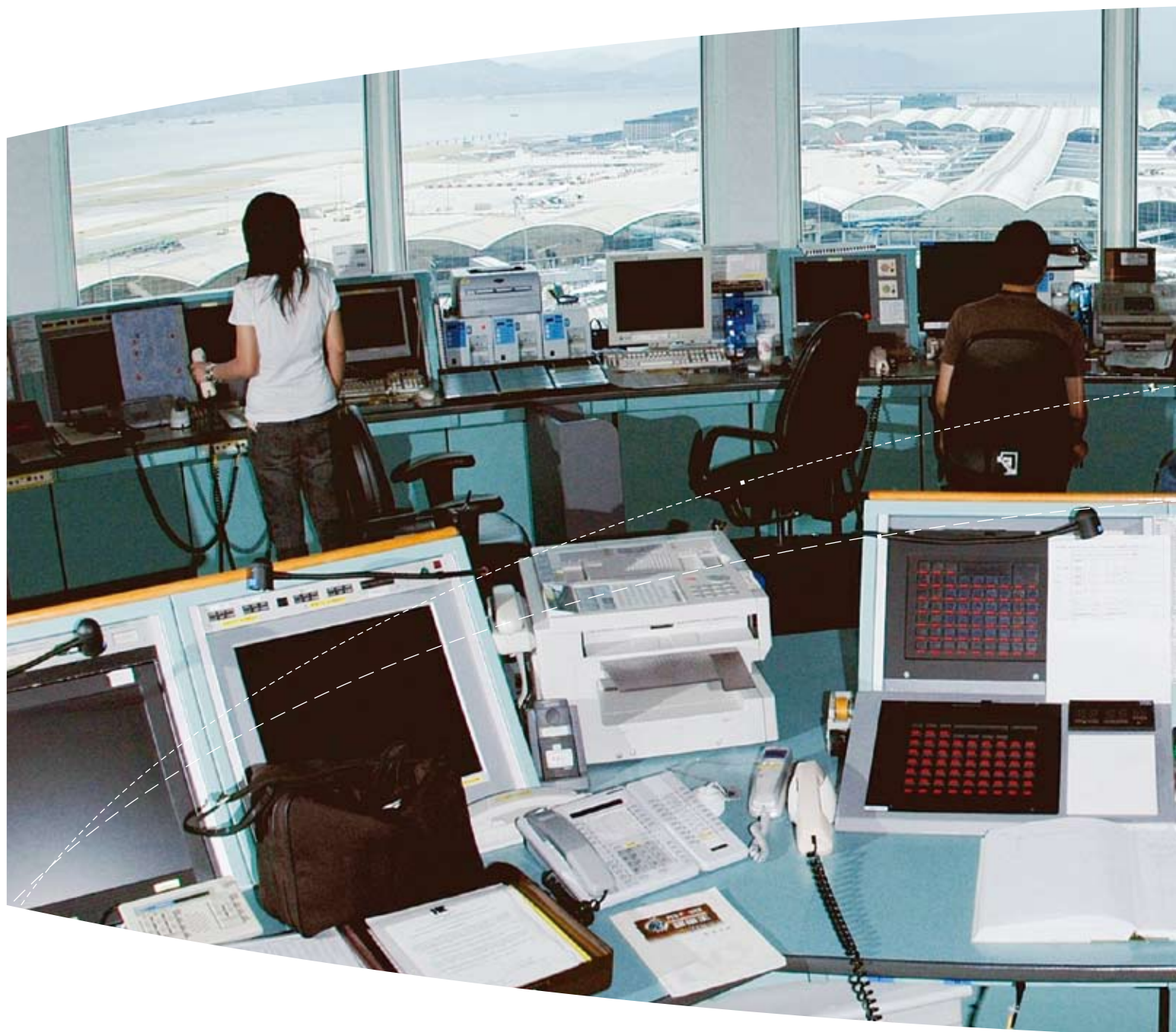


航空交通管理

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，提供航空交通管理（空管）、航行資料及飛機事故警報服務。

The Air Traffic Management Division (ATMD) is responsible for the provision of air traffic control (ATC) service, flight information service and alerting service within the Hong Kong Flight Information Region (FIR) as assigned by the International Civil Aviation Organization (ICAO).





航空交通管制中心每日二十四小時運作。
The ATCC operates twenty-four hours a day.

航空交通運作

年內，本部共處理了 292 712 架次在香港國際機場升降的國際及本地航班，並為 98 755 架次飛越香港飛行情報區，以及 46 338 架次進出澳門國際機場的航班提供服務。與上一年度比較，在香港國際機場升降及飛越香港的航班分別增加 5% 和 9.5%。航空交通量上升，是由於區內經濟全面復蘇，帶動航空客運及貨運量增長。

跑道升降容量

香港國際機場採用雙跑道運作，跑道容量自二零零六年十月二十九日起遞增至每小時 54 班。

空管主任執照考試和考核

為維持高水平的空管，本部的安全及質素事務組每年會就空管主任領有的各類執照進行實習考試。就塔台管制、進場管制和區域管制這三個組別進行的實習考試共有 255 次。

此外，本部向取得有關資格的人員頒發管制員助理證書、氣象觀察證書、導師證書和搜索及拯救證書。

AIR TRAFFIC OPERATIONS

During the year, the Division handled a total of 292 712 international and local aircraft movements at the Hong Kong International Airport (HKIA). In addition, the Division handled 98 755 flights overflying the Hong Kong FIR and 46 338 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 by 5 per cent and 9.5 per cent respectively. The overall increase in air traffic was due to the growth in passenger traffic and air cargo as a result of the broad-based economic recovery.

Runway Capacity

The declared runway capacity was progressively increased to 54 movements per hour on dual runway operations since October 29, 2006.

Annual Examinations and Revalidations on ATCO Ratings

To ensure a high degree of ATC standard, the Safety and Quality section of the Division carries out annual practical examinations on ratings held by Air Traffic Control Officers (ATCO). A total of 255 practical examinations were carried out in the three streams of Aerodrome Control, Approach Control and Area Control.

In addition, the Division also issues Assistant Controller Certificates, Meteorological Observer Certificates, Instructor Certificate, Search and Rescue Certificates to officers after attaining their respective qualifications.

RECRUITMENT AND TRAINING OF AIR TRAFFIC CONTROL STAFF

Recruitment of Student Air Traffic Control Officer

ATC is a very specialised profession requiring technical skills and expertise that can only be acquired through theoretical and practical on-the-job training. As such, qualified human resources are not readily available in the local job market. ATCOs are normally recruited locally as Student Air Traffic Control Officers (SATCOs) and specialised training is provided.

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

空管是一門需要特別技能及專門知識的職業，相關技能和知識只可以通過理論和實習兼備的在職訓練獲取。因此，本地就業市場欠缺符合相關資歷的人才。一般而言，見習航空交通管制主任會在本地招聘，為他們提供專門培訓後，再晉升為航空交通管制主任。

為應付預期的交通增長及中長期的人事升遷需求，必須周詳策劃空管人員的招聘和培訓。因此，在政府暫停招聘公務員期間，民航處也特別獲准在二零零六年進行一次公開招聘。為甄別合資格人選，選拔程序在能向測驗及面試後，加入兩個篩選步驟，分別為網上性格測試以及在評估中心進行的團體活動、認知能力及性格評估。是次招募共聘請了19名見習航空交通管制主任。

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「2007教育及職業博覽」，及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。

截至二零零七年三月三十一日，航空交通管制主任及航空交通事務員的實際員額分別為230人及89人。

Recruitment and training of ATC staff have to be carefully scheduled to meet anticipated traffic growth and medium to long term manpower succession requirements. To this end, although the Civil Service recruitment freeze was still in force, special approval was obtained for open recruitment in 2006 and subsequently 19 SATCOs were recruited. To select the qualified candidates, two screening methods, namely on-line personality questionnaire and Assessment Centre comprising group exercises, cognitive tests and personality assessments, were included in the selection process after aptitude test and interview.

With the objective of introducing the profession to the public and potential job applicants, CAD participated in the Education and Careers Expo 2007, held career talks in universities and conducted regular students visits to our ATC facilities throughout the year.

As of March 31, 2007, the strength of Air Traffic Control Officers and Air Traffic Flight Services Officer was 230 and 89 respectively.



本處於教育及職業博覽2007設置的攤位。
The CAD booth at the Education and Careers Expo 2007.

空管培訓

職員培訓向來是本部的重點任務。年內，本部舉辦多項指導班及在職訓練活動。除了已計劃的內部空管培訓和有關飛機緊急事故的複訓課程外，本部與民航訓練中心合辦兩項課程，以及為中國民用航空總局(中國民航總局)的空中交通管理局舉辦一項課程。

培訓一名見習空管主任成為完全合格的管制員，以擔任二級空管主任職位，通常大約需時五年。其間該名人員須取得多項不同範疇的空管資歷。此外，我們須為合格空管主任編排定期複訓，以確保他們一旦面對突發情況，如飛機遇到惡劣天氣或其他緊急事故等，都能應付自如。年內，本處舉辦了31項不同專業範疇的空管培訓課程及兩項空管複訓課程，共有369名人員參加。受訓人員取得多項專業資格，其中28名獲頒發空管執照。此外，4名見習空管主任接受私人機師執照的飛行訓練，8名參加海外航空交通管制課程，兩項培訓均有助事業發展。海外培訓活動可讓受訓人員增進航空知識，豐富有關空管運作的閱歷。



航空交通管制主任於控制塔模擬器內接受訓練。
An Air Traffic Control Officer is attending training in the Control Tower Simulator.

ATC Training

Staff development continued to be one of the major tasks for the Division. Courses of instruction and on-the-job training activities had been intensive all through the year. Apart from the programmed in-house ATC training and refresher courses on aircraft emergency situations, the Division also conducted two courses in conjunction with the Civil Aviation Training Centre and one course for Air Traffic Management Bureau of Civil Aviation Authority of China (CAAC).

Training of a SATCO to become a fully qualified controller at the rank of ATCO II normally takes around five years where the individual would have to acquire qualifications in various ATC disciplines. In addition, periodic refresher training has to be programmed for qualified ATCOs to ensure that their competency in responding to unusual circumstances, such as poor weather operations and aircraft emergencies is maintained. During the year, a total of 31 ATC training courses on various disciplines of the profession and two refresher training courses were conducted for 369 officers, leading to the issue of 28 ATC ratings and the attainment of other professional qualifications. As part of their career development, four SATCOs were provided with flying training to Private Pilot License standard and eight SATCOs with overseas courses on air traffic control. These overseas training activities enhanced their aviation knowledge and broadened their exposure to ATC operations.

Training offered by Civil Aviation Training Centre

The Division conducted two courses in conjunction with the Civil Aviation Training Centre – “Introduction to Air Traffic Management” and “Response to Aircraft Emergencies by Air Traffic Control Units”. These courses were well attended by personnel engaged in the aviation-related industries and interested public.

Training provided to Air Traffic Management Bureau of CAAC

The Division also conducted an “Air Traffic Control Supervisor Course” for 12 ATC supervisors from Northeast Air Traffic Management Bureau of CAAC.



民航訓練中心提供的培訓

本部與民航訓練中心合辦兩項課程：「航空交通管理概論」及「航空交通管制單位對飛機緊急事故之應變」課程。課程很受歡迎，報名情況擁擠。學員包括航空相關界別的從業員，也有一些對航空有興趣的市民。

為中國民航總局的空中交通管理局舉辦課程

本部亦為中國民航總局東北空中交通管理局12名空管督導主任舉辦了一項「航空交通督導主任課程」。

新航空交通管理程序

最後進場管制員

為提高香港國際機場的交通處理效率，本處在二零零六年四月增設「最後進場管制員」這個新的管制崗位，負責處理及監管進場航班之分隔，調節抵港航機之間最低的進場間距，確保善用可供航機降落的時段，盡量避免浪費。新崗位亦有助減輕進場管制的工作量，讓進場管制員可以專心為來自不同方向的航機綜合編排初步抵達次序。

縮小跑道最低間隔標準

按照國際民航組織新訂的建議措施，本處在二零零六年八月實施縮小跑道最低間隔標準，以提高指揮塔的運作效率。根據縮小跑道最低間隔標準，如符合有關天氣及運作的準則，航機在跑道上的最低間隔可縮減至不足一條跑道的長度。指揮塔管制員可採用縮小跑道最低間隔標準，藉以充分應用跑道容量。

NEW AIR TRAFFIC CONTROL PROCEDURES

Final Approach Director

To enhance the efficiency of traffic handling at the HKIA, a new control position, the Final Approach Director (FAD), was introduced in April 2006 to handle the arrivals on final approach. The FAD is responsible for fine-tuning the final approach spacing of arrivals so as to ensure the available landing slots are utilised with minimum wastage. The new position also alleviates the workload of Approach Control so that the Approach Controller can now concentrate on integrating arrivals from different directions into an initial arrival sequence.

Reduced Runway Separation Minima (RRSM)

In line with the ICAO new recommended practice, RRSM was introduced in August 2006 to enhance the operational efficiency of Aerodrome Control. With RRSM, the minimum separation between aircraft on the runway can be reduced to below one runway length when certain weather and operational criteria are fulfilled. Aerodrome Controllers can apply RRSM to capitalise on the available runway capacity to the fullest extent.



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.

安全及質素保證管理

為達到最高安全水平及提升航空交通服務質素，本部根據國際民航組織標準及民航處的監管規定，在航空交通服務的質素保證，以及安全管理系統的發展和維修方面，與飛行標準及適航部航空交通管理標準組緊密合作。在引進任何新的航空交通服務系統和程序，或落實重大變動前，本部會先作出風險評估和管理。此外，本部亦會定期進行內部審計，監察和評估航空交通服務系統及運作的安全程度。本部為員工提供安全管理系統訓練，讓他們對安全管理加深認識，並充分掌握安全管理系統的操作技巧。因應國際民航組織的建議，本部正就航空情報服務的品質管理系統申請 ISO 9001 認證。

二零零六年搜索及救援演練

二零零六年搜索及救援演練(搜救演練)在十月二十四至二十七日順利舉行。這項周年演習旨在測試香港飛行情報區內進行搜救時預警、協調和通訊程序的效率和成效。



飛行服務隊派出的超級美洲豹型直升機，在搜救演練中示範拯救海上模擬生還者。

An Eurocopter Super Puma helicopter from the Government Flying Service demonstrating the winching of a simulated survivor in the SAREX.

SAFETY AND QUALITY

The Division endeavours to achieve the highest safety standard and enhance quality in the provision of air traffic services (ATS). In this respect, the Division works closely with the Air Traffic Management Standards Office (ATMSO) in the Flight Standards and Airworthiness Division in ATS quality assurance, development and maintenance of the Safety Management System (SMS) in compliance with ICAO standards and CAD regulatory requirements. Risk assessment and management are accomplished before introducing any new or significant changes to ATS systems and procedures. In addition, regular internal audits are carried out to monitor and assess ATS systems and operations safety levels. On-going SMS training is provided to staff to enhance their understanding in safety management and skills in performing SMS related activities. As recommended by ICAO, the Division was in the process of acquiring ISO 9001 accreditation for the Quality Management System on Aeronautical Information Service.

SEARCH AND RESCUE EXERCISE (SAREX) 2006

SAREX 2006 was successfully conducted from October 24 to 27, 2006. The main objective of this annual exercise was to test the effectiveness and efficiency of the alerting, co-ordination and communication procedures for the provision of search and rescue services in the Hong Kong FIR.

In the exercise, full participation of the local search and rescue (SAR) and support units were received and they included the Hong Kong Garrison of the People's Liberation Army (PLA), Government Flying Service (GFS), Marine Police, Fire Services Department (FSD), Marine Department, Civil Aid Service, Auxiliary Medical Service, and the Hong Kong Observatory. In addition to the local units, the US SAR units were also invited to participate, and for the first time, the China Maritime Search and Rescue Centre (CMSRC) of the Ministry of Communications also took part.

The SAREX this year consisted of three main parts – the SAR aircraft and equipment display, the long-range search exercise and the short-range rescue demonstration.



是次演習得到本地搜救及支援單位全力參與，包括人民解放軍駐香港部隊（駐港部隊）、政府飛行服務隊、水警、消防處、海事處、民眾安全服務隊、醫療輔助隊及香港天文台。另外，美國搜救單位及中國交通部海上搜救中心亦應邀參加觀摩及交流經驗，後者更是首度參與。

今年的搜救演練有三個主要部分：搜救飛機及器材展覽、長程搜索演練及短程搜救示範。

搜救飛機及器材展覽在香港國際機場舉行。展出的飛機及器材包括美國海岸巡邏隊一架C130型飛機、美國空軍一架C130型飛機、政府飛行服務隊一架湍流JS41型定翼飛機及一架超級美洲豹直升機，以及機場消防隊的消防車、救生艇和潛水設備。

長程搜救演練模擬一架民用客機在香港以南約80海里的海面墜毀。模擬目標預先在演練開始前一天用飛機置於事發地點。搜索行動由民航處救援協調中心的搜索及救援課程學員策劃及統籌，美國海岸巡邏隊、美國空軍及政府飛行服務隊各派一架定翼機奉命出動，在海面進行搜索。因當時風高浪急，要在飛機上以肉眼搜索，確實絕不容易。美國空軍C130型飛機上的人員憑着銳利的目光，最終在事發地點西南面約14海里（25公里）處，成功找到已在海上飄浮約18小時的模擬目標。

短程搜救示範模擬一架小型公務機在西貢對開的牛尾海進行急降，機上有12名生還者在海面等候救援。多個救援單位參與這項示範，包括駐港部隊的三架直九直升機、政府飛行服務隊的一架直升機、中國交通部海上搜救中心的一架直升機，以及駐港部隊、水警、消防處和中國交通部海上搜救中心的船隻。來自香港、內地及海外搜救單位的觀察員，在現場觀看救援生還者的情況。部分生還者被救上直升機，其他則送上消防處的救生艇。中國交通部海上搜救中心長達110公尺的拯救船，則模擬搜索海底的飛機殘骸。

The SAR aircraft and equipment display was held at the HKIA. On display were a C130 aircraft from the United States Coast Guard (USCG), a C130 aircraft from the United States Air Force (USAF), a Jetstream JS41 aircraft and a Super Puma helicopter from the GFS, fire engines, rescue boats, and diving equipment from the Airport Fire Contingent.

In the long-range search exercise, a target was dropped the day before, at a position 80 nautical miles south of Hong Kong, simulating the crash at sea of an airliner. The Rescue Co-ordination Centre, manned by CAD SAR course students, planned the search activities. The three fixed-wing aircraft, one each from USCG, USAF and GFS, were assigned with task of finding the target in the middle of the ocean. Given the strong prevailing wind at the time, and the rough state of the sea, it was not an easy mission to visually spot the target from the search aircraft. As it turned out, the target was located by some very sharp eyes onboard the USAF C130 about 14 nautical miles (25 km) southwest of its original position, having drifted for about 18 hours.

The short-range rescue demonstration was held in Port Shelter off Sai Kung. A simulated ditching by a light executive jet resulted in 12 survivors to be rescued from the sea. A number of rescue units, including three helicopters from the PLA, one helicopter from GFS, one helicopter from the CMSRC, vessels from the PLA, Marine Police, FSD and CMSRC took part in the rescue operations. All 12 survivors were rescued under the watchful eyes of observers from



中國交通部海上搜救中心參與二零零六年搜索及救援演練。
The China Maritime Search and Rescue Centre of the Ministry of Communications participates in the SAREX 2006.

搜救演練為期四天，其間來自不同國家的搜救專家共聚一堂，切磋搜救技術及交換意見。另外，美國海岸巡邏隊、美國空軍及政府飛行服務隊亦各自介紹搜救能力及經驗。對所有參與單位來說，這是難得的學習和交流機會。民航處主辦是次演練，讓各方有機會互相觀摩，朝着救傷扶危的共同目標不斷努力。

珠江三角洲(珠三角)地區航空交通管理計劃

民航處、中國民航總局與澳門民航局組成的三方工作組經過三年的研究和評估，在二零零七年二月定出綜合計劃。計劃目的在於以全面而又有系統的方式，改善珠三角地區的空域規劃和航空交通管理。有關方案可加強三方在「統一規劃、統一標準、統一程序」上的合作。如獲內地有關當局最後批准，該計劃會分階段實施，確保珠三角地區直至二零二零年的航空交通可以持續增長。



本處代表參加珠三角空中交通管理規劃與實施專題工作組第四次會議。
CAD representatives attending the PRD Air Traffic Management Planning and Implementation Working Group Fourth Supervisory Group Meeting.

Hong Kong, the Mainland and overseas SAR units. Some survivors were winched to safety by the helicopters and the rest rescued by the FSD rescue boat. The 110-metre long rescue vessel from CMSRC also simulated a search for the under water wreckage.

During the four-day event of the SAREX 2006, SAR experts from the various countries had a chance to get together to discuss SAR techniques and to exchange ideas. Presentations on SAR capabilities and past experience on SAR missions were given by the USCG, USAF and the GFS. It was an excellent learning opportunity for all the participants to share their experience with one another. Through this exercise, CAD provided a platform for everybody to work for one common goal – the mission of saving lives.

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

The Tripartite Working Group formed by the CAD, the CAAC and the Macao Civil Aviation Authority ironed out an integrated plan (the Plan) in February 2007 after three years' study and evaluation. The Plan aimed to improve the airspace organisation and air traffic management of the PRD Area in a holistic and systematic manner. The proposal will strengthen cooperation among the three Civil Aviation Authorities in terms of joint airspace planning, use of common operating standards and harmonised flight procedure design. Subject to final endorsement by relevant Mainland Authorities, the Plan will be implemented in phases to ensure sustainable air traffic growth within the PRD region up to 2020.

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 the ICAO and other aviation authorities.

TELECOMMUNICATIONS SERVICES

In line with the ICAO strategic objective to manage safety across all safety-related operations in civil aviation, the Telecommunications Unit (TELS) successfully implemented the



海外空管會議和研討會

年內，本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和其他航空機關主辦的會議和研討會。

電訊服務

為配合國際民航組織就所有涉及安全的民航運作實施安全管理的策略目標，電訊組為航空通訊服務於二零零六年十一月採用安全管理系統。

關於固定航空通訊服務，電訊組年內處理的電報總量達25 454 719個，較上一年度增加8.5%。

航空廣播服務方面，電訊組年內為航機提供合共210 427次氣象報告。數量較上一年度減少約2%，原因是上一年度天氣較為穩定。

新民航處大樓和更換空管系統計劃

本部為新民航處大樓計劃，制定各空管運作設備和模擬器訓練設施的用戶和操作要求，積極籌備興建新民航處大樓和更換空管系統。二零零七年年初，專責小組更主動到廣州、歐洲航空安全組織(馬斯特里赫特)、倫敦和墨爾本的航空管制中心實地考察，以掌握空管技術最新的發展，並就系統擴展、互通和提高效率的能力、安全管理和環保考慮等範疇，與各地對口單位交流，參考他們推行和過渡的策略，借鑑成功經驗。

Safety Management System (SMS) in its Aeronautical Communications Services in November 2006.

On Aeronautical Fixed Service, the number of messages handled in the year reached a total of 25 454 719, representing an 8.5 per cent increase over the last year.

On Aeronautical Broadcast Service, a total of 210 427 weather messages were provided to aircraft in flight in the year. The amount was about 2 per cent lower than last year due to relative stable weather in the year.

NEW CAD BUILDING AND REPLACEMENT ATC SYSTEMS PROJECT

ATMD started active preparation of the New CAD Building and replacement ATC Systems by defining user and operational requirements for various operational ATC equipment and simulator training facilities for the New CAD Building Project. As a proactive step, the Project Team conducted fact-finding operational visits in early 2007 to air traffic control centres in Guangzhou, Euro-control (Maastricht), London and Melbourne to keep abreast with the latest ATC technology development and to have experience sharing with our counterparts elsewhere on their successful implementation and transition strategies, taking into account the system expansibility, inter-operability and ergonomics, safety management and environmental considerations.



更換新的空管系統有助應付強勁的航空交通增長。

The replacement of ATC Systems will enable us to cope with the strong air traffic growth.