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SPECIAL ISSUES

Peak Year for Spacecraft Launch

Shenzhou 6 capsule aboard CZ-2F carrier rocket

YANG Baohua, President of China Academy of Space Technology, told audiences at 2nd China Forum on Space Technology held on February 18 that 2008 makes a peak year for spacecraft launch in the country, during which some 10 spacecraft, including the Shenzhou 7 capsule, will be launched. Shenzhou 7 capsule will materialize a range of key technologies, including spacewalk, paving way for spacecraft docking and construction of a space station in the future.

In addition to the launch of Shenzhou 7 capsule, China will blast off some other ten spacecraft, including two environment satellites, a weather satellite, and a Venezuela satellite. The two environmental satellites (A and B) and another environmental satellite (C) to be launched in 2009 will constitute China's first small satellite constellation for environment and disasters watch, making an all-weather and 24-hour dynamic environment and disaster watch and prediction possible.

In the future 5-10 years, China will add more space infrastructures with diverse functions, running in different orbits, which will form up an integrated earth-space system, together will the ground system. In addition, China's phase II space project will work on a space lab featured with short term manned operation, and long term automatic operation. China will also complete phase II part of its moon probe project, during which soft landing and automatic cruising will be realized. By then, China will kick off the pre-study of lunar probe's phase three project.

S&T Action Plan for Road Safety

The Ministry of Science and Technology, Ministry of Public Security, and Ministry of Communications inked on February 18, 2008 an accord in Beijing, to kick off a joint road safety action plan, with the following objectives: raising the capability of dealing with emergency natural disasters, reducing the death toll caused by road accidents, further reducing the number of large traffic accidents, and making the death toll per 10,000 vehicles reach a level of intermediate developed nations.

According to the accord, the three government agencies will set up a steering panel and an expert panel, equipped with special funds, to work on the key technologies that will enhance road safety, and to organize demonstration projects.

The action plan, the largest road safety initiative ever launched with technology as a key element, will work on a range of key technologies concerning traffic participants interference, vehicle safety, organized transport, road infrastructure safety, and traffic control, under the principle of "guided by demand, proprietary innovation, integration, breakthroughs in major areas, and diffusion through demonstration". The action plan will facilitate the standardization, systemization, and diffusion of road safety technologies, and provide needed technical support.

Officials of three government agencies said that the action plan would eventually result in an array of proprietary technologies and applications that are desirable for reducing traffic accidents as much as possible, and establishing a road safety system of Chinese characteristics.

Weather Watch and Disasters Earlier Warning

Officials of China Meteorological Administration told reporters that CMA will establish a weather watch and disasters earlier warning system in the year. The project, with an investment of RMB 1.96 billion from the state treasury, and another investment of RMB 1 billion from meteorological departments at different levels, will be launched in the next half of the year, and be completed in a timeframe of 3-5 years. The project will work on four major parts, including adding more weather watch stations, improving forecast and earlier warning capability using high technologies, enhancing the capacity building of public forecast service system, and establishing a prevention and preparedness system. Improvements will be made to allow people in the remote areas to be accessible to weather warning information, and let more students to have the knowledge of disaster prevention and preparedness. CMA is currently considering to launch some demonstrations over the grazing areas in the northwest part of the country.

JIAO Meiyan, Director of CMA Weather Forecast and Disaster Prevention, said that under a background of climate warming, one has witnessed increased occurrences of extreme weather and climate events in both China and in other countries. The attack of dust storms in springs, heavy rainfall in summers, high temperature, large winds, hails, low temperature, and freezing rain, has not only left with heavy economic losses, but has also threatened people's life. The increased extreme weather and climate events in the country have prompted the importance of establishing such a system.

INTERNATIONAL COOPERATION

China-Europe S&T Cooperation

With the support of MOST Department of International Cooperation and Shanghai municipal government, a China-Europe forum for S&T cooperation and development strategy, co-sponsored by Tongji University Institute of S&T Management and MEMOS, was held on February 1, 2008 as a major event for China-Europe S&T Year.

Heads of sponsoring institutions made keynote speeches, and discussed with participants an array of issues concerning S&T management and innovation, China's opportunities and challenges in international S&T and innovation, and future perspective of S&T cooperation between China and Europe. Participants believe that collaborations between the EU, an important pole of world economy and science, and China, the largest developing country in the world, help to boost the innovation capacity of both sites, and inject new momentum in the national economic development. China-Europe S&T Year is an important result derived from the high level S&T cooperation between China and the EU, for a full-fledged and in-depth cooperation.

Hospital Contamination Control

The Dept. of International Cooperation, under the Chinese Ministry of Health, inked on February 18, 2008 an accord with French BioMérieux, to improve hospital contamination control. Under the accord, efforts will be made to raise the level of hospital contamination control, through training, formulating standards, drug resistance test, and information gathering. With nice large hospitals as the platform, including the Beijing Union Hospital, Fudan University Zhongshan Hospital, Xiangya Hospital affiliated to Zhongnan University, and Nanfang Hospital under South Medical University, researchers will work together to improve the management of clinical wards, microbes labs, and hospital contamination control, through training, preparing guidance documents, formulating standards, and regulating medical people's behavior. Meanwhile, it will establish a drug resistant strain database and an associated DNA bank for the purpose.

Important Intestinal Flora Found

Scientists from Chinese medical institutes, hospitals, genome research center, and Imperial College London, have jointly worked on the composition of intestinal flora and associated metabolism of 7 members in a 4-generation Chinese family for three years. The efforts have identified some important bacteria that are part of metabolism process. The finding was published in a recent issue of *the Proceedings of the National Academy of Sciences*.

Researchers studied the composition of intestinal flora of 7 members in the Chinese family, using DNA fingerprint and genome sequence techniques. They found that each individual member has kept a special structure of intestinal flora, though they are belonging to the same family, with a similar genetic background and living environment. The study also found some specific bacteria that are particularly important to human

The study also found some specific bacteria that are particularly important to human health. For example,Faecalibacterium prausnitzii presents a statistic correlation with 8 metabolites in human body. Researchers said they would develop new approaches to treat diseases by changing the interactions between specific intestinal bacteria and their hosts.

RESEARCH AND DEVELOPMENT

New Drug Resistant Gene Found

It took some three years for a research team, headed by Doctor ZHU Jianming at Hangzhou Yuhang TCM hospital, to discover a special gene that allows Acinetobacter baumanii to be resistant to antibiotics, reducing or even wiping out desired therapeutic effects of drugs. The newly found drug resistant gene, the first of its kind in the world, has been named as armA-like by GenBank.

The research team has worked on drug resistant genes under the financing of a Chinese S&T program. The finding, published in a number of journals, including *World Journal of Infection*, and *China Antibiotics,* has passed a confirmation check by a review committee made up of 7 experts from Zhejiang Academy of Medical Sciences and Zhejiang University. Scientists said the finding was important for prudent use of antibiotics and developing new drugs.

New Treatment Plan for Oral Cancer

No. 9 Hospital, part of Shanghai Jiaotong University, announced on February 13, 2008 that a research team, led by Prof. CHEN Wantao, has discovered and confirmed therapeutic effects of TopoiSomerase-II, retinoic acid receptor -β, Cyclin 1, nuclear transcription factor-κB, and Ebp1, through an in-depth study of functional genes. The development allows the maximum therapeutic effects to be derived from chemotherapy.

Researchers have developed individualized gene chips able to tell the existence, metastasis, and drug resistance of oral cancers, using modern biochip, functional genome, and proteomics techniques. Clinical trials have shown that the combined new treatment plan using TopoiSomerase-II as the target has produced a therapeutic effect noticeably more powerful than the traditional plan. The new treatment plan has become the first choice for chemotherapy in a dozen of domestic hospitals.

More GFP Pigs Turned Out

Northeast Agriculture University has recently added two more members to its pig family cloned with green fluorescent protein (GFP), making the number of the GFP pigs cloned by the University 4 in total. Earlier this year, the University had China’ s first GFP pig give birth to 11 piglets. So far four of them have been confirmed of carrying green fluorescent protein. One can see green fluorescent light over their mouth, tongue, nose, and paws, under an ultraviolet light. The event makes China the fourth country in the world that has produced GFP pigs using somatic cell technology, following the United States, the Republic of Korea, and Japan.

According to YIN Zhi, a research fellow at the University, the latter two GFP piglets did not show a noticeable GFP marker until they grew up for some time. So far the four GFP pigs have enjoyed an increased weight and fine development. Scientists will further observe the growth of GFP pigs, and see if they can reproduce their offspring bearing the same traits.

NEWS BRIEFS

China’ s First Nuclear Power Station on Island

Fujian ningde nuclear power station, a key project under China’ s national medium and long term planning for nuclear power from 2005 throughout 2020, was officially kicked off on February 18, 2008. The project, physically located in the Beiwan Village of Ningde Town in Fujian, is 143 km from Fuzhou, the capital of Fujian Province, in the south, and 113 km from Wenzhou. The sea facing nuclear power station is the first of its kind built on a sea island in the country.

According to a briefing, it will cost RMB 51.2 billion to complete phase I project, during which 4 nuclear generators at the mega kilowatt level will be installed. The 4 nuclear generators will be built with second generation nuclear power technologies, with a localization level of 75%, and an advanced level compared with its international counterparts. No. 1 generator will be put into operation in 2012, No. 2 in 2013, No. 3 in 2014, and No.4 in 2015.

Online Strain Resources

With the support of the Ministry of Science and Technology, an online database system made up of 10 search websites has been created to collect microbe strains.

Researchers have established individualized databases for different microbe strains, including bacteria, yeast, fungus, viruses, and Actinomyces, in line with a preset description, data, and control standard. They tell the classification status, features, functions, biosecurity, collection habitat, and genetic information of these microbe strains. Derived from the project are one project website, and nine national microbe strain conservation websites involving agriculture, forestry, medicine, pharmacy, technique, veterinary, marine, and teaching. These websites are also equipped with search engines for resource information, culture, and classification. The 10 websites have covered information of 112,000 strains, with a raised sharing efficiency by 30% for

physical sharing, and 25% for information sharing.

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