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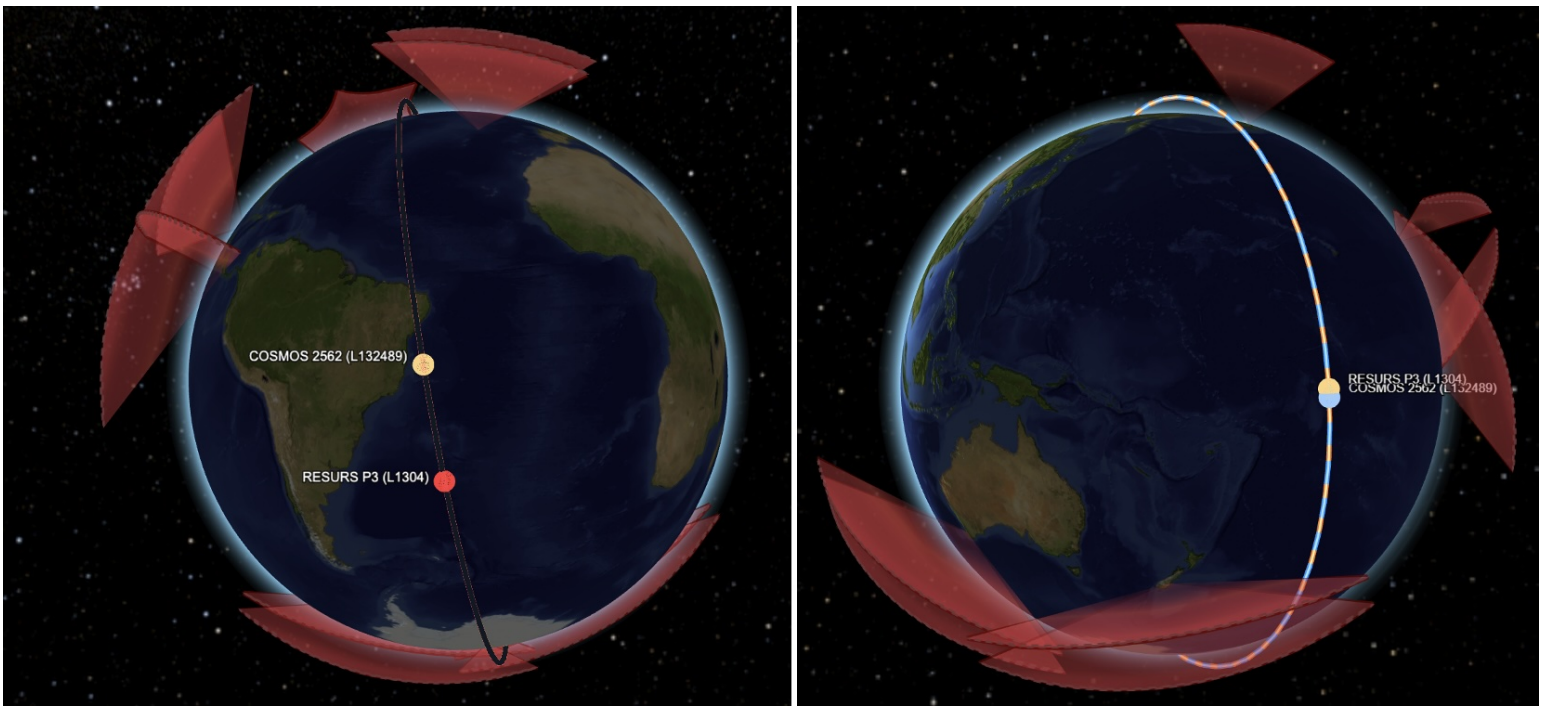
LeoLabs data shows on-orbit maneuvers by Russian satellites

The company over the past year tracked Resurs P-3 and Cosmos 2562

Sandra Erwin November 6, 2023



LeoLabs' Rendezvous and Proximity Dashboard shows one approach made by Cosmos-2562 to Resurs-P3 (left), eventually coming into proximity (right). For almost a year, the objects appeared to maneuver one to two times a week based on in-track distance history. Credit: LeoLabs

WASHINGTON — The space tracking firm LeoLabs over the past year tracked two Russian satellites performing rendezvous and proximity operations. These satellites — Resurs-P3 and Cosmos-2562 — conducted maneuvers that offer a glimpse of the potential hazards that U.S. and allied spacecraft could face in low Earth orbit, the company said.

Resurs-P3 — a Russian Earth observation satellite — performed a large maneuver in November 2022 after years of inactivity, and approached the Russian military satellite Cosmos-2562, according to a

LeoLabs briefing.

The maneuver by Resurs-P3 "placed it in an entirely new orbit shared by Russian assets with non-publicly disclosed payloads," said the briefing. "Based on the approaches observed by LeoLabs, it's highly likely that Cosmos-2562 has an electro-optical payload and has collected high-resolution imagery of Resurs-P3."

'Zombie' satellite

LeoLabs said one of the takeaways from its analysis is that inactive satellites may be mischaracterized.

"Resurs-P3 was assumed to be an inoperative satellite prior to its maneuver on 11 November 2022," according to the briefing. "This implies that command and control capabilities may be present on presumed 'zombie' satellites."

Even though inactive satellites are not likely dangerous, the company said, "it's important to monitor suspected dead satellites for potential activity that could pose a risk."

Resurs-P3, launched in March 2016, was thought to be nonoperational due to a failure to deploy one of its solar panels during launch and early orbit operations. Cosmos-2562 is a Russian military satellite with a classified mission launched in October 2022.

LeoLabs on Oct. 10, 2023, detected a small maneuver by Resurs-P3 that likely was intended to assist in disposal operations, and it likely deorbited Oct. 17. Cosmos-2562 is currently in a very low Earth orbit, according to LeoLabs. "If no maneuvers are performed, it will also deorbit soon."

The company applied machine learning techniques to detect and characterize the satellites' maneuvers. It analyzed both satellites' activities using its global radar network and cloud data platform.

'Useful indicator'

LeoLabs estimates that Cosmos-2562 has electro-optical sensors to image other satellites' payloads, and is also capable of electronic signals collection. "While most sensitive data transmissions are heavily encrypted, by collecting signals an adversary could, at a minimum, infer what frequency band another satellite is operating in for jamming operations," the company said.

"The series of operations observed and analyzed by LeoLabs between Resurs-P3 and Cosmos-2562 are a useful indicator of what potentially adversarial spacecraft are capable of."

LeoLabs' findings come at a time of heightened tensions between Russia and the West over space security issues. Slingshot Aerospace, a space data analytics firm, **last month unveiled data** showing a Russian inspector satellite conducting unusual maneuvers in geostationary orbit.

According to analysts, Russia for years has been testing technologies for rendezvous and proximity operations in both low Earth orbit and geostationary orbit, and one of its goals is to develop co-orbital weapons that would fly alongside other spacecraft.

U.S. Space Force leaders have raised concerns about orbital maneuvers by **Russian "inspector" satellites** that they believe could threaten U.S. national security satellites.

Sandra Erwin

Sandra Erwin writes about military space programs, policy, technology and the industry that supports this sector. She has covered the military, the Pentagon, Congress and the defense industry for nearly two decades as editor of NDIA's National Defense...

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Micky Corbett

4 days ago

From Space Trak data on the day:

On Feb 2nd 2023 at 12:33:11.16 UTC, COSMOS 2562 came close to DMSP 5D-2 F11 DEB (id 29072) with a distance of 583 m.
Just over half a second later at 12:33:11.73 UTC, RESURS-P3 came close to the exact same debris with a

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