Exploring Dynamics of Earth's Changes

Dialogue

By LONG Yun & ZHONG Jianli

"In my opinion, the ultimate goal of [scientific research] has to be about improving our relationship with the world that keeps us alive on this planet, which can be achieved through many different routes," well-known physical geologist Professor Michael Meadows told *Science and Technology Daily*. Currently, he is a dedicated researcher and educator at the School of Geography and Ocean Sciences at Nanjing University (NJU).

Adventurous and fun

Hailing originally from Liverpool, UK, Meadows' interest lies in understanding "how and why environments change over time." The last 20,000 years, including the Holocene and the ongoing Anthropocene, are his playgrounds. Based on his observation "as a person and a scientist," sustainability has become a pivotal theme in his work. "Environments are changing because of human impact. Geographers have a unique part to play in addressing environmental and socioeconomic sustainability," he said.

Challenges serve as an inevitable part in Meadows' research on physical geography. Because his work depends on fieldwork, it allows him to go on adventures in remote corners of the globe. He recalled an incident in which he fractured five ribs during a sediment coring assignment. He didn't complain, saying, "Fieldwork is an adventure and is great fun."

The culmination of his work gives people insights into the delicate balance between humans and nature. "The relationship between people and nature is breaking down," he said, calling for a re-evaluation of our connection with nature and emphasizing that mismanagement poses risks not just to the environment but to humanity itself.

Professor Michael Meadows receives the Royal Geographical Society's Special Gold Medal on behalf of the International Geographical Union. (COURTESY PHOTO)

One of Meadows' notable contributions lies in his extensive research on an important wetland and lake located in the north of Cape Town, South Africa. His work shattered preconceptions by unveiling the lake's ecological history through sediment analysis. In fact, the seemingly pristine ecosystem was highly disturbed, with significant changes occurring centuries ago. "It had major implications for ecological management. The system is potentially very vulnerable," he said.

Awakening curiosity of students

According to Meadows, cultivating young talent in the field of physical geography requires more than just academic instruction, as it demands a mentor's ability to ignite curiosity and foster a partnership between teacher and student.

The scholar's task is clear: "Awakening curiosity in students is the challenge." He believes in injecting energy into lectures, turning them into a dynamic and entertaining performance. "Revealing the uncertainty of what we know to students is quite exciting," said Meadows. Rather than passively accepting information, he encourages students to question, explore, and dive into both the landscape and the academic literature.

What sets his approach apart is the personal engagement he values with students. "I want my students to ask me questions, even criticize my research," he said. To him, students are not just learners but partners in the research journey. Meadows always views his relationship with students as a collaborative partnership. "They're the ones doing the hard yards," he said.

When it comes to inspiring the next generation, Meadows painted a vivid picture of the evolving role of geographers. He stressed the value of a multidisciplinary approach in the interconnected world with environmental challenges. "Students who major in geology are increasingly attractive to employers," he noted, saying the broad and integrated thinking that geographers bring is becoming increasingly important across various sectors.

A dreamland for research

Reflecting on the challenges he faces, funding emerges as a pivotal aspect. Meadows mentioned his experiences in South Africa, emphasizing the difficulty of securing resources for research in developing countries. However, the landscape has evolved since he arrived in China. "To be honest, it's a dream [to conduct research] in NJU," he said. The resource transformation allows him to explore fields previously constrained by financial limitations.

Meadows's enthusiasm for his time in China is genuine. Having spent three years commuting to a Chinese university in Shanghai before joining NJU, he feels embedded in the NJU community. "I feel privileged to be part of that," he said, praising the excellent leadership and the outstanding co-workers in his field.

Meadows applauded the remarkable growth of China's academic achievements. In his field, China stands at the forefront globally. He said that sustainability studies are gaining prominence globally, with China becoming a recognized center, fueled partly by significant government investment.

As President of the International Geographical Union (IGU), Meadows sees international scientific cooperation as integral to the organization's mission. Celebrating over a century of existence, IGU aims to bridge geographical communities worldwide. "We want to bring Chinese geographies to the world and bring the world to Chinese geographies," he said, emphasizing the core philosophy of fostering global collaboration and networking.

This article is also contributed by ZHANG Rong, JIANG Peiye from NJU.

My China Story

Government-led Environmental Protection Effective

By LIN Yuchen

Makram El-Shagi, a German economist working at Henan University, has lived in Kaifeng, Henan province for around 10 years. Captivated by Chinese culture, he chose to leave Germany and come to China and brought his wife as well as his two daughters along, both of whom are now studying in a local public school.

El-Shagi recently shared his thoughts on the changes he has seen in China over a decade with *Science and Technology Daily*. He also contrasted the differences between China and Germany, especially in terms of environmental protection.

First and foremost, for El-Shagi, China's political system may appear complicated, "But when it matters, it's not like in Germany, [where] if you want to do something new and big, it takes years to get approval and to get it done. We took like 20 years to build an airport. But when China says, we need an airport, one year later you will have an airport," he said.

He showed his approval of the high efficiency of China's political system, highlighting the fact that the central government's instructions can be fully implemented in China. "The lower levels of administration fall in line relatively quickly," he said, adding that this can be different in Germany, where all the various parts of government seem to fight against each other so nothing gets done.

Reflecting on China's efforts in improving air quality, El-Shagi said there has been a big improvement.

"I think China has been a driving power behind the change to a green or greener economy. And as you see, it's December now and when we [first] moved to China in December ten years ago, you couldn't really see the sun. [This happened] basically, from the time the [internal] heating period began in November to March. Now, smog is not a major problem anymore," he said.

Makram El-Shagi. (COURTESY PHOTO)

In contrast to environmental protection in the U.S., El-Shagi said a friend who lived in Los Angeles told him that after almost 20 years living there, he just recently began to realize that it's even possible to see the mountains from Los Angeles. "That's because there was just so much dust and pollution all year round, and you could not see the mountains clearly. Now you typically can see them on a clear day," he relayed what his friend said.

He held positive views towards China's future development. However, he believes that, "The further you improve, the harder it is to improve even further." That's because the development was so extremely fast in the beginning, where it went from a lot of pollution to fairly little pollution quite easily, but to go from a little pollution to no pollution is extremely hard, said El-Shagi.

The next stage in greening development will require more funding and will therefore take more time and effort, he said.

"But I don't see any reason to believe that China won't continue on this path or won't make progress in the decades to come," he said.

Expats Activity

Telling China's Stories from Expats' Perspective

By ZONG Shihan

A symposium with the theme of creating high-quality works and telling China's stories well was held in Beijing on December 17. A new book on foreign experts' China stories was also released on the occasion.

Written by Xu Qingqun, editor-in-chief of *International Talent Magazine*, the book tells the stories of 16 foreign experts working and living in China, recording their thoughts on the progress of education and technology, the improvement in medical and health care, and the achievements of rural revitalization in the past decade.

Laurence J. Brahm, an American documentary filmmaker, said at the symposium that China and foreign countries need a new "ping-pong diplomacy" and "kung fu culture," and more foreigners need to understand China's values.

British-Canadian Michael Crook, who has lived in Beijing for 50 years, said in the current complicated international situation, it is necessary to tell China's stories from the perspective of foreign experts, and also to tell the story of the Chinese helping overseas, so that more foreigners know the real China.

The symposium with the theme of creating high-quality works and telling China's stories well is held on December 17. (PHOTO: Publishing House of Electronics Industry)

Service Info

Foreign Experts Recruitment Fair a Vital Platform

By WANG Xin

More than 800 job positions spanning diverse fields, including technology, education, media, and international trade were available in a recent foreign experts recruitment fair held in Shanghai.

Over 500 of these posts were in the high-demand science and technology sector, including positions in new energy, mechanical manufacturing, applied materials, software engineering, and the burgeoning field of biopharmaceuticals.

The fair attracted over 430 foreign experts from more than 90 countries and regions across diverse fields. Recruitment representatives from over 50 organizations based in Shanghai, Beijing, Tianjin and other regions were on hand to facilitate the process. In addition, science and technology departments from Tianjin, Hebei, Shanxi, and Shandong actively mobilized local enterprises to send delegations to the fair.

Expressing satisfaction with the first offline recruitment fair after the pandemic, participating employer organizations noted a significant demand for foreign experts.

To enrich the fair's content, two policy and service lectures were initiated. Officials from the Science and Technology Commission of Shanghai Municipality (STCSM) policies related to foreign experts working in China. Furthermore, eChinaCareers briefed employers on major channels for recruiting foreign experts and addressed common recruitment queries.

As part of the efforts to promote international exchanges, the "Overseas Talent Experience Fengxian" event was also organized to help foreign experts experience China's development in the sci-tech field and understand historical context and future plans of Shanghai's Fengxian district.

The fair was co-organized by the Foreign Talent Research Center and the STCSM. Since its inception in 2005, the fair has organized 70 events in cities like Beijing, Shanghai, Guangzhou, Chengdu, and Hong Kong, providing over 20,000 opportunities for job seekers from 100-plus countries and regions.

This article is also contributed by Foreign Talent Research Center.

Traditional Eastern Wisdom

Heaviest Gold Mask of Sanxingdui

By ZONG Shihan

Among the gold masks unearthed at the Sanxingdui archaeological site, one that covers only half a face holds China's record for the heaviest gold object.

After restoration, the gold mask weighs about 280 grams and is about 23 centimeters wide and 28 centimeters high. Its gold content is about 85 percent and silver content about 13 to 14 percent. It is projected that the complete gold mask would weigh more than 500 grams, which is larger and heavier than the gold mask unearthed at the Jinsha Site in Chengdu, and also heavier than the 463-grams gold scepter unearthed at Sanxingdui, making it the heaviest gold object of the Shang Dynasty (1600-1046 BC) unearthed in China to date.

The production process of the mask is complex and exquisite. Ancient Chinese first hammered pure gold into beaten gold and shaped it to resemble the outline of the head of a bronze figure statue.

Then, they hollowed out the eyes and eyebrows, and attached the mask to the bronze human figure statue. Finally, the mask was polished to a high luster, which indicates that craftsmen over 3000 years ago were very proficient in polishing techniques.

A large number of gold artifacts have been unearthed from the Sanxingdui site, all of which are related to religious rituals, which is very different from the use of jade and bronze artifacts as sacrificial items in other regions during the same period. This phenomenon indicates that the ancient Shu people seemed to have a special worship using gold artifacts.

It is inferred that the gold mask was also used for ritual purposes. However, the specific use of the gold mask is still an unsolved mystery, and further archaeological excavation and research are needed to verify its use.

The half gold mask at the new Sanxingdui Museum. (PHOTO: VCG)