



# China Civil Aviation Report

## 民航报导

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Brief Introduction of China’s Air Traffic Management & Airspace



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## It is about time for airlines to help pilots to quit smoking!

The long time concern regarding pilots smoking during flights have been confirmed during this recent trip to China as I traveled from Beijing to Nanjing, then to Xi'an, then back to Beijing. This standard procedure, feeding passengers second-hand smoke 10 minutes after takeoff, is now a typical flying experience when flying in China.

For me, as someone who has flown 1.5 million miles in the last 30 years, I have already forgotten the reasons why we banned smoking during flights, no matter if it is for health or safety reasons, these same reasons should also apply to pilots as well.

I know quitting smoking is very challenging, but compared to learning how to speak English, I am sure it is a little easier. Many years ago, the Civil Aviation Administration of China, through promotion, education and examination, managed to create a majority of pilots who were capable to communicate with the ATC controllers in English. I am sure that if the airlines came up with an appropriate program, quitting smoking isn't impossible. Providing a clean and fresh flying environment is an airlines' obligation and duty. In the meantime, it always makes me worry to think about the unconfirmed possibility of avionics difficulties caused by the tar in the cigarette smoke when it is confined in a cockpit.

Maybe I am overly concerned, but isn't all aviation safety accomplished under the ideas of addressing reasonable concerns and prevention?

## 航空公司该要协助飞行员戒烟了！

久经怀疑的困惑在此次访问国内的行程里获得了证实，由北京，南京，西安再回到北京的航班上都确认了驾驶员在飞行中抽烟。这个起飞爬升十分钟后的固定程序，让全体乘客吸食二手烟，已经成为具有中国特色的航空体验。

30年来飞了一百五十万英里的我已经忘了当年飞机禁烟的理由，不论它是为了健康原因还是安全考量，这两者要求都应该对飞行员也是有效的。

我知道戒烟是困难的，但对于学英文来说应该是相对容易的。几年前在民航局大力推动，辅佐，考核的努力下，目前中国民航绝大多数的飞行员都可以用英语与航空管制员进行交流。我想如果航空公司能有效的推动与辅导，飞行员在飞行中不抽烟应该不是太困难的事。还给乘客一个干净清新的空中旅行环境，也是航空公司责无旁贷的义务与责任。同时每当我想到在一个封闭飞行驾驶舱内持续吸烟，其未经证实的烟油影响航空电子设备正常功能的可能性就让我感到忧虑。

也许我是多虑了，但航空的安全不都是在担心发生意外的合理防范下达成的结果？



Francis Chao 赵嘉国  
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## Backed by the Tianjin Government, Tianjin Airport Develops Rapidly

### 天津市政府助天津滨海国际机场腾飞

Writer & Editor: Linda Gao/编译: 高瑞玲



In order to push forward with the development of the Tianjin Binhai International Airport (Tianjin Airport for short), the Tianjin Municipal People's Government (Tianjin Government for short) has invested heavily into the project, including financial backing, policy support and other forms of assistance.

Since 2007, in order to further boost the development and speed up the opening of the Tianjin Airport and Binhai New Area, as well as to help them seek sound and rapid development, the Tianjin Government has supplied 50 million yuan to Tianjin Airport each year as a special fund in order to cultivate new routes and flights. This special fund also aims to attract airlines, both home and abroad, to seek development opportunities in Tianjin, to boost the morale of the airlines, to encourage airlines to open new scheduled and regular flights and to promote the competitiveness of Tianjin Airport. In regards to newly opened scheduled and regular flights, there are some new key flights that were opened. These flights are temporarily in the red but have development potential. These flights are being fostered by the Tianjin Government's financial subsidies as well as Tianjin Airport's fee waiver.

In September, 2010, together with the Tianjin Municipal Commission of Development and Reform, the Tianjin Transportation and Port Authority, and the Tianjin Finance Bureau, Tianjin Airport had submitted a report to the Tianjin Government to request that the Tianjin Government would support subsidies to airlines and freight agency businesses that operate customs supervision trucks or truck-airlines at the Tianjin Airport, with similar articles just like that in the Interim Measures of the Use and Management of the Special Fund to Tianjin Newly Opened Flights. This request gained attention

为推动天津滨海国际机场的发展乃至滨海新区的发展,可以说,天津市政府倾注了大量心血,包括提供资金支持、政策支持等。

2007年,为进一步推进天津机场和滨海新区开发开放,实现经济又好又快发展,天津市政府向天津滨海国际机场每年提供5,000万新开航线航班培育专项资金政策支持,用来吸引国内外航空公司来津发展,充分调动航空公司在津扩大经营的积极性,鼓励航空公司在津开辟新的定期航班和固定航班,进一步提升天津机场竞争力。对新开辟的定期航线和固定航班,现已开通暂时亏损且具有发展潜力的重点航线航班,将通过政府补助和机场对航空企业收费减免相结合的方式进行培育。

2010年9月,天津机场通过天津市发改委、天津市交通港口局、财政局联合向市政府递交报告,请天津市政府比照《天津市新开航线航班培育专项资金管理使用暂行办法》,对在天津机场运营“海关监管卡车”或“卡车航班”的航空公司及货运代理企业予以补贴扶持。天津机场的请求得到了天津市政府领导的关注和大力支持,市有关领导在近期做出批示,同意对运营“海关监管卡车”的航空公司或货代公司给予必要的资金补贴扶持。

天津滨海国际机场是华北地区第二大国际机场、国内干线机场、国际定期航班机场、国家一类航空口岸,中国主要的航空货运中心之一。天津机

and support from the Tianjin Government officials and recently, related officials made instructions to agree that the Tianjin Government should offer the necessary financial subsidies to airlines and freight agency businesses that operate customs supervision trucks.

Tianjin Airport is the second largest international airport in Northern China, as well as a domestic trunk airport, an international airport operating scheduled flights, a first class national port and one of China's main air transportation centers. Tianjin Airport owns a terminal of 116 thousand square meters, and a parking apron of 760 thousand square meters with 29 parking stands. The designed annual passenger throughput volume is 10 million and the designed cargo and mail throughput volume is 600 thousand tons. Its flight area grade has reached 4E which means the airport is able to accommodate the landing and take-off of full-laden large wide-body aircraft such as the Boeing 747-400 or smaller aircraft.

Backed by the Tianjin Government's financing, airline businesses that operate at Tianjin Airport can enjoy a fee waiver. So Tianjin Airport's capability of attracting airlines to set up a FBO, to make Tianjin Airport its field and to open scheduled and regular flights, has been greatly increased. Successively, China Cargo Airlines Ltd., Tianjin Airlines Co., Ltd. and other cargo airlines or passenger airlines have already been introduced.

Backed by the Tianjin Government's policy support, Tianjin Airport will develop customs supervision trucks or truck-airlines so it would become a hub-and-spoke airline network, which is an organic integration of full freighters, bellyholds of passenger aircraft and ground trucks, so that the airport is connected to coastal harbors, seaports and other customs warehouses. In addition, Tianjin Airport will increase and expand the amount of regions influenced by the cargo transportation business of Tianjin Airport so that the cargo in the cities that surround Tianjin while have no trans-oceanic or trans-continent flights, could be transported to Tianjin Airport to be collected or distributed, and so that the resources of the current airlines and flight routes can be most effectively utilized. Furthermore, the morale of consignors and freight agent enterprises can be boosted and more airlines would operate their business at Tianjin Airport. Then the cargo transportation of Tianjin Airport could achieve rapid and healthy development and the grand vision of establishing Tianjin Airport as the international air logistics center of Northern China could also be realized.

In 2009, the Tianjin Government drafted a written response to approve the Integrated Traffic Hub Collecting and Distributing Program of the Tianjin Binhai International Airport (the Program for short). The areas included in the Program are bounded by the Outer Ring Road in the west, the Tianjin-Tanggu Expressway and the Jishan Expressway in the east, the Jin Han Expressway in the north and the Jinbin Highway in the south. According to the principals of establishing a collection and distribution transport system featuring the separation of passenger and freight and fast ease, it was decided that a collection and distribution transport system made up of interurban-railways,



场目前拥有11.6万平方米航站楼、76万平方米停机坪及29个机位;设计年旅客吞吐能力达1,000万人次,货邮吞吐能力达60万吨。飞行区达到4E级,可保障包括波音747-400大型宽体客机在内的各类型飞机全载起降。国家实施滨海新区开发战略以来,天津市经济社会和航空运输进入了高速增长时期。

有了天津市政府的资金支持,天津机场对航空企业减免收费,吸引航空公司在机场内建立FBO、驻场、开辟定期航班、固定航班的能力大增。陆续引进了中国货运航空有限公司、天津航空有限责任公司等航空货运或客运航空公司。

有了天津市政府政策支持,天津机场将发展“海关监管卡车”或“卡车航班”,构建由全货机、客机腹舱和地面卡车有机结合的中枢辐射型航线网络,实现空港与海港连通、空港与其他城市海关监管库连通,增加和延伸机场的货运辐射范围,让周边没有跨洋、跨洲货运航班的城市的货物到天津机场集散,以有效利用现有航空公司和航线资源,进而充分调动货主和货代企业的积极性,吸引更多航空公司在津运营,推动天津机场货运快速健康发展,实现建设“中国北方国际航空物流中心”的宏伟愿景。

2009年,天津市政府批复并同意《天津滨海国际机场综合交通枢纽集疏运规划(2009-2020年)》。规划范围是:西起外环线,东至京津塘高速公路和蓟汕高速公路联络线,北起津汉快速路,南至津滨高速公路。按照构建“客货分离,快速疏解”集疏运体系的原则,确定由城际铁路、城市轨道交通、快速路、城市主干道等组成集疏运网络体系。按照《规划》要求,有关部门将加快京津城际机场联络线工程、地铁2号线机场延长线工程、机场大道、津汉快速路等道路工程。这意味着天津机场的竞争能力将更上一层楼。



urban rail transit, urban expressways and urban arterial roads will be built. According to the requirements in the Program, related units will accelerate the road construction works, including the Beijing-Tianjin Inter-city Airport Tie-line project, the Tianjin Airport Extension Line project in Line 2 of the Metro, the airport avenue and the Jin Han Expressway. All these projects signify the advantages and competitiveness of Tianjin Airport.

All of these measures and policies will promote Tianjin Airport's air-railway coordinated transport process. Not long ago, the manager of the Marking Department of Tianjin Airport, stated that the operation of shuttle buses between Tianjin Airport and the Tianjin railway station made the combination of the shuttle bus & high-speed railway offer much more convenience for Beijing customers who come to Tianjin for flights. It will take you roughly one hour or so to take the shuttle bus from the Tianjin high-speed railway station to go to Tianjin Airport, and that one hour is also the same amount of time Beijing customers spend in traveling to Beijing Capital International Airport and sometimes the former is a shorter trip than the latter. The brand new combination of aircraft plus shuttle bus plus high-speed railway will create "a second channel" for passengers to Beijing.

The most significant meaning of the Program is that it can strengthen the competitiveness of Tianjin Airport, especially the ability to compete for customers. If the articles in the Program are all reached, it will be easier for customers in and around Tianjin to go to Tianjin Airport and that will increase the potential amount of customers who will choose to travel with Tianjin Airport. Zhang Biao, a research assistant from the Institute of Chinese Enterprises Development, considers that this Program will not only be of significant value to Tianjin Airport, but will also promote the airport's whole economy, because the Program can gather all the passengers and cargo and mail around airports.

Ever since the central government carried out its strategy to explore and open up the Binhai New Area, Tianjin's air transportation industry has stepped into a period of rapid growth. In 2010, the passenger throughput volume and the cargo and mail throughput volume separately was 7.277 million and 202 thousand tons. This means they had achieved an increased rate of 31.3% and 14.6% respectively, compared to 2009. According to statistics, these years, the passenger throughput volume of Tianjin Airport has increased on average by 30% or so every year. It is estimated that by the end of 2011, Tianjin Airport's passenger throughput capability will reach the limit and will reach 10 million by 2012, which will exceed the designed capability.

In the Outline of the "Twelfth Five-Year Plan" for Tianjin's Economic and Social Development, it was confirmed that they would carry out the expansion project of Tianjin Airport. And the supporting traffic projects, including the Beijing-Tianjin Inter-city Airport Tie-line, the Tianjin Airport Extension Line



对于正在实施空铁联运的天津机场而言, 这将会起到促进作用。此前, 天津机场市场部负责人表示, 天津机场至天津站的往返大巴车辆已开通, “大巴+高铁”这一新的组合, 给北京旅客来津乘机提供了更多便利。一小时左右即可到达天津机场, 这只相当于北京旅客到首都机场乘机所用的时间, 甚至有的时候会比部分旅客从住所到首都机场更加便捷。“飞机+大巴+高铁”这种全新的交通组合方式将为航空旅客打通进京的“第二通道”。

规划更大的意义在于能够加强机场的竞争能力, 尤其是客源的争夺能力。规划实现后, 天津本土的客源甚至是周边的客源到达天津机场都会变得更加容易, 因此选择从天津机场出行的可能性就会更大。中国企业发展研究院助理研究员张彪认为, 这个规划不仅对天津机场有着重大的现实价值, 对于整个空港经济可能都是一个大的带动。因为这个规划能够做到将人流与物流更好地向空港聚集。

国家实施滨海新区开发开放战略以来, 天津航空运输进入了高速增长时期。2010年, 天津机场实现旅客吞吐量727.7万人次, 货邮吞吐量20.2万吨, 分别比2009年增长31.3%和14.6%。据统计, 天津机场近几年旅客吞吐量年均增幅约30%, 预计到2011年年底天津机场的旅客吞吐能力将趋于饱和。至2012年, 天津机场的旅客吞吐量将突破1,000万人次, 超过现有航站楼的设计容量。

在《天津市国民经济和社会发展第十二个五年规划纲要》中, 确定实施滨海国际机场扩建工程, 建设京津城际机场联络线、地铁2号线机场延伸线、成林道延伸线等配套交通工程, 改善机场空域条件, 进一步增强干线机场的功能, 建设天津滨海国际机场成为我国北方国际航空物流中心和大型门户枢纽机场。

11月30日, 天津机场与裕廊国际工程(苏州)有限公司(简称“裕廊国际”)在津签署了《天津机场航空物流园区规划服务合同》, 标志着天津机

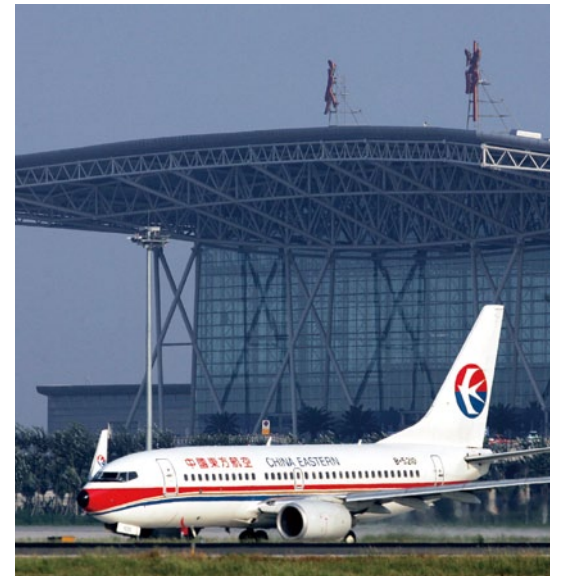
in the Metro Line 2, and the Chenglindao Extension Line will all be built to improve the airspace conditions of Tianjin Airport and to further strengthen Tianjin Airport's ability to function as a hub airport, so that Tianjin Airport can be built as a large portal hub airport and Northern China's international logistics center.

On December, 30th, Tianjin Airport signed a contract with JURONG International Constructors (Suzhou) providing the planning services for the establishment of the Tianjin Airport Air Logistics Park. This signifies that the planning and construction of the Tianjin Airport Air Logistics Park has been officially started and Tianjin Airport has taken a significant step towards their vision of becoming the international air logistics center of Northern China.

The Tianjin Airport Air Logistics Park lies west of the Runway I of the Tianjin Airport, north of the Tianjin-Binhai Highway, east of Tianjin's Outer Ring Road (the Bypass) and south of Tianjin's Jin-Han Road. As planned, it will take up an area of 6.4 sq. km, including the parking apron for freight, the cargo station and the express mail center, the freight area which belongs to the Tianjin Airport, the warehousing and logistics extension area and management office area. In accordance to civil aviation's industrial regulations and the requirements of modern aviation logistics, the functional planning of the Tianjin Airport Air Logistics Park is divided into two areas, the core operation area and the support service area. The core operation area includes the parking apron for freight, the cargo station and the express mail center. The support service area includes the integrated customs supervision zone, the bonded logistics zone, the simple processing zone, the one-stop service center, the exhibitions and trade center, the conference and business center, the management and business facilities, the energy and support facilities and living ancillary facilities. The planning services in this signed contract is regarding the Tianjin Airport Air Logistics Park's core area, which includes the freight apron, the cargo station, the express mail center and the cargo transportation area of the Tianjin Airport.

Yan Xin, the general manager of Tianjin Airport pointed out that, to start the planning and designing of the Tianjin Airport Air Logistics Park would also be the beginning of the implementation the Twelfth Five-year Plan of Tianjin's Modern Logistics Industry, the implementing of the Deployment Program of the Coordination Team for Promoting Facilitation in the Tianjin Airport Port and also the implementing of the Twelfth Five-year Plan for the Development of the Tianjin Binhai International Airport.

According to the signed contract, JURONG International Constructors (Suzhou) will finish the planning services by the end of June, 2012, which can ensure that the Tianjin Airport Air Logistics Park can be put into construction in the second half of 2012. Relying on the trunk industries of Tianjin such as aviation & aerospace, petrochemical engineering, equipment manufacturing and electronic information, which are all in close relation to aviation logistics. The Tianjin Airport Air Logistics Park will promote the aviation logistics integration process in both the Binhai New Area and the Bohai Sea Economic Zone.



场物流园区规划建设正式启动, 向着中国北方国际航空物流中心的愿景迈出了重要的一步。

天津机场航空物流园区位于机场一跑道西侧, 东至机场一跑道、南至津滨高速公路、西至外环线(辅路)、北至津汉公路, 规划面积6.4平方公里, 主要包括货机坪、货站和快件中心、机场货运区、空港国际物流区、仓储物流扩展区及管理办公区。按照民航行业规定和现代航空物流发展需要, 天津机场航空物流园区功能规划为核心操作区和配套服务区。其中核心操作区主要包括: 货机坪、货站、快件中心; 配套服务区主要包括: 海关集中监管区、保税物流区、简易加工区, 一站式服务中心、展览展销中心、会议商务中心, 管理办公设施、能源保障设施、生活附属设施。此次签署的规划服务项目范围, 是天津机场空港物流园区的核心区域, 包括货机坪、货站、快件中心及机场货运区。

天津机场总经理阎欣指出, 现在启动天津机场航空物流园区规划设计, 是落实《天津市现代物流业发展“十二五”规划》的需要, 是落实《天津空港口岸促进便利化协调小组重点工作部署方案》的需要, 也是落实《天津滨海国际机场发展第十二个五年规划》的需要。

根据合同约定, 裕廊国际将在2012年6月底前完成规划服务, 确保天津机场航空物流园区于2012年下半年开工建设。物流园区将依托航空航天、石油化工、装备制造、电子信息等航空物流联系密切的支柱产业, 有力推进滨海新区、环渤海经济区的航空物流一体化进程, 真正成为滨海新区、环渤海区域、北方经济中心发展的航空引擎, 助力天津跨越式发展。



# Brief Introduction of the "Twelfth Five-Year Plan" for China's Civil Aviation

## 民用航空“十二五”发展规划简介

Editor: Lili Wang/编译: 汪莉莉

The goal of China's "Twelfth Five-Year Plan" is to strategically build aviation in order to guide the development of the civil aviation industry to ensure continued safety, to speed up the construction of the infrastructure and to improve the air transport network, enhance the quality of transport and actively develop general aviation, Allwhile significantly enhancing the capacity of civil aviation and its comprehensive services.

### Part I: Enhancing Airport Security

#### 1. Optimize Airport Layout

Implement the overall "National Civil Airports Layout Plan", and use economic & social development as a means to adjust and perfect it. Consummate the international hub airports and the trunk airports as the backbone, and the regional airports as supplementary for the aviation network. Enhance the airports complementary function in the areas of the Pearl River Delta, Yangtze River Delta, and Beijing-Tianjin-Hebei to promote the multi-airport system. By 2015, civil airports will cover more than 81% of the total of counties and cities, cover more than 83% of the population and more than 94% of the GDP.

#### 2. Speed Up Airport Construction

Speeding up the existing airports' capacities. Actively promote airport expansion projects and improve airport security capabilities. Further strengthen the three hub constructions in Beijing, Shanghai Pudong and Guangzhou to improve international hub functions.

Relocate the airports in Qinhuangdao, Jinzhou, Luzhou, Yanan and others, while studying the construction of the new airports in Chengdu, Qingdao, Xiamen and Dalian.

以建设民航强国战略统领民航业发展, 以确保持续安全为前提, 加快基础设施建设, 完善航空运输网络, 全面提升运输质量, 积极发展通用航空, 显著提高民航综合保障能力和服务水平。

### 第一节 增强机场保障能力

#### 一、优化机场布局

全面实施《全国民用机场布局规划》, 并根据经济社会发展形势予以调整完善。完善以国际枢纽机场和干线机场为骨干、支线机场为补充的航空网络, 加强珠江三角洲、长江三角洲、京津冀等区域机场功能互补, 促进多机场体系的形成。力争到2015年, 民用机场覆盖全国81%以上的县级城市单元、83%以上的人口和94%以上的GDP。

#### 二、加快机场建设

加快提升现有机场容量。积极推进机场改扩建工程, 提高机场保障能力。继续强化北京、上海浦东、广州三大枢纽机场的建设, 完善国际枢纽功能。

迁建秦皇岛、锦州、泸州、延安等机场, 研究建设成都、青岛、厦门、大连新机场。

合理新建支线机场。积极推进非运输机场改建或迁建为运输机场, 鼓励利用现有军用机场。

主动建设机场空管设施。加快推进中小机场空管设施设备更新改造, 逐步实现标准化配置, 全面改善和提升中小机场空管保障能力。

Construct new regional airports rationally. Actively promote the re-construction of the non-transport airports or transfer into the transport airports, and encourage the use of the already existing military airports.

Actively construct airport ATC facilities. Speed up the upgrading of the ATC facilities in the small and medium-sized airports, gradually realizing the standardized configuration, and overall improving and upgrading the ATC security capabilities of the small and medium-sized airports.

### 3. Improve Operation Management Efficiency

Deepen the reform of airport management, develop new airport businesses, promote the transforming of the business operation model, improve the efficiency of the resources allocated, and build a fair, high quality, high efficient airport public service platform. Optimize airport service procedures, improve the information exchange platform, perfect service facilities and the procedure design, reduce baggage sorting error rates and realize direct baggage transferring at the hub. Implement an operation scheme to fully exert airports infrastructure capacities, and promote the multi-airport system and multi-runway operation efficiency.

### 4. Secure the Aviation Fuel Supply

The aviation fuel supply will be about 28.5 million tons in 2015. Reasonable layout and construction of the refined oil storage and transportation distribution base in the Yangtze River Delta, Pearl River Delta, Bohai Rim and Southwest Region. Construction of the aviation fuel strategic reserves in Southern China. Improve aviation fuel acquisition capabilities; develop aviation fuel logistics, stabilize, expand and optimize the aviation fuel supply channel. According to the key airport relocation and expansion projects, strengthen the logistics, storage, filling and long distance pipelines at the airports in Guangzhou, Xi'an, Hangzhou, Xiamen and etc.. Explore and implement an aviation fuel supply security pattern suitable for general aviation and regional aviation. Enhance aviation fuel safety management.

### Part II: Establish a Modern ATC Service System

#### 1. Improve the ATC Network

Plan & adjust the air route network, to form an air route network frame with a hub-and-spoke air route network, regional trunk air route network and regional air route network. Build domestic mega-capability air channel. In the busy regions such as Beijing-Guangzhou, Beijing-Shanghai and etc., add a

### 三、提高运营管理效率

深化机场管理改革, 开发新的机场业务, 推进业务经营模式转型, 提高资源配置效率, 打造公平、优质、高效的机场公共服务平台。优化机场服务流程, 完善信息交换平台, 完善服务设施和流程设计, 降低行李分拣差错率, 实现枢纽中转航班行李直挂。实施能够充分发挥机场基础设施能力的运行方案, 提升多机场体系和多跑道机场运行效率。

### 四、保障航空油料供应

到2015年保障航油供给约2850万吨。合理布局和建设长江三角洲、珠江三角洲、环渤海及西南地区的成品油储运配送基地, 建设南疆航油战略储备库。提高航油获取能力, 发展航油物流, 稳定、拓展和优化航油供应渠道。根据重点机场迁建和改扩建工程项目, 加强广州、西安、杭州、厦门等机场航空油料的物流、存贮、加注和长输管线等基础设施建设。探索和实施适合通用和支线机场的航空油料供应保障模式。加强航油安全管理。

### 第二节 建设现代空管服务系统

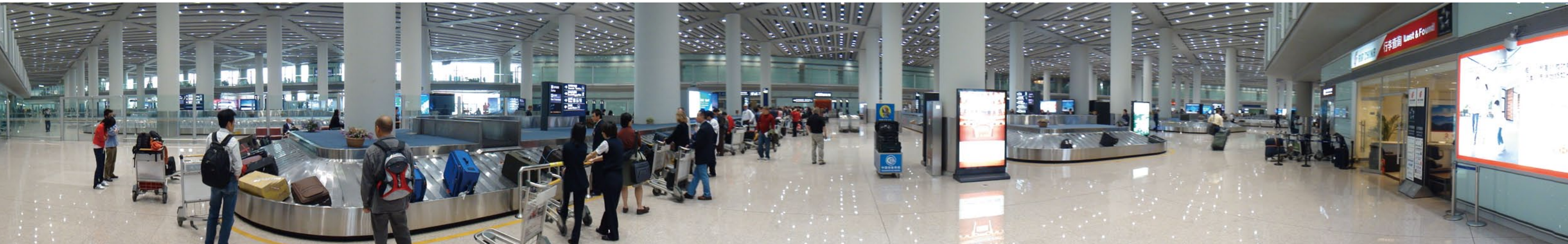
#### 一、完善空中交通网络

规划调整航路网, 形成枢纽航路网、区域干线航路网和区域支线航路网有机结合的航路网络构架。建设国内大能力空中通道, 在北京至广州、北京至上海等繁忙地区, 增加干线航路数量或划设平行航路, 构建大能力枢纽航路和区域干线航路。扩大空中交通网覆盖范围。优化繁忙地区航路航线结构。

#### 二、提高空管运行效率

深化区域管制区重组, 调整为8个高空管制区和27个中低空管制区。加强管制中心建设, 在高空管制区推行大区域管制运行。施行缩小小飞机间隔。建设空管运行管理系统。完善空管运行协调机制, 不断推进空域管理和使用机制创新。加强气象和情报服务能力建设。

### 三、加强空管技术保障







number of trunk air routes or design parallel air routes. Construct the mega-capability hub-and-spoke air routes and regional trunk air routes. Expand the ATC network coverage. Optimize air route structures in the busy regions.

### 2. Improve ATC operational efficiency

Deepen the reform of the regional control zone, adjusting it to 8 upper control areas and 27 middle and low control zones. Strengthen the ATC center constructions and promote the mega-area control operation in the upper control areas. Implement the RVSM. Establish the ATC operation management system. Optimize the ATC operation coordination mechanism, continuously promote airspace management and adopt mechanisms for innovation. Strengthen the construction of the weather and flight information services capabilities.

### 3. Enhance ATC Technology Security

Improve the ATC automation level, using the upper control center as the core and establishing a national ATC automation system integration framework. Improve the ATC communications, navigation and surveillance. Improve the ATC equipment operation management level. Promote the application of new ATC technology and enhance the construction of an advanced technological service platform. Focus on the application of the automation system integration process, ATN/AMHS, ground-air data link system, GBAS, en route convective weather forecast system, plateau airport weather forecast system and other new technologies.

## Part III: Improve Civil Aviation Service Capability

### 1. Vigorously Develop Passenger Transportation

Optimize the domestic trunk route network construction. Develop shuttle passenger transportation; increase direct flight density; construct the trunk air transportation channel; develop aviation express transportation among the trunk airports with over 10 million passenger volume. Increase the level

提高空管自动化水平，以高空区域管制中心为核心，建立全国一体化空管自动化系统框架。提高空管通信、空中导航和监视能力。提高空管设备运行管理水平。推广应用空管新技术，加强技术服务平台建设。重点推广应用自动化系统融合处理、航空电信网/空管服务信息处理系统(ATN/AMHS)、地空数据链系统、地基增强系统(GBAS)、航路对流天气预报系统、高原机场气象预报系统等新技术。

## 第三节 提高民航服务能力

### 一、大力发展旅客运输

完善国内干线网络建设。发展快线化旅客运输，增加直达航线的航班密度，构建骨干航空运输通道，在旅客吞吐量超过1000万人次机场间的干线上全面开展航空快线运输服务。增加枢纽机场与省会城市、沿海开放城市和重点旅游城市的航班密度。引导航空公司提供多层次、差异化的航空服务。鼓励低成本航空公司逐步进入主要的干线运输市场。

促进支线航空发展。鼓励支线航班开展代码共享、联营联运等合作，提升支线航空的通达通畅能力。完善支线航线的准入制度。选择西北、西南等“老少边穷”和地面交通极为不便地区作为试点，实施基本航空服务计划。

大力发展以枢纽化运作为支撑的国际旅客运输。优化国际航线网络，增加欧美航线航班密度，着力开辟连接南美、非洲的国际航线，积极推进周边区域航空一体化进程。增加枢纽的网络辐射范围

of flight density among the hub-and-spoke airports, provincial capitals, open coastal cities and key tourism cities. Lead the airlines to provide multilevel, differential aviation services. Encourage low cost airlines to gradually integrate into the main trunk transportation market.

Promote regional aviation development. Encourage code-sharing, joint ventures and transportation cooperation for regional flights; promote the inaccessible and smooth transport capabilities for regional aviation. Optimize the access system for regional aviation. Choose the northwest, southwest and other ground accessible area for the trial and implementation of the basic aviation service plan.

Vigorously develop the hub-and-spoke operation for supporting international passenger transportation. Optimize the international air route network, increase the European & US air route density, try to open international routes for connecting China with South America and Africa and actively promote the integration process in the nearby Asia region. Increase the coverage and scope of the hub-and-spoke network radius, increase the distribution capability of the hub, and improve the international passengers transfer percentage.

Actively participate in the cooperation and competition with international counterparts. Participate in the cooperation and competition with the international civil technical & economic areas in a bigger range, more areas and a higher level; import investment, technology and management with an open attitude. Foster the mega-networking airlines with international competition capabilities; set up the aviation cargo carriers with stronger international competition capabilities; and promote international aviation transportation competition abilities.

### 2. Actively Develop Cargo & Mail Transportation

Improve international cargo capabilities. Encourage the merger and acquisition, restructuring and business cooperation among cargo airlines. Establish one all-cargo airline with stronger international competition capabilities. Actively and gradually open the cargo market, lead our cargo airlines to open international air routes, join the international cargo airlines alliance and expand air cargo networks.

Promote air cargo logistics services. Encourage the cargo airlines to cooperate with railroad, highway, waterway and other transportation enterprises and the postal service, as well as express delivery enterprises to optimize ground logistics networks, and develop a multi-mode transportation network. Encourage the set up of aviation bonded logistic parks nearby the airports. Guide in the building of the aviation logistics public information platform.

Support and encourage cargo airlines to build air cargo hubs, distribution centers and express mail processing centers, as well as provide the support for air route operation rights and flight schedules. Guide the forming of three international cargo hubs in Bohai Rim, Yangtze River Delta and Pearl River Delta. Enhance airport cargo hub construction in Shenyang, Xiamen,

和广度，增强门户枢纽集散功能，提高国际中转旅客比重。

主动参与国际民航运输合作与竞争。在更大范围、更多领域、更高层次上参与国际民航技术经济领域的合作与竞争，以开放的姿态引进资金、技术和管理。着力培育具有国际竞争力的大型网络型航空公司，打造具有较强国际竞争力的航空货运承运人，提升航空运输业国际竞争力。

## 二、积极发展货邮运输

提高国际货运能力。鼓励货运公司间的并购、重组和业务合作，打造1家具有较强国际竞争力的全货运航空公司。积极稳妥、有序渐进地开放货运市场，引导我国航空货运企业开辟国际航线，加入国际航空货运联盟，扩展航空货运网络。

推动航空货物流通。鼓励货运航空公司与铁路、公路、水路等运输企业以及邮政、快递等企业开展各种形式的合作，完善地面物流网络，开展多式联运。鼓励口岸机场建设航空保税物流园区。引导建立航空物流公共信息平台。

支持和鼓励航空货运企业建设航空货运枢纽、货运集散地和快件处理中心，在航线经营权、航班时刻等方面给予支持。在环渤海、长江三角洲和珠江三角洲地区，引导形成三个国际航空货运枢纽群。加强沈阳、厦门、郑州、武汉、成都、重庆、昆明、西安和乌鲁木齐等机场航空货运枢纽的建设。

## 三、努力提高航班正常率

采取措施切实提高航班正常率。完善我国航班正常率统计办法，细化落实行业运输服务最低标准承诺的措施，建立主要机场航班正常率、平均延误时间的公众信息通报机制。将航班正常率作为航空公司申请航线、航班的先决条件之一。对大型机场航班时刻“削峰平谷”，避免航班聚集拥堵。建立空管航班正常激励约束机制，提高管制水平，改进航班正常率。

建立大面积航班延误应急机制。大型机场、航空公司和空管等单位必须建立和完善大面积航班延误应急信息中心和指挥中心。制定航班延误后的应急工作程序。及时有效地向公众通报航班延误信息和对应方案。建立航班延误及应急处理后评估机制。

## 第四节 加快发展通用航空

### 一、推进基础设施建设

探索建立通用航空低空运行服务模式。布局建设通用航空机场、起降点，建立完善空管、维修、





Zhengzhou, Wuhan, Chengdu, Chongqing, Kunming, Xi'an, Urumqi and etc..

**3. Try to Increase the On-Time Flight Rate**

Take the necessary measures to improve the on-time flight rate. Optimize the statistical approach for the on-time flight rate, implement measures for the refinement of the minimum commitment standard for transportation services. Establish the public information notification mechanism for on-time flight rates and the average delay times in the major airports. Use the on-time flight rate as the preconditions for the application of air routes and flights. At large airports, adopt the "cutting the peak and filling the basin" strategy to avoid flight jams. Build an incentive and restrain mechanism for on-time flight rates, and improve the ATC level for improving the on-time flight rate.

Establish a large-area flight delay emergency mechanism. The large airports, airlines and ATC units must establish and improve their information centers and command centers in case of a large-area flight delay emergency. Timely and effectively notifying of the flight delay information and solutions to the general public. Build an evaluation mechanism for the treatment after the flight delays.

**Part IV: Speed Up General Aviation**

**1. Promote Infrastructure Construction**

Explore the low-altitude airspace operation mode for general aviation. Build up the layout for GA airports, landing points, establish and optimize the integrated security capabilities, i.e. ATC, maintenance and oil supplies, form a batch of aviation service stations, and introduce the FBOs. Support non-profit aviation service networks for agriculture and forestry, sea rights, emergency rescue in the east coast, northeast and west China. Speed up the commuter airports' layout and construction in the special area.

**2. Improve the Enterprises' Operation Environment**

Support GA enterprises ran by the general public and participate in the construction of GA airports and operation security facilities. Establish a subsidy mechanism to support and lead the development of the GA enterprise. Consolidate GA's traditional services in the industries of

航油配送等保障能力，形成一批航空服务站，引入固定基地运营商（FBO）。支持在东部沿海、东北和西部地区构建农林防护、海洋维权、应急救援等公益性航空服务网络。加快特殊地区的通勤机场布局和建设。

**二、改善企业运营环境**

支持社会力量兴办通用航空企业、参与通用航空机场以及运行保障设施建设。建立长效补贴机制，支持和引导通用航空企业发展。巩固工业、农林业、飞行培训等通用航空传统服务，积极拓展通勤飞行、公务飞行、航空游览和私人飞行等新兴业务。增加通用航空企业数量，扩大经营规模，重点培育3-5家骨干通用航空企业。加快完成内蒙古阿拉善盟的通勤航空试点，在西部、东北等地区选择若干区域推广通勤航空建设。建立以市场为主导、有利于通用航空企业发展的收费管理模式。

**三、完善规章标准体系**

加快制订通用航空机场、起降点建设标准，规范建设程序。加快修订通用航空市场准入等规章，规范通用航空作业项目分类方式，进一步降低市场准入门槛。简化非经营性通用航空登记手续。健全通用航空行业统计指标体系，规划建设通用航空信息体系。

完善通用航空运行规范。加快建立通用航空安全监察体系，进一步加强和完善通用航空安全体系建设。构建和完善适合我国通用航空发展特点的空中交通管理运行机制和技术规范。

做好低空空域管理改革配套工作。修订《通用航空飞行管制条例》，构建低空空域法规标准体系，研究运行管理机制。2015年前，在北京、兰州、济南、南京、成都管制区推广改革试点，建设

agriculture, forestry, flight training and etc. Actively explore commuter flights, business flights, air tours and private flights. Increase the number of GA enterprises, enlarge the operation scope and focus on 3-5 key GA enterprises. Speed up the commuter aviation pilot zone in Inner Mongolia, and select a number of regions in the west and northwest for the construction of commuter aviation. Set up the market orientation and fees for the benefit management of GA enterprise development.

**3. Optimize the Regulation & Standards**

Accelerate the development of the standards and construction procedures for GA airports and landing points. Speed up the development of regulations for GA market access, and standardize the classifications of GA operations, and further lower the barriers to market entry. Simplify the non-profit GA entity's registration process. Optimize the GA industry's statistics index system and plan the GA construction information system.

Optimize the GA operation regulations. Speed up the GA safety monitoring systems, further enhance and optimize the construction of the GA safety system. Construct and optimize the ATM mechanism and technical specifications for China's GA development.

Work on the low-altitude airspace management reform supporting works. Modify the "Regulations on GA flights", construct a low-altitude airspace regulations and standards system, research the operational management mechanism. Before 2015, set up pilot zones in Beijing, Lanzhou, Ji'nan, Nanjing, Chengdu, and construct the low-altitude operational management & service security system.

**Part V: Secure the Aviation Continuous Safety**

**1. Perfect the Safety Monitoring Management System**

Establish a healthy safety monitoring system to cover the whole industry, realize the network monitoring operation mode for cross specialty and cross region cooperation.

**2. Enhance the Security System's Construction**

Establish the aviation security management system. Establish the threat evaluation and forecast system. Improve the facilities and equipments security capabilities. Enhance the air security force's construction.

**3. Enhance the Emergency Handling Capabilities**

Establish the emergency working system. Enhance emergency service capabilities. Improve risk handling capabilities.

**4. Improve the Airworthiness System's Level**

Speed up the construction for the airworthiness certification capabilities. Enhance the layout and construction of maintenance capabilities. Improve the aviation supplies integration security capabilities.

低空空域运行管理和服务保障体系。

**第五节 确保航空持续安全**

**一、完善安全监督管理体系**

建立健全覆盖全行业的安全监管体系，实现跨专业、跨地区紧密联合作业的网状监管运行模式。

**二、加强安保系统建设**

建设航空安保管理体系。建立威胁评估与预判系统。提高设施设备保障能力。加强空中安保力量建设。

**三、强化应急处置能力**

建立应急工作体系。增强应急服务能力。提高危机应对能力。

**四、提升适航系统水平**

加快适航审定能力建设。加强维修能力布局和建设。提高航材综合保障能力。

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# Brief Introduction of China's Air Traffic Management & Airspace

## 中国空中交通管制与空域现状介绍

Editor: Lili Wang/编译: 汪莉莉

According to the rules of [the] "Basic Regulations of Aviation of the People's Republic of China", the basic model of China's current air traffic control system is that the leadership is within the authority of the National Air Traffic Control Commission, the Air Force organizes the overall air traffic control, and the military & civil aviation authorities shall be responsible for their own air traffic management services respectively.

China's National Key Laboratory on Airspace Technology revealed that the actual available airspace in China today is 9.985 million km<sup>2</sup>. Among that, the airspace used daily for civil aviation is 3.1953 million km<sup>2</sup>, accounting for 32% of the total airspace; and military use airspace is 2.3472 million km<sup>2</sup>, accounting for 23.51%.

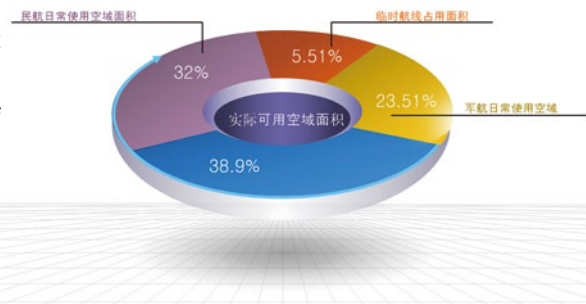
Also, the temporary air routes occupies around 549,700 km<sup>2</sup>, which accounts for 5.51%. Some airspace, mainly in the sparsely populated west region, has not been effectively used.

East of Shenyang-Beijing-Xi'an-Chengdu-Kuming, the daily use of military & civil airspace is 3.9787 million km<sup>2</sup>, and air routes occupy 1.6911 km<sup>2</sup>, accounting for 42.50%. The military use airspace is 1.6994 km<sup>2</sup>, accounting for 42.70%. In addition, the temporary routes here occupy 365,000 km<sup>2</sup>, accounting for 9.17%.

The current air traffic control system was formed in the 1950's and 60's. With the tremendous increase of civil aircraft and the rapid growth of traffic volume today, continuing to use the past ATC system is obviously outdated. In 1993, the State Council and the Central Military Commission confirmed the guideline of China's ATC system and proposed the 3-step goal for the reform. Step 1: Assign the route of Beijing-Guangzhou-Shenzhen to the CAAC for trial operation, and that started back in April 1st, 1994. Step 2: Transfer the overall air routes to the CAAC's control, forming the ATC system of "one ATC command in an airspace". Transferring the air routes of Beijing-Shanghai & Shanghai-Guangzhou to the CAAC's command on June 30th 1996, that symbolized the initiation of the second step of the ATC reform. Step 3: In the long run, China's ATC system should follow the practices of the world's advanced aviation countries, the use of a national unity control mode, with reference to international common practices and research to establish a unified management and centralized command of the ATC system.

根据《中华人民共和国飞行基本规则》的规定, 中国现阶段空管体制的基本模式为, 在国家空管委领导下, 空军统一组织实施全国的飞行管制, 军民航按照各自职责分工提供空中交通管制服务。

中国国家空域技术重点实验室研究表明: 中国目前实际可用空域面积为998.50万平方公里。其中, 民航日常使用空域面积319.53万平方公里, 占32%; 军航日常使用空域234.72万平方公里, 占23.51%。



此外, 临时航线占用面积约为54.97万平方公里, 占5.51%。还有部分空域未被有效利用, 主要集中在我国西部人烟稀少地区。

在沈阳—北京—西安—成都—昆明以东地区, 军民航日常实际可用空域面积为397.87万平方公里, 航路航线占用面积为169.11万平方公里, 占42.50%; 军航使用空域面积为169.94万平方公里, 占42.70%。另外, 临时航线占用面积为36.50万平方公里, 占9.17%。

我国现行的空管体制是上世纪五、六十年代民航事业不发达的情况下形成的。在民用航空器急剧增加、飞行量迅速增大的今天, 仍延续过去的空管体制显然已不适应。1993年国务院、中央军委确定了我国空管体制的发展方向, 提出了空管体制改革

With China's rapid economic growth, the demands for civil aviation are aggressively growing year by year. Therefore, ATC plays an important role in China's civil aviation transformation. The Air Traffic Management Bureau (ATMB) of the CAAC is responsible for managing the nation's ATC services, communications, navigation, surveillance, aviation weather and flight information. It operates in 3 different levels with the ATMB, regional ATMBs and branch offices of ATC stations, to form an ATC service system that controls all regions, approaches & airports.

There are 9 flight information regions in the whole nation. These are located in Beijing, Shanghai, Guangzhou, Wuhan, Lanzhou, Shenyang, Kunming, Urumqi & Taipei. There are 28 upper control areas in the mainland: 4 in the northeast region, 3 in the north region, 6 in the east region, 8 in the central China region, 4 in the southwest region, 2 in northwest region and 1 in Xinjiang. There are 37 middle and low-altitude control areas. Most of the civil airports (including civil-military airports) have established tower control areas.

After years of construction, the ATC facilities have been formed into a relatively perfected security system for communications, navigation, flight information & weather. In respect to communications, most of the civil airports have been equipped with satellite voice ground stations and satellite data ground stations. Each control unit has been equipped with more than 2 sets of VHF communication stations and some of the air traffic areas with weak coverage would be equipped with VHF relay stations. It was realized that the VHF coverage is above 7,000m in east China. In regards to navigation, most of the civil airports have been equipped with ILS, VOR/DME. Most of the upper, mid & low control areas have been equipped with secondary or primary/secondary radars. The radar coverage covers above 7,000m in east China. In the respect of flight information, the flight information automation system is still under construction. The production technologies of NOTAM and aviation information have improved significantly. In regards to aviation weather, each airport has been equipped with meteorological observation & forecasting systems. Some of the airports have been equipped with weather radars, automated observing systems and weather satellite cloud map receiving equipment for the timely providing of necessary weather information for the scheduling of flights.

There are 12,000 personnel for the ATC, flight information, communication and navigation & weather in the ATC system. Among them, 3,000 are ATC people. Some staff members have received their advanced education, and the remainder have secondary professional education. In particular, the controller's trainings are always emphasized at all levels. There are institutions of higher learning, comprehensive training programs, modern teaching facilities, and a strict examination system for specialized ATC controllers. There are three steps for the controller's training, e.g. foster training, qualification training & improvement training. The Civil Aviation

分三步实施的目标。第一步将北京—广州—深圳航路交由民航管制指挥试点, 这一步已于1994年4月1日开始执行。第二步将全国的航路交由民航管制指挥, 形成在国家空管委的统一领导下, 民航和军航分别对航路内外提供管制服务的空管体制, 实现“一个空域内一家管制指挥”。1996年6月30日完成了北京—上海、上海—广州航路交由民航管制指挥, 这标志着空管体制改革第二步正式启动。第三步, 从长远看, 我国空管体制应仿效世界上先进国家的作法, 采用国家统一管制的模式, 参照国际上的通用做法, 研究建立统一管理、集中指挥的空管体制。

随着中国经济的快速成长, 民用航空需求逐年迅猛增长, 因此, 空中交通管制在民用航空运输中发挥着重要作用。承担着民用航空空中交通管制重任的正是中国民用航空局空中交通管理局。作为管理全国民用航空空中交通服务、民用航空通信、导航、监视、航空气象、航行情报的职能机构, 按民航局空管局、地区空管局、空管分局(站)三级管理, 运行组织形式基本是区域管制、进近管制、机场管制为主线的三级空中交通服务体系。

全国划设飞行情报区9个, 即北京、上海、广州、武汉、兰州、沈阳、昆明、乌鲁木齐以及台北飞行情报区。大陆上空划设高空管制区28个, 其中东北地区4个, 华北地区3个, 华东地区6个, 中南地区8个, 西南地区4个, 西北地区2个, 新疆地区1个; 中低空管制区37个; 绝大多数民用机场(含军民合用机场)均设置了塔台管制区域。

经过不断的建设, 空管设施基本形成了比较完善的通信、导航、情报、气象保障系统。通信保障方面, 在全国绝大多数民用机场配置了卫星语音地面站和卫星数据地面站, 每个管制单位装备了2套以上的甚高频对空通信台, 部分对空通信薄弱地区配备了甚高频转播台, 在我国东部地区实现了7000米以上甚高频对空通信的覆盖。导航保障方面, 绝大多数民用机场配备了仪表着陆系统、全向信标和测距仪, 大部分高空、中低空管制区配备了二次或一、二次雷达, 在我国东部地区基本达到7000米以上雷达覆盖。航行情报保障方面, 正在建设航行情报自动化系统, 航行通告及航行资料制作技术有了明显改进。气象保障方面, 各机场配备了气象观测、预报设备, 部分机场配备了气象雷达、自动观测系统、气象卫星云图接收设备, 为航班飞行及时提供了所需的气象资料。





University of China (CAUC) & the Nanjing University of Aeronautics and Astronautics (NUAA) are the two mainly responsible for the fostering and training, with about 200 graduates each year. Each level of the ATC unit is responsible for the qualification training and improvement training through interns, license examinations, overseas training, seminars and etc.. One ATC student usually needs to be trained for 1-2 years to be able to qualify for the official duties.

Currently, although most of the control areas have been equipped with secondary or primary/secondary radars, the control method still has not been reformed yet. Besides the radar controls at the Beijing terminal area and the Shenzhen approach area, most of the ATC units still use procedure control or procedure control with radar surveillance to minimize the slots.

With the leadership of the National Air Traffic Control Commission, the distribution method for the flight levels of China's air routes has finished its first reform, which is comparable to the intentional standard with the level below 6,000m (incl. 6,000m), and narrows from 1,000m to 600m for the flight level between 6,000m (excl. 6,000m) and 12,000m (incl. 12,000m). For the next step, in accordance with the international standard, the flight level below 9,000m (incl. 9,000m) will be separated by 300m; the flight level between 9,000m (excl. 9,000m) and 12,000m (incl. 12,000m) will be separated by 600m. In this way, the air flow in the air routes can be further increased.

The CNS/ATM of China's ATC system will be developed in three steps. Before 2000, it was mainly the purpose of the CNS/ATM trials in west China to set up the CNS/ATM routes, providing the pilot services, and accumulating the experiences. Next, after 2010, develop and perfect the CNS/ATM standards & operation regulations, finish the retrofitting of the current aircraft,

民航空管系统现有管制、航行情报、通信、导航、气象等人员约12000人，其中管制人员约3000人。部分人员受过高等培育，其余人员受过中等专业教育。特别是管制员培训，各级一直比较重视，有专门培训管制员的高等院校，有较为完整的管制员训练大纲，有良好的现代化教学设施，有严格的管制员考核制度。管制员的训练拟分三步进行，即养成训练、资格训练和提高训练。养成训练主要有中国民航学院、民航飞行学院以及南京航空航天大学担任，每年毕业200人左右。资格训练、提高训练由各级空管部门组织，通过跟班见习、执照考核、送国外培训、专题研讨等形式进行。一个管制学员通常经过1-2年时间的培养，才能正式担负管制岗位的值班。

目前，尽管大部分管制区配备了二次或一、二次雷达，但管制方式还没有进行根本性的变革，除北京终端区、深圳进近管制区实行了雷达管制以外，绝大多数单位仍采用程序管制，或者雷达监视条件下缩小间隔的程序管制。

在国家空管委的领导下，我国航路航线的飞行高度层配备方法已完成了第一步改革，即飞行高度6000米（含）以下飞行高度层配备方法与国际标准相一致；6000米（不含）至12000米（含）飞行高度层由1000米缩小至600米。下一步改革，将按照国际标准，飞行高度9000米（含）以下飞行高度层采用300米；9000米（不含）至12000米（含）飞行高度层采用600米。这样可以进一步增大航路（航线）的空中流量。

我国空管系统发展新航行系统拟分三步进行，首先在2000年以前，主要进行新航行系统的试验，在我国西部地区筹建新航行系统航路，提供试验性服务，用于积累经验；其次在2010年前，制订并完善新航行系统标准和运行法规，完成现有飞机的改造，逐步建设新航行系统各子系统，与现行系统并存运行，并作为现行系统的辅助设施。再次，在2010年以后，全面发展推广新航行系统，对现行系统进行根本性的改造，逐步与国际接轨。为航空部门与企业所企盼的快捷飞行、自由飞行创造条件。

低空空域是通用航空活动的主要区域，深化低空空域管理改革，是大力发展通用航空、繁荣我国航空业的重要举措，是促进我国经济社会发展的迫切需要。国务院、中央军委2010年8月下发了《关于深化我国低空空域管理改革的意见》，对空域管理改革进行了部署。明确划分到2020年三个阶段的改革目标，清晰界定1000米以下为低空空域范围，

set up the sub-system for the CNS/ATM gradually, develop and promote the CNS/ATM in full respect and re-construct the current system for connecting with the international standard. It will create the conditions necessary for convenient and free flights for the aviation community.

The low-altitude airspace is the main region for general aviation. To deepen the reform of low-altitude airspace management is the key measure for the further developing of GA & China's thriving aviation industry, and is also an urgent demand due to China's current economic development. The Stage Council and the Military Commission of the Central Committee issued the "Advice on Deepening the Reform of China's Low-altitude Airspace Management" in August of 2010, effectively deploying the reform of airspace management. It defined a 3-stage reform to be completed by 2020 and confined the airspace coverage below 1,000m. It confirmed the three stages for the trial, extended trial and the national reform.

Trial Stage (before 2011): The trial stage, based on the trials in the Changchun & Guangzhou flight control zones, consists of extending the trials to the Shenyang & Guangzhou flight control zones, in-depth exploring of the low-altitude airspace management reform in a greater range, study and propose the division standard for the low-altitude airspace, perfecting policy & regulations, seeking operational mechanism, simplifying of the operation procedures, optimizing the service model, and laying the foundation for the overall promotion of the low-altitude airspace management reform.

Promotion Stage (2011-2015): The Promotion stage consists of promoting the trials in a national setting, setting the classification of low-altitude in Beijing, Lanzhou, Ji'nan, Nanjing & Chengdu flight control zones, to further establish and improve the regulations and standards, optimizing the operation management and a reasonable layout and constructing the service networks. Basically, the Promotional Stage is forming the low-altitude airspace operation management & service support system with government supervision and industry guidance, with the goals of supporting market-oriented operations and national integration.

Deepening Stage (2016-2020): The goal of the Deepening Stage is to further deepen the reform, make the low-altitude airspace management system advanced and reasonable, with regulations and standards perfected, operation efficiency and service reliable, and to ensure the reasonable development and utilization of low-altitude airspace resources.

Currently, the reform trials have achieved initial success. As the implementation unit for national flight control, the Air Force is developing low-altitude airspace management regulations and standards for the classification standards, accessibility criteria, operation management and more.

The on-going trials divide the low-altitude airspace into three categories, control airspace, monitor airspace & report airspace. The altitude range is below 1,000m. It has implemented the classification management and reduced the operation requirements for the low-altitude flight gradually.

According to the classification requirements, the Air Force set up 13

明确了试点、扩大试点和全国推广改革三个阶段的实施步骤：

试点阶段（2011年前）：在长春、广州飞行管制分区改革试点的基础上，在沈阳、广州飞行管制分区进行深化试点，在更大范围深入探索低空空域管理改革的经验做法，研究提出低空空域划分标准，完善政策法规，探索运行机制，简化工作程序，优化服务保障模式，为全面推进低空空域管理改革奠定基础。

推广阶段（2011年至2015年）：在全国推广改革试点，在北京、兰州、济南、南京、成都飞行管制区分类划设低空空域，进一步建立健全法规标准，优化运行管理模式、合理布局和建设服务保障网点，基本形成政府监管、行业指导、市场化运作、全国一体的低空空域运行管理和服务保障体系。

深化阶段（2016年至2020年）：进一步深化改革，使低空空域管理体制机制先进合理、法规标准科学完善、运行管理高效顺畅、服务保障体系可靠完备，低空空域资源得到科学合理开发利用。

目前，改革试点工作已初见成效，作为实施全国飞行管制的单位，空军正在抓紧研究制定低空空域分类标准、低空空域准入标准、低空空域运行管理规范等低空管理法规标准。

正在进行的改革试点，将低空空域分为管制空域、监视空域和报告空域三类，高度范围原则确定为真高1000米以下，实施分类管理，逐步降低对低空飞行的运行要求。

按照三类空域划设要求，空军在长春、广州两个试点地区划设了13个报告空域、4个监视空域、21个管制空域，其中报告空域和监视空域占两个分区面积的60%，满足了当地通用航空飞行需求。长春、广州飞行管制分区试点已于2010年底完成。

2011年1月28日，海南低空空域管理改革试点活动在海口市启动，这标志着海南低空空域管理改革试点工作正式拉开序幕。海南低空空域管理改革试飞活动从28日起，以海口为起点，飞行范围涉及三亚、文昌、琼海、五指山、儋州等多个市县，历时近2个月，主要是通过低空航线飞行、演示飞行、巡查飞行等多个科目的试飞，对不同区域的低空空域进行数据收集，测试空管协调在低空开放进程中的应变方式，为加快低空空域管理改革提供理论依据和实验参考；同时通过零距离接触直升机和演示飞行，让海南各界全面了解直升机的构造、功能及其在旅游、交通、生产、生活乃至社会公共服



report airspace, 4 monitor airspace and 21 control airspace in the Changchun and Guangzhou pilot zones. Among them, 60% of the two pilot zones are report airspace and monitor airspace, meeting the demands for local GA flights. The trials at Changchun and Guangzhou flight control zones were finished by the end of 2010.

On January 28, 2011, the low-altitude airspace management reform activities started in Haikou, Hainan Province. Haikou was the starting point, covering Sanya, Wenchang, Qionghai, Wuzhishan, Danzhou and other cities and counties. The activities lasted nearly two months, mainly through low-altitude flight routes, demonstration flights, test flights, and other flying subjects, in different regions of low-altitude airspace for purposes of data collection, testing the air traffic control coordination in the transaction of low-altitude airspace opening, to accelerate a theoretical basis and experimental reference of the low-altitude airspace management reform. At the same time, through close observations of helicopters and demonstration flights, people from all walks of life gained a comprehensive understanding of the helicopter structure and function. They also learned about the significant role helicopters play in tourism, transportation, production, life and even social and public services.

The Air Force also has planned to operate the deepening trials at Shenyang, Guangzhou and 6 other controlled flight zones. After all the trials, it will be releasing the policies and regulations for low-altitude airspace management. If everything goes smoothly, the low-altitude airspace management reform is expected to be promoted across the entire nation by 2012.

So what exactly is low-altitude airspace? It is usually considered the airspace below the true height of 1,000 meters. There are three categories: control airspace, monitor airspace, and report airspace.

The control airspace is usually set up in the airspace above the busier flight areas, airport landing strips, restricted areas, danger areas, prohibited areas, ground targets and national boundaries. All the activities in the above-mentioned airspace's must be permitted by the flight control department and should be accepted by flight control.

The monitor airspace is usually established in the neighborhood of the control area. All the activities in this airspace should be reported to the flight control department for its flight planning, as so it can be implemented and be responsible for its flight safety. The flight control department shall closely monitor the use of airspace, and provide flight information and alerts.

The report airspace is usually set up in an area far away from the airspace above restricted areas, danger areas, prohibited areas, national boundaries, ground targets, the busy flight zones and airport restricted area. All the activities in this airspace should be reported via flight plan to the flight control department, in which the flight control department can implement and be responsible for its flight safety. The flight control department shall provide the necessary flight information according to the user's need.



务方面所能发挥的重大作用。

除此之外，空军还计划在沈阳、广州飞行管制区和6个飞行管制分区组织深化试点。试点结束后，国家将研究出台低空空域管理政策法规。如果进展顺利，低空空域管理改革有望2012年在全国推开。

什么是低空空域？低空空域通常是指真高1000米（含）以下的空间范围。分为管制空域、监视空域和报告空域三类。

管制空域通常划设在飞行比较繁忙的地区，机场起降地带、空中禁区、空中危险区、空中限制区、地面重要目标、国（边）境地带等区域的上空。在此空域内的一切空域使用活动，必须经过飞行管制部门批准并接受飞行管制。

监视空域通常划设在管制空域周围。在此空域内的一切空域使用活动，空域用户向飞行管制部门报备飞行计划后，即可自行组织实施并对飞行安全负责，飞行管制部门严密监视空域使用活动，并提供飞行情报服务和告警服务。

报告空域通常划设在远离空中禁区、空中危险区、空中限制区、国（边）境地带、地面重要目标以及飞行密集地区、机场管制地带等区域的上空。在此空域内的一切空域使用活动，空域用户向飞行管制部门报备飞行计划后，即可自行组织实施并对飞行安全负责，飞行管制部门根据用户需要提供飞行情报服务。

## Intersoft Electronics Provides the ADS-B Ground Station Simulator to Sichuan Jiuzhou Electric Group

### Intersoft向九洲电器集团提供ADS-B地面站环境模拟器

Between November 21st and the 24th, Intersoft-Electronics, a Belgium based company, offered on-site training regarding their radar environment simulator to the Sichuan Jiuzhou Electric Group Co.,Ltd. (Sichuan Jiuzhou Electric Group for short) in Mianyang, a city in the Sichuan province. This is the second time that Intersoft-Electronics has delivered the SSR/ADS-B environment simulation system to mainland China.

The RES28x radar environment simulator was researched and developed by Intersoft-Electronics and can produce up to 2,000 SSR or Mode-S

targets. The RES28x radar environment simulator can program targets of DF4, 5, 11, 17, 18, 19, 20, 21 and 24. It supports all the protocols at the Mode-S data link and the Mode S level 1 through 5. It can provide garbling simulation regarding overlapping targets, asynchronous or synchronous interference. Important performance parameters used to evaluate the radar or the ADS-B system, such as the accuracy, the resolution and the probability of target detection, are the best tools for testing in the factory and for the on-site acceptance inspection. The RES28x radar environment simulators have been used widely by administrative organizations, such as the FAA, the EUROCONTROL and the NAMSA, as well as by other well known radar manufacturers, such as Lockheed Martin, Raytheon and Thales, etc..

During the training period, the engineer from Intersoft-Electronics communicated with the technicians that had participated in this training and the representatives from the Air Traffic Management Bureau of CAAC regarding RES application in radars and the ADS-B system, which had helped them to deepen their understanding about this new product. A leader of the Jiuzhou ATC station said, "After this training, the participants have learned how to meet the requirements for the application. Our cooperation with Intersoft-Electronics has brought us a reliable partner. The technology brought in by Intersoft-Electronics will accelerate the process of mainland China's ATC equipments to be able to walk out into the international market."



11月21日至24日比利时Intersoft-Electronics公司在绵阳为大型空管设备制造商九洲电器集团提供了雷达环境模拟器RES28x的现场培训。这也是该公司向中国交付的第二套SSR/ADS-B环境模拟系统。

由IE公司研发生产的雷达环境模拟器RES28x能够产生2000多个（M）SSR或S模式的目标。可编程DF4、5、11、17、18、19、20、21和24的目标类型，支持ADS-B数据链的各类协议及S模式1到5级。可模拟异/同步干扰和重叠目标等复杂场景。用于评估雷达或ADS-B系统的准确性、分辨率、目标检测概率等重要性能参数，是工厂测试与现场验收测试的最佳工具。已被应用在美国联邦航空管理局（FAA）、欧控组织（EUROCONTROL）和北约保障组织（NAMSA）等管理机构以及洛克希德马丁（Lockheed Martin）、雷神（Raytheon）、泰雷兹（Thales）等知名雷达制造商。

培训期间，IE的工程师与参加培训的技术人员及空管局的代表围绕RES在雷达和ADS-B系统中的应用进行了热烈的交流，加深了对新产品的了解。九洲空管所的领导表示：“培训的结果能够满足使用的需求，同Intersoft的合作，使我们得到一个可靠的伙伴，IE的科技将促进国产空管设备走向国际市场的进程”。



# A Brief Introduction of Chinese Airlines

## 中国航空公司概况介绍

Editor: Lili Wang/编译: 汪莉莉



In 2002, the CAAC set up three major aviation groups, which ensured that the three state owned airlines would function as a government entity and not as an economic entity. Since then, Chinese airlines have formed a three-layer structure for state-owned, local-government-owned, and private-owned airlines. With the global economic crisis of 2008 seriously affecting the aviation industry worldwide, China's aviation industry has carried out some much needed restructuring. The weaker, private airlines, have been restructured, and the three major state-owned airlines have all been improved significantly due to increases in the states' funding. Under the guidance of the government, a new round of restructuring started with the state-owned airlines merging with the local airlines.

By the end of 2010, China had 43 transport airlines.: 35 of the transport airlines are state-owned holding companies and the remaining 8 are private and private holding companies. 11 of the airlines are all-cargo airlines, with 16 being foreign joint venture airlines, and 5 are listed companies.

In 2010, the CNAC (China National Aviation Holding Company) completed 1.467 million flight hours with a total transport turnover of 17.53 billion ton-km, an increase of 23.2% over the previous year. The passenger volume in 2010 was 72 million people, which is a 15.2% increase over the previous year; and had accomplished 1.801 million tons of cargo & mail

2002年中国民航组建成立了隶属国资委的三大航空集团公司，分别控股我国三大国有航空公司。这是一次地道的政府行为而非经济行为，中国航空公司形成了国有、地方、民营三大资本结构。随着2008年全球经济危机对航空业严重影响，我国民航业进行了一次洗牌，资本实力薄弱的民营航空公司纷纷改制，得到国家注资的三大国有航空公司实力明显提升，在政府的主导下，新一轮国有航空公司合并重组地方航空公司的浪潮再起。

截至2010年底，我国共有运输航空公司43家，按不同类别划分：国有控股公司35家，民营和民营控股公司8家，全货运航空公司11家，中外合资航空公司16家，上市公司5家。

2010年，中航集团完成飞行小时146.7万小时，完成运输总周转量175.3亿吨公里，比上年增长23.2%，完成旅客运输量0.72亿人次，比上年增长15.2%，完成货邮运输量180.1万吨，比上年增长28.0%。

2010年，东航集团完成飞行小时121.4万小时，完成运输总周转量136.0亿吨公里，比上年增长24.0%，完成旅客运输量0.65亿人次，比上年增长15.5%，完成货邮运输量164.8万吨，比上年增长20.6%。

2010年，南航集团完成飞行小时139.2万小时，完成运输总周转量131.0亿吨公里，比上年增长30.2%，完成旅客运输量0.76亿人次，比上年增长15.3%，完成货邮运输量111.7万吨，比上年增长29.6%。

2010年，海航集团完成飞行小时60.2万小时，完成运输总周转量57.1亿吨公里，比上年增长26.8%，完成旅客运输量0.31亿人次，比上年增长15.4%，完成货邮运输量52.2万吨，比上年增长29.1%。

transportation for a 28.0% growth over 2009. In 2010, the CEAH (China Eastern Air Holding Company) had completed 1.214 million flight hours with a total transport turnover of 13.6 billion ton-km, an increase of 24.0% over the previous year.

The CEAH finished 2010 with a passenger volume of 65 million people for a 15.5% increase over the previous year; and accomplished 1.648 million tons of cargo and mail transportation for 20.6% of growth over the previous year.

In 2010, the CSAH (China Southern Air Holding Company) had completed 1.392 million flight hours with a total transport turnover of 13.1 billion ton-km, an increase of 30.2% over the previous year. The passenger volume for 2010 was 76 million people, which is a 15.3% increase over the previous year. The CSAH transported 1.117 million tons of cargo and mail transportation in 2010, for a 29.6% growth increase over the previous year.

In 2010, HNA (Hainan Airlines) Group had completed 602,000 flight hours with a total transport turnover of 5.71 billion ton-km. This is an increase of 26.8% over the previous year. They finished the year with a passenger volume of 31 million people, for a 15.4% increase over 2009. In 2010, HNA Group had transported 522,000 tons of cargo and mail transportation, which is a 29.1% increase over 2009.

In 2010, all of the other airlines combined had completed 434,000 flight hours with a total transport turnover of 3.9 billion ton-km, which is an increase of 32.6% over the previous year. The total passenger volume of 2010 was 23 million people, for a 24.8% increase over 2009. A total of 542,000 tons of cargo and mail transportation was transported for a total of 30.6% growth increase over the previous year.

By the end of 2010, the total number of registered aircraft was 1,597, which is 180 more aircraft than the previous year.

On May 9, 2011, the CAAC published its "Twelfth Five-Year Plan for China's Civil Aviation Development (2011-2015)", and said it would actively expand air cargo and general aviation for the next five years through the support of the expansion of international air routes, to help Air China and others to become internationally competitive large-scale networking airlines.

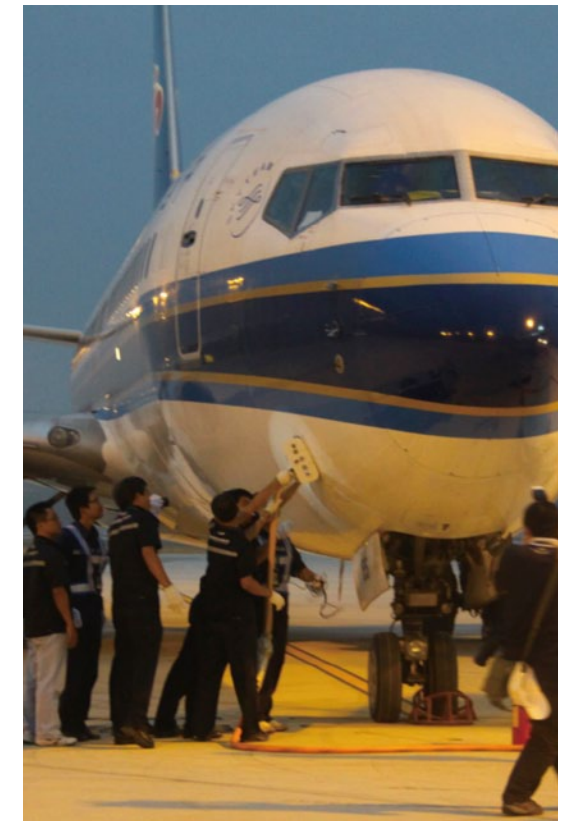
According to the CAAC's 12th Five-Year Plan, the CAAC is planning to encourage low-cost airlines to gradually enter the major trunk transport market by giving them the necessary resources and support of air routes, flights and schedules.

According to the Plan, in 2015, the total transport turnover will reach 99 billion ton-km, the passenger volume will reach 450 million people, and the cargo & mail transportation will reach 9 million tons, for an annual increase of 13%, 11% & 10% respectively. The on-schedule flight rate will be higher than 80%. The transport airports will be more than 230, covering 94% of the national economy, 83% of the population and 81% of county-level administrative units, and securing 10.4 million take-offs & landings.

2010年，其他航空公司共完成飞行小时43.4万小时，完成运输总周转量39.0亿吨公里，比上年增长32.6%，完成旅客运输量0.23亿人次，比上年增长24.8%，完成货邮运输量54.2万吨，比上年增长30.6%。

截至2010年底，民航全行业运输飞机期末在册架数1597架，比上年增长180架。中国民用航空局（简称“民航局”）5月9日发布《中国民用航空发展第十二个五年规划（2011年至2015年）》称，在未来五年将积极拓展航空货运和通用航空，并通过支持国际航线的拓展，培育中国国际航空股份有限公司（简称“国航”）等成为具有国际竞争力的大型网络型航空公司。

根据民航十二五规划，民航局计划通过航线航班时刻等资源的支持，鼓励低成本航空公司逐步进入主要的干线运输市场。根据规划，到2015年民航运输总周转量将达990亿吨公里，旅客运输量达4.5亿人次，货邮运输量达900万吨，年均分别增长13%、11%和10%。航班正常率应高于80%，运输机场数量达到230个以上，覆盖全国94%的经济总量、83%的人口和81%的县级行政单元；保障起降架次达到1040万架次。





中国部分航空公司概况 (截至2010年12月31日) Partial Chinese Airlines (Till December 31, 2010)						
航空公司	企业性质	总部	主运营基地	IATA 代码	机队规模 (架)	机型
Airlines	Nature	HQ	Main Base	IATA	Fleet (Aircraft)	Aircraft Type
中国国际航空公司 Air China	央企 State-owned	北京 Beijing	北京首都国际机场 成都双流国际机场 PEK, CTU	CA	272架, 包括4架公务机 272, incl. 4 business jets	A319, A320, A330, A340, B737, B747, B757, B767, B777 & etc.
中国东方航空公司 China Eastern	央企 State-owned	上海 Shanghai	上海浦东国际机场 上海虹桥国际机场 PVG, SHA	MU	355架, 包括18架货机 355, incl. 18 freighters	A319, A320, A330, A340, B737, B767, MD90, ERJ-145, CRJ-200 & etc.
中国南方航空公司 China Southern	央企 State-owned	广州 Guangzhou	广州白云国际机场 北京首都国际机场 CAN, PEK	CZ	422架, 世界前六 422, Top 6 of the World	A319, A320, A330, A340, B737, B747, B757, B777, MD90, ERJ145 & etc.
海南航空公司 Hainan Airlines	地方国企 Local-govern-owned	海口 Haikou	海口美兰国际机场 HAK	HU	306架, 包括36架公务机 306, incl. 36 business jet	A319, A330, A340, B737, B767, Dornier 328, ERJ, BBJ, GV & etc.
深圳航空公司 Shenzhen Airlines	地方国企 Local-govern-owned	深圳 Shenzhen	深圳宝安国际机场 SZX	ZH	99	A319, A320, B737 & etc.
上海航空公司 Shanghai Airlines	地方国企 东航收购 Local-govern-owned, Mergered by MU	上海 Shanghai	上海虹桥国际机场 上海浦东国际机场 SHA, PVG	FM	67	B737, B757, B777, MD11, CRJ200 & etc.
厦门航空公司 Xiamen Airlines	地方国企 Local-govern-owned	厦门 Xiamen	厦门高崎国际机场 福州长乐国际机场 XMN, FOC	MF	78	B737, B757 & etc.
四川航空公司 Sichuan Airlines	地方国企 Local-govern-owned	成都 Chengdu	成都双流国际机场 CTU	3U	63	A319, A320, A321, ERJ145 & etc.
山东航空公司 Shandong Airlines	地方国企 Local-govern-owned	济南 Ji'nan	济南遥墙国际机场 TNA	SC	55	B737, CRJ200/700 & etc.
奥凯航空公司 Okay Airways	民营 Private	天津 Tianjin	天津滨海国际机场 TSN	BK	14	B737 & MA60
春秋航空公司 Spring Airlines	民营 Private	上海 Shanghai	上海虹桥国际机场 SHA	9C	24	A320
长城航空公司 Great Wall Airlines	中外合资货运 JV for Cargo	上海 Shanghai	上海浦东国际机场 PVG	IJ	3	B747
重庆航空公司 Chongqing Airlines	南航合资 JV w/ CZ	重庆 Chongqing	重庆江北国际机场 CKG	OQ	7	A320 & A319
东北航空公司 Northeast Airlines	川航合资 JV w/ 3U	沈阳 Shenyang	沈阳桃仙国际机场 SHE	NS	2	A319 & ERJ145
翡翠国际货运航空公司 Jade Cargo Int'l	中外合资货运 JV for Cargo	深圳 Shenzhen	深圳宝安国际机场 SZX	JI	6	B747
华夏航空公司 China Express Air	中外合资 JV	贵阳 Guizhou	贵阳龙洞堡国际机场 KWE	G5	5	CRJ200
中国国际货运航空公司 Air China Cargo	国航合资 JV w/ CA	北京 Beijing	北京首都国际机场 PEK	CA	10	B747
中国货运航空公司 China Cargo Airlines	东航合资货运 JV w/ MU for Cargo	上海 Shanghai	上海浦东国际机场 上海虹桥国际机场 PVG, SHA	CK	19	B747, B777, MD11F & etc.
上海国际货运航空公司 Shanghai Airlines Cargo Intl.	上航合资货运 JV w/ FM for Cargo	上海 Shanghai	上海浦东国际机场 PVG	F4	6	MD11F, B757 & etc.
扬子江快运航空公司 Yangtze River Express	海航合资货运 JV w/ HU for Cargo	上海 Shanghai	上海浦东国际机场 PVG	Y8	15	B737 & B747
北京首都航空 Beijing Capital Airlines	海航合资 JV w/ HU	北京 Beijing	北京首都国际机场 PEK	JD	35架空客, 36架公务机。 35 Airbus, 36 business jets	A319, A320, BBJ, GV & etc.
鲲鹏航空公司 Kunpeng Airlines	深航控股 Held by ZH	郑州 Zhengzhou	郑州新郑国际机场 CGO	VD	7	CRJ200, ARJ21
上海吉祥航空公司 Juneyao Airlines	民营 Private	上海 Shanghai	上海虹桥国际机场 上海浦东国际机场 SHA, PVG	HO	21	A319 & A320

中国部分航空公司概况 (截至2010年12月31日) Partial Chinese Airlines (Till December 31, 2010)						
航空公司	企业性质	总部	主运营基地	IATA 代码	机队规模 (架)	机型
Airlines	Nature	HQ	Main Base	IATA	Fleet (Aircraft)	Aircraft Type
天津航空公司 Tianjin Airlines	海航控股 Held by HU	天津 Tianjin	天津滨海国际机场 TSN	GS	92	Dornier 328, ERJ145 & ERJ190
西部航空公司 West Air	鹏航合资 JV w/ 8L	重庆 Chongqing	重庆市江北国际机场 CKG	PN	8	A319, A320 & B737
深圳东海航空公司 Shenzhen Donghai Airlines	中港合资 JV	深圳 Shenzhen	深圳宝安国际机场 SZX	J5	10	B737, CL605, C300 & etc.
成都航空公司 Chengdu Airlines	川航合资 JV w/ 3U	成都 Chengdu	成都双流国际机场 CTU	EU	9	A319 & A320
中国联合航空公司 China United Airlines	上航控股 Held by FM	北京 Beijing	北京南苑机场 NAY	KN	10	B737
中国邮政航空公司 China Postal Airlines	中国邮政集团公司独资控股 Wholly-owned by China Post	南京 Nanjing	南京禄口国际机场 NKG	8Y	16	B737
云南祥鹏航空公司 Yunnan Lucky Air	海航控股 Held by HU	昆明 Kunming	昆明巫家坝国际机场 KMG	8L	11	B737 & A319
昆明航空公司 Kunming Airlines	深航控股 Held by ZH	昆明 Kunming	昆明巫家坝国际机场 KMG	KY	5	B737
幸福航空公司 Joy Air	东航合资 JV w/ MU	西安 Xi'an	西安咸阳国际机场 XIY	JR	6	MA60 & ARJ21
友和道通航空公司 Uni-top Airlines	合资货运 JV for Cargo	武汉 Wuhan	武汉天河国际机场 WUH	UW	3	B747
河北航空 Hebei Airlines	川航合资 JV w/ 3U	石家庄 Shijiazhuang	石家庄正定国际机场 SJW	NS	5	B737 & ERJ145
银河国际货运航空有限公司 Grandstar Cargo Int'l Airlines	中外合资 JV	天津 Tianjin	天津滨海国际机场 TSN	GD	1	B747
顺丰航空公司 SF Airlines	民营 Private	深圳 Shenzhen	深圳宝安国际机场 SZX	O3	5	B757 & B737
西藏航空有限公司 Tibet Airlines	国航合资 JV w/ CA	拉萨 Lhasa	拉萨贡嘎国际机场 LXA	TV	2	A319

注:

1. 国航、东航及南航三大上市航空的数据, 均参考2010年年度报告。
2. 海南航空各机型数量已包括海航集团属下大新华航空、天津航空、新华航空、山西航空、扬子江快运、首都航空、祥鹏航空、西部航空, 以及所有公务机的情况。部分子公司分项提供机队信息。
3. 中国货运航空机型数量已包括上海国际货运航空、长城航空公司的情况, 后两者信息亦可见上表。
4. 中国东方航空机队数量已包含其全资子公司上海航空的机队。目前, 上海航空仍保留品牌, 独立运营。
5. 以上所有信息仅供参考。

Comments:

1. Data of Air China, China Eastern & China Southern refers to their 2010 Annual Reports respectively.
2. The aircraft numbers of Hainan Airlines are including the information from Grand China, Tianjin Airlines, Xinhua Airlines, Shanxi Airlines, Yangtze River Express, Capital Airlines, Lucky Air & West Air, the numbers of business jets are also included. Some of the subsidiaries' information is also listed above independently.
3. The aircraft numbers of China Cargo Airlines are including the information from Shanghai Airlines Cargo Intl. & Great Wall Airlines, which the two subsidiaries are also listed separately as above.
4. The aircraft numbers of Eastern Airlines are also including the fleet of Shanghai Airlines. Shanghai Airlines is independently operating in todays.
5. All above-mentioned information is for reference only.



# Careful Studies Demonstrate Effectiveness of Voluntary Noise Abatement Efforts and Permanent Monitoring Systems in Reducing Noise Exposure

## 案例分析：自愿减噪程序和永久噪声监测系统在降噪中的应用

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This article summarizes two carefully conducted technical studies that demonstrated conclusively that voluntary noise abatement takeoff procedures can achieve measurable noise reduction, that citizens can readily notice the improvement, and that aircraft monitoring systems are a particularly valuable tool for use in designing and optimizing procedures, educating pilots in their proper application, and illustrating the benefits to citizens.

Airports and aircraft operators use a broad range of noise abatement techniques to minimize noise impacts. One major category is “noise abatement departure profile” (“NADP”) procedures.

NADP procedures involve specific steps in applying and changing power, flap, acceleration, speed, climb rate, climb angle, and other settings from start of takeoff roll until the aircraft is at cruise altitude to reduce noise over sensitive land uses. Overall, departure procedures fall into three basic categories: (1) “close-in” NADPs for use on runways where there are sensitive land uses relatively near the takeoff end of the runway; (2) “distant” NADPs for use on runways where there is an extended area of non-sensitive land uses off the takeoff end of the runway; and (3) “standard” procedures for use on where sensitive land uses are relatively evenly distributed. In practice, the two NADP procedures can be customized for a broad range of specific conditions, resulting in a spectrum of procedures across the two categories. For example, a recent international survey identified 20 different NADP procedures employed by a sample of 19 airlines.[ International Civil Aviation Organization, Doc 9888, Noise Abatement Procedures: Review of Research, Development and Implementation Projects – Discussion of Survey Results, Montreal, Quebec, Canada, 2010.]

The International Civil Aviation Organization (ICAO) provides guidance on design and implementation of NADPs.[ International Civil Aviation Organization, Doc 8168, Procedures for Air Navigation Services – Aircraft Operations (PANS-OPS), Part V, Chapter 3, Montreal, Quebec, Canada, 2010.] The ICAO guidance calls the close-in procedure “NADP1” and the distant procedure “NADP2.” As an illustrative example, the following figure presents graphical descriptions of the two ICAO procedures for a 737 aircraft.[

此文概述了两个经严谨执行的技术研究案例，案例皆证实了：自愿减噪起飞程序可以达成重要的降噪效果；居民可容易地感受到噪声得到改善；飞行器监控系统在程序的设计和优化、培训飞行员使用适当的程序以及向居民展示该程序带来的好处等过程中成为非常独特且有价值的工具。

机场和飞行器运行商使用大量的降噪技术设法将噪声影响最小化。其中一个主要范畴是“减噪离场”程序。

“减噪离场”程序包含了飞行器从起飞滑跑开始至到达巡航高度需在敏感地上方降低噪声这一整个过程中增加及改变动力、副翼、加速度、速度、爬升率、爬升角度以及其他设定所需遵循的操作步骤。总而言之，离场程序分成三个基本的范畴：(1) “近距离”减噪离场程序用于敏感建筑群体相对接近飞行器起飞滑跑的跑道末端；(2) “远距离”减噪离场程序用于飞行器起飞滑跑末端的跑道附件有一块无敏感建筑群体的延伸空间；(3) “标准”程序用于敏感建筑物平均分布的机场。实际上，这两种减噪离场程序可以被定义为一个内容较为宽泛的特定条件，形成贯穿这两个范畴的程序。例如，近期一个国际性的调研发现19家航空公司共使用20种不同的减噪离场程序。

国际民航组织 (ICAO) 为减噪离场程序的设计和和实施提供指引。国际民航组织把“近距离”程序称作“NADP1”，将“远距离”程序称为“NADP2”。如下图解展示了ICAO为波音737飞机制定的这两种程序。

居住在起飞航迹下的居民得知飞行员在自愿的情况下遵循这些程序以及机场管理者和控管人员不能强制飞行员遵守程序后都觉得很意外。但是，经过细致的沟通和教育，居民们很快而且很容易就会

Source: [www.b737mrg.net/downloads/b737mrg\\_noise.pdf](http://www.b737mrg.net/downloads/b737mrg_noise.pdf), last referenced September 9, 2011.]

Residents living under takeoff flight paths often are surprised to learn that pilots apply such procedures on a voluntary basis, and that airport operators and air traffic controllers cannot formally require pilots to follow them. However, with careful communication and education, citizens quickly and easily understand that mandatory application would be inconsistent with the primary consideration of safe aircraft operation. With this limitation understood, citizens often ask whether the voluntary implementation is effective.

Two U.S. airports recently evaluated NADP procedures with extensive pilot, airport, aircraft operator, and citizen involvement, and detailed noise measurement analyses. The studies demonstrated that voluntary NADP procedures result in measurable and readily detectible noise reduction. The studies were at: Van Nuys Airport (VNY) in Van Nuys, California, which is owned and operated by the Los Angeles World Airports (LAWA), and Witham Field (SUA) in Stuart, Florida, which is owned and operated by Martin County, Florida.

理解到，强制应用这些程序与保证飞行器安全操作的初衷相冲突。基于有限的理解，居民们经常会问及这种基于自愿来履程序是否有效。

两个美国机场近期对减噪离场程序进行了评估。评估中，多名飞行员、机场和飞机运营者以及当地居民参与进来，进行了详细的噪声测量分析。研究证明，自愿的减噪离场程序可达成明显的降噪效果。此项研究分别在芝加哥国际机场管辖运营的范纳依斯机场和佛罗里达州马丁县管辖运营的马丁县机场进行。

如下段落是对此两项案例中重点部分的总结。

### 范纳依斯机场减噪离场程序调查研究

2011年初，洛杉矶国际机场在范纳依斯机场完成了一个历时多年的降噪研究并为其降噪项目的改善提供了多种选择空间。研究表明洛杉矶国际机场当局和机场使用人共同合作成功的达成了降噪目标，同时这些自愿的降噪措施带来了重要的成果。对其中一个自愿措施——友好飞行目标噪声级别项

#### NOISE ABATEMENT PROCEDURES

##### NADP 1 (Noise Abatement Departure Procedure 1)

This procedure involves a power reduction at or above the prescribed minimum altitude and delaying flap/slat retraction until the prescribed maximum altitude is attained.

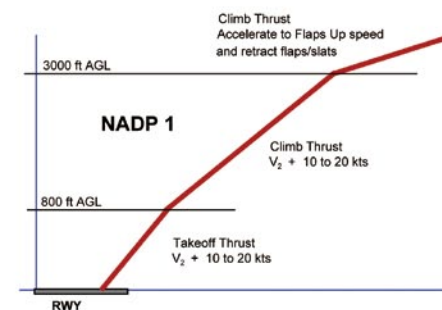
At the prescribed maximum altitude, accelerate and retract flaps/slats on schedule while maintaining a positive rate of climb and complete the transition to normal en-route climb speed.

The noise abatement procedure is not to be initiated at less than 800 feet AGL. The initial climbing speed to the noise abatement initiation point shall not be less than  $V_2 + 10$  knots.

On reaching an altitude at or above 800 feet AGL, adjust and maintain engine thrust in accordance with the noise abatement thrust schedule provided in the aircraft operating manual. Maintain a climb speed of  $V_2 + 10$  to 20 knots with flaps and slats in the take-off configuration.

At no more than an altitude equivalent to 3000 feet AGL, while maintaining a positive rate of climb, accelerate and retract flaps/slats on schedule.

At 3000 feet AGL, accelerate to normal en-route climb speed.



##### NADP 2 (Noise Abatement Departure Procedure 2)

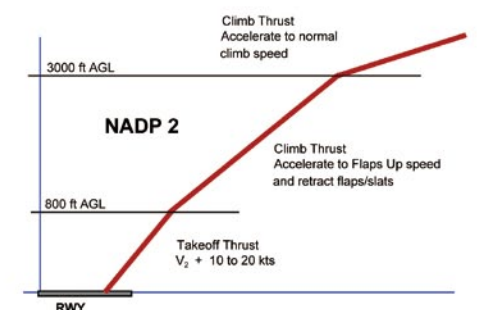
This procedure involves initiation of flap/slat retraction on reaching the minimum prescribed altitude. The flaps/slats are to be retracted on schedule while maintaining a positive rate of climb. The thrust reduction is to be performed with the initiation of the first flap/slat retraction or when the zero flap/slat configuration is attained. At the prescribed altitude, complete the transition to normal en-route climb procedures.

The noise abatement procedure is not to be initiated at less than 800 feet AGL. The initial climbing speed to the noise abatement initiation point is  $V_2 + 10$  to 20 knots.

On reaching an altitude equivalent to at least 800 feet AGL, decrease aircraft body angle whilst maintaining a positive rate of climb, accelerate towards Flaps Up speed and reduce thrust with the initiation of the first flaps/slats retraction or reduce thrust after flaps/slats retraction.

Maintain a positive rate of climb and accelerate to and maintain a climb speed equal to Flaps Up speed + 10 to 20 knots till 3000 feet AGL.

At 3000 feet AGL, accelerate to normal en-route climb speed.





The following paragraphs summarize highlights from these initiatives.

### Van Nuys Airport NADP Investigation

In early 2011, LAWA completed a multi-year noise abatement study at VNY that considered options for improving its noise abatement program. The study demonstrated that LAWA and airport users are collaborating to achieve noise abatement goals in a highly successful manner, and that voluntary measures have led to significant and measurable improvement. The analysis of one voluntary measure – the “Fly-Friendly Target Noise Level Program” – clearly illustrates the effectiveness of voluntary NADP efforts and the value of a permanent noise monitoring system in achieving noise-reduction benefits.

Working with the VNY Citizens Advisory Council (CAC), LAWA established the Fly-Friendly program in 1994. In simple terms, the program sets aircraft-type-specific noise-level targets for jet departures on VNY’s primary departure runway. LAWA measures actual departure noise levels and sends letters to each aircraft operator that exceeds the applicable target. LAWA offers assistance to operators to establish procedures to reduce noise levels below the targets and has found that operators appreciate and take advantage of the offer.

The analysis utilized measurement data from the VNY monitoring system for January 1998 through May 2007, including measurements for over 120,000 departures in over 50 jet aircraft types.

LAWA measurements reveal that this purely voluntary measure has been highly successful in reducing noise levels; the percentage of jet departures exceeding targets has been cut in half – from over 11% to approximately 5.5%. The average measured jet departure noise level has been reduced by over two decibels, which translates into a significant reduction in overall noise levels under industry-accepted standards.

The figure on the right is a selected example of analysis results for a single aircraft type – the Lear 35 corporate jet. It illustrates one of the study’s most significant findings, that measured departure levels are noticeably lower for more frequent operators. This result is attributed to the fact that more frequent operators have greater familiarity with program objectives, and more opportunities to optimize their takeoff procedures. The airport’s permanent noise monitoring system is a critical tool in the familiarization and optimization efforts, since it provides highly accurate, objective data that operators can use in assessing and refining procedures.

The study also led LAWA to propose enhancements to extend the effectiveness of the Fly-Friendly program, including identification of updated targets for the full fleet of jet models currently operating at VNY and establishment of an annual awards program to recognize the efforts of the best-performing operators. LAWA is working with the CAC and the Van Nuys Airport Association (which represents VNY business interests) to flesh out program implementation and notification mechanisms.

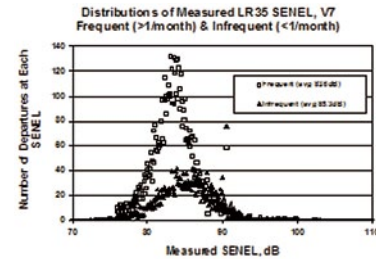
Further details on the Fly-Friendly program are available under the “Airport Information / Noise Management” section of LAWA’s VNY website, at [http://www.lawa.aero/welcome\\_VNY.aspx?id=4245](http://www.lawa.aero/welcome_VNY.aspx?id=4245).

目”的分析—清晰地阐明了基于自愿执行的减噪离场飞行程序的效力以及永久噪声监测系统在达成减噪目标时的效益。

洛杉矶国际机场与范纳依斯机场的公民咨询委员会合作，于1994年开始了友好飞行计划。简言之，这个计划为从范纳依斯机场主要跑道飞离的不同机型分别设计了噪声级别目标。洛杉矶国际机场测定实际的离场噪音级别并知会每个超出噪声适用目标的航空公司。洛杉矶国际机场为航空公司提供协助，建立降噪程序。他们发现航空公司感谢并得益于此类协助。

此项研究运用了范纳依斯机场从1998年1月到2007年间的测量数据，包含了超过50种喷气式飞机的12万次离场飞行记录。

洛杉矶国际机场的测量数据显示，这个单纯的自愿性措施在降噪方面取得了巨大的成功；喷气机超标的情况减半—从超过11%降至大约5.5%。飞行器离场产生的平均噪声减低了2分贝，这些对机场的整体噪声级别降至业界认可的标准内起到了巨大的作用。



上图表显示了对某一单一飞行器—庞巴迪“利尔喷气”35型公务机的分析结果。图表描绘了此项研究最为重大的发现之一，测量中发现，更多繁忙的航空公司的离场噪声级别都有显著降低。这样的结果归因于越是繁忙的航空公司越会更好的了解此项计划的目标，并且有更多的机会优化起飞程序。机场永久噪声监测系统可提供高度准确和客观的数据，为机场管理者评估并改善相关程序提供依据，是掌握和优化降噪程序的关键性工具。

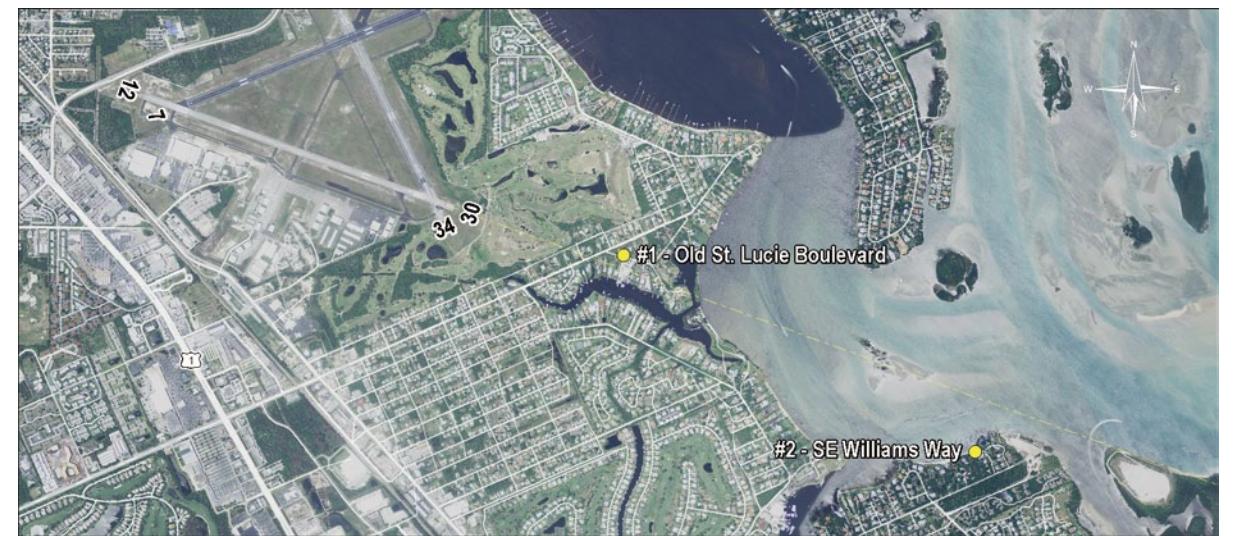
此项研究也促使洛杉矶国际机场提议增强飞行友好计划的功能，包括目前在范纳依斯机场运营的喷气式机队更新目标的识别以及建立年度奖励计划以了解谁是表现最佳的航空公司。洛杉矶国际机场与其公民咨询委员会以及范纳依斯机场联盟（此联盟代表范纳依斯机场的商业利益）合作负责项目的实施与通知机制。

更多有关于友好飞行计划的详细信息可在洛杉矶国际机场范纳依斯机场的网站中“Airport Information / Noise Management”章节获得。

### Witham Field NADP Investigation

While LAWA was able to develop, assess, and update its NADP program based on extensive data from an established permanent monitoring system, Martin County, Florida, developed its NADP program for Witham Field as one of the first steps in the design of its system.

The Witham Field study involved a high degree of community, airport, pilot, and aircraft operator participation, starting with a highly participatory process to identify optimum procedures to test. That first step led to the selection of two particularly promising options, based on noise modeling and informal citizen and pilot impressions of procedures flown by different operators.



The second study phase involved conducting controlled flight demonstrations of the two selected procedures in two aircraft types, with consulting engineers conducting measurements at two locations in the community, as shown below. Citizen, aircraft operator, and airport observers were stationed at the two locations, to provide a “human” assessment in addition to the formal decibel readings. Citizen representatives also observed flight procedures in the aircraft cockpit and assisted in logging aircraft altitudes and speeds for use in detailed noise modeling to supplement the measurements. Each procedure was flown twice in each aircraft type.

The measurements and observations led to surprisingly consistent conclusions, from multiple perspectives:

- First, the measurements revealed that one procedure was clearly quieter than the other in terms of measured noise levels and the time noise levels were above the locally accepted noise threshold.
- Second, the same procedure was preferable for both aircraft types.
- Third, observers noticed a clearly detectable difference between the two procedures; one was clearly quieter.
- Fourth, the observers’ impressions were entirely consistent with the measurements.

### 马丁县机场减噪离场程序调研

当洛杉矶国际机场依据其永久噪声监测系统产生的大量数据开发、进入并更新其减噪离场程序时，位于佛罗里达州的马丁县为马丁县机场迈出了设计整个系统的第一步：开发减噪离场程序。

马丁县的研究极大的使社区、机场、飞行员、飞行器管理者参与其中，开始时设计了一个吸引大众参与的流程以协助其判定最佳程序。首先第一步，在两个特别看好的方案中进行选择，选择的依据是噪声模型以及居民和飞行员对不同航空公司航班飞行程序的主观感觉。

第二个阶段的研究涵盖了对两种机型进行两种程序的飞行管制，结合工程师顾问的测量数据，在社区的两个不同地点进行，如图所示。居民、飞行器管理者和机场观察人员被安置在这两个地点，目的是在正式的分贝读数基础上加上“人类”的主观评估。居民代表也可在飞行器驾驶舱内协助记录飞行器高度及速度等数据用于在噪声模型中作为补充数据。每种机型按照每种程序飞行两次。

测量数据和观察结果得出了与之前惊人般一致的结论，综合来看：

- 首先，测量值显示飞行器在使用其中一种程序时，噪音要明显的低于另一程序使用下的噪声级别，并且噪声级别高于本地可接受的噪声阈值。
- 第二，同一程序对两种不同的机型同样适用。
- 第三，观察者们注意到了两种程序间明显可查的不同之处：即其中一个明显的安静。
- 第四，观察者的感官与测量数据完全一致。
- 第五，相同的程序适用于机械测量和人类感官两种场合。



• Fifth, the same procedure was preferable at both of the measurement / observation locations.

Measurements revealed a 6 to 8 decibel reduction in the total noise exposure during the aircraft flyovers. From a cumulative exposure perspective, this noise reduction is equivalent to reducing operations in the aircraft using the preferred procedure by a factor of five, assuming they otherwise would have used the alternate procedure.

The study results led to unanimous selection of a preferred procedure by all participants, with subsequent endorsement by the airport's noise abatement committee, the Board of County Commissioners that governs airport operations, and by the U.S. Federal Aviation Administration.

The study results also provided critical information that the County used in designing and obtaining a permanent noise monitoring system for use in implementing its noise abatement program, training pilots, and presenting results to the public.

Martin County won multiple statewide industry awards for this highly successful cooperative effort.

测量数据显示了在飞行器飞越过程中的总噪声暴露中有6到8个分贝的降低。从噪声累积暴露的角度来看,这种噪声降低等同于通过使用优先程序减少飞行器运行。

研究结果显示,在机场降噪委员会、管理机场运行的县政府特派委员会以及美国联邦航空局的后续认可下,所有参与者对优先程序的选择没有异议。

研究结果还为马丁县设计及获取一个永久噪声监测系统用于执行其降噪项目、培训飞行员以及向公众发布结果而提供了重要的信息。

马丁县为这个高度成功的合作成果而获得了多个州工业奖项。



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## CAAC Signs a Memorandum of Understanding with LACAC 中国民航局与拉美民航委员会签署谅解备忘录

In October, Mr. Li Jiayang, minister of the Civil Aviation Administration of China (CAAC for short) signed a memorandum of understanding with Mr. Luis Rodríguez Ariza, president of the Latin American Civil Aviation Commission (LACAC for short). Before signing the memorandum of understanding, the two discussed the exchanges and cooperation between the CAAC and LACAC.

Li Jiayang welcomed Mr. Luis Rodríguez Ariza's visit to China. He said that, in recent years, the relationship between China and Latin America had developed quite rapidly and China was willing to strengthen their relations with their friends in Latin America's civil aviation sector. The signing of the cooperation memorandum of understanding marked the new beginnings of exchanges and cooperation between the two parties. Mr. Luis Rodriguez Ariza appreciated the sincerity that the CAAC had shown in strengthening the exchanges and cooperation with Latin America's civil aviation sector. Mr. Luis Rodriguez Ariza expressed that it was very important that the two cooperated in training and technology exchange, for Latin America's civil aviation sector.

LACAC is a regional inter-governmental international organization made up of 22 Latin American countries' civil aviation authorities. The main function of the LACAC is to coordinate cooperation on civil aviation matters in its own area and to participate in the elections of the members of the International Civil Aviation Organization (ICAO for short). Currently, there are 7 members of the ICAO which are from Latin America, that is, Argentina, Brazil, Columbia, Cuba, Peru, Paraguay and Guatemala.

10月，中国民用航空局（简称“民航局”）局长李家祥与拉美民航委员会主席罗德里格斯在北京代表双方签署了谅解备忘录。谅解备忘录签署前，李家祥与罗德里格斯就中国民航局与拉美民航委员会之间的交流与合作交换了意见。

李家祥对罗德里格斯的来访表示欢迎，他说，近年来，中国与拉美关系发展迅速，中国愿与拉美民航界的朋友加强联系。此次中国民航局与拉美民航委员会合作谅解备忘录的签署标志着双方交流与合作的崭新开始。罗德里格斯对中国民航局与拉美民航界加强交流与合作的诚意表示感谢，并表示双方在培训、技术等方面进行合作对拉美民航来说非常重要。

拉美民航委员会是由22个拉美国家民航当局组成的区域性政府部门间国际组织。该组织主要功能是协调本地区内部有关民航合作及参与国际民航组织理事国选举等事务。目前，拉美地区担任国际民航组织理事国国有7个国家，包括阿根廷、巴西、哥伦比亚、古巴、秘鲁、巴拉圭和危地马拉。

## Deputy Director of the International Department of the CAAC Holds Talks with Ukrainian Official 民航国际司副司长与乌克兰在京举行民航会谈

In October, a Chinese civil aviation delegation, lead by Wu Zhouhong, Deputy Director of the International Department of the CAAC, held a talk in Beijing with the Ukrainian civil aviation mission, led by Grechko Oleksandr, Senior Deputy Chairman of the State Aviation Administration of Ukraine. The two parties reached an agreement on further cooperation in the civil aviation industry and on expanding the bilateral air traffic rights and the two parties had signed an memorandum of understanding.

Currently, the Ukraine based AEROSVIT AIRLINES operates 4 round-trip passenger flights from Kiev to Beijing and there is code sharing between AEROSVIT AIRLINES and China Southern Airlines.

10月，由中国民用航空局（简称“民航局”）国际司副司长武洲宏率领的中国民航代表团与乌克兰国家航空署副署长Grechko率领的乌克兰民航代表团在北京举行会谈。双方就进一步提升两国在民航领域的合作，扩大双边航权安排达成了协议，并签署了谅解备忘录。

目前，乌克兰空中世界航空公司每周经营4班基辅至北京往返客运航线，并与中国南方航空股份有限公司进行代号共享。

## Capital Airport Signs Memorandum for Cooperation with Three More Airports 首都机场与三个机场签署合作备忘录



Beijing Capital International Airport (Capital Airport) has successfully signed memorandums of cooperation with Manchester Airport, Taiwan Taoyuan International Airport and Munich Airport. Currently, Beijing Capital Airport has established sister airport relationships with 20 airports, including Hong Kong International Airport, Eleftherios Venizelos International Airport, Singapore Changi Airport, Vancouver International Airport and Narita International Airport.

Beijing Capital Airport will enhance the cooperation and communication in the fields of hub airport construction, airport operation, passenger service, business management and so on, with the three airports, all while pushing forward with each others application and exploration of new technology, new ideas and so on, in an effort to jointly promote airports all over the world to develop rapidly.



9月，北京首都国际机场（简称“首都机场”）先后与曼彻斯特机场、台湾桃园机场和慕尼黑机场等三家机场签署了友好合作备忘录。截至目前，首都机场已同包括香港机场、雅典机场、新加坡樟宜机场、加拿大温哥华机场、日本成田机场等在内的20家机场建立了姊妹机场关系。

首都机场将在机场运行管理，特别是枢纽机场建设、机场运行、旅客服务、商业管理等领域进一步加强同三家机场的合作交流，同时推动彼此在新技术、新理念等方面的应用与探索，共同推动全球机场业的快速发展。



## Wu Tongshui, Principal of the Civil Aviation University of China Receives the French Aeronautical Medal of Honor 中国民航大学校长吴桐水获法国航空荣誉勋章

In October, at Toulouse, the government of the Republic of France awarded Wu Tongshui, Principal of the Civil Aviation University of China, a French Aeronautical Medal of Honor and a certificate to cite the prominent achievements that the Civil Aviation University of China (CAUC for short) had gained in the Sino-France aviation exchange and cooperation in the last years. Wu Tongshui is the first one in Mainland China that has achieved this honor. Patrick Gandil, the Chief Executive of the DGAC (French Civil Aviation Authority) took a special trip from Paris to Toulouse to attend the ceremony, and on behalf of the government of France, awarded the French Aeronautical Medal of Honor and the certificate to Wu.



10月，法兰西共和国政府在图鲁兹授予中国民航大学校长吴桐水法国航空荣誉勋章及证书，以表彰中国民航大学过去几年里在中法航空交流合作方面取得的显著成就。吴桐水是中国内地首位获得该勋章的人。法国民航局局长岗蒂专程从巴黎赶往图鲁兹代表法国政府出席授勋仪式并向吴桐水颁发勋章及证书。

法国航空荣誉勋章设立于1945年2月，是法国航空领域的最高荣誉，主要授予为航空业发展作出杰出贡献的人士。该勋章设立66年来，曾特别向法国以外的世界航空重要人物颁发，包括曾创造了多项世界航空纪录的美国飞行员史蒂文弗塞特，欧盟委员会航空运输司司长科雷斯波，欧洲空中导航安全组织总裁大卫马克密朗等。

法国民航局局长岗蒂对吴桐水及中国民航大学给予世界航空业、中法航空交流合作的贡献作高度评价肯定和评价。他说，吴桐水自2001年8月任中国民航大学校长以来，积极推动中法民航业的合作，尤其是与法国航空航天大学集团合办中欧航空工程师学院，得到了空客公司、欧洲直升机公司、欧洲宇航防务集团、赛峰集团和泰雷兹集团等欧洲和法国各大航空企业的大力支持，其高水平教育模式被中法两国政府高度认可，使中法合作向前迈出了一大步，不仅为中国创造了培养高水平工程师的摇

cultivating high-level engineers but also makes it possible for timely cooperation between China and France's aviation enterprises and promotes further close and sustained exchange and cooperation in the aviation industry and other related high-tech fields between the two countries' aviation enterprises.

篮，而且使中法两国的航空企业也能够及时地开展更多的合作，深入促进了中法两国企业在航空和高新技术领域的紧密并持久的合作交流。

## CAAC Calibration and Testing Commission Established as a Subordinate to the Airworthiness Department of the CAAC 民航计量检测委员会成立 由民航局适航司领导

In September, the CAAC's Calibration and Testing Commission was officially established. With the 17 committee members (leaders and experts) from the Flight Standards Department of the CAAC, China Academy of Civil Aviation Science and Technology, China National Aviation Fuel Group Corporation (CNAF) and each airline, this unit is a direct subordinate to the Airworthiness Department of the CAAC. Liu Xiaojie, an investigator from the Airworthiness Department of the CAAC was appointed as the commission's chairman and its secretariat is located at the CAAC's Calibration and Testing Center (CTC), which is located at the Aircraft Maintenance and Engineering Corporation (Ameco Beijing). The target of setting up this unit is to propel the overall development of China's civil aviation calibration and testing task and to offer better service to the safe production of all civil aviation units.

The CAAC's Calibration and Testing Center is a first class civil aviation calibration technology unit. Entrusted by the Civil Aviation Administration of China, Air China Limited set up the CAAC Calibration and Testing Center at Ameco Beijing in 2003 with investment from both the CAAC and Ameco Beijing. The target is to legally regulate China's civil aviation calibration and testing task, to perfect China's civil aviation testing management system and to provide reliable material guarantee for China's civil aviation development.

Currently, the CAAC's Calibration and Testing Center, subordinate to Ameco Beijing, owns the certificate of approval by the laboratory of China National Accreditation Service for Conformity Assessment (CNAS) and the certificate, including 22 items of calibration norms, approved by the General Administration of Quality Supervision, Inspection and Quarantine of the People's Republic of China. The CAAC Calibration and Testing Center has 350 more sets of equipments and facilities for both calibration and testing use. It mainly supplies calibration and maintenance service to SPEQs of aircraft, airports and ATC as well as the inspection and analysis service to related samples. Furthermore, it bears the civil aviation calibration and testing management and professional training tasks entrusted by the CAAC.

9月，中国民航计量检测委员会正式成立。该委员会受中国民航局适航司直接领导，委员由来自民航局飞标司、航科院、中航油、各航空公司的17位领导和专家组成，适航司调研员刘晓杰任主任委员，委员会秘书处设在北京飞机维修工程有限公司（简称“Ameco”）的中国民航计量检测中心。成立该委员会旨在推动民航计量检测工作的整体发展，更好地为民航各单位的安全生产提供服务。

中国民航计量检测中心是中国民航局委托中国国际航空股份有限公司于2003年在Ameco组建而成的民航一级计量技术机构，由民航局和Ameco共同出资建设。建设该机构的目的是依法规范计量检测工作、完善计量检测管理体系，为中国民航的发展提供可靠的物质保证。

目前，隶属于Ameco的中国民航计量检测中心拥有中国合格评定国家认可委员会（CNAS）实验室认可证书，以及国家质量监督检验检疫总局批准的22项计量标准证书。用于校准和检测的测试设备近350多套。主要为Ameco和民航界提供飞机/机场/空管专用设备的校准修理和样品的检测分析工作，同时担负民航局交给的计量检测管理和专业培训方面的工作。



## North China ATMB of CAAC Successfully Takes Over the ATM Command of the Upper Airspace Over Ji'nan 华北空管局成功接管济南高空空域

In September, the CA1708 flight flying into the upper airspace over Ji'nan contacted the Beijing Area Control Center. The CA1708 was the first scheduled flight that had received the moment ATM command from the Beijing Area Control Center. This marks the ATM command of the upper airspace over Ji'nan had been officially handed over to the North China ATMB of CAAC. After this handover, the upper airspace controlled by the North China ATMB of CAAC had been expanded from 750 thousand square kilometers to 870 thousand square kilometers. This was the first upper airspace ATM command handover, which means the civil airspace intergration strategy had achieved substantive progress and the ATM of civil aviation had taken a successful first step to the future's large area run pattern.

This inter-area upper airspace ATM command handover will accelerate the upper airspace resource integration process in east China. The ATM of upper airspace over Beijing and the ATM of upper airspace over Shanghai have been seamlessly connected so that the ATM on the Beijing-Shanghai air route has been put into regional centralization of management. The ATM all-in-one management preponderance has been exerted. The airspace structure compartition has been perfected. The systematization, networking and large area aim have been reached. The overall security capability of the ATM system in east China has been promoted. The operating efficiency of regional flight has been raised.

9月，飞临济南高空区域的国航1708航班联系北京区域管制中心，成为首架接受北京区域管制中心跨区域管制指挥的航班，至此济南7800米（不含）以上高空管制空域空管指挥权正式移交华北空管，使华北空管高空指挥区域由原来的75万平方公里扩大到87万平方公里，首次实现了全国跨地区高空管制移交指挥。此次成功接管标志着民航空域资源整合战略取得实质性进展，民航空中交通管理向着未来大区域运行格局迈出了成功的第一步。

此次异地高空接管将大大加快东部高空空域资源整合进程，使北京—上海形成无缝隙高空空域对接，实现京沪航路区域化管理，充分发挥空管一体化管理优势，优化空域结构，实现空中指挥的系统化、网络化和大区域化，提升东部地区空管系统整体保障能力，提高区域飞行保障的运行效率。

## The Apron Expansion Project of Daqing Airport Passed Inspection for the Acceptance of the CAAC's Northeast Regional Administration 大庆机场站坪扩建工程顺利通过东北局验收

In October, the apron expansion & temporary de-icing strip establishment project at Daqing Saertu (Daqing Airport for short) Airport passed the inspection acceptance of the CAAC's Northeast Regional Administration smoothly. This signifies that the two newly built aprons and the newly built temporary de-icing strip will now be put into service.

In this expansion project, a pavement of concrete cement that is 36 centimeters thick and 17,250 square meters, a service-vehicle traffic lane of cement concrete that is 22 centimeters thick and 1,030 square meters in size and other supporting facilities have been newly built. The temporary de-icing strip of 8,325 square meters is the first one in all of the regional airports in the Heilongjiang province. In the temporary de-icing strip part, the waste liquid flows automatically and there is a collection pond of 80 cubic meters so that the current drainage system will be adequately used.

10月，大庆萨尔图机场站坪扩建及新建临时除冰坪工程顺利通过中国民用航空东北地区管理局（简称“东北管理局”）行业验收，这意味着新建的两个停机坪和一个新建临时除冰坪即将启用。

此次扩建工程新建36厘米水泥混凝土道面17250平方米，22厘米水泥混凝土服务车道1030平方米和其他相应配套设施。其中8325平方米的临时除冰坪是黑龙江省各支线机场中的首例，采用废液自流并配有80立方米收集池式设计，可以充分利用现有的排水系统。

## Pratt & Whitney Canada and AVIC Engine Holdings Create a New MRO Facility in China 普惠加拿大公司与中航宣布新建MRO合资企业



In September, Pratt & Whitney Canada (P&WC) and the China Aviation Engine Holdings Corporation Ltd. (AVIC Engine Holdings) announced the creation of a new joint venture to be located in Zhuzhou city, in the Hu'nan province, in the People's Republic of China. The new maintenance, repair and overhaul (MRO) services will be specialized for the civil-certified PT6A and PW100 series engines.

The New MRO Facility is named the Zhuzhou Tonghui Aero Engine Maintenance Co., Ltd.. The joint venture will be legally structured through SAIC's subsidiary – General Aviation Engine Company (GAEC) and UTC's subsidiary – United Technologies Far East (UTFE). 75 percent of AEMC will be owned by GAEC and 25 per cent by UTFE.

AEMC will provide MRO services to civil-certified PT6A and PW100 engines installed on civil turboprop aircraft operating in the People's Republic of China and to these Chinese Original Equipment Manufactured civil-certified PT6A and PW100 engines installed on civil turboprop aircraft operating in other states or regions in the Asia-Pacific region.

The MRO capabilities of this joint venture will be created in phases, starting with line maintenance, followed by heavy maintenance and, finally, overhauling. Currently, P&WC has roughly 180 PT6A and PW100 engines flying in China on the Y12 and MA60/600 turboprop aircraft.

普惠加拿大公司与中航发动机控股有限公司9月宣布，将在湖南省株洲市建立一个新的合资企业，为国内民用PW100系列和PT6A系列航空发动机提供维护、修理和大修（MRO）服务。

新MRO工厂的名称为株洲通惠航空发动机维修有限公司（AEMC）。合资公司将由中航工业南方航空工业（集团）有限公司的子公司——中航湖南通用航空发动机有限公司（GAEC）和联合技术公司的子公司——联合技术远东公司（UTFE）出资建立。AEMC将由GAEC拥有75%的股份、UTFE拥有25%的股份。

AEMC的MRO服务范围包括：安装在中国运营的民用涡桨式飞机、以及安装在中国OEM制造且在亚太地区运营的民用涡桨式飞机上的、由普惠加拿大公司制造的民用PW100系列和PT6A系列航空发动机。

该合资公司的MRO能力将分阶段建立，从航线维修能力开始，之后建立深度维修能力，直到建立完整的大修能力。目前，在中国服役的PT6A和PW100系列发动机约有180台，服务于运12和新舟60、600机型。



## Domestic ATC Secondary Radar Gets License from the Civil Aviation Authority

### 国产空管二次雷达首获中国民航使用许可证

In Nanjing, the ATC office of the CAAC (the ATC office for short) issued the Civil Aviation Air Traffic Communication & Navigation Supervisory Equipment License to the Nanjing Nriet Industrial Co., Ltd. of the No. 14 Institute of the China Electronics Technology Group Corporation, for their independently developed and produced DLD-100C secondary surveillance radar.

As mainland China's first domestic secondary surveillance radar that has passed the examination of the Civil Aviation Administration of China, the DLD-100C secondary surveillance radar has gained the license. This signifies that the domestic made secondary surveillance radar can be sold and put into service in mainland China's civil aviation market. This has fixed the situation previously in that mainland China had no options other than to buy secondary surveillance radars from abroad.

"The DLD-100C secondary surveillance radar produced by the No. 14 Institute of the China Electronics Technology Group Corporation has reached the technical standards of the International Civil Aviation Organization (ICAO for short) and mainland China's civil aviation needs. It has reached the advanced level in the international secondary surveillance radar industry and it meets all the requirements for application in the civil aviation industry," said Su Langen, the director of the ATC office. This means that domestic secondary surveillance radars have formally been put into operation in the civil aviation ATC area. The domestic secondary surveillance radar is also the fruit of mainland China's long term implementing of the equipment nationalization policy and actively driving domestic ATC equipment application into the civil aviation experimental area.

As the core unit in the modern civil aviation ATC industry, the secondary surveillance radar plays an important role in ensuring civil flight safety and flight regularity. To make sure the secondary surveillance radar can run in various complex environments continuously, the Civil Aviation Administration of China (CAAC for short) has specified serious technical rules and regulations for the radar's system functions, technological performance and system allocation. The CAAC also laid down some serious technical standards in the operation performance of the secondary surveillance radar, such as the security, reliability, continuity, veracity and maintainability. According to related rules, all ATC radars that go into mainland China's civil aviation market should all receive the functional test and type certification examination in accordance with the technical standards of the ICAO and China's regulations. If the ATC radar meets all the requirements, then it may receive the CAAC facility license.

11月中旬，民航局空管行业管理办公室（简称“空管办”）在南京为中国电子科技集团第十四研究所南京恩瑞特实业有限公司研发生产的DLD-100C型二次监视雷达，颁发《民用航空空中交通通信导航监视设备使用许可证》。

作为我国首部通过民航局评审的国产二次监视雷达，该设备使用许可证的颁发，标志着国产二次监视雷达可以进入到中国民航市场进行销售和服务，打破了以往二次监视雷达设备完全依赖进口的局面。

“中国电科第十四研究所自主研制生产的DLD-100C型号二次雷达，完全符合国际民航组织以及我国民航的技术标准，达到了国际空管二次雷达技术的先进水平，具备了在民航应用的条件。”民航局空管办主任苏兰根指出，这不仅标志着国产二次雷达从此进入民航空管领域正式使用，也是中国民航长期以来积极实施空管装备国产化政策、积极推进国产空管设备在民航试验应用的重大成果。

二次雷达作为现代民航空管的核心装备，对保障民航飞行安全和航班正常具有十分重要的作用。为确保二次雷达在各种复杂环境条件下能够不间断地安全运行，中国民航局对雷达的系统功能、技术性能、系统配置制订了严格的技术规范，对雷达运行的安全性、可靠性、连续性、准确性和可维护性制定了严格的技术标准。根据规定，凡是进入我国民航领域使用的空管雷达，必须按照国际民航组织以及中国民航的技术标准规范完成设备功能性能测试与型号合格审定，完全符合条件的获得民航局设备使用许可证。

## The Third Phase of the Yinchuan Airport Expansion Project Starts: The Aircraft Movement Area Reference Code Will be Upgraded to 4E

### 银川机场启动三期扩建 飞行区等级提升至4E级



In November, the launch ceremony of Yinchuan Hedong Airport's expansion of the third-phase project was held at Yinchuan Hedong Airport (Yinchuan Airport for short). Wang Zhengwei, governor of the Ningxia Hui Autonomous Region made a speech and declared the Expansion of the Third-phase Project officially started. Xu Guangguo, a member from the Standing Committee of the CPC's Ningxia Hui Autonomous Region Committee, He Xikui, chairman of the China West Airport Group, Lu Chengxiang, general manager of the Ningxia Airport Co., Ltd., and leaders from the Standing Committee of the Ningxia Hui Autonomous Region People's Congress, the CPPCC's Ningxia Hui Autonomous Regional Committee and Ningxia garrison of PLA were all present at the ceremony.

According to the master plan of the expansion project and the pre-feasibility study report, this project is targeted to be completed by 2020. By 2020, the airport should be expanded to meet a passenger throughput of 10 million and cargo and mail throughput of 100 thousand tons as well as the aircraft takeoff & landings of 97,594 sorties. Its long-term target year is 2040, and at that time the goal is to have a passenger throughput volume of 22 million persons and the cargo & mail throughput volume of 250 thousand tons. The total expansion project contains the airport portion, the air traffic portion, the Work Safety Supervision Bureau portion and the ground petrol station portion. After the expansion of the third-phase project is finished, the runway and the parallel taxiway will be expanded 400 meter to the south so that the total length is 3,600 meters. In addition, a T3 terminal of 75 thousand square meters, a parking apron of 103.7 thousand square meters, a parking lot of 53.2 thousand square meters and a freight warehouse of 9,120 square meters will all be constructed. Furthermore, the working and living auxiliary facilities, including navigation, communications, navigation lighting, power supply, water supply and sewerage and fire control, etc., will also be expanded. After the expansion project is completed, the flight zone reference code will be upgraded to 4E.

11月，宁夏银川河东机场三期扩建启动仪式在河东机场隆重举行。宁夏回族自治区主席王正伟讲话并宣布三期扩建工程启动。自治区党委常委徐广国，西部机场集团董事长何喜奎、宁夏机场公司总经理卢程祥，以及宁夏回族自治区人大、政协、宁夏军区领导出席启动仪式。

根据项目总体规划和预可研报告，银川河东机场三期扩建目标年2020年，满足旅客吞吐量1000万人次，货邮吞吐量达到10万吨，飞机起降97594架次要求；远期目标年为2040年，设计旅客吞吐量为2200万人次，货邮吞吐量为25万吨。扩建工程包括机场工程、空管工程、安监局工程、地面加油站工程四个部分。三期扩建后，跑道和平行滑行道将向南延长400米，总长度至3600米，新建7.5万平方米的T3航站楼、10.37万平方米站坪、5.32万平方米停车场、9120平方米货运库，同时，对导航、通信、助航灯光、供电、给排水、消防等生产生活辅助设施进行扩建。扩建后，机场飞行区等级提升为4E级。



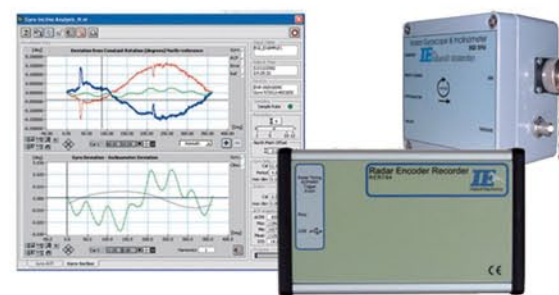
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## The Terminal Expansion Project at Sunan Shuofang International Airport Kicks Off

### 苏南硕放国际机场航站楼二期改扩建工程开工



In October, at the ceremony celebrating the start of the phase II terminal expansion project at Sunan Shuofang International Airport, Mao Xiaoping, Secretary of the Wuxi Municipal CPC Committee announced, "Now, the phase II terminal expansion project at Sunan Shuofang International Airport kicks off!" Fang Wei, mayor of Wuxi presided over the ceremony. Wu Jianxuan, deputy mayor of Wuxi, who was there on behalf of the Wuxi Municipal People's Government and Wang Zhengyu, deputy director-general of the East China Regional ATMB of the CAAC both made speeches to commemorate this significant moment.

The current terminal at Sunan Shuofang International Airport was designed for an annual passenger throughput volume of 3 million and was put into operation back in September, 2007. Now the throughput volume is reaching the critical point. From January to September this year, the passenger throughput volume, and the cargo and mail throughput volume that the airport accommodated was respectively 2,151,900 people and 47.5 thousand tons, resulting in a growth rate of 12.9% and 17.2% respectively. It is expected that by the end of this year, the annual passenger throughput volume will reach 3 million. To meet the needs of the rapid growth of the air transport business and to improve the airport's comprehensive support capacities and competitive strength, the preparatory work of the phase II terminal expansion project at Sunan Shuofang International Airport was started back in March, 2010. Now, after a year of preparation, it has officially started.

The phase II terminal expansion project at Sunan Shuofang International Airport was designed to meet an annual passenger throughput volume of 10 million - 3,460 people during the peak hours – and to meet an annual cargo and mail throughput volume of 300 thousand tons by the year 2020. It is expected to be completed

10月，无锡市委书记毛小平同志在苏南硕放国际机场航站楼二期改扩建工程开工仪式上宣布：机场航站楼二期改扩建工程开工！仪式由副市长方伟主持，副市长吴建选代表市政府讲话，中国民用航空华东地区空中交通管理局副局长王正育致辞，对工程开工表示祝贺。

苏南硕放国际机场现有候机楼是2007年9月启用的，设计容量为年旅客吞吐量300万人次，现已基本饱和。今年1-9月苏南硕放国际机场已运输旅客215.19万人次，货邮4.75万吨，同比分别增长12.9%、17.2%，预计至今年年底机场年旅客吞吐量即可达到300万人次左右。为适应苏南硕放国际机场航空业务量快速增长的需要，提高机场综合保障能力和竞争实力，机场二期改扩建工程前期准备工作于去年3月启动，经过一年多的筹备，现顺利开工。

苏南硕放国际机场航站楼二期改扩建工程按照满足2020年机场年旅客吞吐量1000万人次（高峰小时旅客流量3460人次）、货邮吞吐量30万吨的运输业务量进行设计和实施，预计于2013年上半年竣工投用。扩建航站楼平面构型采用前列式布

and put into operation by the first half of 2013. From the planned configuration of the terminal to be expanded, we can see that it is designed as a frontal layout. There are two stories overground with the first floor designated for arrivals and the second designated for departures. The basement is designed as a hall for traffic and accommodates related equipment. All of the tasks in the project are planned to be extend north of the existing terminal. Therefore, for the passengers, all the support and security services will not be affected and the passengers can maintain normal use of the airport.

The phase II terminal expansion project at Sunan Shuofang International Airport has a total investment of 1 billion yuan. The terminal will be expanded by 63.4 thousand square meters, mainly for domestic arrivals and departures. After completion, the total delta of the terminal will reach more than 100 thousand square meters. In the project, ten air-bridges will be added; parking lots and pavement totaling 30 thousand square meters will be constructed and overhead viaducts and other supporting projects will also be extended or reconstructed.

Two years later, Sunan Shuofang International Airport will reach the size of a regional hub airport. Then it will play an active role in perfecting the regional integrated transport system, improving the investment environment, boosting the social and economic development around the Suzhou – Wuxi – Changzhou metropolitan area and the Yangtze river area.

局，地上两层，一层为到达层，二层为出发层；地下主要为衔接交通大厅及设备用房；全部在现有候机楼基础上向北扩建，因此对旅客来说，工程期间机场各项服务保障功能基本不受影响，可正常进出港。

苏南硕放国际机场航站楼二期改扩建工程总投资近10亿元。航站楼将扩建6.34万平方米，主要用于国内进出港部分；而现有航站楼在扩建部分完工后将进行改造，改造面积约0.36万平方米，大部分用于国际进出港；完工后航站楼总面积将达到10万平方米以上。工程中同时增设登机廊桥10座，扩建地面各类停车场及道路约3万平方米，高架桥、各类配套工程亦做相应延伸和改造。

两年后，苏南硕放国际机场将初步具备区域枢纽机场的规模，并在完善区域综合交通运输体系、改善投资环境、促进苏锡常都市圈和长江三角洲地区经济社会发展发挥更加积极的作用。

## China's First A380 Was Delivered by Airbus to China Southern Airlines

### 空中客车公司向中国南方航空公司交付中国首架A380飞机



During the grand delivery ceremony held by Airbus S.A.S (Airbus) in October at the Airbus Delivery Center in Toulouse, France, Mr. Thomas Enders, President and CEO of Airbus S.A.S., handed over an A380 aircraft to Mr. Si Xianmin, Chairman of China Southern Airlines Co., Ltd. (China Southern Airlines). As this was China's first A380, China Southern Airlines has now become the first operator of the A380 aircraft in China and the 7th globally.

China Southern Airlines plans to make good use of the spacious, two-layer A380 passenger cabin, which features a total of 506 seats in a typical three class configuration, including eight luxury first-class suites, 70 lay-flat business-class seats and 428 economy-class seats.



10月，空中客车公司在法国图卢兹空中客车交付中心举行隆重交付仪式，空中客车公司总裁兼首席执行官托马斯恩德斯向中国南方航空股份有限公司董事长司献民交付中国首架A380飞机。中国南方航空公司成为中国首家、全球第七家运营空客A380飞机的航空公司。

南方航空公司充分利用了空客A380飞机宽敞的客舱空间，在三级客舱布局下，上下两层客舱共设506个座席，其中包括8个包厢式豪华头等舱、70个全平躺头等舱和428个经济舱座席。



## 8 Parking stands Newly Built in Taoxian Airport Capable of Accommodating the A380

### 沈阳桃仙机场新建机位8个 可满足A380起降

In October, as part of the third phase of the construction project at Shenyang Taoxian International Airport (Taoxian Airport for short), the apron expansion project has smoothly passed the civil aviation industrial acceptance test and would be put into operation. Formerly, the airport's lack of apron resources will now be effectively eased and the supporting capability of this airport will be promoted.

The civil aviation industrial experts were divided to the road group, the lighting group, the public security group and the file group and the four acceptance groups carried out the acceptance test against Taoxian Airport's apron expansion project (interim). At last, the acceptance test team believed this project complies with the regulatory requirements of the state and the civil aviation industry. The main equipments of the project had been fixed and debugged to meet the operational and safe production requirements of the airport. All preparation work regarding operation had been mostly fulfilled. In principle, the acceptance test team agreed that the project passed the civil aviation industrial acceptance test.

Currently, there are 39 parking Stands in Taoxian Airport. After the 8 newly built parking stands are put into use, the amount of parking stands in Taoxian Airport will reach 47. The fourth quarter is the passenger transport peak stage. Now the apron expansion project has passed the civil aviation industrial acceptance test and when it is put into use, the current problem of the airport being short of apron resources will be effectively eased and the support ability of the airport will be promoted. Furthermore, it will play a positive role in reaching the final goal, that is, to be capable of a passenger throughput volume that reaches more than 10 million by the end of 2011.

10月, 作为桃仙机场三期建设工程之一的桃仙机场站坪扩建工程已经顺利通过民航行业验收, 并将投入使用, 该机场站坪资源紧张压力将得到有效缓解, 桃仙机场保障能力将得到提升。

民航行业验收专家分成场道组、灯光组、公安组和档案组四个验收小组, 对桃仙机场站坪扩建工程(阶段性)进行了行业验收, 行业验收组讨论认为: 此次验收的沈阳桃仙国际机场站坪扩建部分工程(阶段性), 基本符合国家和民航行业有关规范要求, 工程主要设备已进行安装、调试, 基本满足机场运行及安全生产要求, 工程投产各项准备工作基本完成, 原则同意通过民航行业验收。

目前, 桃仙机场有39个停机位, 新扩建站坪8个停机位投入使用后, 机位总数将达到47个。四季度是桃仙机场旅客运输高峰期, 站坪扩建工程顺利通过民航行业验收投入使用后, 将有效缓解桃仙机场站坪资源紧张的压力, 将提升机场保障能力, 对2011年底实现千万人次旅客吞吐量的总体目标起到积极的促进作用。

## The T1 Terminal of Taiyuan Wusu International Airport Has Passed the Acceptance Inspection

### 太原武宿国际机场一号航站楼T1通过行业验收

The T1 terminal of Taiyuan Wusu International Airport has passed the acceptance inspection of the CAAC's North China Regional Administration.

The T1 terminal of Taiyuan Wusu International Airport was initially put into construction in 1992, and it was completed and put into operation at the end of 1995. The terminal occupied an area of 25,800 square meters, and was a two-story tall structure with intertwining layers in some parts of it. The reconstruction of the

太原武宿国际机场(简称“太原机场”)一号航站楼(T1)改造工程前日通过了中国民用航空华北地区管理局(简称“华北局”)组织的行业验收。

太原机场T1始建于1992年, 1995年年底竣工并试运行。建筑面积25800平方米,

T1 terminal started in March of 2009 and was completed in March of this year. The newly reconstructed T1 terminal then passed the project completion acceptance inspection in April of this year. The reconstruction of the T1 terminal passing the industrial acceptance inspection signifies that the T1 terminal is coming close to being put into operation. The T1 terminal is west of the T2 terminal and the two terminals are connected by two vestibules. After reconstruction, the T1 terminal will take up an area of 26,493 square meters and will be used for domestic flights.

According to the introduction from a clerk from the Shanxi Civil Airport Group, there are now 2 check-in halls with 22 check-in counters, 3 baggage claim units, 10 escalators and elevators and 6 frontal stands with 6 passenger boarding bridges in the T1 flow system.

二层结构, 局部设有夹层。2009年3月起, T1开始改造, 2011年3月完工, 4月通过竣工验收。此次通过行业验收, T1离重新投入使用又近了一步。T1位于二号航站楼(T2)西侧, 通过两条连廊相接, 改造后的建筑面积26493平方米, 将供国内航班使用。

据山西省民航机场集团工作人员介绍, T1内流程设2个值机岛、22个旅客值机柜台、3组行李提取转盘、10部自动扶梯和直梯和6个近机位(6部登机廊桥)。

## WuHu Shuangyi Aero-Tech Receives a Maintenance Organization Certificate

### 芜湖双翼航空装备科技公司获民航维修许可证

In October, during a ceremony held in the Shuangyi Aviation Industrial Park, located in the Jiujiang Economic Development Zone in the Wuhu city, the Civil Aviation Administration of China (CAAC for short) issued a Maintenance Organization Certificate to WuHu Shuangyi Aero-Tech Co., Ltd. (WuHu Shuangyi Aero-Tech for short). Zhuang Mingguo, director-general of the Anhui Administration of Civil Aviation Security presided at the ceremony, as well as Zhou Kaixuan, deputy director of the Flight Standards Department of the CAAC, Wu Jian, deputy director of the CAAC's East China Regional Administration, Yang Yi, deputy mayor of Wuhu and experts from many airlines were all in attendance at the ceremony. WuHu Shuangyi Aero-Tech is Anhui province's first enterprise to receive a Maintenance Organization Certificate.

WuHu Shuangyi Aero-Tech is an enterprise invested by the Tianhang Group in Wuhu. In July, 2009, WuHu Shuangyi Aero-Tech was approved to be set up by the CAAC and in June, 2011, its new maintenance plant was completed. The first phase of the company's projects contains a maintenance plant of 12,000 square meters where there are more than 30 advanced testing Sites and maintenance facilities. WuHu Shuangyi Aero-Tech is now engaged in the maintenance of the mechanical components in the pneumatic systems, the air conditioning systems, the hydraulic pressure systems, the control systems, the fuel systems and the power systems in both the Airbus and Boeing aircraft.

Since WuHu Shuangyi Aero-Tech has received the Maintenance Organization Certificate, the company will abide by the development tactics of Advanced Technology, High Quality, High Standards and Rapid Response and provide services of high quality and security for airlines both home and abroad.



10月, 中国民用航空局(简称“民航局”)在芜湖市鸠江经济开发区双翼航空工业园举办的颁证仪式上, 向芜湖双翼航空装备科技有限公司隆重颁发了民航维修许可证。颁证仪式由中国民用航空安徽安全监督管理局(简称“安徽监管局”)局长庄明国主持, 民航局飞标司周凯旋副司长、华东管理局吴坚副局长、芜湖市杨焱副市长和国内各个航空公司的专家等领导参加了颁证仪式, 这是安徽省首家获得民航维修许可证的独立维修单位, 填补了安徽省民航维修产业的空白。

芜湖双翼航空科技股份公司是芜湖市天航集团投资兴办的企业, 2009年7月获民航局项目立项批准, 2011年6月新建维修厂房竣工。公司一期维修厂面积为12,000平方米, 拥有先进的测试设备30余台套, 具备完善的维修设施。目前主要从事空客、波音飞机的气动、空调、液压、操纵、燃油、电源等系统机械部件维修。

获得维修许可证后, 公司将秉承高技术、高质量、高标准和快速反应的发展策略, 为国内外航空公司提供优质安全的服务。



## The Flight Test for PBN in Yining Airport Successful 伊宁机场PBN飞行程序试飞成功

In October, a Boeing 737-700 aircraft of special significance landed steadily at Yining Airport, which marked the successful end of the performance based navigation (PBN) test in Yining Airport.

Yining Airport lies in the northern suburbs of Yining City. The Mountain Ranges of Tian Shan Mountains stand close to the north and east sides of the Yining Airport, which makes the flight conditions of the airport poor. This flight test was organized by the CAAC's Xinjiang Regional Administration and conducted by China Southern Airlines' Xinjiang Company, with the CAAC's Xinjiang ATMB and the Xinjiang Airport Group Co., Ltd. present to offer security. In the flight process that had lasted nearly three hours, the flight test team and inspectors carried out the systematic inspection and verification of the PBN approach and departure procedures, the perpendicular navigation ability of vapor-pressure type, the control and support capabilities and the integrity and accuracy of the on-board navigation database.

The PBN is one of the core technologies in Mainland China's new generation of air transportation system. It plays an active role in China civil aviation's continued safety, enhancing the quality of flight, increasing aircraft flow in airspace, reducing the amount of ground facilities and energy-saving and emissions-reduction.

10月，随着一架具有特殊意义的波音737-700型飞机在伊宁机场平稳落地，伊宁机场PBN（基于性能导航）飞行程序的验证试飞工作顺利结束。

伊宁机场位于伊宁市北郊，机场北面、东面受天山山脉影响，飞行条件较差。试飞由民航局新疆地区管理局组织，南航新疆分公司实施，民航新疆空管局、新疆机场集团参与并实施保障。在历时近三小时的试飞中，试飞机组及局方监察员对伊宁机场的PBN进离场程序、气压式垂直导航能力、管制保障能力及机载导航数据库的完整性、准确性进行了全面、系统的验证。

PBN（基于性能导航）是我国建设新一代航空运输系统的核心技术之一，对有效促进民航持续安全、提高飞行品质、增加空域流量及减少地面设施和节能减排等方面具有积极作用。

## Aershan Airport in Inner Mongolia Officially Opened to Traffic 内蒙古阿尔山伊尔施机场正式通航

In August, a B737-700 from Shenzhen Airlines Co., Ltd. flying in from Beijing Capital International Airport landed steadily at Aershan Airport. This marked the 12th civil airport in the Inner Mongolia Autonomous Region of the People's Republic of China to officially be opened for traffic and to be put into operation.

The leaders that arrived at the airport in the B737-700 attended the certificate issuing & opening-to-air ceremony. At the ceremony, Li Jiangmin, the secretary of the Committee of the CPC of the CAAC's North China Regional Administration, issued the Civil Airport Operating License to Aershan Airport. The official operation of Aershan Airport is a huge milestone for Aershan city as it fills in the void of a land and air transport network in Aershan city. It also opens up the air route from Aershan to the outside world. The operation of this airport will also exceedingly improve the travel conditions for the local people, provides powerful support for improving the quality of the ecological tourism industry and the port logistics industry in Aershan. It is believed that the airport will also greatly benefit the investment environment in the Aershan area.

8月，一架来自北京首都国际机场的深圳航空公司B737-700客机，平稳降落在阿尔山伊尔施机场，标志着内蒙古自治区第12个民用机场——阿尔山伊尔施机场正式通航，也标志着该机场正式投入运营。

随包机抵达阿尔山机场的相关领导共同出席了阿尔山机场颁证暨通航仪式，民航华北地区管理局党委书记李江民在通航仪式上向阿尔山机场颁发了《民用机场使用许可证》。阿尔山伊尔施机场的通航运营，填补了阿尔山市陆空交通网络的空白，开辟了阿尔山联通国内、走向世界的空中通道，极大地改善了人民群众的出行条件，为进一步推动阿尔山生态旅游业和口岸物流业的提质升级及改善阿尔山地区投资环境提供了有力保障。

## The Test Flight of Chaoshan Airport Succeeds 潮汕机场试飞成功



In October, a Boeing 737-800 aircraft from China Southern Airlines landed safely at Jieyang Chaoshan International Airport (Chaoshan Airport for short), which is the first time that Chaoshan Airport has embraced an airliner.

This airliner had successfully accomplished the tasks of inspecting and verifying the navigation system and the flight procedures of Chaoshan Airport, and had tested the air-ground communications, navigation devices, the runway pavement, the taxiway route, markers in the flight area, the headroom and the operating standards of the airport before it landed at the #113 parking position.

After the aircraft landed at the airport, a brief but grand ceremony was held. At the ceremony, Liang Shijie, deputy director-general of the CAAC's Central and Southern Regional Administration, Lin Yunxian, deputy general manager of the Guangdong Airport Management Corporation and Chen Lvping, Party chief of Jieyang, all made speeches. Zhu Hailong, representative of the test flight team also made a speech. Zhang Yumin, commander-in-chief of the construction department of the Guangdong Airport Management Corporation presided over the ceremony.

Liang Shijie and Lin Yunxian both pointed out that the test flight was an important part for the construction of the Chaoshan Airport and the success of the test flight marked the total completion of Chaoshan Airport was near. Once the Chaoshan Airport is established, it will further complete the integrated transport system and the air transport network around the Chaoshan region. Furthermore, Chaoshan's geographical advantages can be utilized and Chaoshan's investment environment may be improved, which will add new vigor and vitality to the social and economic development of the Chaoshan region.



10月，一架南航波音737-800型飞机平稳降落在揭阳潮汕机场跑道上，这是机场迎来的首架客机。

这架客机圆满完成了对机场导航系统和飞行程序的验证，并在对机场地空通信、导航设备、跑道道面、滑行路线、飞行区标志标识、机场净空、机场运行标准等进行了检验后，顺利降落滑进了113号停机位。

试飞飞机降落后举行了简短而隆重的仪式。中南局副局长梁世杰、省机场管理集团副总经理林运贤、市委书记陈绿平作了讲话，试飞飞机机组代表朱海龙发言。仪式由省机场管理集团工程建设指挥部总指挥张育民主持。

梁世杰、林运贤指出，试飞是揭阳潮汕机场建设的一个重要环节，标志着飞行区已具备通航条件。试飞成功，标志着揭阳潮汕机场整体建成在望，收获在即。揭阳潮汕机场建成后，将进一步完善潮汕地区的综合交通运输体系和航空运输网络，充分发挥地域优势，改善投资环境，为潮汕地区的经济社会发展注入新的活力。



## Xi'ning Caojiabao Airport Formally Switched Over to the Newly Completed Runway

### 西宁曹家堡机场跑道切换 新跑道正式投入运行

In October, flight HU7807 from Hainan Airlines Co., Ltd., which flies the Xi'ning - Xi'an - Shanghai Pudong route, smoothly took off from the newly built runway at Xi'ning Caojiabao Airport. This marks the formal operation of the new runway at Xi'ning Caojiabao Airport, and the official switch from the original runway to the new one is now in effect. Now, the original runway that has been in use for the last 20 years, is no longer to be used as a runway, but will instead be used as a taxiway. The new runway is 800 meters longer than the original one and its ruggedness is 50% more than the original one. The domestic advanced bi-directional instrument navigation system is used in the new runway.

The flight area part of the Phase II project of the Xi'ning Caojiabao Airport was started in October, 2009. After more than one year of hard work and construction, the flight area part of the Phase II project passed the industrial inspection for acceptance organized by the Northwest Regional Administration of CAAC on October 14th, 2011. On October 20th, 2011, the operational materials of the new flight area went into affect officially and the new flight area can now be put into service. The flight area part of the Phase II project of the Xi'ning Caojiabao Airport was designed and built according to the 4D requirements and the new runway is 3,800 meters long and 45 meters wide. Both the primary landing direction and the sub-landing direction are precision approach runways that fall under Category I specifications and the precision approach lighting system of Category I specifications were installed on both sides. The B767-300ER aircraft and smaller aircraft can take off from and land on the new runway.

10月，海南航空股份有限公司（简称“海航”）西宁——西安——上海浦东HU7807航班从西宁曹家堡机场（简称“西宁机场”）新建成的3800米长跑道上平稳起飞，代表着西宁机场新跑道正式投入运行，顺利完成了新旧跑道的切换。至此，使用20年之久的西宁机场旧跑道宣告退役，将被改为平行滑行道使用。新跑道较原有跑道长度增加了800米，强度提高了50%，采用国内先进的双向盲降导航系统。

西宁曹家堡机场二期工程飞行区工程于2009年10月正式开工建设，经过一年多时间的紧张建设，该工程于2011年10月14日通过民航西北地区管理局组织的行业验收。2011年10月20日新建飞行区航行资料正式生效，具备使用条件。西宁曹家堡机场二期工程新建飞行区工程按4D级标准建设，新建一条长3800m、宽45m跑道，跑道主、次降方向均为I类精密进近跑道，双向设有I类精密进近灯光系统，可起降B767-300ER同类及其以下机型。

## The Bayan Nao'er Airport is Successful in Its Trial Flight

### 巴彦淖尔机场成功试飞

In the beginning of November, a Boeing 737-800 aircraft steadily landed on the runway of the Bayan Nao'er Airport. This signifies that the trial flight of the Bayan Nao'er Airport was a success.

The Bayan Nao'er Airport is located in the Hetao area, in Inner Mongolia and was put into construction back in January, 2011. With a total investment of 360 million Yuan, the flight area was designed as 4C. 3 parking stands, 2 aerobridges, a terminal of 7,076 square meters, a runway of 2,600 meters long and an apron of 18,900 square meters were built. It is designed to handle a passenger throughput of 230 thousand people, and a cargo and mail volume of 810 tons by the year 2020. By that time, it should also be able to accommodate the Boeing 737-800 aircraft and the A320 aircraft.

11月初，一架波音737-800型飞机平稳降落在巴彦淖尔天吉泰机场跑道上，标志着该机场成功试飞。

巴彦淖尔机场位于内蒙古河套地区境内，于2010年1月开工建设，总投资约3.6亿元，机场飞行区等级为4C，建设3个停机位、2座登机桥，航站楼面积7076平方米，跑道长2600米，站坪面积18900平方米，按照满足2020年吞吐量23万人次、货邮吞吐量810吨设计，可满足波音

At the beginning when the airport is opened to air routes, it will open two flight routes to Beijing and to Hohhot. Then, it will connect to Xi'an. Finally, with the three hub airports of Hohhot, Beijing and Xi'an, it can be connected to further surrounding areas.

737-800、空中客车A320及以下机型起降。

该机场通航初期将开通至北京、呼和浩特两条航线，逐步连通西安枢纽，通过呼和浩特、北京、西安3个中转枢纽实现周边地区的通达性。

## The Terminal Section of the Phase III Expansion Project of Dalian International Airport is Completed

### 大连周水子国际机场三期扩建工程航站楼竣工



In September, the terminal section of the Phase III Expansion Project of Dalian International Airport (hereinafter referred to as Dalian Airport) was completed. The expanded terminal of Dalian Airport now takes up an area of 136 thousand square meters, and it can meet the requirements of between 16 million to 20 million passenger volume in the following 5 to 10 years.

The terminal section is an important part of the Phase III Expansion Project of Dalian Airport. The Phase III Expansion Project is Dalian city's key project with an investment of up to 2.2 billion yuan. In the Phase III Expansion Project, it is planned to establish a terminal area of 71 thousand square meters and an apron area of 340 thousand square meters. Meanwhile, the taxiway and some other related supporting facilities will also be reconstructed.

The newly built terminal is west of the original terminal and the two are connected perfectly. As planned, 40 check-in counters, 14 security check channels and 8 passenger boarding bridges will be newly established. When the project is completed, the total area of the whole terminal will reach 136 thousand square meters, with the amount of gate positions reaching 42, the amount of passenger boarding bridges reaching 18, the amount of check-in counters reaching 93 and the amount of security check channels reaching 36. In the following 5 to 10 years, the terminal will be able to accommodate between 16 million to 20 million passenger volume, 320 thousand to 450 thousand tons of cargo volume and between 130 thousand to 160 thousand sorties of flight takeoff and landings.



9月，大连周水子国际机场三期航站楼竣工。扩建后的大连机场航站楼总面积将达到13.6万平方米，可满足未来5到10年机场年旅客吞吐量1600万-2000万人次的需求。

大连机场三期航站楼是大连机场三期扩建工程的重要组成部分。机场三期扩建工程是大连市重点工程项目之一，工程投资22亿元，包括新建7.1万平方米航站楼、34万平方米停机坪、改造滑行道及其他配套设施。

新候机楼位于现有候机楼的西侧，与原候机楼自然连为一体。扩建后，机场航站楼总面积达到13.6万平方米，新增值机柜台40个，安检通道14条和登机廊桥8条。大连机场停机位达42个，登机廊桥18条，候机楼内有值机柜台93个，安检通道36条。可满足机场未来5至10年内机场年旅客吞吐量1600万-2000万人次、货邮吞吐量32万45万吨和航班起降13万16万架次的需要。



## Two Scientific Research Projects from the Heilongjiang Provincial ATMB/CAAC Have Passed the Acceptance Inspection 黑龙江空管分局二项科研项目通过验收

In August, the Northeast ATMB held a conference regarding the inspection and approval of two scientific projects, the flight state automated processing and warning system and the Harbin Taiping International Airport's snow forecast research system, which were both developed by the CAAC's Heilongjiang Provincial ATMB. The inspection & acceptance committee was composed of 10 experts in the fields of air traffic control and meteorology. The experts were brought in from Shenyang, Dalian and Changchun.



图：黑龙江空管分局 白鹏

The flight state automated processing and warning system can receive, display and inquire the AFTN and SITA teletypewriter messages under different baud rates. This system can handle these teletypewriter messages to produce the corresponding flight schedule. In addition, according to the state of processing teletypewriter messages, the system can manage the flight schedule dynamically. The air traffic controllers can require the system to produce flight schedules without RVSM or TCAS, warn the airport of the flight schedule and the flyover plan and more. The CAAC's Heilongjiang Provincial ATMB has the self-owned intellectual property rights of this system. This system is for high transport and if it is partly modified, it can be applied to similar air traffic control platforms.

In the Harbin Taiping International Airport snow forecast project, the Harbin Taiping International Airport's now fall records of the last 26 years have been put into statistical analysis and the temporal and spatial distribution of heavy snows and snowstorms has been concluded. A conceptual weather model of heavy snows and snowstorms has been established and a weather system that can lead to heavy snows or snowstorms has been set up. The mesoscale physical quantities of the diagnostic criteria of 12 to 24 hours before a heavy snow or snowstorm have been obtained. By interpreting and using the German, Japanese and the T639 numerical forecast products, the references for a snow's fine forecasting have been provided so that the forewarning and forecast capability of heavy snows and snowstorms have been enhanced.

The inspection and acceptance committee listened to the research reports, the technical reports and the test reports, reviewed and checked

8月，东北空管局在哈尔滨召开了由黑龙江空管分局研制的“飞行动态自动处理及告警系统”、“哈尔滨太平国际机场降雪预报系统研究”两个项目的科技成果验收会。验收委员会由来自沈阳、大连、长春空管专业、气象专业的十名专家组成。

“飞行动态自动处理及告警系统”项目能够在不同的波特率下接收、显示和查询AFTN、SITA等电报。该系统能够对电报进行处理，产生相应的飞行计划。同时，该系统根据电报处理情况，能够实现对抗航班计划进行动态管理。该系统可依据管制员的设定，生成无RVSM或无TCAS航班计划、告警机场航班计划、飞越计划等功能。该系统拥有自主知识产权，并具有良好的软件移植能力，只需部分改动，就可以应用到相似的管制平台。

“哈尔滨太平国际机场降雪预报系统研究”项目对哈尔滨太平国际机场26年的降雪资料进行了统计分析，总结出了哈尔滨机场大雪、暴雪时空分布特征，建立了哈尔滨机场大雪、暴雪天气概念模型，归纳了引发哈尔滨机场大雪、暴雪的影响天气系统，得出了12—24小时之中的中尺度物理量诊断指标。对德国、日本及T639数值预报产品的释用，为降雪的精细化预报提供了参考依据，提高了哈尔滨机场大雪、暴雪的预警预报能力。

验收委员会听取了项目的研制报告、技术报告、测试报告，审阅了各项验收材料，观看了现场

checked all the materials for acceptance inspection, watched the function presentation of the system and asked many related technical questions. After the inspections and reviewing all the necessary documents, all the members of the inspection and acceptance committee unanimously agreed that the achievements of the two projects accomplished all the research tasks required in the project contract and were of certain popularization value.

系统功能演示，询问了相关技术问题后，一致认为，“飞行动态自动处理及告警系统”项目和“哈尔滨太平国际机场降雪预报系统研究”项目成果已经完成了项目合同书规定的研究任务，具有一定的推广价值。

## Zhangye Ganzhou Airport's Maiden Flight is a Success 张掖甘州机场试飞成功

In September, after an A320 from China Eastern Airlines flew for more than an hour, it landed smoothly at Zhangye Ganzhou Airport, which is an airport designated for both military and civilian use. The success of this maiden flight indicated that most preparations had been completed for formal operations.

The expansion project of the Zhangye Ganzhou Airport got confirmed by the State Council of the People's Republic of China in 2009 and was started on May 11th, 2010. The



Zhangye Ganzhou Airport was built upon the military airport used by the Air Force of the CPLA's Zhangye Aviation Academy and 313.4 million RMB was jointly invested by the Civil Aviation Administration of China, Gansu Airport Group Company Limited and Zhangye People's Government to expand it. The airport is designed to accommodate a passenger throughput of 243 thousand and a cargo throughput of 1,723 tons by 2020. The flight area level is designed as 4C and can undertake the landing and takeoff of aircraft such as the Boeing 737 and the Airbus 320. The expansion project of the Zhangye Ganzhou Airport passed its preliminary acceptance inspection on August 15th, 2011 and on August 27th, it passed its flight inspection smoothly. In the Gansu province, the Tianshui Airport is the first established airport for both military and civilian use and Zhangye Ganzhou Airport is now the second one.

The establishment of the Zhangye Ganzhou Airport is a success in the attempts of civil-military inoculation, which breaks the bottleneck of the east-west traffic path - which had existed since ancient times - of the Zhangye city, and sets up the air channel for the people of the Zhangye city to go from coast to coast. The success of the airport's flight test marks that the west part of the Gansu province's airport establishment has been entirely accomplished and the integrated transport system of the Gansu province will be further perfected.

9月，担任张掖军民合用机场试飞任务的东航空客A320客机经过1个多小时的试飞行后，顺利抵达张掖甘州机场。此次试飞成功，标志着张掖军民合用机场已基本完成通航前的各项准备工作。

张掖军民合用机场改扩建项目于2009年获得国务院、中央军委批复，2010年5月11日正式开工建设。项目是在原空军张掖航校军用机场的基础上，由中国民航局、省机场投资管理有限公司、张掖市政府共同出资建设，累计投资3.134亿元。机场以2020年为目标年，按满足旅客吞吐量24.3万人次、货邮吞吐量1723吨设计，规划飞行区等级为4C级，可起降波音737、空客320等系列机型。2011年8月15日通过初步验收，8月27日顺利通过校飞。张掖军民合用机场是继天水军民合用机场后甘肃省建成的第二个军民合用机场。

张掖军民合用机场的建成是军民融合的一次成功尝试，打破了张掖市自古东西向交通瓶颈，架起了张掖通向全国各地的空中通道，为张掖走向全国拓展了空中渠道。机场试飞成功，标志着甘肃省民航机场西线建设全面完成，甘肃省综合运输体系将得到进一步完善。



## CSA Shenyang Aircraft Maintenance Base Receives International License 南航沈阳飞机维修基地获“国际准修证”

In September, the Shenyang Aircraft Maintenance Base, of the Maintenance Engineering Division of the CSA (hereinafter referred to as Shenyang Aircraft Maintenance Base) now has many different reasons to celebrate. The first is that its capability for maintenance service of the Airbus 320 aircraft body was certified by the FAA. The second is that this unit has received approval by the SMS supplementary assessment (including examination). The third reason for celebration is that this unit was granted a certificate by the Hamilton Sundstrand Corporation as its APU Maintenance Facility and the fourth is that the 100th MRO aircraft delivery ceremony was held on the same day. The four occasions for celebration signify that Shenyang Aircraft Maintenance Base has reached a new level in their operation, which marks a milestone in the development history of Shenyang Aircraft Maintenance Base.

During the celebrating ceremony, the CAAC's Northeast Regional Administration issued the Safety Management Manual to Shenyang Aircraft Maintenance Base, which makes Shenyang Aircraft Maintenance Base the first MRO unit to have passed the SMS supplementary assessment (including examination). This showed that the safety management system of the Shenyang Aircraft Maintenance Base has been improving day by day until it has reached the standard of excellence. Hamilton Sundstrand Corporation granted a certificate to Shenyang Aircraft Maintenance Base, making Shenyang Aircraft Maintenance Base its APU Maintenance Facility. Shenyang Aircraft Maintenance Base is the first granted MRO facility of APU of the APS3200 style.

In the recent years, China's civil aviation industry has developed rapidly. There are already 2,400 aircraft in China, among which 600 aircraft are of the A320 series, and the amount is constantly increasing. Therefore, the latent capacity of the aviation MRO market is huge with much potential.



9月，中国南方航空股份有限公司（简称“南航”）机务工程部沈阳飞机维修基地迎来四大喜事：空中客车A320系列飞机机体维修FAA（美国联邦航空局）取证、SMS（安全管理体系）补充合格审定颁证、汉胜APU（飞机辅助动力装置）授权修理厂颁证和第100架大修飞机交付仪式同时举行，标志着沈阳维修基地在安全管理、维修质量和产能方面达到全新的高度，在沈阳维修基地发展历程中具有里程碑意义。

在庆典仪式上，东北管理局向南航沈阳飞机维修基地现场颁发了《安全管理手册》，使得沈阳维修基地正式成为东北地区第一家获得SMS补充合格审定的维修单位，标志着沈阳维修基地的安全管理体系日趋完善；汉胜公司颁发了授权维修厂证书，沈阳维修基地成为汉胜在国内唯一的APS3200型APU授权修理厂。

近年我国民航业发展迅猛，已拥有近2400架民航客机，其中空中客车A320系列飞机已超过600架，而且还在不断增加，航空维修市场潜力巨大、前景广阔。

## Jinchang Jinchuan Airport Succeeds in Its Maiden Flight 金昌金川机场成功首航



In August, a Boeing 737-800 aircraft owned by Hainan Airlines, took off from Lanzhou Zhongchuan Airport and after a 40-minute flight, it landed at Jinchang Jinchuan Airport. This flight was Jinchang Jinchuan Airport's maiden flight and with that one simple landing of an aircraft, the dreams of 500 thousand Jinchang people of being able to fly through the sky had finally come true.

Jinchang Jinchuan Airport is located in Jinchang city in the Gansu province and it lies at the intermediate section of the Hosi Corridor. Jinchang Jinchuan Airport is a domestic regional airport, and it was put into construction in April, 2009. The flight zone level was designed as 4C, and with the newly constructed 3,000 meters long runway, the airport can now accommodate the takeoff and landing of the Boeing 737 and Airbus 320 aircraft. The terminal area was designed with the aim of reaching a passenger volume of 200 thousand and a cargo volume of 1,200 tons by the year 2020. The terminal takes up an area of 3,800 square meters with 4 parking positions in the apron. Supporting facilities such as communication & navigation units, a meteorology system and other equipments for oil, power and water supplies, as well as fire fighting capabilities and much more were all established and put into place. The biggest aircraft it can support is the Boeing 737 and Airbus 320. The total investment is 343.13 million yuan.

The accomplishment of the Jinchang Jinchuan Airport, plays a decisive role in the implementation of the regional development strategy by accelerating and making use of the resources and developing the tourism industry in the Hosi area.

8月，一架从兰州中川机场起飞的海南航空波音737—800型飞机经过40分钟飞行后平稳降落在金昌金川机场，这标志着新建成的金昌金川机场圆满完成首航，50万金昌人民飞天的梦想从此变为现实。

金川机场位于甘肃省金昌市，地处河西走廊中段。金川机场为国内支线机场，于2009年4月奠基，飞行区按照4C标准设计，新建一跑道长3000米，可起降波音737和空客A320客机，航站区按满足2020年旅客吞吐量20万人次、货物吞吐量1200吨目标设计，航站楼3800平方米，站坪机位4个，配套建设通信导航、气象、供油、供电、供水、消防救援等辅助设施。最大起落机型为波音737、空客A320，项目总投资3.4313亿元。

金川机场的建成，对推动区域发展战略的实施、加快河西地区资源的开发利用和旅游业的发展都有着举足轻重的意义。



## Sichuan Airlines Signs a Contract to Purchase 8 Airbus aircraft 川航签订8架空中客车飞机订单

In the last third of November, Sichuan Airlines Co., Ltd. (Sichuan Airlines for short) and Airbus S.A.S. (Airbus for short) signed a contract for the purchase of 8 Airbus aircraft. According to the contract, Airbus



should deliver 4 A320 series aircraft in the years 2014 and 2015 respectively.

This time, the 8 Airbus aircraft purchased by Sichuan Airlines contain 2 A319, 4 A320 and 2 A321 aircraft. In addition to the aircraft introduced from France and Germany, the 8 Airbus aircraft also contain those that were assembled by Airbus (Tianjin) Final Assembly Co., Ltd. in Tianjin.

Sichuan Airlines plans to stop hiring old aircraft from this year on to optimize their fleet structure. Up till now, there were 64 Airbus aircraft in their Airbus fleet, among which 3 are twin-aisle wide body A330 and 61 are the A320 series.

11月下旬，四川航空股份有限公司（以下简称“川航”）与欧洲空中客车公司（以下简称“空客”）在成都签订8架飞机订单。根据协议内容，空中客车公司将在2014年、2015年分别向川航交付4架空客A320系列飞机。

此次川航购买的8

架飞机包括2架A319飞机、4架A320飞机和2架A321飞机。除了从法国、德国引机外，还将包括天津总装的空中客车飞机。届时，在新机的内饰设计上川航还将特地为该8架飞机装饰上天空设计等时尚元素。

川航从今年开始着手退租老旧飞机，进一步优化机队结构。截至目前，川航空客机队共有飞机64架，其中3架为空客A330双通道宽体客机，61架为空中客车A320系列飞机。

## The Polar Route Radar Control Project Passes the Project Completion and Acceptance Inspection 极地航路雷达管制工程顺利通过工程竣工验收

The polar route radar control project, with a total investment of nearly 200 million yuan, is a sub-project of the project of establishing radar control for all the routes in east China and the main routes in west China. It was entrusted by the Air Traffic Management Bureau of the Civil Aviation Administration of China (CAAC/ATMB for short) to the Northeast branch of the ATMB to implement the construction job. The project was set up to start back in March 2009. After two years of hard work, it was finished before schedule and it was the first part of the project of establishing radar control for all the routes in east China and the main routes in west China, which has received the project completion and acceptance inspection.

极地航路雷达管制工程是国家发改委批复立项的“东部地区及西部主要航路雷达管制工程”中的一个子项工程，工程投资近2亿元，由民航局空管局委托东北空管局实施建设。从2009年3月启动项目建设以来，经过2年多的辛勤努力，终于按工期要求完成了工程建设任务，成为“东部地区及西部主要航路雷达管制工程”中第一个接受工程竣工验收的项目。

In August, the CAAC/ATMB conducted the completion and acceptance inspection to the polar route radar control project. The inspection team was made up of leaders from several departments of the CAAC/ATMB and the Northeast ATMB and was headed by Zhang Jianqiang, the deputy director of the CAAC/ATMB. The inspection team conducted the on-site inspection to the Youyi radar station, the Shuangcheng radar station and the Harbin Automatic ATM System in China's Heilongjiang province. Then the team made an on-the-spot inspection of the Shenyang Huangshanzi radar station in China's Liaoning province. The trial run situation of the radar units, the transmission facilities and the power supply equipment and much more, was successively checked.

The inspection team organized a polar route radar control project acceptance conference and all the members of the inspection team and related personnel of the construction units attended the conference. The conference was hosted by Shi Yougang, the deputy director of the department of infrastructure of the CAAC/ATMB. All the members of the inspection team unanimously agreed on the polar route radar control project passing the project completion and acceptance inspection.

8月，民航局空管局对极地航路雷达管制工程组织了工程竣工验收。由民航局空管局、东北空管局多部门组成、民航局空管局副局长张建强带队的竣工验收领导小组，对黑龙江的友谊和双城雷达站及哈尔滨航管自动化系统等各个项目的工程建设情况进行了现场检查，之后到沈阳荒山子雷达站进行了现场考察。先后查看了雷达设备、传输设备、供电设备等设备设施的试运行情况。

接着，验收领导小组在沈阳组织召开“极地航路雷达管制竣工验收会议”，验收领导小组成员及参建单位的相关人员参加了会议，会议由民航局空管局基建部副部长石优岗主持。验收小组一致同意极地航路雷达管制工程通过竣工验收。

## The Fourth and Fifth Runway Projects of Shanghai Pudong International Airport Gets Approval from the NDRC 上海浦东国际机场第四跑道、第五跑道工程获国家发改委批准

In November, the National Development and Reform Commission (NDRC for short) approved the proposals for the fourth and fifth runway projects of the Shanghai Pudong International Airport.

The fourth project takes the year of 2020 as its targeted completion date and is designed to accommodate takeoff and landing sorties of 650 thousand. The flight area is designed as category 4F. The fourth runway, 3,800 meters long, together with a taxiway system, will be constructed to the east of the second runway. The Class I Precision Approach Lighting system and instrument landing system will be built bi-directionally. The meteorological wind profile radar, expansion air traffic units, auxiliary facilities for fire fighting, security and water drainage will also be constructed. The total investment for the fourth runway project is 2.58 billion Yuan.

The fifth runway project will have a flight area designed as category 4E. The fifth runway will be 3,400 meters long, with a taxiway system and an aircraft tugging path. The plans are for the runway to be constructed to the east of the fourth runway. The Class I Precision Approach Lighting system and instrument landing system will be built bi-directionally. The second tower and an ATC building of 1,800 square meters will be built. The old ATC building will be re-constructed. The auxiliary facilities for fire fighting, security, water drainage and other ATC facilities will also be constructed. The total investment for the fifth runway project is 4.65 billion Yuan.

国家发改委11月下旬批准了上海浦东国际机场第四跑道工程项目建议书第五跑道工程项目建议书。

第四跑道工程2020年机场运输航班飞行起降65万架次需求设计，主要建设内容：按飞行区指标4F标准，在第二跑道东侧平行建设长3800米的第四跑道及滑行道系统，跑道双向均设I类精密进近灯光系统和仪表着陆系统，新建气象风温廓线雷达，扩容航管设备等，配套建设消防、安保、排水等设施。项目总投资25.8亿元。

第五跑道主要建设内容：按照飞行区指标4E标准，在第四跑道东侧建设长3400米的第五跑道及滑行道系统和拖机道，跑道双向均设I类精密进近灯光系统和仪表着陆系统，新建第二塔台和1800平方米的空管业务楼，改造老航管楼及塔台，配套建设消防、安保、排水和其他空管设施等。项目总投资46.5亿元。



## The Program Design of the Flight Area Expansion Project of Nantong Airport Passes Evaluation

### 南通机场飞行区改扩建工程程序设计通过评审

In October, the CAAC's North China Regional Administration organized the Jiangsu Administration of Work Safety, the Aero-Info Office of the Nanjing Military Region of the PLA Air Force, China Eastern Airlines and East China ATMB. CAAC, Jiangsu Provincial ATMB of CAAC, Nantong Xingdong Airport Co., Ltd. and other related units to hold a conference to formally evaluate the program design of the flight area expansion project of Nantong Xingdong International Airport (hereinafter referred to as Nantong Airport). The conference evaluated and reached an approval for the formal design of the flight program, including traditional navigation and RNP APCH, of the flight area expansion project of Nantong Airport and coordinated related task arrangement for the airport test flight and verification test flight of the RNP APCH flight program.

The flight area expansion project of Nantong Airport includes: extending the current runway by 1,000 meters so that it is 3,400 meters long; upgrading and altering the current runway and related supporting facilities to meet the landing & takeoff requirements of Category E aircraft.

10月, 中国民用航空华东地区管理局(简称“华东局”)组织江苏监管局、南空航管处、东航、华东空管局、江苏空管分局、南通机场公司等单位, 在上海召开了南通兴东机场(简称“南通机场”)飞行区改扩建工程飞行程序正式设计评审会。会议审查通过了南通机场飞行区改扩建工程飞行程序正式设计(传统导航和RNP APCH), 协调了机场试飞和RNP APCH飞行程序验证试飞的相关工作安排。

南通机场飞行区改扩建项目主要包括: 将现有跑道延长1000米, 使跑道总长达到3400米; 对现有跑道和相关配套设施进行升级改造, 以满足E类飞机的起降要求。

## The PBN Flight Procedure Program of Xiamen Airport Succeeds

### 厦门高崎机场PBN飞行程序成功试飞

In November, led by the verification flight team, with Tang Weibin, deputy director-general of the CAAC's East China Regional Administration, as the group leader, the PBN flight procedure program of Xiamen Gaoqi International Airport (Xiamen Airport for short) was a success.

Performance Based Navigation (PBN) represents the developing trend in navigation technology and is an important part in the construction of the international civil aviation's CNS/ATM system. According to the requirements in the PBN implementation route made by the Civil Aviation Administration of China and under the unified arrangements by the CAAC's East China Regional Administration, Xiamen Airport was assigned as the first pilot airport in the east China region to carry out PBN flight. In August, 2010, the CAAC Xiamen ATC station hosted and held the first meeting of the PBN operation flight procedure design coordination conference in the Xiamen region.

More than a year later, the CAAC Xiamen ATC station actively managed and coordinated between Xiamen International Airport Group and Xiamen Airlines Co., Ltd. to carry out the PBN flight project. The CAAC Xiamen ATC station closely acted in concert with the Civil Aviation Flight University of China to make PBN flight

11月上旬, 在民航华东管理局唐伟斌副局长为组长的验证试飞领导小组的组织领导下, 厦门高崎国际机场PBN飞行程序验证试飞获得了圆满成功。

基于性能的导航(PBN)代表未来导航技术的发展方向, 是世界民航CNS/ATM系统建设的重要组成部分。根据民航局PBN实施路线图的要求, 在民航华东管理局的统一部署下, 厦门高崎国际机场被确定为华东地区进行PBN程序运行试点的首个机场。2010年8月, 民航厦门空管站主持召开了厦门地区PBN运行飞行程序设计协调会第一次会议。

一年多来, 厦门空管站积极主导、协调厦门国际航空港股份有限公司、厦门航空有限公司推进PBN飞行项目, 密切配合民航飞行学院完成厦门高崎国际机场PBN飞行

procedure design for Xiamen Airport and actively coordinated with Xiamen Airlines to conduct many PBN procedure flights. By coordinating with military and civil aviation sectors, as well as the aviation communities of Taiwan and mainland China, the CAAC Xiamen ATC station adjusted and optimized the flight route network within the 200 km range of the Xiamen Airport. The southeast part of the Xiamen Airport was given clearance and airspace flexibly was issued. Therefore, the southeast part of the Xiamen Airport was opened to civil flights, and the relations problem between the southeast flight routes of Xiamen Airport and the airspace over Jinmen County had been resolved and the tense bottlenecking of airspace resources had been broken. In August, 2011, the whole project passed the examination of CAAC's East China Regional Administration. In October, 2011, the flight simulation aircraft made a successful flight and in November, the verification flight had been finally carried out. The success of the verification flight is very meaningful for promoting the flight volume of Xiamen Airport, the flexible usage of airspace and for further pushing forward with the application of PBN technology.

## The Expansion Project of Huanghua Airport Gets Approved

### 黄花机场扩建工程获批

Not long ago, the expansion project of Changsha Huanghua International Airport received an official approval from the National Development and Reform Commission. This project is a total investment of 3.63 billion Yuan. The project is designed according to the plans that, by the year 2020, the passenger volume will reach 31 million people, the cargo and mail volume would reach 320 thousand tons and aircraft TOL will reach 253.5 thousand sorties.

As planned, the flight area level is 4F. In this project, a 3,800 meters long and 60 meters wide runway, together with the taxiway system, will be built. In the main landing direction, a Class II approach lighting and instrument landing system will be installed. In the sub-direction, a Class I approach lighting and instrument landing system will be installed. A control tower, airport surface surveillance radar, the 11,950 sq. m buildings used for ATC business and supporting facilities will be newly built. Auxiliary facilities, such as fire fighting, security protection, power supply, water supply and drainage will be constructed.

The total investment of this project is 3.63 billion Yuan, among which the construction of the airport will take 3.19 billion Yuan. Some of the costs regarding the construction of the airport will be allocated by the Civil Aviation Administration of China (CAAC for short) from the civil aviation development fund, as well as by the People's Government of Hunan Province and the Changsha Municipal People's Government from their public financial funds. Others funding will be raised by Hu'nan Airport Management Group Co., Ltd.. The ATC project will receive an investment of 440 million Yuan allocated by the CAAC from the civil aviation development fund.

程序设计方案工作, 积极协调厦门航空公司进行了多次的PBN程序模拟飞行; 通过军民航和两岸航空界的协调, 对厦门机场200公里范围内的航线结构进行调整优化, 开放东南侧净空, 争取空域灵活使用的政策, 实现了厦门机场东南侧空域对民航航班的开放, 解决了东南侧航线与金门空域的关系问题, 突破了厦门机场长期空域紧张的瓶颈, 于2011年8月通过了民航华东地区管理局的审定, 10月顺利完成模拟机试飞, 并最终于11月实施了飞行验证试飞, 这对提升厦门机场的飞行容量和空域的灵活使用, 进一步推广应用PBN技术, 具有重要的意义。

长沙黄花国际机场飞行区东扩工程, 日前获得国家发改委正式批复。工程总投资36.3亿元, 按照2020年旅客吞吐量3100万人次、货邮吞吐量32万吨、飞机起降量25.35万架次的目标设计。

该工程飞行区等级指标为4F, 主要建设内容包括: 在现有跑道东侧新建一条长3800米、宽60米的第二跑道, 以及相应的滑行道系统, 跑道主降方向设置II类进近灯光和仪表着陆系统, 次降方向设置I类进近灯光和仪表着陆系统; 新建1座塔台, 1座场面监视雷达, 空管业务及配套用房11950平方米, 配置相应设施设备; 建设消防、安防、供电、给排水等辅助设施。

该工程总投资36.3亿元, 其中机场工程31.9亿元, 由民航局、湖南省和长沙市人民政府分别安排部分民航发展基金和地方财政性资金, 其余资金由湖南省机场管理集团有限公司筹措; 空管工程4.4亿元, 由民航局安排民航发展基金解决。



## Beijing Capital International Airport and Los Angeles International Airport Become Sister Airports

### 北京首都国际机场与洛杉矶国际机场缔结姊妹机场

At the beginning of December, Beijing Capital International Airport and Los Angeles International Airport signed a Memorandum making Beijing Capital International Airport and Los Angeles International Airport become sister airports. The agreement to become sister airports is the formal declaration to establish a friendly relationship between the two airports.

At the signing ceremony, Dong Zhiyi, general manager of the Capital Airports Holding Company and chairman of the Beijing Capital International Airport Co., Ltd. stated that Beijing Capital International Airport and Los Angeles International Airport becoming Sister Airports will further strengthen the level of cooperation and communication between the two parties in airport operation, service promotion, business management and other areas. This will also push the two parties forward in exploration and practice of new technologies, new ideas and new concepts, and will also build a convenient and rapid channel for economic and commercial contact between China and the U.S.

Los Angeles International Airport is the main airport providing services to the second largest populated area in the United States. It is located southwest of the city of Los Angeles, 26 km from the city. It takes up an area of 1,416 hectares, and has 4 runways and 9 terminals. In 2010, the passenger volume of Los Angeles International Airport was 59.07 million people, ranking sixth globally. The flight takeoff and landing sorties was 667 thousand in 2010, ranking third globally. Meanwhile, Los Angeles International Airport is also the main hub airport of United Airlines, Inc. and American Airlines, Inc..

In 2011, it was estimated that Beijing Capital International Airport's passenger throughput volume will reach 79 million people, soundly ranking it the second highest passenger throughput globally. In the third quarter of 2010, ACI passenger satisfaction ranked third globally. Beijing Capital



12月上旬，北京首都国际机场股份有限公司与美国洛杉矶国际机场共同签署了《北京首都国际机场股份有限公司与洛杉矶国际机场缔结姊妹机场备忘录》，正式缔结友好合作关系。

在签约仪式上，首都机场集团公司总经理、首都机场股份公司董事长董志毅表示，此次与洛杉矶国际机场正式建立姊妹机场友好合作关系，将进一步加强双方在机场运行、服务提升、商业管理等诸多领域的合作与交流，进一步推动双方在新技术、新观念、新理念等方面的探索与实践，为加强中美经贸往来架起一条顺畅高效的空中桥梁。

洛杉矶国际机场是服务于全美第二大人口聚集地——大洛杉矶地区的主要机场，坐落于洛杉矶市西南26公里，占地1416公顷，拥有4条平行跑道以及9座航站楼。2010年洛杉矶国际机场实现旅客吞吐量5907万人次，全球排名第六；航班起降架次位列全球第三，达到66.7万架次。同时，洛杉矶国际机场还是美联航及美国航空的主要枢纽机场。

International Airport is mainland China's first SKYTRAX four star airport and is the first airport that has passed the ACI service quality certification.

Beijing Capital International Airport has established sister airport relationships with 21 airports totally, including Hong Kong International Airport, Eleftherios Venizelos International Airport, Singapore Changi Airport, Vancouver International Airport, Narita International Airport, Manchester Airport, Munich Airport and other airports.

2011年，首都机场旅客吞吐量预计将达到7900万人次，稳居全球第二位；ACI旅客满意度在第三季度名列全球第三位，并成为中国内地首家SKYTRAX四星级机场和首家通过ACI机场服务质量认证的机场。

首都机场已同包括香港机场、雅典机场、新加坡樟宜机场、加拿大温哥华机场、日本成田机场、曼彻斯特机场和慕尼黑机场等在内的21家机场建立了姊妹机场关系。

## Mainland China's First Proving Flight Powered by Sustainable Aviation Biofuel Was A Success

### 中国首次航空可持续生物燃料验证飞行成功

In October, at Beijing Capital International Airport (Capital Airport for short), Air China Limited (Air China for short) conducted a proving flight, which was powered by sustainable aviation biofuels for the first time. During this flight, the Boeing 747 took off smoothly and after it flew for an hour, it landed at Capital Airport successfully. This signifies that biofuels have taken an important step towards its application in mainland China's aviation market.

During the one hour test flight, the Boeing 747 should have completed the verification of many technical indexes, such as flight altitude and flight speed, etc. and then flown back with the flight data it had received in this flight test so that the biofuels may be thoroughly examined.

The aviation biofuel used for this test flight has a quality that is up to or above current aviation fuel standards. When using aviation biofuels, it is neither necessary to refit the aircraft or the aircraft's engines, nor is it necessary to rebuild the fuel storage and transportation facilities, or to build new facilities of this kind, as aviation biofuels and traditional fossil fuels can be used directly in place of each other. The standards for aviation hybrid fuels (containing biofuels) have passed the related authentication so aviation biofuels can be used in commercial flights. Based on these excellent features, aviation biofuel can be a substitute for traditional fossil energy. When aviation biofuel has been industrialized, it will effectively ease the pressure on the aviation industry caused by oil shortages.

The success of Air China's proving flight fueled with aviation biofuels is a landmark moment in China's aviation development history, as it shows that aviation biofuels can effectively bring down operational costs and cut greenhouse gas emissions.

10月，中国国际航空公司在北京首都国际机场进行中国首次航空可持续生物燃料验证飞行。其波音747飞机顺利起飞，一小时后成功返回首都机场。这标志着生物燃料在中国航空商业应用方面迈出了重要一步。

在这一个小时的试飞期间，飞机要完成包括高度、速度等多项技术指标的验证，然后携带着本次试验的相关数据返回，以此对生物燃料进行彻底检验。

航空生物燃料的质量将满足或超越现行航油标准，在使用时不需要对飞机及发动机进行改装，也不需要新建和改建燃料储存、输送设施，可直接与传统化石燃料调配使用。经过业界的严格评估，含生物燃料的混合航空燃料标准已经通过认证，可直接用于商业飞行。基于此优点，航空生物燃料可替代传统石化能源，当航空生物燃料产业化后，能够有效缓解石油短缺给航空业带来的压力。

为有效削减运营成本并降低飞机温室气体排放量，中国国航此次生物燃料验证飞行在中国航空发展史上具有重要里程碑意义。



## The Xinjiang Fuyun Airport Rebuilding Project Gets Approval from the NDRC

### 新疆富蕴机场迁建项目获国家发改委批准建设

As one of the eight key projects of the Xinjiang Uygur Autonomous Region, the rebuilding of Xinjiang Fuyun Airport received approval from the National Development and Reform Commission (NDRC for short).

The old Xinjiang Fuyun Airport was built back in 1965, in the Tu'er'hong Basin, in Fuyun county. It is 38 km from the Fuyun county and can only used by small aircraft, with a single flight route between Urumqi – Fuyun. In 1994, due to the cessation of the No. 3 mine ore of the Keketuohai's Rare Mineral and the workers' moving outside, Fuyun Airport was shut down.

In recent years, the development and utilization of mineral resources from Fuyun County and the rise in popularity of tourism thanks to the promotion of Keketuohai National Geological Park, has rapidly increased the passenger volume. Due to the increase in interest to the region, the rebuilding of Fuyun Airport and acceleration of the opening of the flight route between Urumqi and Fuyun has been a practical need.

The new location of Fuyun Civil Airport is in Kepukuola Agen, 3.5 km southwest of the 226 provincial highway and the 216 highway and is 21 km from the center of Fuyun county. The airport will be a civil regional airport, with the flight area categorized as 4C and the total investment is estimated to cost 409.92 million Yuan.

新疆富蕴机场迁建项目作为新疆维吾尔自治区八大重点项目之一，近日获得国家发改委批准建设。

老飞机场始建于1965年，机场坐落在富蕴县吐尔洪盆地，距县城38千米，仅供小型飞机起降使用，有航线乌鲁木齐—富蕴县一条。当时受可可托海稀有矿三号矿停产及矿区职工的外迁影响，富蕴机场于1994年停航。

近年来，随着富蕴县矿产资源开发和可可托海国家级地质公园旅游知名度的提升，客流量迅速增加，启动富蕴机场迁建项目，加快推进乌鲁木齐—富蕴县航线开通已成为现实需要。

富蕴民用机场场址拟定于科普阔拉阿根场址，位于226省道与216国道岔路口西南侧约3.5公里处，距离富蕴县城中心直线距离约21公里。机场为国内民用支线机场，飞行区等级为4C，项目概算投资为40992万元。

## China Southern Airlines' Last MD-90 Series Aircraft Departs from Shenyang

### 南航最后一架麦道客机离开沈阳

In November, during an aircraft replacement process at the Northern branch of China Southern Airlines Company Limited (China Southern Airlines), a MD-90 aircraft was withdrawn. By then, all 13 of China Southern Airlines' MD-90 aircraft had been withdrawn from mainland China's air transportation market.

The MD-90 aircraft has been considered the most quiet passenger aircraft. As an aft-engined aircraft, the MD-90, relying on its long fuselage and its extra long wing span, is best known for its graceful takeoff gesture and its ability to provide a comfortable cabin environment, which is how it got the nickname, "the Air Apollo". In the 1990s, there were 22 MD-90-30 aircraft owned by China Eastern

11月，南航北方分公司今年机型置换过程中退出最后一架MD90飞机。至此，南航13架MD90已全部退出国内航空运输市场。

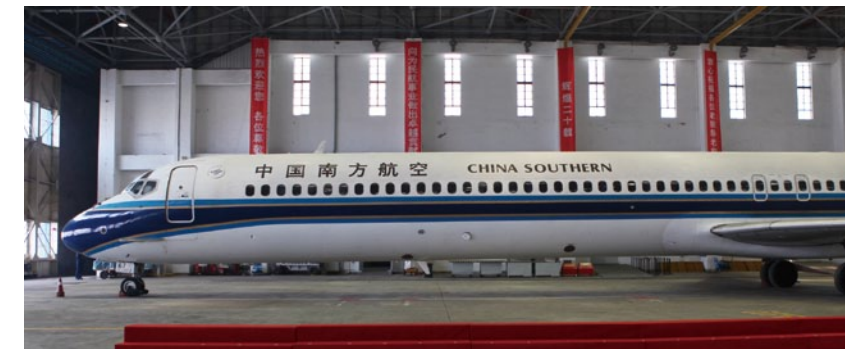
MD90飞机一直被认为是最安静的客机，同时凭借机身修长，发动机后置，翼展超等特点，具有优美的起飞姿态和安静舒适的客舱环境，被业内人士誉为“空中美男子”。在上个世纪90年代，东方航空和南航北方公司一共拥有22架MD-90-30型飞机。其

Airlines Corporation Limited (China Eastern Airlines for short) and the Northern branch of China Southern Airlines. Among the 22 MD-90-30 aircraft, 9 belonged to China Eastern Airlines and 13 belonged to the Northern branch of China Southern Airlines.

China Southern Airlines has planned a strategic transformation of their fleet to meet the demands of China's aviation market, which

required them to replace their aircraft. It was in November of 2010 when China Southern Airlines had started to replace their MD-90 aircraft, which they have had in use for more than 15 years.

Replacing the MD-90 aircraft will be the Airbus 320 series aircraft. Up until the end of 2011, the Northern branch of China Southern Airlines will continue to operate 23 of the Airbus 320 series aircraft, among which 7 will be the A321 aircraft, 10 will be the A320 aircraft and 6 will be the A319 aircraft.



中，中国东方航空公司9架、南航北方公司13架。机型置换是南航战略转型的需要，也是中国航空市场的需要。2010年11月份，南航开始逐步淘汰已经服役15年之久的MD90。

在MD90飞机退出后，取而代之的是统一的空客A320系列飞机。截至今年年底，南航北方分公司将执管23架空客A320系列飞机，其中包括7架A321、10架A320、6架A319飞机。

## The New Runway at Xi'an Airport Passes the Flight Test

### 西安机场新建跑道通过校飞

In the early days of December, a white aircraft landed on the newly built runway of Xi'an Xianyang International Airport (Xi'an Airport for short). The newly built runway is a part of the Phase II project of Xi'an Airport and is built in the southern area of the airport. The landing of the aircraft signifies that the new runway has successfully passed the flight test.

The flight test is an important condition and requirement for the opening of an airport. Now the 6-day flight test task has finally ended, and all performance parameters have met the technical standards, which shows that the runway is capable for the flight test.

The Phase II project of Xi'an Airport was started back in the end of 2007, with a total investment of 9.757 billion Yuan. It is designed that by 2020, it should satisfy an annual passenger throughput of 31 million people, aircraft takeoff and landing of 230 thousand sorties and cargo and mail volume of 400 thousand tons. Now the project has been completed by the end of this year and will be put into operation in March of next year.

As a part of the Phase II project of Xi'an Airport, the newly built runway is 3,800 meters long and 60 meters wide, with 38 parking stands. Once put into operation, Xi'an Airport will be mainland China's fourth airport with two runways that run separately, after Beijing, Shanghai and Guangzhou. It is designed to accommodate the continental flight of the A380, which will put an end to the history of having no continental flights in the Shaanxi province.

12月初，一架白色的飞机降落在西安咸阳国际机场二期扩建工程南飞行区的新建跑道上。飞机的顺利降落，标志着机场新建跑道顺利通过校验飞行。

校飞是新建机场通航的重要条件和首要环节。西安机场新建跑道6天的校验飞行工作结束，目前各项性能参数符合技术标准，完全具备试飞条件。

西安咸阳国际机场二期扩建于2007年年底动工，总投资97.57亿元，工程以2020年为设计目标年，可满足年旅客吞吐量3100万人次、飞机起降23万架次、货邮吞吐量40万吨的需要。工程将于今年底完工，明年3月底投入使用。

作为二期扩建工程之一，新建跑道长3800米、宽60米，设有38个机位。投用后，西安咸阳国际机场将成为全国继北京、上海、广州之后的第四个双跑道独立运行的机场，可供目前世界最大机型A380跨洲际飞行，将结束陕西没有洲际航班的历史。



## The Phase II Expansion Project of Zhengzhou Xinzheng International Airport Gets Approved from the NDRC 郑州新郑国际机场二期扩建工程获国家发改委批准

In November, The National Development and Reform Commission (NDRC for short) approved the feasibility reports of the phase II expansion project of Zhengzhou Xinzheng International Airport.

The project is designed in accordance to the requirements of a passenger volume of 29 million people and a cargo and mail throughput of 500 thousand tons by the year 2020. The flight area is categorized as 4F. A second runway that is 3,600 meters long with a taxiway system will be built to the north of the current runway. A second terminal of 310 thousand square meters will also be built. The auxiliary facilities for ATC and fuel supply as well as other related production facilities will also be set up. The total investment is estimated to be 13.64 billion Yuan.

国家发改委于11月下旬批准了郑州新郑国际机场二期扩建工程可行性研究报告。

本期工程按满足2020年旅客吞吐量2900万人次、货邮吞吐量50万吨的目标设计。主要建设内容：飞行区等级为4F，在现跑道北侧建设长3600米的第二跑道和滑行道系统；新建31万平方米的第二航站楼，配套建设空管、供油及其他相关生产设施。项目总投资136.4亿元。

## AVIC SAC Commercial Aircraft and Bombardier Aerospace Sign a Contract Regarding the Q400 Fuselage Connection 沈飞与庞巴迪宇航签署Q400涡桨飞机机身对接合同

In November, Pang Zhen, the general manager of AVIC SAC Commercial Aircraft Company Limited (AVIC SAC Commercial Aircraft for short) and Christopher Pino, the vice president of Commercial Aircraft Electromechanical System Supplier of Bombardier Aerospace, signed a contract regarding the fuselage docking of the new generation of the Q400 Turbine Aircraft.



The aircraft is divided into three docking sections that are 22.08m in length. Anti-icing, fireproofing and flight control systems should be installed on the docking fuselage, as well as various engineering tests that need to be performed. Fuselage docking is very complicated and difficult to conduct. The work will be implemented in stages.

The new generation Q-400 aircraft fuselage project is another large project between AVIC SAC Commercial Aircraft and Bombardier Aerospace. AVIC SAC Commercial Aircraft and Bombardier Aerospace have already made plans to establish the forebody (including nose

11月，沈飞民机公司总经理庞真与庞巴迪宇航公司商用飞机机电系统供应链副总裁克里斯托弗皮诺分别代表两家公司签署了Q400新一代涡桨飞机机身对接合同。

该机三段对接机身全长为22.08米，对接工作操作复杂、难度大，并且定位精确性要求高。对接的机身里要安装防冰、防火和飞控相关系统并做种类繁多的工程试验。该工作包将分阶段完成。

Q400新一代飞机机身项目是沈飞民机继其他目前

compartment door), rear fuselage (including rear compartment door), aircraft tail and central aircraft.

The signing of this contract has pushed cooperation between AVIC SAC Commercial Aircraft and Bombardier Aerospace to a higher level and it is also a landmark in AVIC SAC Commercial Aircraft's process of enhancing its civil aircraft manufacturing technology and business development.

在制的Q400新一代飞机前机身（包括前舱门）、后机身（包括后舱门）、尾段和中机身工作包后开展的另一个庞巴迪宇航公司大型项目。

Q400新一代飞机机身对接项目的签署将沈飞民机公司与庞巴迪宇航公司的合作关系上升到一个更高的水平，同时也是沈飞民机公司在民机制造技术提高和业务拓展进程中的又一项意义深远的里程碑。

## Haikou Meilan International Airport Becomes Mainland China's Second Four-star Airport 海口美兰国际机场成为中国第二家四星机场

In December, Haikou Meilan International Airport passed the examination from the British authoritative civil aviation evaluation organization, the SKYTRAX, and became mainland China's second SKYTRAX four-star rated airport. Haikou Meilan International Airport is only the ninth in the world to receive SKYTRAX's Four-star rating.

The airport made a decision that it wanted to be SKYTRAX four-star airport and began preparations to meet SKYTRAX standards starting back in 2010. After the introduction of the SKYTRAX assessment mechanism, the airport improved its service quality to reach a level that was in accordance to the standards.

Mr. Edwards, Chairman of SKYTRAX, imparted that SKYTRAX had analyzed, studied and evaluated 600 more service items of the airport, including the sanitary conditions of public areas, the clarity of the terminal's signboard, safety checks, staff's services, retail, dining facilities and the luggage handling speed and so on, and after careful evaluation, SKYTRAX believed that the service is of the highest level and quality.

SKYTRAX is an internationally famous air transportation study organization. It was set up in 1989 in England. SKYTRAX owns a whole set of authorization standards to evaluate the five-star hardware products and software services of the air transportation industry. SKYTRAX is of the high level of public credibility, authority and high specialty; and so is recognized by the entire global aviation market.



12月上旬，海口美兰国际机场通过英国民航权威评价机构SKYTRAX评审，成为中国第二家、全球第九家“SKYTRAX四星机场”。

该机场自2010年启动四星机场创建计划，引入SKYTRAX评审机制后，对照“星级”标准，层层细分逐项落实，持续改善服务品质。

SKYTRAX主席爱德华透露，该机构对美兰机场600多项服务细节进行分析、研究和评估，包括公共区域的卫生情况、候机楼标志牌的清晰度、安全检查和通关速度、员工服务质量、零售和餐饮设施、行李运送处理效率等，认为美兰机场的服务水平是高水准和高品质的。

SKYTRAX是一家国际知名的航空运输研究认证机构，创立于1989年，总部设在英国，拥有对航空运输服务所制定的五个星级的各项硬件产品和软件服务的全套认证标准，因其颇具公信力、权威性和专业性而被业界认同。



## Hebei Airlines Signs a Contract to Purchase 10 ARJ21 Aircraft from COMAC

### 中国商飞获河北航10架ARJ21新支线飞机订单

In November, in the talks regarding central enterprises going into Hebei to establish mutual strategic cooperation, the Commercial Aircraft Corporation of China, Ltd. (COMAC for short) and the People's Government of Hebei Province signed a framework agreement regarding strategic cooperation in developing the civil aviation industry. Based on this agreement, the Hebei Aviation Investment Group and the COMAC signed a contract to buy 10 ARJ21 aircraft. The COMAC Shanghai Aircraft Customer Service Co., Ltd. (COMAC Hebei Aircraft Customer Service for short) and the Hebei Development And Reform Commission signed the letter of intent for co-operation regarding promoting the planning and construction of COMAC Hebei Aircraft Customer Service Co., Ltd..

At the ceremony, Shi Jianzhong, the vice manager of COMAC and Yang Chongyong, the deputy governor, signed the framework agreement regarding the strategic cooperation in developing the civil aviation industry.

The Hebei Aviation Investment Group was approved to be set up by the People's Government of Hebei Province and is invested by the JIZHONG Energy Group Co., Ltd.. It is a large state-owned enterprise, and is directly supervised by the State-owned Assets Supervision & Administration Commission of the People's Government of Hebei Province. According to the agreement, the Hebei Aviation Investment Group planned to purchase 10 Basic ARJ21-700 new regional aircraft.

In the letter of intention for co-operation regarding promoting the planning and construction of COMAC Hebei Aircraft Customer Service Co., Ltd., the two parties promised that they would rely on Hebei's advantage in geography, to plan and construct the COMAC North China Customer Service Base. Hebei province is near the cities of Tianjin and Beijing, encompasses the Bohai Sea and has the traditional function of Northeast Asia. This will drive Hebei's civil aviation industry to develop into a high-end level. This will also play an important role in COMAC's strategic layout and its core capability construction.

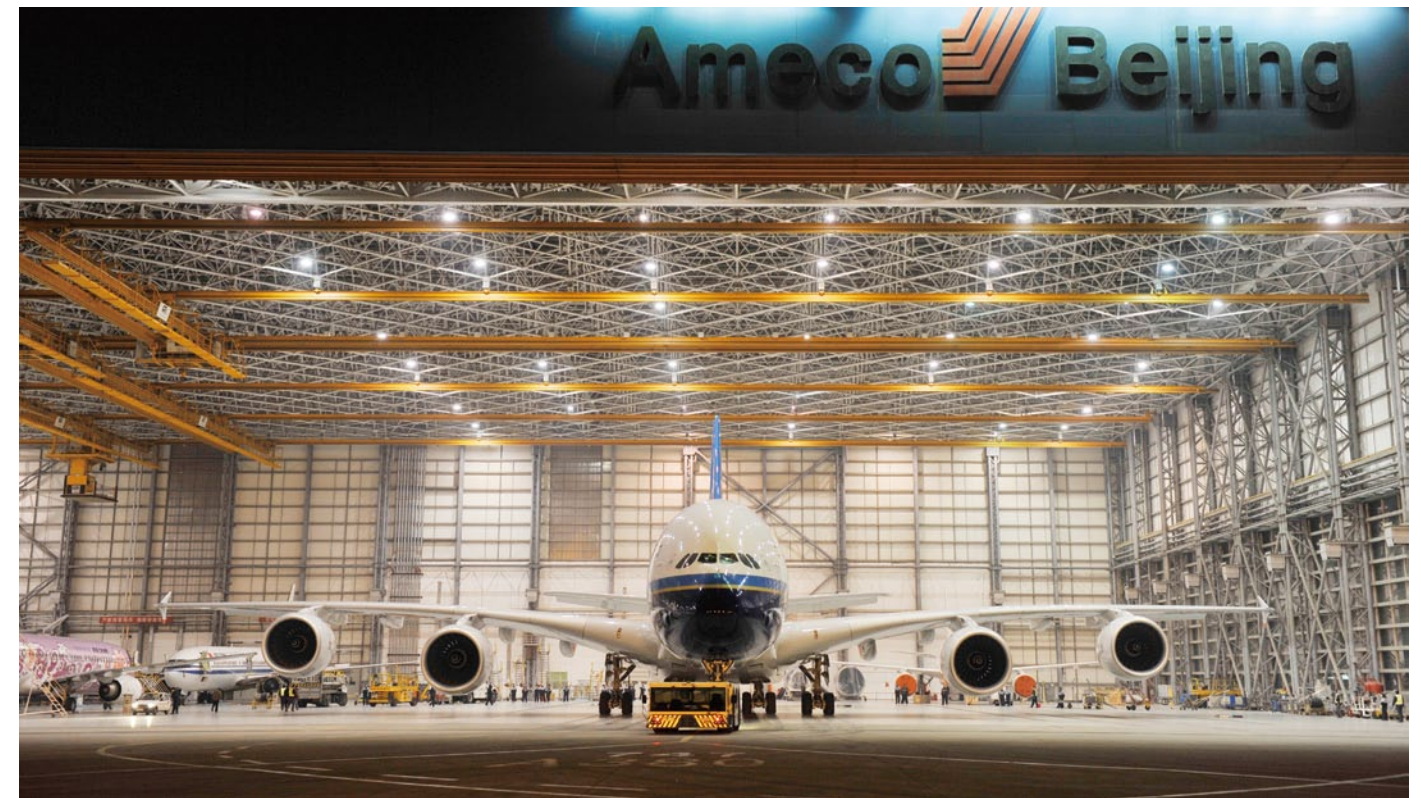
11月，在河北省石家庄市举行的“央企走进河北战略合作恳谈会”上，中国商用飞机有限责任公司（简称“中国商飞”）与河北省人民政府签署了《发展民用航空产业战略合作框架协议》。在此基础上，中国商飞公司与河北航空投资集团有限公司签署了10架ARJ21新支线飞机购买协议，中国商飞上海飞机客户服务有限公司与河北省发展和改革委员会签署了《关于推进中国商飞客户服务河北分中心规划建设合作意向书》。

在仪式上，史坚忠副总经理代表中国商飞公司与河北省副省长杨崇勇签署了《发展民用航空产业战略合作框架协议》；中国商飞公司市场部负责人与河北航空投资集团负责人签署了10架ARJ21新支线飞机购买协议；中国商飞上海飞机客户服务有限公司有关负责人与河北省发改委负责人签署了《关于推进中国商飞客户服务河北分中心规划建设的合作意向书》。

河北航空投资集团有限公司是经河北省政府批准，由冀中能源集团有限责任公司出资组建的国有大型企业，是河北省国资委直接监管企业。根据协议，河北航空集团拟向中国商飞公司购买10架基本型ARJ21-700新支线飞机。

在《关于推进中国商飞客户服务河北分中心规划建设的合作意向书》中，双方约定将依托河北省京津、环渤海、辐射东北亚的区位优势，规划建设中国商飞公司北方客户服务基地，这将对带动河北省民用航空产业向高端发展，完善中国商飞公司战略布局和核心能力建设具有重要作用。

## The A380 Hangar of Ameco Beijing Welcomes the First A380 北京飞机维修公司A380机库迎来首架A380飞机



In November, An A380 aircraft was slowly pushed to the specifically designed A380 hangar of the Aircraft Maintenance and Engineering Corporation (Ameco Beijing) so that it may receive its routine check up. Up till then, the A380 hangar that was built 3 years ago had finally welcomed its first A380 aircraft.

Ameco invested 710 million Yuan to build the A380 hangar, and was put into operation in July of 2008. This hangar is capable of servicing all Boeing and Airbus aircraft, including the largest aircraft, the A380. As an accessory project of the T3 terminal of the Beijing Capital International Airport, due to its advantages in location and facility, has been able to provide swift and convenient maintenance services to customers not only at home, but also abroad. The maintenance needs of the A380 aircraft had specifically been taken into consideration during the designing stage of the hangar, so the arrival of the first A380 aircraft is also considered an inspection to the design and equipment of the A380 hangar.

In addition to the facilities in the hangar, since 2010, Ameco has been offering technical support services to Deutsche Lufthansa AG's A380 aircraft in Beijing.

11月下旬，一架空中客车A380客机被缓缓推入Ameco的A380机库，实施一些例行工作。至此，这座已经建成3年之久的A380机库，终于迎来了首架空中客车A380飞机。

Ameco投资7.1亿元人民币兴建的A380机库于2008年7月正式投入使用。这座机库兼顾了波音系列和空客系列所有飞机，包括目前世界上最大的空中客车A380飞机。作为首都机场三号航站楼（T3）的配套工程，这座机库以其便利的位置和良好的机库设施为中外客户提供着方便、快捷的维修服务。机库在设计之初便考虑到空中客车A380飞机的维修需求，此次，首架空中客车A380飞机的进入也是对机库相关设备的一次检验。

除机库设施外，Ameco自2010年开始为德国汉莎航空公司的空中客车A380飞机在北京提供技术支援服务。



## Feasibility Reports for Building a New Terminal in Wenzhou Airport are Approved

### 温州机场新航站楼工程可行性报告获批

In October, the feasibility reports related to building a new terminal in Wenzhou Yongqiang International Airport (Wenzhou Airport for short) got approved by the Zhejiang Provincial Development and Reform Commission. The project will start in the near future, and will last for 3 years. After the new terminal is established, the total terminal area will be five times that of the existing area.

The existing terminal in Wenzhou Airport is the T1 terminal and it takes up an area of 23 thousand square meters. The new T2 terminal will be built to the south of the T1 terminal and will take up an area of 100 thousand square meters, four times that of the T1 terminal, as is stated in the layout plans. Costing 923 million yuan, the T2 terminal is planned to meet an annual passenger throughput 13 million people.

The T2 terminal is designed as a three-short-finger gallery-type structure - like an "E" if looking from above - and it will have two stories. There will be a greeting area, baggage claim, boarding lounges for remote aircraft stands, VIP lounges and more on the first story. In the inter layer between the first story and the second story, there will be passages, a VIP hall and entertainment area and so on. On the second story, there will be departure halls, ticket offices, a departure lounge area, first-class lounge area and a business class area, comprehensive commercial area, a catering area and so on.

After the T2 terminal is completely built, it will be used for the arrival and departure of local passengers and the existing T1 will be re-built for arrivals and departures for international passengers. In addition to becoming the center building in Wenzhou Airport, the T2 terminal will also be an important part of the integrated traffic hub in the east of the Wenzhou city and will fuse with the long-distance bus stations, rapid transit stations, urban bus station, markets, restaurants, office buildings, recreational facilities and more.

Currently, the preliminary examination for land use, program design, site selection and the overall layout plans of the T2 terminal project have all be finished. Now the project has entered into the stage of the preliminary project design, project bidding and policy process.

As was introduced, in the recent years, the volume of Wenzhou Airport has increased rapidly. Therefore, the T1 terminal is in the state of overload operation. In the coming years, Wenzhou Airport will grow to become an important trunk airport locally, an international scheduled flights airport and a large civil aviation airport. As is predicted, by 2020, Wenzhou Airport's passenger throughput will reach 13 million,

10月, 温州永强国际机场(简称“温州机场”)新航站楼——T2航站楼工程可行性研究报告获浙江省发改委批复, 计划将于近期开工建设, 工期3年。建成后, 机场航站楼将是现有面积的5倍。

温州机场现在使用的航站楼叫T1航站楼, 面积约2.3万平方米。即将新建的T2航站楼位于T1航站楼的南边, 规划建筑面积10万平方米, 大约是T1航站楼的4倍, 总投资9.23余亿元, 设计满足年旅客吞吐量1300万人次。

T2航站楼采用三短指廊式构造(俯视图“E”字形), 呈二层式布局。一层为迎客厅、行李提取厅、远机位候机厅、贵宾候机厅等; 一、二层之间的局部夹层为通道、贵宾厅、娱乐休闲区等; 二层为出发厅和旅客办票区、旅客候机区、头等舱及公务舱候机区、综合商业区、餐饮区等。

新航站楼建成后将全部用于国内旅客进出港, 而T1航站楼将被改造为国际旅客进出港航站楼。除作为机场的中心建筑, T2航站楼还将是我市东部综合交通枢纽的重要组成部分, 与长途客运站、轨道交通站、城市公交站、商场、宾馆、写字楼、娱乐设施等连成一体。

目前T2航站楼工程已完成用地预审、方案设计、项目选址、总体规划等前期工作, 并进入工程初步设计、工程招投标和政策处理阶段。

据介绍, 近年来温州机场吞吐量迅速增长, T1航站楼已经处于超负荷运行状态。未来几年温州机场将发展成为国内重要干线机场、国际定期航班机场、民用航空大型机场。根据预测, 至2020年, 机场年旅客吞吐

so the terminal area in Wenzhou Airport should be expanded to 131 thousand square meters to meet its future use requirements.

量将达到1300万人次。温州机场航站楼需扩建至约13.1万平方米, 才能满足使用需求。

## The First Domestic Y8C Used for Artificial Rainfall was Put Into Use in Henan

### 国内首架运8C人工增雨飞机在河南投入使用

In November, a Y8C aircraft refit in Henan province for artificial rainfall smoothly passed the experts' acceptance test in Zhengzhou, the capital of Henan province, and formally went into use. This Y8C aircraft is the first one specially refit for artificial weather intervention in mainland China and it will play a major role in supporting the artificial weather intervention tasks in Henan province and the inter-region artificial weather intervention task all over Henan, Shandong, Anhui and Jiangsu.

As an important segment in the Clouds Water Resources Development Project in Henan, the aircraft is equipped with an internationally advanced cloud physical detection facility, and is installed with three advanced catalytic devices, including the pyrotechnic flare generating unit, the flare seeding unit and liquid carbon dioxide seeding unit. Moreover, the aircraft is equipped with the nationally advanced BeiDou (COMPASS) Aircraft Positioning Satellite System and wireless voice communications equipment. The endurance, flight level and load weight of this aircraft is twice that of the previously used Y7 aircraft. This Y8C, used for artificial weather intervention, is equipped with the most advanced and most complete equipment.

After carrying out field survey and tests, the experts from the Department of Emergency Response, Disaster Mitigation and Public Services of China's Meteorological Administration, the Institute of Atmospheric Physics, Chinese Academy of Sciences and the Air Force of the CPLA unanimously agreed that the refit aircraft overall had reached the domestic leading level and was ready for use. It has built a good platform for the exploration and study of the artificial weather intervention science and for scientifically carrying out the trans-district teamwork.

During the drought in Henan this year, the Henan Meteorological Bureau had used this aircraft seven times to perform the trans-district artificial weather intervention, which had greatly eased the severe drought and contributed much to the growth of wheat and played an important role in reducing the forest fire danger rating and improving the ecological environment. Lu Zhangong, Secretary of the Henan Provincial Party Committee of the CPC, specifically gave instructions that he fully approved the results achieved by the new aircraft in artificial weather intervention.

11月, 河南省改装运-八C人工增雨飞机在郑州顺利通过专家验收, 正式投入业务使用。该飞机是目前国内首架改装专门用于人工影响天气作业的运-八C飞机, 将为河南和豫鲁皖苏跨区联合人影作业提供有力保障。

作为“河南省空中云水资源开发工程”的重要内容, 该飞机经过改装后, 安装了国际先进的云物理探测设备, 并加装了目前先进的焰弹发射、焰条播撒和液态二氧化碳播撒3种催化设备, 同时还配备了国内先进的北斗卫星飞机定位和无线语音通讯设备, 其续航时间、飞行高度、载重量均比以前使用的运-七飞机提高1倍以上, 是目前国内飞机性能最好和装载设备最先进、最齐全的人工影响天气作业飞机。

来自中国气象局应急减灾与公共服务司、中科院大气所以及空军的专家在经过实地察看和测试后, 一致认为, 该飞机整体达到国内领先水平, 具有前瞻性和示范性, 其科学探测能力和大范围、多种催化作业能力得到很大提高, 将为人工影响天气科学探测和研究、科学实施区域联合作业搭建了很好的平台。

在今年河南春季干旱过程中, 河南省气象局使用该飞机进行了7次跨区域飞机人工增雨作业, 极大缓解了严重旱情, 为小麦生长、降低林区火险等级、改善生态环境提供了发挥了重要作用。河南省委书记卢展工专门作出批示, 对运用新型飞机开展人工增雨作业取得的成效给予了充分肯定。



## Mainland China's Civil Aviation Museum Now Opened

### 民航博物馆开馆

In November, the opening ceremony of mainland China's civil aviation museum and the special themed exhibition entitled "Civil Aviation Strengthens China" was held in Beijing. Li Jiaxiang, minister of the Civil Aviation Administration of China (CAAC for short) was present and made a speech at the ceremony. He said that the Civil Aviation Museum will be a window to show mainland China's civil aviation development achievements, to spread civil aviation culture and to popularize civil aviation knowledge to the country. At the ceremony, Li Jiaxiang unveiled the Civil Aviation Museum and undraped the themed exhibition, "Civil Aviation Strengthens China".

Li Jun, a deputy minister of the CAAC and Yan Zhize, the director-general of the Civil Aviation Science Popularization Foundation both attended the ceremony. The ceremony was presided over by Xia Xinghua, a deputy minister of the CAAC. Main leaders of cultural and museum organizations, such as the State Administration of Cultural Heritage, the National Museum of China, the Chinese Aviation Museum and Beijing Municipal Administration of Cultural Heritage, as well as persons in charge of the bureaus and departments of the CAAC and some other civil aviation enterprises, also took part in the ceremony.

Li Jiaxiang said that the reason why they built the Civil Aviation Museum is to show mainland China's civil aviation history, which was developed from the ground up, to carry forward with the spirit of accomplishing achievements through strenuous efforts and commitment and to popularize scientific and technological civil aviation knowledge. The establishment of the civil aviation museum has gained wide support and assistance from both within the civil aviation industry and out. The departments in the civil aviation industry that have provided support in respects of manpower, material and financial resources have been especially supportive.

The CAAC is in charge of the civil aviation museum. It is located in the civil aviation 200# region by the supplementary road to Beijing Capital International Airport, taking an area of 284 mus. The exterior appearance of the main exhibition hall is designed according to the shape of an aircraft engine. The establishment and the collection task received broad participation and support from the community. Until now, 130 million Yuan has been raised and a number of transportation aircraft and collections which reflect mainland China's difficult periods of development of civil aviation have been collected. The portion of real aircraft contains the the IL-14, which had been taken by Mao Zedong, the C-46 which had flown the Hump Route, and the Li-2, the BAE-146, the Trident aircraft, the Y-7 aircraft, the Airbus A321-200 and a few others. In addition, many valuable historical documents and materials regarding the Hump Route flight, Beginning Navigation on August 1, Trial Flight to Tibet and so on were collected. In the museum, there are some flight simulators and multifunctional cinemas, that visitors

11月下旬, 民航博物馆开馆暨“民航强国之路”主题展开幕仪式在北京举行。民航局局长李家祥出席仪式并发表讲话。他表示, 民航博物馆将成为向全社会展示民航发展成就、传播民航文化、普及民航知识的重要窗口。仪式上, 李家祥为民航博物馆揭牌, 并为“民航强国之路”主题展揭幕。

民航局副局长李军、中国民航科普基金会理事长严智泽出席仪式。仪式由民航局副局长夏兴华主持。来自国家文物局、国家博物馆、中国航空博物馆、北京市文物局等文博机构的主要领导以及民航局相关司局、民航各企事业单位负责人参加仪式。

李家祥说, 建设民航博物馆, 目的就是为展示中国民航从无到有、从小到大、从弱到强的光辉历程, 弘扬民航人艰苦奋斗、敬业奉献的精神, 普及民航科学技术知识。民航博物馆的筹建, 得到了业内外各界的广泛支持和帮助, 尤其是民航各单位给予了人力、物力和财力等方面的大力支持。

民航博物馆是民航局主管的民用航空专题博物馆。馆址位于北京首都机场辅路民航200号地区, 总占地面积284亩, 主展馆按照飞机发动机形状进行外观设计。民航博物馆建设和藏品征集工作得到社会各界广泛参与和大力支持, 截至目前共筹集资金1.3亿元, 馆内征集了大量反映我国民航不同时期的运输机型和藏品。实物飞机包括毛泽东乘坐过的伊尔-14、参加过驼峰航线飞行的C-46以及里-2、BAE-146、三叉戟、运七、空客A310-200等反映我国民用航空不同历史时期的各种运输机型。此外, 民航博物馆的展品还包括驼峰飞行、

can enhance their museum experience as well as to educate themselves regarding the science of flight.

As the museum is opened, the six-month long special exhibition entitled "Civil Aviation Strengthens China" has started. This exhibition is hosted by the CAAC, organized by the Air Traffic Management Bureau of the Civil Aviation Administration of China, the China Academy of Civil Aviation Science and Technology, the Civil Aviation Museum and the Civil Aviation Science Popularization Foundation. 31 members of the civil aviation industry and the Aviation Industry Corporation of China have attended this exhibition. The exhibition "looks back at the great achievements of civil aviation after the Reform and opening up, and the ambitious goal of establishing China as a country with a strong and outstanding civil aviation industry". The theme is divided into four sections, "Beginning of navigation", "Main roads are connected", "God helps those who help themselves" and "Go ahead on all roads". This theme exhibition gives visitors a panoramic view of the People's Republic of China's civil aviation achievements, especially the construction and developmental achievements of the last 30 years, after the reform and opening up strategy had been implemented.

“八一”开航、拉萨试航等大量珍贵的历史文献和资料。博物馆还配有飞行模拟机、多功能影院等, 可为参观者提供科普教育、休闲娱乐等服务。

随着博物馆开馆, 为期6个月的“民航强国之路”专题展正式开幕。本次展览活动由民航局主办, 民航局空管局、民航科研院、民航博物馆、民航科普基金会四家单位承办, 来自民航各单位、中航工业集团的31家单位参展。展览以“回顾民航改革开放的巨大成就、展望建设民航强国的宏伟目标”为主题, 分为“遵道起航”、“大道相通”、“天道酬勤”、“兼道前行”四部分内容, 全景展示了新中国民航发展成果, 尤其是改革开放30年来民航系统建设和发展成果。

## Dalian Airlines Introduces Their First Aircraft

### 大连航空引进第一架飞机

In November, a Boeing 737-800 aircraft sprayed with the blue and gold lines and the logo of Dalian Airlines Co., Ltd. (Dalian Airlines for short) landed smoothly at Dalian Zhoushuizi International Airport. Dalian Airlines had executed the aircraft coordination for the CA8996 flight whose flight route is Beijing - Dalian, and as the aircraft rolled into view, that was the official moment that Dalian Airlines has received its own aircraft. Meanwhile, this also signifies that Dalian Airlines, jointly invested by Air China Ltd. (Air China for short) and Dalian Baoshui Zhengtong Co., Ltd. (Dalian Baoshui Zhengtong for short) has entered into a new stage.

Dalian Airlines is a joint venture with a total investment of 1 billion yuan by Air China and Dalian Baoshui Zhengtong. Among the shares, 80% belongs to Air China and 20% belongs to Dalian Baoshui Zhengtong. After Dalian Airlines goes into service, it will carry out the Regional Hub strategy, by spending 5 years to establish its own air transportation network to match the portal position of Northeast China.

The aircraft that has flown to the Dalian Zhoushuizi International Airport is a Boeing 737-800. There are 167 seats, among which there are 8 first-class cabins, at the aircraft. The maximum range of the aircraft is 7,000 meters, with the flight level at 41,000 feet, average speed of 800 km/h and is equipped with two turbine engines.

11月, 一架喷有蓝色和金色线条、具有大连航空标识的波音737-800飞机, 执行CA8996北京——大连调机任务, 平稳抵达大连周水子国际机场。在引导车的带领下, 飞机进入人们的视线。标志着大连航空拥有了属于自己的飞机。同时, 标志着由中国国际航空股份有限公司(简称“国航”)和大连保税正通有限公司共同出资组建的大连航空建设进入了新的里程。

大连航空由国航和大连保税正通有限公司共同出资10亿元人民币组建。其中国航占有80%股份, 大连保税正通有限公司占有20%股份。大连航空开航后, 将在大连实施“区域枢纽”战略, 争取用5年的时间, 建成与东北门户地位相匹配的航空运输网络。

这次飞来的这架飞机, 是波音737-800, 拥有167个座位, 其中头等舱8个, 最大航程7000千米, 飞行高度41000英尺, 平均速度800千米/每小时, 配有两台涡轮发动机。