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REGIONAL INNOVATION, COOPERATION ACCELERATE CHINA'S PROSPERITY

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Sci-tech Powers China's Winter Sports Surge

Edited by Staff Reporters

President Xi Jinping and other Chinese leaders conferred awards to representatives of those who have made outstanding contributions to the Beijing 2022 Olympic Winter Games and the Beijing 2022 Paralympic Winter Games on April 8.

China has presented the world with a streamlined, safe and splendid Games, honoring its promise to the international community, said President Xi. He added that China's anti-COVID policy has once again withstood the test, contributing useful experience for the world to fight against the virus and host major international events. He called for faster steps in building China into a country strong on sports.

Technological innovations are playing vital roles in supporting sports development. To build a country strong on sports, it is necessary to integrate multi-disciplinary and interdisciplinary strengths, as well as coordinate the promotion of technological research and development and the transformation of scientific achievements.

More than 200 sci-tech achievements were used to support the Winter Olympics, making the light of sci-tech shining during the Winter Olympics. A series of sci-tech achievements such as a 5G studio in high-speed train, zero-gravity beds, and smart restaurants with robot chefs were impressive highlights.

Multiple advanced technological training facilities also helped athletes achieve breakthroughs at Beijing 2022. Wind tunnel design, a technique widely used in designing missiles, rockets, and aircraft, has now been used in sports like ski jumping. *See page 4*

The Sanshiliuqu River wetland park in Qiongshan district of Haikou city, south China's Hainan province. (PHOTO: XINHUA)

Taikonauts Answer Questions from U.S. Students

By Staff Reporters

Nearly 500 school students, teachers and parents attended the event of "My Question to Taikonauts" hosted by the Chinese embassy in the U.S. on April 9, during which recordings of answers by Chinese astronauts Zhai Zhigang, Wang Yaping and Ye Guangfu to the questions asked by U.S. students were broadcast.

More than 180 questions of students from 13 states were sent to the Chinese embassy before the event. The taikonauts answered 12 of them, including whether they have enough water to drink, how high they can jump and how to become an astronaut.

Former NASA astronauts Don Thomas and Barbara Morgan also attended the event either onsite or online. They shared their experiences and inspired the students to explore the space.

Elon Musk, CEO of SpaceX, also delivered a message via video.

Qin Gang, Chinese ambassador to the U.S. said, "Scientific research in space exploration is endless and requires concerted efforts and cooperation of mankind." *See page 2*

International Cooperation

China, Europe Close Cooperation on Earth Observation Science

By TANG Zhexiao

The National Remote Sensing Center of China (NRSCC), together with the European Space Agency (ESA), signed Dragon 5 online on April 1, promoting closer cooperation in the field of Earth Observation (EO) application development.

As a flagship of China-Europe sci-tech cooperation in EO, the Dragon Programme is a cooperation between ESA and the Ministry of Science and Technology of China (MOST).

It is the country's largest international cooperation project in remote sensing technology currently, with the objective to stimulate scientific exchanges in EO science and technology, and research application development in thematic application projects related to land, ocean and atmospheric monitoring.

Beginning in 2004, four phases of Dragon cooperation have been completed, each lasting four years. It has explored a new cooperation mechanism, and jointly carried out more than 200 research projects and trained nearly 1,200 young scientists.

The Dragon 5, which was initial in June 2020, focuses on the exploitation of Copernicus Sentinels, Chinese, ESA and ESA Third Party missions EO data for geo-science. There are 55 joint China-EU teams carrying out geo-science and application development in 10 topics, including newly added climate change and big data analysis.

Wang Qi'an, director of NRSCC, said with the joint efforts of China and Europe, the cooperation of the Dragon Programme has continued to expand its influence. It has not only been strongly supported by MOST and ESA, but also widely recognized by EO scientists.

It has also achieved fruitful results including sharing a large amount of China-EU EO data, training a group of outstanding young scientists, and winning high praise from the member states of ESA, according to Maurice Borgeaud, head of Science, Applications, and Climate Activities in the Earth Observation Directorate of ESA.

Both China and the EU agreed that the exchange between the two sides has become one of integrated scientific and cultural cooperation. They will continue to support the programme and regard it as an important part of future China-EU space sci-tech cooperation.

Multi-band image of Jiaozhou Bay, Shandong province returned by the remote sensing satellite SDGSAT-1. (PHOTO: XINHUA)

Editor's Pick

Wetland Protection in China Benefits All Life

By LU Zijian

This year marks the 30th anniversary of China's joining the Convention on Wetlands of International Importance adopted in 1971 in the Iranian city of Ramsar. After the efforts of three decades, China appointed 64 Wetlands of International Importance, and established 602 wetland natural reserves and more than 1,600 wetland parks.

Why wetlands matter

Regarded as the "kidneys of the Earth," wetlands are areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six meters, according to the Convention.

Environmental protection is a vital advantage brought by wetlands. Salinization of soil can be eased or prevented by wetlands, especially for land near a lake, a river or the sea. They can also purify the soil by decomposing the pollutants.

Wetlands can adjust the balance of a water system as well. When there is heavy rain or floods, wetlands can store the excessive water, and release the water when severe drought occurs.

In addition, many invaluable wild animals and plants choose wetlands as their habitat. For example, around half of rare birds under first class protection in China live in wetlands.

Offering numerous benefits to both nature and human beings, wetlands need to be protected in an all-round way.

What China has achieved

The improved situation of wetlands along the Yangtze River is a prime example of China's efforts in wetland conservation. The Hualong port at Dongting Lake in Yueyang city, Hunan province was cleared and restored in 2017, restoring the wetland to its former glory with the return of the endangered Yangtze finless porpoises and rare birds.

More than 75,000 mu (1 mu is about 666.7 square meters) of wetlands at Poyang Lake, Jiangxi province was renovated from 2016 to 2020. Now millions of waterfowls have returned to Poyang Lake to spend winter each year, along with more than 95 percent of the world's white crane species.

Apart from restoring nature, the protection projects of wetlands also bring economic benefits. Haizhu wetland in Guangzhou city, south China's Guangdong province is surrounded by 26 Fortune Top 500 enterprises, attracting investment of 86.7 billion RMB in total.

What has been achieved could not have been possible without the previous efforts. From 2016 to 2020, an accumulated investment of 9.87 billion RMB from the central government was made, facilitating over 2,000 wetland protection and restoration projects. *See page 3*

China's Marine Economy Booms in 2021

By Staff Reporters

China's marine economy maintained rapid growth in 2021, with innovation capacity strengthened according to official data, which showed that the country's gross ocean product increased by 8.3 percent to over nine trillion RMB.

The Ministry of Natural Resources (MNR) reports that the total output of the marine economy accounts for 15 percent of the coastal areas' GDP, and contributed to eight percent of the country's GDP growth.

Mechanisms were improved to trigger sci-tech innovation in marine industry and application of sci-tech achievements, said Cui Xiaojian, deputy director of National Marine Data and Information Service (NMDIS) subordinate to the MNR.

For example, Shandong province established a fund, focusing on supporting original innovation, the application of sci-tech achievements and the cultivation of high-end marine sci-tech industrial projects.

Guangdong provides an annual special fund of 300 million RMB for marine economic development to support six industries, including engineering equipment, offshore wind power, marine electronic information, natural gas hydrate, marine biology, and public services.

Cui said that the industrial structure of the marine economy has been optimized. On one hand, emerging industries are enjoying strong growth. The added value of marine biomedicine, marine power and the seawater utilization industry climbed 18.7 percent, 30.5 percent and 16.4 percent year-on-year respectively.

On the other hand, traditional industries speed up transformation and upgrading. Progress has been made in the green development of the shipbuilding industry and smart ports construction. Orders of ships powered by green energy made up 24.4 percent of all China's ship orders in 2021, and 33 automated container terminals were built in eight ports including Xiamen, Qingdao, and Shanghai.

In addition, marine resources have contributed to the stable supply of fresh water, energy, and seafood. Offshore oil and gas production increased by 6.2 percent and 6.9 percent year-on-year, with offshore crude oil accounting for 78.2 percent of China's crude oil production expansion.

The development of marine clean energy has maintained a strong momentum. China's grid-connected offshore wind power capacity increased by 16.9 million kW, up 4.5-fold year-on-year, ranking first in the world in cumulative capacity.

WEEKLY REVIEW

Key Gene to Increase Wheat Grain Yield

Spike architecture influences grain yield in wheat. Scientists from China and the U.S. found and cloned a gene named TaCOL-B5 that determines the number of spikelet nodes per spike in common wheat, thereby enhancing grain yield. The study was published in *Nature* on April 7.

Ground Station Receives Landsat-9 Data

The China Remote Sensing Satellite Ground Station has formally acquired the capability to receive, process and distribute the data product transmitted from the Landsat-9 satellite, according to the Aerospace Information Research Institute, the Chinese Academy of Sciences.

New Marine Reptile in Dinosaur's Age Identified

Chinese and Canadian paleontologists have reported a new large marine reptile species of the dinosaur's age, possibly a relative of ichthyosaurs in south China's Guangxi. The study was published in the journal *PeerJ* on April 7.

Bacteria Inside Tumors Influence Cancer Cells' Behavior

The microbes hiding inside tumors influence the cancer cell's behavior, including cancer's relocation, and promote cell survival during tumor progression, according to a new study led by Chinese scientists published in the journal *Cell* recently.

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