

DARK SIDE OF THE MOON: ON CHINA'S MOON MISSION

Relevant for: Science & Technology | Topic: Space Technology & related matters

China joined a select group of countries with successful missions to the moon, when its spacecraft, Chang'e-4, successfully made a landing at '10.26 on January 3', according to the China National Space Administration. It landed at a spot on the moon's far side, the Von Kármán crater, which is untouched by earlier missions from earth. After landing, Chang'e-4, named after the Chinese moon goddess, relayed a close-up image of the 'far' side of the moon through the communication relay satellite Queqiao. The Queqiao satellite was launched last May by China for the very purpose of helping Chang'e-4 communicate with earth, as a direct communication with it is not possible from the moon's far side, which never faces earth. The Chang'e-4 mission carries payloads, of which two are in collaboration with Germany and Sweden, respectively. The instruments include cameras, low-frequency radio spectrum analyser, lunar neutron and radiation dose detectors, and many more. Among other things, the mission could pave the way to setting up a radio telescope on the far side of the moon.

Considering that earth is right next door to the moon, we know precious little about it. Its formation and early evolution present mysteries which, if understood, could guide us in planetary studies, and help in understanding exoplanets. The near side, which faces earth, has dark patterns; the far side, turned away, is marked with circular spots that are craters formed by meteorite collisions. The moon's near side is believed to have a thinner shell, so that when meteorites bombarded it they cracked its shell, releasing lava which gushed out and covered traces of the impact and left dark patches. Being thicker, the far side did not face such an erasure and bears the marks of the crater impacts. This mission could verify these theories and discover the reason behind these dichotomies. The moon's far side also differs from the near side in that it is shielded from all the radio waves emanating from earth. Communication devices and satellites have made it too noisy for radio astronomers to easily and accurately interpret signals. The near side of the moon also suffers from this problem of noise. On the other hand, the far side is a quiet place and a haven for earthly aspirations to set up a radio telescope that could reveal astronomical mysteries, such as the structure of the universe shortly after the Big Bang. China has now joined the U.S. and the former USSR as the only countries to have made a "soft landing" on the moon. But beyond underlining China's technological advances, Chang'e-4 could herald a new chapter in lunar exploration.

As India takes over operations in the Iranian port, the possibilities and challenges are huge

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