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HK scientists to analyze lunar soil samples

By OASIS HU in Hong Kong
oasis.hu@chinadailyhk.com

Geologists at the University of Hong Kong have become the city's first to participate in the analysis of lunar soil through their research conducted on lunar soil samples received from a national center.

The samples were collected by the Chinese lunar probe Chang'e 5 in 2020 and made available to the HKU geologists by the Lunar Exploration and Space Program Center under the China National Space Administration in Beijing.

During a media briefing on Monday, Qian Yuqi, a postdoctoral fellow from the Department of Earth Sciences at the Faculty of Science at HKU, and his supervisor, Assistant Professor Joseph Michalski, said they plan to use the samples to expand scientific knowledge of lunar basalts and to investigate the longstanding mystery surrounding the more recent volcanic activity on the moon.

The geologists believe that researching these lunar samples will accelerate lunar and planetary science development in Hong Kong, enhance deep space innovation, deepen ties between Hong Kong and the Chinese mainland in deep space exploration, and boost more collaborations.

Qian, who led the successful application for the samples, said, "This is a dream come true for us and for Hong Kong's space science community." He added that he was



Assistant Professor Joseph Michalski (front) and Postdoctoral Fellow Qian Yuqi of HKU's Department of Earth Sciences study images of the lunar samples as captured at HKU laboratory. CALVIN NG / CHINA DAILY

excited and honored to have obtained the samples and was eager to analyze them.

When Qian learned that applications to access the sixth batch of lunar research samples collected by Chang'e 5 had opened earlier this year, he swiftly formed a team to apply for the samples, which included some renowned geologists, geochemists, and astrobiologists at HKU. This became HKU's first lunar research team.

The team's application was approved by the China National Space Administration. At the end of July, Qian traveled to Beijing and brought the samples, weighing 822.6 milligrams, to Hong Kong.

The lunar samples have great potential to reveal the moon's volcanic history and provide valuable insights into the moon's geological history as well as its connection to

the formation and evolution of planetary bodies in the solar system, Qian said.

The samples can also provide insights into early conditions on Earth and the planet's subsequent evolution, since the early environments on the moon and on Earth were similar, he added.

In addition, Qian believes this research will lay the foundations for studying samples from future lunar missions over the next decade. Chang'e 6, 7 and 8 are scheduled to be launched around 2028, 2026 and 2028 respectively, and are expected to collect more lunar samples.

Qian vowed that the team will conduct its study promptly and will handle these valuable samples with utmost care, to ensure that they can be properly preserved, recycled and utilized for future research.

The lunar samples will be stored at HKU for one year before they are returned to Beijing.

Previously, Qian garnered attention in the field of planetary geology for his exceptional research into Chang'e 5's landing site.

Before the mission, Qian hypothesized that the eastern part of the selected landing region contains one of the youngest mare basalts caused by volcanic eruptions on the moon, a discovery that was later confirmed by the collected sample and helped reshape human understanding of lunar history.

Chang'e 5 was China's first attempt to collect lunar soil samples. In December 2020, the probe brought a lunar soil sample weighing 1,731 grams to Earth, marking the first such mission to over 40 years, since the Soviet Union's lunar program in 1976.