



China Civil Aviation Report

Volume 9, Issue 3

March 2007

民航报导

Dawn of a New Age

New technologies to shape China's airspace

中国航空科技时代即将到来



Aircraft movements in China hit 3.4-M

China, US hold air talks anew

Pearl River Delta plan passed

Alternate airports chosen for Beijing Olympic

Beijing Capital Airport best performer in Asia



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Aviation Headlines

China, US hold negotiation for open skies agreement	2
Aircraft movements totaled 3.4-M in 2006	2
United Airlines wins China route	2
Beijing airport expansion nears completion	3
Manzhouli airport expansion finished	3
Pearl River Delta plan passed	3
New Kunming airport can handle 63 million	3
Urumqi's third expansion project now underway	3

CAAC Updates

ATMB holds symposium	4
Airport association holds meeting	4
Alternate airports chosen for Games	4
Promotion of private aviation encouraged	4
Group established for Olympic Games	5
Aviation association separates into two	5
China, Tajikistan in talks to expand air services	5
Safety audit meeting held	5
China Eastern to open flights to Johannesburg	5

Cover story

Dawn of a new age	6
-------------------	---

Commercial Aviation News

Nanjing, Changi airports sign accord	8
AVIC 1 leasing company established	8
China Southern to open 10 new routes this year	8
Beijing Airport appoints Wang as new chairman	8
Spring Airlines chooses Sanya as second base	9
A319 delivered to East Star Airlines	9
China Sonangol orders three corporate jets	9
Air China subsidiary gets airworthiness maintenance certificate	9
Transaero Airlines opens flight to Guangzhou	9
Okay Airways sets sights on freight	10
Chinese Southern to use Lufthansa Systems solution	10
\$2.5-B allotted for 4 airport projects	10
Beijing Capital Airport best performer in 2006	11

COVER: Boeing delivered a NextGen 737-800 aircraft to China United Airlines, which is owned by Shanghai Airlines Co. and China Aviation Supplies Import and Export Group Corp. This is the third NextGen 737 in the airline's fleet. (Photo courtesy of the Boeing Co.)

From the Publisher's Desk

China's civil aviation today faces two major challenges: building infrastructure to expand flight capacity and ensuring safety and security in air traffic management.

As the United States builds its Next Generation Air Transportation System (NGATS), China is also modernizing its civil aviation in anticipation of a double-digit growth in the next 10 years.

Airspace is one major challenge that China needs to focus on. Airspace use in China is a complicated issue since this is being used by commercial planes and the military.

Aside from opening new air routes, China is using modern technology to maximize its existing airspace.

Technologies like the ADS-B, RNAV/RNP and RVSM are being tested and refined in China to accommodate the increasing growth in passenger and cargo traffic.

Our cover story for this issue focuses on these technologies and how they will impact on China's civil aviation. It is no doubt that these will define China's future in civil aviation.

On the other hand, the increasing volume in passenger and cargo has put Chinese airports in the top slots in the preliminary rankings of the Airport Council International.

Beijing Capital International Airport, for instance, placed ninth in the world's most busiest airports with passenger traffic reaching 48.5 million last year.

Hong Kong, Shanghai, Beijing and Guangzhou airports are also in the top 25 in the world in cargo traffic last year.

These results only show that China's civil aviation is growing rapidly in volume and demand.

中国民航目前面临两大挑战：为满足增长的航空运力而不断扩充基础设施建设；同时确保空中交通管理安全与保安。

当美国正在建设起新一代航空运输系统(NGATS)时，中国也正打算为了迎接未来十年两位数的增长而进行着民航的现代化。

空域是中国需要面临的重要挑战之一。中国的空域使用一直以来就是个复杂的问题，因为它同时被商业飞机与军用飞机所共同使用。

除了开辟新的航路以外，中国正在使用先进的科技以使得其现有空域得到最大化的利用。

这些技术包括如：ADS-B、RNAV/RNP及RVSM等均已在中国得到测试与开发，以应对客运与货邮运量的快速增长。

本期的主要文章就是关注于这些科技，以及它们对中国民用航空产生的影响。毫无疑问的是它们将改变中国民航的未来。

另一方面，快速增长的客运与货邮运量已使得多个中国机场在国际机场协会的机场统计数据中位居前列。

例如北京首都国际机场，位居世界第九大最为繁忙的机场，去年的客运量高达4850万人次。

去年，香港、上海、北京与广州机场的货邮量均位居世界排名前25位以内。种种结果都表明中国民用航空在客货邮运量及需求上一直在节节攀升当中。



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China Civil Aviation Report (CCAR)

is published monthly by Uniworld LLC in conjunction with China Civil Aviation, the official publication of the Civil Aviation Administration of China (CAAC).

民航报导是经由民航总局、国家新闻署核准，以《中国民用航空》英文版方式向全世界民航机构、企业，个人介绍中国民航改革开放成果和现况的刊物，印刷和电子版同步发行。

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US\$95/Year (USA) US\$95/年(美国本地)
US\$120/Year (International) US\$120/年(国际)

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Aviation Headlines



China, US hold negotiation for open skies agreement

中美举行航空会谈探讨今后航空运输市场准入

China and the United States held talks in Beijing from January 30 to February 1 to review the 2004 civil air transport agreement for a possible open skies agreement.

The US delegation was headed by Thomas Engle, director of the US State Department's Office of Aviation Negotiations, and the Chinese delegation was headed by Liu Fang, vice director of the International Cooperation Department of the Civil Aviation Administration of China.

The US has been urging China to agree to an open skies policy. The two parties discussed the imbalance of the China-

US air transport market. An open skies agreement would open the aviation markets of both countries.

China said it is not yet time for such agreement, considering that its airspace is congested and the landing and takeoff timetables in main airports remain very tight, as is true of the landing and takeoff timetables of most main airports.

China needs to upgrade the infrastructure and recruit more aviation personnel to ensure safety before it can consider an open skies policy with the US.

Both sides agreed to future talks to discuss the agreement.

United Airlines wins China route

美联航最终获准开辟
华盛顿—北京直航航线

The United States Department of Transportation has awarded United Airlines the right to operate daily non-stop flights from Washington Dulles International Airport to Beijing Capital International Airport.

In its decision, issued last February 8 and signed by Assistant Secretary Andrew Steinberg, the DOT said the Washington-Beijing route "would provide the greatest combination of public interest benefits in this case."

The DOT said, "The Washington, D.C. metro area is the largest gateway in this proceeding without any nonstop service to China."

"If there are two countries in this world that understand the need for fast, efficient and convenient service, it's the United States and China," said Transportation Secretary Mary Peters.

Airlines that competed with United for the Beijing route are Continental Airlines, Northwest Airlines, and American Airlines.

The new route is part of the 2004 aviation agreement between the US and China which designated 195 new weekly flights over a six-year period.

"We applaud the Department of Transportation on their fair and thorough process and for putting the interest of the nation and the traveling public first," said Glenn Tilton, United chairman, president and CEO.

United was able to gather support from 110 members of the US Congress and other business leaders and policy experts.

The airline will join 28 other world capitals that offer nonstop direct flights to Beijing, and use its 347-seat B747-400 aircraft for the Beijing route.



Aircraft movements totaled 3.4-M in 2006

民航总局空管局日前确定二零零七年工作目标

Aircraft movements in China reached over 3.4 million in 2006, higher by 27 percent compared to 2005, according to the Air Traffic Management Bureau of the Civil Aviation Administration of China.

For this year, the ATMB aims to reduce flight delays. Flight on-time performance in 2006 averaged 80.74 percent, lower by 1.12 percent compared to 2005.

The bureau also aims to perfect the air traffic management service for the Olympic Games and implement the high altitude airspace radar control in east China.

Among the air traffic management safety goals this year is the reduction of flight incidents below 0.15 per 10,000 flights.

The ATMB will also continuously enhance civil aviation operation information network construction, and establish a national and regional flight delay coordinating operation program.

It will also implement a program to reduce vertical separation in the military

and civil aviation and enhance personnel training. It aims to reduce vertical separation above 8,400 meters by August 30 of this year.

This year, the ATMB will begin the construction of four regional control centers in Chengdu, Xi'an, Shenyang and Urumqi, and retrofit the Beijing, Shanghai, and Guangzhou (Zhuhai) terminal regions.

Revision of 11 regulations and the establishment of aviation regulations for the 2008 Olympics will also be accomplished this year.

The ATMB is also focusing on civil aviation weather work to improve air traffic management. The bureau will study the civil aviation weather management system and mechanism, establish a civil aviation weather center, enhance the organizational system of regional weather centers and airport weather stations, and expedite research on a new generation of civil aviation weather systems and the study of high plateau weather.

Beijing airport expansion nears completion

首都机场扩建主体工程基本竣工

The third terminal building and flight area of the Beijing Capital International Airport has been completed with the last stage to be devoted to the installation of equipment and interior decoration.

The new terminal has an area of 986,000 sq.m. About 3,000 km. of cables were laid and 445 sets of elevators, a moving staircase and a moving footpath were installed.

The expansion is in preparation for the 2008 Beijing Olympics. The airport's third runway is 3,800 meters long and can accommodate the Airbus A380. The expansion project features new airlines facilities, new freight area, special aircraft



and business jet area, and all public service facilities.

About RMB 27 billion was spent for the entire project. After it is completed, the Beijing airport will accommodate 76 million passengers, 1.8 million tons of cargo and mail, and 600,000 landings and takeoffs every year.

Manzhouli airport expansion finished

满洲里西郊机场飞行区扩建工程通过行业验收

The Manzhouli Xijiao Airport can accommodate wide-body aircraft following the expansion of its flight area, according to the North China Regional Administration of the Civil Aviation Administration of China.

When the airport was opened in 2004, it could only handle the takeoff and landing of aircraft below the Boeing 737 type.

As the Manzhouli City economy grew, there was a clamor to expand the airport to be competitive. The city government invested RMB 68.53 million in the project.

The fund was used to expand the width and extend the length of the runway by

400 meters, widen the airport's shoulders, construct a new connecting way, expand the apron, and install a lighting system and an instrument landing system.

The expansion project was started last May and was finished last December, including the installment of the landing equipment.

Last January, a Boeing 767 landed at the airport for a test flight.

With the expansion, the airport can now accommodate B767, IR76 and TU 154 aircraft. The airport is waiting for the Class D certificate from the CAAC to start the takeoff and landing of such aircraft.

Pearl River Delta plan passed

珠江三角洲地区空中交通管理规划已通过审议

The fourth meeting of the Pearl River Delta Area Air Traffic Management Program and Implementation Special Working Group was held on February 6 and attended by representatives from the Air Traffic Management Bureaus of Guilin and Central South, Hong Kong Civil Aviation Department, Macao Civil Aviation Authority and the Office of National Airspace Management Commission.

At the meeting, China, Hong Kong and Macao passed the Pearl River Delta Area Air Traffic Management Program and Implementation Plan and discussed the working plan to ease the air traffic in the PRD.

There are five large civil airports in the PRD: Guangzhou, Hong Kong, Shenzhen, Zhuhai, and Macao.

The PRD is considered to have the most complicated airspace in the world. With airports crowding the area, and competing in a small airspace, serious flight delays have occurred in the area in recent years.

In 2004, China, Hong Kong and Macao began organizing groups to study the air traffic management in the PRD. The implementation plan is a product of more than 10 coordination meetings at various levels over the last three years.

The plan seeks the trilateral coordinated control operation of the PRD. The development program includes terminal area airspace structure, control operation standards and program.

The plan is expected to meet the requirements of the development of the PRD in 2020.

New Kunming airport to handle 63 million

投资230亿打造国家级机场
昆明新机场奠基

The groundbreaking ceremony for the new Kunming International Airport was held on February 11 in Dabanqiao Town in Kunming City, Yunnan.

The new airport will have four runways and can handle 63 million passengers annually when the whole project is finished at an undisclosed time.

Among those who attended the ceremony were Vice Minister Yang Guoqing of the Civil Aviation Administration of China; Bai Enpei, Yunnan provincial party secretary; and Qin Guangrong, governor of Yunnan province.

The new airport is the only large hub airport to be constructed during the 11th Five-Year Plan, which ends in 2010.

The project is part of the plan to develop civil aviation in China, particularly in the west.

Yang said the new Kunming airport is an important infrastructure project of the CAAC.

Urumqi's third expansion project now underway

乌鲁木齐终端区空域
新飞行程序正在设计之中

The third expansion project of the Urumqi International Airport is underway, in anticipation of the projected increase in passenger and cargo volumes by 2015.

According to estimates, passenger volume at Urumqi airport will reach over 16 million in 2015 with annual aircraft movements reaching 155,000.

The Urumqi Terminal Region Airspace Flight Procedure Design of the Civil Aviation Air Traffic Management Project is being completed by the Air Traffic Management Department and Flight Service Center of the Xinjiang Air Traffic Management Bureau.

Under the plan, the Urumqi terminal region airspace and flight procedures will be adjusted and optimized. The current VOR/DME, NDB navigation facilities, instrument landing system and airport surface surveillance equipment will also be adjusted.

CAAC

Updates



ATMB holds symposium

民航运行协调决策机制工作研讨会在成都召开

The Air Traffic Management Bureau of the Civil Aviation Administration of China held a symposium on the civil aviation operation-coordinating decision system in Chengdu, Sichuan province.

Director Su Langen of ATMB, Vice Director Li Zongji of ATMB of CAAC, and Director Gao Yi of Southwest ATMB attended the meeting, together with leaders from operation control departments



of Air China, China Eastern Airlines, China Southern Airlines, Hainan Airlines, Shanghai Hongqiao Airport, Pudong Airport, and Guangzhou Baiyun Airport, as well as directors of all regional ATMB operation centers and weather departments.

The operations centers reported updates on the coordinating decision system which was started in 2005.

Su talked about solidarity and cooperation for multi-units linkage to improve operation quality. He said the coordinating decision system is a work system with system innovation and management innovation established by airlines, airports and air traffic management departments to suit civil aviation operation requirements.

He further advised all to analyze the weak sectors in civil aviation operations and perfect the operation of the coordinating decision system.

Airport association holds meeting

中国民用机场协会行业发展委员会在北京成立

The China Civil Airports Association launched the Industry Development Commission last January 30 with CCAA secretary Zhang Wangjian presiding. Representatives from 14 members attended the meeting.

At the meeting, Xu Yong, vice president of Nanjing Lukou International Airport, was elected as director, with Vice President Tang Dajie of Shenzhen Baoan International Airport, and manager Ou Aimin of Market Investment of Sichuan Provincial Airports Group as vice directors of the commission.

The commission aims to promote the development of the association.

Alternate airports chosen for Games

民航东北地区管理局确定奥运备降机场

The Northeast Regional Administration (NRA) of the Civil Aviation Administration of China has chosen Changchun, Dalian and Harbin airports as alternate airports for the Olympic Games to ensure the efficient operation of flights.

The three airports will support the operations of the airports in Beijing and Shenyang, two of the host cities of the Games. The NRA also established an office at Shenyang Taoxian International Airport.

The Shenyang civil aviation unit has started its English training project for airport and airline personnel in preparation for the Games. The personnel will also be trained in the different customs of participating countries and regions, etiquette and service skills.

The Shenyang airport terminal building will be upgraded to adjust access for the disabled, parking, and departure and arrival procedures. In June, civil aviation units will conduct a series of Olympic Games service simulation drills, including safety and security, air traffic control and airport operations.

Promotion of private aviation encouraged

民航总局对温州私人航空业发展情况进行调研

Chief pilot Yu Zhenfa of the Civil Aviation Administration of China went to Wenzhou, Zhejiang province recently to examine the private aviation development in the area, particularly that of the Wenzhou Yueqing Aviation Club.

He was assisted by CAAC units, including the East China Regional Administration, East China Air Traffic Management Bureau, Zhejiang supervision office, Wenzhou Airport and Wenzhou Air Traffic Management Station.

There is a growing demand for aircraft from private enterprises and individuals in Wenzhou. However, the airspace in the area is complicated and the national air traffic management system is strict.

Yu urged the development of general aviation with the help of the Aircraft Owners and Pilots Association-China. He also called for the establishment of a third experimental area in Zhejiang or Jiangsu to open low-altitude airspace and promote the development of private aviation activities.

Group established for Olympic Games

首都机场奥运筹备工作团队正式组建

The Preparing Working Group of the Beijing International Capital Airport for the Olympic Games has been established. Vice Minister Yang Guoqing of the Civil Aviation Administration of China, who heads the group, presented the requirements to make the air transport service successful before and during the Olympic Games.

Yang said these requirements are to enhance responsibility to have effective air transport service during the Olympics; form the integral power of the Olympic Games air transport service; and finish the fundamental work before the Games.



The group was established by the Beijing Organizing Committee for the Games of the XXIX Olympiad (BOCOG). Officials of the group are Huang Dengke, director of the North China Regional Administration of CAAC; Wang Jincai, vice director of the International Relations Department of BOCOG; Meng Ping, vice inspector of the Transport Department of CAAC; Wang Duanping, vice director of the North China Regional Administration of CAAC; Wang Jiadong, general manager of the Capital International Airport; Lu Changcheng, director of the Capital International Airport Public Security Branch Bureau; and Yang Lihua, vice president of Air China.

Aviation association separates into two

中国民用航空协会正式注销 完成历史性改革

The Civil Aviation Administration of China has approved the cancellation of the registration of the China Civil Aviation Association and its branch organizations.

Replacing the association are two new groups, the China Air Transport Association and China Civil Airports Association, both approved by the Ministry of Civil Affairs.

The aviation association, which was established in 1991, agreed to separate the association to form the airport and airline groups.

China, Tajikistan in talks to expand air services

杨国庆会见塔吉克斯坦共和国驻华大使

Vice Minister Yang Guoqing of the Civil Aviation Administration of China and Ambassador Rashid Olimov of Tajikistan met on February 6 to discuss how to enhance the bilateral aviation cooperation between their countries.

They agree that China and Tajikistan civil aviation departments should enhance cooperation and communication to better serve personnel exchanges and trade cooperation between the two countries.

Safety audit meeting held

航空保安审计总结会议在丽江召开

The Public Security Bureau of the Civil Aviation Administration of China held a meeting following the aviation safety audit of Lijiang Airport in Yunnan province. The audit was performed by the CAAC's Southwest Regional Administration.

Among those who attended the meeting were Vice Director Wang Huaiyu of the Public Security Bureau; Vice General Manager Deng Xiping of Yunnan Airports Group; leaders in charge of aviation safety audit from each Public Security Bureau of regional administrations; and chiefs of safety audit offices of Guangzhou Airport, Kunming Airport, Ningbo Airport and Hailar Airport.

The meeting involved discussions of experiences and methods in the implementation of the safety audit, including the revised Aviation Safety Audit Manual and Aviation Safety Audit Points.

Every Public Security Bureau of the regional administration of the CAAC reported the situation of developing aviation safety audit in its own precinct.

Guangzhou, Ningbo and Hailar Airports presented their experiences in safety audits.

The delegates considered the safety audit as an important measure for the CAAC to enhance security management. The audit will enhance aviation safety management of airports and airlines in order to pinpoint the deficiencies.

The safety audit will encourage airports and airlines to implement the National Civil Aviation Safety Security Plan. It will also encourage local governments and airport management departments to be accountable for security work and gradually increase their investment in security.

The audit will also help airport staff gain knowledge of aviation security and help determine the capability of the CAAC and its regional administrations to implement aviation safety management.

China Eastern to open flights to Johannesburg

东航将于四月份开通上海——约翰内斯堡航线

China Eastern Airlines will open flights between Shanghai and Johannesburg in April as a result of the bilateral air negotiation between China and South Africa.

Manqoba Nyembezi, tourism attaché of the Embassy of the Republic of South Africa in China, said the opening of the flight will benefit tourists and businessmen of China and South Africa and promote bilateral economic cooperation.

Initially, China Eastern will open two flights a week with a stopover at Maldives.

Currently Chinese tourists visiting South Africa usually fly from a Chinese



city to Hong Kong or Singapore and then transfer to a flight to Johannesburg.



Dawn of a new age

New technologies to shape China's airspace

By JONATHAN M. HICAP

The success of the 2008 Beijing Olympics will not only be measured in terms of packed stadiums, breathtaking opening and closing ceremonies, and record numbers of participating athletes.

One major dilemma Olympic organizers are facing is how to manage China's airspace to accommodate hundreds of commercial aircraft that will fly thousands of athletes, coaches and event spectators to the Games. The Beijing Olympics will be a test of China's progress in civil aviation, given the complexity of its airspace and geography.

On a large scale, China's civil aviation is growing at an unprecedented rate. It is estimated that Chinese airlines carried 160 million passengers in 2006. Annual aircraft movements in China increased from over 1.5 million in 2001 to close to 3 million in 2005.

The Civil Aviation Administration of China (CAAC) estimates that air traffic movements will reach 5 million per year by 2010.

During the US-China Aviation Summit last September, Administrator Marion Blakey of the US Federal Aviation Administration said the two countries are in a critical period in air traffic modernization.

"For years, we've been talking about approaching a crossroad with our air traffic management systems. We've known for some time that we were coming to a point when we'd need to make a decision on modernizing our infrastructure. Well, that day is upon us," said Blakey.

Analysts are forecasting that the Asia-Pacific region will experience robust growth in passenger traffic in the next

20 years, mainly because of the growing aviation markets in China and India.

In its global traffic forecast through 2025, the Airports Council International (ACI) says, "By 2010, the number of global passengers is forecast to surpass the 5 billion mark and by 2025 there is expected to be in excess of 9 billion passengers globally." It projects that, in the next 20 years, world passenger volumes will grow by 4 percent yearly.

China is now the second largest aviation market in the world next to the US, owing to the growth in air traffic. But this growth poses a challenge to China, which needs to speed up development of its aviation industry in order to meet the demand.

As aircraft movements increase, China's airspace gets more congested. Russel Chew, chief operation officer of the US Air Traffic Organization, says that flight delays caused by congestion, for instance, account for US\$9.4 billion in losses every year in the US.

China's terrain and severe weather conditions pose a challenge to aircraft and air traffic controllers. Another major factor is how to properly allocate China's airspace between the military and civil

aviation.

Currently, China's civilian-controlled airspace is "grossly insufficient," according to a paper presented during the aviation summit. There is also an insufficient number of aviation professionals, especially controllers. As of 2006, China has only 3,700 certified controllers.

As of 2005, China has 1,024 domestic air routes serving 132 Chinese cities, and 233 international air routes serving 75 cities in 33 countries. For the Beijing Olympics, China's Air Traffic Management Bureau has developed the general air traffic management plan. More domestic and international air routes will be opened for the Olympics and a joint civilian-military TMA will be put in operation in Beijing this year.

As of last year, China's current airspace structure consists of 11 flight information regions (FIR), including Hong Kong and Taipei; 27 upper control areas; 28 low and medium level control areas; 17 approach controls (APPs) and one terminal control area (TMA); and 150 aerodrome control zones, based on the CAAC's development plan presented in the aviation summit. Its Communication Navigation Surveillance/

Air Traffic Management (CNS/ATM) infrastructure consists of 42 air traffic control (ATC) centers; 78 secondary surveillance radars (SSRs) and 34 primary surveillance radars (PSRs); 180 common-antenna multi-channel VHF systems; and 190 VOR/DME.

A Chinese pilot uses handheld display to test ADS-B technology. (Photo by ADS-B Technologies)



As it modernizes its civil aviation, China is looking at new technologies to maximize use of airspace, ensure safety, and speed up development.

One of these technologies is the Automatic Dependent Surveillance-Broadcast (ADS-B), “which works by having aircraft transponders receive GPS signals and use them to determine the plane’s precise location in the sky.”

The largest ADS-B deployment in Asia nears completion in the provinces of Sichuan and Henan in China, according to Alaska-based ADS-B Technologies, which partnered with the Civil Aviation Flight University of China in 2005 to equip the university’s trainers with ADS-B technology.

“With five ground stations and more than 110 aircraft avionics installations already completed, this is certainly the largest end-to-end ADS-B deployment in Asia, perhaps the largest in the world, other than the FAA’s Capstone Program in Alaska,” said Skip Nelson, president and CEO of ADS-B Technologies, in a statement.

Similarly, the ADS-B will be a main component of the US Next Generation Air Transportation System (NextGen), the blueprint of the US aviation industry for the next 20 years.

“ADS-B will give us real-time cockpit displays of traffic information, both on the ground and in the air. So for the first time, pilots and controllers will have a much better sense of what’s going on around them at any given time. And that, in turn, will increase capacity,” said Blakey at the summit.

The CAAC says it will accelerate the ADS-B implementation in China. CAAC’s Air Traffic Management Bureau has drafted the ADS-B development policy, which will deploy the technology in areas without radar coverage in Western China.

An ADS-B experiment will be held in Chengdu-Jiuzhaigou this year, to be followed in the Xi’an and Xinjiang regions. CAAC will collaborate with the US Federal Aviation Administration and Boeing Co. in the use of ADS-B.

China and the US have been collaborating in aviation for years through different programs, including the Joint Air Traffic Service program and the Aviation Cooperation Program.

Both the CAAC and FAA are working together on the regulatory framework, TMA airspace planning, flight procedure and operations; VFR charting, flight check methods, reduced vertical separation minimum (RVSM), area navigation/required navigation performance (RNAV/RNP) flight procedure design and global navigation satellite system (GNSS).

In 2005, Boeing evaluated the CAAC-

ATMB five-year transition plan and submitted comments on organizational structure, airspace modeling, data collection and analysis, and preparation for the Olympics.

Last April, the CAAC/ATMB, FAA/ATO and Boeing established a three-party joint working team to collaborate on the operation of the three runways of Beijing Airport, air traffic flow management and other technologies. Beijing Airport’s third runway will be in operation before the Olympics to add capacity for landings and takeoffs.

RNAV flight procedures, for example, have been tested in Beijing and Tianjin airports and have been found to make

delay and cost to the airlines.”

RNAV is already in operation at Atlanta Hartsfield Airport, a procedure which will save airlines about US\$39 million. Chinese officials are using the Atlanta model in implementing RNAV at Beijing Airport.

“We believe that implementation of RNAV in China will simplify clearances, reduce frequency congestion, enhance safety, and increase capacity in anticipation of the 2008 Summer Olympic Games,” Chew said at the summit.

China has also drafted the RVSM implementation plan, which is now awaiting approval by the State ATC Commission. The CAAC said RVSM will be implemented in China in three to five years.



An Air China aircraft at Lhasa Airport in Tibet. Lhasa is surrounded by mountainous terrain, making air navigation difficult.

flights more accurate, convenient and flexible. The CAAC, FAA and Boeing conducted the Lhasa Airport RNP program procedure design and trial operation. RNAV flight trials are either being planned or have been conducted in Beijing, Shanghai, Guangzhou, Shenzhen, Wuhan, Shenyang, Chengdu, Xi’an and Urumqi.

Last February 6, Naverus announced that Air China and the CAAC completed the validation flight using RNP at Jiuzhaigou Airport. The airport joins Lhasa and Linzhi Airports that use RNP technology provided by Naverus.

China is eyeing RNAV/RNP to gradually replace conventional flight procedures and ATS routes.

Chew explained that, “With RNAV procedures, existing onboard avionics can be used for more predictable and more advanced flight path guidance, so only minimal air traffic instructions are required. This significantly reduces routine controller-pilot communications.”

He explained, “because RNAV procedures can reduce its dependence on the exact location of ground-based navigation facilities, the procedures can reduce fuel burn and time. Thus, R-NAV procedures enhance safety, while reducing

Under this plan, the FAA will evaluate the flight level allocation in China while the CAAC-ATMB is working to establish the Safety Monitoring and Evaluation Agency.

GNSS will also be part of China’s modernization plan, and will be used in routes and airports in Western China whose geography is not suited to conventional technologies.

It will take years before all of these advances be fully implemented and perfected, but China has entered a new era in civil aviation in which the next generation of technologies must be used in order to solve airspace constraints.

That China’s passenger and cargo traffic will experience tremendous growth in the next decade is already an accepted fact. The burning question is: can China adapt to the future of air transport systems?

The Beijing Olympics will be the big test to see whether China has successfully reformed and developed its civil aviation. Only after all the medals have been awarded, the flame of the Olympic torch has been extinguished and all the athletes and spectators have already left will we know if China has gained the upper hand in defining what it calls the Next Generation of Civil Air Transport System.



Nanjing, Changi airports sign accord

南京禄口机场与新加坡樟宜机场合资框架协议在宁签署

Nanjing Lukou International Airport and Singapore's Changi Airport signed an agreement last January 31 to develop the Lukou airport as an international airport and logistics center.

The agreement is part of the plan of Jiangsu Province to focus on developing the local economy and promote rapid development.

Among those who attended the signing ceremony in Nanjing were Liang Baohua, governor of Jiangsu province; Khaw Boon Wan, Singapore health minister; Li Quanlin, vice governor of Jiangsu province; and Yu Cheng'an, general manager of the Nanjing airport company.

The state-owned Assets Supervision and Administration Commission of Jiangsu Province, Jiangsu Communications



Officials from Nanjing airport, Changi airport, and Jiangsu province at the signing ceremony.

Holding Co. and Nanjing Investment Company will have a 71-percent stake in the venture, while Changi Airports International will have 29 percent.

AVIC 1 leasing company established

向下游产业链延伸 中航一集团试水飞机租赁

China Aviation Corp. 1 (AVIC 1) will establish the AVIC 1 International Leasing Corp. (AILC), together with 13 aviation industry groups and research institutes. It will become the first domestic international aircraft leasing company with a background in aircraft manufacturing.

AVIC 1 currently has the CATIC International Leasing Corp., an import and export agency. AVIC 1 established the new company by increasing the capital and shares of CATIC from RMB 4 million to RMB 430 million.

AILC will be operated by AVIC 1, together with enterprises and research

institutes involved in aircraft design, aircraft manufacturing, engine manufacturing, avionics development and missile development.

The company will finance and manage the leasing of assets, including civil aircraft, machines and electromechanical devices and transport equipment.

AILC general manager Zhao Hongwei said the company will start by leasing equipment to aviation companies.

After the production of the ARJ21 aircraft being developed by AVIC 1, the leasing company's business will expand to aircraft leasing. The ARJ21 aircraft will have its test flight in 2008.

China Southern to open 10 new routes this year

广州—迪拜近期开通
南航发力国际航空市场

China Southern Airlines will open 10 flights this year to expand its international network. The airline will open flights from Guangzhou to Cambodia, India, Japan, Laos, United Arab Emirates, Nigeria, Angola, Dubai, Luanda, New Delhi, Phuket, Sendai, Sapporo, Siem Reap, Vientiane and Yangon.

The plan will help establish Guangzhou as a major global business and logistics air center.

The airline announced it will add 68 new modern jet aircraft to its fleet this year, reaching its goal of 440 aircraft.

Beijing Airport appoints Wang as new chairman

首都机场董事长王战斌辞职
总经理王家栋接任



Mr Wang Jiadong

Beijing Capital International Airport Co., Ltd. has appointed Wang Jiadong as its new chairman.

Wang, formerly the company's general manager, replaces Wang Zhanbin, who resigned from his post as chairman and executive director because of a reallocation of appointments. Former Vice General Manager Dong Zhiyi has been appointed general manager.

Spring Airlines chooses Sanya as second base

春秋航空启用第二基地

Spring Airlines has inaugurated its second base at Sanya Fenghuang Airport as part of its expansion plan.

The airline has added 54 new flights linking Sanya with Hangzhou, Tianjin, Wuhan, Xi'an, Chongqing, Nanjing and Shenyang.

Spring Airlines established its first base at Shanghai Hongqiao Airport. Last year, the airline's income from operations reached RMB 540 million, with an average load factor of 94.4 percent, the highest among Chinese airlines.

It opened the second base because the Hongqiao airport could not meet its development requirement. The airport's expansion will not be finished until 2009.

A319 delivered to East Star Airlines

东星航空第三架飞机抵汉
首航青岛、三亚两条航线

Airbus delivered the third A319 aircraft to East Star Airlines on February 8 at the Wuhan Tianhe International Airport. The following day, the new aircraft made its maiden flight from Wuhan to Qingdao and Sanya.

Lan Shili, president and chairman of East Star Airlines, said that since the airline's maiden flight last May, the airline has carried 286,300 passengers with an average passenger load factor of 82.6 percent.

On-time flight performance reached 88.7 percent and sales income reached RMB 180 million.

East Star Airlines flies from Wuhan to 13 cities, including Guangzhou, Shenzhen, Haikou, Guilin, Changde, Nanjing, Shenyang, Hangzhou, Xi'an, Chongqing, Tianjin, Qingdao, and Sanya. The airline is also planning to open flights from Wuhan to Harbin, Chengdu, Kunming, Shanghai and Beijing.



China Sonangol orders three corporate jets

安国际石油控股有限公司订购3架空中客车A319公务机

China Sonangol has ordered three Airbus corporate jets, becoming the first named Chinese customer for the aircraft.

The airline's first corporate jet is undergoing cabin outfitting at the Associated Air Center in Dallas, Texas, and will be delivered soon.

Airbus says the sales of its corporate jet family, including the A318 Elite and A320 Prestige, has risen in double-digit figures. There are 80 orders for the corporate jets worldwide.

Airbus says its corporate jet family aircraft has twice the cabin width and three times the cabin volume of older top-of-the-line business jets, as well as the most

modern design of any corporate jet, while remaining as affordable and delivering unmatched quality and value.

"We give customers the space in which to realize their dreams," says Airbus Chief Operating Officer for Customers John Leahy.

The aircraft makers says benefits of the modern Airbus corporate jet family include advanced fuel-saving aerodynamic design with wingtip fences as standard, extensive use of weight-saving carbon-fiber structure, and modern systems that encompass a cost-saving common cockpit, fly-by-wire controls and centralized maintenance.

Air China subsidiary gets airworthiness maintenance certificate

国航成都维修基地取得A340/8C检适航维修许可证

The Chengdu maintenance base of Air China Engineering and Technology Co. acquired an airworthiness certificate for 8C check of Airbus A340-300 aircraft on February 6, becoming the first maintenance unit in west China to gain such certification.

The certificate entitles the Chengdu base to provide maintenance for the Airbus wide-body jetliner.

It took four months before the Chengdu base could apply for qualification with the

airworthiness department. Last September, the base started the Air China A340 aircraft 8C check project.

During the four months, it prepared the report; trained technicians, ordered tools, equipment and parts; and maintained the hangar support facility.

Following its application last December 22, the base passed the inspection to acquire the certificate.

There are only two maintenance joint ventures in China capable of providing maintenance work for the A340 jet.

Transaero Airlines opens flight to Guangzhou

外国航空公司利用琼中途分程权开通首条航线

Russian Transaero Airlines has opened a once-a-week flight from Moscow to Guangzhou with a stopover at Sanya in China.

International flights to Haikou or Sanya by foreign airlines could be extended to other mainland cities, including Beijing, Guangzhou, Shanghai, Hong Kong and Macao.

Russia is the second-biggest passenger source of Hainan province. Last year, Russian tourists coming to Hainan numbered 85,000, up by 192% on a year-on-year comparison. Transaero Airlines also has flights to Sanya from Moscow, St. Petersburg, Khabarovsk and Vladivostok.

Last March, mixed passenger and cargo flights were opened from Moscow to Sanya.

Okay Airways sets sights on freight \$2.5-B allotted for 4 airport projects

民营航空首条全货运航线开航

Okay Airways, the first privately owned airline in China, held its first cargo flight from Guangzhou to Hangzhou in February to break the dominance of state-owned airlines.

The airline will engage in cargo business, and is targeting Hangzhou as its hub.

Last November, the Civil Aviation Administration of China awarded

Okay Airlines three flights: Shenyang-Tianjin-Qingdao-Hangzhou, Hangzhou-Beijing-Qingdao-Shenyang and Xiamen-Guangzhou-Hangzhou.

Liu Jieyin, president of Okay Airlines, said: "The domestic air freight market is increasing quite rapidly. We think highly of this business."

Hangzhou will be the originating point of all Okay Airways flights in the future.

多项机场建设工程项目获批

China's National Development and Reform Commission announced that four airport expansion projects have been approved for a total investment of RMB 19.4 billion (about US\$2.5 billion).

These are the Shanghai Hongqiao Airport expansion, the new Qinghai Yushu Airport, and the third expansion of the Urumqi Airport and flight area expansion of the Guangxi Nanning Airport.

China will spend RMB 480 million for the Qinghai Yushu Airport project. The Civil Aviation Administration of China and the NCRD will arrange for the funding of the project.

The third stage of the Urumqi Airport expansion will result in an annual passenger volume of 16.3 million by 2015. A new terminal building will be built with a size of 90,000 sq.m. and the new apron will have 165,000 sq.m. in area. Total cost of the project is RMB 2.83 billion.

The Shanghai Hongqiao Airport expansion project will be designed to meet the target of an annual passenger throughput of 40 million by 2015. A new runway with a length of 3,300 meters will be built and a new terminal building about 250,000 sq.m. in size.

Total investment is about RMB 15.3 billion.

The flight area expansion project of the Guangxi Nanning Airport will cost RMB 530 million. The expansion will boost the economy of Guangxi and will allow it to hold big international events like the China-Asean Trade Zone Expo.

Chinese Southern to use Lufthansa Systems solution

德国汉莎在华又获重大市场突破

China Southern Airlines and Lufthansa Systems signed a five-year agreement on February 8 for the use of a network management solution in the airline.

"Together with Lufthansa Systems as one of the world's leading IT service providers, we plan to build an appropriate flight scheduling and network planning system. This will lay a firm foundation that will help fuel our airline company's reengineering process," said Tan Wangeng, China Southern executive vice president.

With Lufthansa's NetLine, China Southern has opted for an integrated and modular platform for network planning and control, capturing all the facets of the whole business process.

The solution will allow China Southern to evaluate the outcome of scenarios, plans, and decisions very quickly and reliably. This is possible because it puts a strong focus on automation and optimization tools that speed up planning and operational processes, save costs, improve revenues, and guarantee consistent robustness and stability.

"Lufthansa Systems has been a presence in the Chinese airline market for some time now. We are especially proud to partner with China Southern as the largest carrier in this important market," said Gunter Kuchler, executive board member of Lufthansa Systems.

China Southern is China's largest airline with a network of 80 cities worldwide.

欢迎来稿

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Beijing Airport best performer in Asia Pacific in 2006

Beijing Capital International Airport is the top performing airport in the Asia Pacific Region in 2006 with increases of 18 percent in passenger traffic, 32 percent in cargo and 10 percent in aircraft movements.

Based on the preliminary results by the Airports Council International (ACI), which represents 1,643 airports in 178 countries and territories worldwide, Beijing Capital Airport carried 48.5 million passengers in 2006, placing ninth in the top ten world's busiest airports.

Beijing is the only airport in the top ten which posted double-digit growth of 18.3 percent. The top 10 world's busiest airports are: Atlanta Airport, 84.8 million passengers; Chicago, 76.24 million; London, 67.53 million; Tokyo, 65.22 million; Los Angeles, 61.04 million; Dallas/Forth Worth, 60.07 million; Paris, 56.8 million; Frankfurt, 52.81 million; Beijing, 48.5 million; and Denver, 47.32 million.

ACI said overall, passenger traffic worldwide reached 4.4 billion in 2006, or an increase of 5.1 percent compared in 2005. Total international passengers reached 1.8 billion, up by 6.7 percent over 2005.

ACI said total worldwide cargo and mail reached 84.5 million metric tons and international freight reached 51 million metric tons, a 6.3 percent increase. Total aircraft movements reached 73 million, higher by 1.2 percent than in 2005.

"Everyone in our industry needs to take note of these results and our long-term forecast for continued expansion. We cannot afford to sit back and wait for the future to take care of itself. We must actively pursue both immediate and long-term capacity planning so that we can continue to offer high quality customer service that meets our goals for sustainability and environmental compatibility," said Robert Aaronson, director general of ACI.



WORLDWIDE AIRPORT TRAFFIC REPORT SUMMARY Preliminary Results 2006

STATS REGIONS	PASSENGERS	percent change	CARGO	percent change	MOVEMENTS	percent change
Africa	118,952,173	6.4	1,602,005	10.7	2,133,085	3.1
Asia Pacific	978,299,305	10.3	27,509,873	7.2	9,482,881	7.7
Europe	1,359,199,307	6.4	16,291,562	3.6	19,441,155	3.4
Latin America	280,748,945	5.1	4,381,912	0.4	5,191,948	3.4
Middle East	120,436,022	8.2	3,766,045	9.0	1,298,571	6.7
North America	1,533,157,547	0.7	30,944,742	(0.1)	35,098,641	(2.0)
TOTAL	4,390,793,298	5.1	84,496,140	3.7	72,646,281	1.2

WORLD'S BUSIEST AIRPORTS – Preliminary Ranking*

TOTAL CARGO TRAFFIC 2006

RANK	AIRPORT	CARGO	
		(tonnes)	% CHG
1	MEMPHIS, TN	3,692,205	2.6
2	HONG KONG, CN	3,608,789	5.1
3	ANCHORAGE, AK	2,803,792	5.9
4	SEOUL, KR	2,336,571	8.7
5	TOKYO, JP	2,280,026	(0.5)
6	SHANGHAI, CN	2,159,321	16.3
7	FRANKFURT, DE	2,127,797	8.4
8	LOUISVILLE, KY	1,982,985	9.3
9	SINGAPORE, SG	1,931,881	4.2
10	LOS ANGELES, CA	1,907,173	(1.1)
11	PARIS, FR	1,854,950	5.0
12	MIAMI, FL	1,830,592	3.9
13	TAIPEI, TW	1,698,808	(0.4)
14	NEW YORK, NY	1,660,158	0.2
15	CHICAGO, IL	1,618,331	4.8
16	AMSTERDAM, NL	1,559,787	4.3
17	DUBAI, AE	1,503,696	14.4
18	LONDON, GB	1,343,932	(3.1)
19	BANGKOK, TH	1,181,814	3.6
20	INDIANAPOLIS, IN	1,044,293	0.3
21	BEIJING, CN	1,028,908	31.6
22	NEWARK, NJ	969,936	2.1
23	OSAKA, JP	842,085	(3.1)
24	TOKYO, JP	832,854	4.3
25	GUANGZHOU, CN	824,906	9.9

ACI said several major hubs in the Asia Pacific posted strong results, including Singapore, Kuala Lumpur, Incheon, Bangkok and Tokyo HND. In India, both Mumbai and New Delhi saw excellent growth this year (each increasing by more than 20 percent).

Across Europe, several large and medium-sized airports reported strong growth, such as Paris CDG, Italy (Rome and Milan), Spain (Madrid, Barcelona) and Poland (Warsaw, Krakow), Germany (Munich, Düsseldorf), Ireland (Dublin), and Russia (St Petersburg). London Heathrow's flat results stemmed from the August security scare and severe weather in December, but also show the stagnating effect of lack of expansion.

In North America, airline difficulties negatively impacted traffic growth (Delta and Northwest restructuring and Independence Air closure) at hubs such as Atlanta, Cincinnati, Fort Lauderdale, Minneapolis, Salt Lake City and Washington. Denver was the best performer at a 9 percent increase, and both Newark and Houston had strong 7.4 percent increases.

Middle Eastern airports performed very well in 2006, with Dubai, Kuwait, Muscat and Bahrain reporting double-digit traffic growth. Dubai has become one of the most preferred business and leisure destinations in the region, with 28 million passengers last year.

In Africa, Johannesburg led with strong growth in both passenger (9 percent) and cargo (15 percent) traffic, and Cape Town recorded a 7 percent passenger traffic increase. Cairo and cities in Morocco also performed well for the year.

In the Latin American region, overall traffic growth and capacity was restrained as a result of cutbacks in the number of flights operated by Varig, one of the largest airlines in the region. Strong passenger growth was recorded at several airports across the region in Panama, Mexico, Ecuador, Jamaica and Brazil (the medium-sized airports).

WORLD'S BUSIEST AIRPORTS – Preliminary Ranking*

TOTAL PASSENGER TRAFFIC 2006

RANK	AIRPORT	PASSENGERS	
			% CHG
1	ATLANTA, GA	84,846,639	(1.2)
2	CHICAGO, IL	76,248,911	(0.3)
3	LONDON, GB	67,530,223	(0.6)
4	TOKYO, JP	65,225,795	3.0
5	LOS ANGELES, CA	61,048,552	(0.7)
6	DALLAS/FT WORTH AIRPORT, TX	60,079,107	1.3
7	PARIS, FR	56,808,967	5.6
8	FRANKFURT, DE	52,810,683	1.1
9	BEIJING, CN	48,501,102	18.3
10	DENVER, CO	47,324,844	9.1

WORLD'S BUSIEST AIRPORTS*

AIRCRAFT MOVEMENTS 2006

RANK	AIRPORT	MOVEMENTS	
			% CHG
1	ATLANTA, GA	976,447	(0.4)
2	CHICAGO, IL	958,643	(1.4)
3	DALLAS/FT WORTH AIRPORT, TX	700,409	(1.5)
4	LOS ANGELES, CA	656,842	1.0
5	LAS VEGAS, NV	619,486	2.4
6	HOUSTON, TX	602,672	6.7
7	DENVER, CO	597,290	6.7
8	PARIS, FR	541,566	3.6
9	PHOENIX, AZ	541,273	(3.3)
10	PHILADELPHIA, PA	515,809	(3.7)
11	CHARLOTTE, NC	509,559	(2.4)
12	FRANKFURT, DE	489,406	(0.2)
13	DETROIT, MI	481,740	(7.7)
14	LONDON, GB	477,029	(0.1)
15	MINNEAPOLIS/ST PAUL, MN	475,600	(10.6)
16	NEWARK, NJ	444,075	2.0
17	AMSTERDAM, NL	440,163	4.6
18	MADRID, ES	435,018	4.6
19	SALT LAKE CITY, UT	420,643	(7.6)
20	TORONTO, ON, CA	418,244	4.1
21	MUNICH, DE	411,335	3.1
22	BOSTON, MA	406,119	(0.7)
23	NEW YORK, NY	399,036	(1.4)
24	LOS ANGELES, CA	394,915	(4.0)
25	MIAMI, FL	385,538	1.0
26	MEMPHIS, TN	384,823	(1.9)
27	WASHINGTON, DC	379,280	(25.6)
28	BEIJING, CN	376,340	10.2
29	NEW YORK, NY	375,377	8.3
30	LONG BEACH, CA	369,708	4.7



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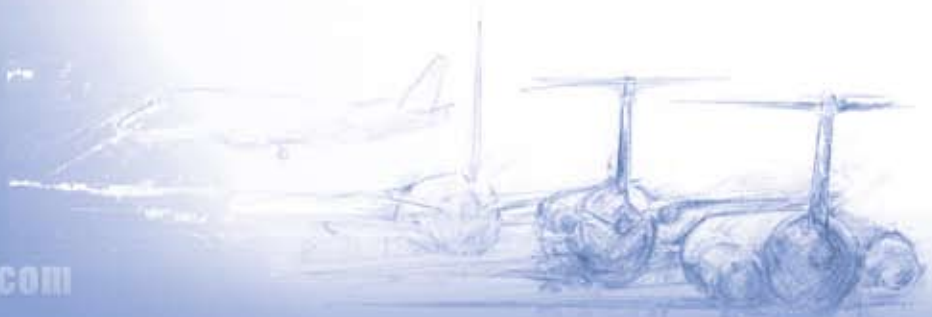
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