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China-Latin America Space Cooperation: An Overview

As China has increased its political and economic cooperation with Latin America, it also expanded its space engagement with the region.

By **R. Evan Ellis**

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The main antenna of the Espacio Lejano Station, China's deep space ground station in Neuquén province, Argentina.

Credit: CONAE (Comisión Nacional de Actividades Espaciales), Argentina

In September 2023, during a visit to China, Venezuelan President Nicholas Maduro announced an agreement in which China would transport Venezuelans to a research base it plans to build on the moon, the International Lunar Research Station (ILRS) project. As illustrated by the deal, China's expanding space capabilities create imperatives for associated engagement around the globe, from initiatives to build international coalitions, such as ILRS, to the search for access to ground stations and other space communication sites to support China's expanding constellation of satellites, which currently number 700, as well as beyond-Earth missions. Deepening rivalry with the United States also makes China's access to space from points in both hemispheres and the polar regions a strategic imperative for the space component of any future conflict with the West.

Such a combination of imperatives has driven Beijing's increasing space activities in the Western hemisphere over the past two decades. China highlighted its interest in such engagement with increasing detail in its 2008 and 2016 China-Latin America Policy White

Papers. More recently, China reiterated its interest in space collaboration with the region in the 2022-2024 China-CELAC Joint Action plan. There, Beijing highlighted its interest in working with the Latin America and Caribbean Space Agency, established in Mexico in September 2021, and advocated the region's expanded use of the Chinese BeiDou satellite constellation. Language on space cooperation also appears in China's 2023 Global Security Initiative, in which China expresses interest in working with Latin America through the Community of Latin American and Caribbean States (CELAC) and BRICS.

China's Presence in Latin America's Space Sector

Beijing's space activities in Latin America date to 1988, when China and Brazil established the China Brazil Earth Research Satellite (CBERS) program. Since China's launch of the first jointly developed CBERS satellite in 1999, the two countries have collaboratively developed and launched six satellites, with plans to launch a seventh in early 2025. Nonetheless, technical difficulties made at least two of the CBERS satellites malfunction unusually early, and CBERS-3 was destroyed in a 2013 launch failure.

As China expanded its engagement with Latin America in commercial, political and other domains, it also expanded its space engagement with the region. Early efforts by Beijing included a 1989 agreement leading to the China-Argentine Observational Station at the Feliz Aguilar Astronomical Observatory in San Juan, and the construction of a satellite laser range finding facility on the site in 2006. China also signed a 2005 cooperation agreement with Argentina's satellite manufacturing organization INVAP, in an attempt to involve itself in the country's ARSAT satellite program. Beijing also unsuccessfully sought a role in replacing Chile's Airbus-built FASAT-C imaging satellite.

In 2005, China enlisted Peru as the only Latin American member in founding the Asia-Pacific Space Cooperation Organization (APSCO). Since then, the two countries have collaborated on a range of minor projects within the framework of APSCO, and under a 2015 agreement between Peru's space agency CONAIDA and China National Space Administration.

China has had limited interactions in the space domain with Mexico, including through APSCO, where Mexico has been an observer since 2015.

China's most important entries into the Latin American space sector came through collaboration with anti-U.S. populist governments in Venezuela and Bolivia.

In 2008, China's military-connected space services provider Great Wall Industrial Corporation (GWIC) built and launched the Venesat-1 communications relay satellite, under a $405 million contract largely funded by Chinese loans. A problem during launch put Venezuela's first satellite into a defective elliptical orbit, leading to diminished utility for several years, and ultimately the loss of the satellite in 2020. A planned replacement, Venesat-2, has not been launched.

Beyond the Venesat-1 communication relay satellite, China also built and launched two imaging satellites for Venezuela, VRSS-1 in 2012, with a five-year useful life, and its replacement, VRSS-2 in 2017.

As part of its support to Venezuelan space activities, China has also trained at least 150 Venezuelan space personnel and built two ground control facilities: the El Sombrero tracking station at the Manuel Rios airbase, and the Luepa backup facility at Fort Manikuyá, in southeastern Bolivar state. According to technicians interviewed by the Washington Post, China may have remote

access to these facilities even without a continuous physical presence there.

In Bolivia, Beijing's space collaboration has centered on a $300 million program, principally funded by a $250 million Chinese loan, to build and launch the Tupac Katari communications relay satellite. As in Venezuela, as part of the project, China trained at least 64 Bolivian space personnel, and China's GWIC, which built Venezuela's ground control stations, built two facilities in Bolivia: the primary control site at Amachuma, near La Paz, and the secondary facility at La Guardia, in the Department of Santa Cruz. The Bolivian government currently rents use of the facility to China for their own space control purposes, giving China a regular presence there.

In the end, the Tupac Katari's hoped-for benefits in generating revenues and bolstering Bolivia's own space capabilities fell short. Plans to launch a second satellite for earth observation, the Bartolina Sisa, in 2017, were delayed and ultimately scrapped.

In Chile, the Chinese Academy of Sciences also has operated an astronomy center on Calan Hill, in the greater Santiago area, since 2013. Of greater concern, in the Santiago Satellite Station in the Andes mountains, the China

Satellite Launch and Tracking Control (CLTC) operates two C-band radar antennas in a facility run by the Swedish Space Corporation (SSC). Because of Swedish government concerns that such facilities could be used for military purposes, SSC has announced that it will not renew CLTC's lease at this and other sites.

In Argentina, in 2012, China signed a $300 million agreement with the leftist Peronist government of Christina Fernandez to build a deep space radar facility in the Bajada de Agrio region of Argentina's remote Neuquén province. The facility was officially intended to support China's communication with and tracking of space vehicles, which was increasingly important as China conducted beyond-Earth missions, including the Chang-e lunar missions, and planned Tianwen Mars missions.

Controversially, China's Neuquén facility is also run by CLTC, a part of the People's Liberation Army Strategic Support Force. The site on Argentine soil has been manned primarily by Chinese military personnel, with only intermittent presence of Argentine authorities at the facility. The S and X bands, on which the Chinese facility transmits and receives, have potential military uses,

including aerial early warning to airborne intercept, missile guidance and weapons tracking.

Beyond Neuquén, in late 2023, China began assembly of the China Argentina Radio Telescope, a very large (40 meter diameter) instrument, at the Felix Aguilar observatory where, as previously noted, it has operated a satellite laser range finding capability since 2006.

In the far south of Argentina, in Rio Gallegos, the Chinese firm Emposat, with links to China state-owned China Aerospace Science and Technology Corporation (CASC), reportedly plans to build a facility with four to six antennas that could give it the capability to track and/or capture data from satellites in polar orbits, complementing the capabilities of China's Zhongshan and Inexpressible Island facilities in Antarctica.

Risks

Chinese space architecture and access to partner nation facilities in Latin America is part of what the head of U.S. Southern Command, General Laura Richardson, calls "dual use" infrastructure. While such facilities may have legitimate commercial purposes, they present risks of being exploited for

intelligence and/or military purposes by China, particularly in times of conflict.

Depending on the characteristics of the particular antenna or device, space facilities accessible by the Chinese in the Western Hemisphere can potentially be used to intercept data being transmitted by Western satellites. During wartime, when China would likely seek to deny the West its use of space architectures, such facilities could potentially track and support kinetic or other attacks against Western satellites. If in such a war, China uses orbital attack systems, such as the "hypersonic glide vehicle" it demonstrated in 2021, space-facing systems in the Western hemisphere could potentially provide it telemetry or communication and guidance in support of such an attack.

The bottom line of such scenarios for Latin American governments is that, despite their desire to not involve themselves in great power competition, in wartime they could find China using space facilities on their national territory to support military actions against Western democracies.

As with the effective management of other aspects of engagement with China, it is imperative for Western governments to engage with China in the space domain with

transparency, caution, and effective oversight. Doing so will increase the probability of obtaining the hoped-for scientific and technical benefits, while lowering risk that such partnerships are exploited in wartime in ways contrary to their sovereign will.

The principles of transparency and technical competence similarly apply to decisions about contracting with Chinese companies for launch services and/or technical facilities, while at the same time, keeping open a range of opportunities for advancing national capabilities and interests through engagement with Western collaborative programs such as the Artemis Accords.

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