

SPACE RACE AND GEOPOLITICS

Rosendo Fraga

Director of CARI's Foreign Relations and Armed Forces Committee

The struggle between the United States and China for global hegemony takes place in the space race, perhaps the most relevant area in the long term. It is an area in which the advantage that the United States has is very important, due to its greater scientific-technological development and the growing participation of the private sector in NASA programs and developments. The US policy, on the one hand, promotes an agreement already signed by 25 countries to prevent them from launching national projects that allow them to occupy territories on the Moon, Mars, etc. But at the same time, in 2014 the US Congress enacted a law by which it recognizes the property right of US citizens and companies of what they appropriate in space. Three years later, it created the fifth military force, Aerospace, anticipating that the struggle for global hegemony in space could lead to military conflicts. China's space plan is progressing rapidly and it aims to be a space power in 2045, when it believes it will be able to challenge the United States for space hegemony. But this year the Chinese government announced that it will send astronauts to the Moon in 2030. Meanwhile, NASA works to reach the Earth's satellite between 2025 and 2026, with a mission of two astronauts. In a subsequent mission, four crew members will be sent, who could stay up to 300 days. In turn, Russia, despite the war in Ukraine, does not abandon its space project and will maintain its presence in the International Space Station until 2028, which could last until 2030.

In 2023 the United States shows a clear predominance. The launches include a Starship orbital, which is NASA's I mission, and in which Elon Musk's private company SpaceX participates. In 2022, this company had launch records for its most successful rocket, the Falcon 9, with 61 takeoffs. With the Starship, Musk is developing the ability to move people to the Moon and Mars. For its part, the company United Launch Alliance (ULA) launches its Vulcan Centaur rocket, powered with methane as fuel. In this first launch, a commercial mission to the Moon is planned. Boeing aerospace company launches the CST-100 Starliner spacecraft with two astronauts on a ULA Atlas V rocket, from the Cape Canaveral Space Force Station in Florida. In addition, there's NASA's mission to a metallic asteroid called Psyche, with a mission that was supposed to launch in 2022 but was delayed due to problems with the flight software. The mission

will launch in October from a Falcon Heavy rocket. The 225 square kilometer asteroid is composed mainly of iron and nickel. The Moon will be the point of interest for several missions. But the novelty will be the first robotic mission to the Moon, using a Nova-C lunar lander from Intuitive Machines. A specific mission is intended to search for water reserves on Earth's satellite. It is developed by the California Institute of Technology and is a reduced mission, but with important objectives with long-term views, and the permanent presence of humans in space. It is done in collaboration with NASA and its Jet Propulsion Laboratory. Among the tourist flights to space, those of Blue Origin stand out.

For its part, China has several important launches in 2023 and Russia will seek to return to the Moon. The Asian power already has the Tiangong space station in orbit, which is already preparing to compete with the veteran International Space Station. It is capable of accommodating three astronauts for six months and six astronauts during "shift change" periods. Before the end of 2023, the Shenzhou 15, 16 and 17 mission will be launched. The objective will be to carry out experiments in microgravity, fluid physics or combustion science. Before this launch there will be an unmanned takeoff to bring in new supplies. It will also launch its space telescope called Xuntian at the end of 2023. This observatory will operate in an orbit similar to that of Tiangong and will be able to refuel and be upgraded or repaired by being able to dock with the Chinese space station. In 1957 Russia was the first country to break into space. Today it would be the third behind the United States and China in terms of its presence in space. Russia's last lunar mission was Luna 24 in 1976, when the USSR still existed. Now Russia wants to return to the lunar surface with the Luna 25 mission. The launch would take place in the second half of 2023, after years of delays. When its Soyuz-2-1b Fregat rocket launches from the Vostochny Cosmodrome, Luna 25 will aim to land in Boguslavsky crater near the Selenite South Pole, an area of intense international interest, to study lunar regolith and its dim light.

Japan, the European Union and India also have a role in the space race. Last year the European Space Agency (ESA) planned a launch to Mars in conjunction with Russia, the ExoMars Rosalind Franklin mission, which had to be postponed due to the invasion of Ukraine. Europe is looking to resume its activity now, with the launch of a space mission to Jupiter as its main objective.

It will also explore the icy moons of Europe, Callisto and Ganymede. The launch will be from French Guiana and it will spend more than seven years traveling through deep space, before entering Jupiter's orbit in 2031. Spain plans to start its space program this year, as several European countries already have. Japan carries out its mission to the Moon (JAXA). It is a small lunar lander of the Japanese Aerospace Exploration Agency. The intelligent ship (SLIM) will seek to investigate the surface of the Moon and provide more data for its future habitability. SLIM will be launched together with XRISM, a new space observatory. In turn, India plans several unmanned flights. This country aims to be the fourth nation to launch astronauts into space after Russia, the United States and China, which started its program in 2003. The Gaganyaan program originally aimed to take the crew into space in 2022, to mark the 75th year of Indian independence, but has suffered from delays, including those caused by the Covid pandemic. The first of two uncrewed test flights, Gaganyaan G1, would launch in the last quarter of 2023 on a human-friendly LVM 3 rocket. The goal of the Indian Space Organization (ISRO) from there would be to move towards a first crewed flight currently scheduled for the fourth quarter of 2024.

In conclusion: the space race is probably the most transcendent issue for humanity, thinking in the long term, and the struggle of the powers to arrive first dominates the national programs in this field. The United States has a clear advantage in the space race, and the participation of private companies such as SpaceX and Blue Origin in NASA programs is an important advantage. China started its space program in 2003 and aspires to be able to dispute hegemony in this area in 2045, while Russia tries to resume its space program despite the difficulties it faces. Finally, Europe and Japan - today Washington's allies - carry out individual space programs, but linked to those of the United States, while India aspires to be the fourth country to send astronauts into space.