The Moscow Times
30 YEARS
INDEPENDENT NEWS FROM RUSSIA

Russia’s Invasion Has Thrown Its Space Scientists Out of Orbit

By Vitaly Egorov

October 25, 2023



Vostochny Cosmodrome in Russia’s Amur region. **Roscosmos**

Russia's attack on Ukraine is fueled by a decidedly anti-Western ideology. But in contrast, Russia’s space scientists had been building international ties, entering into partnership projects, and seeking to expand collaboration with Western countries over the previous three decades. For many scientists, Feb. 24, 2022, came as a shock and caused many international studies to be paused indefinitely or terminated altogether.

The most significant of these losses is the termination of cooperation in the Russian-European ExoMars-2022 project. The European Space Agency-led ExoMars project will help determine whether life once existed on Mars when conditions on the red planet were much more hospitable than they are today. Europe financed the project, while Russia provided — at its own expense — two rockets and scientific instruments, in addition to developing a landing platform for the European rover that will be used in the mission.

The first component of the ExoMars project, the orbiter, has successfully operated since its launch in 2016. But the launch of the second component, the Mars rover, was postponed twice until the fall of 2022. With six months to go, it became clear that Russia and Europe would no longer be able to work together, so the European Space Agency terminated cooperation. The ESA expects its launch will take place no earlier than 2028 and without Russia's participation.

In the early days of the war in Ukraine, the then-head of Russia's space agency Roscosmos, Dmitry Rogozin, proactively started his own "star war." The agency withdrew from cooperation with Europe on launches from the Kourou spaceport in French Guiana, unilaterally refused to launch the European space observatory Euclid, broke a commercial contract with OneWeb to launch their internet satellites and hijacked several foreign scientific instruments placed on Russian spacecraft. All this was done without consideration of the damage dealt to Russian space science.

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Some of the most dramatic events in the space field in the spring of 2022 unfolded around the German eROSITA telescope aboard the Russian Spektr-RG space observatory. This was a joint Russian-German project to completely survey X-ray radiation in the sky. The observatory has been in development since the 1980s, but its launch only took place in the summer of 2019. On the Russian side, the project was led by the Institute for Space Research, and on the German side by the Max Planck Institute.

After Russia invaded Ukraine, Germany froze all work on the telescope. But Rogozin attempted to take over control of eROSITA and start using its scientific data without Germany. He claimed his actions were justified given the telescope's scientific importance, even though his space piracy damaged the reputation of the Russian space program, prompting calls for the development of outer space criminal law to deter similar incidents in the future.

The scandal boiled over when representatives of the Space Research Institute publicly criticized Rogozin for his decision. The fact this took place in those early days of anti-Western lunacy from the media and government officials stands out because Russian scientists are extremely dependent on the state for funding. In the end, eROSITA stopped collecting data and has not resumed even today. German scientists are currently working with the data they managed to collect earlier.

Meanwhile, Russian scientists themselves have been largely unsupportive of their country's aggression. In the first days of the war, thousands of them signed an open letter against the war. The newspaper that published the letter, Troitsky Variant-Nauka, was labeled a foreign agent by the Russian state.

That said, Russian scientists are not a monolith. A letter in support of the war was published on the website of the Lebedev Physical Institute (FIAN). At first, the letter contained several names of scientists who signed it and a call for public support. But the text was later edited and the names disappeared.

FIAN has a rich history of international cooperation dating back to Soviet times. For example, Russia's Radioastron space observatory consisted of a data reception station in the United

States and ground-based radio telescopes in Europe and the U.S. Moreover, the future of the ambitious FIAN-led project Millimetron directly depends on foreign suppliers to provide sensitive equipment to study infrared waves in space.

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The only area where cooperation between the U.S., Europe and Russia remains mostly intact is the International Space Station (ISS). But even here, Rogozin's decisions managed to do some damage, such as halting deliveries of RD-180 and RD-181 rocket engines to NASA. The ban on RD-180s is somewhat understandable because they can also be used to launch U.S. military satellites. But RD-181s are used exclusively on the Antares rocket to ferry supplies to the American segment of the ISS.

Several German scientific instruments located in the Russian segment of the ISS were also seized on Rogozin's instructions. In particular, Roscosmos took control of the antenna of the Icarus experiment, which was used to track wildlife migrations. After seizing the instruments, Roscosmos proudly reported how it used the antenna to monitor the movements of small gophers across Russia. The researchers behind Icarus are still looking for ways to continue their work without Russian cooperation.

Despite this friction, NASA, the ESA and Roscosmos' joint work on the ISS has largely continued as it did before the war. American astronauts have still flown to the ISS on Russian spacecraft and Russian cosmonauts like Anna Kikina have been able to fly into space on the American SpaceX Crew Dragon spacecraft. She was also lucky in that Rogozin was removed from his post in the summer of 2022 before he had time to screw things up even more.

One of the reasons why projects with NASA have faced less disruption is that the prospects for new joint projects with NASA had already been significantly scaled back in 2014 after Russia seized Crimea. But 2022 led to the loss of other joint ventures. It became clear that implementing the Russian-American Venera-D mission to Venus would be impossible. U.S. participation in the Sirius-23 experiment investigating the physical and psychological impact of long space flights was also suspended, but not formally terminated.

Bans on Russian scientists from participating in international conferences, difficulties in publishing scientific research in international journals, and problems with employment or enrollment in graduate school for Russians who have left the country are less visible than canceled flagship projects. These are mostly personal stories that go unpublicized, but which make life and work much more difficult for Russian scientists, regardless of their personal politics. Inside Russia, the situation is exacerbated by the witch hunt against scientists engaged in international cooperation, many of whom were branded foreign agents even before the war

In Russia, people joke about the government bombing Voronezh, satirizing the state's willingness to harm its own citizens if it can bring some political benefits. The damage to the Russian space program since the war shows just how true this saying is.

The views expressed in opinion pieces do not necessarily reflect the position of The Moscow Times.

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