



WGSS: Roscosmos

Chair: Katya Sankow

Crisis Director: Anna von Spakovsky

Roscosmos - Dossier

Anatoly Alexandrovich Alexandrov, Rector of Moscow State Technical University

Alexandrov received an undergraduate degree in mechanical engineering, and later, a doctorate in technical sciences from Moscow Higher Technical University. He was the Chief Engineer of the experimental plant until becoming a professor in the Department of Cryogenic Engineering and Life Support in 2009. He was elected Rector of MSTU in 2010 and has been awarded many prizes from the Russian Federation. He is also the President of the Association of Technical Universities and a member of the Presidential Council for Science, Technology, and Education. He currently serves on the Public Council of Roscosmos.

Oleg Mikhailovich Alifanov, Chief Scientific Officer of the Moscow Aviation Institute's Space Systems and Rocket Science Department

A graduate of the Moscow Aviation Institute himself during the space race of the mid-20th century, Alifanov was critical in developing efficient methods to test thermal protection, strength, and control systems of aircraft, working on the development of the Buran, a reusable space shuttle. He promoted international cooperation as the Vice President of the International Astronautical Federation from 200-2004, and is currently a member of the AIF's Space Systems and Space Education committees. He also serves on the public council of Roscosmo. and works with the Coordinating Scientific and Technical COuncil, which makes decisions about the feasibility of scientific experiments on the ISS.

Igor Alexandrovich Arbuzov, Director-General of NPO Energomash

Arbuzov is a mechanical engineer and worked his way up from a shift foreman to Director-General of Proton-PM, an engine and heavy machinery manufacturing plant in Perm. NPO Engermash is a rocket engine designer and subsidiary of Roscosmos that, along with the Khrunichev Center, delegates production to Protom-PM. This connection led to his employment as the Director-General of NPO Energomash in 2015. The company works closely with the Chemical Automatics Design Bureau (KB Khimavtomatika) on rocket engines, as well as European companies on the Volga rocket engine project. However, despite extensive cooperation, under Arbuzov competition between Energomash, the Khrunichev Center, and KB Khimavtomatika has intensified as they vie for government contracts and resources under Roscosmos.

Igor Vladimirovich Barmin, President of the Russian Academy of Astronomy

Barmin is a respected academic. He is a professor of Technical Sciences, a member of the Russian Academy of Sciences, and the President of the Russian Academy of

Astronomy. Over the course of his career, he has supervised the creation of the lunar base “Zvezda,” which focuses on collecting and analyzing soil on the surface of the moon and Venus. His research centers around the intersection of biology and natural sciences with engineering living systems. He has authored over 300 scientific papers, and has met many aspiring scientists as a member of the editorial board of the journal “Polyot” and the journal “Questions of the History of Natural Science and Technology.”

Vitaly Anatolevich Davyov, Deputy Director-General of the Advanced Research Foundation

Davyov is a mechanical engineer and applied physicist trained at Lomonosov Moscow State University. He spent his career working at the Chemical Automatics Design Bureau (CADB), building on their previous research on nuclear rocket engines as well as working towards the development of feasible multimode space nuclear power plants. He was then appointed Deputy Director-General of the Advanced Research Foundation, an organization founded in 2012 to advance Russian military science and defense capabilities. Under his tenure, he has directed the development of smart bullets and combat robots, including underwater combat robots to protect oil and gas infrastructure in the arctic. He has served on the public council of Roscosmos since 2016.

Lyubov Nikolaena Dukhanina, Deputy of the State Duma

Dukhanina has degrees in applied mathematics, historical sciences, and international economic relations. She has worked both in the private sector dealing with telecommunications, and in the public sector as a member of the Duma. She is a member of the United Russia party, the “party in power” during Vladimir Putin’s presidency. As Deputy Chairman of the Committee on Education and Science, she oversees a program to identify gifted members of Russian Society and connect them with opportunities. She is a member of the Public Council of Roscosmos, acting as a liaison between Roscosmos and the Federal Assembly of Russia.

Dimitry Konstantinovich Dragun, Executive Director of the Russian Academy of Cosmonautics

Dragun has a doctorate in technical sciences, and began his career as an engineer at OKB Vympel, a designer of missiles and anti-ballistic missile systems. He worked primarily on air-to-air missiles. After working his way up to General Designer, he was appointed the Executive Director of the Russian Academy of Cosmonautics, which is an inter-regional public organization of research and training agencies to support Russian space flights. He currently oversees such research as developing “space internet” and aerospace medicine.

Makhmut Akhmetovich Gareyev, *President of the Academy of Military Sciences*
Gareyev is a respected retired Army General, most notably serving as a military advisor to President Najibullah of Afghanistan from 1989-1991. He was then the Deputy Chief of the General Staff of the Armed Forces of the USSR until his retirement in 1992. Since then, he has authored several books on military history and science. He currently serves as the President of the Academy of Military Sciences, is on the public council of Roscosmos, and consults on Russia's international military engagements, exhibiting deep suspicion of NATO.

Viktor Dimitrievich Gorokhov, *Chief Designer of the Chemical Automatics Design Bureau*

Gorokhov has degrees in mathematics and engineering, and since 2007 has worked on liquid propellant rocket engines (LREs) at the Chemical Automatics Design Bureau, also known as KB Khimavtomatika. He has done work to limit corruption in the bureau and focus on technical issues in lieu of taking political stances. He is responsible for the engines installed in all modern Russian launch vehicles, and holds a patent for the most powerful single-chamber oxygen-hydrogen LRE - RD-0120. In addition, under his direction KB Khimavtomatika continues to work on a magnetoplasmadynamic thruster, a way to propel space crafts during long-term space travel through the creation of magnetic fields instead of the combustion of fuel.

Andrey Vladimirovich Kalinovsky, *Director-General of the Khrunichev Center*
Ilyshev is an aerospace engineer with practical experience working on thermal protection design for the Proton LV rocket. He is the head of the State Space Research and Production Center, known as the Khrunichev Center, a major subsidiary of Roscosmos. It has exclusive rights to the commercial use of the Proton LV rocket, used by satellite operators as well as delivery of payloads to the ISS. In addition, they own a controlling share in International Launch Services based in Reston, VA.

Vladimir Petrovitch Kolmykov, *Director-General of the Lavochkin Research and Production Association*

Kolmykov is an aerospace engineer, but also has research experience in terraforming, particularly working with astrobiologists to assess projections of capabilities on the moon and mars. Lavochkin is an aerospace company and a major contractor to Roscosmos responsible for the Fregat rocket upper stages used in the Soyuz and Zenit rockets, satellites, and interplanetary probes. Under his direction, Lavochkin has become the lead of the ExoMars mission in conjunction with the European Space Agency that launched in July 2020 and sent a probe to Mars, where it has sent back atmospheric and environmental data, and is currently looking for life.

Yury Nikolaevich Koptev, *Chairman of the Scientific and Technical Council of Roscosmos*

Koptev began his career as an engineer at NPO Lavochkin, a subsidiary of Roscosmos known especially for the manufacture of satellites and interplanetary probes. He then served as the Director General of Roscosmos from 1992-2004. He was instrumental in changing the animosity of the space race during the cold war to cooperation on the International Space Station, launched in 1998. He has said in interviews that East-West collaboration will only help everyone. Since stepping down in 2004, he has served as the Chairman of the Scientific and Technical COuncil of Roscosmos, overseeing the cooperation between various heads of research and manufacturing subsidiaries. He is on the public council of Roscosmos

Yury Nikolaevich Makarov, *Director of the Department of Strategic Planning and Organization of Space Activity of Roscosmos*

Makarov has leveraged his experience in business and economics as a financial analyst during the transition period in the 1990s to become the director of strategic planning and organization at Roscosmos. He directs resource allocation to its dozens of subsidiaries as well as upcoming research and development. He is also a member of the International Academy of Astronautics, giving him a symbolic international accreditation. In addition, he maintains contacts with russian business leaders who rose to power after the fall of the USSR, and is working to connect their private resources with public corporations.

Igor Adolfovich Marinin, *Editor-in-Chief of Cosmonautics News*

Marinin is a former cosmonaut, who maintains contacts with current cosmonauts as well as scientific researchers through his membership in the Russian Academy of Cosmonautics. He is also chief editor of the magazine “Novosti Kosmonavtiki” or Cosmonautics News, that keeps the public informed on current space missions, research, cosmonauts, and possible future endeavors. He consults for the Skolkovo Foundation, a nonprofit that has worked to create a scientific and development center in Moscow. It also operates in the United States, but in 2014 the FBI indicated that it has suspicions that the Skolkovo offices in the US “may be a means for the Russian government to access our nation’s sensitive or classified research.” Though the Russian government, and Marinin have resoundly denied.

Vadim Viktorovich Medvedev, *Director of the Department of Innovations and Advanced Research of the Ministry of Science and Higher Education*

Medvedev is trained in economics and law, and for most of his career served as a developer of industry and administration of the Krasnoyarsk Krai, a federal subject that encompasses approximately half of Siberia and is extremely rich in natural resources, including copper and nickel, both used in the manufacture of rockets. In 2017, he was appointed Deputy Director of the Department for Cooperation with Government Agencies and Work with Roscosmos, which led to his current position on the public council of Roscosmos, and his work as the Director of Director of the Department of Innovations and Advanced Research of the Ministry of Science and Higher Education. Through this work he has become an expert in supply chain management for space manufacturing.

Erik Leonidovich Mezhiritsky, *Director-General of the Academician Pilyugin Center*

Mezhiritsky is a computer scientist with expertise in UAVs and unmanned weapons. He worked for the Ministry of Defense until 2015, when he became first deputy director and then Director General of the Scientific Production Association Of Automation And Instrument-Building, also known as the Academician Pilyugin Center. A major subsidiary of Roscosmos, the Pilyugin Center develops guidance, navigation, and flight control systems for spacecraft and launch vehicles, and interplanetary probes. It also creates systems for intercontinental ballistic missiles.

Alexey Ivanovich Novikov, *President of the International Fund for Support of Aviation and Cosmonautics*

Novikov built his reputation as a tough-as-nails military fighter pilot and “hero of Russia” during his service in the Soviet-Afghan War, and was instrumental in the development of the Multifunctional Frontline Fighter (MFI) Project in the 1980s and 1990s before it was abandoned during the breakup of the Soviet Union. Concerned with air parity, it was meant to combat the development of the Advanced Tactical Fighter in the United States (F-22 Raptor) and the legacy of Novikov’s concern over competition with the United States has persisted. He is now the President of the International Fund for the Support of Aviation and Cosmonautics, which aims to use its profits from global investments in transportation and infrastructure for the support of the Russian space program.

Evgeny Aleksandrovich Primakov, *Member of the State Duma, Director-General of the Russian Humanitarian Mission*

Primakov, known in the media by the pseudonym Evgeny Sandro, is the grandson of Yevgeny Prinakov, Prime Minister of Russia from 1998-1999. He studied history and became a prolific tv correspondent first for the TVC Channel, and then NTV. As a

correspondent in the Gaza strip in 2007 he was inspired to pursue a more policy-focused and humanitarian career. He worked for the UN High Commissioner for Refugees (UNHCR) in Turkey and Jordan and eventually was elected to the State Duma while also serving as the Director-General of the Russian Humanitarian Mission, a non-profit organization. He is on the public council of Roscosmos both as a liaison to the Duma, the media, and offering expertise on humanitarian capabilities in the event of a major space catastrophe or large-scale refugee move into future space colonies.

Sergey Nikolaevich Ryazansky, Cosmonaut

Ryazansky studied biochemistry and worked as a researcher at the Institute of Biomedical Problems until 2003, when his work into the effects of space on the human body led him to become a cosmonaut. He has since served as the flight engineer on Expedition 37/38 to the ISS in 2013, and as Commander of 52/52 in 2017. He has spent a total of 304 days in space and 27 hours in spacewalks. For this he has been honored as a “hero of Russia”. Since then, he has become the Chairman of the “Russian School Movement” a nonprofit that focuses on coordinating state and civil society efforts to raise and educate children. He also serves on the public council of Roscosmos.

Viktor Petrovich Savinykh, President of the Moscow State University of Geodesy and Cartography

Savinykh is a decorated cosmonaut of the Soviet Union, participating as the flight engineer in 3 space missions and spending over 252 days on MIR, Salyut-6, and Salyut-7 space stations. He was awarded twice the “hero of the Soviet Union” medal and the Tsiolkovskiy gold star of the USSR Academy of Science. He is known to the public as the author of several best-selling books on space exploration and as the Editor-in-Chief of the Russian Space Magazine. He also serves on the public council of Roscosmos, and is President of Moscow State University of Geodesy and Cartography, which he hopes may one day apply to analyzing flight paths through space.

Boris Mikhailovich Shustov, Scientific Director of the Institute of Astronomy of the Russian Academy of Sciences

Shustov has a doctor of sciences in astronomy and astrophysics. His areas of interest include mapping possible habitable zones for human exploration, as well as the feasibility of faster-than-light travel. In addition to his work in academia as the Scientific Director of the Institute of Astronomy of the Russian Academy of Sciences, he is Chairman of the Expert Working Group on Space Threats at RAS. This group brings together scientists, military advisors, and policymakers to discuss the ways in which satellites may be used in the wars of the future, as well as ways to address and mitigate possible conflicts in space itself during the era of the new space race. This includes

setting international norms, treaties, arms control, and planning for certain contingencies, such as contact with extraterrestrials.

Golovko Alexander Valentinovich, Commander of the Space Forces

Valentinovich was born in Ukraine and joined the soviet military where he served at the Titov Main Test and Space Systems Control Center, which is the control hub of military and commercial satellites. In 2003 he became Deputy Chief of Staff of the Space Forces and then Commander of the Plesetsk Cosmodrome, a spaceport located close to Arkhangelsk. Since 2015, he has been Commander of the Russian Space Forces, a branch of the Aerospace Forces as a Lieutenant-General. They run the Titov Main Test and Space Systems Control Center, as well as the Main Center for Missile Attack Warning, and the Main Space Intelligence Center.

Pavel Nikolaevich Vlasov, Chief of the Gagarin Cosmonaut Training Center

Vlasov graduated from the Gritsevets Military Aviation Higher School of Pilots and became a test pilot for the MiG Corporation until 2010, flying aircraft such as the MiG-29k fighter. From 2010-2017 he became the Chief of the Gromov Flight Research Institute, which operates an aircraft test base outside of Moscow. He currently serves as the Chief of the Gagarin Cosmonaut Training Center, after control was transferred from the Ministry of Defense to Roscosmos. The center selects and trains future cosmonauts, usually pulled from the ranks of military pilots, with full-size mockups of spacecraft, zero-gravity simulations, and a medical observation clinic.

Alexander Nikolaevich Zakharenko, Director of the Government Relations and Work Department and Deputy Chairman of the Public Council of Roscosmos

Zakharenko began his career as a businessman, serving on the board of the Proton-Permskie Motory - a company that specializes in jet engines, and in particular, liquid-rocket engines. Now, he is not only an important public face of Roscosmos in the press, but is a vital liaison between Roscosmos and the Federal Assembly, forming close relationships with several representatives in the Duma.

Sergey Aleksandrovich Zhukov, President of the Moscow Space Club

Zhukov made his career as an engineer and test cosmonaut at Energia, the largest company of the Russian space industry, and the lead developer of the Soyuz and Progress spacecraft, as well as the Russian end of the ISS. He still retains many contacts within the organization, as he mentored many employees that have since risen through the ranks. He is now the President of the Moscow Space Club, a nonprofit NGO that supports national space activities by bringing together private companies and advocating for international cooperation.