

China prepares for first lunar rover landing on the moon

December 14 2013, by Neil Connor



The Chang'e-3 rocket carrying the Jade Rabbit rover blasts off from the Xichang Satellite Launch Center in China's southwest province of Sichuan on December 2, 2013

China will attempt to land a probe carrying the country's first lunar rover on the moon Saturday in a major breakthrough for its ambitious space programme.

The spacecraft is expected to make touchdown at about 9pm (1300

GMT), the mission's official microblogging page said, 12 days after Chang'e-3 blasted off on a Long March-3B carrier rocket.

China is aiming to become the third country to carry out a rover mission, following the United States and former Soviet Union, which also made the last soft [landing](#) on the moon 37 years ago.

"At about 9pm, Chang'e-3's probe will carry out a soft landing on the moon," the Chinese Academy of Sciences (CAS) said in an online post written for the official Chang'e-3 page on Sina Weibo, a Chinese version of Twitter.

State broadcaster China Central Television (CCTV), who had earlier said on its microblog the landing was scheduled for 9.40pm, had posted a later message saying it would be at 9pm.

The probe is expected to touch down on an ancient 400-kilometre (250-mile) wide plain known in Latin as Sinus Iridum, or The Bay of Rainbows.

The landing—which is expected to be carried out independently by the spacecraft—was described as the "most difficult" part of the mission by CAS in an earlier post on Chang'e-3's Weibo page.

The landing craft uses sensors and 3D imaging to identify a flat surface. Thrusters are deployed 100 metres (330 feet) from the [lunar surface](#) to gently guide the craft into position.

The probe, which is also fitted with shock absorbers in the legs to cushion the impact of the landing, will "free-fall" for the crucial final few metres of descent.

"Chang'e-3 is completely relying on auto-control for descent, range and

velocity measurements, finding the proper landing point, and free-falling," a post on Chang'e-3's Weibo page said.

"At this stage, the Earth base is effectively powerless, and there is only about 10 minutes to finish the process."

The landing had "practically zero" chance of manual intervention, according to sources cited by state news agency Xinhua.

The sources also warned that "unknown features such as lunar rocks, pits and entrenchments might still influence the outcome of the landing", Xinhua said.

Karl Bergquist, international relations administrator at the European Space Agency (ESA), who has worked with Chinese space officials on the Chang'e-3 mission, said the key challenge was to identify a flat location for the landing.

"I was told by Chinese space officials that the lander and rover are each equipped with a camera and that when the rover separates from the lander they will both take a picture of each other from distance which will then be sent back to Earth," he told AFP.

"I am sure that all those involved in this project in China will feel a great relief and elation when they obtain such images, just like we would do too here at ESA in a similar situation".

After reaching the lunar surface, the module will release its rover, which can climb slopes of up to 30 degrees and travel at 200 metres per hour, according to the Shanghai Aerospace Systems Engineering Research Institute.

The Chang'e-3 mission is named after the goddess of the moon in

Chinese mythology and the rover vehicle is called Yutu, or Jade Rabbit, after her pet.

The landing will mark the latest step in an ambitious space programme which is seen as a symbol of China's rising global stature and technological advancement, as well as the Communist Party's success in reversing the fortunes of the once impoverished nation.

It comes a decade after the country first sent an astronaut into space, and ahead of plans to establish a permanent space station by 2020 and eventually send a human to the moon.

CCTV will be airing a live broadcast ahead of the landing, the state broadcaster said on its microblog.

"Excited! Our journey is to the stars and oceans!", said one Weibo poster.

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