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## Full commissioning of new Air Traffic Management System falls on 70<sup>th</sup> anniversary of the Civil Aviation Department

### 民航處成立七十周年 喜逢新航管系統投入運作

By **Mr Simon Li**, Director-General of Civil Aviation  
民航處處長**李天柱**

The year 2016 marked the 70<sup>th</sup> anniversary of the Civil Aviation Department (CAD). It was particularly meaningful to be able to work with my colleagues to take forward and witness the commissioning of the last and the major component of the new Air Traffic Control (ATC) System, i.e. the new Air Traffic Management System (ATMS), during such a memorable time. The new system can enhance the CAD's capability in air traffic management and the competitiveness of the Hong Kong International Airport (HKIA) in the region, opening up a new chapter in Hong Kong's aviation development.

The old ATMS, Autotrac I, was developed by a United States-based firm, Raytheon. Since the relocation of the HKIA to Chek Lap Kok in 1998, the CAD had been using the Autotrac I for managing air traffic in the Hong Kong Flight Information Region (HKFIR). In the past 18 years, air traffic has grown by leaps and bounds both in Hong Kong and the region. With the foreseeable growth in air traffic in the coming years, in particular after the Three-runway System (3RS) at the HKIA is in operation, coupled with the advancement of aviation technologies and the more stringent flight safety standards, Autotrac I simply would not be able to cope with these new challenges and to take advantage of new opportunities. Therefore, system replacement is inevitable. It is also critical to the healthy development of Hong Kong's aviation sector as a whole and beneficial to the overall economic development in the long run.

▼ The new air traffic control centre at CAD Headquarters.  
位於民航處總部的新航空交通管制中心。





▲ The air traffic control centre in Kai Tak was commissioned in 1980.

啟德航空交通管制中心於一九八〇年投入服務。

The new ATMS, Autotrac III, also developed by Raytheon, is designed to meet the latest international aviation standards on technical, safety, ATC operational and maintenance requirements including enhanced flight information and data processing, automated and advanced safety net features, and more precise flight trajectory prediction capabilities. It meets the latest requirements set by the International Civil Aviation Organization (ICAO), and is on par with the most advanced international air traffic management technologies. With an enhanced capacity to handle 8,000 flight plans per day and simultaneously monitor 1,500 air or ground targets (5 times and 1.5 times of the Autotrac I respectively), the new system can handle the projected air traffic growth, including that to be brought about by the development of the 3RS of the HKIA.

Furthermore, the new ATMS has multiple layers of fallback systems built-in to tackle different scenarios, which can meet the ever-increasing stringent aviation safety requirements - an improved feature compared with the Autotrac I which had only one fallback system. The Fallback system is a separate but identical system to the Main System, which can immediately take up the role of Main System for uninterrupted ATC operations in the event of failure of the Main System. The Ultimate Fallback System could run independently to support ATC operations with reduced functions in the unlikely event of total failure of both the Main System and Fallback System, thus ensuring flight safety. Of note is that the fallback system of the old ATMS had never been activated in the past 18 years though minor incidents/observations were noted occasionally as in any busy international

airports. Likewise, the multiple fallback systems of the new ATMS have never been activated since its full commissioning for more than two months.

In line with CAD's principle to maintain the highest level of aviation safety, we conducted a series of stringent acceptance tests (including site acceptance tests, flight check acceptance tests, reliability acceptance tests and system integration tests) on the new ATMS. This is also on par with international aviation safety standards and established Government procedures, as well as to ensure that the system operation was in compliance with the contract conditions and safety management requirements. On staff readiness, the CAD formulated a comprehensive training plan which consisted of a series of systematic training modules for all air traffic control officers (ATCOs) and relevant staff, comprising computer-based training, simulator training, shadowing exercises, etc. The training package provided to the ATCOs was similar to that offered by other overseas ATC centres for similar transition projects. On completion of the training package, all the ATCOs in the CAD had to undergo rigorous objective assessment conducted by qualified training and checking officers before they were allowed to operate the new ATMS and proceed to the Phased Functional Implementation (PFI) to handle live traffic. In total, they have been trained for more than 35,500 man-hours and carried out 11,500 man-hours of shadowing exercises.

Since the commencement of the PFI of the new ATMS on 19 June 2016, its operating time and scope of service coverage expanded progressively as

scheduled. During the process, both good and adverse weather conditions, as well as day and night operations were covered. Through participation in the PFI, the ATCOs became more familiar with the operation of the new ATMS. Based on the advice of the independent consultant of the Transport and Housing Bureau, National Air Traffic Services (NATS) of the United Kingdom, and the confirmation of the CAD on its readiness in all respects, the Secretary for Transport and Housing, Professor Anthony Cheung Bing-leung, endorsed the recommendation of the CAD to fully commission the new ATMS on 14 November 2016.

The new ATMS is a large-scale, closely inter-connected and complex integrated computer system. Each part of it has its own unique operating environment. Like all large-scale change/upgrading of complicated computer systems and the introduction of all complex air traffic management systems in other airports, there were occasional occurrences which warranted operational optimisation during the inaugural stage of the new ATMS operation. These occurrences did not affect aviation safety.

For example, as we have explained in public, the temporarily occurrences of "split tracks", "false targets" and "aircraft positions not displayed" were caused by, among other external factors, the limitations of radar technology. As these phenomena were caused by the limitations of radar technology, they were not unique to the new ATMS; they were also observed occasionally in ATMSs elsewhere and in the old ATMS. The ATMS' developer, Raytheon, will undertake optimisation work in the light



of the actual operations of the system. To fundamentally overcome the limitations of ground-based radar technology, the ICAO advocates the implementation of satellite-based surveillance technology. The CAD has already formulated a plan in its master schedule for the new ATMS to deploy phased implementation of the satellite-based “Automatic Dependent Surveillance - Broadcast (ADS-B)” technology to cover the entire HKFIR. In fact, with effect from 14 November 2016, the first phase of the ADS-B implementation has been completed with ADS-B signal fed into the new ATMS for operational use, covering the southern portion of the HKFIR which has no radar coverage (under both the old and the new systems). The extension of the ADS-B coverage to the entire HKFIR is expected to be completed by end 2017, by which time the surveillance performance of the new ATMS will be further improved.

Although there is a need for optimisation, it does not mean any compromise of aviation safety. In fact, the operation of the new system has been generally smooth and stable since its commissioning. This point has been confirmed by The Board of Airline Representatives Hong Kong which represents more than 70 airlines in Hong Kong. The associations representing the ATCOs and the electronics engineers have also publicly manifested their confidence in the new system. As facts speak louder than words, the ATMS has already gained its momentum during the inaugural stage of its operation. The daily average flight

movements handled by the new ATMS last month (December 2016) had surpassed that handled by the old ATMS in the same period in 2015. This is a vivid proof of the good performance of the new ATMS.

According to the experience of NATS, given the complexity of the new ATMS, even with all reasonable efforts and endeavours, there could still be the possibility of having setbacks during introduction of a new system. In that regard, the CAD has set up an Expert Panel, which comprised of local and overseas experts to offer objective advice to me on the teething issues identified since the new ATMS' commissioning (serving until 31 November 2017). The Expert Panel had held the first meeting in mid-December 2016 and affirmed that optimisation work is inevitable and understandable. Any ATMS, regardless of the manufacturers, would encounter this situation and there have been similar experiences overseas. The most important point is that the CAD has established an effective mechanism to cope with different situations. Concerning this point, the expert panel considered that CAD's mechanism for responding to different situations during the teething period was on a par with international practice.

To ensure aviation safety, the CAD has laid down procedures for trained and professional ATCOs to handle different situations. The CAD is a professional government department and has to comply with the stringent aviation

standards/requirements set out by the ICAO. Our professional track record was well recognised by the international community. We will continue to closely monitor the performance of the new ATMS to ensure that the highest level of aviation safety is upheld.

二〇一六年是民航處成立 70 周年，在這個值得紀念的日子，能與各位同事共同推動和見證新航空交通管制系統（空管系統）最後一項系統 — 新航空交通管理系統（航管系統）— 全面投入服務，提升民航處的航空交通管理能力和香港國際機場在區內的競爭力，為香港的航空發展揭開新一頁，我覺得倍添意義。

舊的航管系統 Autotrac I 由美國雷神公司開發。民航處自香港國際機場於一九九八年遷至赤鱗角現址後，民航處一直使用 Autotrac I 來處理香港飛行情報區內的航空交通。18 年來，香港及區內的航空交通連年大幅增長，預期未來數年的航空交通量亦會持續上升，尤其是當香港國際機場三跑道系統投入運作後，加上航空技術的進步和愈趨嚴謹的航空安全標準，Autotrac I 實在無法應付這些新挑戰和迎接新機遇。因此，更換系統是無可避免的，亦對香港航空業的健康發展至關重要，整體經濟發展亦會因此而長遠得益。

新航管系統 Autotrac III 同樣由雷神公司開發，按照國際最新的航空安全標準設計，符合技術、安全和空管運作及維護方

- ▼ The air traffic control centre at the Hong Kong International Airport at Chek Lap Kok was commissioned in 1998. 位於赤鱗角香港國際機場的航空交通管制中心於一九九八年投入服務。







▲ The air traffic control tower at Kai Tak Airport in 1946.  
一九四六年啟德機場的空管指揮塔。



▲ The air traffic control tower at Kai Tak Airport in 1992.  
一九九二年啟德機場的空管指揮塔。

面的要求，包括強化航班資料和數據處理能力、自動化及先進的安全警告功能，以及更精密的航跡計算能力，符合國際民用航空組織（國際民航組織）的最新要求，亦與國際上最先進的航空交通管理技術看齊。新系統的能力提升至每天可處理 8,000 份航空計劃書的資料，及同時監察 1,500 個空中或地面目標（分別是 Autotrac I 的 5 倍和 1.5 倍），足以應付發展香港國際機場三跑道系統預期帶來的航空交通增長。

再者，新航管系統設置了多重備用系統以應付各種運作情況，比只有單一備用系統的 Autotrac I 先進，足以符合愈趨嚴謹的航空安全要求。備用系統獨立於主系統但設計相同，可以在主系統失效時立即取代主系統維持無間斷的空管運作，而另一套終極備用系統能夠在主系統和備用系統皆失效的情況下，完全獨立運行，可提供部分功能處理有限的航空交通量以維持系統運作，從而保障航空安全。然而，主系統和備用系統皆失效的機會微乎其微。

值得注意的是，一如任何繁忙國際機場的經驗一樣，舊航管系統在過去 18 年來即使偶爾會出現輕微狀況，但從未須要啟動備用系統。而新航管系統在正式全面投入服務後的兩個多月亦從未需要啟動備用系統。

民航處的信念是致力保障最高水平的航空安全。因此，我們對新航管系統進行了一系列嚴格的驗收測試，包括實地驗收測試、飛行校驗測試、可靠性驗收測試和系統整合測試，測試符合國際航空安全管理標準和政府既定程序，以確保系統的運作符合合約條款和安全管理規定。至於操作人員的準備狀況，民航處制訂了全面的培訓計劃，為所有航空交通管制員和相關員工提供一系列有系統的訓練環節，其中包括利用電腦、模擬器進行的訓練、模擬試行等。航空交通管制員的整個培訓課程與海外其他空管中心為類似項目提供的培訓相近。完成培訓後，民航處所有航空交通管制員須經過合資格的培訓和審核人員嚴格而客觀的考核，方能操作新

航管系統，並在分階段啟用系統期間處理實時航空交通。整個過程，操作人員共完成了超過 35,500 時數的訓練，並進行了 11,500 時數的模擬試行。

新航管系統自二〇一六年六月十九日開始分階段啟用，系統運作時間和服務覆蓋範圍一直按既定計劃循序擴展，期間經歷了良好和惡劣的天氣，以及日間和晚間的運作模式。航空交通管制員透過參與分階段啟用系統計劃，亦更為熟習新航管系統的操作。運輸及房屋局（運房局）局長張炳良教授在考慮過局方委聘的獨立專家顧問英國國家航空交通服務有限公司（NATS）的意見，並得民航處確認部門就全面推行新航管系統已準備就緒後，同意民航處於二〇一六年十一月十四日全面推行新航管系統。

新航管系統是一套相當大型、環環相扣的複雜綜合性電腦系統，每個環節的運作環境都是獨一無二的。一如其他更換 / 更新複雜的電腦系統的項目和其他機場引進

▼ Air traffic control officers operating the new ATMS at North Air Traffic Control Tower.  
航空交通管制人員在北空管指揮塔使用新系統處理實時交通。



複雜的航空交通管理系統的經驗，新航管系統初期運作時偶然會出現一些需要優化運作的狀況，但沒有影響航空安全。

舉例來說，正如我們向公眾解釋過，「雙重影像」、「錯誤目標」、「航機目標短暫沒有顯示」這一類情況源於包括雷達技術限制等外部因素。由於這些現象是雷達技術限制所造成，因此在其它供應商的系統和舊航管系統亦有出現，而並非新系統獨有。新航管系統的開發商雷神公司會因應系統的實際運作而進一步優化系統。為徹底突破地面雷達技術的限制，國際民航組織提倡衛星監察技術的應用。民航處在轉換至新航管系統的整體規劃中，已計劃擴展以衛星科技為基礎的導航監察技術至整個香港飛行情報區。事實上，由二〇一六年十一月十四日開始，衛星導航監察技術的首階段落實工作經已完成，有關訊號已輸入新航管系統以供運作，覆蓋了在新舊系統下均沒有雷達覆蓋的香

港飛行情報區南部。民航處的目標是在今年年底前全面在香港飛行情報區實施衛星導航監察技術，屆時新航管系統監察目標的表現將會更佳。

雖然新系統有需要優化，但絕不表示有關狀況有損航空安全。事實上，新系統投入運作後，整體表現穩定，運作暢順，這一點亦獲得代表 70 多間航空公司的香港航空公司代表協會確認，代表空管人員和電子工程師的協會亦公開表示對新系統有信心。雖然新系統仍處於磨合期，但基本上運作已重拾舊系統的節奏。所謂事實勝於雄辯，上月（二〇一六年十二月）每日處理的平均航班數量，已超越了二〇一五年同期，這就是新系統良好表現的最佳證明。

根據 NATS 的經驗，鑑於新航管系統的複雜性，即使盡了最大努力，新系統啟用初期仍有機會出現一些不暢順的狀況。民航

處已成立由本地及海外專家組成的獨立專家小組（任期至二〇一七年十一月三十日），會因應新航管系統磨合期出現的問題向我提供客觀意見。專家小組於二〇一六年十二月中召開第一次會議時亦同意，這個優化過程是必然的，是可以理解的。其他供應商的航管系統也會遇到這些情況，外國亦有類似經驗。最重要的是，民航處已有一套有效和既定的應對機制，以處理不同情況。專家小組一致認為民航處就處理磨合期出現的各種情況的應對機制與國際做法齊齊。

為保障航空安全，民航處已為訓練有素和專業的航空交通管制員制訂了程序守則，以應付各種不同情況。民航處是一個非常專業部門，亦必須遵守國際民航組織嚴格的航空規定和要求，我們的專業往績在國際間得到肯定，日後亦必定會繼續密切監察新航管系統的表現，以確保符合最高的安全標準，維持航空安全在最高水平。

## About new ATC system 有關新空管系統

The new ATC System has been implemented through a total of eight major system contracts. Seven of them were commissioned in phases since 2013. The last contract covers the new ATMS which was fully commissioned in November 2016.

新空管系統共有 8 個主要系統合約工程，其中 7 個已由二〇一三年起分階段啟用。最後一份合約工程涉及二〇一六年十一月全面投入服務的新航管系統。

System Contracts 系統合約工程	System Contracts 功能簡述	System Contracts 系統合約工程	System Contracts 功能簡述
01 Air Traffic Services Data Management System 航空交通服務數據管理系統	Manage and display integrated air traffic services information 處理和顯示綜合的航空交通服務資訊	05 Communications and Recording System 通訊及記錄系統	Process and record air traffic voice and data communication 處理和記錄航空交通語音訊息和數據通訊
02 Aeronautical Information Management System 航空資訊管理系統	Manage and disseminate flight plans and "Notice to Airman" (NOTAM) 處理和發放飛行計劃書和航行通告	06 Relocation and Expansion of ATS Message Handling System 搬遷並擴建航空交通服務訊息處理系統	Process and exchange air traffic services and meteorological messages with neighbouring ANCs 處理航空交通服務和氣象訊息、並與鄰近的航空網絡中心交換有關資訊
03 Aeronautical Messaging System 航空訊息系統	Process and exchange aeronautical messages with neighbouring Aeronautical Network Centres (ANCs) 處理和與鄰近的航空網絡中心交換航空交通資料和氣象訊息	07 Ancillary and Technical Support System 附屬系統及技術支援系統	Centralised Monitoring and Control System, Telephone System and Power Supply System 綜合監察和控制系統、專用電話系統和無間斷供電系統
04 Communication Backbone 通訊主幹網絡	Communication network for transmission of air traffic services information 航空交通服務資訊的傳輸網絡	08 Air Traffic Management System 航空交通管理系統	Process integrated surveillance radar and flight data, arrival sequence and electronic flight progress strips 處理綜合的監測雷達和航班數據、航機進場排序和電子飛行進程單



# 39<sup>th</sup> session of ICAO Assembly in Montreal

## 蒙特利爾國際民航組織大會第 39 屆會議

By **Wong Yeuk-yue**, Operations Officer (Environmental Management), Airport Standards Division  
機場安全標準部民航事務主任（環境監理）黃若渝



▲ The 39<sup>th</sup> Session of ICAO Assembly in Montreal.  
蒙特利爾國際民航組織大會第 39 屆會議。

The 39<sup>th</sup> triennial session of the International Civil Aviation Organization (ICAO) Assembly (Assembly) was held at the ICAO Headquarters in Montreal, Canada from 27 September to 7 October 2016. The Director-General of Civil Aviation (DGCA), Mr Simon Li, and four Civil Aviation Department (CAD) colleagues attended the Assembly as members of the China delegation.

Present in the Assembly were 2,225 participants from 185 member states and non-member states as well as 56 observer delegations – the highest number of participants ICAO has ever hosted. The China delegation was led by Mr Feng Zhenglin, Administrator of the Civil Aviation Administration of China (CAAC).

There were a total of 58 agenda items and over 500 working papers covering a wide spectrum of subjects, ranging from technical and legal issues to administrative and financial matters. Discussions revolved around the five ICAO's strategic objectives, namely aviation safety, air navigation capacity and efficiency, security and facilitation, economic development, and environmental protection. The Assembly also approved the work programmes and budgets of the ICAO for the next triennium of 2017-2019.

### Environmental Protection

“Environmental Protection” was the spotlight of the Assembly in 2016. At the previous session in 2013, the ICAO Council was requested to recommend a global market-based measure (GMBM) scheme for addressing carbon dioxide (CO<sub>2</sub>) emissions from international aviation as part of a basket of measures – which also included aircraft technologies, operational improvements and sustainable alternative fuels – to achieve ICAO's global aspirational goal of carbon neutral growth from 2020 level. After three years of negotiations, ICAO and its member states have reached an agreement at this Assembly on the key principles of a GMBM scheme to be implemented by phases. This will be the first ever global regime for combating climate change from an entire industry sector since the historic Paris Agreement in December 2015.

Apart from the progress made on the GMBM scheme, the Assembly also endorsed the development of a new global CO<sub>2</sub> emissions certification standard and a new non-volatile Particulate Matter (nvPM) emissions standard for aircraft.

### Aviation Safety

Aviation safety has always been at the core of ICAO's fundamental objectives. The Assembly endorsed the revised Global Aviation Safety Plan (GASP) which supported the prioritisation and continuous improvement of aviation safety. The new edition of GASP maintained the objectives from previous, which focused on the effective safety oversight for states/administrations through their State Safety Programmes (SSP) and the safety management for operators through the implementation of Safety Management System (SMS). It also set out a global aviation safety roadmap to support an integrated approach for States to implement the aviation safety systems.

### Air Navigation Capacity and Efficiency

The Assembly also endorsed the fifth edition of the Global Air Navigation Plan (GANP). The GANP explored the need for a more integrated aviation planning at both regional and State level, and addressed the required solutions in accordance with the Aviation System Block Upgrades (ASBU) framework for system modernisation. Besides, the GANP outlined the implementation issues

involving the near-term performance-based navigation (PBN) and air traffic flow management (ATFM). In conjunction with the GASP, the GANP forms the strategic direction for ICAO's technical work programme in air navigation.

## Security and Facilitation

The Assembly supported the proposed continuation of the ICAO Comprehensive Aviation Security Strategy (ICASS) as the primary ICAO strategy for aviation security programme for the next triennium, until it is replaced by the Global Aviation Security Plan (GASeP) when the latter is approved. A number of new and evolving threats – including cybersecurity, landside security and insider threats – have been identified and will become the key priorities for the coming triennium. In particular on cybersecurity, ICAO stressed the importance of information sharing and coordination across civil aviation safety and security fields of expertise to address this important area of risk.

## Economic Development

ICAO plays an ongoing leadership role in harmonising the global air transport framework on economic policies and enhancing its economic sustainability. In respect of the Next Generation of Aviation Professionals (NGAP) Programme, ICAO urged Member States to work with the aviation community to identify long-term human resources needs and establish strategies to attract, educate and retain aviation professionals in the sector.

三年一度的國際民航組織大會第 39 屆會議於二〇一六年九月二十七日至十月七日在加拿大蒙特利爾國際民航組織總部舉行。民航處處長李天柱和四位同事以中國代表團成員身份出席會議。

大會共吸引了 2,225 人參加，是國際民航組織主持的會議中，最多人參與的一次。與會者來自 185 個成員國和非成員國，及另外 56 個觀察員代表團。中國代表團由中國民用航空局局長馮正霖率領。

大會討論共 58 項議程和超過 500 份工作文件，內容涵蓋廣泛，由技術、法律議題，以至行政和財政事宜。討論圍繞國際民航組織的五個策略目標，包括航空安全、空中航行能力和效率、航空保安和簡化手續、經濟發展以及環境保護。大會亦通過了國際民航組織二〇一七至二〇一九年度的工作綱領和財政預算。



▲ DGCA, Mr Simon Li (front row, first right), and other colleagues attended the Assembly as members of the China delegation.  
民航處處長李天柱（前排右一）和其他同事以中國代表團成員身份出席會議。

## 環境保護

第 39 屆會議的焦點議題是「環境保護」。大會於上屆（二〇一三年）的會議中，要求理事會提交一項全球市場措施機制（GMBM）的方案，以應對國際航空的二氧化碳排放。這項全球市場措施機制將輔助其他一籃子措施，包括飛機技術、運行改進和可持續的代用燃料，以實現國際民航組織訂下自二〇二〇年起，將國際航空產生的二氧化碳排放保持在相同水平的全球理想目標。經過三年的磋商，國際民航組織及其成員國在本屆會議中，就 GMBM 的關鍵原則達成協議，並同意分階段實施。這是自二〇一五年十二月歷史性的《巴黎協議》後，首次有整個行業推行緩減氣候變化的全球性措施。

除了在 GMBM 取得進展外，大會亦通過了新制定的全球二氧化碳排放量認證標準和新的非揮發性粒子排放標準。

## 航空安全

航空安全一向是國際民航組織的核心目標。大會通過了經修訂的《全球航空安全計劃》（GASP），以支持航空安全的優先排序和持續改進。新版 GASP 秉持一貫目標，專注通過各國 / 行政區制定的國家安全方案（SSP）履行有效的安全監督，並通過營運者實施的安全管理系統（SMS）進行安全管理。新版 GASP 亦擬定了全球航空安全路線圖，以配合各國以綜合方式實施各項航空安全系統。

## 空中航行能力和效率

大會亦通過了第五版的《全球空中航行計劃》（GANP）。此計劃旨在探討地區和國家各級的航空規劃是否有需要加以整合，並尋求方法透過落實「航空系統組塊升級」（ASBU）框架以實現系統現代化。另外，GANP 亦概述了實施短期有關基於性能的導航（PBN）和空中交通流量管理（ATFM）的問題。GANP 與 GASP 乃國際民航組織為空中航行技術工作綱領制定的策略方向。

## 航空保安和簡化手續

大會同意繼續以《國際民航組織全面航空保安策略》（ICASS）作為國際民航組織未來三年航空保安方面的主要策略，直至《全球航空保安計劃》（GASeP）經審批並取代 ICASS。國際民航組織將幾項不斷演變的新航空保安威脅（包括網絡安全、非禁區保安及內部威脅），列為未來三年的重點優先事項。國際民航組織強調，網絡安全方面的風險尤為關鍵，要消弭相關風險，民用航空安全和保安專業範疇必須分享信息和進行協調。

## 經濟發展

國際民航組織在協調全球航空運輸框架下的經濟政策和提高其經濟可持續性方面，一直發揮領導作用。關於「下一代航空專業人員」（NGAP）計劃，國際民航組織敦促會員國與航空業界合作，確定長期人力資源的需求，並制定策略以吸納、教育及挽留航空專才。



# Department activities

## 部門活動花絮



25.6.2016



▲ The CAD Staff Club arranged a fun-filled squid fishing trip in Sai Kung for staff and their family.

民航處職員康樂會安排同事及其親友到西貢夜釣墨魚，各人盡興而歸。

11.7.2016



▲ Some 100 staff members of the MTR Corporation Limited (MTRC) visited and exchanged views with the CAD staff. It is one of the staff training activities organised by the MTRC for staff development through appreciating the best practices of other organisations.

港鐵公司安排約一百名職員到民航處參觀和交流。有關活動是該公司員工培訓計劃的一部份，以觀摩學習其他機構的良好作業方法。

12.7.2016



▲ Members of Panel on Economic Development of the Fifth Legislative Council conducted a visit to the CAD to better understand the progress of the implementation of the new Air Traffic Management System (ATMS).

第五屆立法會經濟發展事務委員會成員到民航處了解新航空交通管理系統（航管系統）的實施進度。

1-5.8.2016



▲ DGCA, Mr Simon Li (sixth right), led a delegation from the CAD to attend the 53rd Asia and Pacific Region Directors General of Civil Aviation Conference in Colombo, Sri Lanka. Photo shows the delegation from the CAD posing for a photo with representatives of the Civil Aviation Authority of the Macau Special Administrative Region.

民航處處長李天柱（右六）率領代表團到斯里蘭卡科倫坡出席第五十三屆亞太地區民航局局長會議。圖示香港民航處與澳門民航局的代表團合照。

1.9.2016



▲ The CAD awarded a technical services contract for round-the-clock maintenance services on air traffic control equipment at the CAD to PCCW Solutions Limited through open tender exercises. Photo shows the contract signing ceremony.

民航處透過公開招標批出了航空交通管制儀器的二十四小時維修保養服務技術合約予電訊盈科企業方案有限公司。圖示簽約儀式。

6.9.2016



▲ More than 30 Energy Wardens and Green Managers attended the Briefing to Energy Wardens. On this occasion, Certificate of Appointment was presented to the Energy Wardens and an energy-saving talk was delivered by CLP Power Hong Kong Limited.

超過三十位能源監督和環保經理出席部門舉辦的能源監督簡介會。當日，能源監督獲頒發委任狀，中華電力有限公司的代表亦到場講解有關節約能源的措施。



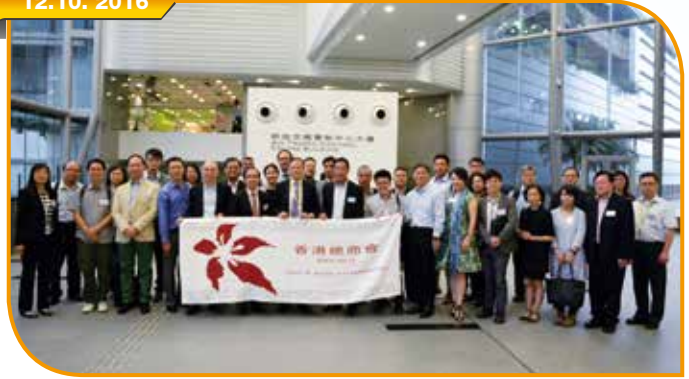
28.9. 2016



▲ Representatives of the major local airlines were invited to visit the new Air Traffic Control Centre to see for themselves the advanced functionalities of the new ATMS.

本地航空公司的代表應邀到民航處新空管中心參觀，親身了解新航管系統的先進功能。

12.10. 2016



▲ Members of the Hong Kong General Chamber of Commerce visited the new Air Traffic Control Centre to better understand the implementation of the new ATMS under the phased functional implementation approach.

香港總商會成員參觀民航處新空管中心，了解新航管系統的分階段推行計劃。

28.11. 2016



◀ The National Studies and Training Services Unit of the Civil Service Bureau arranged a group of Mainland senior officials to visit CAD's Aviation Education Path to better understand the aviation development in Hong Kong as well as the roles of the CAD. Photo shows Chief Operations Officer (Technical Administration), Ms Clara Wong (ninth left), posing for a photo with the head of the delegation Mr Zhou Yajun (eleventh left), who is the Deputy Director of Hong Kong and Macao Affairs Office, Shanghai Municipal Government, and other delegation members.

公務員事務局轄下的國家事務及培訓服務組安排內地高級官員參觀民航處教育徑，了解香港的航空發展歷程以及民航處的角色。圖示民航處總民航事務主任（技術行政）黃嘉華女士（左九）、團長兼上海市政府港澳事務辦公室副主任周亞軍先生（左十一），及一眾團員合照。

The CAD colleagues enjoyed themselves at a fabulous Christmas party.

民航處同事於聖誕聯歡會上，歡聚一堂。

22.12.2016



# Licensing of first homebuilt aircraft in Hong Kong

## 首架本地組裝小型飛機的發牌工作

By **Mr Daniel Chiu**, Senior Airworthiness Officer, Flight Standards and Airworthiness Division  
飛行標準及適航部高級適航主任 **趙景聖**

B-KOO “Inspiration”, the first homebuilt aircraft registered in Hong Kong, completed its three-month long round the world journey and landed safely at the Hong Kong International Airport on 13 November 2016. Throughout the trip, officers of the Flight Standards and Airworthiness Division of the Civil Aviation Department (CAD) have been liaising closely with the pilot, Captain Hank Cheng, and the project team providing professional advice and assistance. We are glad to see the trip concluded smoothly.

One of the duties of the CAD is to issue and renew Certificate of Airworthiness for Hong Kong registered aircraft. Because of B-KOO “Inspiration”, people are intrigued to know the difference between an ordinary aircraft and a homebuilt aircraft with respect to licensing.

According to the standards of the International Civil Aviation Organization (ICAO), an aircraft type has to go through stringent tests whenever its design is submitted to the aviation authorities for approval. Certification tests such as operation at extreme high and low temperatures; take-offs from airport

situated at high altitude; bird strike tests on fuselage and engines; flame retardant and high acceleration impact tests on seats and so on. Even though homebuilt aircraft may have good flying records, they have not undergone relevant tests and are, therefore, not qualified for a Certificate of Airworthiness, which is an internationally recognised certification. Nonetheless, homebuilt aircraft can apply for a “Permit to Fly” which limits the aircraft eligible for flight within Hong Kong. Given the fact that “Permit to Fly” aircraft can only demonstrate the fundamental flying capabilities, such aircraft are bounded by more restrictions, for instance they can only fly in good weather condition. A “Permit to Fly” would facilitate flight enthusiasts to enjoy flying with aircraft of a relatively lower threshold.

Many CAD colleagues have experiences in building homebuilt aircraft and flying

small aircraft. We know very well about the difficulties and challenges faced by Hank and the project team. During the assembling of the “Inspiration” and especially when important components were to be installed on the aircraft, the CAD officers would conduct on-site inspections to ensure that tasks were correctly performed. Having learnt that Hank would fly the aircraft around the world and would need to make a long flight over the ocean, we advised him that the aircraft should equip with emergency equipment (for instance emergency locator beacons and inflatable life raft). He also had to come up with a systematic risk assessment plan for the round the world journey. After he had satisfied all the flight safety requirements, we issued all necessary certificates and documents to him immediately such that he could apply for overflying and landing permissions from concerned civil aviation authorities.

▼ The Director-General of Civil Aviation, Mr Simon Li, attended the B-KOO “Inspiration” Round the World Departure Ceremony on 28 August 2016 and posed for a photo with the pilot of Inspiration, Captain Hank Cheng, the Inspiration Team and other guests at the ceremony.

民航處處長李天柱二〇一六年八月二十八日出席B-KOO「香港起飛」環球之旅啟航儀式，與「香港起飛」機師鄭楚衡、「香港起飛」團隊及其他嘉賓合照。







▲ Assistant Director-General (Flight Standards), Mr Y P Tsang (centre), issued a Permit to Fly to the Inspiration Team on 15 August 2016.  
助理處長（飛行標準）曾煜本（中）於二〇一六年八月十五日向「香港起飛」團隊發出特許飛行證。

B-KOO “Inspiration” has aroused the interest of aviation in the general public. We hope that this aviation fever will not diminish. Based on the outcomes of a consultancy study commissioned by the CAD some time earlier, the Government supports the establishment of a Civil Aviation Academy under Airport Authority Hong Kong to train local and regional air transport management personnel. This will certainly help attract even more talents to join and to give new impetus to the local aviation industry and entrenching Hong Kong’s leading position as a major regional aviation hub.

B-KOO「香港起飛」——首架在香港自行裝嵌和登記的小型飛機——經過大約三個月的環球飛行，於二〇一六年十一月十三日順利降落香港國際機場。民航處飛行標準及適航部的人員在整個過程中，一直與機師鄭楚衡（Hank）及其團隊保持緊密聯繫，提供專業意見和協助。環球飛行順利完成，我們也感到非常高興。

民航處其中一個職責是向在香港登記的飛機簽發和續發適航證。因為「香港起

飛」的出現，令不少人都很好奇一般的飛機和自行裝嵌的小型飛機，在發牌工作上有何區別。

按照國際民航組織的標準，所有新設計的飛機在送交民航當局審批時，都要通過反覆和嚴緊的測試，例如在高溫、低溫和高原機場運作測試；機身和發動機要通過鳥擊測試；座椅要通過阻燃和高撞擊力測試等等。自行裝嵌的小型飛機縱使擁有良好的飛行記錄，但由於沒有進行相關測試，所以不能獲發國際通行的適航證，只可以申請在香港境內飛行的特許飛行證。持特許飛行證的飛機由於只具備各項基本的飛行條件，因此會有較多的飛行運作限制，例如只可在天氣好的日子飛行，讓喜愛飛行的人士透過較低門檻的器材進行飛行活動。

民航處多位同事都曾經在外國自行裝嵌和駕駛小型飛機，十分理解 Hank 和他的團隊在組裝過程所面對的困難和挑戰。在「香港起飛」的組裝過程中，民航處會按需要派人於現場視察每一個重要結構組

件的裝嵌工作。得悉 Hank 有意用小型飛機作環球飛行、需要在海洋上作長程飛行後，民航處向他提出飛機必須備有緊急求生設備，例如緊急定位信標和充氣救生船，亦要求他對整個環球飛行作一個有系統的風險評估。符合所有航空安全的要求後，民航處便隨即批出飛機需要的證書和其他文件，使 Hank 可以向外地的民航當局申請飛越其領空。

「香港起飛」吸引了社會對航空的關注，希望這股熱潮不會減退。政府參考民航處早前委託的顧問的研究結果後，支持機場管理局成立民航學院，培訓本地及區域空運管理人才，相信日後能夠吸引更多有志之士，不斷為本地航空業注入新動力，進一步鞏固香港作為區內主要航空樞紐的領導地位。

# Tripartite Working Group meeting on PRD Region Air Traffic Management Planning and Implementation

## 珠江三角洲地區空中交通管理規劃與實施三方工作組會議

By **Mr Samuel Ng**, Senior Evaluation Officer, Air Traffic Management Division  
航空交通管理部高級評估主任 **吳毅賢**

The Air Traffic Management Bureau (ATMB) of the Civil Aviation Administration of China (CAAC), the Civil Aviation Department (CAD) and the Civil Aviation Authority of Macau (AACM) held the Pearl River Delta (PRD) Region Air Traffic Management Planning and Implementation Tripartite Working Group (TWG) meeting on 8 and 9 December 2016 in Changsha, Hunan Province, to exchange views on PRD airspace enhancement measures and discuss ways to improve the flight delay situation.

The meeting was convened in accordance with an agreement signed in May 2016 on establishing a strengthened liaison mechanism to enhance co-operation and exchange among the civil aviation authorities of the three sides on air traffic management planning and implementation in the PRD region, which put in place a regular meeting mechanism at all levels of the TWG.

The Director-General of the ATMB of the CAAC, Mr Che Jinjun; the Director-General of Civil Aviation (DGCA), Mr Simon Li; and the President of the AACM, Mr Chan Weng-hong each led a delegation to attend the meeting.

With regard to the management and utilisation of PRD airspace resources, the Mainland, Hong Kong and Macau will continue to promote synergy and foster co-operation through the tripartite co-ordination mechanism, with an aim of pushing forward airspace enhancement measures, and achieving the ultimate target of implementing the "Pearl River Delta Region Air Traffic Management Planning and Implementation Plan" in a gradual and orderly manner. This would bring about healthy and progressive development of the airports in the PRD region. This would also enable the three-runway system of the Hong Kong International Airport to maximise its potential at the same time,

and to reach the target runway capacity of 102 air traffic movements per hour in the long run. The meeting also agreed to the formation of Air Traffic Flow Management Group to study measures to improve the flight delay issues.

中國民用航空局空中交通管理局（民航局空管局）、香港民航處及澳門民航局於二〇一六年十二月八及九日在湖南省長沙市舉行了珠江三角洲（珠三角）地區空中交通管理規劃與實施三方工作組會議，再就珠三角地區空域優化措施和合作事宜交換意見，以及討論改善航班延誤的措施。

民航局空管局、香港民航處及澳門民航局於二〇一六年五月簽署了《強化內地與港澳民航空管珠江三角洲地區空中交通管理規劃與實施三方合作交流機制協議》，

訂立三方工作組各層面定期會面機制，是次會議是按機制召開。

民航局空管局局長車進軍、香港民航處處長李天柱和澳門民航局局長陳穎雄分別率領代表參加會議。

就珠三角地區空域資源管理使用，內地、香港和澳門會繼續透過這個協調機制促進三方協同合作，推展各項空域優化方案，並以循序漸進的方式，逐步落實《珠江三角洲地區空中交通管理規劃與實施方案》這最終目標，實現珠三角地區機場共同健康有序發展，同時令香港國際機場三跑道系統能夠發揮最大效用，以期長遠達至每小時處理 102 班航班的目標。會議亦通過成立流量管理組，專門研究緩解航班延誤的措施。

▼ The Director-General of the ATMB of the CAAC, Mr Che Jinjun (front row, third right); the DGCA, Mr Simon Li (front row, second right); and the President of the AACM, Mr Chan Weng-hong (front row, third left) attended PRD Region Air Traffic Management Planning and Implementation Tripartite Working Group meeting in Changsha.

民航局空管局局長車進軍（前排右三）、民航處處長李天柱（前排右二）和澳門民航局局長陳穎雄（前排左三）出席在長沙市舉行的珠江三角洲地區空中交通管理規劃與實施三方工作組會議。





# Third ATC-Pilot Symposium in Singapore

## 第三屆新加坡航空交通管制員與飛行員座談會

By Hong Kong Air Traffic Control Association  
香港航空管制協會



▲ Participants of the Third ATC-Pilot Symposium in a group photo.  
出席第三屆新加坡航空交通管制員與飛行員座談會的與會者合照。

The Third ATC-Pilot Symposium was held on 21 October 2016 at the Singapore Aviation Academy in Singapore. The event was a joint collaboration between Air Traffic Controllers Association Singapore (ATCAS) and Air Line Pilots Association of Singapore (ALPA-S).

Other than the host, representatives from Indonesia, Vietnam, Hong Kong, Mongolia, the Philippines, Sri Lanka, Malaysia, and Thailand were in attendance. President of Hong Kong Air Traffic Control Association (HKATCA), Vice President (Technical) and another member represented HKATCA.

The Symposium was opened by the Deputy Director-General of the Civil Aviation Authority of Singapore, who gave a very insightful address to acknowledge the importance of Air Traffic Control (ATC) in aviation industry and its contribution to the economy of Singapore. He also recognised and praised Singaporean ATC for their professionalism to strive for further excellence.

The agenda and presentations of the Symposium were cleverly structured, with the first half focusing on presentations of mutual interest such as sequencing, holding and speed control etc. The second half was a Q&A session called Final Showdown whereby ATC and aircrew would take turn to ask operational related questions of current concerns, which was extended till late in the afternoon and moved to a social gathering hosted by ATCAS. The participants were very keen to continue the discussion and the outcome was very fruitful.

To summarise, the content and quality of presentations of the Symposium were highly informative. It has undoubtedly set the standard and served as a reference for future events of similar nature. In view of the fact that only a small number of HKATCA members were able to participate in the Symposium, HKATCA is proactively studying the feasibility to organise a similar event in Hong Kong in the first half of 2017 with a view to reinforcing the mutual understanding between ATC and aircrew and enhancing flight safety in the Hong Kong Flight Information Region.

第三屆新加坡航空交通管制員與飛行員座談會於二〇一六年十月二十一日假座新加坡航空學院舉行，是次座談會是由新加坡航空交通管制協會及新加坡航空公司飛行員協會聯合主辦。

除了主辦單位的會員之外，來自印尼、越南、香港、蒙古、菲律賓、斯里蘭卡、馬來西亞及泰國的管制員及飛行員代表亦有出席是次座談會。香港航空管制協會共有三位代表出席，包括會長、副會長（技術）以及一名會員。

新加坡民航局副局長致開幕辭時，提到航空交通管制員工作對航空業的重要性和對當地經濟的貢獻，並對新加坡管制員精益求精的專業表現給予肯定及表揚。

座談會的流程經過巧妙和細心的安排，前半部是由管制員及飛行員各自簡介大家共同關心的議題，例如航班如何排序、及等待區與進場的速度管制。座談會的後半部是提問環節，氣氛熱烈，一直討論至黃昏。新加坡航空交通管制協會當晚更主辦聯歡晚會，讓一眾與會者在輕鬆的氣氛下進一步交流。

總括而言，整個座談會的資訊和簡報內容極之豐富，可以為未來舉辦同類型活動提供參考和示範作用。鑑於能夠出席是次活動的本會會員人數不多，協會正積極研究在二〇一七年上半年，在香港舉辦類似的活動，從而加深管制員和飛行員對雙方工作的認識，以及提升香港飛行情報區內的航空交通安全。

# CAD Newsmakers 同事動向

## Welcome to the newcomer

## 歡迎新同事

Miss Cheng Pui-yee	Student Aeronautical Communications Officer	鄭佩儀 女士	見習航空通訊員
Mr Cheng Sai-wo	Student Aeronautical Communications Officer	鄭世和 先生	見習航空通訊員
Miss Lau Hiu-yu	Student Aeronautical Communications Officer	劉曉宇 女士	見習航空通訊員
Miss Yeung Ka-ling	Student Aeronautical Communications Officer	楊嘉玲 女士	見習航空通訊員
Mr Holmes Thomas Frederick	Senior Operations Officer	洪明思 先生	高級民航事務主任
Miss Mok Shuk-ping, Alice	Assistant Information Officer	莫淑萍 女士	助理新聞主任
Miss Cheung Mei-ling	Personal Secretary II	張美玲 女士	二級私人秘書
Mr Tse Ming-fong	Motor Driver	謝明方 先生	汽車司機
Mr Lee Tat-cheong	Executive Officer II	李達昌 先生	二級行政主任
Mr Ho Yui-kuen	Clerical Assistant	何銳權 先生	文書助理
Mr Roberts Damian Gerald	Senior Operations Officer	羅柏志 先生	高級民航事務主任
Mr Lee Ka-hei, Henry	Executive Officer II	李家禧 先生	二級行政主任
Mr Ho Fat-yuen	Motor Driver	何發源 先生	汽車司機

## Farewell to those leaving

## 再見好同僚

Ms Chan Ho-ting	Air Traffic Control Officer III	陳皓婷 女士	三級航空交通管制主任
Mr Chan Kam-wah	Electronics Engineer	陳錦華 先生	電子工程師
Ms Tse Hoi-ying	Assistant Information Officer	謝凱瑩 女士	助理新聞主任
Mr Vlahovic Milan	Senior Operations Officer	范浩智 先生	高級民航事務主任
Mr Leung Man-on	Motor Driver	梁文安 先生	汽車司機
Mr Chan Ho-hin, Roger	Electronics Engineer	陳灝軒 先生	電子工程師
Mr Martin Nathan Elliot Chow	Air Traffic Flight Services Officer III	馬禮仁 先生	三級航空交通事務員
Ms Wong Sau-lai	Clerical Assistant	王秀麗 女士	文書助理
Mr Soo Kwok-kai	Electronics Engineer	蘇國佳 先生	電子工程師
Mr Lam Yuk-lun	Executive Officer II	林鈺倫 先生	二級行政主任
Mr Wong Chun-yu, Terence	Motor Driver	黃震宇 先生	汽車司機
Mr Andersen Jan Damkjaer	Air Traffic Control Officer II		二級航空交通管制主任

## Congratulations to the newly promoted

## 恭賀榮升之喜

	Promoted to	Date	晉升為	生效日期
Mr Tang Chun-hong	Senior Operations Officer	17.5.2016	鄧振康 先生	高級民航事務主任 17.5.2016
Mr Li Ho-wang	Operations Officer	8.6.2016	李灝泓 先生	民航事務主任 8.6.2016
Miss Sze To-ho Yee	Operations Officer	8.6.2016	司徒可怡 女士	民航事務主任 8.6.2016
Ms Yeung Oi-hing	Operations Officer	8.6.2016	楊愛卿 女士	民航事務主任 8.6.2016
Mr Chiu Kong-lung, Warren	Air Traffic Control Officer III	5.11.2015	趙江龍 先生	三級航空交通 管制主任 5.11.2015



## Congratulations to the newly promoted

## 恭賀榮升之喜

	Promoted to	Date		晉升為	生效日期
Miss Kwok Sum-yee	Air Traffic Control Officer III	27.11.2015	郭心怡 女士	三級航空交通 管制主任	27.11.2015
Mr Kam Kwun-shing	Air Traffic Control Officer III	24.12.2015	甘鈞丞 先生	三級航空交通 管制主任	24.12.2015
Miss Lo Yee-lam	Air Traffic Control Officer III	4.3.2016	路綺琳 女士	三級航空交通 管制主任	4.3.2016
Miss Ngai See-wing	Air Traffic Control Officer III	16.3.2016	危思穎 女士	三級航空交通 管制主任	16.3.2016
Ms Sum Man-kit	Aeronautical Communications Officer I	12.4.2016	沈文潔 女士	一級航空通訊員	12.4.2016
Mr Wong Ka-wing, Richard	Aeronautical Communications Officer I	12.4.2016	黃嘉穎 先生	一級航空通訊員	12.4.2016
Ms Ma Wai-man, Connie	Aeronautical Communications Officer I	12.4.2016	馬慧文 女士	一級航空通訊員	12.4.2016
Miss Tsang Mei-yuk	Air Traffic Control Officer I	17.3.2016	曾美玉 女士	一級航空交通 管制主任	17.3.2016
Ms Li Siu-fan	Air Traffic Control Officer I	17.3.2016	李笑芬 女士	一級航空交通 管制主任	17.3.2016
Ms Leung Alice	Air Traffic Control Officer I	17.3.2016	梁雅思 女士	一級航空交通 管制主任	17.3.2016
Ms Wong Yu-man	Air Traffic Control Officer I	17.3.2016	黃汝敏 女士	一級航空交通 管制主任	17.3.2016
Mr Leung Kwok-tung, Henry	Senior Operations Officer	22.6.2016	梁國棟 先生	高級民航事務 主任	22.6.2016
Mr Wong Tak-yuen	Senior Electronics Engineer	17.6.2016	王德源 先生	高級電子工程師	17.6.2016

## Best wishes to the retiree

## 願退休生活愉快

Ms Lau Wai-fan	Statistical Officer I		劉惠芬 女士	一級統計主任
Mr Yu Chuen-keung	Senior Operations Officer		余傳強 先生	高級民航事務主任
Mr Fung Chi-wing, Alva	Senior Operations Officer		馮志榮 先生	高級民航事務主任
Ms Leung Po-ha, Loretta	Air Traffic Control Officer I		梁寶霞 女士	一級航空交通管制主任
Mr Tang Yuk-leung, Vincent	Air Traffic Control Officer I		鄧玉良 先生	一級航空交通管制主任
Ms Leung Lai-har, Antonia	Assistant Clerical Officer		梁麗霞 女士	助理文書主任
Miss Cheung Lan-sum, Michelle	Assistant Clerical Officer		張蘭心 女士	助理文書主任
Mr Lee Ting-chan, Philip	Air Traffic Control Officer II		李廷贊 先生	二級航空交通管制主任
Mr Shum Tak-man	Air Traffic Control Officer II		岑德文 先生	二級航空交通管制主任
Mr Chan Wai-man	Air Traffic Control Officer I		陳偉文 先生	一級航空交通管制主任





◀ Congratulations to Mr TS Wong, Special Driver, on his award of the 10-year Safe Driving Award. The prize was presented by the Deputy Director of Government Logistics, Miss Helen Tang.

恭喜特級司機黃德成榮獲十年安全駕駛獎。圖示政府物流服務署副署長鄧婉雯頒獎。

## Congratulations to the newly promoted 恭喜以下同事晉升



▲ Senior Operations Officer, Mr Leung Kwok-tung, Henry (left).  
高級民航事務主任梁國棟（左）。



▲ Senior Electronics Engineer, Mr Wong Tak-yuen (centre).  
高級電子工程師王德源（中）。



▲ Air Traffic Control Officer I, Ms Wong Yu-man (second left).  
一級航空交通管制主任黃汝敏（左二）。



▲ Air Traffic Control Officer I, Ms Leung Alice (second left), Miss Tsang Mei-yuk (third left) and Ms Li Siu-fan (fourth right).  
一級航空交通管制主任梁雅思（左二）、曾美玉（左三）和李笑芳（右四）。



▲ Air Traffic Control Officer III, Ms Ngai See-wing (third left), Mr Kam Kwun-shing (fourth left), Miss Lo Yee-lam (third right), Miss Kwok Sum-ye (second right) and Mr Chiu Kong-lung, Warren (first right).  
三級航空交通管制主任危思穎（左三）、甘鈞丞（左四）、路綺琳（右三）、郭心怡（右二）和趙江龍（右一）。



▲ Aeronautical Communications Officer I, Mr Wong Ka-wing, Richard (third left), Ms Sum Man-kit (fourth left) and Ms Ma Wai-man, Connie (second right).  
一級航空通訊員黃嘉穎（左三）、沈文潔（左四）和馬慧文（右二）。

## Obituary 訃聞

Former DGCA, Mr Brian Dennis Keep, passed away in December 2016. DGCA, Mr Simon Li, was deeply saddened to hear the news and offered deepest condolences to Mr Keep's family on behalf of colleagues of the CAD. Mr Keep joined the CAD in 1960. He was appointed DGCA in March 1979 and retired in January 1984.

民航處前處長紀業於 2016 年 12 月辭世，民航處處長李天柱深感難過和惋惜，並代表民航處全人向其家人致以深切慰問。紀業於一九六〇年加入民航處，於一九七九年三月晉升為處長至一九八四年一月退休。



R.I.P.

