





航空交通管理 Air Traffic Management

航空交通管理部負責在國際民用航空組織(國際民航組織)指定的香港飛行情報區內，提供航空導航服務，包括航空交通服務、通訊、導航及監察服務、飛行情報服務、航空電訊服務，以及搜索和救援(搜救)服務。

The Air Traffic Management Division (ATMD) is responsible for the provision of air navigation services, including air traffic services, Communications, Navigation, Surveillance services, aeronautical information services and search and rescue services within the Hong Kong Flight Information Region (FIR) as assigned by the International Civil Aviation Organization (ICAO).

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航空交通運作

本財政年度內，本部共處理 317 860 架次在香港國際機場升降的國際及本地航班，並為 167 293 架次飛越香港飛行情報區，以及 36 533 架次進出澳門國際機場的航班，提供航空交通管制服務。與上一年度比較，在香港國際機場升降的航班數目大幅增加 12.95%，而飛越香港的航班則增加 14.76%。航空交通增長強勁，反映年內全球經濟顯著復蘇。

跑道升降容量

隨着航空交通管理和空域管理不斷優化，香港國際機場雙跑道運作容量，由二零一零年三月每小時 59 班遞增至二零一零年十月每小時 60 班，在二零一一年三月再遞增至每小時 61 班。

空管主任執照考試和覆核

為維持高水準的航空交通管制(空管)運作，本部的訓練及安全組每年安排舉行航空交通管制主任(空管主任)的各類空管執照考試。就塔台管制、進場管制和區域管制這三個空管組別進行的考試共有 140 次。此外，本部亦向考核合格的人員頒發助理管制員證書、空管氣象記錄員證書、導師證書和搜救證書。年內，本部開設了一個負責流量控制的空管職位，運用嶄新的電腦化抵港航機排序系統，管理抵達香港國際機場的航班次序。本年度共有 65 名空管主任獲頒發流量控制證書。

AIR TRAFFIC OPERATIONS

During the financial year, ATMD handled a total of 317 860 international and local aircraft movements at the Hong Kong International Airport (HKIA). In addition, the Division handled 167 293 flights overflying the Hong Kong FIR, (including 36 533 flights into and out of the Macao International Airport). Compared to the previous year, the number of aircraft movements at the HKIA and overflights increased significantly by 12.95 per cent and 14.76 per cent respectively. The robust growth in traffic movement was a reflection of the strong rebound of the global economy during the year.

Runway Capacity

With our continuous enhancements to air traffic and airspace management, the declared capacity for dual runway operations at HKIA was progressively increased from 59 movements per hour in March 2010 to 60 movements per hour in October 2010, and 61 movements in March 2011.

Annual Examinations and Revalidations on ATCO Ratings

To maintain a high standard in ATC operations, the Training and Safety Section of ATMD carried out annual practical examinations on air traffic control (ATC) ratings held by Air Traffic Control Officers (ATCOs). A total of 140 practical examinations were conducted in the three air traffic control streams - Aerodrome, Approach, and Area Control. In addition, ATMD also issued Assistant Controller Certificates, ATC Meteorological Reporter Certificates, Instructor Certificates, Search and Rescue Certificates to our officers who have attained their respective qualifications. In the year, a new Flow Control position was introduced in ATC operations to manage flight arrival order at HKIA using the new computerized Arrival Manager System, with a total of 65 Flow Control Certificates issued to ATCOs.

香港國際機場雙跑道運作容量在二零一一年三月遞增至每小時 61 班。

The declared capacity for dual runway operations at HKIA was progressively increased to 61 movements in March 2011.



招聘及培訓 航空交通管制人員

招聘及培訓見習航空交通管制主任

為應付預期的航空交通增長及中長期的人事升遷需求，空管人員的招聘和培訓工作必須審慎規劃管理。由於本地就業市場欠缺符合所需資歷的空管主任，一般而言，民航處會在本地招聘見習空管主任，經過所需的專門培訓後，再擢升為空管主任。合資格的申請人須通過一連串甄選步驟，包括才能測驗筆試、工作性格測驗及面試，最後在評估中心接受更深入的認知能力測試及性格評估。見習空管主任由入職至可全面執行各項空管工作，須接受嚴格訓練，過程周密。各階段的訓練單元必須周詳規劃，讓見習空管主任可達到既定的表現進展基準。為符合簽發空管主任執照的條件，各訓練單元內容均包括課堂講座，以及在空管運作模擬機內進行的實習訓練。只有通過這兩個階段訓練的見習空管主任，才可在導師督導下，處理「實況」航空交通，學習所需的技能，從而達到獲發空管執照的水平，並能獨立工作。

RECRUITMENT AND TRAINING OF AIR TRAFFIC CONTROL STAFF

Recruitment and Training of Student Air Traffic Control Officers

The recruitment and training of ATC staff has to be carefully planned and managed to meet anticipated air traffic growth, and also the medium to long term manpower succession needs. As qualified ATCOs are not readily available in the local job market, potential ATCOs are normally recruited locally as Student Air Traffic Control Officers (SATCOs) to receive the necessary specialised training. Suitable candidates will go through a series of screening steps – written aptitude test, occupational personality quiz and interview. The shortlisted candidates will then attend an “Assessment Centre” for a more in-depth assessment on cognitive ability and personality traits. SATCOs receive intensive training from entry until the attainment of full performance status. This is a comprehensive process requiring carefully staged training modules to match the established performance development benchmarks. To fulfil ATCO licensing requirements, each module involves lectures in classrooms and practical training in an ATC operational simulator. Only when SATCOs have passed these two stages of training can they progress onto handling “live” traffic under the guidance of an instructor so as to attain the skill level required to and operate independently receive an ATC rating.



控制塔台為航機提供二十四小時的航空交通管制服務。

The Air Traffic Control Tower provides round-the-clock air traffic control services to aircraft operating at the airport.

航空交通管理 Air Traffic Management

培訓一名見習空管主任成為全面合資格的管制員，以擔任二級空管主任職位，一般需時五年。其間，該名見習空管主任會分階段接受專業培訓，以取得多項不同範疇的空管資歷。

為加深公眾和求職人士對空管行業的認識，年內，民航處在大學舉辦就業講座，並定期安排學生參觀部門的空管設施。

截至二零一一年三月三十一日，在職的空管主任有273人，航空交通事務員則有103人。

其他職級的空管培訓

職員培訓是航空交通管理部的重點任務之一。年內，本部持續舉辦多項課程及在職訓練活動。

The training of a SATCO to become a fully qualified controller at the rank of ATCO II normally takes around five years. During the period, the officer will be given professional training in stages to acquire qualifications in various ATC disciplines.

To enable the public and potential applicants to understand our ATC profession better, CAD held career talks in universities and arranged regular students visits to our ATC facilities throughout the year.

As of March 31, 2011, the strength of Air Traffic Control Officers and Air Traffic Flight Services Officers was 273 and 103 respectively.

ATC Training for Other Ranks

Staff development constitutes one of the major tasks for ATMD. Courses of instruction and on-the-job training activities continued to be intensive throughout the year.



培訓見習空管主任成為合資格的管制員，以擔任二級空管主任職位，一般需時五年。
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年內，本部共舉辦了42項空管培訓課程，受訓人員從中取得多項專業資格，並獲發55項空管執照；又為73名在職空管主任舉辦塔台管制複修課程，以確保他們一旦面對突發情況，如航機遇到惡劣天氣或其他緊急事故

In the year, a total of 42 ATC training courses were conducted, leading to the issuance of 55 ATC ratings and the attainment of various professional ATC qualifications. An aerodrome control refresher training course was conducted for our 73 qualified ATCOs to ensure their competency in responding to unusual circumstances, such as poor weather operations and aircraft emergencies, are

等，都能應付自如。此外，本部又安排24名見習空管主任往海外修讀基本空管課程和接受私人飛機駕駛執照飛行訓練，以配合他們的工作發展。這類海外培訓活動的目的，是增進受訓人的航空知識、促進個人發展並豐富他們有關空管運作的閱歷。年內，本部亦揀選了多名較資深的空管主任接受不同範疇的進階培訓，包括安全管理系統、新式飛機操作、搜救、空管事故調查、飛機意外調查、安全審查、飛行程序設計、指導技巧及人力資源管理，開拓他們的眼界，以承擔專責職務，以至責任更重的管理和監督職務。

其他培訓

除了已安排的內部空管培訓和有關處理飛機緊急事故的複修課程外，本部亦與民航訓練中心合辦航空交通管理概論課程，讓業界伙伴和市民深入了解航空交通管理工作。這課程已舉辦多年，深受歡迎。

maintained to the required standards. As part of their career development, 24 SATCOs were arranged to attend overseas courses on basic air traffic control with Private Pilot Licence (PPL) flying training. These overseas training activities are designed to enhance their aviation knowledge, to accelerate personal development, and to broaden their exposure to ATC operations. In addition, more senior ATCOs were selected in the year to attend advanced training on Safety Management Systems, Operations of Modern Aircraft, Search and Rescue, ATC Incident Investigation, Aircraft Accident Investigation, Safety Audits, Flight Procedures Design, Instructional Techniques and Human Resources Management in order to enable them to expand their horizon, undertake specialised duties, as well as management and supervisory duties at a higher level.

Other Training Offered

Apart from the programmed in-house ATC training and refresher courses on handling of aircraft emergency situations, ATMD also conducted an Air Traffic Management Introductory Course in conjunction with the Civil Aviation Training Centre for industry partners and the public for a better appreciation of air traffic management functions. The course is conducted regularly and has been well received.

航空交通控制中心
Air Traffic Control
Centre



航空交通管理 Air Traffic Management



航空交通控制中心及塔台
Air Traffic Control Centre
and Tower

新航空交通管制程序

香港國際機場北跑道 實施性能導航進場程序

「需要授權的所需導航性能進場程序」經試行運作後，反應良好，遂於二零一零年六月三日在香港國際機場07L跑道和25R跑道實施。新程序利用衛星導航和現代航機內置的先進導航設備，為現有儀表進場程序提供額外備用程序。相比於另一種現有的備用程序，即需要飛機逐級下降之「甚高頻全向無線電信標進場程序」，「需要授權的所需導航性能進場程序」讓飛機可持續下降，有助減輕飛行員在飛機進場時的工作量，從而進一步提高飛行安全水平。

07L跑道實施新的復飛程序

從二零一零年六月三日起，07L跑道實施了新的復飛程序。新程序增加了07L跑道復飛航道與07R跑道離場航道之間的分隔距離，使現有兩條平行跑道在任何天氣情況下都可同時運作。因此，即使天氣惡劣，香港國際機場仍能維持着高跑道升降容量。

NEW AIR TRAFFIC CONTROL PROCEDURES

Implementation of Performance Based Navigation Approach Procedures to the North Runway at the Hong Kong International Airport (HKIA)

After receiving positive feedback from trial operations, the Required Navigation Performance Authorisation Required Approach (RNP AR APCH) procedures for Runway 07L and Runway 25R were implemented at the HKIA on June 3, 2010. The new procedures made use of satellite navigation and the state-of-the-art navigation equipment on board modern aircraft and offered additional backup to the existing instrument approach procedures. Comparing with the other existing backup procedure i.e. the VOR Approach procedure, which required aircraft to descend in “steps”, the RNP AR APCH procedures allow a continuous descent and help reduce pilot workload during the approach. Flight safety is therefore further enhanced.

Implementation of new Missed Approach Procedure (MAP) for Runway 07L

The new MAP for Runway 07L was also implemented on June 3, 2010. The procedure provides sufficient divergence between the missed approach track of

Runway 07L and the departure track of Runway 07R supporting simultaneous operations on existing two parallel runways under all weather conditions. As a result, high runway capacity at the HKIA can be maintained under poor weather conditions.





抵港航機排序系統

抵港航機排序系統經試行運作後，成效令人滿意，遂於二零一零年七月一日正式運作。抵港航機排序系統向航空交通管制員提供抵港航機序列建議，有助提高抵港航機準點的效率，以及更有效運用空域。抵港航機排序系統現已成為為香港國際機場抵港航機編定進場序列的主要工具。

修訂低能見度程序

考慮到近年已實施多項優化措施，包括設置先進場面活動引導和控制系統，以及增建出口滑行道，香港國際機場自二零一一年一月十三日起，縮減能見度降低時抵港航機之間的建議間距，致使在低能見度情況下的航空交通運作效率得以提升。

Arrival Manager System

After satisfactory operational trial, the Arrival Manager (AMAN) System was put into operational use on July 1, 2010. The AMAN System is a sequencing tool providing advice to air traffic controllers that will enhance on-time performance of arrivals and efficient use of airspace. The System has become the primary tool in managing the arrival sequence into the HKIA.

Revised Low Visibility Procedure

Taking into account enhancement measures introduced during recent years including the availability of the Advanced Surface Movement Guidance and Control System (A-SMGCS) and additional exit taxiways, the recommended spacing between arriving flights under low visibility conditions at the HKIA has been reduced since January 13, 2011. Consequently, the air traffic operational efficiency during low visibility conditions has improved.

航空交通管理 Air Traffic Management

珠江三角洲(珠三角)地區 航空交通管理計劃

年內，香港民航處、國家民用航空局與澳門民航局組成的三方工作組，繼續進行已編定的珠三角地區空域優化工作。為提升珠三角航空交通處理效率，三方工作組建議調整珠海終端區空域，以及在香港與珠海空域之間增設一個新移交點。其後，香港和內地的空域及飛行程序專家合作，利用香港民航處的快速模擬器評估及核實以上各項建議的成效。評估結果顯示，珠海終端區空域調整方案和新移交點，均可達到提升珠三角地區空管處理效率之目的。對於這個結論，香港和內地人員皆表贊同。珠海終端區空域調整方案將於二零一一年四月實施，而新移交點亦於二零一一年九月啟用。

航空電訊服務

年內，本部改善航空電訊網絡及航空交通訊息處理系統，加入特設功能，以便航空公司用戶可經互聯網提交電子飛行計劃書和檢索飛行前通報。航空氣象廣播服務方面，本部為航機提供合共214 940份氣象報告。至於固定航空通訊服務，該部航空通訊組處理的訊息合共達34 535 389個，較去年增加9.6%。

安全管理系統

航空交通管理部作為航空導航服務機構，致力確保航空交通服務達到最高安全水平，並不斷提升服務質素。本部與航空交通管理標準組就安全管理系統各方面緊密合作，務求符合國際民航組織的最新標準及監管規定。為管理和監察安全表現，本部每季編製安全表現目標及指標報告，提交航空交通管理標準組審閱。此外，為確保不斷改善安全管理系統，航

AIR TRAFFIC MANAGEMENT PLAN FOR THE PEARL RIVER DELTA (PRD) REGION

The Tripartite Working Group (TWG) formed by the Hong Kong CAD, the Civil Aviation Administration of China, and the Macao Civil Aviation Authority continued with the scheduled airspace enhancement work in the PRD Region during the year. To enhance the PRD air traffic handling efficiency, the TWG proposed a revised Zhuhai terminal airspace and a new transfer point between Hong Kong and Zhuhai airspace. An airspace and flight procedures evaluation using Hong Kong CAD's Fast Time Simulator was subsequently conducted jointly by airspace and flight procedure experts from the Mainland and Hong Kong to validate the efficiency of the revised Zhuhai terminal airspace together with related flight procedure and the new transfer point. Both CAD and Mainland officials agreed that the results indicated the revised Zhuhai terminal airspace and the new transfer point would meet the objective of enhancing the ATC handling efficiency in the PRD Region. The revised Zhuhai terminal airspace is planned to be implemented in April 2011. The new transfer point will be implemented in September 2011.

AERONAUTICAL TELECOMMUNICATIONS SERVICES

During the year, the Aeronautical Telecommunication Network and ATS Message Handling System (ATN/AMHS) were enhanced with customized features to enable airline users to file electronic flight plans and retrieve pre-flight information bulletins online. The Aeronautical Broadcast Service provided a total of 214 940 weather messages to aircraft in flight. As regards Aeronautical Fixed Service, the total number of messages handled by the Telecommunications Unit of ATMD, as compared with last year, has increased by 9.6 per cent to 34 535 389.

SAFETY MANAGEMENT SYSTEM (SMS)

ATMD, as an Air Navigation Service Provider (ANSP), is committed to ensuring the highest safety standards and continuously enhances the quality of air traffic services. In this respect, ATMD works closely with the Air Traffic Management Standards Office (ATMSO) on various aspects of Safety Management System (SMS) in compliance with the latest ICAO Standards and Regulatory requirements. Reports on Safety Performance Targets and Safety Performance Indicators were compiled and submitted to ATMSO on a quarterly basis for safety performance management and monitoring. To ensure continuous improvement

空交通管理部就各個主要職能範疇進行四次內部安全審查。在推廣安全文化方面，本部舉行三個「安全風險評估推動者」培訓課程，加強執行安全風險評估人員的知識及技能。訓練組亦向參加內部培訓課程的學員簡介安全管理系統，以便在學員入職初期便灌輸安全管理概念。

搜索和救援服務

年內，本部舉辦了兩個培訓課程，共有16名空管主任取得搜救資格。為掌握搜救服務的最新國際發展，航空交通管理部與區域搜救機關和國際搜救機關保持密切聯繫，又繼續參加有關搜救的國際民航組織會議及其他研討會。

海外空管會議和研討會

年內，本部繼續積極參與海外會議和研討會，包括由國際民航組織、其他航空機關和民用航空導航服務組織舉辦的會議和研討會，在亞太區以至全球交流和促進航空交通管理的發展並推動合作。

出席國際民航組織亞太空中航行規劃和實施地區小組年度會議的香港代表團。

The Hong Kong delegation to the ICAO APANPIRG meeting.

of SMS, ATMD conducted four internal audits on different key functional areas. In the promotion of safety culture, ATMD conducted three training courses on “Facilitators for Safety Risk Assessment” to strengthen the knowledge and skill of staff in discharging safety risk assessment duties. The Training Unit also provided SMS briefings to trainees attending internal training courses to instil the concept of safety management at the very beginning of their career.

SEARCH AND RESCUE (SAR) SERVICES

During the year, two training courses were conducted and a total of 16 ATCOs attained the SAR qualification. To keep abreast of latest global development on SAR services, ATMD maintained close liaison with regional and international SAR authorities, and continued to participate in ICAO meetings and other forums concerning SAR.

OVERSEAS ATC MEETINGS AND CONFERENCES

During the year, the Division continues to participate actively in overseas meetings and conferences to exchange and contribute to air traffic management development and cooperation in the Asia-Pacific Region and globally. These include meetings, seminars, and conferences organised by ICAO, other aviation authorities, and the Civil Air Navigation Services Organisation (CANSO).

