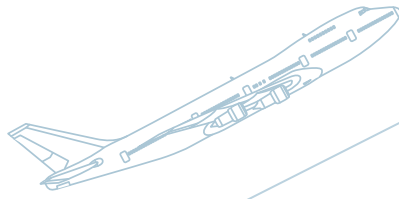# 航空交通管理
Air Traffic Management

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,以及搜索及救援服務。

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).

航空交通管理　Air Traffic Management

航空交通運作

本財政年度內，該部共處理281 413架次在香港國際機場升降的國際及本地航班，並為109 542架次飛越香港飛行情報區，以及36 226架次進出澳門國際機場的航班提供空管服務。與上一財政年度比較，在香港國際機場升降及飛越香港的航班分別減少5.4%和1.2%，主要由於全球金融不景氣的持續影響。不過，自二零零九年七月起，飛機升降架次出現緩慢但穩定升勢。

跑道升降容量

隨着航空交通和空域管理不斷改善，香港國際機場雙跑道運作容量自二零零九年十月起遞增至每小時58班，在二零一零年三月進一步遞增至每小時59班。

空管主任執照考試和覆核

為維持高水準的空管運作，該部的訓練及安全組每年安排航空交通管制主任(空管主任)的各類執照考試。就塔台管制、進場管制和區域管制這三個組別進行的考試共有215次。

此外，該部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、導師證書和搜索及拯救證書。

AIR TRAFFIC OPERATIONS

During the financial year, the Division handled a total of 281 413 international and local aircraft movements at the Hong Kong International Airport (HKIA). In addition, the Division handled 109 542 flights overflying the Hong Kong FIR and 36 226 flights into and out of the Macao International Airport. Compared to the previous financial year, the number of aircraft movements at the HKIA and overflights decreased by 5.4 per cent and 1.2 per cent respectively. The decrease in movement was mainly due to the continuous wake effect of the global financial downturn. However, the movement figures have been on a slow but steady increase trend since July 2009.

Runway Capacity

With the continued enhancement to air traffic and airspace management, the declared capacity for dual runway operations was progressively increased to 58 movements per hour since October 2009 and 59 movements per hour since March 2010.

Annual Examinations and Revalidations on ATCO Ratings

To ensure a high standard in ATC operations, the Training and Safety Section of the Division carried out annual practical examinations on ratings held by Air Traffic Control Officers (ATCO). A total of 215 practical examinations were conducted in the three control streams - Aerodrome, Approach and Area Control.

In addition, the Division also issued Assistant Controller Certificates, ATC Meteorological Reporter Certificates, Instructor Certificates, Search and Rescue Certificates to officers who have attained their respective qualifications.

機場雙跑道運作容量自二零一零年三月遞增至每小時59班。
The declared capacity for dual runway operations was progressively increased to 59 movements per hour since March 2010.

截至二零一零年三月三十
一日，民航處共有262名
空管主任。
*As of March 31, 2010,
there are 262 Air Traffic
Control Officers working
in CAD.*

招聘及培訓
航空交通管制人員

招聘見習航空交通管制主任

為應付預期的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
慎管理。由於本地就業市場欠缺符合相關
資歷的航空交通管制員，一般而言，民航處
會在本地招聘見習空管主任，經過所需專門
培訓後，再晉升為空管主任。合資格申請人
須經過一連串甄選步驟，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及性格評估測試。

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，過程漫長。各階段
的訓練單元需要周詳規劃，以令見習空管主
任可達致表現進展基準。為符合簽發執照
的條件，各訓練單元內容均包括在課堂接受
訓練，以及模擬機實習訓練，最後讓見習空
管主任在導師指導下，處理「實況」航空交
通，直至通過所有評核考試為止。

RECRUITMENT AND TRAINING OF
AIR TRAFFIC CONTROL STAFF

Recruitment of Student Air Traffic Control Officer

The recruitment and training of ATC staff have to be carefully managed to meet anticipated traffic growth and medium to long term manpower succession needs. As qualified air traffic controllers 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 the "Assessment Centre", which comprises more in-depth assessment tests on cognitive ability and personality traits.

SATCOs receive intensive training from entry until the attainment of full performance status. This is a lengthy process requiring carefully staged training modules to match the performance development benchmarks. To fulfil the licensing requirements, each module involves training in classrooms and practical training in the simulator before progressing to handling "live" traffic under the guidance of an instructor until passing all validation check examinations.

航空交通管理   Air Traffic Management

為加深公眾和求職人士對空管行業的認識，民航處積極參與每年舉行的「教育及職業博覽」、在大學舉辦就業講座，並在年內定期安排學生參觀部門的空管設施。

截至二零一零年三月三十一日，在職的空管主任及航空交通事務員分別為262人及107人。

With the objective of introducing the profession to the public and potential job applicants, CAD participated in the annual Education and Career Expo, held career talks in universities and conducted regular students visits to our ATC facilities throughout the year.

As of March 31, 2010, the strength of Air Traffic Control Officers and Air Traffic Flight Services Officers was 262 and 107 respectively.

見習空管主任須取得多項不同範疇的空管資歷，成為合資格的管制員，以擔任二級空管主任職位。
A SATCO needs to acquire qualifications in various ATC disciplines to become a fully qualified controller at the rank of ATCO II.
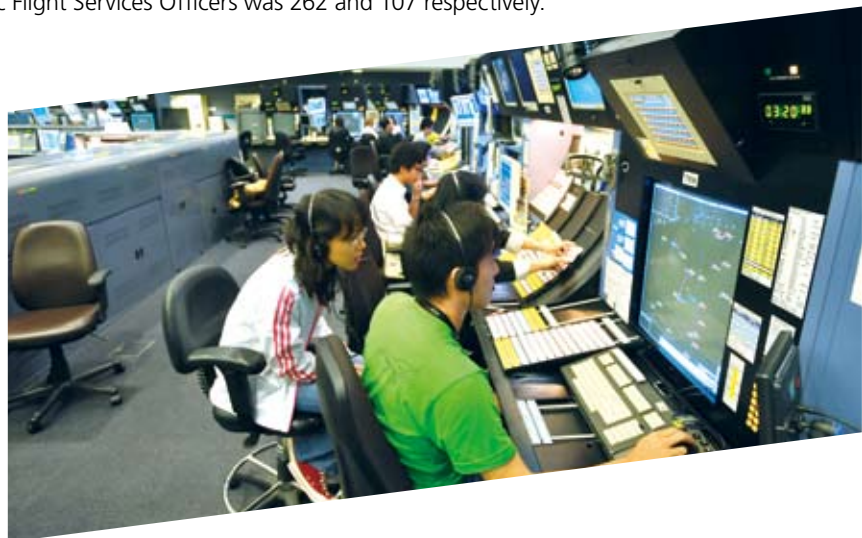
空管培訓

職員培訓是該部的重點任務。年內，該部持續舉辦多項課程及在職訓練活動。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，該部亦與民航訓練中心合辦航空交通管理概論課程。

培訓一名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。其間該名人員須取得多項不同範疇的空管資歷。年內，本處共舉辦了36項空管培訓課程，受訓人員取得多項專業資格及獲發29項空管執照。我們亦為293名在職空管主任舉辦三項複修課程，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等，都能應付自如。此外，該部又安排11名見習空管主任參加海外航空交通管

ATC Training

Staff development constitutes one of the major tasks for the Division. Courses of instruction and on-the-job training activities continued to be intensive throughout the year. Apart from the programmed in-house ATC training and refresher courses on handling of aircraft emergency situations, the Division also conducted an Air Traffic Management introductory course in conjunction with the Civil Aviation Training Centre.

Training of a SATCO to become a fully qualified controller at the rank of ATCO II normally takes around five years. During these five years, the officer would have to acquire qualifications in various ATC disciplines. During the year, a total of 36 ATC training courses were conducted, leading to the issuance of 29 ATC ratings and the attainment of various other professional qualifications. Three refresher training courses were conducted for 293 qualified ATCOs to ensure their competency in responding to unusual circumstances, such as poor weather operations and aircraft emergencies, are maintained to the required standard. As part of their career development, 11 SATCOs were arranged to attend overseas courses on air traffic control with Private Pilot

航空交通管制主任於控制塔模擬機內接受訓練。
Air Traffic Control Officers attend training in Control Tower Simulator.

制課程及私人飛機駕駛執照飛行訓練,以配合他們的工作發展。此類海外培訓活動的目的是讓受訓人員增進航空知識、促進個人發展及豐富有關空管運作的閱歷。

年內,多名較資深的空管主任獲選接受安全管理系統、新式飛機操作、搜救、空管及飛機事故調查的進階訓練,以便承擔責任更重的管理及督導職務。

其他培訓

該部亦與民航訓練中心合辦「航空交通管理概論」課程。這課程舉辦多年,深受歡迎,學員包括航空相關界別的從業員及對航空有興趣的市民。

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 and Aircraft Accident Investigation in order to undertake management and supervisory duties at a higher level.

Other Training Offered

In conjunction with the Civil Aviation Training Centre, the Division also conducted a course on "Introduction to Air Traffic Management". The course is conducted regularly and has been well received by personnel engaged in the aviation-related industries and interested public.

航空交通管制員處理航空交通及過境航班。
Air Traffic Controllers handling air traffic and overflights.

航空交通管理　Air Traffic Management

新航空交通管制程序

香港飛行情報區實施快捷航道

二零零九年十月二十二日起，從西面及北面抵港航道作出優化，以縮短航程。經調整後，從內地、東南亞或歐洲抵港航班最多可節省約210公里飛行航程，即每班航班節省約14分鐘飛行時間。新航道每年可為抵港航班節省總飛行里數超過1 000萬公里，即12 000小時總飛行時數。以平均每天約150架次航班使用新航道計算，每年約有800萬人次的旅客因節省飛行時間而受惠。航空公司可減低航機燃料消耗量，航機的二氧化碳排放量因而下降，公眾亦可享更綠化的環境。

NEW AIR TRAFFIC CONTROL PROCEDURES

Implementation of Express Air Routes in Hong Kong Flight Information Region

Commencing October 22, 2009, the arrival routes for aircraft from the West and North of Hong Kong have been shortened and optimised. After the adjustment, flights arriving Hong Kong from the Mainland, South East Asia and Europe via the new routes would be able to save up to approximately 210 km, i.e. 14 minutes in terms of flight time per flight. The new routes would enable annual savings for arrival aircraft by more than 10 million km in journey, i.e. 12 000 hours in flight time. With an average of approximately 150 flights using the new routes daily, approximately 8 million passengers would benefit from shorter flying time annually. Airline operators would benefit from less aviation fuel consumption and the general public would also enjoy a greener environment through reduction of CO_2 emission from aircraft.
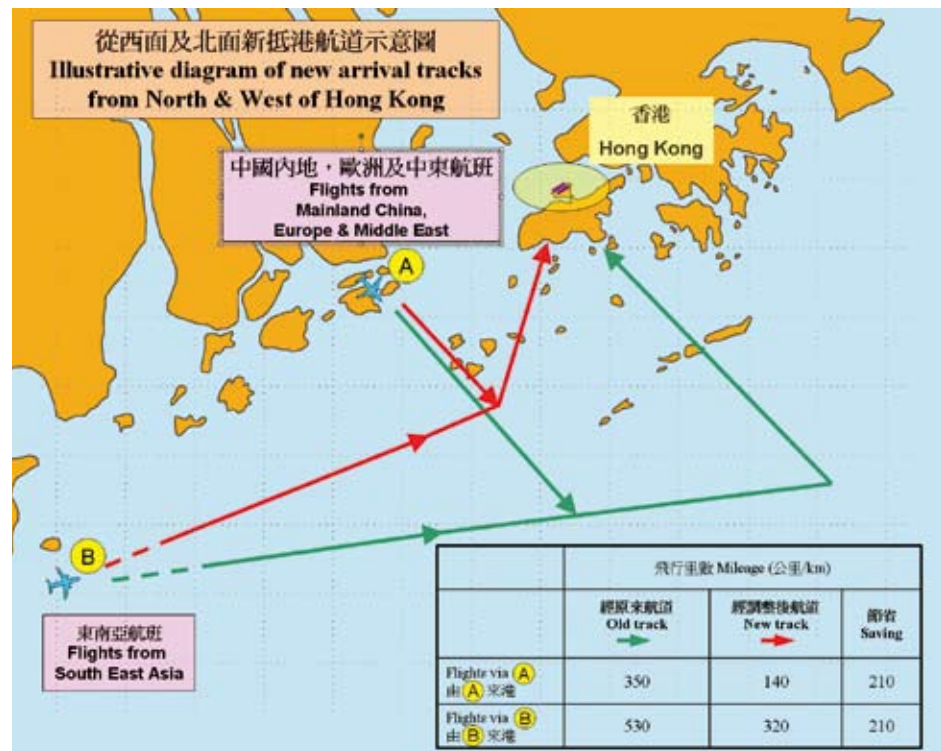
新航道每年可為抵港航班節省總飛行里數超過一千萬公里，而總飛行時數可減省超過一萬二千小時。

New routes will enable annual savings of more than 10 million kilometres in journey, or 12 000 hours in flight time for the arrival aircraft.

從內地、東南亞或歐洲抵港航班的新航道。
New arrival route for arrival flights from the Mainland, South East Asia and Europe.

安全管理系統

二零零九至二零一零年度，航空導航服務安全管理系統繼續發展，制訂和實施安全管理程序方面都有重大改善。

安全保證方面，二零零九年八月，航空交通管理部制訂安全趨勢研究及變革管理程序，有助以更積極及有系統方式管理安全保證。此外，該部推出航空導航服務機構網站及相關行政及管制程序，再加上定期出版安全短訊，都有效協助推廣安全的工作。

至於衡量和監察安全表現方面，航空交通管理部遵照規管要求，定期並適時向航空交通管理標準組提交安全表現目標及指標，以便監管。該部已按照規定，提交四輪目標及指標，每季一次。

年內，該部就主要職能範疇進行四次內部安全審計，作為安全監察的持續工作。該部同時繼續為航空交通管理標準組提供所需支援，協助安全監管工作。

二零零九至二零一零年度，該部繼續為人員提供合適安全管理系統培訓，推廣安全

SAFETY MANAGEMENT SYSTEM (SMS)

The ongoing development of the air navigation services (ANS) SMS continued in 2009-10 with significant enhancement in terms of formulation and implementation of safety management procedures.

In respect of safety assurance, the procedures for Safety Trend Study and Management of Change were put in place in August 2009. These procedures facilitated ATMD to manage safety assurance in a more proactive and systematic manner. Moreover, the implementation of the Air Navigation Services Providers (ANSP) Website and the associated Administrative and Control Procedures, together with the publication of the Safety Flash periodicals, have effectively helped the Division in promoting safety.

In regard of safety performance measurement and monitoring, ATMD complied with the regulatory requirements by timely and regularly submitting to the Air Traffic Management Standards Office (ATMSO) the Safety Performance Targets and Safety Performance Indicators for regulatory oversight. Four rounds of submission were presented on a quarterly basis as required.

As a means for continuous safety surveillance, four internal audits were conducted on key functional areas of ATMD within the report period. In the meantime, the Division continued to provide necessary support to the ATMSO in facilitating regulatory safety oversight activities.

In promoting safety culture, ATMD continued its efforts to provide staff with appropriate SMS training in 2009-10. An external training service

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

文化。該部邀請歐洲一間培訓機構，在港舉行兩個安全風險辨識方法學培訓課程，加強執行安全風險評估人員的知識及技能。此外，該部舉辦一系列內部安全管理系統簡報會，以特定安全管理主題為重點，目的是加強人員提供導航服務的安全意識。

搜索及救援(搜救)服務

年內，該部繼續培訓更多空管主任，使他們合資格參與搜救行動。該部共舉辦三個培訓課程，有22名空管主任取得搜救資格。

為了解搜救服務的最新國際發展，該部與區域及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。

珠江三角洲(珠三角)地區航空交通管理計劃

香港民航處、中國民航局與澳門民航局組成的三方工作組於年內舉行一次會議，檢討二零零九年的工作進度。二零零九年，三個民航機關又各派代表成立新的特別專責小組，研究制訂離場流量管理系統，目的是更全面管理珠三角主要機場的航機離場次序，以加強珠三角地區航空交通管制的整體運作效率。特別專責小組首次會議在二零一零年三月舉行，三個民航機關就系統結構的主要原則取得一致意見。

provider from Europe was invited to conduct two training courses locally on Safety Hazard Identification Methodologies, which helped strengthen the knowledge and skills of our staff in discharging safety risk assessment duties. In addition, a series of in-house SMS presentations with focus on specific safety management themes were also organised with a view to stepping up safety awareness of staff in the provision of ANS.

SEARCH AND RESCUE (SAR) SERVICES

During the year, the Division has continued to train more ATCOs to become qualified in SAR operations. Three training courses were conducted and a total of 22 ATCOs attained the SAR qualification.

To keep abreast of latest global development on SAR services, the Division maintained close liasion with regional and international SAR authorities, and continued to participate in ICAO meetings and other forums concerning SAR.

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

The Tripartite Working Group formed by the Hong Kong CAD, the Civil Aviation Administration of China and the Macao Civil Aviation Authority met once during the year to review the work progress of 2009. A new special task force, also represented by the three civil aviation authorities, was established in 2009 to study the development of a departure flow management system. The objective was to manage the departure sequence of major PRD airports in a more holistic manner, with a view to enhancing the overall Air Traffic Control operating efficiency in the Region. The first special task force meeting was held in March 2010 and the three authorities have agreed on the major principles of the system architecture.

同事出席由德國空中交通管理局提供的風險辨識方法學培訓班。
Colleagues attend the Hazard Identification Methodologies conducted by DFS Deutsche Flugsicherung GmbH, an ANS training services provider of Germany.

海外空管會議和研討會

年內，該部繼續積極參與航空交通管理事務的海外會議和研討會，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主辦的會議和研討會。

OVERSEAS ATC MEETINGS AND CONFERENCES

During the year, the Division continues to participate actively in overseas meetings and conferences on issues related to air traffic management. These include meetings, seminars and conferences initiated by ICAO, other aviation authorities and the Civil Air Navigation Services Organisation (CANSO).

HONG KONG CHINA

同事出席在泰國曼谷舉行的第二十屆國際民用航空組織亞太平洋區航空導航策劃及執行地區小組會議。
Staff attending the 20th Asia/Pacific Air Navigation Planning and Implementation Regional Group Meeting held in Bangkok, Thailand.

電訊服務

二零零九年標誌着航空電訊的新紀元。二零零九年十二月，香港與澳門的航空交通服務訊息處理系統網絡啟用，航空電訊其後由傳統航空專用電訊網，改為透過網上航空電訊網及航空交通服務訊息處理系統傳遞。

關於固定航空通訊服務，航空通訊組年內處理的資訊達31 516 241個，較上一年度增加6.55%。

航空氣象廣播服務方面，航空通訊組年內為航機提供合共216 042次氣象報告，較上一年度微增0.19%。

TELECOMMUNICATIONS SERVICES

2009 marked a new era for aeronautical telecommunications. The migration from the legacy Aeronautical Fixed Telecommunication Network (AFTN) to the internet-based Aeronautical Telecommunication Network/ATS Message Handling System (ATN/AMHS) operations began with the implementation of the Hong Kong-Macao AMHS circuit in December 2009.

On Aeronautical Fixed Service, the number of messages handled by the Telecommunications Unit of the Division during the year reached a total of 31 516 241, representing a 6.55 per cent increase over last year.

On Aeronautical Broadcast Service, a total of 216 042 weather messages were provided to aircraft in flight during the year. The amount was slightly increased by 0.19 per cent as compared with the previous year.