

**Alexander Parshin**

*Professor, Vice-Rector for Geology and Earth &
Environmental Sciences*

Irkutsk National Research Technical University

Date of Birth: 14 November 1986

Place of Birth: Irkutsk, Soviet Union

Nationality: Russian

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An experienced scientist and engineer in various fields of applied georesearch - geology, geophysics, ecology, Earth remote sensing (satellite and UAV), geochemistry, geoinformatics, with experience working across Eurasia - from the Arctic polar tundra to the jungles of South Asia. For 20 years, I have carried out and managed more than 150 commercial and research projects on environmental monitoring of unique geosystems; prospecting and exploration of mineral deposits; creation of new geophysical equipment, UAV systems, software for processing geodata and geoinformation projects. I like to carry out a project completely, from start to finish - both field and laboratory research, writing reports, preparing business and scientific presentations.

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Research Interests: geoinformatics, geoecology of complex and unique ecosystems, applied geophysics, unmanned systems in geosciences, geological prospecting for ores and water.

Key Skills: environmental protection, mineral deposits, field surveys, geographic information systems, UAVs, remote sensing of the earth, geodata processing, soil and water sampling, geophysical surveys, geodetic surveys, field Instruments, research projects, teaching, research management, business management.

Education:

Ph.D. in Geoinformatics (theme of ph.d. thesis: «Geoinformation technologies for optimizing environmental monitoring of the aquatic environment of Lake Baikal»)

Vinogradov Institute of Geochemistry SB RAS, 2009-2012

Specialist (Master) in GIS in Geosciences

Irkutsk National Research Technical University, 2003-2008

Appointments

Scientific Director & Director, Siberian School of Geosciences, Irkutsk National Research Technical University (INRTU)

June 2020 – Present

Academic Director, International Joint Research Center for Pure Water *of Harbin Institute of Technology (China) and INRTU (Russia)*

- 2024 - Present

Professor (full), INRTU

2018 – Present

Editor-in-Chief, Earth Sciences and Subsoil Use Journal (ISSN 2686-7931),

2023-Present

Senior Researcher, Ore Geochemistry Lab, Vinogradov Institute of Geochemistry SB RAS

2016 – Present

CEO, SibGIS Tech LLC

2016 - Present

Associate Professor, Chair of Applied Geophysics and Geoinformatics, INRTU

2012-2018

Associate Professor, Chair of oil and gas geology, Irkutsk State University

2012-2020

Scientific consultant, Russian Federal Water Resources Agency

2009 - 2013

Researcher, Ore Geochemistry Lab, Vinogradov Institute of Geochemistry SB RAS

2009-2016

Lecturer, Chair of Applied Geophysics and Geoinformatics, INRTU

2008-2012

Head of IT Department, United public libraries of Irkutsk

2008-2012

Environmental Engineer, Regional Environmental Forecasting LLC

2007 – 2009

Electronics engineer, United public libraries of Irkutsk

2006-2008

Courses Taught at:

Irkutsk National Research Technical University

Geoinformation systems in Geosciences (2018 - Present)

Robotic Systems in Geosciences, (2023 – Present)

Nuclear Geophysics and Radioecology (2020 - Present)

Administration of information systems (2009 - 2015)

Applied Geophysics (2010-2012, 2020 - Present)

Irkutsk State University

Earth remote sensing (2014 - 2020)

Geoinformation systems in Geology (2014 - 2020)

Director of undergraduate and graduate programs 'IT in Earth and Environmental Sciences', 'GIS technologies' and 'Applied Geophysics' (Irkutsk National Research Technical University).

Leadership of Grants

2021 - present	Russian Ministry of Science and Education, Priority-2030 Program: «Siberian School of Geosciences – University as a geological corporation».
2020 - 2023	Russian Ministry of Science and Education (075-15-2020-787) «Fundamental foundations, methods and technologies of digital monitoring and forecasting of the ecological situation of the Baikal natural territory»
2020 - 2023	Russian Science Fund (20-67-47037) Methodology and software for processing the big data of electromagnetic sounding, gravity and UAV magnetic surveys based on an integrated solution of three-dimensional inverse problems of ore geophysics
2018 - 2019	Council for Grants of the President of the Russian Federation (MK3608.2018.5) "Unmanned low-altitude airborne geophysical methods is the basis of a new methodology for geological prospecting in difficult natural and landscape conditions "
2018-2019	Russian Innovation Development Fund (2543ГC1/41328) «Research and development of technology for measuring the geoelectric characteristics of the geological environment under the influence of an unmanned aerial vehicle, taking into account the location of the field source on the ground. Development, assembly and testing of a prototype of an unmanned electrical exploration system»
2016-2017	Russian Innovation Development Fund (6532ГY/2015) " Development and creation of geoinformation technology for prospecting for groundwater deposits "
2015-2016	Council for Grants of the President of the Russian Federation (MK3747.2015.5) "Origin of gold-uranium deposits associated with greenstone belts, methodology and technologies for its prospecting"

Leadership of Commercial projects

More than 150 geological prospecting and ecological projects throughout Eurasia - from Karelia to Kamchatka and from the Arctics to South Asia for a total amount of more than 20 million dollars.

Awards

Russian Mining Award (2025)

International China-Russian Scientific and Technical Cooperation Award (2025)

Two-time winner of the Russian Mining Award (2023, 2024).

Winner of the Award of the Russian Union of Inventors and Innovators (2023) for developments in the field of AI systems in geosciences.

Irkutsk Region Award in the field of science and technology (Twice - 2018, 2022).

Winner of the Chinese Ambassador to Russia Award (2020) in the field of IT and artificial intelligence.
and a number of other competitions and scientific awards.

Membership in academic societies

Gold Member of the European Association of Geoscientists and Engineers (EAGE).

Member of the editorial boards of Remote Sensing magazines (Q1); Drones and Autonomous Vehicles.

Member of the Russian Coordination Scientific and Technical Council for Geology, Prospecting and Exploration of Uranium Deposits.

Editor-in-Chief of the journal "Earth Sciences and Subsoil Use" (indexed by GeoRef&CAS, publishes articles in Russian and English).

Permanent Chairman of the All-Russian conference with international participation "New methods of exploration and protection of subsoil".

20 Selected Publications

1. **Alexander V. Parshin**, Vladimir A. Morozov, Anton V. Blinov, Alexey N. Kosterev & Alexander E. Budyak (2018) Low-altitude geophysical magnetic prospecting based on multirotor UAV as a promising replacement for traditional ground survey, *Geo-spatial Information Science*, 21:1, 67-74, DOI: 10.1080/10095020.2017.1420508

2. Kachor O.L., Trusova V.V., Gantimurova S.A., Goryachev I.N., Ikramov Z.L., **Parshin A.V.** The former industrial site of the Angarsk Metallurgical Plant (Svirsk, Russia) 10 years later: current geochemical state and interannual change analysis based on Earth remote sensing data. *Earth sciences and subsoil use*. 2024;47(1):66-89. (In Russ.) <https://doi.org/10.21285/2686-9993-2024-47-1-66-89>. EDN: LPXNLT

3. **Parshin, A.**; Bashkeev, A.; Davidenko, Y.; Persova, M.; Iakovlev, S.; Bukhalov, S.; Grebenkin, N.; Tokareva, M. Lightweight Unmanned Aerial System for Time-Domain Electromagnetic Prospecting - The Next Stage in Applied UAV-Geophysics. *Appl. Sci.* 2021, 11, 2060. <https://doi.org/10.3390/app11052060>

4. Gantimurova, S.; **Parshin, A.**; Erofeev, V. GIS-Based Landslide Susceptibility Mapping of the Circum-Baikal Railway in Russia Using UAV Data. *Remote Sens.* 2021, 13, 3629. <https://doi.org/10.3390/rs13183629>

5. Filimonova, L.M., **Parshin, A.V.** & Bychinskii, V.A. Air pollution assessment in the area of aluminum production by snow geochemical survey. *Russ. Meteorol. Hydrol.* 40, 691-698 (2015). <https://doi.org/10.3103/S1068373915100076>

6. **Parshin, A.**, Grebenkin, N., Morozov, V. and Shikalenko, F. (2018) First results of a low-altitude unmanned aircraft system gamma survey by comparison with the terrestrial and aerial gamma survey data. *Geophysical Prospecting*, 66: 1433-1438. <https://doi.org/10.1111/1365-2478.12650>

7. **Parshin, A.**; Morozov, V.; Snegirev, N.; Valkova, E.; Shikalenko, F. Advantages of Gamma-Radiometric and Spectrometric Low-Altitude Geophysical Surveys by Unmanned Aerial Systems with Small Scintillation Detectors. *Appl. Sci.* 2021, 11, 2247. <https://doi.org/10.3390/app11052247>
8. Abramova V.A., **Parshin A.V.**, Budyak A.E. Physical and chemical modeling of the influence of nitrogen compounds on the course of geochemical processes in the cryolithozone // *Earth's Cryosphere* 19(3), c. 32-37
9. Yu.I. Tarasova, A.E. Budyak, A.V. Chugaev, N.A. Goryachev, V.L. Tauson, S.Yu. Skuzovatov, V.N. Reutsky, V.D. Abramova, B.I. Gareev, N.N. Bryukhanova, **A.V. Parshin**, Mineralogical and isotope-geochemical ($\delta^{13}\text{C}$, $\delta^{34}\text{S}$ and Pb-Pb) characteristics of the Krasniy gold mine (Baikal-Patom Highlands): Constraining ore-forming mechanisms and the model for Sukhoi Log-type deposits, *Ore Geology Reviews*, Volume 119, 2020, 103365, <https://doi.org/10.1016/j.oregeorev.2020.103365>
10. Kachor, O., **Parshin, A.**, Trusova, V. An integrated approach to the geoecological assessment of accumulated damage objects // *Theoretical and Applied Ecology*, 2022, DOI: 10.25750/1995-4301-2022-4-065-071
11. Budyak, A.E., **Parshin, A.V.**, Spiridonov, A.M. et al. Geochemical controls on the formation of unconformity-type Au-U deposits (Northern Transbaikalia). *Geochem. Int.* 55, 184-194 (2017). <https://doi.org/10.1134/S0016702917010049>
12. Abramova, V.A., **Parshin, A.V.**, Budyak, A.E. et al. Geoinformation Modeling of Sulfide Frost Weathering in the Area of Udokan Deposit. *J Min Sci* 53, 591-597 (2017). <https://doi.org/10.1134/S1062739117032559>
13. **A.V. Parshin**, S.A. Shestakov, K.V. Chudnenko [et al.] (2013) Evaluation criteria of water geoecological state of the lake Baikal / *Water: chemistry and ecology*. – 2013. – No. 9 (63). – P. 24-31. (in Russian)
14. I. Goryachev, **A. Parshin**. Mineral Prospectivity Mapping for Forecasting Gold Deposits in the Central Kolyma Region (North-East Russia). NSG2021 27th European Meeting of Environmental and Engineering Geophysics, Aug 2021, Volume 2021, p.1 - 5 DOI: <https://doi.org/10.3997/2214-4609.202120259>
15. Bashkeev, A.; **Parshin, A.**; Trofimov, I.; Bukhalov, S.; Prokhorov, D.; Grebenkin, N. Modern Capabilities of Semi-Airborne UAV-TEM Technology on the Example of Studying the Geological Structure of the Uranium Paleovalley. *Minerals* 2025, 15, 630. <https://doi.org/10.3390/min15060630>
16. Davidenko, Y.; Hallbauer-Zadorozhnaya, V.; Bashkeev, A.; **Parshin, A.** Semi-Airborne UAV-TEM System Data Inversion with S-Plane Method—Case Study over Lake Baikal. *Remote Sens.* 2023, 15, 5310. <https://doi.org/10.3390/rs15225310>
17. Fedorov, A.M., Makrygina, V.A., Nepomnyaschikh, A.I. et al. Geochemistry and petrology of superpure quartzites from East Sayan Mountains, Russia. *Acta Geochim* 38, 22–39 (2019). <https://doi.org/10.1007/s11631-018-0268-5>
18. Budyak, A.E., **Parshin, A.V.**, Damdinov, B.B. et al. New results of geochemical and geophysical studies of the Khadatkanskii fault zone (North Transbaikalia region). *Russ. J. of Pac. Geol.* 9, 373–380 (2015). <https://doi.org/10.1134/S1819714015050024>
19. **Parshin, A. V.** Automation of the environmental monitoring of Lake Baikal using modern GIS and web technologies / A. V. Parshin, E. A. Rush, A. M. Spiridonov // *Modern technologies. System analysis. Modeling*. - 2011. - No. 1 (29). - P. 82-87. (in Russian)
20. Gantimurova, S.; **Parshin, A.** Combined Methodology for Rockfall Susceptibility Mapping Using UAV Imagery Data. *Remote Sens.* 2024, 16, 177. <https://doi.org/10.3390/rs16010177>

Selected presentations at conferences (last 3 years)

1. **Parshin A.** Ecological and Geochemical Features of ore-prospective geosystems in the Arctic part of eastern Eurasia. *International Summer School “// Arctic Environment and Ecosystem — Impact of Climate Change on the Ecological Environment in Arctic and Cold Regions”*, Harbin (China), 22-26.07.2024
2. **Parshin A.** Open UAV technologies of Earth Remote Sensing for geoscience and geoengineering tasks: multispectral and lidar surveys, unmanned vehicles and autopilot systems, surveying and data processing techniques.”// A set of lectures and seminar lessons at *Russian-African International Summer School of UAV-based Earth Remote sensing, Shara-Togot* (Russia), 29.07. – 18.08.2024
3. **Parshin A.** A set of UAV-geophysics, geoinformatics, mobile drilling and non-traditional geochemistry technologies for provide rapid geological prospecting projects in hard-to-reach areas with zero environmental damage // *2024 China-Eastern European Experts Cooperation and Exchange Activity Conference*, Harbin (China) 17-20.05.2024
4. **Parshin A.**, Kachor O. Unexpected results of geoecological studies of objects of accumulated environmental damage in the Svirsky district of the Irkutsk region: current state and retrospective study of its formation // *XXIV All-Russian Scientific and Technical Conference with International Participation «Geosciences – 2024»*, Irkutsk (Russia), 15-16.04.2024
5. **Parshin A.**, Dmitriev A., Miromanov A., Gubin Yu. Experience of integrating near-surface geophysics and mobile core drilling methods for non-destructive geometrization of foundations and hidden communications at industrial sites with a high level of heterogeneous industrial interference // *MONITORING the condition of structures and foundations: diagnostics, assessment and forecasting: Interdisciplinary discussion conference, Sochi (Russia)*, 24-26.04.2024
6. **Parshin A.** Accelerated geological prospecting with zero damage to the environment - key technologies and case study // *MINEX Qazaqstan 2024, Astana (Kazakhstan)*, 17-18.04.2024
7. **Parshin A.** Geological prospecting with zero environmental damage - key technologies and case study // *BRICS Young Scientist Forum and Innovator Prize 2023* (South Africa), Gqeberha, 31 July - 2 August 2023
8. **A. Parshin**, M. Gatilov, Y. Davidenko, A. Bashkeev, N. Snegirev and A. Milgunov. Using The “Triad” of Uav-Tem, Uav-Magnetic Prospecting and Uav-Gamma-Spectrometry: Case of Prospecting for Blind Ore Deposits // *NSG2022 3rd Conference on Airborne, Drone and Robotic Geophysics*, Sep 2022, Volume 2022, p.1 – 5 (Belgrad, Serbia)
9. Y.A. Davydenko, V. Hallbauer-Zadorozhnaya, A.S. Bashkeev and **A.V. Parshin**. Uav-Tem Data Inversion With S-Plane Method to Highlight Coastal Geological Structure of Lake Baikal // *NSG2022 3rd Conference on Airborne, Drone and Robotic Geophysics*, Sep 2022, Volume 2022, p.1 – 5 (Belgrad, Serbia)
10. **Parshin A.** University as a Geological Corporation // *ISC – MAS Earth Sciences Conference*, Khanh (Mongolia), 06.06-09.06-2022

Other activities and hobbies

Martial arts, kitesurfing, alpine skiing, travel.

Yachtsman, weightlifting athlete, former multiple winner and prize-winner of historical fencing, oriental martial arts and off-road motorsport competitions.