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INTERNATIONAL COOPERATION

More IT Cooperation between China and Europe

Not long ago, 11 research institutes from China and Europe inked a framework agreement in Beijing to enhance their collaborations in the area of information technology and automation. CAS Institute of Automation and French Institut National de Recherche en Informatique et en Automatique (INRIA) created a joint lab named LIAMA in 1997, the first joint long term basic research lab China had established with a foreign partner. As a role model for scientific collaborations between China and France, LIAMA has experienced three phase developments in the past decade, and secured seven collaborating parties working on some 100 scientific projects participated by more than 1,000 scientists from China and Europe. The joint lab has become a scientific research center for cross-disciplinary studies,

including information technology, biology, and natural environment.

The new LIAMA alliance has entered a new phase of collaboration, or phase IV. The new accord signed this time allows the alliance to open to more universities, research institutes, and industry in both China and Europe, in an attempt to promote joint study, training, and commercial applications in the cross-disciplinary fields.

Alkaline Soil Evolution and Global Change

Chinese and European scientists will work together to study the relationship between the alkaline soil evolution in the arid areas and global change. Financed by the National 973 Program, the study is designed to understand the unknown destination of huge carbon dioxide emissions across the globe (carbon black hole), with the Asia-Europe inland desert-oasis complex as the object and global change as the background, said CHEN XI, Director of CAS Xinjiang Institute of Biology and Geography. Researchers will build a sample collecting belt, and study the objects using both field experiments and system modeling, at the four levels (regional, sample collecting belt, station, and lab). The study will focus on a range of related topics, including the alkaline soil evolution of the desert-oasis complex, the surface and ground carbon process, the land-air carbon dioxide process, carbon assimilation process, and interactions between these processes.

Phase I Joint Land Drill Completed

Scientists from China, Germany, and the United States kicked off on May 31, 2008 a joint drill in the west part of the Caidamu Basin. The 5-month long drill called a success on October 22, 2008, with a drilling depth reaching 1,000m and a rock core collection rate at 95%. The drilling has unveiled some 100 salt rich layers, showing the frequency and duration of the extreme weathers in the past. Scientists established a high precision and high resolution chronostratigraphic sequence for the west part of the Caidamu Basin in the late Cenozoic Era, based on detailed chronological, biological, environmental, and geochemical studies. In addition, they reconstructed the high resolution climate change history in the late Cenozoic Era, and unveiled the relationship between the evolutionary change of dry salt lakes and the salt, oil, and gas resources in the locality, the ties between the plateau lifting and climate change/surface erosion, especially the ties between the plateau lifting and droughts in Asia, and the evolution of the monsoon systems, allowing people to understand more about the formation of the salt, oil, and gas resources in the area.

China-Australia Epigenetics Center

A China-Australia Epigenetics Center, jointly established by CAS Institute of Biophysics and

Australian National University, was inaugurated recently in Beijing. The new center will work on the cutting edge research topics in the area of life sciences, taking advantage of the innovation resources of CAS Institute of Biophysics and Australian National University, and the combined strength of Monash University, Weihai Medical School, Fudan University, and Ha'erbin Veterinary Institute. Striving to build a strong international partnership in the area of immunogenetics and structural immunology, researchers will focus on the immune identification of virus infection and the associated response in the context of protein structure and functions.

Infectious Disease Prediction

Prof. HUANG Jianshi at the Chinese Academy of Medical Sciences has recently completed his project to predict and monitor the future possible outbreaks of infectious diseases. Prof. HUANG and coworkers interviewed renowned infectious disease experts using the methodology jointly developed by Chinese and British scientists, in an attempt to understand and identify the factors affecting the outbreak and spread of infectious diseases. Researchers have identified 47 major risk factors that may play a role in the outbreak and spread of infectious diseases in China, and their possible future changes in the coming 10-25 years. Researchers found that 17 risk factors, including aging, climate warming, immigration, and urbanization, may have an enhance effect in the future 10-25 years. 5 risk factors, including intensive farming and unemployment, will basically stay same in the next 10-25 years. 8 risk factors, including income gap, poverty, malnutrition, and in-hospital infection, will have a reduced effect in the coming 10-25 years. 17 factors that may curb the spread of infectious diseases, such as educational level, water and food safety, and public health awareness, will see an enhanced effect in the future 10-25 years. Researchers also analyzed the consensus reached by the Chinese experts, and identified the factors that need be taken into account in the current infectious diseases monitoring system.

RESEARCH AND DEVELOPMENT

First Han Chinese Individual's Genome Sequenced

The Shenzhen Municipal Government and Beijing Genomics Institute (Shenzhen) recently announced at a news conference that Beijing Genomics Institute has completed the sequencing of the world's first Han Chinese individual's genome (Yanhuang No. 1) and the associated analysis. The journal *Nature* reported the finding in its November 6 issue as a cover story, accompanied with a 7-page long paper illustrating the mapping efforts. The study has produced 117.7 billion base pairs, with an averaged sequence depth of 36 times, an effective coverage as high as 99.7%, and a mutation test precision at 99.9% or above.

Original Theory Improves Prediction Accuracy

QIAO Fangli, a research fellow at State Oceanography Bureau No. 1 Institute, presented his original theory on enhancing the marine and climate prediction capability using a coupled wave-tide-current circulation model, at the 17th North Pacific Marine Science Organization (PICES) meeting held at the end of October 2008.

With the continuous support of the National 973 Program, QIAO has worked hard to solve the disagreement between marine model simulations and observed results since 1999. He has raised the averaged correlation coefficient between the simulated results and the observed results from 0.68 to 0.93 (a 1.0 level means an accurate variation trend prediction). With the help of his model, QIAO accurately predicted the spread trend of the green algae boom that may have affected the smooth running of the Olympic Sailing Game held in Qingdao, providing a powerful support for mitigating the effects of green algae boom in a scientific manner.

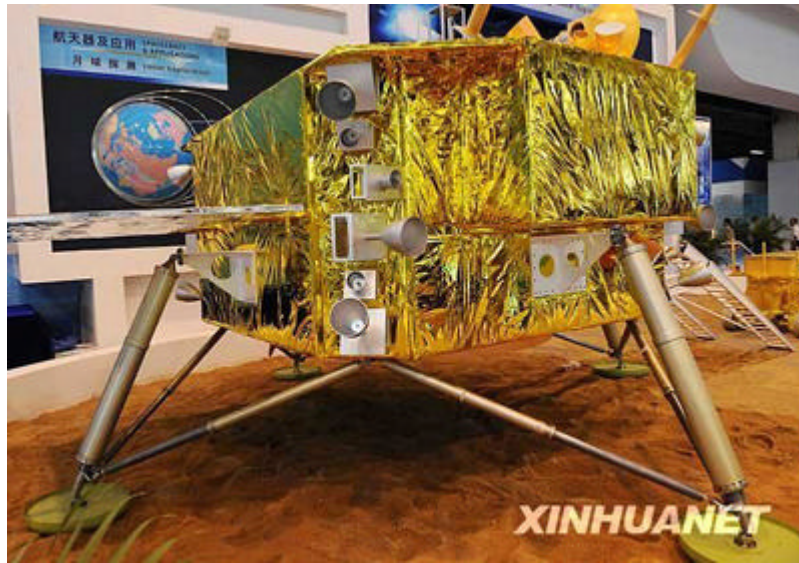
QIAO's original theory was first reported in the *Journal of Geophysics* published in 2006. His findings have been used by the scientists in many universities, including University of Washington and University of Plymouth.

Kilo-MHz Firewall for Godson Chip

Not long ago, DAWNING has rolled out a home made Kilo-MHz Firewall for the Godson chip 2F. The Kilo-MHz Firewall main board, independently developed by DAWNING, is an integrated, energy efficient, and fully self-controllable product built on the preceding proprietary UTM Firewall for Godson chip 2F applications. Possessing a full intellectual property from the hardware to the software, the new product provides the powerful visit control and security management functions, allowing a tightened network visit control and refusing the evil visit attempt of illegal users. It is an enhanced fine filter for outward connection, keeping the internal network from the invasions of viruses, Trojans, and worms.

NEWS BRIEFS

Launch New Lunar Satellite in 2010



Moon Lander Model

China will launch another lunar satellite, Chang'e I satellite B, in 2009, and send Chang'e II, a new version lunar satellite, into space in 2010. Chang'e I-B is built on Chang'e I's backup satellite. It will fly directly to the orbit circling the moon, instead of the preceding three-circle route. Chang'e II satellite is designed to collect more detailed data on lunar surface and polar areas using a payload CCD camera enjoying a much enhanced resolution to 10m. According to a briefing, China will launch a moon lander and a moon rover around 2012, to probe the moon surface. The moon lander will analyze the soil on the moon, and the moon rover will probe an area five kilometers across the site where the lander sits.

Two New Satellites Launched



China successfully blasted off at 0815, November 5, 2008 a satellite named Innovation I-02, and an experimental satellite (Experiment III) aboard a CZIID launch vehicle, from the Jiuquan Satellite Launch Center. The ground control center in Xi'an has confirmed that Innovation I-02 was separated from the carrier rocket 15 minutes after launch. One minute after that, the Experiment III was separated from the launch vehicle. Both satellites have entered the preset orbit.

Innovation I-02 is an experimental satellite designed to collect and transmit data for economic sectors, including water resources, meteorology, power grid, and disaster prevention and preparedness. Experiment III is the third technical experimental satellite so far launched by China, to test the novel technologies for space and atmospheric environment probe.

More Satellites to Launch in Coming Years

The China Aerospace Science and Industry Corp announced on November 4, 2008 that it will launch SinoSat V and VI in the coming three years. Additionally, three weather satellites in FY-II series will be blasted off in 2010, 2012, and 2014 respectively.

According to a briefing, the three new weather satellites are the third cluster of satellites to be launched under FY-II geostationary series, working for meteorological observation and forecast. Both SinoSat V and VI, to be launched aboard a CZIIB launch vehicle from the Xichang Satellite Launch Center, are the upgraded broadcast platforms built on their

predecessor Dongfanghong IV, with an increased volume, a longer work life (15 years), and improved technologies. SinoSat V, a substitute for telecommunication satellite SinoSat I, will be delivered at the end of June, 2011. SinoSat VI will replace SinoSat III, a TV broadcast satellite, and conduct S-band payload experiments in an attempt to protect China's registered orbit positions and frequency resources. The satellite will be delivered at the end of June, 2010.

Large Lake Expedition Launched

A large scientific expedition, jointly sponsored by China Association for Scientific Expedition, CAS Xinjiang Institute of Ecology and Geography, and Scientific Expedition Diffusion and Awareness Raising Center, was officially kicked off on November 8, 2008 to probe the Luobupo Lake. Starting from November 25, 2008, the expedition will last for one month. Some 30 experts and scholars will have a systematic investigation and analysis of the lake area in the context of geological evolution, desert terrains, drought climate, local fauna and flora, salt crust distributions, potassium salt resources, environmental changes, human activities, and ecological protection and associated reconstruction. The expedition will produce the response strategies and proposals needed for the future development of the west arid areas, providing a new way of thinking for the scientific study of the lake area. The comprehensive and multidisciplinary expedition will also expect a range of new findings, helping people to unveil the mysteries of the Luobupo Lake and know more about its wonders.

GM Starch Rich Cassava

The Institute of Plant Physiology and Ecology, part of CAS Shanghai Institute for Biological Sciences, has successfully bred out the GM cassava with high starch yield in the field. Researchers developed the new cassava species with a changed proportion of amylose starch and acorn starch, by inhibiting the expression of starch synthesis genes using small-molecule RNA interference techniques. The new cassava species will go hybrid with traditional fine cassava species in Hainan, producing new raw materials for industrial applications.

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