

# ACTIVITIES OF THE RUSSIAN FEDERATION IN THE FIELD OF CARTOGRAPHY AND SPATIAL DATA IN 2019-2023

NATIONAL REPORT OF THE RUSSIAN FEDERATION TO THE INTERNATIONAL CARTOGRAPHIC ASSOCIATION

Federal Service for State Registration, Cadastre and Cartography (Rosreestr)

Public law company "Roskadastr"

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#### Introduction

Russian (formerly Soviet) specialists have been participating in the activities of the International Cartographic Association (ICA) since 1971.

In accordance with the Decree of the Government of the Russian Federation of 19.08.2009 No. 1190-r, since 2009 the Federal Service for State Registration, Cadastre and Cartography (Rosreestr) represents the interests of the Russian Federation in the ICA activities.

The report on the development of cartography and spatial data in the Russian Federation, prepared by Rosreestr in cooperation with the public law company "Roskadastr", describes the system of state management and legal regulation of the cartography and spatial data sector in the Russian Federation, as well as current achievements and priority tasks.

Support of cartography and geoinformation technologies in Russia is envisaged by the key initiatives of socio-economic development of the country and is implemented under the State Program of the Russian Federation "National Spatial Data System", whose tasks include the creation of a Unified Digital Spatial Data Platform and a Unified Digital Basemap.

#### Competent public authorities

Since 2008 after the merge of three state bodies, the Federal Service for State Registration, Cadastre and Cartography (Rosreestr) has become responsible for the development of geospatial information management and cartographic sphere in the Russian Federation.

Since January 2020, Rosreestr is subordinate to the Government of the Russian Federation and provides statutory regulation in its spheres of responsibility.

Rosreestr is the center of competence for real property and spatial data and exercises the following functions and powers:

- → development of state policy and legal regulation in the fields of cadastral activities and cadastral relations, state cadastral appraisal, geodesy and cartography and organization of the spatial data infrastructure of the Russian Federation;
- → state registration of rights to real property;



- → maintenance of the Unified State Register of Real Property;
- → state cadastral registration of real property;
- → maintenance of the state register of cadastral engineers, as well as the register of state registrars of rights;
- → maintenance of the state register of self-regulatory organizations of cadastral engineers;
- → federal state supervision over the activities of self-regulatory organizations of cadastral engineers, the national association of self-regulatory organizations of cadastral engineers;
- → maintenance of the unified state register of self-regulatory organizations of appraisers;
- → federal state supervision over the activities of self-regulatory organizations of appraisers;
- → state monitoring of lands in the Russian Federation (except for agricultural lands);
- → federal state land control (supervision);
- → federal state control (supervision) in the field of geodesy and cartography;
- → state monitoring of the state cadastral valuation;
- → other powers specified in the Regulation on the Federal Service of State Registration, Cadastre and Cartography.

Rosreestr's structure includes the central office and territorial bodies.

In 2023, the public law company "Roskadastr" (PLC "Roskadastr") was created. It included two federal state budgetary institutions – the Federal Cadastral Chamber and the Center for Geodesy, Cartography and Spatial Data Infrastructure.

PLC "Roskadastr" and its branches perform the following functions:

- → geodetic and cartographic activities;
- → cadastral and land surveying works;
- → creation, operation, modernization and development of state information systems, state information resources in accordance with legislation in cases stipulated by federal laws, as well as the creation, operation, modernization and development of other information systems, other information resources and electronic services, including those used for searching, collecting, storing, processing, providing and distributing spatial data;



- → development, implementation and information support of electronic services required for the provision of services in accordance with the functions and powers of the PLC "Roskadastr";
- → maintenance of the data transmission network and provision of information resources, programs for electronic computers, software and hardware for the activities of Rosreestr;
- → scientific and educational activities (including research and development work);
- → activities in the field of information technology development, geodesy, cartography, spatial data and information security;
- → exhibition activities.

By 2024, JSC "Roscartography", which makes cartographic, navigation and geodetic products, will become part of the PLC "Roskadastr".

Rosreestr meets the needs of society and actively develops new standards of work.

The key principles of the agency's work are focus on customer, ecosystem approach, technology and speed.

## Results of Rosreestr activities in the field of cartography and spatial data

## Cartographic support of the Russian Federation

In the field of cartographic support of the Russian Federation in 2019-2023, Rosreestr carried out measures to create and update digital topographic maps, digital topographic maps of open use and open digital navigation maps at scales of  $1:25\ 000-1:100\ 000$ .

As of 2023, digital topographic maps and digital topographic maps of open use at a scale of 1:25 000 have been created for the territories with a high population density.

As a result of mapping of the territory of the Russian Federation, taking into account previously performed works:

- → 97% of the territory of the Russian Federation with a high population density is provided with topographic maps at a scale of 1:25 000;
- → 99% of the territory of the Russian Federation is provided with digital topographic maps at a scale of 1:50 000;



- → 100% of the territory of the Russian Federation, including the islands of the Arctic Ocean, is provided with digital topographic maps at a scale of 1:100 000;
- → 1072 cities of the Russian Federation are provided with digital navigation plans at a scale of 1:10 000, which covers 98% of the territories of cities with a population of less than 1 million people, and 828 cities with a population of less than 50 thousand people.

#### Unified Digital Basemap

The Unified Digital Basemap (UDB) is a systematized set of spatial data on the territory of the Russian Federation, created in the form of digital topographic maps (plans) and digital orthophotoplans (DOPP) of various scales. The PLC "Roskadastr" has the authority to create, update and ensure the monitoring of the relevance of the UDB, as well as its data ownership (in accordance with the Federal Law of 30.12.2021 No. 448-FZ "On Public Law Company "Roskadastr").

As of 2023, coverage of the UDB of the whole territory of Russia in the form of digital topographic maps of various scales has been provided. Maps have been compiled at a scale of 1:200 000 for the southern part of the country and at a scale of 1:25 000 for the territories with a high population density. There are also more detailed maps for a number of cities and regions: for example, digital topographic plans and DOPPs at a scale of 1:2000 have been compiled for Nizhny Novgorod and Perm.

The accuracy and completeness of UDB allows consumers to use it in various geoinformation systems and create any thematic layers and services based on it, as well as to ensure the reliability of the basemap made according to a single standard.

In 2021, the creation of the State Information System for the maintenance of the UDB (SIS UDB) was completed.

SIS UDB provides consumers with a basic legally significant domestic state cartographic basis – the UDB, in the form of cartographic services according to common OGC standards (in addition to vector and bitmap exchange formats, as well as image files). The system ensures continuous updating of the UDB data.

Rosreestr's activities in the field of storage and management of spatial information

Federal Spatial Data Fund (FSDF) includes geodetic, cartographic, topographic, hydrographic, aerospace and gravimetric materials of national importance. Since January 1, 2023, the holder of the FSDF is the PLC "Roskadastr"



which offers services for the provision of spatial data. The FSDF contains approximately 87 million units of storage of spatial data and materials.

In 2022, an information system for maintaining FSDF (IS FSDF) was created. The system provides automation of the processes of maintaining FSDF and digital materials storage and reduces the time of technological procedures for placing materials to the fund and issuing them to consumers. The main objectives of the system are automation of the process of providing a wide range of applicants with up-to-date cartographic and geodetic data, including the materials of the UDB through the integration of the IS FSDF with the SIS Federal Spatial Data Portal and SIS UDB and creation of tools for geo-analytics.

#### National Spatial Data System

In the context of digitalization, the spatial data provision services and the development of services based on them are of paramount importance for creating new opportunities for the dynamic development of the country. On December 1, 2021, the Government of the Russian Federation approved the State Program "National Spatial Data System" by Decree No. 2148.

As part of the goal of the State Program "Creation and implementation of digital domestic geospatial support, integrated with municipal and regional information systems, on the territories of regions of the Russian Federation by the end of 2030" the task was set to create a single digital spatial data platform on the territory of all regions of the Russian Federation.

On June 7, 2022, the Government of the Russian Federation issued Decree No. 1040 "On Creation of the Federal State Information System "Unified Digital Platform "National Spatial Data System", which approved the regulation provisions on the Federal State Information System "Unified Digital Platform "National Spatial Data System" (FSIS UDP NSDS).

FSIS UDP NSDS is a domestic geoinformation software that will allow to collect, process spatial data, create thematic data sets and provide digital services based on spatial data and achieve the required level of spatial data quality, ensure their standardization, accessibility and efficiency in digital services, wide reuse of data and components, and customer satisfaction of all stakeholders – from ordinary citizens and businesses to the state.



#### Legal framework and technical standards in the field of cartography and spatial data

Russia has a modern legal framework in the field of geodesy and cartography, land administration, state registration of real property and rights to it. The main legislative acts in these spheres are:

- $\rightarrow$  Land Code of the Russian Federation of 25.10.2001 No. 136-FZ;
- → Federal Law of 30.12.2015 No. 431-FZ "On Geodesy, Cartography and Spatial Data";
- → Federal Law of 18.12.1997 No. 152-FZ "On the Names of Geographical Objects";
- → Federal Law of 18.06.2001 No. 78-FZ "On Land Management";
- → Federal Law of 24.07.2007 No. 221-FZ "On Surveying (Cadastral) Activity";
- → Federal Law of 13.07.2015 No. 218-FZ "On State Real Property Registration".

These laws are supported by more than 300 by-laws (Decrees of the Government of the Russian Federation, departmental orders and regulations).

The list of regulatory legal acts in the spheres of geodesy and cartography is available on the <u>official website</u> of Rosreestr.

Rosreestr is the authorized federal executive body responsible for developing state policy and normative legal regulation in the fields of geodesy and cartography, organization of the spatial data infrastructure of the Russian Federation, and federal state control (supervision) in the fields of geodesy and cartography.

Rosreestr has developed a draft Federal Law No. 19881-8 "On Amendments to the Federal Law "On Geodesy, Cartography and Spatial Data and on Amendments to Certain Legislative Acts of the Russian Federation" and the Land Code of the Russian Federation" aiming to improve the regulation of relations emerging during geodesic and cartographic activities, including the use of domestic geoinformation technologies, systems of spatial data portals and SIS UDB.

The draft law proposes to identify a federal executive body authorized to carry out legal regulation in the field of domestic geoinformation technologies use (hereinafter the competent body) and empower such body to establish requirements for geoinformation system software and developers of such systems used in the state authorities of the Russian Federation and local self-government bodies, as well as to require the governmental sector to use domestic software for geoinformation systems.



The draft law also obliges legal entities performing geodetic and cartographic activities and using the results of such activities to submit information on spatial data (spatial metadata) materials obtained as a result of geodetic and cartographic work to the FSDF, which will enable other interested parties to obtain information on spatial data and materials that have already been collected.

In addition, in order to improve activities in the field of geodesy and cartography and to increase the efficiency of circulation of spatial data, the Rosreestr has prepared draft amendments of the Government of the Russian Federation to the draft law, which in particular suggests:

- → to add to the list of works performed in mapping activities the remote sensing of Earth;
- → to empower the competent body to approve the procedure for examination, maintenance, liquidation and restoration of the state geodetic network points, state levelling network points, and state gravimetric network points;
- → to supplement Federal Law No. 431-FZ with provisions regulating the requirements to the creation, operation, functioning and development of the Federal Geodetic Stations Network (FGSN), differential geodetic stations included in the FGSN, as well as the order of functioning of the FGSN state information system;
- → to empower the Government of the Russian Federation to approve the Regulation on confirmation of reliability of spatial data included in state spatial data funds.

New standards have been introduced in the field of cartography since 2019:

- → Russian National Standard (RNS) R 70077-2022 Space imagery materials for creating and updating state topographic maps. Quality assessment. Basic requirements;
- → RNS R 70170-2022 Cartography. Cartographic publications. Output information. Basic requirements;
- → RNS R 70171-2022 Cartography. Requirements for displaying the state border of the Russian Federation and the borders between the regions of the Russian Federation on digital topographic maps and plans;
- → RNS R 70172-2022 Geodesy and cartography. Requirements for technical control of geodesic and cartographic products and processes of their creation. Main provisions;



- → RNS R 70173-2022 Cartography. Three-dimensional digital plans of settlements at a scale of 1:500. Basic requirements;
- → RNS R 70174-2022 Digital Cartography. Processes for creating the "Relief" content element of digital topographic maps at a scale of 1:25 000. Basic requirements;
- → RNS R 70175-2022 Cartography. Processes for creating and updating digital topographic maps at scales of 1:25 000, 1:50 000, 1:100 000. Basic requirements;
- → RNS R 70316-2022 (ISO 19112:2019) Spatial data. Spatial reference by geographical identifiers;
- → RNS R 70317-2022 (ISO/TS 19115-3:2016) Spatial data. Metadata. Part 3. XML schema implementation for basic concepts;
- → RNS R 70318-2022 Spatial data infrastructure. Unified Digital Basemap. Basic requirements.

# Activities on national standardization of geographical names of the Russian Federation

Rosreestr is the authorized federal executive body responsible for the names of geographical objects in the Russian Federation.

Rosreestr in the field of names of geographical objects performs the following functions:

- → development of state policy and legal regulation in the area of names of geographical objects;
- → creation and maintenance of the State Catalogue of Geographical Names;
- → normalization of names of geographical objects in Russian language;
- → conducting expert examination of proposals for naming geographical objects and renaming geographical objects, issuing conclusions on the proposals;
- → approval of the content of dictionaries and gazetteers of names of geographical objects, which are prepared and published by the federal executive bodies and public authorities of the subjects of the Russian Federation in part of its competence before their publication.

As part of its expertise, Rosreestr works to coordinate with the relevant federal executive bodies concerned on proposals to assign names to railway



stations, sea and river ports, airports, geographical objects of the territorial sea, continental shelf and exclusive economic zone of the Russian Federation, geographical objects discovered or identified by Russian researchers within the open sea and Antarctic, or on renaming such geographical objects.

As part of maintaining the State Catalogue of Geographical Names, work is carried out to register and record the names of geographical objects of the Russian Federation, the continental shelf and exclusive economic zone of the Russian Federation and geographical objects discovered or identified by Russian researchers within the open sea and Antarctic, as well as to identify existing names of geographical objects.

#### Legislation of the Russian Federation in the field of geographical names

The legislation of the Russian Federation in the field of names of geographical objects is based on the Constitution of the Russian Federation and includes the Federal Law of 18.12.1997 No. 152-FZ "On the Names of Geographical Objects", as well as adopted in their development normative legal acts of the Russian Federation.

The following normative legal acts are in effect in the Russian Federation:

- 1) Order of the President of the Russian Federation of 28.11.2018 No. 681 "On Naming Certain Geographical Objects after Persons of Special Merit to the Fatherland",
- 2) Decree of the Government of the Russian Federation of 15.11.2012 No. 1167 "On the Procedure for Approval of Proposals for Naming Certain Geographical Objects or Renaming Such Geographical Objects";
- 3) Decree of the Government of the Russian Federation of 07.03.2019 No. 245 "On Approval of the Rules for Consideration of Proposals on Naming Certain Geographical Objects after Persons of Special Merit to the Fatherland, and the Use of Such Names";
- 4) Order of Rosreestr of 03.12.2021 No. P/0570 "On Approval of the Procedure for Examination of Proposals on Naming Geographical Objects and Renaming Geographical Objects, as well as Issuing Conclusions on these Proposal";
- 5) Order of Rosreestr of 22.06.2022 No. P/0241 "On Approval of the Procedure of Registration of Names of Geographical Objects, Publication of Dictionaries and Gazetteers of Names of Geographical Objects, as well as Work on the Creation and Maintenance of the State Catalogue of Geographical Names";



6) Order of Rosreestr of 22.06.2022 No. P/0242 "On Approval of the Procedure of Identifying the Existing Names of Geographical Objects".

The enumerated normative legal acts in the field of names of geographical objects are available on the <u>official website</u> of Rosreestr.

#### Creation of a national database of geographical names

Taking into account the expertise conducted by Rosreestr in the period from 2019 to 2023, the Government of the Russian Federation adopted 89 decisions on naming and renaming 140 geographic objects.

The basis of the State Catalogue of Geographical Names (State Catalogue) is an information retrieval system, which provides the formation of a database of objects and their names, its storage, processing and delivery of information registered in it at the request of interested parties on a free-of-charge basis.

The State Catalogue, created in the Russian Federation, consists of two sections:

the first section contains information on the geographical objects of the land part of the Russian Federation;

the second section contains information on the geographical objects of the continental shelf of the Russian Federation, the exclusive economic zone of the Russian Federation, as well as geographical objects discovered or identified by Russian researchers in the open sea or in Antarctica.

In the database of the State Catalogue each geographical object is characterized by indicators, most of which represent the information necessary for registration and unique identification of the geographical object.

When information indicators above a given complex are placed in the State Catalogue database, an automatic registration is performed, which is accompanied by assignment of individual registration numbers to the names of geographical objects with fixation of the registration date in the database.

The State Catalogue database already contains information on the names of 793 519 geographical objects, including information on 1891 names of geographical objects of the continental shelf and exclusive economic zone of the Russian Federation, as well as the names of geographical objects discovered or identified by Russian researchers within the open sea and Antarctica.



In the State Catalogue database, each geographical object is defined by parameters, most of which are obligatory for its registration and unique identification (name, generic term, administrative status of a settlement, administrative affiliation, geo-coordinates, nomenclature of the 1:100 000 scale topographic map sheet on which the object is shown, object location relative to other large objects). Another part of parameters covers additional information about the name and the object (name variants, variants of the generic term, origin of the name, etc.).

The State Catalogue is used to maintain an electronic bulletin of official changes of geographical names made in the Russian Federation since 1997.

The electronic bulletin is available on the <u>official website</u> of Rosreestr.

#### International activities

The main goal of Rosreestr's international activities is to improve the registry and accounting system, increase the efficiency of geodetic and cartographic support of Russia and the quality of public services on the basis of best international practices.

Rosreestr represents the interests of the Russian Federation in international organizations within the United Nations system and international non-governmental expert organizations (International Cartographic Association, International Federation of Surveyors, International Society for Photogrammetry and Remote Sensing), participates in international projects, thus providing information regarding new developments in the registration of rights for real estate, cadastral activities, geodesy, cartography, the use of geographic information systems and Earth remote sensing technologies in different sectors of economy.

Rosreestr also regularly conducts analysis of best foreign practices in the areas of its activities.

Bilateral cooperation with relevant agencies of member states of the Commonwealth of Independent States (CIS), as well as other foreign countries, is being developed on the basis of international treaties and agreements (memorandums of understanding and cooperation), as well as through the mechanism of intergovernmental commissions in order to exchange experience.



Rosreestr serves as the secretariat of the CIS Member-States Council on Geodesy, Cartography, Cadastre and Earth Remote Sensing (Council), whose activities are aimed at developing and strengthening multilateral cooperation of cartographic and geodesic services of the CIS member states. One of its priority projects is the creation of a Geoportal for CIS countries (Geoportal) by 2025.

At the 44th session of the Council in 2022, the mapping authorities of CIS-countries endorsed creation of the Geoportal on the basis of the Russian "Unified Digital Platform "National Spatial Data System", which will provide the exchange of basic spatial data and thematic sets of open-use spatial data.

CIS Geoportal based on NSDS will comprise of spatial data, first of all precise and authoritative official maps, and spatial data-based services, developed for businesses (spatial data for investors), individuals and communities (information for tourists, data on leading educational institutions, etc.).

#### Cartographic education in the Russian Federation

There are several key specialized universities in the Russian Federation which provide bachelor's, master's, research and doctoral degree programs in geodesy, cartography, cadastre and geoinformatics. At the same time, these fields of study are also present among educational programs at other Russian universities.

1) Moscow State University of Geodesy and Cartography (MSUGC) is the key institution for the industry in Russia and a basic organization of the CIS for training professionals in the fields of geodesy, cartography, cadastre and Earth remote sensing.

MSUGC is a member of the UN International Committee on Global Navigation Satellite Systems, National Committee for the Promotion of Economic Cooperation with Latin America Countries, EU ERASMUS program and cooperates with foreign universities and organizations.

A consortium with a unique level of competence, which includes Kazan Federal University, National Research Tomsk State University, and Tyumen State University, operates under the lead of MSUGC as the head university of the industry.

Official website: <a href="https://www.miigaik.ru/">https://www.miigaik.ru/</a>.

2) The State University of Land Use Planning was founded in 1779 and possesses a status of the main educational, methodological and scientific center of



land use planning and cadastre in Russia. The "University complex" includes 26 education, research and production enterprises. The education programmes focus on: land management and cadastres, ecology and nature management, real estate management and development, architecture, landscape architecture, geodesy and remote sensing, etc.

The university has over 100 partnership agreements with foreign universities and organizations and coordinates the Educational and Methodological Council (Association) of Higher Education Institutions in the areas of land use planning and cadastre (94 member universities).

Official website: <a href="https://guz.ru/">https://guz.ru/</a>.

*3) Siberian State University of Geosystems and Technologies* is a specialized Russian university located in Siberia (Novosibirsk).

The university has four research institutes:

- → Research Institute of Strategic Development;
- → Research Institute of Earth Measurement;
- → Research Institute of Instrumentation and Optical Engineering;
- → Research Institute of Economics, Management and Human Sciences.

The institutes include 17 scientific schools, headed by leading scientists, and more than 40 scientific and educational laboratories and centers.

Official website: <a href="https://sgugit.ru/">https://sgugit.ru/</a>.

*4) Lomonosov Moscow State University (MSU)*, the oldest university of Russia, is currently one of the largest Russian higher education institutions. The MSU Geography Faculty, which also trains specialists in cartography and geoinformatics, has 15 departments, 8 research laboratories, 5 educational, and research bases, including the Laboratory of Complex Cartography and the Laboratory of Integrated Cartography, and a Geoinformation Technology Centre.

The MSU Geoportal (geoinformation system with real-time satellite data update) has been operating for more than 10 years. The faculty provides unique opportunities for access to satellite images of the Earth. The images obtained using the Geoportal are widely used by students.

Official website: <a href="https://www.msu.ru/">https://www.msu.ru/</a>.

The Geoportal can be found at the <u>link</u>.



5) Kazan Federal University named after N.I. Lobachevsky (KFU), one of the leading universities in Russia, is named after the famous Russian mathematician and astronomer. As one of the oldest universities in Russia, KFU also pays considerable attention to innovative areas of scientific knowledge, while training specialists in cartography and geo-informatics, geodesy and remote sensing. One of the key partners of KFU's is the Innopolis University GIS Centre. Its team carries out science-intensive projects using artificial intelligence and spatial data for building digital models.

Official website: <a href="https://kpfu.ru/">https://kpfu.ru/</a>.

*6) National Research Tomsk State University (TSU)* is one of 29 Russian educational institutions with the status of research universities.

Tomsk Regional Branch of the Russian Geographical Society founded in 1948 on the geographical department of TSU, which enhances a wide range of systematic scientific researches.

There are 10 scientific commissions, including commissions of physical geography and geomorphology, cartography and geoinformation technologies that participate in creation of a unified geoinformation space of Tomsk region and a corresponding geoportal.

Official website: <a href="https://www.tsu.ru/">https://www.tsu.ru/</a>.

7) Tyumen State University has a wide range of geo-spatial research activities performed by the Institute of Earth Sciences. The Institute trains specialists in the fields of cartography and geo-informatics, combining a complex of disciplines in cartography, geoinformation technologies, geodesy, topography, land and urban cadastre, etc.

The university has a department of Cartography and Geoinformation Systems that employs and develops new methods of using GIS systems in the environmental activities of government agencies and oil and gas sector enterprises. Scientific developments related to cartographic support of environmental design and rational use of natural resources, spatial analysis of natural and anthropogenic factors in the formation of environmental quality are part of the university's activities.

Official website: <a href="https://www.utmn.ru/">https://www.utmn.ru/</a>.

8) National Research University "Higher School of Economics" (HSE) trains specialists in the fields of geoinformation technologies and spatial modelling.



Training is based on intersection of geography and computer science, including the field of «Big Data». Students study the entire cycle of working with spatial data – from primary collection using various monitoring systems to the creation of the final geoinformation solution.

Official website: <a href="https://www.hse.ru/">https://www.hse.ru/</a>.

*9) North-Eastern Federal University named after M.K. Ammosov* is a diversified federal university located in the Far East (Yakutsk).

The University has a developed infrastructure of the scientific and educational complex, which includes 5 research institutes, 12 institutes, 3 branches (Polytechnic Institute in Mirny, Technical Institute in Neryungri and Chukchi branch in Anadyr), as well as 2 colleges and a lyceum.

Within the framework of the university there are:

- → 16 scientific schools;
- → 92 educational and scientific, scientific and technological and scientific laboratories:
- → 22 scientific and educational centers.

The University is one of the country's basic universities focused on solving geopolitical problems, developing fundamental and applied research, and meeting the staffing needs of large interregional investment projects.

Official website: https://www.s-vfu.ru/.

*10) Moscow College of Geodesy and Cartography* is one of the oldest institutions of secondary professional education founded in 1920.

It trains specialists of the basic level in the fields of applied geodesy, aerial geodesy, cartography, and land and property turnover. College graduates often continue their professional studies at the MSUGC.

Official website: <a href="http://mkgik.org/">http://mkgik.org/</a>.

## Cartographic activities of other governmental agencies

Along with cartographic activities of federal significance, some ministries and agencies of the Russian Federation also carry out cartographic work supporting certain branches of science and production.



The main bodies organizing state mapping in various industries on the territory of Russia are:

Ministry of Defence of the Russian Federation;

Ministry of Transport of the Russian Federation;

Ministry of Agriculture of the Russian Federation;

Ministry of Science and Higher Education of the Russian Federation;

Federal Agency for Mineral Resources etc.