

New Scientist

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Russia chases former Soviet glory

First lunar mission in nearly 50 years is viewed as attempt to show the country can still compete

Leah Crane

RUSSIA has launched its first moon mission in nearly 50 years. It is being viewed as important for the country's space industry – which has been in decline for decades – and a push by Russia to regain the power and importance on the global stage it once had as part of the Soviet Union.

The Luna 25 mission launched on 11 August from the Vostochny Cosmodrome. It consists of a lander with scientific instruments designed largely to study the make-up and properties of moon dust, and it is intended to land about 11 days after launch.

The mission's name links it directly to the space missions of the Soviet Union: Luna 24, this mission's predecessor, took place in 1976. Luna 25 is, in many ways, similar to Luna 24, but rather than landing in the moon's equatorial region as previous Luna landers did, it is intended to land near the moon's south pole, an area of interest for human exploration because of its water reservoirs.

After Luna 24, the booming Soviet space industry began to fade along with the last vestiges

of the cold war's space race. The collapse of the Soviet Union 32 years ago meant that Russia had to launch a new space agency, Roscosmos, which has suffered from political chaos and funding issues. In recent decades, many other players have joined the crowd operating in space and there is a new space race going on.

"It seems like this is something about 'Make Russia Great Again'.

Luna 25 took off from Vostochny Cosmodrome in Russia on 11 August



ROSCOSMOS STATE SPACE CORP/RIA EFE/SHUTTERSTOCK

It's about reclaiming territory that the Soviet Union had and reaching for some of that former glory," says Andrew Jenks at California State University, Long Beach. "There's an awful lot riding on this launch, in terms of whether Russia has the right stuff on the international stage to show that it can compete in an area where it had once been a clear leader."

Since the 1970s, the Soviet and then Russian space programmes have experienced a string of high-profile failures: a series of rocket explosions, a space shuttle that

only launched once and a planned Mars mission that never made it beyond Earth's orbit.

That record discourages some in the space-flight industry from being optimistic about Luna 25. "I hope they succeed, but the more likely result if you're a betting person would be failure," says Jenks. "The failures in the space programme have been almost continuous."

If it does succeed, it will be a major milestone for Russia, setting the stage for an eventual permanent moon base in collaboration with China. It could also reinvigorate Russia's ailing space sector, which has been affected by "brain drain" and a loss of international partnerships due to the war in Ukraine.

"I think this would be a real morale booster for the thousands of people who make up the infrastructure of Russian space science," says Jenks. But he doesn't think that one successful mission will be enough to turn around the Russian space industry.

Roscosmos didn't respond to a request for comment. ■

Health

Blood test could aid the diagnosis of 52 medical conditions

MEASURING proteins that circulate in the blood could enable earlier diagnosis of dozens of medical conditions, including cancer, heart disease and motor neuron disease.

Researchers have previously used blood protein levels to identify people at high risk of a narrow range of common conditions, such as diabetes and heart disease.

Claudia Langenberg at the University of Cambridge and her

colleagues wanted to see if this approach is any better than existing clinical models that rely on basic information – such as age and weight – and data from common blood tests, which look at blood cells and about a dozen proteins.

So they turned to health records and data on roughly 3000 proteins found in blood, collected from more than 41,000 people.

Using information from around 70 per cent of the participants, the researchers built statistical models that predict the risk of developing a range of conditions within a 10-year follow-up period. By

testing the models on the remaining 30 per cent of participants, the researchers found that combining the protein-based model with the standard clinical models allowed them to pinpoint the risk of developing 52 medical conditions.

The researchers identified some 70 per cent of the participants who went on to develop dilated cardiomyopathy and pulmonary fibrosis. In contrast, the clinical

"The method identified 70 per cent of the people who went on to develop dilated cardiomyopathy"

models alone identified roughly 30 per cent.

The combined approach also identified more than twice as many people who went on to develop bone marrow cancer and motor neuron disease than clinical models alone (medRxiv, doi.org/kn7g).

Combining the two methods incorrectly classed people as being at high risk for a particular condition 10 per cent of the time, however. Despite this, the researchers say the blood tests could allow earlier detection and treatment for many medical conditions. ■

Carissa Wong