourne
紐西蘭 New Zealand	奧克蘭、基督城 Auckland, Christchurch
帛琉 Palau	帛琉 Palau

註 Note :

1. 包括客、貨運，且*表示為全貨機航點。
Including passenger and cargo transport; * represents cargo-only destinations.
2. 本表包含 107 年中停航之航點。
This table includes destinations suspended in 2018.

連結 **149** 個城市
Connecting **149** Cities

歐洲地區
Europe

10

亞洲地區
Asia

114

大洋洲地區
Oceania

6

美加地區
United States & Canada

19

3 永續經營 航網更便捷

**Sustainable Management;
Enhance the Connectivity**

藍

Blueprint

圖

空運服務成果

Air Transport Service Achievements

臺灣位居亞太地區東北亞與東南亞必經的國際航道上，亦是亞洲與西太平洋的交通要衝，憑藉著優越的地理位置，再加上本局積極拓展國際航權，改善航空貨物物流環境，吸引外籍航空公司及低成本航空公司紛紛加入臺灣航空市場，使我國的空中航網更為綿密便捷，不僅旅客人數逐年成長，航空貨運需求也持續增長。

Taiwan is situated on the pivoting point for the international routes connecting the Northeast Asia and Southeast Asia as well as at the transportation hub of Asia and the West Pacific. With its superior geographical location and the CAA's proactive expansion of international air traffic rights and improvement on the air cargo logistics environment, foreign airlines and low-cost airlines have been attracted to the Taiwanese aviation market successively, weaving out a denser, more convenient air network for Taiwan. Not only the number of passengers grows year by year, but also the air freight demands continue upward unceasingly.



拓展國際航網

因應國際航權自由化的發展趨勢，本局以國家整體利益為考量，並兼顧機場競爭力及國籍航空業者需求，積極拓展國際航權，與各國家地區洽簽雙邊通航協定；107年度持續與相關國家地區就雙邊通航協定相關事宜進行接洽，目前共計與 57 個國家地區簽署航空服務協定。

另許多外籍航空公司看好我國航空市場，紛紛飛進臺灣天空，除日本香草、樂桃等外籍航空陸續新闢航線或在原有航線增班外，法國航空、紐西蘭航空及汶萊皇家航空亦分別於 107 年 4 月、11 月及 12 月復飛臺灣定期航班，使我國的空中航網更為綿密便捷。107 年間在臺營運的航空公司共有 92 家，經營定期客運及貨運航線達 313 條，連結全球 149 個城市，全年旅客人數高達 6,890 萬人次。

暢旺新南向交流

為加速與新南向國家經貿合作，促進觀光交流，本局配合新南向政策與業者共築大道，隨著近年陸續與越南、菲律賓、印度及澳大利亞等國家重新簽署或修訂通航協定，大幅擴充客貨運容量，再加上降落費優惠措施，鼓勵航空公司再擴增航班，攜手暢旺區域合作及人才、資源交流。

107 年新南向政策成果豐碩，新闢飛航新南向國家航線 9 條，共計有 29 家航空公司在臺營運新南向國家 32 條航線，涵蓋新南向各國主、次要城市；定期航班平均每週飛航班數達到 608 班，年旅客人數達 1,248 萬人次，較去 (106) 年成長 12%。

Expanding International Air Network

In light of the trend of international air traffic rights liberation, the CAA takes the general interests of Taiwan as well as the competitiveness of airports and the needs from the national aviation businesses into consideration, proactively expanding international air traffic rights through concluding air services agreements with countries and areas. The CAA continued its engagement with countries and areas on the matter of bilateral air service agreements in 2018. 57 air services agreements with other countries or areas have been reached to date.

In the meantime, various foreign airlines are optimistic about Taiwan's aviation market and have flown into the sky of Taiwan. In addition to foreign airlines such as Vanilla Airline and Peach Aviation that have opened new routes or increased their flights on the existing routes, Air France, Air New Zealand and Royal Brunei Airlines resumed their regular flights to and from Taiwan in April, November and December of 2018 respectively, elevating the density and convenience of the air network of Taiwan. In 2018, there were 92 airlines operating in Taiwan with 313 regular passenger and cargo routes connecting 149 cities worldwide, pushing the annual number of passengers up to 68.9 million.

Facilitating the New Southbound Exchanges

To expedite the economic and trade cooperation and to promote tourism exchanges with new southbound neighboring countries, the CAA has aligned itself with the New Southbound Policy and is working with the industry for the cause. With the recent resigning or revision of the air service agreements with countries like Vietnam, the Philippines, India and Australia, the capacities for passengers and cargo have been increased significantly. Along with the preferential measures for landing fees, airlines are encouraged to expand their flights to jointly promote regional cooperation and the exchanges for talents and resources.

It was a fruitful year in 2018 for the New Southbound Policy. There were 9 new routes to the new southbound neighboring countries. A total of 29 airlines operating in Taiwan ran 32 scheduled routes that covered the major and secondary cities of these southbound neighboring countries. The average number of weekly scheduled flights reached 608 with a number of 12.48 million passengers in 2018, which is a 12% growth compared to that in 2017.

每週
608 班次
Average Weekly
Scheduled Flights

12.48
百萬人次
Passenger
Volume
(million)

107年新南向
政策成果
2018 The Achievement
of the New Southbound
Policy

國籍低成本航空公司 持續扎根發展

近年我國低成本航空市場成長迅速，低成本航空公司之加入營運提供旅客更多樣化選擇，為我國空運服務帶來一番新氣象。截至 107 年 12 月底在臺營運之低成本航空公司共有 22 家，我國籍台灣虎航運用多元經營策略，目前持續布局東北亞及東南亞航網，機隊 11 架均為 A320-232 型，已達初步經濟規模，並發揮以桃園機場作為營運基地之主場優勢，以 24% 之市占率高居在臺經營低成本航空公司之首，遠高於第二名酷虎航空 12% 的市占率。

持續研討改善 航空貨物物流環境

鑒於近年電子商務蓬勃發展，航空貨運承攬業、航空貨物集散站經營業等物流業者無不積極爭取跨境電商物流商機，向本局及桃園機場公司提出多項提升物流效率之建議，本局均積極協調相關單位並提供協助，包括貨轉郵實務作業流程中疑難之排除與釐清、海空聯運及冷鏈物流可行性研討等。透過持續改善航空貨物物流環境，107 年臺灣地區國際機場國際及兩岸航線總貨運量為 241 萬噸，較 106 年成長率 1.96%；其中因受惠於跨境物流需求持續增長，107 年快遞進出口貨運量 31 萬噸，成長率 6.94%，為當年度成長幅度最大的項目。



Flourishing the National Low-cost Airlines

In recent years, the low-cost airlines market has been rapidly expanding in Taiwan, which provided passengers a variety of choices and stirred up a new vibrant wave in aviation service business. By the end of December 2018, there were 22 low-cost airlines operating in Taiwan. Tigerair Taiwan, one of Taiwan's airlines, has adopted a diversified business strategy and has been aggressively developing its air network in the Northeast and Southeast Asia. It has achieved the economies of scale with a fleet of 11 Airbus A320-232 aircraft and its home advantage at Taiwan Taoyuan International Airport as the operating base, securing itself the first place of the low-cost airlines operating in Taiwan. Tigerair Taiwan topped all low-cost airlines in Taiwan with an overall market share of 24%, which is far higher than the 12% market shares of Scoot Tigerair.

Relentless Research to Improve the Air Cargo Logistics Environment

In view of the booming e-commerce in recent years, air freight forwarders, the air cargo entrepots and other logistics service providers have been actively seeking cross-border e-commerce logistics opportunities, submitting various proposals to the CAA and Taoyuan Airport Company to improve logistics efficiency. Hence, the CAA has been proactively coordinating with relevant agencies and providing assistance, including identifying and eliminating problems in the practices of cargo-to-post service as well as the feasibility studies in sea-air transportation and cold chain logistics. Through continuous improvement of the air cargo logistics environment, the total international cargo volume of the international and cross-strait routes at the international airports of Taiwan in 2018 was 2.41 million tons with a growth of 1.96% compared with that of 2017. Particularly, thanks to the growing cross-border logistics demands, the export cargo volume via express delivery in 2018 was 310,000 tons with a growth of 6.94%, making it the category with the largest growth of the year.



機場規劃布局

臺灣地區有 17 座機場提供民用航空服務，配合國土與區域發展、地方需求及優勢產業，賦予不同的機場經營定位，並滾動檢討辦理各主要機場整體規劃，落實桃園航空城計畫，以宏觀及前瞻性思維勾勒機場未來發展藍圖，推動機場建設。

機場經營定位

臺灣地區民用機場整體規劃，在北、中及南部地區布局發展 4 座國際機場；桃園國際機場為我國最主要國家門戶，以成為東亞樞紐機場為目標；臺北松山機場、臺中機場與高雄國際機場依其地利，並配合區域發展及優勢產業，拓展國際空運服務網絡；此外，花蓮、臺東、金門、澎湖、臺南與嘉義等 6 座機場亦開放經營國際及兩岸包機，協助地方產業及觀光發展。至於南竿、北竿、蘭嶼、綠島、七美及望安等 6 座機場，提供離島偏遠地區與臺灣本島基本聯外交通與緊急醫療等空運服務。另為共同協助地方產業及觀光發展，恆春機場亦於 106 年起試辦國際及兩岸包機。

機場整體規劃

為因應國內外空運市場趨勢、政經現況變化及地方產業經濟發展需求，本局已於 107 年 6 月 15 日正式啟動「臺灣地區民用機場 2040 年整體規劃」；在個別機場的發展部分，已為高雄國際機場及臺中機場構思未來 20 年的發展藍圖，綜合區域運量趨勢及經濟產業發展等因素，以穩健策略適度擴建並導入智慧機場科技，行政院於 107 年 2 月 26 日核定「高雄國際機場 2035 年整體規劃」，以及於 107 年 8 月 7 日原則同意「臺中機場 2035 年整體規劃」；至於臺北松山機場，本局現階段以臺灣地區整體旅運需求發展趨勢，探討北部區域機場區位及功能，顯示北部地區仍以維持松山、桃園二座機場為最佳布局。上述幾座國際機場的發展，將依行政院核訂內容推動後續建設計畫。



Airport Planning

There are 17 airports available for civil aviation services in Taiwan. In accordance with the national and regional development, local needs and competitive industries, different airports are assigned with different positionings for the respective operations, while the overall planning of major airports is under rolling review. The vision of Taoyuan Aerotropolis Project shall be realized. The CAA employs a broader forward-thinking in outlining the blueprints for the airports' future development.

Airport Operation Positioning

The overall planning of the civil airports in Taiwan developed four international airports separately located in the Northern, Central, and Southern Taiwan. Serving as Taiwan's primary international gateway, Taoyuan International Airport aims at becoming an air transport hub for East Asia. Taipei Songshan Airport, Taichung Airport and Kaohsiung International Airport are expanding their service networks based on their respective geological advantages, local developments and competitive industries. In addition, international and cross-strait charter flights are open in the 6 airports situated in Hualien, Taitung, Kinmen, Penghu, Tainan and Chiayi to facilitate local industrial and tourism development. As for the 6 other airports at Nangan, Beigan, Lanyu, Lyudao, Qimei and Wangan, these airports provide basic connecting transportation and emergency medical services between the remote areas of the outlying islands and the Taiwan Island. Also, in order to facilitate local industry and tourism devel-

opment, Hengchun Airport began trials of international and cross-strait charter flights in 2017.

Airport Overall Planning

Pursuant to the domestic and international air transport market trends, political and economic dynamics and the needs of local industries' economic development, the CAA officially launched the "Taiwan Civil Airport System Plan 2040" on June 15, 2018. In regard to the developments of individual airports, blueprints have been laid out for Kaohsiung International Airport and Taichung Airport for the next 20 years. In consideration of regional traffic forecast, economic and industrial development, the Executive Yuan approved "Kaohsiung International Airport Master Plan 2035" on February 26, 2018 and "Taichung Airport Master Plan 2035" on August 7, 2018 in principle, developing with a moderate expansion strategy and the introduction of smart airport technology. As for Taipei Songshan Airport, at present, the CAA explored the positionings and functions of the northern regional airports based on the overall demands from passenger and cargo transport in Taiwan, and revealed that maintaining the two airports, Songshan and Taoyuan, in the northern Taiwan is still the optimal configuration. The subsequent development for the aforementioned international airports shall be engaged in line with the contents approved by the Executive Yuan.

馬公機場更名

澎湖地區位於中國大陸與臺灣本島之間的臺灣海峽上，本局於 66 年 8 月 1 日在當地正式成立馬公航空站，開放航空公司營運航線，至 107 年年營運量已達 252 萬餘人次。本局除逐年擴建該站航廈並更新服務設施外，為尊重地方民意，提升澎湖地區國際能見度及辨識性，經行政院同意於 107 年 8 月 9 日正式宣布將「馬公機場」更名為「澎湖機場」，更名後國際友人將可更易識別，有助行銷澎湖整體觀光旅遊，形塑世界最美麗海灣 - 澎湖島嶼品牌形象。



桃園航空城計畫

桃園航空城是國家重要的建設計畫，是引領經濟成長及產業升級的動力。為取得桃園國際機場園區未來發展所需用地，配合內政部辦理「擬定桃園國際機場園區及附近地區特定區計畫」案檢討修正作業，調整機場園區特定區區段徵收範圍與面積，於 107 年 3 月 27 日經內政部都市計畫委員會第 919 次會議完成再審定。接續依都市計畫再審定結果，辦理機場園區特定區區段徵收範圍及抵價地比例報核，於 107 年 12 月 13 日經內政部審議通過，將據以辦理後續區段徵收先期作業。

Name Change for Magong Airport

Penghu is located on the Taiwan Strait between mainland China and the Taiwan Island. The CAA officially established the Magong Airport on August 1, 1977, and opened airline routes. As of 2018, the annual traffic volume had surpassed 2.52 million passengers. Apart from expanding the airport's terminal building and upgrading service facilities year by year, to respond to the local public opinions and enhance the international visibility and recognizability of Penghu, the CAA officially announced the name change of "Magong Airport" to "Penghu Airport" on August 9, 2018, with the approval from the Executive Yuan. The airport shall be more recognizable internationally after the name change, benefiting the marketing of Penghu's tourism as a whole, while building the brand for Penghu Islands as the most splendid bay in the world.

Taoyuan Aerotropolis Project

The Taoyuan Aerotropolis Project is a significant development project as well as a driving force for Taiwan's economic growth and industrial upgrade. To secure lands needed for the future development of Taoyuan International Airport Park, the review of "Draft Taoyuan International Airport Park and the Adjacent Designated Area Plan" was conducted with instructions from the Ministry of the Interior (MOI) to adjust the zone expropriation scope and area for the designated areas in the Airport Park, which had been re-approved by the Urban Planning Commission of MOI in its 919th meeting on March 27, 2018. Following the re-approved urban plan, the CAA had reported the adjusted scope of the designated areas in the Airport Park and ratio of land in lieu of compensation for approval, which was approved by MOI on December 13, 2018. According to the approved contents, the CAA will conduct the subsequent preliminary operation of zone expropriation.



場站建設推動

為了邁向新世代的標竿機場，軟硬體의升級刻不容緩，我國各機場除了進行跑道設施改善及既有航廈整擴建外，更積極推動清淨再生能源，為機場的永續發展，注入深厚實力。

進行北高機場跑道整建

近年我國民航運量屢創新高，高雄國際機場及臺北松山機場航機起降架次也持續成長，為提供旅客安全舒適的起降品質，已分別於 106 年及 107 年開始進行高雄國際機場及臺北松山機場之跑道整建工程，因為兩座機場都只有一條跑道運作，無法封閉跑道大刀闊斧整修，爰利用深夜宵禁的時間施工，並將分別在 108 年及 109 年完工。

完善臺中機場服務

臺中機場因應日漸成長的航班數量，107 年底已完成興建 7 個停機位，提供航機過夜以增加航空公司調度彈性，而既有的國內線航廈已完成整建工程設計，刻正辦理招標作業，俟招標完成後積極進行施工，為大臺中地區提供全新的空運服務體驗。



Airport Infrastructure

In order to move toward the next generation of airports, the upgrades of software and hardware are in pressing need. Besides the improvement of the runway facilities and the expansion of existing buildings, the airports in Taiwan are proactively pushing for clean and renewable energy, so as to set a solid foundation for a sustainable development.

Runway Renovation at Taipei Songshan Airport and Kaohsiung International Airport

Civil air traffic in Taiwan has continued to break records year after year. Both aircraft movements at Kaohsiung International Airport and Taipei Songshan Airport had continued growing. To provide passengers with a safe and comfortable take-off and landing experience, Kaohsiung International Airport and Taipei Songshan Airport commenced runway renovation projects in 2017 and 2018 respectively. Construction must be carried out during the curfew in late night, so that the runway could be closed for renovation inside out, as both airports had only one runway. The projects is scheduled to be completed in 2019 and 2020 respectively.

Services Improvement at Taichung Airport

In light of the growing number of aircraft movements, Taichung Airport has completed the construction of 7 aprons at the end of 2018 for aircraft to stay overnight, so as to increase the dispatching flexibility for airlines. The design phase of renovation project for the existing domestic flight terminal has been completed and is in the process of bidding. The construction will be engaged in an active manner upon the completion of the bidding to grant the Taichung area a novel air transport service experience.





優化離島機場設施

航空運輸攸關離島聯外交通，為離島民眾提供更好的機場服務一直是我們的使命。對於屢受颱風侵襲的金門機場南側海灣，107年已進行金門機場海側護岸堤防設施工程施作，預計108年底完成堤防設施及機場界圍，保護機場跑道地帶，以利安全飛航；馬祖的北竿及南竿機場已展開航廈擴建工程，預計北竿機場於109年、南竿機場於110年將有新風貌的候機環境迎接來訪旅客，另北竿機場將持續進行跑道改善評估及綜合規劃作業；而蘭嶼機場跑道整建107年已完成細部設計，將於108年工程發包及施工，俟完成後將提升飛航安全及營運品質。

推動機場能源多元化

配合政府推動綠能政策，機場能源亦應有多元化來源，本局繼澎湖、臺中、臺南、高雄等機場完成設置太陽能光電設施後，持續推動花蓮機場建置太陽能光電設施，並已於107年9月完成併聯發電，後續將繼續辦理飛航服務總臺苗栗多功能導向台周邊綠地及高雄國際機場員工停車場上方設置太陽能光電設施，積極推動清淨再生能源。



Facility Optimization at Offshore Island Airports

Air transport is vital for the access to offshore islands. Offering offshore island residents better airport services has always been our mission. For the southern bay area of Kinmen Airport that is constantly hit by typhoons, the construction project of the seaside revetment and embankment of Kinmen Airport was launched in 2018. The embankment and airport boundary fence are projected to be completed by the end of 2019, so as to ensure the aviation safety of the runway area. The expansion and renovation projects for the terminals of Matsu's Beigan and Nangan Airports have commenced. The terminal renovation will be completed to better serve the passengers at Beigan Airport by 2020 and at Nangan Airport by 2021 respectively. The projects for the runway improvement assessment and the comprehensive planning for Beigan Airport are underway. The detail design of Lanyu Airport's runway renovation project was completed in 2018, whereas the construction is to be contracted in 2019. Hence, the aviation safety and operational quality shall be improved upon the completion of project.

Promoting Airport Energy Diversification

Pursuant to the clean energy policy of Taiwan, the energy sources for airports should be diversified as well. After airports in Penghu, Taichung, Tainan and Kaohsiung have photovoltaic facilities installed, the CAA also pushed for the photovoltaic facility installation in Hualien Airport, which was completed for parallel generation in September 2018. Furthermore, the photovoltaic facilities will be installed in the green area around the VOR of Air Navigation and Weather Services in Miaoli and over the Kaohsiung International Airport's staff parking lot to actively promote clean and renewable energy.



4 以人為本 專業再深化

Provide People-Oriented
Services; Strengthen the
Expertise

服務

Service

飛航安全監理 Flight Safety Supervision

飛航安全是本局絕不妥協的堅持，只有一貫的嚴謹與不苟，才能真正守護每位旅客的安全。本局除督導相關航空服務提供者實施安全管理系統 (Safety Management System, 簡稱 SMS)，並建置航空安全自願報告系統外，同時推動航空保安管理系統 (Security Management System, 簡稱 SeMS)，持續精進航空保安應變體制。堅持飛航安全零容忍的理念，將各種風險降到最低。

Flight safety is an uncompromising insistence of the CAA. Only with consistent strictness and meticulousness can we truly ensure the safety of every passenger. In addition to supervising the relevant aviation service providers in implementing the Safety Management System (SMS) and establishing the voluntary TAIwan Confidential Aviation safety REporting system (TACARE), the Aviation Security Management System (SeMS) is promoted to continuously strengthen the aviation security response system. The CAA adheres to the concept of zero tolerance for flight safety, minimizing all potential risks.





接軌國際，深化 SMS

本局自 105 年起輔導國籍航空公司建置安全管理系統 (SMS)，於 107 年邀請外部專家學者針對國籍主要航空運輸業者之 SMS 執行成效進行諮詢及評估，並完成經營國際航線之 6 家航空公司之有效性評估，以確保 SMS 有效運作。同時擴及到其他航空相關產業，包含國內 6 家航空器維修廠、臺灣航勤等 3 家航空站地勤業者及本局所屬 16 個航空站均已建置 SMS，以全面提升安全水準。

汰新機隊，安全把關

高齡機容易因器材籌補不易，導致地停維修所需時間較長，而且因發生機械故障機率也會增加，可能造成航班延誤或取消次數增加，直接影響旅客消費權益；我們以飛航安全為基礎，謹慎評估、合理限制飛航時數，確保高齡機隊有充裕時間維修，並強化各項適航性監理。

為提升國內航線服務品質，本局積極鼓勵並協助國籍航空公司引進新機營運，自 106 年起協助遠東航空引進第一架的 ATR72-600 型新機，並於 107 年陸續引進 2 架同型新機加入國內空運服務；而華信航空於 106 年引進 3 架 ATR72-600 型新機後，於 107 年再添

2 架同型新機，以擴充機隊能量及提升疏運效能。

此外，本局於 107 年 10 月修正發布民用航空運輸業管理規則，要求自 109 年 1 月起，國籍民用航空運輸業所使用之客運飛機，其機齡不得超過 26 年之規定，以循序引導業者適時汰換新機隊，用最佳的營運模式，提供消費者更好的服務體驗。

自願報告，全民飛安

國際民航公約第 19 號附約要求會員國應建立飛航安全強制及自願報告系統。為廣泛收集可能影響飛航安全的回饋意見，主動發掘潛在危害因子，本局參考美國航空安全報告系統 (Aviation Safety Reporting System, 簡稱 ASRS)，107 年建置「航空安全自願報告系統」並正式上線運作，以非懲罰性及保密的方式，鼓勵飛行員、簽派員、機務維修員、空服員、超輕型載具操作人員、飛航管制員、地勤作業等第一線航空相關人員與民眾，提供可能危害飛安之各種情報，共同守護飛航安全。截至 107 年底為止，本局共收到 17 件自願報告通報案件，均已依本局航空安全自願報告系統處理作業原則，擬訂相關安全策略及作為，以提升整體安全水準。

Bridging International Standards to Strengthen SMS

The CAA has been instructing the national airlines to establish a Safety Management System (SMS) since 2016. In 2018, external experts were invited to consult and evaluate the SMS implementation and effectiveness of the major national air transport enterprises. The effectiveness assessment of 6 airlines that operate international routes was completed to ensure the effective performance of SMS. In the meantime, the SMS implementation has been expanded to other aviation-related industries, including 6 repair stations, 3 airport ground handling service providers such as Taiwan Airport Service Co., Ltd., and the 16 airports affiliated to the CAA had also completed the SMS deployment in order to improve the overall safety standards.

Renewing Fleets to Ensure Safety

As replenishing the parts of aging aircraft might prolong the turnaround time for maintenance, the mechanical failure rates may increase, potentially leading to increased flight delays and cancellations that directly infringes passengers' rights. On the basis of aviation safety, the CAA prudently evaluates and appropriately restricts flight hours to ensure sufficient maintenance downtime for aging fleets, while strengthening the oversight for the airworthiness.

To enhance the service quality of domestic air services, the CAA proactively encourages all airlines to introduce new aircraft. In 2017, the CAA assisted Far Eastern Air Transport to introduce its first ATR72-600 in 2017 and the other 2 aircraft of same model subsequently in 2018 to offer the domestic air transport service. Mandarin Airlines introduced 3 ATR72-600 in 2017 and purchased 2 more aircraft of the same

model in 2018 to expand the fleet capacity and its transport efficiency.

In addition, in October 2018, the CAA promulgated the amendment to the Regulations of Civil Air Transport Enterprise, limiting the age of the aircraft operated by the national civil air transport enterprises to no more than 26 years, so as to facilitate the enterprises to replace their aged aircraft in time to provide consumers with a better service experience via the best operating model.

Voluntary Report to Ensure Flight Safety for All

According to the Annex 19 to Convention on International Civil Aviation, member states are required to establish mandatory and voluntary flight safety reporting systems. To extensively collect feedback on possible threats to flight safety and identify potential risks in advance, the CAA developed and launched the TAIwan Confidential Aviation safety REporting system (TACARE) in 2018 with reference to the Aviation Safety Reporting System (ASRS) of the U.S.. In a non-punitive and confidential manner, it encourages front-line aviation-related workers, including pilots, dispatchers, maintenance personnel, flight attendants, ultra-light vehicle operators, air traffic controllers and ground service operators, to report on information of potential threats to flight safety, jointly safeguarding the sky. By the end of 2018, the CAA has received a total of 17 voluntary reports, which helped formulate relevant safety strategies and actions pursuant to our processing principles for TACARE, so as to improve the overall safety standards.



強化航空保安效能

為強化航空保安措施，持續推動航空保安管理系統 (SeMS)，並於 107 年修訂國家民用航空保安計畫時將其納入規範，本局除已完成民用航空運輸業以及飛航國際定期航線與包機航空站之 SeMS 建置外，亦將 SeMS 納入例行航空保安查核及檢查重點項目，以精進航空保安體制與深植航空保安文化。

另為減少輸美空運貨物安檢限制，提升輸美貨物通關效率，持續推動加入美國運輸保安署 (Transportation Security Administration, 簡稱 TSA) 國家貨物保安計畫 (National Cargo Security Program, 簡稱 NCSP) 認可作業，達成貨物便捷與航空保安雙贏。

精進航空保安應變體制

本局配合國際民航公約第 17 號附約第 10 版第 15 次修正，修訂我國國家民用航空保安計畫；另因應交通部訂定「交通設施重大人為危安事件及恐怖攻擊應變計畫」，配合訂定「交通部民用航空局民用航空重大人為危安事件或恐怖攻擊防救業務計畫」及「民用航空重大人為危安事件或恐怖攻擊緊急應變處理作業程序」，並督導本局所屬航空站訂定相關應變計畫及程序，以完備我國航空保安應變機制。



Strengthening the Effectiveness of Aviation Security

In order to strengthen aviation security measures, the CAA continues to promote the Security Management System (SeMS), which was incorporated into the regulations in the amendment to the National Civil Aviation Security Program in 2018. In addition to completing the SeMS establishment in the civil air transport enterprises and in the airports with regular international flights and charter flights, the SeMS is included as a key item in the routine aviation security audit and inspection to improve the aviation security system and cultivate an aviation security culture in depth.

Moreover, to reduce the security restrictions and improve the custom clearance efficiency of US-bound goods, the CAA continues to push for the National Cargo Security Program (NCSP) recognition process of Transportation Security Administration (TSA), so as to achieve a win-win outcome for the convenience of freight transportation and aviation security.

Enhancing the Aviation Security Response System

In accordance with the Amendment 15 to the 10th edition of Annex 17 to the Convention on International Civil Aviation, the CAA revised the National Civil Aviation Security Program. In addition, in view of the MOTC's "Contingency Plan for Significant Traffic Facilities-related Man-made Hazardous Incidents and Terrorist Attacks", the CAA stipulated "Prevention and Rescue Plan for Civil Aviation-related Man-made Hazardous Incidents and Terrorist Attacks of Civil Aeronautics Administration, Ministry of Transportation and Communications" and the "Emergency Operating Procedures for Civil Aviation-related Man-made Hazardous Incidents and Terrorist Attacks", followed by supervising the subordinate airports to stipulate relevant plans and procedures to complement Taiwan's Aviation Security Response System.

飛航服務優化 Air Traffic Service Optimization

臺北飛航情報區 (Taipei FIR) 位於東經 117.5 度至 124 度，北緯 21 度至 29 度，東面與南面比鄰日本福岡及菲律賓馬尼拉飛航情報區，西側與北側則接壤香港跟中國大陸上海飛航情報區，是串聯東北亞與東南亞往來國際航線之必經通路，也是亞太地區的重要樞紐，107 年提供超過 175 萬管制架次的飛航服務。為優化飛航服務，本局積極推動性能導航 (Performance Based Navigation, 簡稱 PBN) 政策，並持續新建及汰換各項助導航設施，以提昇飛航服務品質及效率。

Taipei Flight Information Region (FIR) is located at 117.5 ° - 124 ° E and 21 ° - 29 ° N. It is bordered by the Fukuoka FIR, Japan to the east, the Manila FIR, Philippines to the south, the Hong Kong FIR to the west, and the Shanghai FIR, Mainland China to the north. It is the essential corridor for the international routes connecting the Northeast and Southeast Asia and a vital hub in the Asia-Pacific region. In 2018, it provided more than 1.75 million flights. In order to optimize the air navigation services, the CAA proactively promotes the Performance Based Navigation (PBN) policy and continues to build and upgrade various navigation facilities to improve the quality and efficiency of the air traffic service.



優化空域與航路結構

性能導航 (PBN) 航線較傳統航路更精準，且具備路徑靈活、截彎取直等諸多優點，本局配合國際民航組織 (ICAO) 推動性能導航 (PBN) 政策並導入關鍵技術，與國際專業團隊合作，完整規劃並優化臺北飛航情報區的空域與航路結構，除已啟用 Q11、Q12、Q13 與 Q14 等 PBN 航路外，並持續與我國空軍協調，於 107 年已就新增高雄國際機場相關之 18 條性能導航離、到場程序及航線達成共識，將高雄國際機場離場與到場航班之路徑分開，可減少航班爬升下降高度時相互之干擾，增進飛航安全、提升飛航效率，預計於 108 年公布實施。

新建桃園國際機場塔臺

為滿足桃園國際機場未來 20 年航行量的飛航服務需求，展開桃園國際機場塔臺暨整體園區新建工程，107 年 7 月 31 日塔臺群樓建築已竣工，預計於 108 年 6 月底如期竣成塔臺主體；至於新、舊塔臺作業轉移及人員訓練部分，107 年已完成塔臺自動化系統陣地測試及 10 梯次操作 / 維護訓練，108 年將同步進行新塔臺自動化系統之安裝、測試及試運轉，並規劃於 108 年 11 月 15 日啟用新塔臺。



Improving Airspace and Air Route Structure

The PBN routes are more accurate than the traditional ones and have many advantages such as providing more flexible, optimal routing options. The CAA, in accordance with the International Civil Aviation Organization (ICAO), has been promoting the PBN policy and introducing key technologies, cooperating with international professionals to comprehensively plan and improve the airspace and airway structure of the Taipei FIR. Apart from the existing PBN routes such as Q11, Q12, Q13 and Q14, the CAA continues to coordinate with the ROC Air Force, both of which have reached a consensus in 2018 on the departure and arrival procedures as well as routes of the 18 new PBN routes for Kaohsiung International Airport, so as to separate the departure routes from the arrival ones, reducing the interference between climbing and descending flights and thus improving flight safety and efficiency. The measures are expected to come into force upon the promulgation in 2019.

New Air Traffic Control Tower of Taiwan Taoyuan International Airport

To accommodate the flight service demands of Taiwan Taoyuan International Airport in the next 20 years, the "Taiwan Taoyuan International Airport New Air Traffic Control Tower Complex Construction Project" was initiated. The tower complex was completed on July 31, 2018, and the construction of the tower itself is projected to be completed at the end of June, 2019. As for the transfer of operations between the new and the old towers and personnel training, the site acceptance test of the Tower Automation System and the 10 batches of operation/maintenance training were completed in 2018. The installation, testing and test run of the Tower Automation System will be carried out simultaneously in 2019. The new air traffic control tower is scheduled to be operational on November 15, 2019.



汰換跑道儀降系統

本局以「一次採購，分年執行」的方式，自 106 年起分 5 期逐年汰換 9 座機場的助航設備及相關附屬設施，透過統一儀器降落系統 (Instrument Landing System, 簡稱 ILS) 型號，有效降低原廠訓練費用與備份件採購數量，並簡化後勤補給及庫存作業，對提升系統可靠度與穩定性具有助益。

107 年持續辦理嘉義機場 18 跑道儀器降落系統 (ILS) 及其測距儀 (Distance Measuring Equipment, 簡稱 DME)、花蓮機場 21 跑道左右定位輔助臺 (Localizer Type Directional Aid, 簡稱 LDA) 及其測距儀 (DME)，及金門機場 06 跑道儀器降落系統 (ILS) 及其測距儀 (DME) 之設備汰換。

Replacing the Instrument Landing Systems

Upholding the principle of "one-time procurement with yearly execution", the CAA has been replacing the navigation aids and relevant ancillary facilities of the 9 airports in 5 phases since 2017. Through the unified Instrument Landing System (ILS) models, the original factory's training cost in OEM and spare part purchase quantity can be reduced effectively, while the logistics supply and inventory operations simplified, benefiting the improvements of system reliability and stability.

In 2018, the CAA completed the replacement of the ILS for Runway 18 of Chiayi Airport and its associated Distance Measuring Equipment (DME), the Localizer Type Directional Aid (LDA) and the DME for Runway 21 of Hualien Airport, and the ILS and the DME for Runway 06 of Kinmen Airport.



優化助導航設施

本局持續督導推動新建及汰換各項助導航設施，提昇飛航服務品質，107 年成果如下：

- 啟用新設之臺東機場 22 跑道及花蓮機場 03 跑道進場燈，提升跑道頭識別度，有效提高航機操作安全。
- 完成桃園國際機場場面監控強化系統 (MLAT) 升級案，以因應桃園國際機場場面配置大幅變化及 WC 滑行道遷建工程，提升系統運作效能，達到最佳涵蓋及偵測品質。
- 汰換桃園國際機場都卜勒氣象雷達老舊發射機模組，延長設備使用壽年，提升都卜勒氣象雷達工作穩定性、氣象資料處理效能及降低維護成本。
- 汰換完成「臺東、綠島及蘭嶼機場獨立式風向風速計、風向指示器及電子式氣壓計」案，提升航空氣象服務品質。

Bettering the Navigation Aids

The CAA continued to supervise and promote the construction and replacement of various navigation aids to improve the quality of flight services. The achievements of 2018 are as follows:

- Launched the newly-installed approach lighting system for Runway 22 of Taitung Airport and for Runway 03 of Hualien Airport to enhance the visibility of the runway thresholds and effectively improve the aircraft operation safety.
- Completed the upgrade of Taiwan Taoyuan International Airport's MLAT project to improve the system operation efficiency and achieve the optimal coverage and detection quality in response to the significant changes in the configuration of Taiwan Taoyuan International Airport and the WC taxiway relocation project.
- Replaced the old transmitter module of the Doppler Meteorological Radar at Taiwan Taoyuan International Airport to extend the life of the equipment, improve the stability of the Doppler Meteorological Radar, enhance the efficiency of meteorological data processing and reduce maintenance costs.
- Completed the "Taitung, Ludao and Lanyu Airport Independent Anemometer and Wind Vane, Wind Direction Indicator and Electronic Barometer" project to improve the quality of aviation meteorological services.

旅客權益保護

由於近年國際及國內曾發生航空公司營運困難結束營業等事件，加上低成本航空成立家數日益增加，旅客因航空公司航班取消、異動或不諳機票使用規定，而致權益受損時有所聞，本局參酌國外作法及我國行政管理經驗，增修法規條文，並協調航空公司針對身心障礙者提供更多元之服務，以保障消費者權益及提升服務品質。

強化營運監理機制

鑑於國際航空市場變化迅速，民用航空運輸業之經營更具挑戰性，為符合國際情勢及健全民用航空運輸業體質，爰重新檢討其設立條件門檻，增修「民用航空運輸業管理規則」相關條文並於 107 年 3 月 8 日修正發布。



Passenger Rights Protection

In view of the recent difficulties in the operation of airlines in the international and domestic markets and the rising number of low-cost airlines, passengers have suffered from right infringement due to cancellation or alternation of flights or the unfamiliarity to the rules pertaining to airplane tickets. Taking into account the foreign practices and the administrative management experience in Taiwan, the CAA amended and supplemented regulations and provisions, while coordinated with airlines to provide more services to people with disabilities to protect their rights as consumers and improve service quality.

Reinforcing the Oversight Mechanism for Operation

In light of the rapid changes in the international aviation market that have posed more challenges to the operation of the civil air transport enterprises. In order to comply with the international trend and improve the quality of civil air transport enterprises, the CAA reviewed the criteria for the establishment of civil air transport enterprises and supplemented the relevant provisions of the "Regulations of Civil Air Transport Enterprise," which were promulgated on March 8, 2018.

另為避免國籍航空公司無預警停飛暨解散對各界造成重大影響，於我國民用航空法增訂民用航空運輸業停業或結束營業前，應提交停業或結束營業計畫，經交通部核准 60 日後，始得停業或結束營業，若違反前揭規定或未依核定計畫執行，將依法處罰該公司及其負責人。該法已於 107 年 4 月 25 日由總統公布實施，並配合於 107 年 11 月 21 日修正發布「民用航空運輸業管理規則」第 29 條之 3，增訂民用航空運輸業停業或結束營業前應遵行事項。

保護消費者權益

考量民用航空運輸業者如因故暫停或終止客運航線亦將嚴重影響乘客權益，本局於 107 年 6 月 1 日修正發布「民用航空運輸業管理規則」第 13 條之 1，增訂民用航空運輸業暫停或終止客運定期航線之申請期限及應提報消費者保護措施之規定。

此外，為增進我國民用航空運輸業經營者之社會責任，達成維護飛航安全及保障消費者權益之公益目的，並依民用航空法 49 條之 1 規定，要求民用航空運輸業實收資本額達 20 億元者應設置至少 1 名公益性獨立董事，於 107 年 11 月 19 日發布訂定「民用航空運輸業公益性獨立董事設置及應遵循事項辦法」。

In addition, lest any significant impact of sudden flight suspension and dissolution of national airlines, the Civil Aviation Act was amended by CAA. Prior to the suspension or termination of its operation, a civil air transport enterprise is obliged to submit a business suspension plan or termination plan. The operation can only be suspended or terminated after 60 days of approval by the Ministry of Transportation and Communications. Otherwise, the enterprise as well as its legal representative is liable for penalty for the violation of aforementioned provisions or for the failure to execute as the approved plan. The Civil Aviation Act was promulgated by the President on April 25, 2018. Also, the amended Article 29-3 of the "Regulations of Civil Air Transport Enterprise" was promulgated on November 21, 2018, with additional provisions pertaining to the suspension or termination of civil air transport enterprise introduced into the Act.

Upholding Consumer Rights

Considering the great impact on passenger rights from the suspension or termination of passenger routes by civil air transport enterprise, the CAA promulgated the amended Article 13-1 of the "Regulations of Civil Air Transport Enterprise" on June 1, 2018, with the additions of the deadline for the civil air transport enterprise applying for suspending or terminating its flight routes and its obligation to submit the consumer protection measures.

In addition, to enhance the social responsibility of the civil air transport enterprises in Taiwan and to ensure the flight safety and consumer's rights and interests, in accordance with Article 49-1 of the Civil Aviation Act, civil air transport enterprise with a paid-in capital of NT\$2 billion or above is required to appoint at least one independent director undertaking public welfare. The CAA thus promulgated the "Regulations Governing Compliance Matters for Civil Air Transport Enterprise to Appoint Independent Directors Undertaking Public Welfare" on November 19, 2018.

另為保障消費者權益避免衍生消費爭議，增訂外籍民用航空運輸業包機申請獲准後始得在臺攬客貨之規定，並配合增訂準用前述民用航空運輸業暫停或終止客運定期航線之申請期限及應提報乘客處理機制之規定，以避免外籍民用航空運輸業者因故暫停或終止客運航線，影響乘客既定行程之安排。

服務貼心無障礙

為保障身心障礙旅客搭機權益，協調航空公司針對身心障礙者提供更多元之服務，包括對低視能搭機乘客，於機場出境、入境安排地勤人員提供引導、通關、登機及提領行李協助，於客艙提供點字版之「座艙配置平面圖」及「安全講解須知」；對無同行陪伴，且無法自行撤離航空器之身心障礙者，安排人員提供相關安全協助；若有同行陪伴，則妥為安排陪同者座位；另為使聽障旅客在航空器上訊息能確實傳達等，亦提供書寫、筆談及安全示範服務。



To protect consumer rights and avoid relevant consumer disputes, the additional provisions was introduced, which stipulates that a foreign civil air transport enterprise has to be approved for their charter flight applications before soliciting passengers and cargos in Taiwan. Also, the aforementioned provisions concerning the deadline for the civil air transport enterprise suspending or terminating schedule flight routes and its obligation to submit consumer handling mechanism are applied to the foreign civil air transport enterprise as well, lest the impact on passenger's itinerary due to the suspension or termination of flight routes thereof.

Barrier-free and Thoughtful Service

To protect the rights of physically or mentally challenged passengers, the CAA coordinated with airlines to provide dedicated services, such as the assistance to the passengers with poor vision from the ground staff in guidance, customs clearance, boarding and baggage claim on arrival or departure and a braille "cabin layout plan" and "safety instructions" in the cabin. For passengers with physical or mental disabilities who are not accompanied and unable to exit the aircraft on their own, personnel will provide relevant safety assistance; for those who are accompanied, the seats of the accompanying persons are properly arranged. In addition, conversation by writing and security demonstration services are provided to hearing-impaired passengers to properly convey the messages onboard an aircraft.

人才培育及國際交流

民航運輸深具國際性、複雜性及專業性，所需專業能力涉及空運政策、飛航安全、飛航服務、機場建設與經營管理等各種範疇，並且從業人員更需依循國際民航組織相關飛航安全規範以及共通的民航標準執業；因此本局藉由國內自行訓練、派員出國受訓、參與或申辦相關國際會議、訪問及考察等方式，據以強化國際交流，提升我國民航人員訓練品質。

奠基專業實力

本局所屬民航人員訓練所係我國專門培育飛航管制、航空電子、航空氣象、航空通信、飛航諮詢、航務管理、機場消防與航空安全檢查員等民航專業技術人員的行政機關，透過縝密的職前專業訓練，並使用先進的「飛航管制塔臺模擬機」、「飛航管制系統 (ATM) 雷達模擬機」設備，再實施第一線作業單位在職訓練，提供飛航管制人員以及其他類型人員完整紮實的訓練。107 年完成職前訓練 8 班 62 人、在職訓練 361 班 4,217 人；另外結合民間訓練資源，開辦空側 / 機坪安全管理、安全管理及作業風險管理等訓練 10 班，培訓 482 名相關民航產業人員。

汲取國際新知

依據國際民航市場趨勢及輔導我國民航產業發展需要，訂定各年度出國訓練主軸，選派人員汲取國際最新民航規範、航空科技及機場規劃管理等專精知識，計畫性培育專業人才，107 年選派 37 位種子人員赴美國、加拿大、德國、瑞士及新加坡等國，參加航空經營、安全檢查員複訓、飛安調查分析、飛航管理系統、機坪作業管理、機場規劃發展等課程，並舉辦國外訓練成果研討及交流會議，有效將最新國際新知擴大傳遞 260 人次，深化民航專業的知識力。

為達成國際航空業排碳零成長之全球減碳目標，本局與財團法人中華民國台灣飛行安全基金會於 107 年合辦「我國國際航空業因應 CORSIA 機制之能力建構國際研討會」，分享各國建置「國際航空業碳抵換及減量計畫」(Carbon Offsetting and Reduction Scheme for International Aviation, 簡稱 CORSIA) 機制之相關經驗與建議，協助各航空公司及本局瞭解國際民航組織推動 CORSIA 之規範與經驗，以積極因應未來新規範所帶來之衝擊。



Cultivation of Professionals and International Cooperation

Civil aviation is intrinsically an international, complex and professional industry involving expertise across various domains, such as air transport policies, flight safety, air traffic service, airport construction and operation management. Moreover, all practitioners must adhere to ICAO's flight safety regulations and shared civil aviation standards and practices. Hence, the CAA enhances international exchanges and elevates the training quality of civil aviation personnel by means of domestic training, sending personnel abroad for training, participating or applying for hosting relevant international conferences, conducting interviews or visits.

Laying the Foundation of Professional Competence

The Aviation Training Institute of CAA is dedicated to the cultivation of civil aviation professionals and technical personnel in the areas of air traffic control, avionics, aeronautical meteorology, aeronautical communications, flight information service, aviation management, airport fire-fighting and aviation safety inspection. Intensive pre-job programs and on-the-job training programs are available with advanced equipment, such as Air Traffic Control Tower Simulator and Air Traffic Management System (ATM) Simulator, so that air traffic control personnel and other types of personnel can receive well-rounded and solid trainings. In 2018, 62 trainees in 8 classes completed pre-job trainings and 4,217 staff in 361 classes completed on-the-job trainings. Additionally, non-government training resources were integrated to offer 10 classes in airside/apron safety management, safety management and operations risk management training programs, incubating 482 civil aviation industry personnel.



Keeping up with New Knowledge Internationally

The major subjects of annual overseas training programs were determined according to the international civil aviation market trends and to the needs of our civil aviation industry development. The selected staffs were sent to acquire the latest international civil aviation regulations, aviation technologies and airport planning and management expertise, so as to strategically cultivate our professional talents. In 2018, 37 seed staffs were sent to the U.S., Canada, Germany, Switzerland and Singapore to attend various courses, including aviation management, safety inspector retraining, flight safety investigation and analysis, air traffic management system, apron operation management and airport planning and development. The CAA also organized seminars and conferences to effectively pass on the latest information abroad in civil aviation with additional 260 staffs.

In order to achieve the goal of carbon neutral growth for the international aviation industry, the CAA partnered with Flight Safety Foundation-Taiwan to hold the "Taiwan CORSIA Capacity Building Workshop" in 2018 to share the international experiences and advices for implementing "Carbon Offsetting and Reduction Scheme for International Aviation" (CORSIA), assisting airlines and the CAA alike to absorb the regulations and experiences of ICAO promoting CORSIA in order to proactively prepare for the impact derived from the new regulations in the future.

強化國際交流

美國運輸保安署 (TSA) 107 年於 3 月及 7 月均派遣保安專家小組至我國，針對我國加入美方國家貨物保安計畫認可作業及飛美航班的各項保安措施進行檢查與討論，除建立彼此溝通聯繫之窗口，並就保安管制措施進行意見交流，對我國航空保安工作之效率提升與國際接軌助益良多。

為積極推動航空保安相關工作，提升業界航空保安意識，本局邀請美國運輸保安署 (TSA) 航空保安專家來臺於「2018 年亞太地區飛航安全研討會」演講。另為強化我國機場安檢，美國運輸保安署 (TSA) 於 107 年 10 月 29 日至 11 月 1 日派遣航空保安專家來臺分享有關粉狀物質偵測經驗及安檢措施執行方式。

本局並持續辦理一站式保安措施 (One Stop Security)，使安檢措施高於或等同我國之國家來臺轉機託運行李於桃園機場得免除安全檢查，提升我國機場轉機競爭力，除已完成推動美國舊金山與西雅圖機場實施一站式保安措施外，復於 107 年 11 月 24 日至 12 月 2 日派員至加拿大多倫多及溫哥華機場進行驗證並針對航空保安進行交流討論，對於強化與提昇航空保安有所助益。

申辦世界飛安高峰會

世界飛安高峰會 (International Air Safety Summit, 簡稱 IASS) 為航空產業人員交流國際趨勢的重要平臺，也是全世界最盛大的飛安會議，議題涵蓋安全、人員訓練、管理策略、實用方案、人為因素等。107 年交通部王政務次長國材 (兼財團法人中華航空事業發展基金會董事) 於美國西雅圖舉辦之世界飛安高峰會 (IASS)，宣布「2019 年世界飛安高峰會 (IASS 2019)」於 108 年 11 月 4 日至 6 日首度在臺灣臺北舉行，屆時將有 50 個國家，逾 400 名國際飛安專家來臺參加會議，共同研討重要飛安課題，促進全世界飛行安全，並提升臺灣能見度。



Enhancing International Cooperation

In March and July of 2018, the U.S. Transportation Security Administration (TSA) sent a group of security experts to Taiwan to inspect and discuss the recognition process of TSA National Air Cargo Security Program of Taiwan and the security measures of flights bound for the United States. Apart from establishing a window between the CAA and the U.S., both parties exchanged opinions about security measures as well, facilitating the improvement of efficiency of Taiwan's aviation security and bridging with international standards.

In order to actively promote works pertaining to aviation security and to enhance the aviation security awareness of the industry, the CAA invited aviation security experts of TSA to Taiwan to give a speech on the "2018 Asia Pacific Flight Safety Seminar". In addition, to strengthen the airport security screening in Taiwan, TSA sent aviation security experts to Taiwan to share the experience of powdery substance detection and the implementation of security measures from October 29 to November 1, 2018.

The CAA continuously promotes one-stop security for exempting the rescreening of checked-in baggage transferred from countries with the same or higher security checking level than that in Taiwan, in order

to improve our airport-transit competitiveness. The CAA has not only completed establishing the one-stop security with San Francisco Airport and Seattle Airport in the U.S., but also dispatched a team to Toronto Airport and Vancouver Airport in Canada to verify one-stop security measures and to exchange points on matters concerning aviation security, which were beneficial to improving and elevating the aviation security in Taiwan.

Applying for Hosting the IASS

The International Air Safety Summit (IASS) is an important platform for aviation industry personnel to exchange views on international trends, IASS is the world's largest flight safety conference. The Summit covers a variety of issues, such as safety, personnel training, management strategies, practical solutions and human factors. In 2018, Kwo-Tsai Wang, Political Deputy Minister of the Ministry of Transportation and Communications (also the Chairman of the China Aviation Development Foundation), announced in IASS held in Seattle, U.S., that IASS 2019 will be held in Taipei, Taiwan from November 4 to 6, 2019. More than 400 international flight safety experts from 50 countries will come to Taiwan to discuss important flight safety issues, which shall enhance global aviation safety while raising Taiwan's visibility.

5 智慧操控 安全最優先

Artificial Intelligence;
Put Safety First

科技

Technology

我國遙控無人機管理機制及推動歷程

Regulations Governing Drone Activities and Its Promotion in Taiwan

遙控無人機的運用最早自軍事用途開始，隨著科技的浪潮，觸角已發展至商用與消費者市場，透過簡易組裝及智慧操控模式，再搭配攝影機等多元外掛裝備，從空中看見更廣的世界，讓遙控無人機成為近年熱門的新興活動之一。而近來遙控無人機於國土測繪、交通調查、災害防救、空中噴灑等應用亦日漸盛行。

Initially, the use of drones was mainly for military applications. Along with the evolution of technologies, drones have been applied to commercial purpose and consumer markets. Through easily-assembled and intelligent control modes, together with diverse equipment such as cameras, it offers a wider aerial view from the sky. Therefore, drones have become a popular activity in recent years. Lately, drones are applied to national land surveying and mapping, traffic investigation, disaster prevention and rescues and aerial spraying.





為能經濟有效運用臺北飛航情報區空域，提供遙控無人機安全操作的規範及環境，我國 101 年 11 月 26 日發布之飛航公報編號 AIC 04/2012「無人駕駛航空器系統 (UAS) 在臺北飛航情報區之作業」及其後續修訂版內容之規定，針對特定對象、視個案任務特殊性並考量遙控無人機作業申請單位各方面的安全作為實施審查，管理遙控無人機在機場周邊、要塞堡壘與政府重要設施等禁、限航區相關規範及作業程序。經統計 104 年至 107 年，本局已受理計 1,081 件申請案，其中 107 年核准申請案件計 488 件，按執行內容分類，研究共 27 件 (佔 5.5%)、展示 / 飛行訓練共 16 件 (佔 3.3%)、測試共 39 件 (佔 8.0%)、應用共 406 件 (佔 83.2%)。

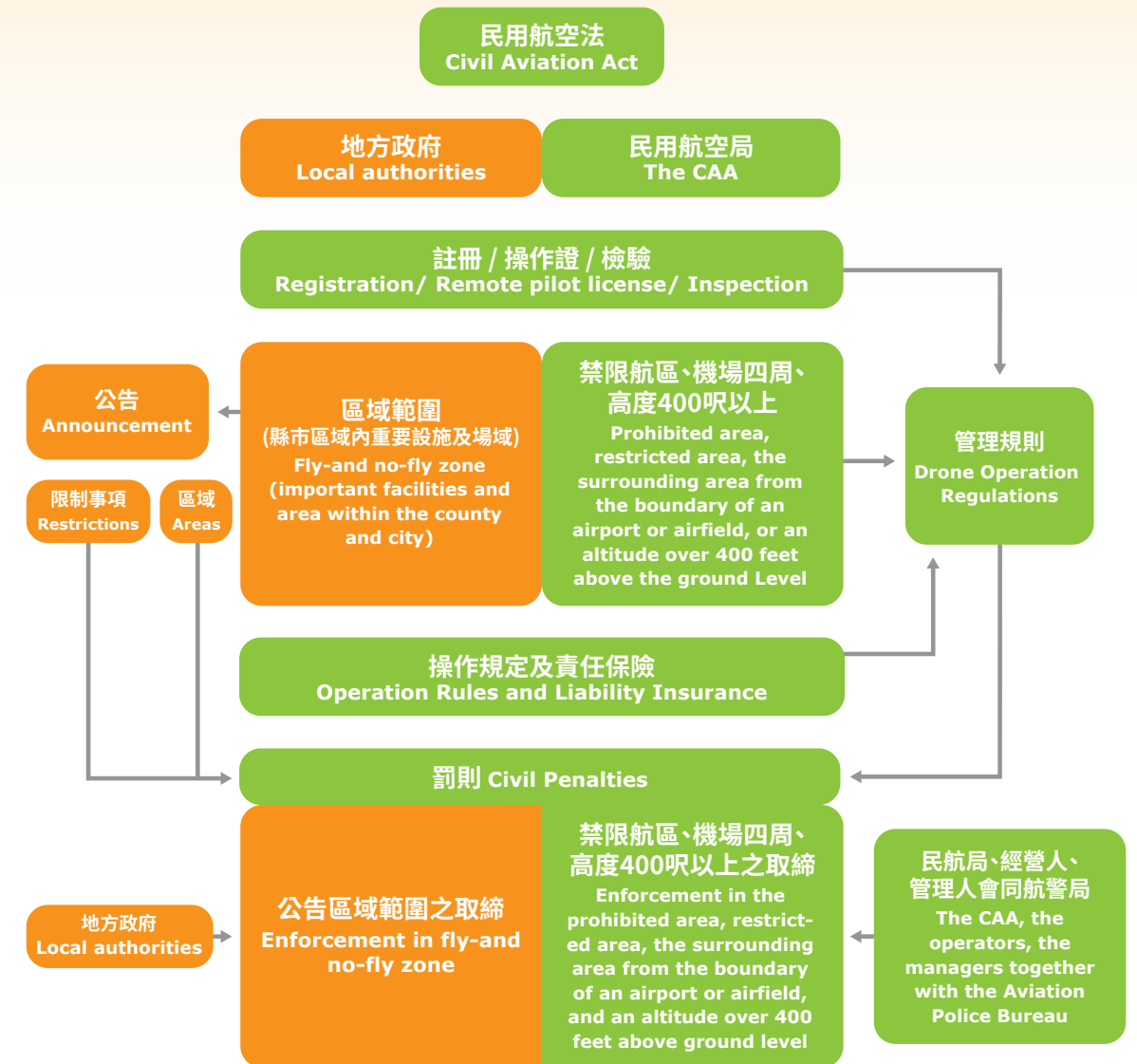
不過多數遙控無人機因為沒有感測與避讓裝置，加上臺灣地狹人稠且空中交通擁擠，越來越熱門的遙控無人機活動已逐漸影響載人航空器使用空域及飛航作業，經統計 104 年至 107 年，本局已裁罰計 48 件違規案，其中 107 年計有 14 件未經本局核准於機場周邊活動之違規情事，對民眾生命財產及飛航安全存有重大威脅。

In order to economically and effectively enhance the airspace utilization in the Taipei FIR and to supply regulations and an environment for safe operation of drones, the CAA issued AIC 04/2012 concerning "The Operations of Unmanned Aircraft System (UAS) in Taipei FIR" and the subsequent revisions on November 26, 2012. Thereby, the specific operators, purposes and safety concerns of applications for UAS are to be reviewed, and the operational procedures of UAS in the prohibited area and restricted area in the vicinity of airports, fortresses and important government facilities shall be properly managed. From 2015 to 2018, the CAA has accepted 1,081 applications, of which 488 have been approved in 2018. Based on the nature of the operations, 27 (5.5%) were research related, 16 (3.3%) were display/flight training related, 39 (8.0%) were testing related, and 406 (83.2%) were application related.

Nevertheless, the majority of drones lacked sensing and collision avoidance mechanism, along with the dense population, limited land space and congested air traffic in Taiwan, the thriving drones activities are gradually affecting the flight operation and airspace reserved for manned aircraft. From 2015 to 2018, the CAA imposed fines on 48 violations, including 14 violations in the vicinity of airports without prior authorization from the CAA in 2018 that posed a huge threat to the life and property of our citizens and flight safety.

為進一步健全遙控無人機管理機制，本局參考國際民航組織 (ICAO) 規範及美國、歐盟、日本等國家立法經驗，多方蒐集相關機關、民間團體與學術研究意見，研擬民用航空法專章規範遙控無人機之器材、人員、活動區域及操作等，該民用航空法第 9 章之 2「遙控無人機」專章修正草案已於 107 年 4 月 25 日經總統公布，並將於行政院核定施行日期後施行。

To further improve the drones management mechanism, the CAA referred to the ICAO regulations and the legislative experiences from states like the United States, the European Union and Japan, took in opinions from relevant agencies, non-government institutions and the academia to draft a dedicated chapter in the Civil Aviation Act pertaining to the device, personnel, activity area and operation of drones. The draft amendment with dedicated Chapter 9-2 to Civil Aviation Act, "Drone", was promulgated by the President on April 25, 2018, which will come into force upon the date of approval by the Executive Yuan.



「民用航空法遙控無人機專章」法規架構圖
Regulation framework of the "Special Chapter for Drone of the Civil Aviation Act"

依據立法旨意，規劃遙控無人機於戶外開放空間之飛航活動由中央及地方依權責分別管理。本局統籌遙控無人機之註冊、操作人員之測驗及給證、限航區、禁航區與機場及飛行場四周一定範圍限飛公告及違規裁罰、授權法規訂定等管理事宜；地方政府則負責所轄行政區內遙控無人機飛航活動限制區域與事項公告及違規裁罰。

為保障載人航空器之飛航安全與社會秩序，明訂自然人所有之最大起飛重量 250 公克以上之遙控無人機及政府機關（構）、學校或法人所有之各類遙控無人機均應辦理註冊，並將註冊號碼標明於遙控無人機明顯之位置；另針對系統較為複雜之遙控無人機，如政府機關（構）、學校或法人所有之遙控無人機、最大起飛重量達一定重量以上之遙控無人機及其他經本局公告者，其操作人應經測驗合格，發給操作證後，始得操作遙控無人機，以維最大公眾利益；而最大起飛重量 25 公斤以上之遙控無人機，則應辦理檢驗。

Pursuant to the spirit of the amendment, the drone flight activities in the open space are managed by the central government and local authorities based on their respective responsibilities. The CAA supervises the registration of drones, the remote pilot examination and certification, the announcement of the prohibited area and restricted area and the prohibited area at a certain distance from the boundary of an airport or airfield, the penalty and the stipulation of authorization regulations. The local authorities are in charge of the announcements of fly-and no-fly zone and matters for drone activities under their jurisdictions as well as the penalty posed on violations.

In order to ensure the flight safety of manned aircraft and social order, the CAA stipulated that a drone with maximum take-off weight of 250 grams or above owned by any natural person or the drone owned by the government agencies (institutions), schools or legal persons. The registration number shall be displayed on a conspicuous part of the drone. For drones with complex construction, such as those owned by government agencies (institutions), schools or legal persons, with a maximum take-off weight above a certain weight or as announced by the CAA, the operator of the drones shall only operate the drones after passing the examination and being issued a certificate for the greater good of the public interests. Drones with a maximum take-off weight of 25 kilograms or above are liable to apply for inspection.



此外，本局刻正積極辦理民用航空法遙控無人機專章下相關子法，包含「遙控無人機管理規則」與「遙控無人機檢驗及操作人員測驗委託辦法」等兩項子法之研擬及法制作業，並持續推動「遙控無人機管理規範推動計畫」。藉由建置「遙控無人機管理資訊系統」與全國性之活動區域圖資應用軟體（APP），運用資訊技術與數位憑證，辦理註冊、檢驗、人員測驗、飛航活動申請、操作限制排除等業務，以提升遙控無人機相關申請業務之審查及行政效率，並有效管理遙控無人機飛航活動，逐步落實各項規定與強化管理，維護飛航安全並促進相關產業之發展。

為期使遙控無人機相關管理作為能於法規生效後無縫接軌，本局已與各縣市政府就中央與地方管理權責、活動申請與審查程序、活動區域公告與管制、取締等事項召開行政協調會議。並持續於各縣市辦理法規及資訊系統運用相關教育宣導會議，以利各界熟知法規之規定並了解相關飛航作業之申請審查程序，提升遙控無人機之管理效能並能保障飛航活動之安全，將飛航安全及民航法規觀念深耕於民。

In addition, the CAA is proactively formulating the regulations under the Special Chapter for Drone in the Civil Aviation Act, including the “Drone Operation Regulations (DOR)” and the “Regulations for the Delegation of Drone Inspection Certification and Remote Pilot Examination”. The CAA also continues to promote the “Promotion Project for Drone Operation Regulations”. By establishing the “Drone Operations Management Information System (DOMIS)” and the Application (APP) for National Activity Area Mapping and with information technology and digital certificates, the CAA conducts the registration, inspection, remote pilot examination, flight permit application and the exclusion of operating limitations to improve the efficiency of review and administrative processing of drone-related applications, effectively manage drone flight activities, and gradually implement pertaining regulations and strengthen the related management, so as to maintain flight safety while facilitate the development of relevant industries.

With an aim for the drone operation management to work seamlessly upon the regulations coming into effect, the CAA held administrative coordination meetings with county and city authorities to coordinate on the matters such as the management responsibility between the central and local authorities, the activity application and review procedures, the activity area announcements, restrictions and enforcement. Meanwhile, the CAA shall continue to hold training sessions in counties and cities on relevant laws and regulations as well as the utilization of the information system for all walks of life to be familiar with, understand the application review procedures for related flight operations, improve the management efficiency of drones, ensure the safety of flight activities, and ultimately instill the concepts of flight safety and of civil aviation regulations deeply into the minds of the people.

6 築夢踏實 一步一腳印

Dream Come True;
Step by Step

實績

Performance

統計數據 Statistics

總量 Total Volume



總起降架次為54萬7,193架次，較106年增加7.5%。
Total number of aircraft movements was 547,193, increased 7.5% from 2017.



總客運量為6,890萬4,131人次，較106年增加4.4%。
Total passenger volume was 68,904,131, increased 4.4% from 2017.



總貨運量為246萬3,336公噸，較106年增加2.0%。
Total cargo volume was 2,463,336 tons, increased 2.0% from 2017.

國際及兩岸航線 International and Cross-strait routes



起降架次為32萬5,179架次，較106年增加5.3%。
Total number of aircraft movements was 325,179, increased 5.3% from 2017.



客運量（含入出境及過境）為5,731萬2,274人次，較106年增加4.4%。
Total passenger volume (including arrival/departure and transits) was 57,312,274, increased 4.4% from 2017.



貨運量（含進口、出口及轉口）為243萬3,332公噸，較106年增加2.0%。
Total cargo volume (including import, export, and transit) was 2,433,332 tons, increased 2.0% from 2017.

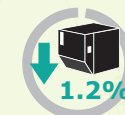
國內航線 Domestic Routes



起降架次為22萬2,014架次，較106年增加10.8%。
Total number of aircraft movements was 222,014, increased 10.8% from 2017.



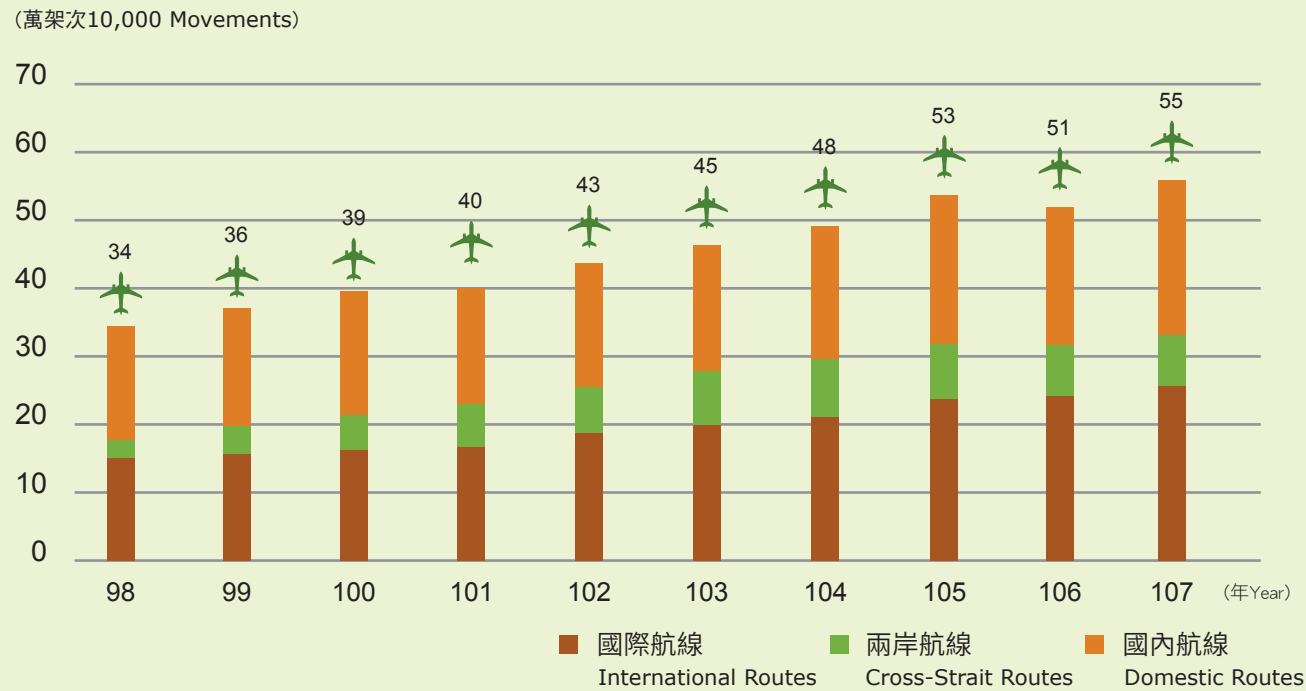
客運量（到、離站旅客）為1,159萬1,857人次，較106年增加4.5%。
Total passenger volume (including arriving and departing) was 11,591,857, increased 4.5% from 2017.



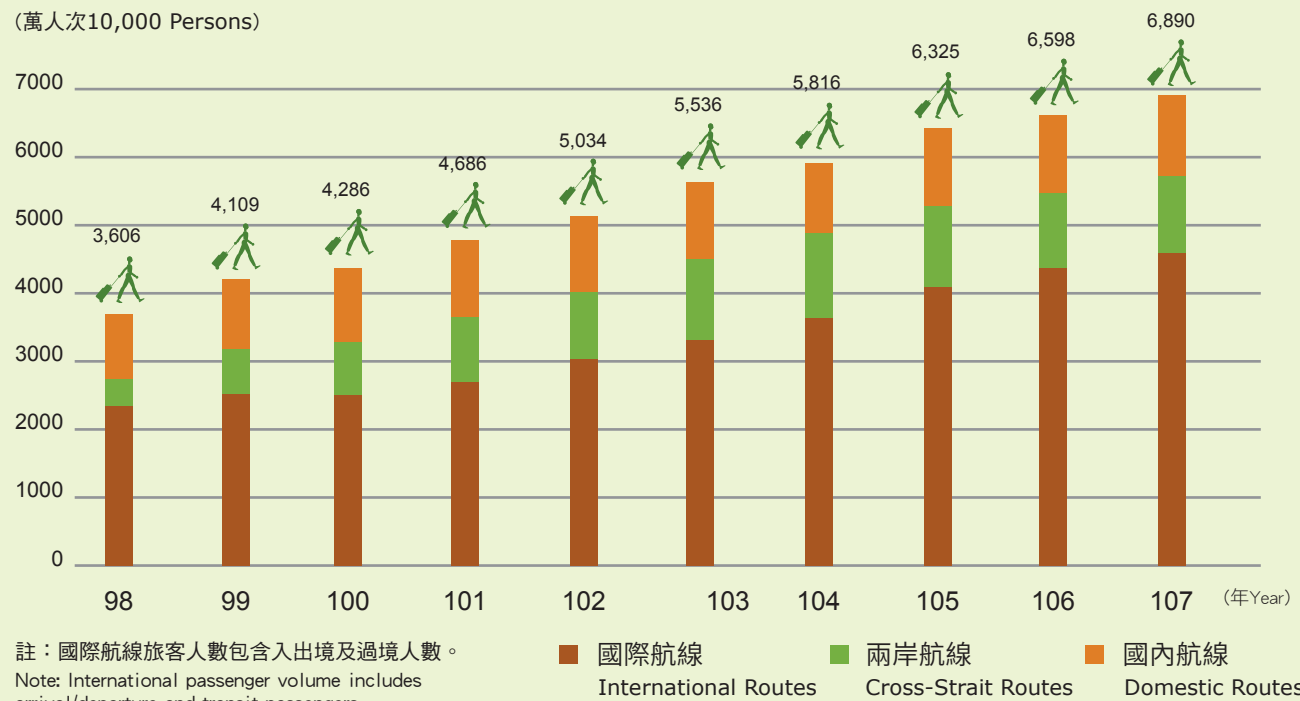
貨運量為3萬4公噸，較106年減少1.2%。
Total cargo volume was 34,000 tons, decreased 1.2% from 2017.

歷年總量 Annual Volume

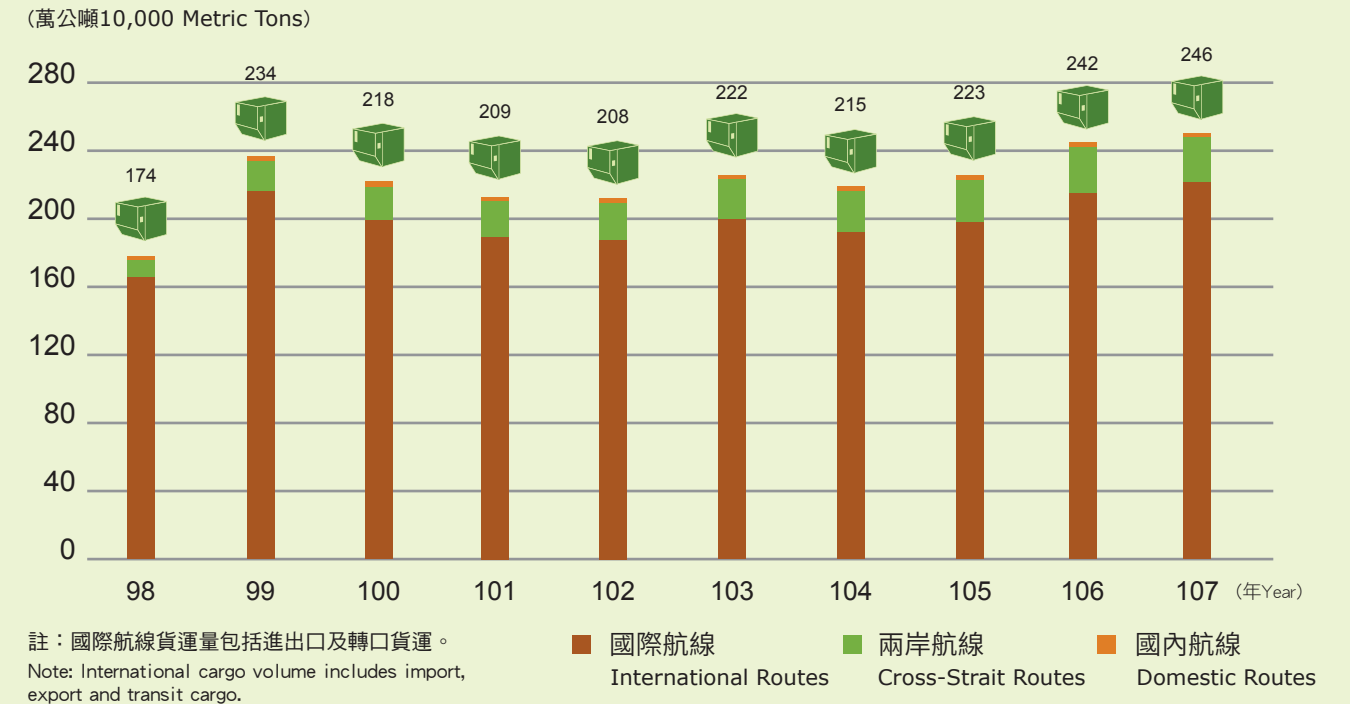
98-107 年起降架次 (單位：萬架次)
2009-2018 Aircraft Movements (Unit: 10,000 Movements)



98-107 年旅客人數 (單位：萬人次)
2009-2018 Passengers Volume (Unit: 10,000 Persons)

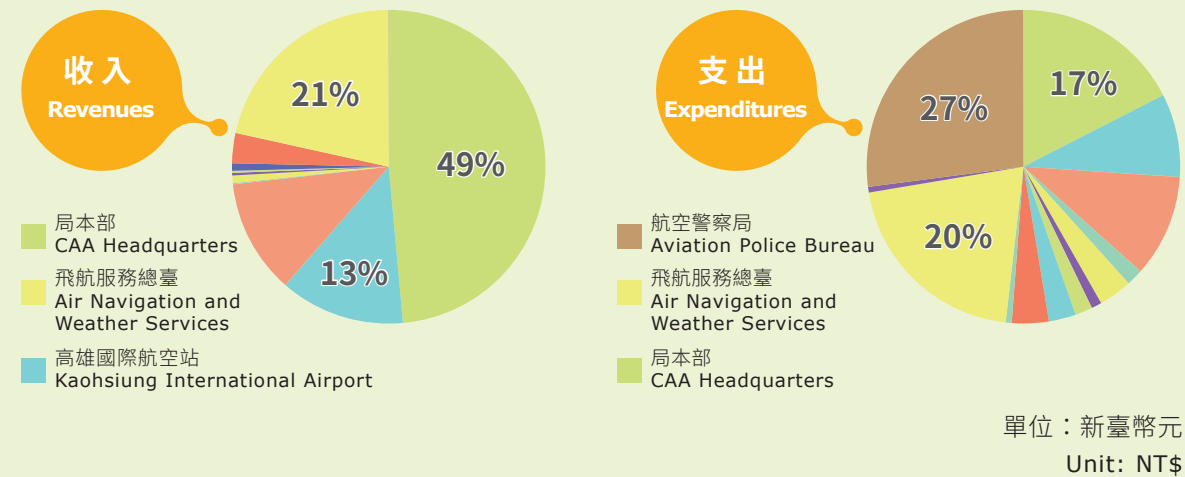


98-107 年貨運噸數 (單位：萬公噸)
2009-2018 Cargo Volume (Unit: 10,000 Metric Tons)



107 年主要機場營運量 2018 Operating Results of Major Airports

機場別 Airport	起降架次 (次) Aircraft Movements	旅客人數 (人次) Passengers	貨運噸數 (公噸) Tonnage of Cargo
桃園國際機場 Taiwan Taoyuan International Airport	256,069	46,535,180	2,322,820
高雄國際機場 Kaohsiung International Airport	60,155	6,973,845	73,542
臺北松山機場 Taipei International Airport	58,056	6,225,932	47,133
臺中機場 Taichung Airport	30,838	2,638,774	3,757
花蓮機場 Hualien Airport	4,193	192,900	157
澎湖機場 Penghu Airport	38,958	2,528,820	6,183
臺南機場 Tainan Airport	6,367	475,844	758
臺東機場 Taitung Airport	42,857	327,107	241
金門機場 Kinmen Airport	32,874	2,429,828	6,778
嘉義機場 Chiayi Airport	1,483	83,032	190
其他 Others	15,343	492,869	1,778
合計 Total	547,193	68,904,131	2,463,336

107 年民航事業作業基金收支統計表
2018 CAA Operating Fund Balance Sheet

單位別 Operating Unit	收入 Revenues	支出 Expenditures	餘絀 Balances
局本部 CAA Headquarters	9,414,990,465	1,950,008,687	7,464,981,778
高雄國際航空站 Kaohsiung International Airport	2,498,097,935	956,538,433	1,541,559,502
臺北國際航空站 Taipei International Airport	2,285,352,047	1,178,254,935	1,107,097,112
花蓮航空站 Hualien Airport	22,982,193	190,947,357	-167,965,164
馬公航空站 Magong Airport	150,798,731	382,950,149	-232,151,418
臺南航空站 Tainan Airport	52,463,627	117,577,257	-65,113,630
臺東航空站 Taitung Airport	40,838,844	201,643,883	-160,805,039
金門航空站 Kinmen Airport	149,021,626	309,194,954	-160,173,328
臺中航空站 Taichung Airport	601,586,439	425,249,688	176,336,751
嘉義航空站 Chiayi Airport	3,153,302	68,796,458	-65,643,156
飛航服務總臺 Air Navigation and Weather Services	4,168,629,288	2,292,412,786	1,876,216,502
民航人員訓練所 Aviation Training Institute	661,794	65,194,592	-64,532,798
航空警察局 Aviation Police Bureau	6,102,543	3,018,884,906	-3,012,782,363
合計 Total	19,394,678,834	11,157,654,085	8,237,024,749

註 Note :

- 高雄國際航空站資料包括恆春航空站收支資料。
Kaohsiung International Airport data include the balance data for Hengchun Airport.
- 臺北國際航空站資料包括南竿、北竿航空站收支資料。
Taipei International Airport data include the balance data for Nangan Airport and Beigan Airport.
- 馬公航空站資料包括七美、望安航空站收支資料。
Magong Airport data include the balance data for Qimei Airport and Wang-An Airport.
- 臺東航空站資料包括蘭嶼、綠島航空站收支資料。
Taitung Airport data include the balance data for Lanyu Airport and Lyudao Airport.

107 年民航事業作業基金收入結構
2018 CAA Operating Fund Income Structure



大事紀要 Chronicles

- 01.12** —— 啟用臺東機場 22 跑道進場燈。
The approach lighting system for Runway 22 of Taitung Airport was activated.
- 01.29** —— 啟用嘉義機場 36 跑道 ILS/DME 設備。
The ILS/DME for Runway 36 of Chiayi Airport went operational.
- 02.26** —— 行政院核定「高雄機場 2035 年整體規劃」。
The Executive Yuan approved the "Kaohsiung International Airport Master Plan 2035".
- 03.01** —— 本局飛航服務總臺啟用航管席位輔助資訊顯示系統。
The Air Navigation and Weather Services of CAA activated the Supplementary Information System.
- 03.08** —— 修正發布民用航空運輸業管理規則部分條文，修訂民用航空運輸業設立條件門檻及包機核准後始得在臺招攬客貨等規定。
Articles of the "Regulations of Civil Air Transport Enterprise" were amended and promulgated to revise the establishment criteria for civil air transport enterprise and the requirement for chartered flights to solicit passengers and cargos in Taiwan only after a prior approval.
- 03.26** —— 本局飛航服務總臺啟用金門終端雷達及廣播式自動回報監視系統。
The Air Navigation and Weather Services of CAA launched Kinmen's Terminal Radar and Automatic Dependent Surveillance-Broadcast (ADS-B).
- 03.27** —— 配合內政部辦理「擬定桃園國際機場園區及附近地區特定區計畫」案檢討修正作業，調整機場園區特定區區段徵收範圍與面積，經內政部都市計畫委員會第 919 次會議完成再審定。
In compliance with the Ministry of the Interior's instructions to carry out the review and revision of the "Draft Taoyuan International Airport Park and the Adjacent Designated Area Plan", the scope and area of zone expropriation for the designated areas in the Airport Park were adjusted, the re-approval of which was concluded in the 919th meeting of the Urban Planning Committee of the Ministry of the Interior.

03.27~28 美國運輸保安署 (TSA) 派遣保安專家小組來臺就國家航空貨物保安計畫進行技術交流事宜，續於 7 月 17 日至 19 日進行第 2 場技術交流。

The U.S. Transportation Security Administration (TSA) sent a team of security experts to Taiwan for technical exchanges on the National Air Cargo Security Program. The second session was held from July 17 to 19, 2018.

04.16 本局臺北國際航空站為提升松山機場跑道服務水準及飛航服務品質，利用夜間施工辦理跑道整建工程，並預計 109 年 3 月完成。

Taipei International Airport of CAA conducted renovation project of the runways at Songshan Airport at nighttime to improve the quality of service and air navigation, which is projected to be completed by March 2020.

04.16 法國航空復航桃園 - 巴黎航線。

Air France resumed direct flights between Taipei (Taoyuan) and Paris.

04.25 公布民用航空法部分條文修正案 (遙控無人機專章、航空公司退場機制及公益性獨立董事之相關規定)。

Amendment on certain clauses of the Civil Aviation Act (provisions concerning drones, airline withdrawal mechanism and independent directors undertaking public welfare) was promulgated.

04.26 啟用高雄國際機場 27 跑道儀器降落系統。

The ILS for Runway 27 of Kaohsiung International Airport was activated.

05.24 為紓解 B576 航路壅塞航情，我國與日本、韓國合作，於臺北飛航情報區內增設 L4 RNAV 過渡航路，以銜接我國之 Q11 航路與日本之 Y741 航路，建立與 B576 航路平行之航線。

In order to relieve the B576 route congestion, Taiwan cooperated with Japan and South Korea to set up a L4 RNAV transition route in the Taipei Flight Information Region to connect Taiwan's Q11 airway with Japan's Y741 airway, establishing a route parallel to the B576 airway.

05.25 汰換嘉義機場 18 跑道儀器降落系統。

The ILS for Runway 18 of Chiayi Airport was replaced.

06.01 修正發布「民用航空運輸業管理規則」第 13 條之 1，增訂民用航空運輸業暫停或終止客運定期航線之申請期限及應提報消費者保護措施之規定。

Article 13-1 of the "Regulations of Civil Air Transport Enterprise" was amended and promulgated, with the additions of the deadline for the civil air transport enterprise applying for suspending or terminating its flight routes and its obligation to submit the consumer protection measures.

06.01 本局飛航服務總臺與福岡飛航情報區啟用 TOC/AOC 雷達自動交接管功能。

Air Navigation and Weather Services of CAA and the Fukuoka Flight Information Region launched the automatic radar handover of the Transfer of Control / Assumption of Control (TOC/AOC).

06.29 本局與法國在臺協會商務處共同舉辦「2018 年臺法機場產業交流會議」，促進臺法機場專業交流與合作。

The CAA and the French Chamber of Commerce in Taiwan jointly held the "2018 Taiwan-France Airport Industry Exchange Conference" to promote professional exchanges and collaboration between the airports of Taiwan and of France.

06.30 配合美國運輸保安署 (TSA) 發布之保安緊急修正令，於登機門前加強對飛美班機旅客隨身攜帶大於或等於 350 毫升粉狀物實施進一步檢查。

In compliance with the Emergency Amendment in security issued by the U.S. Transportation Security Administration (TSA), the CAA implemented enhanced screening measures for carry-on baggage on all passengers on direct flights to the USA that carry powders of or over 350 ml.

07.17 啟用花蓮機場 03 跑道進場燈。

The approach lighting system for Runway 03 of Hualien Airport was inaugurated.

07.29 行政院賴院長清德赴臺中國際機場視察臺中機場 2035 年整體規劃發展情形。

The Executive Yuan Premier, Ching-De Lai, inspected Taichung International Airport's "Taichung Airport Master Plan 2035".

08.07 行政院核定「臺中機場 2035 年整體規劃」。

The Executive Yuan approved the "Taichung Airport Master Plan 2035".

08.09 馬公機場更名為「澎湖機場 (Penghu Airport)」。

Magong Airport officially changed its name to Penghu Airport.

08.21 本局飛航服務總臺於航空氣象服務網新增「直昇機專區」，提供直昇機飛行任務所需航空氣象資料。

Air Navigation and Weather Services of CAA added the "Helicopter Area" section to the Aviation Meteorological Service Page to provide aeronautical meteorological data necessary for helicopter missions.

09.03 本局飛航服務總臺啟用航空氣象收發報系統，提供友善的氣象資料輸入介面並建置航空氣象電報顯示及查詢網頁。

Air Navigation and Weather Services of CAA upgraded the Aviation Weather Report Transmitting and Receiving System to provide a user-friendly meteorological data input interface and build an aeronautical meteorological telegraph display and enquiry webpage.

09.27~28 本局與財團法人中華民國台灣飛行安全基金會合辦「我國國際航空業因應 CORSIA 機制之能力建構國際研討會」，續於 11 月 8 日至 9 日進行第 2 場研討會。

The CAA and Flight Safety Foundation-Taiwan co-organized the "Taiwan CORSIA Capacity Building Workshop". The second workshop was held from November 8 to 9.

10.17——修正發布「民用航空運輸業管理規則」第 11 條，增訂自 109 年 1 月起，國籍民用航空運輸業所使用之客運飛機，其機齡不得超過 26 年之規定。

Article 11 of the "Regulations of Civil Air Transport Enterprise" was amended and promulgated, limiting the age of the aircrafts operated by the national civil air transport enterprises to no more than 26 years.

10.19——本局與中華航空氣象協會合辦「2018 年颱風預報暨飛航作業研討會」。

The CAA and the China Aviation Meteorological Association jointly organized the "2018 Typhoon Forecast and Flight Operations Seminar".

11.01——紐西蘭航空復航桃園 - 奧克蘭航線。

Air New Zealand resumed direct flights between Taipei (Taoyuan) and Auckland.

11.16——「松山機場 10 跑道端北側跑道地帶、安全區及燈光用地取得」案地上物拆遷用地點交面積約 2.6 公頃。

In the Project "Land Acquisition for the Runway 10's Northern Runway Area, Safety Zone and Lighting Area at Taipei Songshan Airport", approximately 2.6 hectares of land were handed over after demolishing the affiliated things on land.

11.19——發布訂定「民用航空運輸業公益性獨立董事設置及應遵循事項辦法」。

The "Regulations Governing Compliance Matters for Civil Air Transport Enterprise to Appoint Independent Directors Undertaking Public Welfare" was promulgated.

11.21——修正發布「民用航空運輸業管理規則」第 29 條之 3，增訂民用航空運輸業在在停業或結束營業前應提出周延且可行之停業或結束營業計畫，俾依其規劃有序退場之規定。

Article 29-3 of the "Regulations of Civil Air Transport Enterprise" was amended and promulgated to add the provisions that the civil air transport enterprise is obliged to propose an extensive and feasible plan for business suspension or termination prior the suspension or termination, so as to exit the market in an orderly manner in accordance with the plan.



11.23——行政院國土安全辦公室至本局總臺北部飛航服務園區進行 107 年度國家關鍵基礎設施防護演習訪評作業，本局並榮獲特優殊榮。

The Office of Homeland Security, the Executive Yuan, conducted a visit and assessment on the national critical infrastructure protection drill at the North Air Traffic Service Park of CAA, in which the CAA passed with fly colors.

12.03——汶萊皇家航空復航桃園 - 汶萊航線。

Royal Brunei Airlines resumed direct flights between Taipei (Taoyuan) and Brunei.

12.05——本局與財團法人中華民國台灣飛行安全基金會合辦「2018 年亞太地區飛航安全研討會」。

The CAA co-organized the "2018 Asia-Pacific Flight Safety Seminar" with Flight Safety Foundation-Taiwan.

12.12——啟用松山機場 10 跑道 B 型警戒燈。

The Type-B runway guard lights for Runway 10 of Songshan Airport were activated.

12.19——107 年度「交通部服務獎」本局金門航空站榮獲整體服務類績優機關。

In the 2018 "Service Award of the Ministry of Transport and Communications", Kinmen Airport of CAA won the excellence award in the overall service category.

12.24——本局臺中航空站過夜機坪工程完工。

The overnight apron construction at Taichung Airport was completed.





交通部民用航空局 | 107 年年報
CIVIL AERONAUTICS ADMINISTRATION
2018 ANNUAL REPORT



出版機關	交通部民用航空局
地址	10548 臺北市敦化北路 340 號
電話	(02) 2349-6280
編者	交通部民用航空局
出版年月	108 年 7 月
創刊年月	90 年 5 月
刊登頻率	年刊 - 本刊同時刊登於民航局網站
網址	https://www.caa.gov.tw
定價	新台幣 200 元
G P N	2009006878
I S S N	1819-9437
美術編輯	碼非創意企業有限公司
電話	(02) 2745-8088
展售處	國家書店及網路書店 (02) 2518-0207 五南文化廣場及網路書店 (04) 2226-0330 10485 臺北市松江路 209 號 1 樓 40042 臺中市中山路 6 號 https://www.govbooks.com.tw https://www.wunanbooks.com.tw

PUBLISHER	Civil Aeronautics Administration, Ministry of Transportation and Communications
ADDRESS	NO.340, Dunhua N.Rd., Taipei City 10548, Taiwan, R.O.C.
TEL	+886-2-2349-6280
EDITOR	Civil Aeronautics Administration, Ministry of Transportation and Communications
PUBLISH DATE	July 2018
FIRST ISSUED	May 2001
FREQUENCY	Annually- The Annual Report is also available on the website of CAA.
WEBSITE	https://www.caa.gov.tw
PRICE	NTD 200
GPN	2009006878
ISSN	1819-9437
EDITORIAL	Maffrey Inc.
TEL	+886-2-2745-8088
POINT OF SALE	Government Publication Bookstore +886-2-2518-0207 Wunan Bookstore +886-4-2226-0330 NO.209, Songjiang Rd., Taipei City 10485, Taiwan, R.O.C. NO.6, Zhongshan Rd., Taichung City, 40042, Taiwan, R.O.C. https://www.govbooks.com.tw https://www.wunanbooks.com.tw



著作財產權人 | 交通部民用航空局

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