A·E R·O·M·A·X
GROUP

Comprehensive and innovative solutions

using unmanned aerial systems and geo-information platforms


SH-3000
A·E·R·O·M·A·X
GROUP

CONTENT

Company profile

"Aeromax is one of the leading players in the Russian market of civilian unmanned aerial vehicles and digital geo-information platforms. Aeromax Group includes companies that provide a continuous chain from development and production of unmanned aerial systems (UAS) to provision of comprehensive services using them throughout the country. The Aeromax group of companies is comprised of companies that provide a continuous chain from the development and production of unmanned aerial systems (UAS) to the provision of integrated services using them throughout the country.

Production of UAS and target loads

"Aeromax-Tech combines the technical and production potential of the group of companies and is the centre of development, production and maintenance of UAS. The company has two design bureaus, pilot and serial production of helicopter, aircraft and copter-type ASVs, a centre for the development of target loads and equipment for ASVs.

Provision of UAS services

"Aeromax-Avia includes an aviation training centre
The airline's aviation training centre, air traffic control and ground infrastructure
The Aeromax Aviation includes an aviation training centre, air traffic control and ground infrastructure management, as well as regional aviation companies. It is responsible for training and operating a fleet of aircraft for tasks in the forestry, agriculture, construction, oil and gas, power grid and cargo sectors.

Creating digital solutions

The company develops its own software for
BAS, as well as digital solutions for geospatial data processing
data and their subsequent integration with customers' information systems customers' information systems.

OUR CAPABILITIES

Freight delivery

Transporting cargo using unmanned helicopters

Monitoring

Aerial survey using unmanned aerial systems

Visualisation and digitalization

Display of maps, orthophotos, classified point clouds, 3D object models on the geoportal

Processing of aerial survey data

Automatic data processing and analysis using artificial intelligence technologies

Expertise and design

Preparation of project documentation and expert reports

Integration with customer IS

Integration of in-house geo-information solutions with customer information systems

UAV FLEET

ROTORY WING

SH-350
Maximum take-off weight— 350 kg
Maximum payload capacity — 50 kg
Maximum flight range — 450 km
Maximum flight duration — 6 h

SH-750
Maximum take-off weight— 750 kg
Maximum payload capacity— 300 kg
Maximum flight range — 600 km
Maximum flight duration — 5 h

SH-450
Maximum take-off weight — 450 kg
Maximum payload capacity — 100 kg
Maximum flight range — 500 km
Maximum flight duration — 6 h

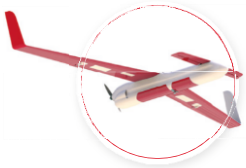
SH-3000
Maximum take-off weight— 3000 kg
Maximum payload capacity — 1000 kg
Maximum flight range — 720 km
Maximum flight duration — 6 h

COPTER

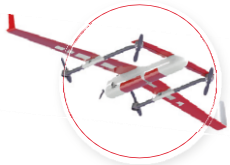
AC-MK 4
Maximum take-off weight — 16,5 kg
Maximum payload capacity — 5 kg
Maximum flight range — 40 km
Maximum flight duration — 80 min

AC-MK 6
Maximum take-off weight — 21 kg
Maximum payload capacity — 7 kg
Maximum flight range — 30 km
Maximum flight duration — 75 min

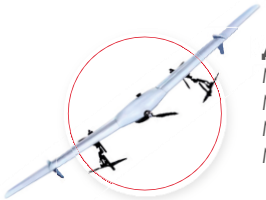
FIXED-WING



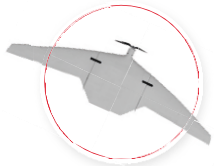
Д-20
Maximum take-off weight — 29 kg
Maximum payload capacity — 5 kg
Maximum flight range — 1000 km
Maximum flight duration — 14 h



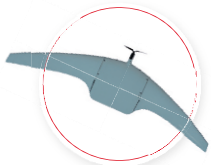
Д-20К
Maximum take-off weight — 29 kg
Maximum payload capacity — 5 kg
Maximum flight range — 800 km
Maximum flight duration — 11 h



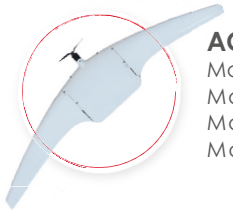
Д-12К
Maximum take-off weight— 12 kg
Maximum payload capacity — 1,5 kg
Maximum flight range— 100 kg
Maximum flight duration — 1,5 h



АС-32-08
Maximum take-off weight — 6 kg
Maximum payload capacity — 0,9 kg
Maximum flight range— 130 km
Maximum flight duration — 3 h



АС-32-10
Maximum take-off weight— 14,5 kg
Maximum payload capacity — 1,5 kg
Maximum flight range— 350 km
Maximum flight duration — 5 h



АС-32-12
Maximum take-off weight— 13,5 kg
Maximum payload capacity — 2,5 kg
Maximum flight range— 240 km
Maximum flight duration — 4,5 h

PAYLOAD AND EQUIPMENT

(INCLUDING IN-HOUSE PRODUCTION)

Optoelectronic systems

Laser methane leakage sensor

Airborne laser scanners

Fire extinguishing systems

On-board visible and near-infrared cameras

Aerial camera

Multispectral cameras

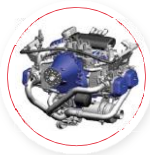
Automatic landing system

Active phased array radar station

Underwater photogrammetric unit

Command and information radio modems

Shipping containers



Engines for UAS

Ground control stations (fixed, mobile, portable)

Digital solutions

«ProLes»
The ProLes Automated Dispatching System (ADS) is designed to collect data, control, analyse and plan the business processes of a logging enterprise. The ProLes ASD covers the entire process of timber harvesting, transportation and storage.

FMC
The Flight Management Centre (FMC) is a software and hardware complex that solves the tasks of airline automation: accounting and planning of human and material resources, integration with air traffic management centre systems, creation of flight plans, preparation and coordination of flight tasks.

«LOGARIFM»
The «Logarifm» hardware and software system is designed to control the target load, interact with ATC operators, perform maintenance on the unmanned aircraft and assist the external ATC pilot during take-off and landing operations.

APPLICATION

Transporting cargo using UAS

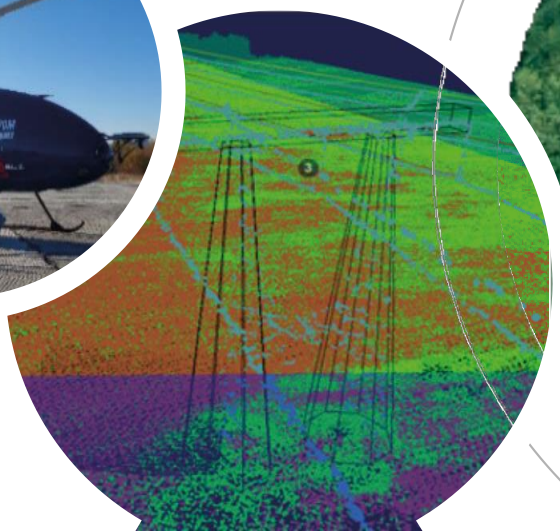
Unmanned aerial systems are successfully used in Russia and all over the world in cases where the delivery of cargo by ground transport and manned vehicles is impossible or economically inefficient. Aeromax has an extensive fleet of in-house manufactured cargo UAVs. They can perform operations in poor visibility and difficult climatic conditions, as well as take off and land on unprepared sites.

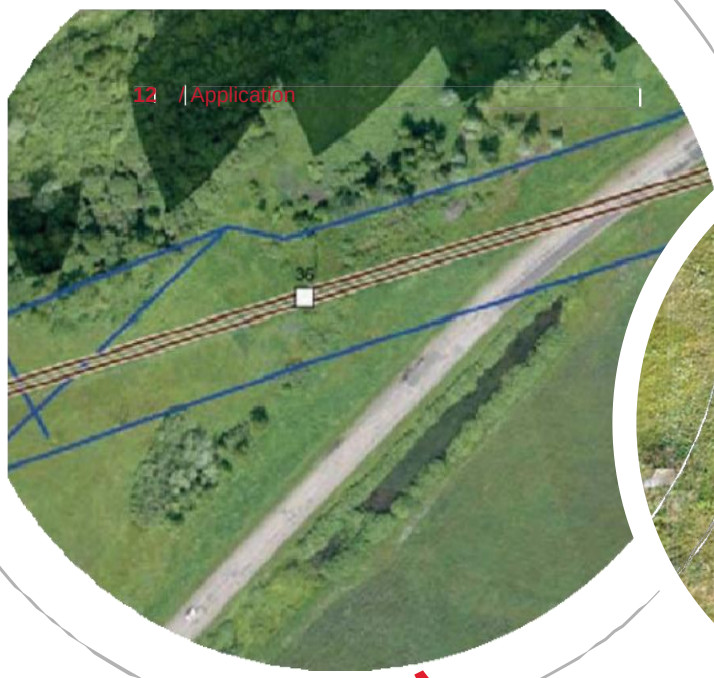
- Delivery to hard-to-reach areas
- Prompt transport of essential goods, including parcels, medical supplies, pharmaceuticals, biologics, foodstuffs, etc.
- Transportation of critical and time-sensitive goods such as tools, spare parts and raw material samples.
- Prompt delivery of the necessary equipment to the scene of the emergency.

OIL AND GAS SECTOR

Site survey and monitoring using UAS, including in real time. Cargo delivery.

- Monitoring of accidents and disturbances in the protected area of trunk pipelines (detection of objects from 0.3×0.3 m in post-processing mode and from 2×2 m in online mode):
  - oil and petroleum product spills;
  - the presence of dangerous geological processes;
  - unauthorised taps;
  - the actions of third parties and the presence of vehicles.
- Monitoring the progress of construction and repair work.
- Building of orthophotomaps, digital terrain models.
- Thermal imaging control/
- Lidar imagery (aerial laser scanning).
- Building 3D models of objects.
- Generating reports, including on the results of remediation and incident management.
- Delivery of cargo to the fields.





POWER GRID COMPLEX

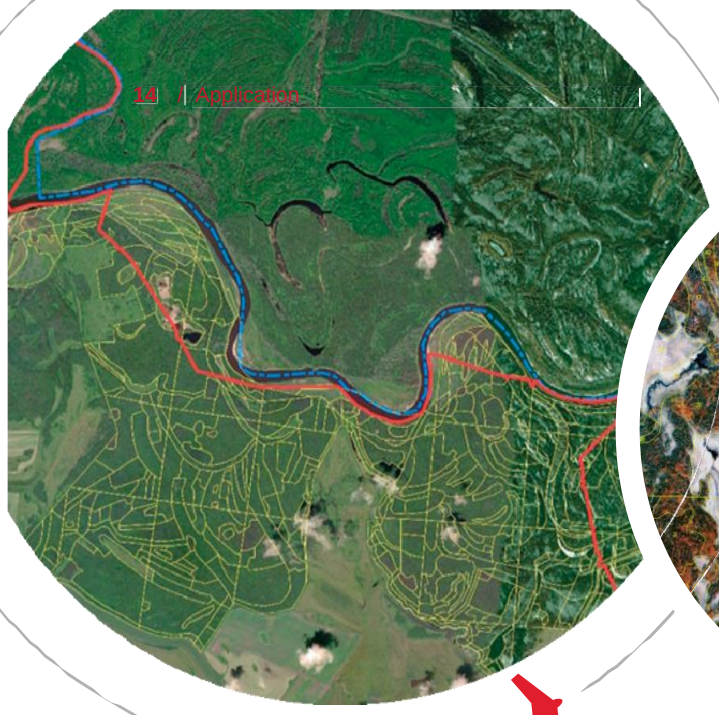
The monitoring of overhead power lines and substations, followed by automated processing of the survey data, provides timely information on the condition of facilities, identifying potential hazards and operational disturbances.

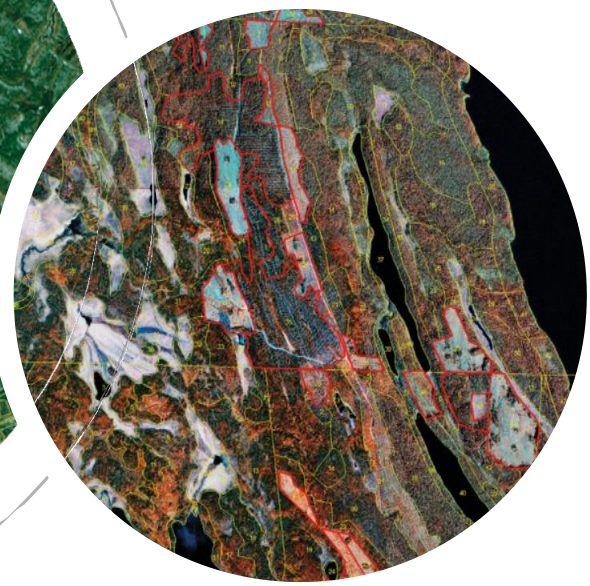
- Determination of the technical condition of power grid facilities.
- Creation of a unified information system of power transmission lines and energy infrastructure data.
- Modelling and prevention of emergency situations.
- Identification of threatening trees, determination of parameters of tree and shrub vegetation, calculation of clearing area and timber volumes.
- Identification of illegal constructions and unauthorised works in the protected area.
- Synchronisation and integration of data on works carried out on transmission lines.
- Integration with data from accounting systems.
- 3D/2D visualisation of data on the geoportal, linking to a digital terrain model.

AGRICULTURE

Aeromax technologies are used to monitor and assess the condition of farmland, identify problem areas in the growing season, and spot apply agrochemicals.

- Creation of digital field maps and digital elevation models.
- Terrain analysis, watercourse delineation
- drainage basins and drainless areas.
- Development of geoinformation systems.
- Audit of land bank.
- Documenting cases of inappropriate use of land.
- Crop germination control and yield analysis.
- Establishment of guidelines for herbicide and fertiliser application.
- Fertilizer application.
- Assessment of land reclamation systems and hydraulic structures.
- Remote phytosanitary monitoring of farmland.
- Monitoring the implementation and evaluation of the effectiveness of agronomic measures.
- Differentiated application of plant protection products and fertilizers.
- Assessment of damage from agroclimatic anomalies.





FORESTRY

Services for businesses and public institutions.

- Carrying out forest survey works.
- Forest inventory.
- Creation of combined databases of forest inventory information.
- Creation of orthophotomaps for forest inventory based on mono- and stereoscopic survey.
- Design of measures for forest use, conservation, protection and regeneration.
- Integrated economic assessment of forest resources for timber harvesting purposes.
- Designing a network of forest roads and warehouses.
- Development of materials of the complex environmental survey for the purposes of creation and reorganisation of SPNAs.
- Assessment of recreational potential, forest inventory and design of forest plantation conservation and reproduction measures.
- Remote monitoring of forest use and condition.
- Forest pathology survey of dead wood on the basis of aerial photography.
- Development of forest plans, forest management regulations and forest management projects.
- Production of electronic elevation maps for GPS/GLONASS navigators.

CONSTRUCTION

Aerial surveys for design, construction progress monitoring and surveying of operating facilities.

•Engineering and geodetic surveys, creation of orthophotomaps, digital elevation models, digital topographic maps and plans at a scale of 1 : 500, 1 : 1000, 1 : 2000, 1 : 5000, 1 : 10000.
• Creation of three-dimensional models of the area and objects.
•Control of progress and stages of construction.
• Determining the volume of earthwork that has been done.
• Determining the quantities of bulk materials in open storages.
• Monitoring of the work of machinery and contractors.
• Thermal imaging survey, identification of heat loss areas, equipment defects.
• Integration with information systems of developers and builders, including BIM technology support.
• Implementation of customised
• IT solutions.

URBAN PLANNING AND LAND MANAGEMENT

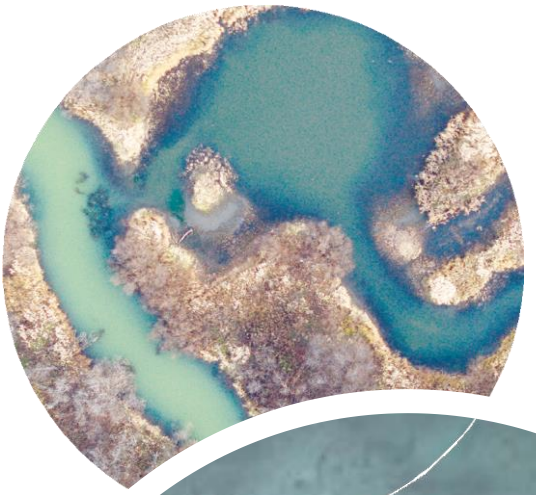
Aerial photography using unmanned aerial systems in combination with satellite technology helps to obtain up-to-date geospatial information for land surveying and cadastral works. Orthophotomaps as a cadastre base help in determining borders of land plots, zones of special conditions of territory use, location of buildings, constructions, unfinished construction objects. Comprehensive data analysis and 3D-visualisation technology will not only help to plan further development of territories, but also to regulate legal issues related to land property and any real estate.

- Collection of data for cadastral registration and elimination of cadastral errors.
- Identification of illegal constructions, land seizures, unauthorised border changes, misuse of land plots.
- Drawing of topographical plans terrain and measurable 3D models of settlements, individual objects.
- Creation of stereomodels of built-up areas.
- Formation of the basis for clarification of tax revenues to the budgets of different levels.

ENVIRONMENTAL MONITORING

Aeromax organises a comprehensive environmental observation system. The monitoring allows violations of environmental legislation to be detected. The use of unmanned aerial systems reduces the volume of ground surveys by several times, improves the accuracy of the results obtained and determines the real extent of pollution.

- Collecting, analysing and updating data on the state of the environment.
- Recording of detected violations of environmental legislation.
- Identification of unauthorised dumps and determination of their volume.
- Real-time monitoring of potentially hazardous objects.
- Fixation of ignition sources and waste incineration sites.



OUR CLIENTS AND PARTNERS

Moscow

St. Peterburg

Novgorod region

Sakhalin region

Khanty-Mansiysk Autonomous District

Nizhny Novgorod region

Vladimir region

Kostroma region

Yamalo-Nenets Autonomous District

Tomsk region

Oryol region

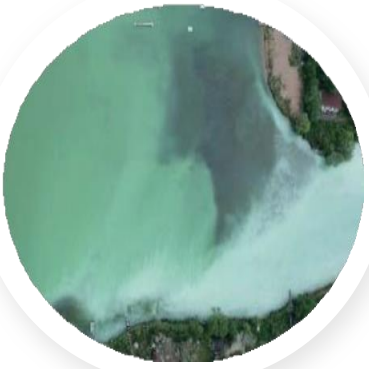
OUR PROJECTS

Application of UAS for perimeter security and monitoring of the perimeter of a facility

An advanced perimeter control and monitoring system for large-area facilities has been implemented jointly with “AB-SAFETY” at the Emerald Forest eco-hotel in the Klin district of the Moscow region (220 hectares).

Delivering cargo to remote fields

In the Khanty-Mansi and Yamalo-Nenets autonomous regions, unmanned helicopters have been used to deliver cargo.



Detecting violations of environmental legislation in St Petersburg

An aerial survey was carried out in St Petersburg to identify violations of environmental legislation.

Forest management in Nizhny Novgorod Oblast

Field and desk work on forest inventory (forest inventory by glazing method and design of measures for protection, protection and reproduction of forests) on the lands of the forest fund in Sergach interdistrict forest district were carried out.

Monitoring of the protection zone of main oil pipelines

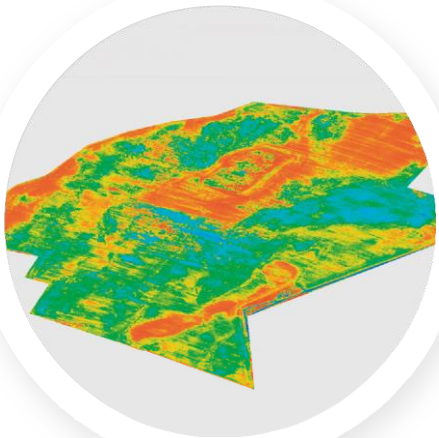
To ensure the reliable and safe operation of Transneft's oil and petroleum product transportation and storage facilities.

Taxation of forests in Kaluga Oblast

The forests located on the protected areas were taxed by means of the first measurement method on the part of the Belyaevsky forest district FSBI "Ugra National Park" on the area of 4,134 hectares.

Defining the boundaries of agricultural land

An aerial survey of farmland has been carried out in the Tyumen region. The contours of the fields have been defined and a vector layer with the boundaries of agricultural land has been created.



Aerial survey of agricultural land

a multispectral survey of a problem field with spring wheat was carried out in Novgorod oblast. Based on the results, proposals for a differentiated application of nitrogen fertilisers were made.

Construction monitoring

Created panoramic views from the windows of the flats during the design and construction stages for the Etalon Group. The construction progress has been clearly demonstrated by photos and videos.

Development of an automated dispatching system for the timber industry

For the benefit of Segezha Group's business unit in the Vologda region, a system for monitoring vehicles, fuel and oil consumption and timber movement has been set up to improve the quality and efficiency of enterprise management.

Developing a comprehensive and innovative system for monitoring oil and gas pipelines

In cooperation with MTS PJSC, a system has been developed to obtain real-time data from unmanned aerial vehicles.

Survey of the Orenburg field

An aerial survey, orthophotomap, height maps (DEM) and a 3D terrain model have been produced for Gazprom's benefit.

Aerial photography of the Svir River

An aerial survey of the river was carried out and up-to-date and complete information on the state of navigational equipment and other facilities was obtained.

Freight transport analysis

For the benefit of Gazprom Neft, an analysis of cargo transportation and logistics infrastructure was carried out. A pilot project of an unmanned air transport network for cargo transportation was developed.

Forest management in the Smirnykhovsky forest area of Sakhalin Oblast

Forest management has been carried out on an area of a total area of 186,517 hectares. The field phase of the work was carried out by glancing inventory method and analytical-measuring interpretation of aerial photos according to the third taxation category in accordance with the current Forest Management Instruction.

Construction monitoring and creation of 3D model of a pre-school in St Petersburg

The latest information on construction progress can be retrieved online.

Power line survey

In Bashkiria in the interests of "Bashkirenergo carried out aerial surveys In Bashkirenergo's interests, aerial surveys of 35 kV overhead lines and 110 kV overhead lines with a total length of over 2,200 km were carried out.

Development of a geographical information system

In the interests of Bashkirenergo, a GIS system has been developed and implemented to reduce the likelihood of accidents, technological failures and other abnormal situations.

Air patrolling of pipelines

For the benefit of Gazprom subsidiaries, Aeromax unmanned aerial systems regularly fly over the linear part of trunk pipelines, including infrastructure facilities within the protected area.

Monitoring changes in coal production volumes

Remote sensing, orthophotomap and topographic plan creation services were performed for Elgaugol, providing the client with access to a photogrammetric platform.

Trials of a functional medical consignment service

As part of the pilot legal regime programme in Tomsk region, tests were conducted to deliver medical cargo by unmanned aerial systems to hard-to-reach areas.

LICENCES AND CERTIFICATES





- Licence for **geodetic and cartographic** activities
- **ISO 9001:2015** quality management system certificate
- **ISO 14001:2015** environmental management system certificate
- **ISO 45001:2018** Occupational Health and Safety Management System certificate
- Licence to carry out work involving the use of information constituting a **state secret**

More information on the website www.aeromax-group.ru

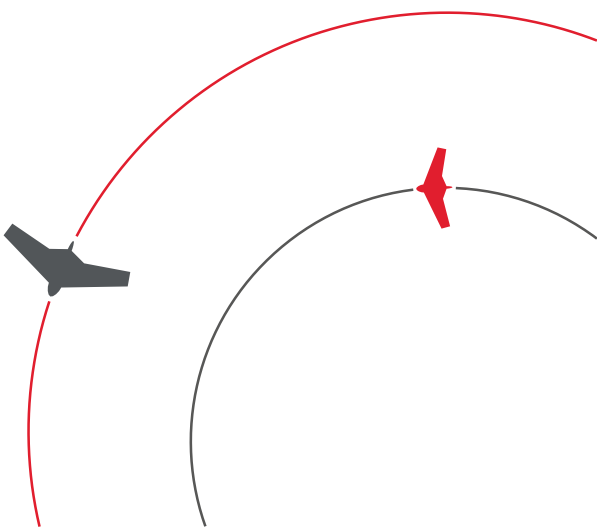
MEMBERSHIP AND RESIDENCY

• The company is a member of the association of operators and developers of unmanned aerial systems Aeronet

• The company is a resident of the Moscow Innovation Cluster

• The company is a member of the Aeronest Market Development Working Group of the STI RF

• OOO ABC.PRO (part of the Aeromax Group) is a participant in the Skolkovo project



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