

Promoting Remote Sensing Across the Ocean

Dialogue

By QI Liming

The Dragon Program, launched by China's Ministry of Science and Technology (MOST) and the European Space Agency (ESA), is the platform with the largest number of personnel in China-EU remote sensing cooperation.

When the Dragon Program started in 2004, Werner Alpers, renowned oceanographer and professor emeritus at University of Hamburg, Germany, became its lead professor from Europe in the field of ocean and coastal zones. As an incubator and co-founder of the initiative, he has been nurturing young scientists from both China and Europe and has played a significant role in promoting ocean remote sensing.

In 2007, Professor Alpers won the Qilu Friendship Award from Shandong provincial government, and one year later, Alpers received the Chinese Government Friendship Award for his contribution to promoting international cooperation and outstanding contributions to China's modernization.

In an exclusive interview with *Science and Technology Daily* at the 2023 Dragon 5 Symposium held in Hohhot, north China's Inner Mongolia autonomous region, in September, Alpers talked about his expectations for the Dragon Program and his bond with China.

The transformation of China
Alpers first visited China in 1986 and has been developing long-term stable scientific cooperation with Chinese scientists since 1990.

A witness to the achievements of China's reform and opening-up, he re-



Professor Werner Alpers is interviewed by *S&T Daily* during the 2023 Dragon 5 Symposium in China. (PHOTO: ZHOU Weihai/S&T Daily)

called his first visit to Beijing. What impressed him most was the bicycles in the streets. "There were few cars in the streets of Beijing at that time, and the streets had few lights at night," he reminisced. There was no subway and the bus was the only means of public transport to go to the Beijing Friendship Hotel, where he stayed. But today there are large and sophisticated subway networks in major Chinese cities, which have been constructed in a record short time.

Sweeping changes have taken place in China. The achievements of the Chinese government and the people are unprecedented in human history. But many people who have not visited China recently don't realize it, Alpers added.

A deep sci-tech bond with China
As the founder of the Satellite Oceanography Laboratory of the University of Hamburg and a scientific advisor

to three of the ESA's satellite programs, Alpers is recognized as an authority in the field of ocean remote sensing. His academic bond with China began when Chinese students joined his research team.

"When I became a professor in 1985, the government granted me funds for scientific research, but there weren't enough researchers in my team. An American friend, a professor in oceanography, recommended Chinese students to me, and that's where my story with Chinese sci-tech careers began," he said.

Being a frequent visitor to China during the past decades, Alpers has built a deep relationship with the Ocean University of China (OUC). Since 1999, he has been a visiting professor at the OUC, addressing more than 5,000 faculties and students there.

The international ocean remote-sensing advanced training program joint-

ly initiated by Alpers and the OUC within the framework of the Dragon Program plays a major role in ocean remote-sensing research in Asia, especially in China. Some American experts have also expressed a desire to participate in it.

In addition to these contributions, Alpers has also been instrumental in the cultivation of talents in the field of ocean remote sensing in China. Through a Sino-German cooperation program, Chinese doctoral students went to the University of Hamburg on research visits, and some of them became the young academic backbones of Synthetic Aperture Radar (SAR) ocean observation in China.

Great expectations from young scientists

The fifth term of the Dragon Program will conclude in 2024, to be followed by the start of the sixth edition of the program. Alpers has great expectations for the future generations and high hopes for future cooperation between China and the ESA.

"Both the parties should share more data with each other for further research. The ESA and China should collaborate together in planning satellite launches so as to avoid duplication and make remote sensing more efficient," he said.

Today, Earth is on the verge of becoming uninhabitable, and biodiversity has been damaged terribly. "We need to cooperate to overcome these problems and protect the endangered biosphere, the ocean and the atmosphere," he said. The cause of science matters to all, so it should bridge the difficulties caused by geopolitical conflicts, since they are minor issues compared to the challenges we are facing concerning the survival of mankind on our earth.

Letter to the Editor

Indonesia Keen on Sci-tech Cooperation with China

By Syafrizal Maludin

China's long history of stable development has been built on the modernization with Chinese characteristics. This is evidenced by the country's increasing technological capabilities and growing scientific and academic achievements. This is not a country that has an outdated transportation system or a city that cannot automate services for its citizens. Instead, it has developed services that are sophisticated enough to meet the needs of its travelers.

Our common ground

Indonesia established the National Research and Innovation Agency (BRIN) to conduct integrated research, development, studies, application, as well as invention and innovation. The BRIN Steering Committee is chaired by Megawati Soekarnoputeri, former president of Indonesia.

According to Indonesia's National Science and Technology Law, technology and science play an important role in the country's development. China and Indonesia enjoy a positive relationship since the 1950s. Their cooperation in various fields, including science and technology, has continued to grow.

Related to medicine, China was also actively involved in vaccine diplomacy during the COVID-19 pandemic. At that time, China sent 7.8 million US dollars worth of medical supplies and vaccines to Indonesia, which were presented at the Two Countries Twin Parks Global Promotion Conference on July 15, 2021.

Indonesia and China have been fighting the pandemic together since it began. Indonesian Minister of Economic Affairs for Maritime Affairs and Investment also

conveyed that China will make Indonesia a regional vaccine production center.

This year, China is sending over 60 electric furnaces for nickel ore refineries in Indonesia. This cooperation will be followed by the development of electric cars.

Facilitating collaboration

With the establishment of BRIN, Indonesia is stepping up efforts to increase partnerships that can be made through one door. Not only that, but it is open to conducting research in Indonesia with a post-doctoral pattern.

In addition to facilitating scientific collaboration with foreign partners, BRIN has also implemented administrative reforms that are ahead of academic and government institutions. Researchers do their work with flexible working arrangements so that it is easy to achieve not only effectiveness and efficiency in work but also in service.

A display called Riska, located at the bottom left of BRIN's official website, can answer your questions. This is different from the situation in the past when people had to spend a lot of time to contact the research institute.

Greater networking with domestic and international players in research and technology is expected to help Indonesia achieve economic growth of over seven percent. Potential cooperation areas include high-performance computing, renewable energy and energy efficiency, biorefinery, health and biomedicine, sustainable agriculture, and social science research.

Dr. Syafrizal Maludin is a researcher in the Directorate for Policy Formulation on Research, Technology and Innovation, BRIN, Indonesia.

Chengdu's Strong Atmosphere of Innovation

China Impression

By BI Weizi

Swedish scientist Henry Radamson, a professor at the Chinese Academy of Sciences (CAS) and also a researcher at the Guangdong Greater Bay Area Institute of Integrated Circuit and System, calls Chengdu, capital of Sichuan province in southwest China, "an ideal place for scientists to conduct research."

"I hope more foreign experts can come here. Go to China, get to know China, and become a communicator who can tell Chinese stories well," he said.

Radamson was one of the eight foreign experts who attended a symposium on sci-tech innovation, international talent exchange and international sci-tech cooperation in Chengdu on September 22, sharing their views on the future of China, particularly Chengdu.

Hossin Md Altam, a Bangladeshi expert with Chengdu University, said the symposium gave him first-hand experience of Chengdu's strong atmosphere of

sci-tech innovation. He was impressed by the digital technology for rural revitalization at the Tianfu Agricultural Expo Park. He said it shows that scientific and technological innovation is being integrated into all aspects of Chengdu's economic and social development, providing a strong impetus for high-quality growth.

Viktor Gouretski, a German scientist from the Institute of Atmospheric Physics at CAS, called for closer international cooperation in social and natural sciences as well as in arts and culture to address global problems and achieve sustainable and harmonious coexistence. The global ocean climate is an important part of the climate system. Its study is not limited by geography and is closely related to every country on Earth, he said.

Giving a greater sense of belonging
British-Canadian Michael Crook, winner of the Chinese Government Friendship Award, said the key to bringing in foreign talents is to increase their sense of belonging. "By relaxing the requirements for talent introduction and inviting some foreign talents with po-

tential to come to China, the talents will have a greater sense of belonging," he said.

Over the past decade, Zeeshan Shirazi, a Pakistani researcher at the Aerospace Information Research Institute, CAS, has witnessed China's rapid progress in social development and scientific innovation and technological advancement, for which he says "talent is the key driving factor." Citing the Chengdu Innovation and Entrepreneurship Incubator as an example, he said that more incubators can be established to build Chengdu into a talent center for business and innovation, so that more foreign talents can seek more opportunities for personal development in China and work together for a better life.

Love for Chengdu
Matej Zima, a Slovenian scholar working at the College of Literature and Journalism at Chengdu University, praised the city's comfortable living environment. "Chengdu has become a very convenient and rapidly developing city, with an extensive subway network and two major international airports," he said, commenting on the city's welcom-

ing attitude towards talents from around the world.

Wang Yige, an American expert from Chengdu University, used poetry to describe his feelings for Chengdu, from Chengdu's superior climate to its historical heritage. "Chengdu has a strong historical heritage. You can still find calamus and realgar in the streets and alleys of Chengdu," Wang said, referring to two Chinese medicinal herbs that are found only in ancient poetry. Also, he mentioned Chengdu's inclusiveness, which is important for attracting foreign talents.

Carl Crook, Michael Crook's brother and an international logistics and wine business operator who is keenly interested in Chinese culture and history, said he has a deep connection to Chengdu. "I lived in Chengdu for a while, and I can see that the city has made great achievements in urban development and talent attraction in recent years."

To enhance Chengdu's urban attractiveness, he suggested Chengdu further explore its rich historical and cultural resources, so that more foreign talents can understand the city.

Traditional Eastern Wisdom

Dragonbone Water Lift: A Long-life Irrigation Tool

By ZONG Shihan

The dragonbone water lift, a milestone invention first made during the Eastern Han Dynasty (25-220), is a wooden machine used for irrigation.

The invention gets its name from its shape, which was thought to resemble the spine of a dragon. In Chinese folklore, the Dragon King was a water and weather god who controlled floods and droughts and could unleash the rain and the winds.

The body of the water lift is a large wooden trough that can hold water and has axles attached to both ends. The axles connect a chain with blades to both sides of the trough. When the trough is placed in water, its handlebars are rotated. It causes the blades on the chain to

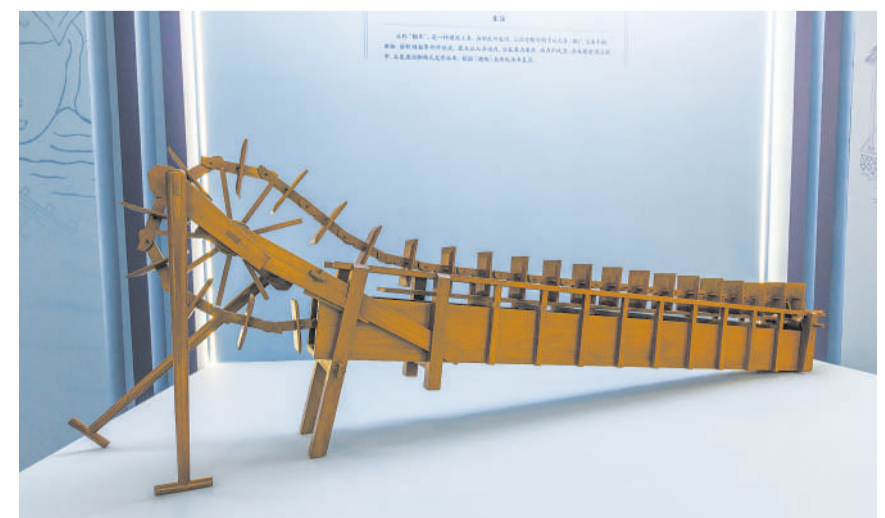
rotate, pumping up water.

It can be used continuously and is easy to operate and transport, which means it can be used in different locations. Improved by Ma Jun, an inventor and engineer who lived during the Three Kingdoms period (220-280), the dragonbone water lift played a significant role in agriculture in the past.

The original water lift was operated manually. Later, it was improved and could be operated using animal, wind or water power.

The dragonbone water lift was still in use after modern water pumps had come into use for decades.

Its working principle is still applied into modern dredging equipment such as the bucket-wheel excavators commonly seen in coastal regions and ports.



A model of the dragonbone water lift on display at the National Museum of China. (PHOTO: VCG)

Service Info

China Releases New Foreign Permanent ID Card

By Staff Reporters

According to the National Immigration Authority (NIA), a new version of the Foreign Permanent Resident ID card will be used from December 1 this year, which will make it easier for cardholders to conduct their personal affairs online.

After December 1, the current Permanent Resident ID card will continue

to be used during its period of validity and cardholders can apply for the new version in due course.

According to the NIA, the new card number is changed from 15 to 18 digits and includes information codes such as the alien identification code, nationality code and application location code. Each individual is assigned a unique number that remains the same through-

out his or her lifetime.

The layout of the new card has also been optimized and the registration columns have been improved. It features a redesigned Great Wall pattern and added five-star elements symbolizing the country, effectively conveying the image and concept of China.

The Permanent Resident Card is a legal identity document for qualified for-

eigners after they have been approved for permanent residence in the country. The card can be used alone as a personal identity document. The card holder can use it as a legal certificate in cases where personal identity must be proved, such as registering for accommodation, buying tickets of transportation (train and plane) within China, with no need for presenting passports.