

China returns the first samples from the far side of the moon

03 October 2024 Adam Jeffs, Editor, SAE Media Group

The successful Chinese mission to return samples from the far side of the moon for the first time has divided the research community due to Russian involvement



The Chang'e-6 return capsule landed in north China's Inner Mongolia Autonomous Region (Credit: Lian Zhen/Xinhua/EPA-EFE/XINHUA)

China has successfully returned samples from the far side of the moon for the first time in human history, marking a groundbreaking moment for science that could reveal insights into the creation of our solar system. The re-entry capsule of the Chang'e-6 craft landed in the early hours of July 25th, after decelerating in the upper atmosphere.

The 200kg capsule carried approximately 2kg of Lunar material that was drilled from the Apollo crater on the far side of the moon. The material is

entirely unique here on Earth and should provide some new insights into the composition of our moon.

The Apollo crater sits inside the South-Pole Aitken (SPA) Basin, one of the largest known impact basins in the Solar System. The impact which caused the SPA basin is thought to have excavated material from the moon's core, making samples from the basin incredibly valuable to researchers. Scientists will also gain insights into why the composition of the Moon's far side is so different to its near side.

Long Xiao, a Planetary geoscientist for China University of Geosciences in Wuhan, [stated](#):

“The Moon's geological features are highly uneven. The far side of the moon differs significantly from the near side. The far side, affected by the South Pole-Aitken basin impact and lacking extensive maria regions, suggests that its geological evolution process is different from that of the near side.

Obtaining samples from the far side with a determined geological context is crucial for revealing the moon's geological history.”

The US and China race to the moon

The fact that China has succeeded in such a mission demonstrates just how far its space capabilities have come, as it continues to close the gap on the US in an ongoing space race. The mission has [led to concerns](#) from Brig. Gen. Anthony Mastalir, Commander of U.S. Space Forces Indo-Pacific, that China may use its new Lunar presence to target US assets:

“From a military perspective, I am curious about, are there attack vectors that we haven't considered or that we need to consider, whether it's cislunar or otherwise.

These are terrestrial conflicts that we hope we can deter and we also don't want them, although it's more and more likely to extend into space or even start in space, but they're terrestrial conflicts. Someday in the future that may change, but for now I'd be more concerned just about what these new

orbits, a moon presence – what that does for potential attack vectors to our traditional operating orbits.”

The Lunar mission has divided the international space research community, largely due to a high level of Russian involvement in Chinese space exploration projects. The European Space Agency provided a payload for the Chang'e-6 mission but has been forced to pull out of future plans for collaboration due to the sanctions against space cooperation with Russia.

China and Russia have been planning to cooperate on the construction of the International Lunar Research Station (ILRS) since 2021, with China using its Lunar capabilities to court other nations into the project. Venezuela, Pakistan, South Africa, Azerbaijan, Belarus, Nicaragua and a university in the United Arab Emirates are all currently participating in the ILRS project, however none of these nations have significant space capabilities or funds to contribute.

The US however launched the Artemis accords in 2020, reaching an agreement with more than 30 countries including Australia, Canada, Japan, the United Kingdom and France, some of the world's largest space powers.

There is a clear divide forming and it appears that space research and exploration efforts by the US and China are not entirely academic in nature, rather they are just another aspect of the ongoing space race the two are engaged in.