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Crimea Annexation Boosts Russia's Deep Space Capabilities

By Matthew Bodner

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With the fall of the Soviet Union, Russia's space program lost control over the Crimean deep space communications station to Ukraine.

The return of Crimea to Russian rule was a huge boon for Russia's navy, which secured the future of its Black Sea Fleet and its home port of Sevastopol. But the perks of annexation may also help recapture some of the lost glory of the Soviet space program.

An early leader in the field of spaceflight, the Soviet Union fielded an impressive robotic exploration program into deep space. Such missions, because of their vast distance, require powerful radio dishes to send and receive commands and data from faraway probes.

Soviet space officials built a tracking and control facility for these missions on the Crimean Peninsula, where the clear weather and lack of major infrastructure made for less radio interference and better reception.

"Crimea itself due to its geographical position is important, widening the communications zone by several minutes for west-to-east passes of the International Space Station — an irreplaceable capability — and adding one northwest to southeast pass daily, which is only replaceable if Russia builds a brand new station around Sochi or Novorossiysk," Igor Lissov of Russia's Novosti Kosmonavtiki journal told The Moscow Times by e-mail.

With the fall of the Soviet Union, Russia's space program lost control over the Crimean deep space communications station to Ukraine, leaving its tracking network partially blinded. Even more coverage was lost as the Soviet fleet of supplementary tracking ships, which expanded the network across the globe, fell to disrepair in the chaotic 1990s.

Without these assets Russia's space program could only communicate with spacecraft as they pass over Russian territory. The only other option was to have NASA patch them into the sprawling U.S. satellite-based tracking and communications network.

But the annexation of Crimea last year has given Russia an opportunity to boost its ability to communicate with its spacecraft and military satellites, and the Defense Ministry has been working to reactivate the tracking and control stations on the peninsula.

Crimean Space Infrastructure

The Yevpatoria tracking station, known as NIP-16 — a collection of radio dishes as large as 70 meters in diameter — is the crown jewel of Crimea's space infrastructure left behind by the Soviet Empire.

The Yevpatoria facility was the first of what would eventually become 20 ground-based tracking stations built across the Soviet Union to support manned and robotic space missions.

Russia abandoned the facility in 1992, but Ukraine's national space agency has continued to operate it, leasing it out to foreign astronomers seeking to use its powerful radio telescopes to search for new planets and even extraterrestrial life.

The former head of Russia's Roscosmos space agency, Oleg Ostapenko, last May led a delegation of space officials to recently annexed Crimea to evaluate the state of NIP-16, and proposed refurbishing and reintegrating the facility into the Russian space tracking network.

"The unique 70-meter antenna at Yevpatoria is the only really important asset in Crimea for the Russian space program," Igor Lissov told The Moscow Times on Thursday.

The dish has a range of 300 million kilometers into deep space. At its closest point to Earth, Mars is 50 million kilometers away.

The facility's remaining infrastructure is less immediately useful: "All other existing [dishes and antennas] face major reconstruction according to new standards and technologies for satellite monitoring and control," Lissov said.

Repair and Reintegration

Russia's space program "has been able to work without the [Yevpatoria] center since 1992,"

said Pavel Luzin, a space policy expert at Perm State University.

A similar facility exists in Primorsky Krai on the Pacific and another is being built in Uzbekistan, though it has not yet been completed due to lack of funding, Luzin said. The Uzbekistan facility is estimated to cost anywhere from $60 to $100 million.

"But if you give new assets to the military, they will be happy to take them and then ask for money to operate them," Luzin said, explaining Russian interest in the Yevpatoria complex.

Russia's Aerospace Defense Forces control the space tracking network, just as the U.S. Air Force controls the American equivalent.

Last month, Aerospace Defense Forces Commander Alexander Golovko announced plans to overhaul the NIP-16 facility by 2020, the TASS news agency reported. These plans have apparently taken precedence over plans to duplicate their capabilities with new installations in Russia.

Golovko's deputy, Anatoly Nestechuk, told the Rossiiskaya Gazeta newspaper in October that the Yevpatoria facility would be reintegrated into Russia's larger tracking network — which provides for communications over most of Russian territory — as the main center for issuing commands to Russian spacecraft by Dec. 1 of last year.

It is not yet clear whether the center has been fully integrated, but its location will significantly boost Russia's ability to keep tabs on its spacecraft, even those that are confined to low-Earth orbit, such as the Soyuz spacecraft, the International Space Station and its satellite constellation.

But the main question hanging over the restoration of the network is funding, according to space policy analyst Pavel Luzin.

"Officially, they will modernize the [Crimea] center by 2020, but nobody knows where they will get the money for this," Luzin added. It is not known how much refurbishing the Yevpatoria site will cost.

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