

NO.613

CHINA SCIENCE AND TECHNOLOGY

NEWSLETTER

The Ministry of Science and Technology
People's Republic of China

NO.613

March 20, 2011

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SPECIAL ISSUES

Talent Pool at Zhongguancun

Not long ago, 15 government agencies, including the CPC Central Committee Organization Department, National Development and Reform Commission, Ministry of Education, Ministry of Science and Technology, and Beijing Municipal Government, jointly issued a document on establishing a talent pool for the Zhongguancun National Innovation Park. The document points out that during the period of 2011-2015, Zhongguancun shall gather

together high caliber talents from overseas, and build a talent pool featured with think tanks, innovative institutional mechanisms, active S&T innovations, and the rapid development of emerging industries.

The document proposes a range of missions for building the talent pool, including gathering academic leaders and S&T innovation elements, creating an innovation platform for high caliber personnel, establishing a support system for high caliber personnel creating their own businesses, building an industrial environment up to the international standard, and improving the system that provides services for high caliber personnel.

The document also defines some applicable policies, including making some S&T, R&D, and industrial projects available for the talent pool, simplifying the investment and foreign exchanges procedures, introducing advanced training modes for turning out innovative personnel, providing the needed logistic support for the high caliber personnel recruited from overseas. The Beijing Municipal Government has planned to build apartment buildings for 10,000 talents.

China Needs More Nuclear Fusion Talents

Chinese Ministry of Science and Technology (MOST) recently announced that it will establish a national design panel for magnetic confinement fusion reactors at the University of Science and Technology of China, in a move to provide the needed design blueprint for building China's own fusion reactors when conditions are ripe. CAO Jianlin, Chinese Vice-Minister of Science and Technology said MOST has, in collaboration with the Ministry of Education, Chinese Academy of Sciences, and China National Nuclear Corporation, issued a guide on training nuclear fusion talents, in an attempt to advance the study of magnetic confinement fusion in the country, meet the needs of ITER, and learn from the experience derived from the previous ITER activities. MOST proposes to bring out some 2,000 nuclear fusion scientists and experts in 10 years. In addition, efforts will be made to gather together nuclear fusion specialists from other talents programs, including "thousand talents program" and "Cheung Kong Scholars Program".

RESEARCH AND DEVELOPMENT

Spatial Information Technology

During the 11th Five-year Plan period (2006-2010), China's spatial information and software industry has witnessed a rapid development, thanks to the support of the National 863 Program and National S&T Infrastructure Program. A range of systems, including grid

geographic information system, real three-dimensional geographical information system, high confidence geospatial database management system, statistical remote sensing, and multi-source remote sensing data processing and service system, have been granted with government support. Chinese scientists and engineers have mastered an array of core and key technologies needed for massive data spatial analysis and processing under a grid environment, quick access to spatial information and associated automated processing, network distribution service, the construction and integration of long time state and true three dimensional geographical information database, multi-source spatial data integration and application, adaptive spatial data engine, scalable spatial data modeling, multi-source high-resolution satellite remote sensing, satellite navigation and positioning data acquisition and service, high-precision smart navigation and positioning for special areas, along with 120 patents and 550 copyrights.

With the sustained support of the National 863 Program, China has established its own spatial information programming system, and developed a range of proprietary computer software, including MapGIS, SuperMap, BeyonDB, GeoBean, GeoGlobe, Titan, GeoWay, and DPGRID.

The home made spatial information software has found extensive applications in some 30 areas, numerous industrial sectors, and in people's daily life. For example, computer software for geological information survey, and for potential iron ore resources prediction/grid evaluation have been diffused in a systematic manner in some priority fields. The efforts have resulted in the establishment of a remote sensing application framework with air based remote sensing as a major player, and a public service system featured with smart navigation and positioning. Digital China, a proprietary nationwide space information sharing platform, has also been created to gather and share the space information resources at the national, provincial, and municipal levels.

In recent years, the spatial information software industry has witnessed a significantly raised scale and return. The enhanced utilization of spatial information resources has spurred up the development of upper stream industries, including computer, networking, mobile communication, and surveying instruments, which in turn promotes the development of geographic information system, remote sensing, and satellite navigation/positioning in the downstream industries. The spatial information industry has reportedly generated an output exceeding RMB 100 billion, with a growth rate over 300%. 60 industrial centers have been established at the provincial and municipal levels for the purpose.

Enhanced Air Traffic Management

In implementing a national S&T program, the Ministry of Science and Technology and Civil

Aviation Administration of China have jointly initiated a project to work on the new generation air traffic control management system, which rolled out 63 key technologies, 7 domestic or international technical standards, 140 patent applications, 13 technology systems or platforms, 34 applications, and 1 first prize of National Technology Invention Award, covering the areas of performance-based aviation navigation, data link and precise positioning based comprehensive air surveillance, collaborative air traffic control, and civic air traffic control information platform.



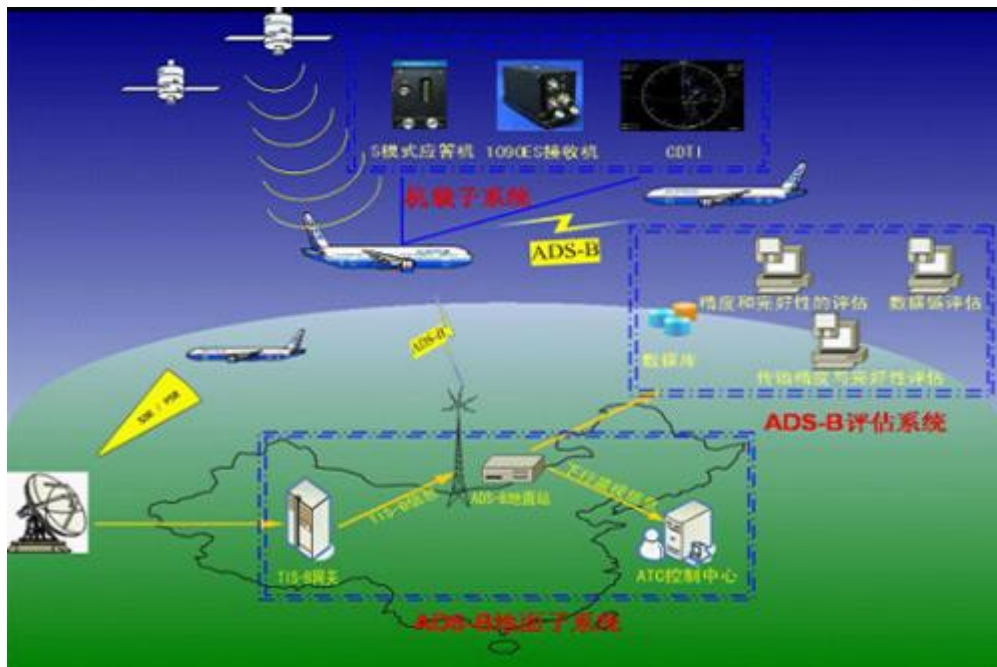
New generation air traffic control system.

Performance Based Navigation (PBN) has found applications in the Lhasa Airport and the Lingzhi Airport in the west plateau areas. The new technology makes continuous curve landing and taking off that could not be achieved using traditional technology possible, breaking up the old practice of one way landing only at the Lhasa airport, and visual landing only at the Lingzhi Airport.

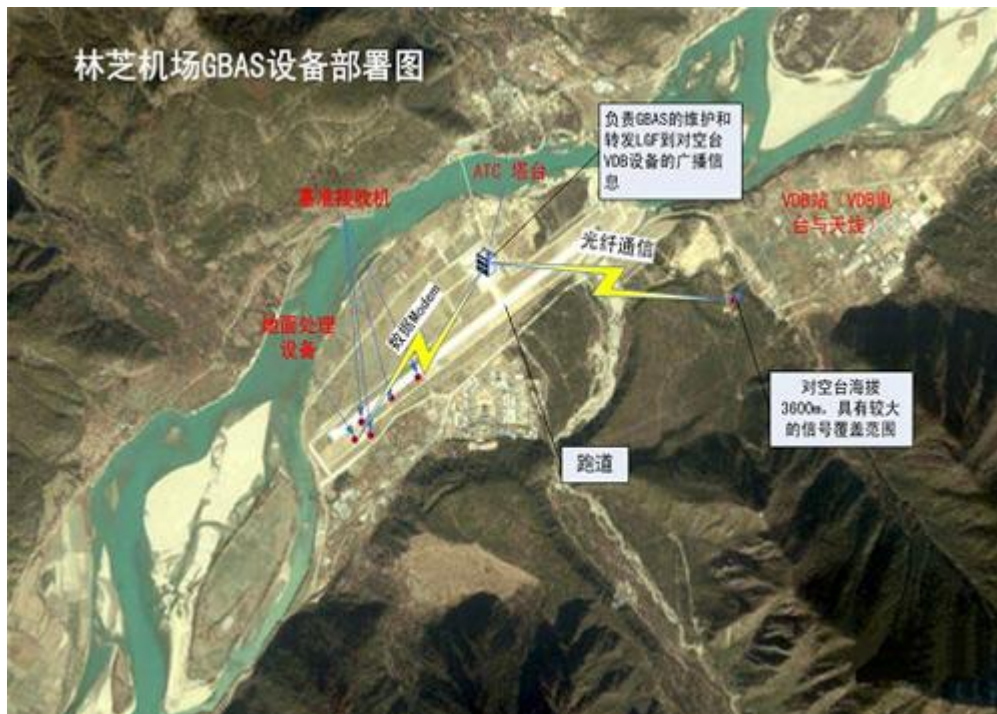
The proprietary GNSS calibration platform has been installed at China Civil Aviation Calibration Center, the first GNSS application in calibrating air traffic control radar in the country, making China one a few countries in the world able to develop an aviation calibration and accreditation platform.

A range of other new technologies, including automated conflict prediction system and multi-source monitoring data fusion technology, have been successfully applied in some 30 Chinese made air traffic control systems, providing powerful technical support for

implementing RVSM, and raising airspace capacity, along with a return worth RMB 110 million for the industry.



Precision positioning based collaborative monitoring technology.



Terminal enhancement system.

The proprietary ADS-B system has been tested and applied in the Chengdu and Jiuzhaigou areas, a prelude for establishing an ADS-B application system up to the requirements of new generation air traffic control system.

Advanced Remote Sensing Equipment



Thanks to the support of the National 863 Program, China has developed a range of remote sensing hardware and software, including advanced visible light, infrared, laser, and synthetic aperture radar that can be applied in high-precision small scale remote sensing, UAV remote sensing, and high-performance SAR remote sensing. The said remote sensing hardware and software have played a major role in shaping up China's national remote sensing network, and in mapping, mining, farming, water conservancy, environmental protection, transportation, disaster prevention and preparedness, defense, and construction activities.

The high-precision small scale remote sensing system is made up of a small POS, a stability platform, a high-precision wide-angle light digital camera, a light onboard LIDAR, an ultra-light aircraft (UAV) and corresponding software. The patented and fully-featured system enjoys numerous merits, including smaller size, lighter weight, lower cost, and easier operation, compared with similar overseas products. It can be used in high-resolution terrestrial observation, large scale mapping, natural disasters response, digital city among others, saving resources and improving the efficiency of remote sensing activities.

The high-performance SAR remote sensing system has landed breakthroughs in the system as a whole, system integration, X-band interference SAR, P-band polarization SAR, and topographic mapping, up to the technical precision needs at the scales of 1:10,000 and 1:50,000, along with the proven technical flows and standards. The successful development of the system has freed China from the monopoly of imported technology, filled up a gap in the country, making China the third country possessing a SAR remote sensing system in the world. The technology has been successfully applied in a major national project to map the west part of the country, a promotion to the commercial applications of SAR remote sensing industry.

China has established a high-performance unmanned remote sensing payload verification system, in addition to the efforts to master a range of key technologies, including multi-UAV payload loading, universal payload, high-capacity storage, safe flight control, precision navigation and positioning, and real-time data transmission. Chinese scientists have for the first time in the world realized the data acquisition of high spatial resolution and hyperspectral camera, wide field of view multi-spectral imager, interference and polarization synthetic aperture radar, and developed a fast assemble capability of 150kg worth payloads for a 10-hour flight mission.

TD and TD-LTE

WANG Xiaoyun, deputy chief engineer of next generation broadband wireless mobile communication, and deputy head of China Mobile Research Institute, pointed out recently that China has witnessed an increasingly boosted TD industrial chain during the 11th five-year plan period, with extensive commercial applications of TD technology. As of the end of 2010, China has registered 20 million TD users, with laudable progresses made in all the links, including TD system, terminal, chip, and testing. More than 600 terminal models have been developed, with more base stations becoming environment friendly and smaller in size.

TD-LTE industry has so far achieved unprecedented breakthroughs in standardization, industrialization and commercial applications during the 11th Five-year Plan period. In a short period of 2 years since 3GPP was approved in 2007, a TD-LTE industry has been shaped up. In 2010, TD-LTE made its successful debut at the Shanghai World Expo, making vendors more confident about its future applications.

NEWS BRIEFS

Major S&T Findings to Auction

It is disclosed from a briefing meeting held on March 13, 2011 to trade major S&T findings that an array of major S&T findings stemmed from national S&T programs will be traded in the form of auction, a brand new mode for S&T findings transfer.

26 S&T findings, derived from the National 973 Program, National 863 Program, National S&T Infrastructure Program, and Special S&T Projects Program, will be auctioned through listing, auction, or bidding, covering the areas of biopharmaceutical, energy efficiency and emission reduction, agricultural technology, and information technology.

According to statistics, more S&T findings derived from government supported programs have been transferred during the 11th Five-year Plan period, with 128,671 technology trade contracts signed at a sum of RMB 284 billion.

Home Made Chips for Supercomputer

According to HU Weiwu, Godson's chief designer, the first supercomputer running on Chinese made CPUs, or "Godson 3" series chip, will be completed this summer. The chip has registered some performance that has overtaken its overseas counterparts. For example, a Dawning petaflop supercomputer will need 20,000 Intel's chips, but will need only less than 10,000 chips if they are home made.

Weiwu briefed that at present there are three domestic institutions working on supercomputers, including the Chinese Academy of Sciences (Dawning series), Jiangnan Institute of Computation (Shenwei series), and the National University of Defense Technology (Galaxy series). All the three domestic supercomputer developers will equip their supercomputers with the CPUs developed on their own.

Prior to that, "Tianhe-1" supercomputer has completed the phase-II development. Compared with phase-I, the phase-II development has significantly raised the calculation speed, with a laudable localization rate of key components. For example, the "FT-1000" central processor is made up of 2,048 chips developed by the National University of Defense Technology.

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