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訂

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線

便捷查詢服務：

航空氣象服務網　飛航服務總臺年報電子書　飛航服務總臺粉絲專頁

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物流管理學系、中華科技大學航空服務管理系、國防部空軍司令部、國防部海軍司令部、國防部陸軍司令部、空軍作戰指揮部、國家中山科學研究院、行政院海岸巡防署、內政部空中勤務總隊、空軍松山基地指揮部、空軍氣象聯隊、飛航管制聯合協調中心、審計部交通建設審計處、經濟部航空產業發展推動小組、國家圖書館、立法院國會圖書館、國立臺灣圖書館、台北市立圖書館、國立臺灣大學圖書館、國立交通大學圖書館、國立公共資訊圖書館、臺南市立圖書館、國立東華大學圖書資訊中心、五南文化廣場、國家書店物流中心、本總臺各單位

副本：

總臺長 黃麗君

交通部民用航空局飛航服務總臺
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飛航服務總臺106年年報

AIR NAVIGATION & WEATHER SERVICES, CAA, MOTC

2017 Annual Report

ANWS

ANWS

亞太地區一流的飛航服務提供者

A World Class Air Navigation Services Provider in Asia Pacific Region

ANWS

安全、創新、效率

Safety · Innovation · Efficiency

01
總臺長的話

WORDS FROM THE DIRECTOR

面對全球政治經濟、兩岸情勢、原油波動及勞資爭議等議題，106 年我們在交通部民用航空局、軍方、航空站、臺灣桃園國際機場股份有限公司、各民航業者及全體同仁的通力配合下，持續汰新設備系統、精進專業知能、改善服務措施，提升臺北飛航情報區 (以下簡稱本區) 的飛航安全與服務品質，吸引各國航機過境本區，管制架次及盈餘穩健成長，106 年飛航服務總管制架次逾 166.1 萬、桃園國際機場起降架次逾 24.8 萬、盈餘逾 16.08 億元，均創下歷史新高紀錄！

在強化落實飛航安全管理上，啟用飛航服務安全管理資訊系統 (Safety Event Reporting and Analysis System,SERA) 與 Q12、Q13、Q14 等 3 條航路，並透過班務督導與協調員管制作業專案督查、實施流量管理措施、建置航管席位輔助資訊顯示系統，提升航管作業安全及效率，加上完成飛航訊息處理系統及新航管備援系統設計審查作業，逐步提高安全係數，而桃園新塔臺新建工程及塔臺自動化系統，也陸續完成主要結構工項及系統測試，構築未來航管作業新貌。

而在精進改善飛航服務品質上，軟體方面持續強化航空情報服務網及航空氣象服務網功能，汰換松山與桃園、高雄與恆春機場自動氣象觀測系統（Automatic Weather Observation System, AWOS）、航空氣象收發報系統及啟用臺中清泉崗機場資料鏈終端資訊自動廣播服務系統 (Datalink ATIS, D-ATIS)，確保相關資訊穩定並即時提供；硬體方面，新增金門機場終端航管雷達，完成馬公 02 跑道、高雄 27 跑道、嘉義 36 跑道及清泉崗訓練中心等 4 套 ILS/DME 設備架設及飛測，建置馬祖南竿牛角嶺風向風速計及增設馬祖南、北竿機場助航燈光設備等，確保裝備穩定可靠及提高航機操作安全。

對外，我們戮力優化各項飛航服務，對內則不斷策勵自我，所有同仁團結一心，我們得到民航局所屬各機關公文績效檢核評鑑第 1 名、行政績效考評第 2 名、為民服務績效定期評鑑第 2 名及國有財產管理及運用效益方案績效考核第 3 名的亮眼成績！未來，仍有許多的挑戰與困難，我們將秉持「安全、創新、效率」的信念，一一突破並克服，茁壯安全與服務的質量，朝著成為「亞太地區一流的飛航服務提供者」邁進！

In light of the global political, economic, and cross-strait situation, oil price fluctuations, and labor-management disputes, Air Navigation & Weather Services (ANWS) continued to replace and update equipment and systems, enhance professional competencies, and improve service measures in collaboration with the Civil Aeronautics Administration, the military, airports, Taiwan Taoyuan Airport Corporation, civil aviation operators and all colleagues. As such, we have improved the flight safety and service quality of Taipei Flight Information Region (Taipei FIR) and attracted aircraft from all over the world. This has enabled us to achieve stable growth with respect to the number of controlled flights and profits. 2017 was a year of record highs as the number of controlled flights exceeded 1,661,000, aircraft movement at Taoyuan International Airport exceeded 248,000, and profits exceeded NT$1.608 billion!

ANWS began using the Safety Event Reporting and Analysis System (SERA) and routes Q12, Q13 and Q14 for better flight safety management. We gradually raised flight safety factors through various efforts, including completion ATC supervisors' and coordinators' competence assessments; implementation of air traffic flow management measures; implementation of Supplementary Information System; improvements in air traffic management safety and efficiency; completion of review procedures for the ATS Messages Handling System (AMHS); and design of the new Independent Backup ATC System. Work items of the main structure and system testing were sequentially completed for the new air traffic control tower of Taiwan Taoyuan International Airport and its automated system. Collectively, these efforts will put a new face on the future of air traffic control.

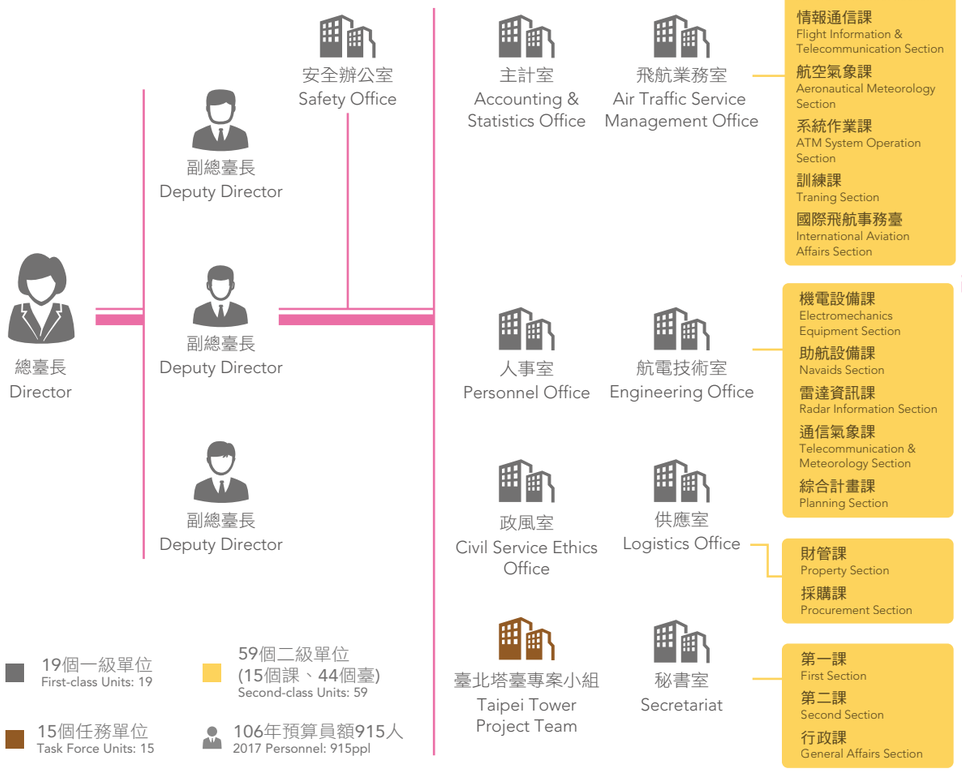
In terms of continual improvement of air traffic service quality, our efforts in software include enhancing functions of the Aeronautical E-Services (AES) and Aeronautical Meteorological Service Page (AMSP); replacing the Automatic Weather Observation Systems (AWOS) for Songshan Airport, Taoyuan International Airport, Kaohsiung International Airport and Hengchun Airport; and replacing the aviation weather report system and launching the Datalink ATIS (D-ATIS) at Taichung Cingcyuangang Airport. These software upgrades ensure that information is stably provided in real-time. As for hardware, we added an air traffic control (ATC) radar at Kinmen Airport; completed the installation and aerial survey of four ILS/DME including runway 02 of Magong Airport, runway 27 of Kaohsiung International Airport, runway 36 of Chiayi Airport and Cingcyuangang Training Center; installed an anemometer at Niujiaoling in Nangan, Matsu; and added navigation aid lighting equipment at Matsu's Nangan Airport and Beigan Airport. All this has ensured the stability and reliability of equipment and increased the operational safety of aircraft.

Furthermore, we are exerting great effort in the optimization of various air traffic services. We are constantly pushing ourselves to do better and everyone at ANWS works together cohesively. This has enabled us to win first place in the Civil Aeronautics Administration's (CAA) Evaluation of Document Performance, second place in the Annual Performance Evaluation of Agencies, second place in the Regular Evaluation of Service Performance, and third place in the Evaluation of National Property Control and Performance! Many challenges and difficulties still lie ahead of us, but we will continue to overcome them one by one by upholding the principles of "Safety・Innovation・Efficiency". As we continue to grow and achieve better safety and service quality, we will take strides towards becoming "A World Class Air Navigation Services Provider in the Asia Pacific Region"!

交通部民用航空局飛航服務總臺 總臺長
Director, Air Navigation and Weather Services, CAA, MOTC

黃麗君
Joyce L.C. Huang

02
組織架構
ORGANIZATION



- 臺北飛航情報中心 Taipei Flight Information Center
  - 臺北飛航諮詢臺 Taipei Flight Inforrmation Station
  - 桃園飛航諮詢臺 Taoyuan Flight Information Station
  - 高雄飛航諮詢臺 Kaohsiung Flight Information Station
- 臺北航空通信中心 Taipei Aeronautical Telecommunication Center
- 臺北航空氣象中心 Taipei Aeronautical Meteorological Center
  - 航空氣象預報臺 Aviation Weather Forcast Station
  - 松山航空氣象臺 Songshan Weather Station
  - 桃園航空氣象臺 Taoyuan Weather Station
  - 高雄航空氣象臺 Kaohsiung Weather Station
  - 豐年航空氣象臺 Fongnian Weather Station
  - 金門航空氣象臺 Kinmen Weather Station
  - **北竿航空氣象臺** Beigan Weather Station
  - **南竿航空氣象臺** Nangan Weather Station
  - **恆春航空氣象臺** Hengchun Weather Station
  - **綠島航空氣象臺** Ludao Weather Station
  - **蘭嶼航空氣象臺** Lanyu Weather Station
- 臺北區域管制中心 Taipei Area Control Center
  - **松山機場管制臺** Songshan Airport Control Tower
  - **臺北機場管制臺** Taipei Airport Control Tower
- 臺北近場管制塔臺 Taipei Approach Control Tower
  - **北竿機場管制臺** Beigan Airport Control Tower
  - **南竿機場管制臺** Nangan Airport Control Tower
- 高雄近場管制塔臺 Kaohsiung Approach Control Tower
  - **高雄機場管制臺** Kaohsiung Airport Control Tower
  - **金門機場管制臺** Kinmen Airport Control Tower
  - **豐年機場管制臺** Fongnian Airport Control Tower
  - **馬公機場管制臺** Magong Airport Control Tower
  - **恆春機場管制臺** Hengchun Airport Control Tower
  - **綠島機場管制臺** Ludao Airport Control Tower
  - **蘭嶼機場管制臺** Lanyu Airport Control Tower
- 資訊管理中心 Information Management Center
  - **航管系統臺** Air Traffic Management System Group
  - **機電設備臺** Electromechanics Equipment Group
  - **網路資安臺** Network and Cyber Security Group
  - **作業系統臺** ATS Support System Group
  - **通信設備臺** Telecommunications Equipment Group
- 臺北裝修區臺 Taipei Aviation Facilities Sector
  - **通信氣象臺** Telecommunication & Meteorology Group
  - **助航設備臺** Navaids Equipment Group
  - **雷達資訊臺** Radar Information Group
  - **馬祖助航臺 (南竿)** Matsu Navaids Site (Nangan)
  - **三貂角雷達臺** Sandiaojiao Radar Site
  - **大屯山助航臺** Datunshan Navaids Site
  - **馬祖助航臺(北竿)** Matsu Navaids Site (Beigan)
  - **機電設備臺** Electromechanics Equipment Group
- 桃園裝修區臺 Taoyuan Aviation Facilities Sector
  - **通信氣象臺** Telecommunication & Meteorology Group
  - **助航設備臺** Navaids Equipment Group
  - **機電設備臺** Electromechanics Equipment Group
  - **雷達資訊臺** Radar Information Group
  - **清泉崗助航臺** Cingcyuangang Navaids Site
  - **後龍助航臺** Houlong Navaids Site
- 高雄裝修區臺 Kaohsiung Aviation Facilities Sector
  - **通信氣象臺** Telecommunication & Meteorology Group
  - **助航設備臺** Navaids Equipment Group
  - **機電設備臺** Electromechanics Equipment Group
  - **雷達資訊臺** Radar Information Group
  - **臺南助航臺** Tainan Navaids Site
  - **馬公助航臺** Magong Navaids Site
  - **恆春助航臺** Hengchun Navaids Site
  - **金門助航臺** Kinmen Navaids Site
  - **嘉義助航臺** Chiayi Navaids Site
- 臺東裝修區臺 Taitung Aviation Facilities Sector
  - **臺東助航臺** Taitung Navaids Site
  - **花蓮助航臺** Hualien Navaids Site
  - **綠島助航臺** Ludao Navaids Site
  - **蘭嶼助航臺** Lanyu Navaids Site

03
施政成果
ACHIEVEMENTS

一、飛航管制

（一）臺北飛航情報區管制架次續創新高

106 年全區管制架次達 1,661,533 架次，較 105 年成長 0.76%

（二）啟用「Q12、Q13、Q14 新航路」

配合民航局「臺北飛航情報區空域及航路結構整體規劃案」，106 年 8 月 17 日啟用「Q12、Q13、Q14 新航路」等 3 條航路，減少過境班機航程，疏解恆春航點航機交會壅塞，提升飛航安全及縮短航程，達到節能減碳效果。

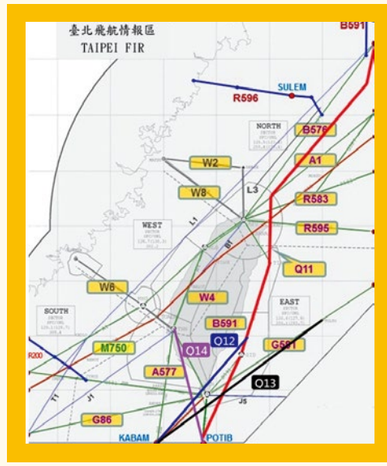
1. Air Traffic Control

I. Number of controlled flight movements in Taipei FIR continues to reach new heights

The total number of controlled flight movements in 2017 was 1,661,533 which increases 0.76% comparing to 2016.

II. Launching new routes Q12, Q13 and Q14

In conjunction with the CAA's "Taipei Flight Information Region Airspace and Route Integration Program", ANWS launched service on 3 new routes, Q12, Q13 and Q14, on August 17th, 2017. The 3 new routes have shortened flying miles for transit flights, and alleviated traffic at Hengchun Waypoint. This has improved flight safety, route efficiency, energy saving and carbon reduction.



啟用 Q12、Q13、Q14 新航路
Launching new routes Q12, Q13 and Q14

新航路順利啟用後黃總臺長麗君與同仁合影
Photo of ANWS Director and colleagues after the new routes were successfully launched

（三）完成強化班務督導與協調員管制作業專案督查

為檢視班務督導與協調員之專業素養與班務管理能力，106 年 4 月 10 日至 8 月 31 日，針對輪值之班務督導及協調員，進行口試及實作，強化席位間分層負責與團隊合作之功能，共完成 24 梯次、71 人次。

（四）配合協助管制員心理性向測驗常模建置

配合民航局航空醫務中心之心理性向測驗工具更新，自 106 年 4 月 5 日起至 107 年 2 月為期 11 個月，安排輪值班務之管制員，進行心理性向測驗以建立常模，提升心理性向測驗鑑別度，確保人員進用有效性。

（五）提供緊急應變處置及醫療救護支援

各航管作業單位除提供航機飛航管制服務外，並於起降航機發生鳥擊、機械故障、乘客身體不適等異常狀況時提供緊急應變處置，確保航機及乘客安全。共計提供 354 次緊急應變處置（含乘客身體不適、鳥擊、機械故障等）。

III. Completing ATC supervisors' and coordinators' control competence assessment

From April 10th to the August 31st 2017, oral and practical tests were administered to assess the professional competencies and abilities of ATC supervisors and coordinators on duty. This was to strengthen delegation of responsibility and teamwork between working positions. 24 sessions for 71 staff members were assessed in total.

IV. Establishing norms based on mental aptitude tests for air traffic controllers

The updated mental aptitude test of the CAA's Aviation Medical Center was conducted by controllers over a period of 11 months starting on April 5th, 2017 to February 2018, in order to establish a norm to enhance the discrimination ability of mental aptitude test, and ensure the test's effectiveness in recruitment.

V. Emergency response and medical assistance

In addition to providing Air Traffic Control services, all facilities are prepared to handle abnormal or emergency situations such as bird strikes, mechanical failures, and aircraft with passengers needed urgently medical supplies. This ensures the safety of passengers and aircraft. A total of 354 emergency situations (including sick passengers assistance, bird strikes and mechanical failures) were handled.

（六）精進流量管理措施

VI. Improving air traffic flow management measures

- 改進航機分時流量統計軟體

  106 年 10 月依據單位需求改進桃園國際機場分時離到場流量統計軟體，新增邊境點分時頁籤、排序及匯出功能，可選擇各別或不同鄰區之邊境點、到場時間及時間排序，提供單位依不同需求預作航情規劃，提供航管單位在啟動流量管制措施時，能對不同入境點作出不同強度之管控依據。

  Improving hourly air traffic flow statistics software

  The hourly air traffic arrival flow statistics software at Taoyuan International Airport was upgraded in October 2017 based on the requirements of various departments. Functions that were added include a page for hourly air traffic at border crossing points, sorting, and export. Users can select border crossing points with neighboring regions, arrival time, and sort by time, allowing departments to prepare flight plans in advance based on different requirements. This provides the basis for ATC units to apply different levels of control for different border crossing points when air traffic flow management are required.

- 提升到場管理效益

  持續提升到場管理工具使用效益，自 106 年 1 月 5 日起共辦理 6 次到場管理工作小組會議，滾動式檢討系統參數及改進作業程序，臺北區域管制中心及臺北近場管制塔臺並正式訂定機場可接受到場率 (Airport Acceptance Rate, AAR) 之調整原則，強化雙方對流量管理原則作業之一致性。

  Improvement in arrival traffic management efficiency

  To continue improving the effectiveness of using arrival traffic flow management tools, a total of 6 arrival traffic management work group meetings were held since January 5th, 2017. Rolling review of system parameters and improvement of operating procedures were carried out during the meetings. Taipei Area Control Center and Taipei Approach Control formally established principles for adjusting AAR, increasing the consistency of air traffic flow management principles of both parties.

- 劇烈天氣監測系統 (QPESUMS) 預測燈號

  為因應流量管理作業需考慮本區天氣因素，請中央氣象局協助開發 QPESUMES 在桃園國際機場主要待命區提供 6 小時顯著天氣預測燈號資訊，以提供航管單位在可能的顯著天氣下調整本區機場可接受到場率 (Airport Acceptance Rate, AAR)，以一致的作業模式適度調節空域容量。

  quantitative precipitation estimation and segregation using multiple sensors(QPESUMS) forecast light signal

  Since weather conditions need to be factored into air traffic flow management, we requested assistance from the Central Weather Bureau in developing 6-hour significant weather forecast light signals of QPESUMS for the main holding area of arriving traffic to Taoyuan International Airport. This information is provided for ATC units to adjust the airport acceptance rate (AAR) of airports in this region under possible significant weather, using a consistent operational model to appropriately adjust airspace capacity.

QPESUMS 預測燈號資訊
QPESUMS forecast light signal information

二、飛航情報

（一）強化「航空情報服務網（Aeronautical E-Services, AES）」功能

- 為因應 AES 客戶需求並強化服務功能，106 年度完成增加檢查新申請空域是否與已申請空域衝突、匯出長期飛航計畫 PDF 格式、依飛航計畫產製飛航前簡報及新增單獨查閱航空氣象圖檔等功能。
- 106 年 1 月起提供 AES 行動版網頁，符合平板、手機等行動裝置用戶需求。
- 106 年 8 月 31 日航行警示底圖換成高解析度底圖，放大不再模糊，滿足使用者作業需求。

（二）實施飛航公告安全事件通報機制

當國際發布飛航公告、飛航指南、飛航指南補充通知書資料且涉及我空域、航行警示、軍事演習、飛彈射擊等影響飛航安全時，均主動轉知航空公司注意，確保飛航安全，總計通報 2,092 次。

三、航空通信

（一）辦理「飛航訊息處理系統（ATS Messages Handling System, AMHS）」南北異地備援演習

106 年 8 月 11 日進行 AMHS 南北異地備援演習，讓參與演練同仁於發生不可預期災害時，熟悉緊急應變處理程序，提供不中斷的飛航訊息傳遞交換作業。

2. Flight Information

I. Enhancement of Aeronautical E-Services (AES)

- Enhanced functions were added in 2017 to meet AES customer demand and provide better services. These functions include checking for conflicts between NOTAM of newly applied-for airspace and airspaces already applied for; exporting repetitive flight plan list as a PDF file; generating pre-flight briefings based on filed flight plans; and a separate search function for aviation weather charts.
- A mobile version of AES was launched in January 2017 to meet the needs of tablet PC and mobile phone users.
- The navigation warning chart was enhanced with a high-resolution image on August 31st, 2017, and no longer becomes blurred when enlarged. This meets users' operational requirements.

II. Notice of NOTAM/aviation safety information

Proactively informing airlines of NOTAMs, AIPs, AIP supplements, and other aeronautical information regarding navigation warnings, missile warnings and other military activities that may affect aviation safety in our airspace. A total of 2,092 such notices were reported.

3. Aeronautical Telecommunication

I. To hold the "ATS Messages Handling System (AMHS)" Drill for remote backup operations in northern and southern Taiwan

A drill for AMHS remote backup operations was held on August 11th, 2017. This was to help personnel participating in the drill become familiar with emergency response operations when an unforeseeable disaster occurs, and thereby maintaining uninterrupted exchange of ATS messages.

AMHS 異地備援演練
AMHS remote backup operations Drill

（二）「飛航訊息處理系統」(AMHS) 汰新計畫

推動 AMHS 汰新計畫，提升系統功能以符未來作業需求，並改善使用者介面便利性，提升航空通信服務品質。

II. The AMHS Replacement Project

To undergo the AMHS Replacement Project to improve system functions aiming to meet future operational requirements and to improve the user interface's convenience to provide better aeronautical telecommunication service quality.

（三）AMHS BOOK 研讀分享

AMHS BOOK 研讀及分享，提升同仁對於系統架構、功能及整體觀念之瞭解，有助於作業安全及落實系統監控管理之目的，另對於未來新系統建置所需專業亦多所裨益。

III. Reading on "Introduction to AMHS"

By having a study group on "Introduction to AMHS", through discussions and sharing opinions, personnel now further understand AMHS architecture, functions and overall concepts, and benefits operational safety and system monitoring and management. It also has benefits for the expertise they need to implement new system in the future.

四、航空氣象

（一）強化「航空氣象資訊 APP」功能

106 年 11 月完成航空氣象資訊 APP 改版作業，以「改善 APP 呈現方式」、「豐富產品內容」、「強化推播功能」及「系統運作更穩定」等四方向進行改版。

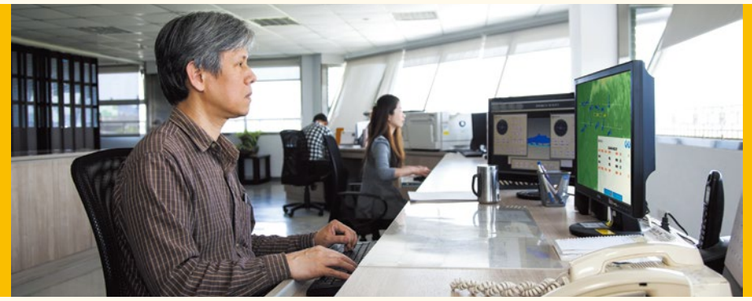
4. Aeronautical Meteorology

I. Improving functions of the aeronautical meteorology information app

A new version of the aeronautical meteorology information app was completed in November 2017. Changes were made in four directions, specifically, "improving app presentation","enriching the product contents", "enhancing push notification functions"and "making system operations more stable".

航空業者資訊畫面
Screenshot of the Aeronautical Meteorological Information app

機場即時天氣資訊
Real-time weather information for airports



（二）提供航空氣象簡訊服務

為利航機適航及連假疏運作業即時決策參考，提供民航局、機場等相關單位各民航（含軍民合用）機場不適航天氣、連續假期及疏運計畫機場天氣預報、機場颱風警報單發布及雷雨預報簡訊通報等 9 種航空氣象通報簡訊，各項簡訊發布次數達 1,650 次。

II. Providing aeronautical meteorology message services

Aeronautical meteorology messages in 9 categories (including weather forecasts, typhoon warnings and thunderstorms) were provided to the CAA, airports and other civil aviation organizations. This helps them to accurately predict airworthiness conditions and air traffic management during traffic volume peak periods; a total of 1,650 messages were delivered.

（三）提供航空氣象資料服務

提供各單位相關民航機場航空氣象電話諮詢服務計 3,919 次；提供政府機關及接受民間機構申辦機場氣象資料計 242 次，做為學術研究、航空公司貨損調查、機場氣象特性瞭解、飛安事件調查、儀航程序規劃及場站施工參考之用。

III. Providing aeronautical meteorology data services

3,919 telephone inquiries related to aeronautical meteorology at civil aviation airports were handled, as well as 242 airport meteorology data requests from both public offices and civil organizations. These services were useful in a variety of purposes, including academic research, air cargo damage investigations, airport weather analysis, flight safety investigations, instrument flight rules (IFR) procedure design, airport construction, etc.

（四）提升馬祖南、北竿機場航空氣象資訊服務品質

- 為滿足航機駕駛對於南竿機場起降時風場資訊需求，106 年 8 月 1 日起南竿機場氣象臺於例行 / 特別天氣報告編發時，附註機場跑道西側牛角嶺風速風向資訊，強化飛航安全。

- 為滿足馬祖地區對於南、北竿機場測（預）報資訊需求，106 年 9 月 1 日起南、北竿機場氣象觀測作業提早為每日 0500L 開始，提升航空氣象資訊服務品質。

IV. Improving the quality of aeronautical meteorology information services at Matsu's Nangan Airport and Beigan Airport

- To provide the wind field information needed by pilots for landing and takeoff at Nangan Airport, the Nangan Weather Station began providing information on wind speed and wind direction at Niujiaoling (on the west side of the airport's runway). Issuing of routine/special weather reports started on August 1st, 2017, so as to strengthen flight safety.

- To fulfil weather reports (forecasts) needed by Matsu's Nangan Airport and Beigan Airport, starting September 1st, 2017, weather observations at the airports shifted to an earlier time starting from 0500L every day. This helps improve the quality of aviation weather information services.

（五）執行「交通部民用航空局與中央氣象局氣象資料與預報模式系統作業技術合作協議」

106年度完成「劇烈天氣監測系統(QPESUMS)」客製化產品強化工作、模式風場與民航機場觀測資料校驗工作及資料接收主機之管理。

（六）編製航空氣候年報

106年4月5日完成105年航空氣候年報，置於總臺官網（http://www.anws.gov.tw）電子刊物下，提供各單位下載使用民用機場之氣候統計資料。

（七）汰換航空氣象收發報系統

建置整合性之航空氣象收發報操作介面及資料庫、強化系統報文偵錯及監控功能，確保航空氣象電報發布之即時性和正確性，有效提升本區航空氣象服務品質。

V. Execution of the "Operational-technological cooperation agreement for meteorological data and forecasting models systems between the MOTC's CAA and Central Weather Bureau (CWB)"

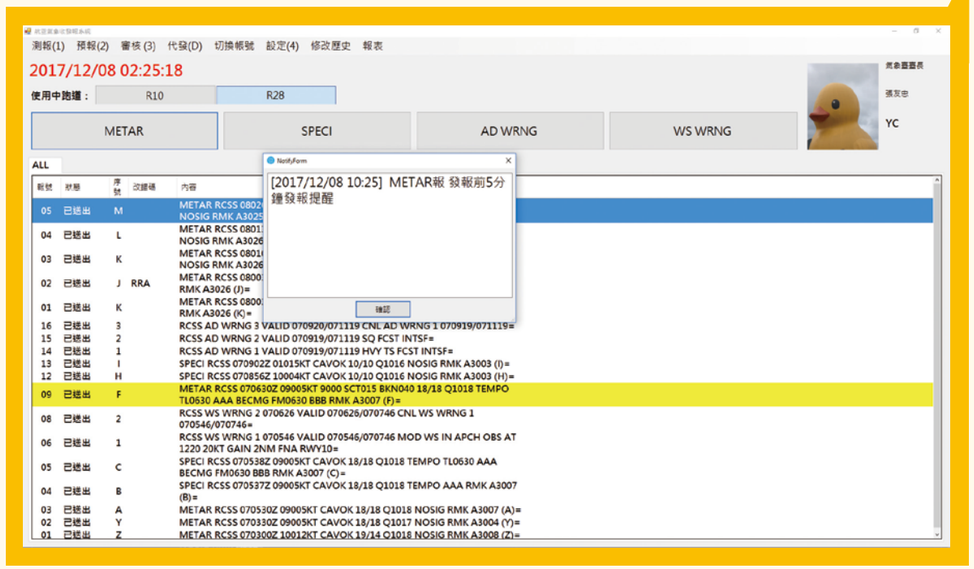
Improvement of QPESUMS customized products, calibration of model wind field and civil aviation airport observation data, and management of the data receiving server were completed in 2017.

VI. Publication of 2016 Aerodrome Climatological Annual Summaries

On April 5th, 2017, the 2016 Aerodrome Climatological Annual Summaries were completed and published on the ANWS's official website (http://www.anws.gov.tw). There, statistical weather information for civil airports are available for download.

VII. Replacing the aviation weather report system

An integrated interface and database for the aviation weather report system was established. This features better error detection and monitoring functions for system reports, which insures the immediacy and correctness of aviation weather reports that are issued. This in turn effectively improves the quality of aviation weather services in Taipei FIR.



航空氣象收發報系統介面
Interface of the Aviation Weather Report System

五、航空電子

（一）新增金門機場終端航管雷達

金門終端航管雷達於106年底完工，改善金門終端空域低高度雷達監視範圍，縮短航機隔離標準，不僅減少航機等待時間及燃油消耗，更提升空域運用效率及飛航安全。

5. Aeronautical Electronics

I. Adding a new ATC radar at Kinmen Airport

Kinmen's ATC radar was completed at the end of 2017 and improved the range of radar surveillance for low altitude airspace at Kinmen. This lowered the aircraft separation standard and not only reduced the waiting time and fuel consumption of aircrafts, but also improved airspace utilization efficiency and flight safety.

金門機場終端航管雷達
New ATC radar in Kinmen Airport

（二）增設金門北側廣播式自動回報監視系統（ADS-B）接收站臺

106年11月完成金門太武山和金沙接收站臺，提供金門終端管制空域西側與北側完整監視涵蓋範圍，確保飛航安全。

II. Establishing an Automatic Dependent Surveillance-Broadcast (ADS-B) station on the north side of Kinmen

The Mt. Taiwu and Jinsha receiving stations in Kinmen were completed in November 2017. These provide complete surveillance of the west and north sides of Kinmen's controlled airspace to ensure flight safety.

（三）汰換臺北飛航情報區儀器降落系統(Instrument Landing System, ILS)

106年底完成馬公機場02跑道、嘉義機場36跑道、高雄機場27跑道與清泉崗訓練中心等4套ILS/DME設備架設及飛測。

III. Replacing the Taipei FIR ILS

ILS/DME installation and aerial survey at Magong Airport's runway 02, Chiayi Airport's runway 36, Kaohsiung International Airport's runway 27 and Cingcyuangang Training Center were completed at the end of 2017.

馬公機場及高雄機場ILS設備
ILS in Magong Airport and Kaohsiung International Airport

（四）汰換松山、桃園、高雄及恆春機場自動氣象觀測系統（Automatic Weather Observation System, AWOS）

106 年 2 月 19 日完成汰換高雄及恆春機場 AWOS、4 月 12 日完成汰換松山及桃園機場 AWOS，提供精準與穩定之機場氣象資訊，提升航空氣象服務品質。

IV. Replacing the Automatic Weather Observation System (AWOS) at Songshan Airport, Taoyuan International Airport, Kaohsiung International Airport and Hengchun Airport

Replacement of the AWOS at Kaohsiung International Airport and Hengchun Airport was completed on February 19th, 2017. Replacement of the AWOS at Songshan Airport and Taoyuan International Airport was completed on April 12th. This provides accurate and stable airport weather information for better aviation weather services.

桃園機場及松山機場 AWOS
AWOS in Taoyuan International Airport and Songshan Airport

（五）建置馬祖南竿牛角嶺風向風速計

106 年 6 月 30 日完成增設馬祖南竿牛角嶺風向風速計，8 月 1 日起氣象報文增加牛角嶺風向風速資料，有利航機預為因應落地前可能遭遇之低空風切，提升飛航安全。

V. Installing an Anemometer and Wind vane at Niujiaoling in Nangan, Matsu

An Anemometer and Wind vane was installed at Niujiaoling in Nangan, Matsu on June 30th, 2017; wind speed and wind direction data from Niujiaoling have been provided in weather reports as of August 1st. This will improve flight safety by helping aircraft take precautions against low-level wind shear they may encounter before landing.

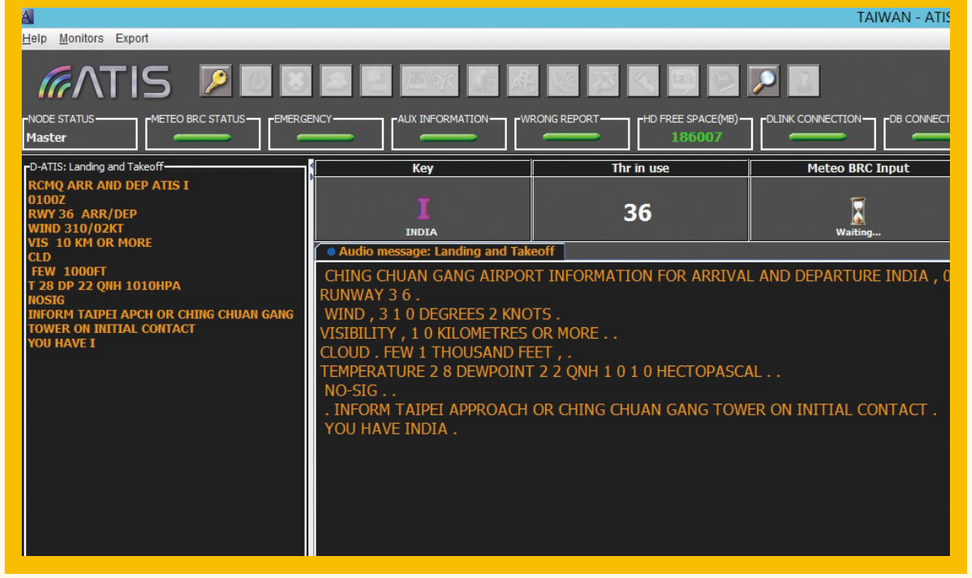
南竿牛角嶺風向風速計
Anemometer and Wind vane at Niujiaoling, Nangan

（六）啟用臺中清泉崗機場資料鏈終端資訊自動廣播服務系統（Datalink ATIS, D-ATIS）

106 年 8 月 15 日啟用臺中清泉崗機場 D-ATIS，提供即時之機場氣象資訊，確保飛航安全。

VI. Launching the Taichung Cingcyuangang Airport D-ATIS

The D-ATIS at Taichung Cingcyuangang Airport was launched on August 15th, 2017. This provides immediate airport weather information and ensures flight safety.



臺中清泉崗機場 D-ATIS
D-ATIS in Taichung Cingcyuangang Airport

（七）增設各機場助導航之燈光設備

106 年 7 月 7 日、11 月 25 日及 12 月 10 日分別完成增設北竿機場跑道頭翼排燈、南竿機場簡式著陸區燈及臺東豐年機場 22 跑道進場燈，提高跑道頭識別度及強化航機著陸識別，確保航機操作安全。

VII. Increasing airport navigational lightings

On July 7th, runway wing bar lights were added in Beigan Airport; November 25th, touchdown zone lights were added in Nangan Airport; and December 10th, 2017, approach lights were added on runway 22 at Taitung Fongnian Airport. The lights benefit runway threshold identification for aircraft landing, ensuring the operational safety of aircraft.

（八）汰換各機場助導航之機電設備

106 年 2 月 24 日及 6 月 5 日分別完成汰換馬公機場、金門機場助導航裝備高低壓供配電設備，提升助導航裝備電源之可靠性與穩定性。

VIII. Replacing power supply equipment for air navigational facilities

The electricity distribution systems for navigational aids were replaced at Magong Airport on February 24th, and at Kinmen Airport on June 5th, 2017. This improves the reliability and stability of the power supply for navigational aids.

（九）精進資通安全業務及防護作為

- 106 年 6 月 1 日通過資訊安全管理系統（Information Security Management System, ISMS）外部稽核，取得 ISO/IEC 27001:2013 國際驗證。
- 執行資訊系統弱點掃描、資安健診、滲透測試等措施，確保飛航服務系統資訊安全。

（十）建置航管席位輔助資訊顯示系統

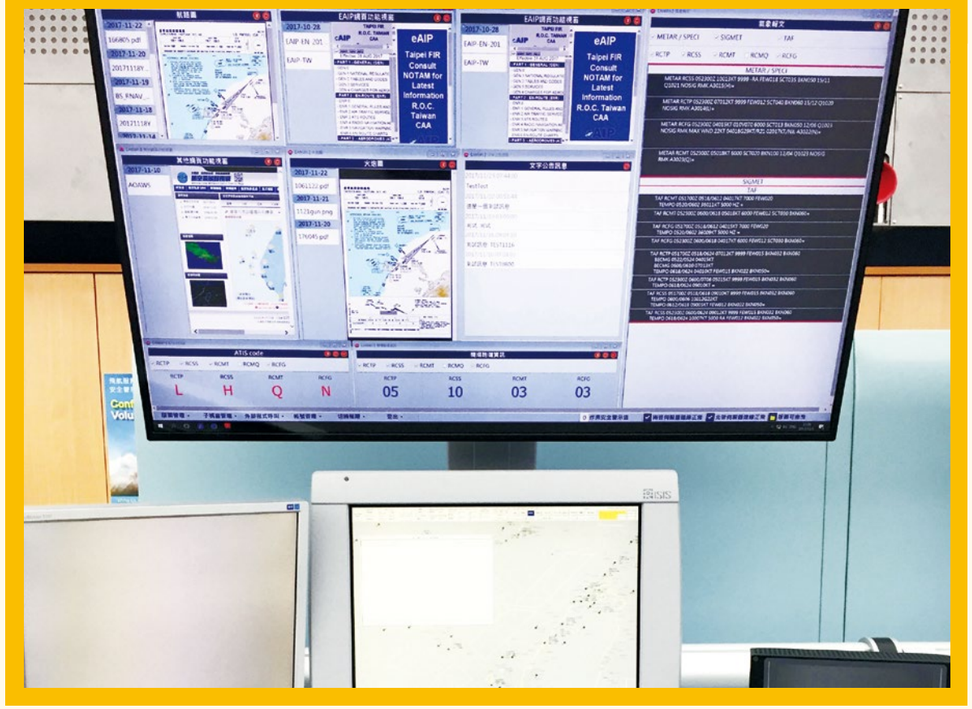
106 年 12 月 14 日完成航管席位輔助資訊顯示系統建置，取代原有飛航管制席位上方靜態之航圖顯示看板，整合飛航管制作業所需之輔助資訊於電子顯示螢幕，並即時動態更新，有助提升航管作業效率。

IX. Improvement of information security and protection

- Our Information Security Management System (ISMS) was audited by external auditors on June 1st, 2017 and we successfully achieved ISO/IEC 27001: 2013 certification.
- ANWS completed a scan of system vulnerabilities, as well as IT security diagnostic assessment and penetration testing. This ensures the cyber security of air traffic service IT systems.

X. Implementation of Supplementary Information System

Implementation of Supplementary Information System was completed on December 14th, 2017. The system will replace the static aeronautical chart originally displayed above the working position of air traffic controllers; the system integrates auxiliary information required for air traffic control on an electronic monitor, which updates changes in real-time and effectively improves air traffic controller efficiency.



輔助資訊顯示系統
Supplementary Information System for ATC workstation

（十一）精進飛航服務系統

- 汰新飛航訊息處理系統，符合 ICAO Doc 9880 最新標準及提升我國航空通信服務品質，106 年 7 月 30 日完成系統設計審查及維護訓練。
- 建置新航管備援系統取代既有漸不敷使用之航管備援系統 (IBAS)，確保航管作業安全，106 年 7 月 23 日完成系統設計審查。

XI. Improvement of Air Traffic Service Systems

- A new AMHS that complies with the latest ICAO Doc 9880 standard is being developed to improve the quality of aeronautical telecommunication services; review of system design and maintenance training were completed on July 30th, 2017.
- A new backup ATC system is being developed to replace the original Independent Backup ATC System (IBAS) that is gradually becoming inadequate. The new system will ensure safety in ATC operations. Review of system design was completed on July 23rd, 2017.

飛航訊息處理系統設計審查作業
Review of AMHS system design

六、安全管理

（一）落實三階層管控機制

每季召開安全委員會、每月召開安全工作會議、作業單位每周召開安全行動小組會議，監控總臺安全管理系統、追蹤安全相關議題及安全績效達成情形。

（二）修正安全管理指導文件

106 年修正「飛航服務安全管理實施計畫 (SMIP)」AC 版、「飛航服務安全管理系統手冊」AG 版及「飛航服務安全查核手冊」AF 版等安全管理相關指導文件。

（三）強化安全風險管理機制

- 以作業單位每日簡報（Briefing）、安全行動小組會議、業務檢討會及臺務會報等機制辨識組織、系統及日常作業危害因子；列管並追蹤相關安全議題辦理情形，落實安全風險管理機制。

6. Safety Management System(SMS)

I. Implementation of a three-level SMS control & monitor scheme

Safety meetings were held regularly to enhance safety management systems, conduct follow-up on safety-related issues, and monitor ANWS's safety performance. These meetings included the quarterly Safety Review Committee led by our Director, monthly Safety Working Group and weekly Safety Action Groups.

II. Amendment of SMS documents

In 2017, ANWS revised our organization's "Safety Management Implementation Plan (SMIP)", "SMS System Manual" and "Safety Audit Manual".

III. Enhancing safety risk management

- Organizational, system and daily operations hazard factors are identified through daily briefings reports, safety action group meetings, operations review meetings and ANWS affairs reporting meetings. Progress in safety issues is controlled and monitored as part of the safety risk management.

- 對新設航路、裝備汰換及作業流程變更辦理改變管理及風險管理作業，識別組織危害因子。
- 推廣自願報告，以主動、保密及不處分原則鼓勵同仁提報可能影響安全之議題。

（四）執行安全績效控管與查核

- 106 年度配合民航局，實施 1 次系統性查核及 9 次外部符合性查核，另總臺依自主安全管理精神計執行 18 次內部查核，列管所有查核發現缺失及改善建議，每月及每季追蹤改善情形，以精進服務作業，確保飛航安全。
- 每月 15 日前將總臺 5 類飛航服務關鍵績效指標達成情形提供予民航局，於安全績效指標值或作業效率指標值未達預期績效時，提報改善行動。

（五）辦理安全推廣與訓練

- 賡續編撰並發送安全文化資訊彙編 4 期、辦理專業知識分享 6 梯次及辦理自願報告推廣海報設計競賽作品巡迴展覽等安全推廣活動，並出席民用飛航服務組織（Civil Air Navigation Services Organization, CANSO）會議，瞭解國際間安全管理資訊與最新趨勢。
- 辦理「安全文化評估問卷調查」，將問卷結果識別之弱點納入 107 年安全提升工作項目，賡續辦理推動及改善措施；辦理「我（們）所認為的安全」創意短片製作競賽，以多元及創意方式呈現安全文化與危害識別之概念，並凝聚單位安全意識。

- Change management and risk management operations are carried out and organizational risk factors are identified when implementing new routes, equipment replacement and other operational procedures.
- Voluntary reporting is promoted based on the principles of proactiveness, confidentiality and no penalty, so that personnel will be encouraged to report issues that may potentially affect safety.

IV. Safety performance monitoring and safety audits

- In 2017, CAA supervised and conducted 1 systematic inspection and 9 external compliance inspections to ANWS. ANWS also conducted 18 internal inspections based on the spirit of autonomous safety management. All deficiencies found in the inspections and improvement suggestions were put under surveillance and control, monthly and quarterly follow-ups are conducted to improve services and ensure flight safety.
- Five areas of air traffic services key performance indicators (KPIs) are continuously monitored and measured by ANWS, and the attainments of KPIs are reported to CAA before the 15th day of each month. Improvement measures are proposed when the safety performance indicators (SPI) or operational efficiency indicators do not meet the expected safety targets.

V. Safety Promotion and Training

- ANWS compiled and published 4 issues of safety culture information newsletters; held 6 professional knowledge-sharing workshops; and organized a tour exhibition of works from the Voluntary Reporting System promotion poster-design contest. ANWS also attended Civil Air Navigation Services Organization (CANSO) annual conferences to ensure we update information on SMS and the latest global trends.
- This year, a safety culture assessment questionnaire survey was conducted. Weaknesses identified from survey results were included in the 2018 work items for safety improvement; these items will be subsequently implemented. To raise units' safety awareness, "What We Perceive as Safety" creative film contest was organized to express concepts in safety culture and hazard identification through a wide range of creative means.

「我（們）所認為的安全」創意短片製作競賽
"What We Perceive as Safety" creative film contest

- 舉辦「飛航服務安全管理訓練」及「飛航服務安全符合性查核複訓」等各 2 梯次，參訓人次計 72 人；相關飛航服務人員年度複訓講授「安全管理」課程計辦理 15 梯次。

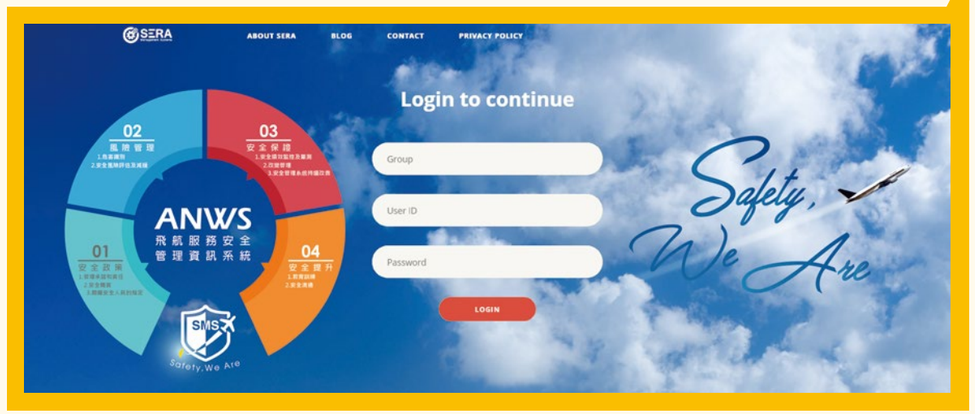
（六）建置飛航服務安全管理資訊系統

- 為持續蒐集並累積安全資料庫，做為長期風險監控及趨勢分析工具，106 年 9 月 27 日正式啟用飛航服務安全管理資訊系統（Safety Event Reporting and Analysis System, SERA），並函頒「飛航服務安全管理資訊系統帳號管理作業要點」，修正「飛航服務安全管理自願報告作業要點」AB 版。
- 已陸續啟用「自願報告」功能、「訓練 / 證照 / 席位查核」（Qualifications）人員資格管理功能及「關鍵績效指標（KPI）」紀錄與管理功能。

- Hosting internal SMS training courses: "ATS Safety Management Training" and "Auditor Recurrent Training", two sessions were held for each course with a total of 72 staff members participated. "Introduction to Safety Management System" course was also delivered in 15 sessions of the ATS Personnel Annual Recurrent training.

VI. Establishing the Safety Event Reporting and Analysis System

- The Safety Event Reporting and Analysis System (SERA) was launched on September 27th, 2017. SERA is designed to continuously collecting and accumulating data for the safety database, which is used as a tool for monitoring long-term risks and for performing trend analysis. ANWS also enacted the SERA Account Management Guidelines and amended ATS Safety Management Voluntary Reporting Guidelines.
- The system's Voluntary Reporting function, Qualifications management function, and KPI record and management functions are now accessible.



啟用 SERA
Launching SERA

七、交流與合作

（一）國際交流與研討

- 106 年 5 月 2-5 日赴越南河內參加「民用飛航服務組織（CANSO）亞太區年會暨 2017 年第一次工作小組會議」；會中總臺代表分享安全文化推廣作為，並參與研討自我評估安全成熟度及國際安全管理趨勢等相關議題。

7. Exchange and Collaboration

I. International exchange and seminars

- ANWS staff members attended the CANSO Asia Pacific Conference 2017 and 1st Work Group Meeting in Hanoi, Vietnam from May 2nd to 5th, 2017. The ANWS representatives shared safety culture promotion measures and participated in the self-evaluation of safety maturity and discussed trends in international safety management.

參加 CANSO 亞太區年會暨工作小組會議
Attending CANSO Asia Pacific Conference 2017 and 1st Work Group Meeting

- 106 年 5 月 21-24 日赴泰國參加亞太區域通訊網路（Common Regional Virtual Private Network,CRV）交流會議，瞭解亞太區域通訊網路目前發展進度、新航管系統建置進度及流量管理（ATFM）作業，做為日後我方未來加入亞太區域通訊網路（CRV）的準備及我國航管系統執行期中升級的參考。

- ANWS staff members attended the exchange meeting for the Common Regional Virtual Private Network (CRV) in Thailand, from May 21st to 24th, 2017. There, we learned about the current progress of the CRV, progress of the new ATMS, and ATFM operations. These will provide a reference for preparations to join the CRV and also for upgrading our ATMS.

- 106 年 7 月 19-21 日參與辦理第十屆非正式東亞飛航管制協調小組會議（EATMCG 10），與各成員國進行區域間飛航管制作業交流、協調，並參訪北部飛航服務園區，進行航管業務觀摩。

- ANWS jointly organized the 10th East Asia Air Traffic Management Coordination Group (EATMCG) from July 19th to 21st, 2017, and engaged in information exchange and coordinated ATC operations with member states. Participants also visited the North ATS Park to observe ATC operations.

辦理 EATMCG 10 會議
Organizing the 10th EATMCG

- 106 年 9 月 12-14 日赴香港參加「飛航情報服務業務交流暨協調會議」，針對飛航資料管理平臺、飛航前情報服務、飛航公告及飛航計畫處理自動化系統進行交流。

- ANWS staff members attended the Flight Information Service Exchange and Coordination Meeting in Hong Kong from September 12th to 14th, 2017. There, they engaged in experience sharing of flight information management platforms, pre-flight information service, and automatic NOTAM and flight plan handling systems.

- 106 年 9 月 20-22 日赴日本進行鄰區「飛航訊息處理系統」（AMHS）建置發展、連線方式及航空通信發展交流會議，雙方對未來連線及介面問題進行討論及意見交換。

- ANWS staff members visited Japan from September 20th to 22nd, 2017. There, they attended a meeting on the implementation and development of AMHS in neighboring regions, connection methods and aeronautical telecommunication developments. During the meeting, the parties discussed and exchanged opinions on future connection and interface issues.

赴日進行航空通信發展交流
Attending aeronautical telecommunication developments exchanges in Japan

- 106 年 10 月 9-14 日赴香港參加「民用飛航服務組織（CANSO）飛航作業常務委員會工作小組會議」，瞭解國際飛航服務發展趨勢。

- ANWS staff members attended the CANSO Air Traffic Operations Standing Committee Work Group Meeting in Hong Kong from October 9th to 14th, 2017, and learned about developing trends in international air traffic services.

- 106 年 10 月 17-20 日赴日本東京執行「地區性航空氣象作業研討」，瞭解日本航空氣象作業現況及國際航空氣象服務發展趨勢。

- ANWS staff members visited Japan from October 17th to 20th, 2017. There, they discussed regional aeronautical meteorology operations, gained an understanding of the current state of Japan's aeronautical meteorology operations, and learned about international development trends in aeronautical meteorology services.

赴日進行航空氣象作業研討交流
Attending aeronautical meteorology opration exchanges

- 106 年 11 月 8 日與民用航空局、中華民國台灣飛行安全基金會及中華航空氣象協會共同舉辦「2017 年國際航空氣象發展趨勢研討會」，共約 100 人與會，會中針對航空氣象國際發展趨勢議題進行報告及討論，有助於本區航空氣象服務之未來發展。

- ANWS co-organized the 2017 Conference on Trends in International Aeronautical Meteorology Development with the CAA, the Flight Safety Foundation - Taiwan and the Chinese Aeronautical Meteorological Association on November 8th, 2017. The conference had about 100 attendees, who reported on and discussed international development trends in aeronautical meteorology. This benefited the future development of aeronautical meteorology services in Taipei FIR.

辦理國際航空氣象發展趨勢研討會
Organizing the Conference on Trends of International Aeronautical Meteorology Development

- 106 年 11 月 27-30 日赴日本福岡參加「民用飛航服務組織（CANSO）亞太區 2017 年第 2 次工作小組會議」，與亞太地區各國飛航服務提供者進行飛航作業及安全管理相關議題研討與交流。

- ANWS staff members attended the CANSO Asia-Pacific 2017 2nd Work Group Meeting in Fukuoka, Japan from November 27th to 30th, 2017 and engaged in information exchange and discussions with air traffic service providers from the Asia-Pacific region regarding air traffic operations and safety management.

（二）國內交流與合作

- 加強與航空公司意見交流

  - 106 年 1 月 16 及 19 日分別拜會中華航空公司企業安全室及台灣虎航航空安全室，針對安全管理系統（SMS）及安全資訊管理議題進行經驗交流及觀摩。

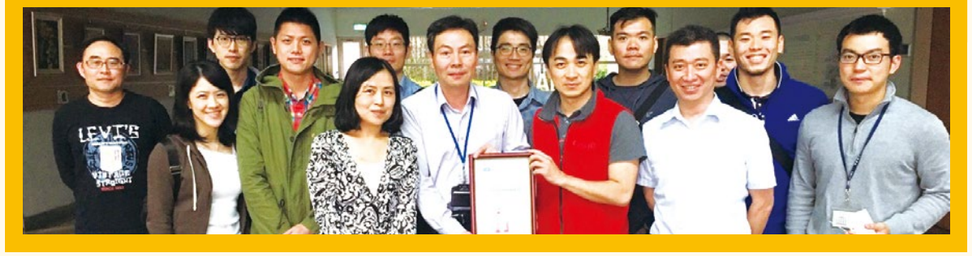
  - 106 年 4 月 11 日邀請桃園市機師職業工會成員與管制員進行交流座談，共 37 位參加，雙方就彼此作業之考量與需求，進行業務交流及觀摩。

II. Domestic exchanges and cooperation

- Enhanced communication with Airlines

  - On January 16th and 19th, 2017, respectively, ANWS staff members visited the Corporate Safety Office of China Airlines, and the Aviation Safety Office of Tigerair Taiwan. During the visits, ANWS staff members engaged in experience exchanges and observations related to SMS and safety information management issues.

  - ANWS invited members of the Taoyuan Pilots Union and controllers to a forum on April 11th, 2017. The forum had 37 attendees; the parties engaged in exchanges and observations based on their operational considerations and requirements.



與桃園市機師職業工會代表座談
Organizing the forum with members of the Taoyuan Pilots Union

  - 106 年 6 月 12 日赴中華航空公司，就 AMHS UA 及高頻（HF）陸空通訊使用情形及需求，進行交流與溝通，以供業務改善及未來業務規劃之參考。

  - 106 年 6 月 12 日赴中華航空與華信航空進行航空氣象業務參訪交流，以瞭解使用者作業需求，持續提升航空氣象服務效益。

  - ANWS staff members visited China Airlines on June 12th, 2017. Discussing issues include AMHS UA and HF radio operation, and requirements for air-ground communication. And China Airlines provided useful feedback for improving and planning future operations.

  - ANWS staff members visited China Airlines and Mandarin Airlines on June 12th, 2017. They engaged in exchanges there related to aeronautical meteorology operations, so as to understand users' operational requirements and continue to improve aeronautical meteorology services.

與華航進行航空氣象與航空通信交流
Visiting China Airlines for Aeronautical Meteorology and Aeronautical Telecommunication sharing

◆ 106 年 8 月 1-30 日於臺北、桃園及臺東地區分別辦理「航空情報服務網（AES）用戶會議」，分赴機場管理單位、國籍、外籍航空公司及地勤公司、空勤總隊、安捷訓練中心等用戶辦公室，說明 AES 功能並溝通協調業務，總計 46 個單位 206 人參加。

◆ ANWS organized AES user meetings in Taipei, Taoyuan and Taitung from August 1st to 30th, 2017. ANWS staff visited the offices of airport operation units, national and foreign airlines and ground-handling service companies, the National Airborne Service Corps, and Apex Flight Academy to demonstrate AES functions and coordinate operations. A total of 206 people from 46 units participated in the meetings.

AES 用戶會議 - 長榮
AES user meeting – Eva Air

AES 用戶會議 - 臺東空勤
AES user meeting –National Airborne Service Corps, Taitung

AES 用戶會議 - 臺北地區
AES user meeting – Taipei region

◆ 106 年 11 月 20 日赴長榮航空公司辦理「飛航管制作業座談會」，針對駕駛員關切議題「ATIS 廣播內容過長」、「松山機場航管作業」、「KABAM 出管航機使用 B591 航路」等議題提出說明。

◆ ANWS organized an ATC Operations Forum at EVA Airways on November 20th, 2017. Issues that pilots may were concern about, including the ATIS broadcast being too long, Songshan Airport ATC operations, and KABAM aircraft using route B591, were fully discussed.

◆ 106 年 12 月 8 日參加民用航空局辦理「飛航管制員與國籍航空公司駕駛員座談會」，針對高雄及松山機場道整部分，提供航管影響及相關因應之簡報資料。

◆ ANWS attended the Forum for Air Traffic Controllers and Pilots of National Airlines organized by the CAA on December 8th, 2017. ANWS gave a briefing on ATC measures for the upcoming runway rehabilitation programs for Sunshan and Kaohsiung Airport.

◆ 106 年 12 月 11、13 及 14 日辦理 3 梯次「航空氣象服務網使用者訓練」，以課堂訓練及隨班見習觀摩方式進行，共 68 人參訓，增進使用者對航空氣象服務網之瞭解。

◆ The Aeronautical Meteorological Service Page (AMSP) user training was held in 3 rounds on December 11th, 13th and 14th, 2017. The training were carried out both in class and through hands-on and observational methods. A total of 68 people received training and gained a better understanding of the AMSP.

● 強化與軍方業務協調

◆ 因應軍方演訓及軍民航機管制，與軍方共召開 49 次會議，研討雙方協調機制，並完成雙方 14 份協議書修正，增進軍民航作業安全。

◆ 106 年 3 月 3 日會同中華航空氣象協會、飛行安全基金會共同辦理「106 年空軍第三基地天氣中心參訪交流活動」，增進軍民航氣象交流，提升臺中國際機場飛航效率。

◆ 106 年 4 月 7 日赴空軍作戰指揮部進行軍民交流座談，協商有關因天候不良季節，航機有大規模偏航需求，軍方承諾將給予最大限度之協助。

◆ 106 年 7 月 12 日會同中華航空氣象協會、飛行安全基金會共同舉辦「106 年空軍第七基地天氣中心參訪交流活動」，增進軍民飛航相關單位之協調與聯繫。

● Strengthening coordination with Military Authorities

◆ In order to address the Armed Forces' military exercises and ATC operations for both civil and military, a total of 49 meetings were held with military agencies. 14 agreements were amended to ensure all military exercises were conducted smoothly and safely.

◆ ANWS co-organized the 2017 Air Force Base 3 Weather Station Visit with the Chinese Aeronautical Meteorological Association and Flight Safety Foundation - Taiwan on March 3rd, 2017. This increased military-civilian aeronautical meteorology exchanges and the traffic efficiency of Taichung International Airport.

◆ ANWS visited the Air Force Combat Command Headquarters on April 7th, 2017 for a military-civilian information sharing. The military committed to providing the greatest assistance possible in seasons when there will be large scale weather deviations.

◆ ANWS co-organized the 2017 Air Force Base 7 Weather Station Visit with the Chinese Aeronautical Meteorological Association and Flight Safety Foundation - Taiwan on July 12th, 2017. This increased air traffic coordination and contact between military and civilian units.

- 106 年 8 月 17 日及 9 月 12 日派員至空軍志航基地第十天氣中心參訪及業務交流，增進軍民飛航氣象單位間之協調與聯繫。
- 106 年 9 月 7 日參加「軍民航雙方協議事項會議」，針對軍機軍管作業議題，雙方依律定之作業程序執行，以維軍民飛航安全。
- 106 年 11 月 7-22 日辦理 5 梯次「戰航管巡迴講習」，針對因雙方溝通落差而生之管制事件進行研討及說明，提升軍民雙方之合作。

- ANWS visited the tenth Weather Center at Zhi-Hang Air Base for exchanges on August 17th and September 12th, 2017. This increased air traffic coordination and contact between military and civilian units.
- ANWS attended the Meeting held by CAA with the Military on September 7th, 2017. Both parties reached consensus regarding the operation principles of military units controlling military aircraft within civilian airspace, in order to secure the safety for both military and civil flights.
- 5 sessions of workshop were held from November 7th to 22nd, 2017. Issues resulting from misunderstanding of communication between military and civil control units were thoroughly discussed in order to improve cooperation between both parties.

戰航管巡迴講習
Workshop of military and civil control units

- 106 年 11 月 27 日國防部副參謀總長馬自勇中將率隊參訪北部飛航服務園區，並進行業務交流。

- Lieutenant General Ma of the Ministry of National Defense, led a delegation to visit the North ATS Park on November 27th, 2017.

（三）協助媒體及教育單位

- 協助蘋果日報、中天、東森、華視、康軒文教事業公司、桃機公司及法務部調查局製作飛航管制相關專題報導、學習雜誌及宣傳短片等。
- 協助興雅國中、臺灣科技大學、國立海洋大學進行管制員職業訪談及航機後推相關研究與紀錄。

III. Assisting the media and educational institutions

- ANWS assisted Apple Daily, CTI, EBC, CTS, Kang Hsuan Educational Publishing Group, Taoyuan International Airport Corporation, and the Ministry of Justice Investigation Bureau in producing special reports on air traffic control, learning magazines, and promotional video clips.
- ANWS assisted Taipei Municipal Xingya Junior High School, National Taiwan University of Science and Technology and National Taiwan Ocean University with interviews on the occupation of air traffic controllers, as well as studies and records on aircraft pushback operations.

（四）提供參訪服務

- 106 年接受國內外相關單位參訪，共計 116 梯次 2,307 人次。國外單位計有 EATMCG 10 成員國、韓國航空振興協會、香港管制員協會、泰國 AEROTHAI 公司、香港氣象協會等，計 11 梯次 73 人次；國內單位計有國防部、飛航安全調查委員會、航空公司、軍方、學校團體等單位，計 105 梯次 2,234 人次，有助於國內、外各界對總臺業務之瞭解，促進業務協調與交流。

IV. Facility visits

- In 2017, ANWS hosted several visits to ANWS by various organizations. 116 visits were held in total with 2,307 total participants. Foreign organizations included member states of EATMCG 10, the Korea Civil Aviation Association, the Hong Kong Air Traffic Controllers' Association, Thailand's AEROTHAI, and the Hong Kong Meteorological Society. A total of 11 sessions were held with 73 total participants. Domestic units include the Ministry of National Defense, the Aviation Safety Council, airlines, military authorities, academic institutions, etc. A total of 105 visits were made, with 2,234 total participants. These visits helped the public understand our operations and responsibilities, and facilitated opinion exchange regarding operational coordination and mutual learning.

泰國 AEROTHAI 參訪
Delegates from AEROTHAI

香港氣象學會參訪
Delegates from Hong Kong Meteorological Society

飛航安全調查委員會參訪
Delegates from Aviation Safety Council

- 106 年辦理 2 梯次機關檔案管理金檔獎業務參訪，共計 7 人次，擴散得獎成果效益。

- In 2017, ANWS held 2 visits for the Archives Management Quality Awards. 7 people in total participated in these visits; positive results were achieved.

八、訓練、演練及席位查核

（一）國外訓練

- 飛航服務：飛航安全管理調查與分析、管制事件 / 違規事件調查訓練、飛航系統提升（ASBU）建置及管理研習課程等 3 項，計 3 人次。
- 航空電子：汰換臺北飛航情報區儀降系統案出國訓練課程、新增金門終端航管雷達案出國維護工廠訓練及飛航訊息處理系統汰新案維護人員種子教官訓練等 3 項，計 10 人次。

（二）國內訓練

- 專業訓練：飛航管制類 13 項，合計 157 梯次，共 1,106 人次；飛航情報類 6 項，合計 15 梯次，共 126 人次；航空氣象類 8 項，合計 25 梯次，共 304 人次；航空通信類 5 項，合計 11 梯次，共 32 人次；航空電子類 12 項，合計 49 梯次，共 621 人次；其他類專業人員訓練 6 項，合計 17 梯次，共 416 人次。
- 行政知能訓練：計有公務人員退休制度改革說明會、一級主管人員年度管理主題訓練及研討、媒體溝通分享課程、主管培育人員階段能力提升訓練、性騷擾防制處理暨消除對婦女歧視公約（CEDAW）研析等13項課程，合計16梯次，共1,227人次。

（三）緊急應變演練

- 106 年 6 月 14 日辦理飛航管理自動化系統持續運作演練，共 18 人次。
- 106 年 9 月 21 日辦理「106 年度航空器失事或重大意外事件通報及資料整備演練」，共 20 人次。
- 106 年 10 月 12 日辦理臺北飛航情報中心業務持續運作演練，共 6 人次。

8. Trainings, Drills and On-the-job Evaluation

I. Overseas training

- Air Traffic Services: staffs attended 3 separate courses namely Flight safety management investigation and analysis course, course for incident/accident investigation, and Aviation System Block Upgrades (ASBU) planning and deployment courses.
- Aeronautical Electronics: A total of 10 people took the overseas training course for the Taipei FIR ILS Replacement Project, the Kinmen Air Traffic Control Radar Project and the AMHS Replacement Project.

II. Domestic training

- Professional trainings: 13 categories of ATC Training with 157 sessions for 1,106 participants; 6 categories of Flight Information Training with 15 sessions for 126 participants; 8 categories of Aeronautical Meteorological Training with 25 sessions for 304 participants; 5 categories of Aeronautical Telecommunication Training with 11 sessions for 32 participants; 12 categories of Aeronautical Electronics Training with 49 sessions for 621 participants; 6 categories of other Miscellaneous Professional Training with 17 sessions for 416 participants.
- Administrative knowledge and capability trainings: A total of 16 sessions of 13 courses, including civil servant pension system reform, annual management training and workshops for executives, media communication and sharing, competency enhancement training for management trainees, and sexual harassment prevention and CEDAW analysis, were offered to a total of 1,227 participants.

III. Emergency response drills

- The ATMS continuous operation drill was held on June 14th, 2017, with 18 participants.
- The annual exercise of "Aircraft Crash or Emergency Reporting and Factual Data Collection" was held on September 21st, 2017, with 20 participants.
- The Taipei Flight Information Center held the contingency operation exercise on October 12th, 2017, with 6 participants.

- 飛航管制人員於各機場塔臺進行航管業務持續運作演練 29 梯次，219 人次。
- 飛航情報人員每人每月以備援系統作業 1 次，確保裝備故障緊急應變能力。
- 航空氣象人員各類緊急應變演練（異地備援、航機意外事件發生之緊急應變處理、天然災害及電力中斷、氣象通信裝備故障之緊急處理、代發報演練、各類氣象裝備故障演練及氣象人員支援航管作業演）27 梯次，239 人次。
- 航空通信人員各類緊急應變演練（飛航管理系統 ATMS 持續運作計畫及系統更新、飛航訊息處理系統異地備援）共 10 梯次，35 人次。
- 航空電子人員各類裝備故障及非法干擾緊急應變演練 35 梯次，183 人次。

（四）席位查核

- 為使飛航服務更臻完善，確保同仁適職性，提高飛航管制、飛航情報、航空氣象、航空通信及航空電子等各類人員技術水準，席位查核共完成飛航管制 736 人次、飛航情報 34 人次、航空氣象 72 人次、航空通信 21 人次、航空電子 205 人次及資訊管理 39 人次。

- Air Traffic Controllers were required to participate Contingency Operations in each tower. There were 29 sessions held in total for 219 participants.
- Flight information personnel used backup systems for daily operation once per person per month, to ensure operational integrity when facing equipment failure.
- Various types of emergency response drills for aeronautical meteorological personnel (remote backup operation exercise; handling urgent aircraft accidents; natural disasters and power outages; handling meteorological telecommunicational equipment failure; broadcasting weather reports on behalf of other units; various types of meteorological equipment failures; and supporting air traffic control operation): 27 sessions were held in total for 239 participants.
- Aeronautical telecommunication personnel emergency response drills (including ATMS continuous operation planning, system upgrades and AMHS remote backup operation exercises): 10 sessions were held in total for 35 participants.
- 35 sessions for aviation ground equipment failure and unlawful interference were held in total for 183 participants.

IV. On-job evaluation

- To provide high quality air traffic services and ensure the competency of personnel, ANWS conducted on-job evaluations for personnel in different categories of professionalism. In 2017, evaluations for 736 ATCs, 34 flight information personnel, 72 aeronautical meteorology personnel, 21 aeronautical telecommunication personnel, 205 aeronautical electronics personnel and 39 information management personnel were completed.

高雄飛航諮詢臺安全查核
Safety audit at Kaohsiung Flight Information Station

九、新建及整修工程

（一）已完工部分

- 106 年 6 月 9 日完成南部飛航服務園區休息室裝修工程，提供航管輪值班同仁良好休息待命環境。
- 106 年 10 月 20 日完成濱江地區路面銑刨加鋪及排水改善工程案，改善路面品質及相關道路排水問題。
- 106 年 11 月 14 日完成供應室防火隔間、消防設施及周邊道路改善工程案，提升辦公室職場工作環境及景觀。
- 106 年 11 月 24 日完成馬公機場助航燈光動力機房新建工程，確保設備提供正常服務。

9. Construction and Renovation

I. Completed

- Renovation of the lounge in the South ATS Park was completed on June 9th, 2017, providing a good environment for ATC personnel who are on duty to rest and be on standby.
- Road milling, overlay and drainage improvements in the Binjiang area were completed on October 20th, 2017, improving road quality and drainage issues.
- Logistics Branch fireproof compartment, firefighting facilities and surrounding road improvement project were completed on November 14th, 2017, improving the workplace environment and landscape.
- Construction of the generator room for navigational lighting aids at Magong Airport was completed on November 24th, 2017, ensuring that the equipment can provide regular service.

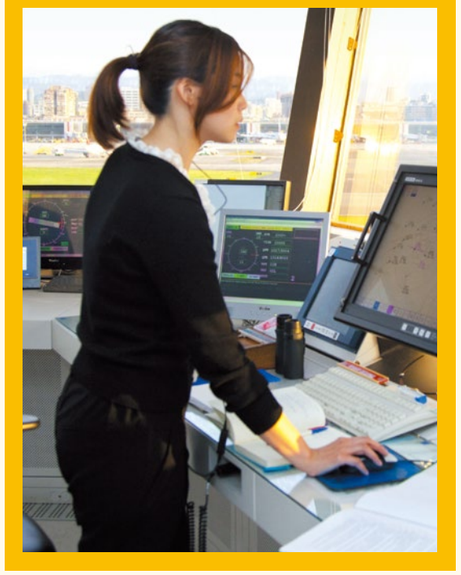
馬公機場助航燈光動力機房
Generator room for navigational lighting aids in Magong Airport

- 106 年 12 月 8 日完成松山塔臺零星整修案，提升塔臺職場工作環境及景觀。

  Sporadic renovations of Songshan Airport Control Tower were completed on December 8th, 2017, improving the tower's workplace environment and landscape.

- 106 年 12 月 8 日完成濱江地區房舍等油漆粉刷及壁癌處理工程案， 改善房舍環境及提升機關形象。

  Project of painting and removing mold on walls of houses in the Binjiang area was completed on December 8th, 2017, improving the environment of the houses and ANWS's overall image.



濱江地區油漆粉刷及壁癌處理工程
Painting and Wall mold removal Operation in Binjiang area

（二）持續辦理部分

- 金門終端航管雷達機房新建工程案
  105 年 12 月 15 日開工，已於 107 年 2 月 8 日竣工。

- 臺東作業區備勤室大樓及雷達塔冰水機房裝修工程
  106 年 12 月 22 日完成委託技術服務招標，預計於 107 年底竣工。

- 「臺灣桃園國際機場塔臺暨整體園區新建工程」

  - 106 年 1 月 8 日以滑模工法完成高 55 公尺的新塔臺筒體結構，10 月並完成塔臺高樓層外擴鋼構作業，10 月 5 日舉行新塔臺上樑儀式，完成所有結構工項。塔臺群樓結構完成後，開始執行各項內裝、外牆及帷幕工項。

II. Projects in progress

- Construction of Kinmen ATC radar shelter
  Construction began on December 15th, 2016, and was completed on February 8th, 2018.

- Renovation of the standby room building and radar tower cooling water facilities in Taitung operation area
  Procurement of technical services was completed on December 22nd, 2017, and the renovation is scheduled to be completed by the end of 2018.

- Taiwan Taoyuan International Airport New Air Traffic Control Tower Complex Construction Project

  - On January 8th, 2017, the 55m high cylinder structure of the new tower was completed via slip-forming, and the steel structure extending outward at the top of the tower was also completed in October. On October 5th, the topping-out ceremony was held, and all structure-related work items were completed. After the completing of building structure, work items interior decorations, exterior walls, and curtain walls were subsequently carried out.

金門雷達機房新建工程
Construction of Kinmen ATC radar shelter

新建塔臺及現有塔臺
New tower and existing tower

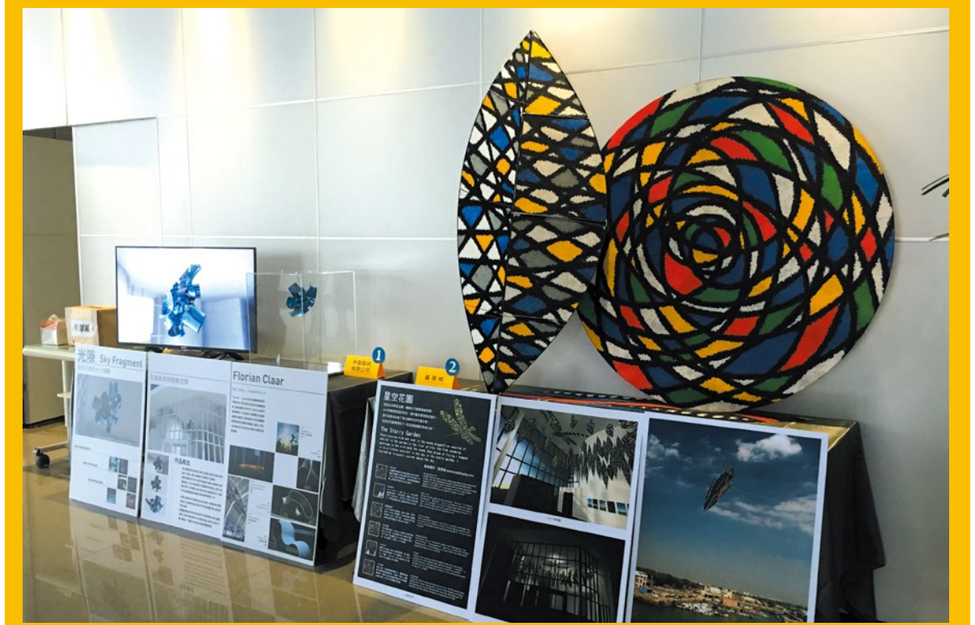
- 塔臺自動化系統 106 年 8 月 30 日完成工廠測試，10 月 31 日完成測試平臺介面整合，12 月份完成航管與航電單位基礎訓練，暨園區光纖網路佈設與設備安裝。另本工程之公共藝術設置於 5 月 11-12 日舉辦 2 場次公開展示活動，將賡續掌握工作期程及辦理民眾參與活動等事宜。

  Factory tests of the tower automation system were completed on August 30th, 2017; Testbed integration test was completed on October 31st; and fundamental trainings for air traffic controllers and engineers were completed on mid of December. Optical fiber network and related equipment installation were took place in new tower park on end of December. For the Public art installations project, 2 publicly displayed events were held for collecting feedback on May 11th and 12th. Next step will continue to proceed the art work manufacturing and arrange public feedback events.

塔臺自動化系統整合測試
Integration tests for the Tower Automation System

- 全案賡續辦理新塔臺所有工程、塔臺自動化系統安裝、新舊塔臺系統平行測試及公共藝術設置。

- We continued to carry out all constructions on the new tower, installation of the tower automation system, parallel testing of the tower's new and old systems, and public art installations.

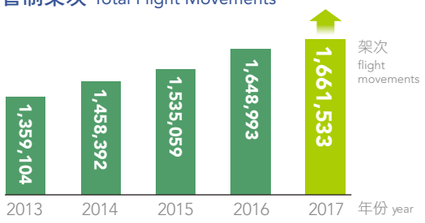


辦理 2 場公共藝術展示活動
Organized 2 public art display events

04 服務實績 PERFORMANCE

一、飛航管制 Air Traffic Control

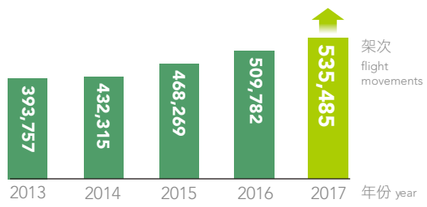
總管制架次 Total Flight Movements



106年總管制架次為1,661,533 架次，較105年增加約 **0.76%**

Total number of controlled flight movements in 2017 was 1,661,533, a **0.76%** increase compared with 2016.

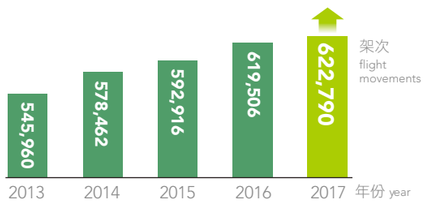
航路管制架次 Area Control Flight Movements



106 年航路管制架次為535,485 架次，較105年增加約 **5.04%**

The number of en-route flight movements in 2017 was 535,485, a **5.04%** increase compared with 2016.

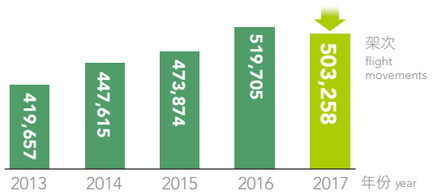
近場管制架次 Approach Control Flight Movements



106年近場管制架次為622,790 架次，較105年增加約 **0.53%**

The number of approach control flight movements in 2017 was 622,790, a **0.53%** increase compared with 2016.

機場管制架次 Aerodrome Control Flight Movements

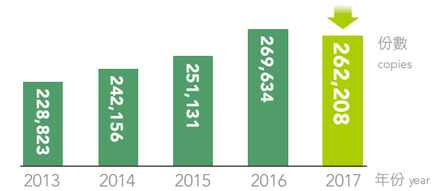


106 年機場管制架次為503,258 架次，較105 年減少約 **3.16%**

The number of aerodrome control flight movements in 2017 was 503,258, a **3.16%** decrease compared with 2016.

二、飛航情報 Flight Information

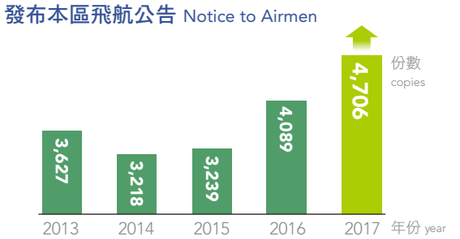
處理飛航計畫 Filed Flight Plans



106年處理飛航計畫262,208份，較105年減少約 **2.75%**

The number of flight plans processed in 2017 was 262,208, a **2.75%** decrease compared with 2016.

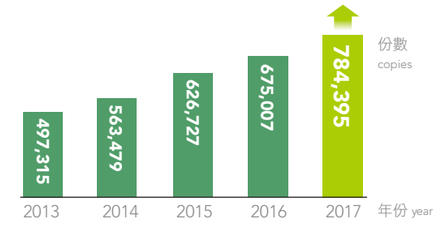
發布本區飛航公告 Notice to Airmen



106年發布本區飛航公告4,706份，較105年增加約 **15.09%**

The number of NOTAMs issued by Taipei FIR in 2017 was 4,706, a **15.09%** increase compared with 2016.

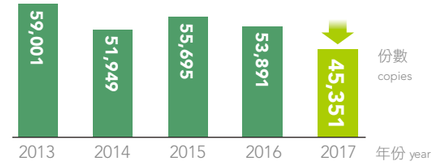
處理他區飛航公告 NOTAMs from Other Countries



106年處理他區飛航公告784,395份，較105年增加約 **16.21%**

The number of NOTAMs from other regions processed in 2017 was 784,395, a **16.21%** increase compared with 2016.

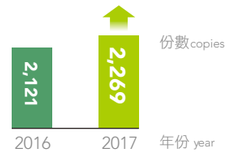
提供飛航文件 Flight Documents



106年提供飛航文件45,351份，較105年減少約 **15.85%**

The number of flight documents provided in 2017 was 45,351, a **15.85%** decrease compared with 2016.

標示機場場面飛航公告 Aerodrome NOTAM Display

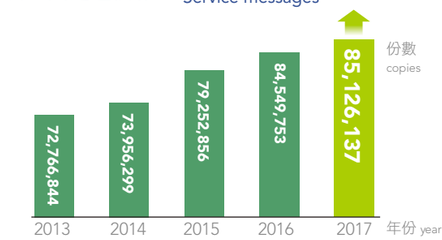


106年標示機場場面飛航公告 2,269 份，較105年增加約 **6.98%**

In total 2,269 NOTAMs were marked on aerodrome charts in 2017, a **6.98%** increase compared with 2016.

三、航空通信 Aeronautical Telecommunication

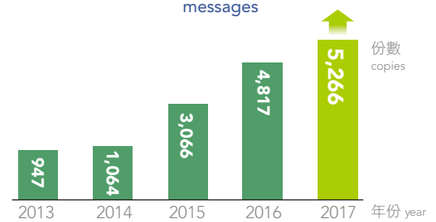
航空固定通信報量 Aeronautical Fixed Telecommunication Service messages



106年航空固定通信報量為85,126,137份，較105年增加約 **0.68%**

The total amount of aeronautical fixed telecommunication service messages handling in 2017 was 85,126,137, a **0.68%** increase compared with 2016.

航空行動通信報量 Aeronautical Mobile Telecommunication Service messages



106年航空行動通信報量為 5,266 份，較105年增加約 **9.32%**

The total amount of aeronautical mobile telecommunication service messages handling in 2017 was 5,266, a **9.32%** increase compared with 2016.

四、航空氣象 Aeronautical Meteorology

106 年度執行機場氣象測報、航路預報、機場預報及天氣守視等作業工作成果表

Airport Weather Observation, Route Forecast, Airport Forecast and Weather Watch Operational Result Statistics in 2017.

業務類別 Category	工作項目 Items	工作成果 Results				
		102 年 2013	103 年 2014	104 年 2015	105 年 2016	106 年 2017
機場氣象測報 Airport Weather Observations	民航機場天氣觀測（包括定時觀測及特別觀測等二項）（註 1） Civil Airport Weather Observation(including regular observation and special observation) (Note 1)	121,264	119,405	120,126	112,432	107,878
	局屬民航機場天氣報告 CAA Civil Airport Weather Report	124,214	122,492	122,979	115,157	111,019
	民航機場趨勢預報 Civil Airport Trend Forecast	105,951	104,294	104,924	107,689	107,346
	民航機場天氣警報 Civil Airport Weather Warning	199	202	165	250	176
	民航機場低空風切警報 Civil Airport Low Level Wind Shear Warning	808	560	698	1,028	974
	桃園機場氣象雷達觀測 Taiwan Taoyuan International Airport Weather Radar Observation	77,533	81,841	85,152	96,487	93,261
	合 計 **Sub-total**	**430,975**	**433,017**	**437,034**	**436,749**	**419,667**
航路預報 Route Forecasts	各種分析天氣圖表 Various Analytical Weather Charts	41,117	41,119	41,109	41,183	41,093
	高空風溫度預報圖 High Altitude Wind Temperature Forecast Chart	28,362	30,838	30,883	30,741	30,195
	顯著天氣預報圖 Significant Weather Forecast Chart	5,858	5,844	5,840	5,856	5,842
	合 計 **Sub-total**	**75,337**	**77,801**	**77,832**	**77,780**	**77,130**
機場預報 Terminal Aerodrome Forecasts	編發機場預報（註 2） Issuing Terminal Aerodrome Forecast(TAF)(Note 2)	15,939	16,060	16,212	15,152	16,344
	機場預報修正 TAF AMD TAF Revision(TAF AMD)	302	316	454	496	355
	合 計 **Sub-total**	**16,237**	**16,376**	**16,936**	**15,648**	**16,699**
天氣守視 Weather Watches	顯著天氣資訊 Significant Weather Information	1,813	1,635	1,471	1,874	1,372
	飛機報告 Aircraft Report	548	522	600	609	554
	本區機場天氣報告（註 3） Regional Airport Weather Report (Note 3)	128,530	111,653	134,204	135,532	145,420

註 1：106 年 1 月 1 日起，恆春機場飛航服務觀測時間變更為每日上午 9 時至下午 3 時，並配合機場作業時間編發機場預報（TAF）。

Note 1: Since January 1st, 2017, the aeronautical meteorological service (observation hours) has adjusted to 09:00AM to 3:00PM every day at Hengchun Airport, and The supply of Terminal Area Forecast (TAF) coordinates with each other.

註 2：102 年 2 月起新增提供七美機場全日機場預報（TAF），另自 104 年 4 月起，於每週二及週五新增提供望安機場預報（TAF）。

Note 2: Since February 2013, All-day TAF has been provided at Qimei Airport, and TAF has been provided at Wangan Airport every Tuesday and Friday since April 2015.

註 3：102 年 1 月起濾除與本區相同報頭之大陸地區天氣報告。

Note 3: Chinese weather reports with the same prefix as Taipei FIR have been screened out since January, 2013.

業務類別 Category	工作項目 Items	工作成果 Results				
		102 年 2013	103 年 2014	104 年 2015	105 年 2016	106 年 2017
天氣守視 Weather Watches	AMHS 氣象電報 AMHS Weather Dispatch	5,246,393	5,451,576	5,787,617	6,108,760	6,705,328
	短時預報 Short-term Forecast	1,464	1,464	1,464	1,464	1,460
	天氣影像圖（註 4） Weather Graphics (Note4)	524,295	574,261	576,173	784,005	1,237,968
	民航機場颱風警報 Civil Airport Typhoon Warning	331	214	311	315	341
	合 計 **Sub-total**	**5,903,370**	**6,141,321**	**6,501,836**	**7,032,559**	**8,092,443**
	總 計 **Total**	6,425,919	6,668,515	7,033,638	7,562,736	8,605,939

註 4：102 年 1 月起新增可見光、紅外線頻道及歐洲衛星等多項衛星產品；105 年 9 月起介接日本向日葵八號高解析度衛星資料。

Note 4: Since January 2013, satellite-based products, including visible light, infrared channels, and European satellites, have been employed. Since September 2016, ANWS has received high resolution satellite data from Japan's Himawari-8 satellite.

五、航空電子 Aeronautical Electronics

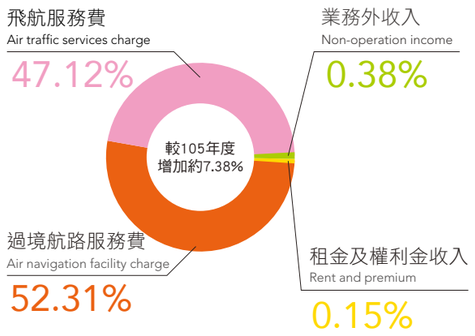
系統別 System / 年度 Year	102 年 2013	103 年 2014	104 年 2015	105 年 2016	106 年 2017
雷達設備妥善率 Radar Equipment Availability	99.9925%	99.9873%	99.9920%	99.9879%	99.9989%
助航設備妥善率 Navigation Aid Equipment Availability	99.9805%	99.9769%	99.9853%	99.9395%	99.9915%

六、其他飛航服務系統妥善率 Availability of Other Air Traffic Service Systems

系統別 System / 年度 Year	102 年 2013	103 年 2014	104 年 2015	105 年 2016	106 年 2017
飛航管理系統 ATMS Air Traffic Management System(ATMS)	99.9998%	100%	99.9938%	99.9963%	100%
航空情報服務系統 AISS Aeronautical Information Service System(AISS)	99.945%	99.9625%	99.9748%	99.8951%	99.9840%
飛航訊息處理系統 AMHS Air Traffic Services Messages Handling System(AMHS)	99.996%	99.9950%	99.9941%	99.9583%	99.9949%
航空氣象服務網 AMSP Aeronautical Meteorological Service Page (AMSP)	100%	99.92%	99.90%	99.9333%	100%
數位語音交換系統 DVCSS Digital Voice Communication Switching System(DVCSS)	100%	100%	100%	100%	100%
飛航服務業務網路 ASN ATS Service Network(ASN)	99.989%	99.994%	99.994%	99.999%	99.98%
行政網路 OAN Office Administration Network(OAN)	99.979%	100%	100%	99.979%	100%

05
收入支出
FINANCES

一、收入 Revenue

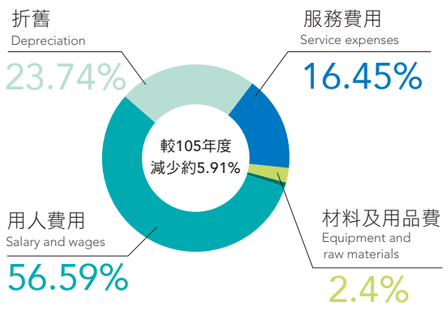


註：106年度總收入39億2,690萬5,083元，較105年度增加約7.38%。
Note: 2017 total revenue: 3,926,905,083 TWD , a 7.38% increase compared with 2016.

102年度為3,442,793,383元、103年度為3,200,518,619元、104年度為3,410,849,007元、105年度為3,657,185,339元、106年度為3,926,905,083元。

2013 : 3,442,793,383 TWD / 2014 : 3,200,518,619 TWD
2015 : 3,410,849,007 TWD / 2016 : 3,657,185,339 TWD
2017 : 3,926,905,083TWD

二、支出 Expenditure



註：106年度總支出23億1,856萬2,496 元，較105年度減少約5.91%。
Note: 2017 total expenditure: 2,318,562,496TWD , a 5.91 % decrease compared with 2016.

102年度為2,733,990,399元、103年度為2,588,163,623元、104年度為2,568,547,032元、105年度為2,464,174,412元、106年度為2,318,562,496元。

2013 : 2,733,990,399 TWD / 2014 : 2,588,163,623 TWD
2015 : 2,568,547,032 TWD / 2016 : 2,464,174,412 TWD
2017 : 2,318,562,496 TWD

三、盈餘 Surplus

106 年度作業科目 Current expenditures details for 2017	收入 Revenue	支出 Expenditure
過境航路服務費 Air navigation facility charge	2,054,280,000	
飛航服務費 Air traffic services charge	1,850,342,718	
業務外收入 Non-operation income	14,845,299	
租金及權利金收入 Rent and premium	5,983,566	
航空通信費 Tele-communication facilities fees	1,417,500	
停車費 Parking fees	36,000	
用人費用 Salary and wages		1,312,053,234
折舊 Depreciation		550,427,790
服務費用 Service expenses		381,397,669
材料及用品費 Equipment and raw materials		55,954,856
租金、償債與利息 Rent, debt repayment and interest expenses		8,559,004
稅捐與規費 Tax and charges		7,291,259
會費、捐助、補助、分攤與交流活動費 Membership fees, donations, reimbursements, shared costs and public relations expenses		1,977,905
短絀、賠償與保險給付 Budget shortages, compensation and insurance payments		527,527
業務外費用 Non-operation expenses		373,252
合計 Total	3,926,905,083	2,318,562,496

盈 餘 Surplus 1,608,342,587元

註：106 年度盈餘16億834 萬2,587元，較105 年度增加約34.81% 。
Note: 2017 budget surplus: 1,608,342,587 TWD , a 34.81% increase compared with 2016.

06
未來展望
FUTURE DEVELOPMENT

為因應本區日趨成長之航行量及國內外民航環境變化，未來推動工作重點如下：

一、持續完善安全管理系統，強化飛航服務人員素質及運用

- 賡續推動安全管理系統、定期檢討、落實安全風險管理、監控各項關鍵績效指標達成情形，並依安全文化評估問卷調查結果，推動組織安全文化。
- 循序規劃安全管理資訊系統相關功能，加強與其他飛航服務提供者之交流並擴充總臺安全資料庫。
- 著手研擬 10 年期程航管人力需求評估報告及分流養成作法，及早提出人力需求及運用。

To cope with the increasing air traffic flow in Taipei FIR and the worldwide environmental changes of the civil aviation industry, ANWS's aspirations for future developments are as follows.

1. Continuous improvement of SMS as well as the enhancement of personnel quality on providing air traffic services

- We are continually improving the Safety Management System (SMS), conducting periodic reviews, implementing safety risk management, monitoring the attainment of key performance indicators, and promoting the organization's safety culture based on assessment results of the safety culture survey.
- We sequentially initiate functions of SMS, increasing exchanges with other ANSP, and expanding the ANWS safety database.
- We have begun compiling an assessment report on air traffic control workfoce requirements over the next decade, and are formulating the feasibility of segregating radar controller and non-radar controller's training and workplace assignments, so as to address staffing requirements and utilization as early as possible.

二、推動通訊、導航、監視設備及相關飛航服務系統汰新，提升作業安全及效能

- 賡續推動「臺灣桃園國際機場塔臺暨整體園區新建工程」計畫，掌握新建工程及塔臺自動化系統進度，以如期完成滿足未來作業需求。
- 辦理北區數位微波系統及航管數位語音交換系統汰新，提升通信設備之可靠度。
- 持續辦理「汰換臺北飛航情報區儀降系統」（106 年 -110 年），確保進場導航系統妥善率。
- 辦理桃園國際機場多點定位系統及都卜勒氣象雷達發射機升級，提升偵測品質，確保飛航安全。
- 辦理飛航訊息處理系統及備援航管系統之人員訓練、系統建置、驗收及轉移，並著手進行飛航管理系統期中升級案先期規劃作業，提供優質飛航服務。

2. Promoting the renovation of CNS/ATM related equipment and systems to enhance operating safety and efficiency

- Continue to implement the "Taiwan Taoyuan International Airport New Air Traffic Control Tower Complex Construction Project", and monitor the progress of the construction and automated system, in order to complete the project as scheduled and meet future operational requirements.
- Replace the northern Taiwan digital microwave communication system and Digital Voice Communication Switch System (DVCSS) to improve the reliability of ATC communication.
- Continue to carry out "The Taipei FIR ILS Replacement Project" (2017-2021) to ensure the availability of air navigational aids.
- Upgrade the MLAT system and the Doppler weather radar system at Taoyuan International Airport to improve detection quality and ensure flight safety.
- Carry out personnel training, system implementation, acceptance, and transfer for the AMHS and backup ATC system, and carry out preliminary planning of mid-life upgrades of the air traffic management system to provide excellent air traffic services.

航管作業室
ATC Operation Room

三、瞭解用戶需求，精進飛航服務作為，提升滿意度

- 加強與民航業者及軍方等單位溝通互動，提供符合使用者需求之服務。
- 持續強化航空情報及航空氣象服務網功能，並辦理相關用戶訓練及會議，提升滿意度。

四、積極參與國際會議與交流，持續瞭解國際及區域飛航服務發展趨勢

- 持續參與民用飛航服務組織（Civil Air Navigation Services Organisation,CANSO）與非正式東亞飛航管理協調小組（the East Asia Air Traffic Management Coordination Group, EATMCG）等相關會議，掌握國際民航組織（International Civil Aviation Organization, ICAO）之新政策趨勢及區域發展之最新狀況。
- 關注航空系統提升（Aviation System Block Upgrades, ASBU）技術之發展與飛航服務作業之新措施，並藉由與其他國家交流機會，瞭解相關系統與作業實務，確保本區飛航服務作業與國際接軌，相關設施符合國際規範並與他國相容。
- 積極與鄰區區域管制中心合作，研商有效率之流量管理措施，減低空中擁擠及等待。
- 拓展國際飛航服務組織之人脈資源網路，提升我國於國際飛航服務組織及航空業界之能見度。

3. Understand user requirements, improve air traffic services, and increase satisfaction

- Enhance communication between civil and military aviation entities in order to provide services that meet the needs of airspace users.
- Enhance the functionality of Aeronautical E-Service and the Aeronautical Meteorological Service Page, and organize user training and meetings to increase satisfaction.

4. Actively attend international forums to keep updated on development and trends in air traffic services

- Continue to attend meetings held by CANSO and the East Asia Air Traffic Management Coordination Group (EATMCG) in order to stay on top of regional development plans from the International Civil Aviation Organization (ICAO).
- Keep a close watch on development and plans for aviation related technology, regulations and practices, specifically on the progress of Aviation System Block Upgrades (ASBU). Through technical exchange with other countries and aviation related international conferences, acquire information on ATS systems and ATS operations, so that the ANS operations, facilities and regulations are in line with global aviation planning and standards.
- Coordinate proactively with neighboring air traffic control centers to effectively control traffic flow, thereby reducing air congestion and delays in the Taipei FIR.
- Expand the network of aviation industry contacts among international air traffic service organizations to increase exposure for Taiwan's Air Traffic Services.

07
大事紀要
2017 IN REVIEW

1 月 JANUARY

01/03、04、12

林局長國顯視察清泉崗助航臺、大屯山助航臺及花蓮助航臺，聽取業務重點工作報告，並發放春節慰問金。

Director General of CAA, Lin, Kuo-shian visited Cingcyuangang Navaids Site, Datunshan Navaids Site and Hualien Navaids Site, distributed Chinese New Year subsidies and listened to the related business presentation.

01/10、12、13

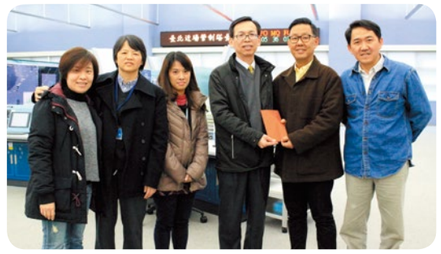
方副局長志文視察南竿助航臺、恆春助航臺、南部飛航服務園區及臺東裝修區臺，聽取業務重點工作報告，並發放春節慰問金。

Deputy Director General of CAA, Fang, Chih-wen visited Nangan Navaids Site, Hengchun Navaids Site, South ATS Park and Taitung Aviation Facilities Sector, distributed Chinese New Year subsidies and listened to the related business presentation.

01/18、24

林局長國顯視察三貂角雷達臺、桃園國際機場塔臺作業區及北部飛航服務園區，聽取業務重點工作報告，並發放春節慰問金。

Director General of CAA, Lin, Kuo-shian visited Sandiaojiao Radar Site, taoyuan international airport control tower and North ATS Park, distributed Chinese New Year subsidies and listened to the related business presentation.



01/25

林局長國顯視察總臺濱江地區、松山機場塔臺及松山氣象臺並發放春節慰問金。

Director General of CAA, Lin, Kuo-shian visited ANWS subsidiary facilities in Binjiang area and distributed Chinese New Year subsidies.

01/26

交通部范政務次長植谷視察桃園國際機場塔臺作業區並發放春節慰問金。

Political Deputy Minister of MOTC, Fan, Chih-ku visited taoyuan international airport control tower and distributed Chinese New Year subsidies.

2 月 FEBRUARY

02/02

舉辦總臺 106 年新春團拜暨慶生會。

The 2017 Lunar New Year Greetings and Birthday Celebration were held in ANWS Binjiang area.

02/17、23

辦理北部及南部「106 年度春節聯誼會」，共計 210 人參加。

Held the 2017 northern and southern area annual Lunar New Year banquet, there are total 210 retiree seniors presented.

02/21

金門航空站一行 9 人至本總臺進行粉絲專頁管理標竿學習。

A group of 9 from Kinmen Airport visited ANWS for facebook management experience sharing.

3 月 MARCH

03/03

本總臺與中華航空氣象協會及飛行安全基金會共同辦理「106 年空軍第三基地天氣中心參訪交流活動」，提升臺中國際機場飛航效率。

To enhance the aviation efficiency of Taichung Airport, ANWS has cooperated with the CAMA and FSFT to hold the 2017's visit to Air Force Third Base Weather Center.

03/07

交通部暨部屬機關總務主管人員第 38 次協調聯繫會報參訪北部飛航服務園區，由總務司吳司長舜龍率部屬總務主管約 90 人，聽取黃總臺長及業務主管說明各類飛航服務作業情形。

The 38th Coordination and Connection Meeting of the General Affairs Personnel of MOTC was held in North ATS Park. After the meeting, Director of Department of General Affairs, Wu, Shun-long led a team of 90 personnel to listen the presentation of air traffic services.

03/21

韓國航空振興協會 (Korea Civil Aviation Development Association, KADA) 代表參訪北部飛航服務園區，以瞭解臺北飛航情報區之飛航服務。

Delegates of Korea Civil Aviation Development Association (KADA) visited North ATS Park to familiarize with air traffic services within Taipei FIR.

03/23

士林地檢署主任檢察官率 3 位檢察官參訪臺北機場管制臺、桃園氣象臺、臺北近場管制塔臺、區管中心及氣象中心，以瞭解相關管制作業及氣象作業。

Shi-Lin District Prosecutors Office Head Prosecutor accompanied by 3 Prosecutors visited Taipei Airport Control Tower, Taoyuan Weather Station, Taipei Approach Control Tower, Taipei Area Control Center and Taipei Aeronautical Meteorological Center to familiarize with the operation of air traffic control and weather observation.

4 月 APRIL

04/10

通信航管資訊聯隊一行 35 人至南部飛航服務園區高雄近場管制塔臺參訪，並對航管作業進行交換意見。

A group of 35 from Air Force Communications, Air Traffic Control & Information Wing visited Kaohsiung Approach Control Tower in South ATS Park. In addition to learning about the operation of air traffic control, both parties have exchanged opinions of daily work coordination issues.

04/10

高雄國際航空站及中華郵政股份有限公司一行 7 人至本總臺進行機關檔案管理金檔獎標竿學習。

A group of 7 from Kaohsiung Interational Airport and Chunghwa Post Co.,Ltd. visited ANWS for archives management experience sharing.

04/11

桃園市機師職業工會計 37 位機師至北部飛航服務園區進行業務交流及觀摩。

A group of 37 pilots from Taoyuan Union Of Pilot visited North ATS Park to understand the operation of ATS and business communication.

5 月 MAY

05/02-05

蔡副總臺長宗穎率本總臺相關人員赴越南河內參加 CANSO 亞太區年會暨工作小組會議，並於會議上分享本總臺安全文化推廣作為。

4 representatives from ANWS attended "CANSO Asia Pacific Conference and Working Groups" which was held in Ha Noi, Viet Nam. ANWS shared the Safety Promotion experience at the safety working group.

05/09

民航局秘書室郭主任忠華率考核委員蒞臨本總臺辦理 106 年度國有財產管理及運用效益方案績效考核業務。

CAA Department of Secretariat Director, Kuo, Chung-hua led evaluation committees visited ANWS for property inspection.

05/11-12

交通部民用航空局於總臺辦理 2 場次桃園國際機場塔臺新建工程公共藝術設置計畫案之公開展示及問卷調查活動。

CAA hosted 2 sessions of Taoyuan International Airport New Air Traffic Control Tower Public Art Installation exhibitions at ANWS.

05/15

2 名韓國釜山 Regional Aviation Administration 管制員至北部飛航服務園區參訪，並對臺韓管制經驗進行討論與交流。

2 ATCs form Korea Busan Regional Aviation Administration visited North ATS Park to familiarize with air traffic services within Taipei FIR and shared the air traffic control experience.

6 月 JUNE

06/02

簡任技正曾瓊慧調陞民航局航管組副組長。

Senior Technical Specialist,Tseng, Chiung-huey was promoted to the CAA Air Traffic Services Division Deputy Director.

06/22

紐約州立大學科特蘭分校政治學系一行 8 人參訪北部飛航服務園區聽取臺灣民航的國際經驗，並瞭解相關飛航管制作業。

A group of 8 from Political Science Department, SUNY Cortland visited North ATS Park to learn about Taiwan's participation and contribution to global aviation and to understand air traffic control operations.

06/28

飛航業務室主任許智婷調任簡任技正。

Air Traffic Service Management Office Chief, Hsu, Chih-ting was succeeded to Senior Technical Specialist.

06/28

飛航業務室副主任董吉利陞任該室主任。

Air Traffic Service Management Office Deputy Chief, Tung, Chi-li was promoted to the Office Chief.

7 月 JULY

07/07

榮獲民航局國有財產管理及運用效益方案績效考核第三名。

ANWS received the third place honor of "Evaluation of National Property Control and Performance" from CAA.

07/12

本總臺與中華航空氣象協會及飛行安全基金會共同舉辦「106 年空軍第七基地天氣中心參訪交流活動」，增進軍民飛航相關單位之協調與聯繫。

To enhance communication and cooperation between aviation agencies from both the military and the private sectors, ANWS has cooperated with the CAMA and FSFT to hold the 2017's visit to Air Force 7th Base Weather Center.

07/14

陳副總臺長福壽榮退。

ANWS Deputy Director, Chen, Fu-shou retired and received all colleagues' blessings.

07/14

啟用馬祖北竿機場 03/21 跑道頭翼排燈。

The 03/21 wing bar lights of Beigan Airport have been launched.

07/14

「臺北國際機場航空公司暨相關事業聯席會」一行 20 人參訪松山機場管制臺及松山航空氣象臺，以瞭解相關飛航管制作業及機場天氣觀測作業。

A group of 20 from Airline Operator Committee of Taipei International Airport visited Songshan Airport Control Tower and Songshan Weather Station to understand air traffic control operations and weather observations.

07/15

於北部飛航服務園區辦理 106 年北部地區親子日活動，共計 223 人參加。

Hosted 2017 northern area Family Day in North ATS Park, with a total of 223 participants.

07/16

桃園裝修區臺區臺長林嘉明陞任副總臺長。

Taoyuan Aviation Facilities Sector Chief, Lin, Chia-ming was promoted to ANWS Deputy Diretor.

07/18

桃園國際機場股份有限公司尹前董事長承蓬至本總臺講授養生「八段錦」，共計 56 人參加。

There were total 56 people participated in the "Eight-sectioned Exercise" which taught by former Chairman of Taoyuan International Airport Corporation, Yin, Chen-pong.

07/25

民航局沈前局長啟及佳威企業管理顧問有限公司項顧問義順至航訓所為一級主管以上人員講授「飛航服務人員之領導與溝通」、「問題分析與解決技巧訓練」，共計 23 人參加。

There were total 23 people participated in the "The leadership and communication of air navigation services personnel" and "Problem analysis and solution skills training" which taught by former Diretor of CAA, Jean Shen and Good Way Management Consultant Company.

8 月 AUGUST

08/01

啟用馬祖南竿牛角嶺風向風速計。

Anemometer and Wind vane has been launched at Niujiaoling, Matsu Nangan.

08/15

啟用臺中清泉崗機場資料鏈路終端資訊自動廣播服務（D-ATIS）。

D-ATIS of Taichung Cingcyuangang Airport has been launched.

08/15

蔡副總臺長宗穎率相關人員參與飛航安全調查委員會「2017 國際飛安資訊交流研討會」，並分享總臺改變管理案例及因應作為。

4 representatives from ANWS attended "2017 Safety Information Exchange Seminar" held by Aviation Safety Council. ANWS shared the real practice of Change Management.

08/17

啟用 Q12、Q13 及 Q14 航路，減少航機於恆春交滙情形，提升飛航安全，另縮短航路節能減碳。

The initiation of routes Q12, Q13 and Q14 decreased air traffic congestion at the fix HCN and improved flight safety, route efficiency and carbon emission rates.

08/21

航電技術室主任詹文欽調任桃園裝修區臺區臺長。

Engineering Office Chief, Jan, Wen-chin was succeeded to the Taoyuan Aviation Facilities Sector Chief.

08/21

桃園裝修區臺副區臺長鄭國璽陞任航電技術室主任。

Taoyuan Aviation Facilities Sector Deputy Chief, Cheng, Huo-hsi was promoted to the Engineering Office Chief.

08/29

民航局秘書室郭主任忠華一行 4 人至本總臺進行 106 年度公文檢核實地訪查。

CAA Secretariat Office Director, Kuo, Zhong -hua led 3 staffs to visit ANWS for Document inspection.

08/30

民航局企劃組陳組長昭諭一行 8 人至本總臺進行 106 年度為民服務績效實地評鑑。

CAA Planning Division Director ,Chen, Jau-yuh led 7 staffs to visit ANWS for Citzen-Service Assessment.

08/31

民航局何副局長淑萍在高雄裝修區臺林區臺長勇青陪同下，視察金門雷達及 ADS-B 建置進度。

Deputy Director General of CAA, Ho, Shu-ping, accompanied by ANWS Kaohsiung Aviation Facilities Sector Chief, Lin, Yor-kin inspected Kinmen Radar and ADS-B implementation progress.

9 月 SEPTEMBER

09/02

舉辦北部地區 48 週年臺慶活動「十分幸福之旅」。

"Pingxi Shifen trip" was held in northern area to celebrate the 48th anniversary of ANWS.

09/09

舉辦南部地區 48 週年臺慶活動「高雄鐵馬健康遊旗津」。

"Kaohsiung Cijin ferry and bicycle trip" was held in southern area to celebrate the 48th anniversary of ANWS.

09/19

榮獲民航局 106 年公文績效檢核第 1 名。

ANWS received the first place honor of "Evaluation of Document Performance" from CAA.

09/27

正式啟用飛航服務安全管理資訊系統 - SERA（Safety Event Reporting and Analysis System）。

Safety Event Reporting and Analysis System(SERA) has been launched to operation.

09/28

黃總臺長麗君率相關人員參訪民用航空局航空醫務中心，瞭解飛航管制人員心理性向測驗常模建立作業。

Director of ANWS, Huang, Li-chun along with 5 staffs visited Civil Aviation Medical Center to understand the development of Normative Study of Aptitude Tests and Job Analysis of Air Traffic Controllers.

10 月 OCTOBER

10/05

舉辦桃園國際機場新塔臺工程上樑祈福儀式。

Topping-Out Ceremony for The New Air Traffic Control Tower in Taiwan Taoyuan International Airport was held.

10/20

榮獲民航局 106 年為民服務績效定期評鑑第 2 名。

ANWS received the second place honor of "Regular Evaluation of Service Performance" from CAA.

10/21

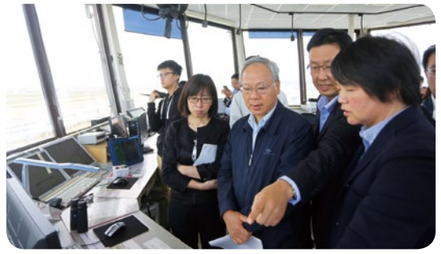
舉辦總臺盃第三屆慢速壘球錦標賽，共計 112 人參加。

Hosted 2017 the third ANWS Cup Slow Pitch Softball Tournament, with a total of 112 participants.

10/24

財團法人中華航空事業發展基金會邱秘書瓊平講授「跟媒體打交道、寫好新聞稿與危機處理」，共計54人參加。

There were total 54 people participated in the "Media Relations and Press Releases Writing" which taught by Secretary of China Aviation Development Foundation, Chiou, Chiung-ping.



10/31

交通部范政務次長植谷在民航局何副局長淑萍、桃機公司李副總經理建國及黃總臺長麗君陪同下，視察桃園國際機場塔臺及臺北區域管制中心，瞭解飛航管制作業現況。

Political Deputy Minister of MOTC, Fan, Chih-Ku accompanied by Deputy Director General of CAA, Ho, Shu-ping , Senior Vice President of Taiwan Taoyuan International Airport, Charles, C.K. Lee and Director of ANWS, Huang, Li-chun visited taoyuan international airport control tower and Taipei Area Control Center to understand air traffic control operations.

11 月 NOVEMBER

11/08

舉辦「2017年國際航空氣象發展趨勢研討會」，會中針對航空氣象國際發展趨勢議題進行報告及討論，有助於本區航空氣象服務之未來發展。

"2017 Conference on Trends of Internationl Aeronautical Meteorology Development" was held, to discuss issues related to aeronautical meteorology and aim to make contribution to the development of the field.

11/18

本總臺與中華航空氣象協會共同舉辦桌球聯誼賽，共約100人參加。

ANWS and Chinese Aeronautical Meteorological Association held Table Tennis contest, with an estimated 100 participants.

11/23

民航局方副局長志文在黃總臺長麗君陪同下，視察桃園國際機場新塔臺園區工程，瞭解工程進度及飛航管制作業現況。

Deputy Director General of CAA, Fang, Chih-wen accompanied by Director of ANWS, Huang, Li-chun visited Taoyuan area to understand the new tower construction progress and air traffic control operations in Taoyuan International Airport.

11/28

空軍氣象聯隊一行16人參訪本總臺，雙方就相關航空氣象服務與作業方式進行交流。

A group of 16 from the Air Force Weather Wing visited ANWS to understand aeronautical meteorology services and operations.

12 月 DECEMBER

12/02

臺北區域管制中心副主任李嘉玉陞任該中心主任。

Taipei Area Control Center Deputy Chief, Li, Chia-yu was promoted to the Center Chief.

12/07

為推廣安全管理系統，提醒同仁於日常作業中落實風險管理，舉辦「我（們）所認為的安全」創意短片競賽決選活動。

To promote SMS and to remind staff be aware of hazards in daily operations. ANWS hosted the "Safety Culture Short Video Contest".

12/15

飛航安全調查委員會一行7人參訪北部飛航服務園區及松山機場管制臺，以瞭解本區各類飛航服務作業情形。

A group of 7 from the Aviation Safety Council visited North ATS Park and Songshan Airport Control Tower to understand air traffic services in Taipei FIR.

12/15

榮獲民航局所屬各機關行政績效考核第2名。

ANWS received the second place honor of "Annual Performace Evaluation of Agencies" from CAA.

12/20

啟用馬祖南竿機場簡式著陸區燈。

The Simple Touchdown Zone Lights of Nangan Airport have been launched.

08 附錄 APPENDIX

一、助航裝備 Navigation Equipment

名稱 Name	數量 Number	設置地點 Location
歸航臺（NDB） Non-Directional Beacon(NDB)	10 套 10 sets	大屯山、金門、南竿、後龍、恆春、臺南西港、馬公、花蓮、綠島及蘭嶼等處 Mt. Datun, Kinmen, Nangan, Houlong, Hengchun, Tainan Xigang, Magong, Hualien, Ludao and Lanyu
定位臺（LOCATOR） LOCATOR	10 套 10 sets	高雄、臺北（2 套）、花蓮、臺東知本 （2 套）、清泉崗、恆春、北竿及嘉義等處 Kaohsiung, Taipei (2 sets), Hualien, Taitung Zhiben (2 sets), Cingcyuangang, Hengchun, Beigan and Chiayi
都卜勒特高頻多向導航臺（DVOR） Doppler VOR (DVOR)	8 套 8 sets	臺北松山機場、大屯山、臺南西港、恆春、花蓮、馬公、後龍及綠島等處 Taipei Songshan Airport, Mt. Datun, Tainan Xigang, Hengchun, Hualien, Magong, Houlong and Ludao
測距儀（DME） Distance Measuring Equipment(DME)	38 套 38 sets	臺灣桃園國際機場（4 套）、高雄國際機場（2 套）、臺北松山機場（3 套）、臺中清泉崗（3 套）、臺南（2 套）、馬公（3 套）、嘉義水上（2 套）、花蓮（4 套）、臺東豐年（2 套）、金門尚義（2 套）、北竿（2 套）、南竿（2 套）、恆春等機場及大屯山、臺南西港（2 套）、恆春、知本、綠島、蘭嶼等處 Taiwan Taoyuan Int'l Airport (4 sets), Kaohsiung Int'l Airport (2 sets), Taipei Songshan (3 sets) / Taichung Cingcyuangang (3 sets) / Tainan (2 sets) / Magong (3 sets) / Chiayi Shuishang (2 sets) / Hualien (4 sets) / Taitung Fongnian (2 sets) / Kinmen Shangyi (2 sets) / Beigan (2 sets) / Nangan (2 sets) / Hengchun Airport and Mt. Datun, Tainan Xigang (2 sets), Taitung Zhiben, Ludao, Lanyu

名稱 Name	數量 Number	設置地點 Location
太康臺（TACAN） Tactical Air Navigation(TACAN)	1 套 1 set	後龍 Houlong
儀器降落系統（ILS）（含 GP 及 LOC） Instrument Landing System (ILS) (including GP and LOC)	17 套 17 sets	臺灣桃園國際機場（4 套）、高雄國際機場（2 套）、臺北松山、臺中清泉崗（2 套）、臺南（2 套）、馬公（2 套）、嘉義水上（2 套）、金門尚義及花蓮等機場 Taiwan Taoyuan Int'l Airport(4 sets), Kaohsiung Int'l Airport (2 sets) and Taipei Songshan / Taichung Cingcyuangang (2 sets) / Tainan (2 sets) / Magong (2 sets) / Chiayi Shuishang (2 sets) / Kinmen Shangyi / Hualien Airport
左右定位輔助臺（LDA） Localizer-type Directional Aid (LDA)	7 套 7 sets	臺北松山、花蓮、金門尚義、臺東、北竿（2 套） 及南竿等機場 Taipei Songshan / Hualien / Kinmen Shangyi / Taitung Fongnian / Beigan (2 sets) / Nangan Airport

備註：底線標示者為 106 年更新項目。
Note: The update status of 2017 is emphasized with underline.

二、助航燈光裝備 Navigation Aid Lighting Equipment

種類 Facilities	設置地點 Location
跑道邊燈、跑道頭 / 末端燈、滑行道中心線燈、滑行道邊燈、進場燈（SSALR-10）、跑道頭識別燈（REIL-28）、精確進場滑降指示燈（PAPI）、跑道警戒燈、指示牌、千呎牌 Runway Edge Light, Runway Threshold/End Light, Taxiway Centerline Lights, Taxiway Edge Light, Approach Lighting System (SSALR-10), Runway End Identifier Light (REIL-28), Precision Approach Path Indicator (PAPI), Runway Guard Light, Runway Signs, Distance Remaining Sign	臺北松山機場 Taipei Songshan Airport
跑道邊燈、跑道頭 / 末端燈、跑道中心線燈、著陸區燈、滑行道邊燈、滑行道中心線燈、進場燈（CAT II APCH）、精確進場滑降指示燈（PAPI）、跑道警戒燈、停止線燈、指示牌、千呎牌（全部由桃園國際機場公司維護） Runway Edge Light, Runway Threshold/End Light, Runway Centerline Lighting System, Touchdown Zone Lights, Taxiway Edge Light, Taxiway Centerline Lights, Approach Lighting System(CAT II APCH), Precision Approach Path Indicator (PAPI), Runway Guard Light, Stop Bar Light, Runway Signs, Distance Remaining Sign (all maintained by Taiwan Taoyuan Airport Corporation)	臺灣桃園國際機場 Taiwan Taoyuan International Airport
跑道邊燈、跑道頭 / 末端燈、跑道中心線燈、滑行道邊燈、進場燈（MALSR-09）、著陸區燈（09）、跑道頭識別燈（REIL-27）、精確進場滑降指示燈（PAPI）、跑道警戒燈、指示牌、千呎牌 Runway Edge Light, Runway Threshold /End Light, Runway CenterlineLighting System ,Taxiway Edge Light, Approach Lighting System (MALSR 09), Touchdown Zone Lights(09), Runway End Identifier Light (REIL-27), Precision Approach Path Indicator (PAPI), Runway Guard Light, Runway Signs, Distance Remaining Sign	高雄國際機場 Kaohsiung International Airport
跑道邊燈、跑道頭 / 末端燈、滑行道邊燈、進場燈（MALSF -21）、跑道頭識別燈（REIL-03）、精確進場滑降指示燈（PAPI）、跑道警戒燈、指示牌、千呎牌（部分由軍方維護） Runway Edge Light, Runway Threshold/End Light, Taxiway Edge Light, Approach Lighting System (MALSF-21), Runway End Identifier Light (REIL-03),Precision Approach Path Indicator (PAPI), Runway Guard Light, Runway Signs, Distance Remaining Sign (partially maintained by the Military)	花蓮機場 Hualien Airport

種類 Facilities	設置地點 Location
跑道邊燈、跑道頭 / 末端燈、滑行道邊燈、進場燈（MALSR-02、SALS-20）、精確進場滑降指示燈（PAPI）、跑道警戒燈、指示牌、千呎牌 Runway Edge Light, Runway Threshold/End Light, Taxiway Edge Light, Approach Lighting System (MALSR-02、SALS-20), Precision Approach Path Indicator (PAPI), Runway Guard Light, Runway Signs, Distance Remaining Sign	馬公機場 Magong Airport
跑道邊燈、跑道頭 / 末端燈、滑行道邊燈、進場燈（MALSR-36R、MALSF-18L）、精確進場滑降指示燈（PAPI-18L/36R）、跑道警戒燈、指示牌、千呎牌（全部由軍方維護） Runway Edge Light, Runway Threshold/End Light, Taxiway Edge Light, Approach Lighting System (MALSR-36R, MALSF-18L), Precision Approach Path Indicator (PAPI-18L/36R), Runway Guard Light, Runway Signs, Distance Remaining Sign (all maintained by the Military)	臺南機場 Tainan Airport
跑道邊燈、跑道頭 / 末端燈、滑行道邊燈、進場燈（MALSR-04、ALS-22）、跑道頭識別燈（REIL-22）、精確進場滑降指示燈（PAPI）、跑道警戒燈、指示牌、千呎牌 Runway Edge Light, Runway Threshold/End Light, Taxiway Edge Light, Approach Lighting System (MALSR-04、ALS-22), Runway End Identifier Light (REIL-22), Precision Approach Path Indicator (PAPI), Runway Guard Light, Runway Signs, Distance Remaining Sign	臺東豐年機場 Taitung Fongnian Airport
跑道邊燈、跑道頭 / 末端燈、滑行道邊燈、進場燈（ALS-36）、跑道頭識別燈（REIL-18）、精確進場滑降指示燈（PAPI）、跑道警戒燈、指示牌、千呎牌（除W滑行道邊燈、指示牌由本總臺維護外，其餘由軍方維護） Runway Edge Light, Runway Threshold/End Light, Taxiway Edge Light, Approach Lighting System (ALS-36), Runway End Identifier Light (REIL-18), Precision Approach Path Indicator (PAPI), Runway Guard Light, Runway Signs, Distance Remaining Sign (apart from the Taxiway Edge Light and Runway Signs, the remainder are maintained by the Military)	臺中清泉崗機場 Taichung Cingcyuangang Airport
跑道邊燈、跑道頭 / 末端燈、滑行道邊燈、跑道進場燈（SSALR-06、MALSF-24）、精確進場滑降指示燈（PAPI-06）、跑道警戒燈、指示牌、千呎牌 Runway Edge Light, Runway Threshold/End Light, Taxiway Edge Light, Runway Approach Lighting System (SSALR-06, MALSF-24), Precision Approach Path Indicator (PAPI-06), Runway Guard Light, Runway Signs, Distance Remaining Sign	金門尚義機場 Kinmen Shangyi Airport
跑道邊燈、跑道頭 / 末端燈、滑行道邊燈、進場燈（MALSR-36、ALS-18）、精確進場滑降指示燈（PAPI）、千呎牌（全部由軍方維護） Runway Edge Light, Runway Threshold/End Light, Taxiway Edge Light, Approach Lighting System (MALSR-36, ALS-18), Precision Approach Path Indicator (PAPI), Distance Remaining Sign (all maintained by the Military)	嘉義水上機場 Chiayi Shuishang Airport
跑道邊燈、跑道頭 / 末端燈、跑道頭識別燈（REIL）、簡式精確進場滑降指示燈（APAPI）、千呎牌 Runway Edge Light, Runway Threshold/End Light, Runway End Identifier Light (REIL), Abbreviated Precision Approach Path Indicator (APAPI), Distance Remaining Sign	七美機場 Qimei Airport
跑道邊燈、跑道頭 / 末端燈、跑道頭識別燈（REIL）、簡式精確進場滑降指示燈（APAPI）、千呎牌 Runway Edge Light, Runway Threshold/End Light, Runway End Identifier Light(REIL), Abbreviated Precision Approach Path Indicator (APAPI), Distance Remaining Sign	望安機場 Wangan Airport
跑道邊燈、跑道頭 / 末端燈、滑行道邊燈、跑道頭識別燈（REIL）、簡式精確進場滑降指示燈（APAPI）、指示牌、千呎牌 Runway Edge Light, Runway Threshold/End Light, Taxiway Edge Light, Runway End Identifier Light (REIL), Abbreviated Precision Approach Path Indicator (APAPI), Runway Signs, Distance Remaining Signcilities	北竿機場 Beigan Airport
跑道邊燈、跑道頭 / 末端燈、滑行道邊燈、簡式著陸區燈、跑道頭識別燈（REIL）、簡式精確進場滑降指示燈（APAPI）、指示牌、千呎牌 Runway Edge Light, Runway Threshold/End Light, Taxiway Edge Light, Simple Touchdown Zone Lights, Runway End Identifier Light (REIL), Abbreviated Precision Approach Path Indicator (APAPI), Runway Signs, Distance Remaining Sign	南竿機場 Nangan Airport
跑道邊燈、跑道頭 / 末端燈、滑行道邊燈、跑道頭識別燈（REIL）、精確進場滑降指示燈（PAPI）、指示牌、千呎牌 Runway Edge Light, Runway Threshold/End Light, Taxiway Edge Light, Runway End Identifier Light (REIL), Precision Approach Path Indicator(PAPI), Runway Signs, Distance Remaining Sign	恆春機場 Hengchun Airport
簡式精確進場滑降指示燈（APAPI） Abbreviated Precision Approach Path Indicator (APAPI)	綠島機場 Ludao Airport
簡式精確進場滑降指示燈（APAPI） Abbreviated Precision Approach Path Indicator (APAPI)	蘭嶼機場 Lanyu Airport

備註：底線標示者為 106 年更新項目。
Note: The update status of 2017 is emphasized with underline.

三、雷達及監視裝備 Radar and Surveillance Equipment

名稱 Name	數量 Number	設置地點 Location
航路雷達 En-route Radar	2 套 2 sets	三貂角與鵝鑾鼻雷達臺 Sandiaojiao and Eluanbi Radar Sites
終端雷達 Terminal Radar	9 套 9 sets	臺灣桃園國際機場（2 套）、高雄國際機場、臺北松山、臺中清泉崗、臺東豐年、馬公、花蓮及金門尚義等機場 Taiwan Taoyuan Int'l Airport (2 sets), Kaohsiung Int'l Airport and Taipei Songshan / Taichung Cingcyuangang / Taitung Fongnian / Magong / Hualien / Kinmen Shangyi Airport
場面搜索雷達 (SMR) Surface Movement Radar(SMR)	1 套 1 set	臺灣桃園國際機場 Taiwan Taoyuan Int'l Airport
都卜勒氣象雷達 Doppler Weather Radar	1 套 1 set	臺灣桃園國際機場 Taiwan Taoyuan Int'l Airport
多點定位系統（MLAT） Multilateration(MLAT)	1 套 1 set	臺灣桃園國際機場 Taiwan Taoyuan Int'l Airport
廣播式自動回報監視（ADS-B）裝備 Automatic Dependent Surveillance-Broadcast (ADS-B)	10 套 10 sets	臺中清泉崗、金門尚義、臺東豐年、花蓮、南竿、馬公等機場及大屯山、高雄壽山、三貂角、金門北側（太武山和金沙） Taichung Cingcyuangang / Kinmen Shangyi / Taitung Fongnian / Hualien / Nangan / Magong Airport and Mt. Datun, Kaohsiung Shoushan, Sandiaojiao, Northern Kinmen (Mt. Taiwu and Jinsha)

備註：底線標示者為 106 年更新項目。
Note: The update status of 2017 is emphasized with underline.

四、通信裝備 Communication Equipment

名稱 Name	數量 Number	設置地點 Location
陸空通信收發訊臺（HF） High Frequency Tower (HF)	7 臺 7 sets	北部飛航服務園區（4 臺）、臺灣桃園國際機場（3 臺） North ATS Park (4sets), Taoyuan International Airport (3sets)
陸空通信收發訊機特高頻 / 超高頻（VHF/UHF） Very and Ultra High Frequency Tower (VHF/UHF)	781 臺 781 sets	臺灣桃園國際機場（98 臺）、高雄國際機場（93 臺）、臺北松山（35 臺）、金門尚義（10 臺）、北竿（35 臺）、南竿（26 臺）、臺中清泉崗（59 臺）、馬公（125 臺）、望安（2 臺）、七美（2 臺）、嘉義水上（14 臺）、臺南（6 臺）、臺東豐年（75 臺）、花蓮（27 臺）、綠島（27 臺）、蘭嶼（16 臺）等機場及大屯山（74 臺）、三貂角（32 臺）、恆春（25 臺）等處 Taiwan Taoyuan Int'l Airport (98 sets), Kaohsiung Int'l Airport(93 sets), Taipei Songshan (35 sets)/Kinmen Shangyi (10 sets) / Beigan (35 sets) / Nangan (26 sets) / Taichung Cingcyuangang (59 sets)/ Magong (125 sets) /Wangan (2 sets) / Qimei (2 sets) / Chiayi Shuishang (14 sets) / Tainan (6 sets) / Taitung Fongnian (75 sets)/ Hualien (27 sets) / Ludao (27 sets) / Lanyu (16 sets) Airport and Mt. Datun (74 sets), Sandiaojiao (32 sets), Hengchun (25 sets)
數位語音交換系統（DVCSS） Digital Voice Communication Switch System(DVCSS)	11 套 11 sets	北部與南部飛航服務園區及臺灣桃園國際機場、臺北松山、北竿、南竿、金門、高雄、馬公、恆春、臺東豐年等機場 North and South ATS Parks, Taiwan Taoyuan Int' l Airport and Taipei Songshan / Beigan / Nangan / Kinmen / Kaohsiung / Magong / Hengchun / Taitung Fongnian Airport Control Tower
微波系統 Microwave System	9 套 9 sets	大屯山（3 套）、臺北裝修區臺通信氣象臺、大棟山、桃園裝修區臺通信氣象臺、北部飛航服務園區、高雄裝修區臺通信氣象臺、壽山 Mt. Datun (3 sets), Telecommunication & Meteorology Group of Taipei Aviation Facilities Sector, Mt. Dadong, Telecommunication & Meteorology Group of Taoyuan Aviation Facilities Sector, North ATS Park, Telecommunication & Meteorology Group of Kaohsiung Aviation Facilities Sector, Shoushan
錄音系統 Recording System	15 組 15 sets	北部與南部飛航服務園區、臺灣桃園國際機場、臺北松山、北竿、南竿、金門、馬公、七美、望安、臺東豐年、高雄、恆春、綠島、蘭嶼等機場 North and South ATS Parks, Taiwan Taoyuan Int' l Airport and Taipei Songshan / Beigan / Nangan / Kinmen / Magong / Qimei / Wangan / Taitung Fongnian / Kaohsiung / Hengchun / Ludao / Lanyu Airport Control Tower

備註：底線標示者為 106 年更新項目。
Note: The update status of 2017 is emphasized with underline.

五、氣象裝備 Meteorological Equipment

名稱 Name	數量 Number	設置地點 Location
自動氣象觀測系統（AWOS） Automatic Weather Observation System (AWOS)	25 套 25 sets	臺灣桃園國際機場、高雄國際機場、臺北松山、北竿、南竿、金門尚義、恆春、七美、望安、臺東豐年、綠島及蘭嶼等機場 Taiwan Taoyuan Int'l Airport, Kaohsiung Int'l Airport and Taipei Songshan / Beigan / Nangan / Kinmen Shangyi / Hengchun / Qimei / Wangan / Taitung Fongnian / Ludao / Lanyu Airport
低空風切警報系統（LLWAS） Low Level Windshear Alert System(LLWAS)	2 套 2 sets	臺灣桃園國際機場、臺北松山機場 Taiwan Taoyuan Int'l Airport, Taipei Songshan Airport
航空氣象現代化作業系統（AOAWS） Advanced Operational Aviation Weather System (AOAWS)	1 套 1 set	臺北航空氣象中心 Taipei Aeronautical Meteorological Center
多元產品顯示系統（MDS、JMDS） Multi-dimensional Display System, Java-Based Multidimensional Display System (MDS,JMDS)	11 臺 11 sets	臺北航空氣象中心及松山、桃園、高雄等航空氣象臺、臺北區域管制中心、臺北與桃園飛航諮詢臺 Taipei Aeronautical Meteorological Center, Songshan / Taoyuan / Kaohsiung Weather Station, Taipei Area Control Center, Taipei / Taoyuan Flight Information Station

六、航管自動化系統 Air Traffic Control Automation System

名稱 Name	數量 Number	設置地點 Location
飛航管理系統（ATMS） Air Traffic Management System (ATMS)	2 套 2 sets	北部與南部飛航服務園區 11 個塔臺管制席位:臺北、高雄、松山、豐年、恆春、馬公、金門、北竿、南竿、綠島及蘭嶼等機場管制臺 North and South ATS Parks Controller Working Position in 11 airport control towers: Taipei , Kaohsiung, Songshan, Fongnian, Hengchun, Magong, Kinmen, Beigan, Nangan, Ludao and Lanyu
獨立備份航管系統（IBAS） Independent Backup ATC System(IBAS)	2 套 2 sets	北部與南部飛航服務園區 North and South ATS Parks

七、其他飛航服務系統 Other Aviation Service Systems

名稱 Name	數量 Number	設置地點 Location
飛航訊息處理系統（AMHS） Air Traffic Services (ATS) Message Handling System (AMHS)	3 套 3 sets	北部飛航服務園區 2 套與南部飛航服務園區 1 套 工作站：飛航服務總臺所屬各飛航服務作業單位、各航空站、航空公司、軍方及相關政府單位 North ATS Park (2 sets) and South ATS Park Working Position: ATS units of ANWS, airports, airlines, Military and related government units
航空情報服務系統（AISS） Aeronautical Information Service System(AISS)	2 套 2 sets	北部與南部飛航服務園區 工作站：臺北、桃園及高雄等飛航諮詢臺 North and South ATS Parks Working Position: Taipei, Taoyuan and Kaohsiung Flight Information Station
歐洲航空情報資料庫（EAD）資料交換系統 European AIS Database (EAD) Data Exchange System	1 套 1 set	北部飛航服務園區 North ATS Park
飛航服務業務網路（ASN） ATS Service Network (ASN)	1 套 1 set	全國各飛航服務設備及服務地區 ATS equipment and service area in Taiwan
語音及資料鏈路航路氣象自動廣播系統（V/D-VOLMET） Voice/Datalink meteorological information for aircraft in flight (V/D-VOLMET) System	1 套 1 set	北部飛航服務園區 North ATS Park
數據（含語音）終端資訊自動廣播服務系統（D-ATIS） Voice/Datalink Automatic Terminal Information Service System (D-ATIS)	4 套 4 sets	臺北、松山、臺中清泉崗及高雄機場管制臺 Taipei,Songshan, Taichung Cingcyuangang and Kaohsiung Airport Control Tower
語音終端資訊自動廣播服務系統（ATIS） Voice Automatic Terminal Information Service System (ATIS)	4 套 4 sets	豐年、馬公、金門、南竿及北竿機場管制臺 Fongnian, Magong, Kinmen, Nangan and Beigan Airport Control Tower
骨幹網路 Backbone Network	1 套 1 set	北部與南部飛航服務園區及全國各站臺 North and South ATS Parks and all stations in the country

備註：底線標示者為 106 年更新項目。
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