REMOTE SENSING DATA: INTERNATIONAL EXPERIENCES AND APPLICATIONS

G. M. Mirzakarimova
Fergana Polytechnic Institute, Assistant of the Department of "Geodesy, Cartography and Cadasters"
Kh.T.Murodilov
Ferghana Polytechnic Institute, Master's student of Geodesy, Cartography and Cadastre
U.Q.Toshmatov
Ferghana Polytechnic Institute, students of organization and management of utility infrastructure of city construction.

Introduction: *Remote sensing is the process of acquiring information about the Earth's surface without being in direct contact with it. Remote sensing data is collected by sensors mounted on various platforms such as satellites, aircraft, and drones. The data collected can be used for a wide range of applications, including environmental monitoring, agriculture, disaster response, and urban planning. In this article, we will explore international experiences of remote sensing data and its applications.*

Key words: *Remote Sensing, Data, Applications, Agriculture, Disaster Response, Environmental Monitoring, Urban Planning, Spatial Resolution, Data Accuracy, Technology, Infrastructure.*

Introduction.

Remote sensing is the process of detecting and monitoring the physical characteristics of an area by measuring its reflected and emitted radiation at a distance (typically from satellite or aircraft). Special cameras collect remotely sensed images, which help researchers "sense" things about the Earth [6]. Remote sensing is the process of acquiring information about the Earth's surface without being in direct contact with it. This is typically accomplished through the use of sensors mounted on various platforms such as satellites, aircraft, and drones. Remote sensing data collected by these sensors can be used for a wide range of applications, including environmental monitoring, agriculture, disaster response, and urban planning. In recent years, remote sensing technology has advanced significantly, providing more accurate and detailed data than ever before. This has led to increased interest and utilization of remote sensing data across the globe, with many countries using this technology for various applications. In this

article, we will explore the international experiences of remote sensing data and its applications, including the methods used for collection and analysis, challenges associated with its use, and the future of this technology.

Here information about the potential applications of remote sensing data in Uzbekistan and how it may be used to address certain issues.

Uzbekistan is located in Central Asia and is known for its diverse landscapes, including deserts, mountain ranges, and river valleys. Remote sensing data can be used to monitor the environment in Uzbekistan, including changes in land use, vegetation cover, and water resources. This data can also be used for urban planning and infrastructure management, as well as disaster response and mitigation. For example, remote sensing data can be used to monitor and manage water resources in Uzbekistan, which is a significant issue in the region. The data can be used to identify changes in water levels and monitor the flow of rivers and other bodies of water. This information can be used to develop strategies to manage water resources more efficiently, such as identifying areas where irrigation is needed or where water usage can be reduced.

Remote sensing data can also be used to monitor and address issues related to agriculture in Uzbekistan. The data can be used to monitor crop growth and health, as well as identify areas of soil degradation or nutrient deficiencies. This information can be used to develop strategies to improve crop yields and increase food security in the region. Overall, remote sensing data has the potential to play a significant role in addressing various issues in Uzbekistan, from environmental monitoring to disaster response and mitigation. However, the use of this technology may face challenges related to data accessibility, infrastructure, and technology. Below we can show pictures of prosses.
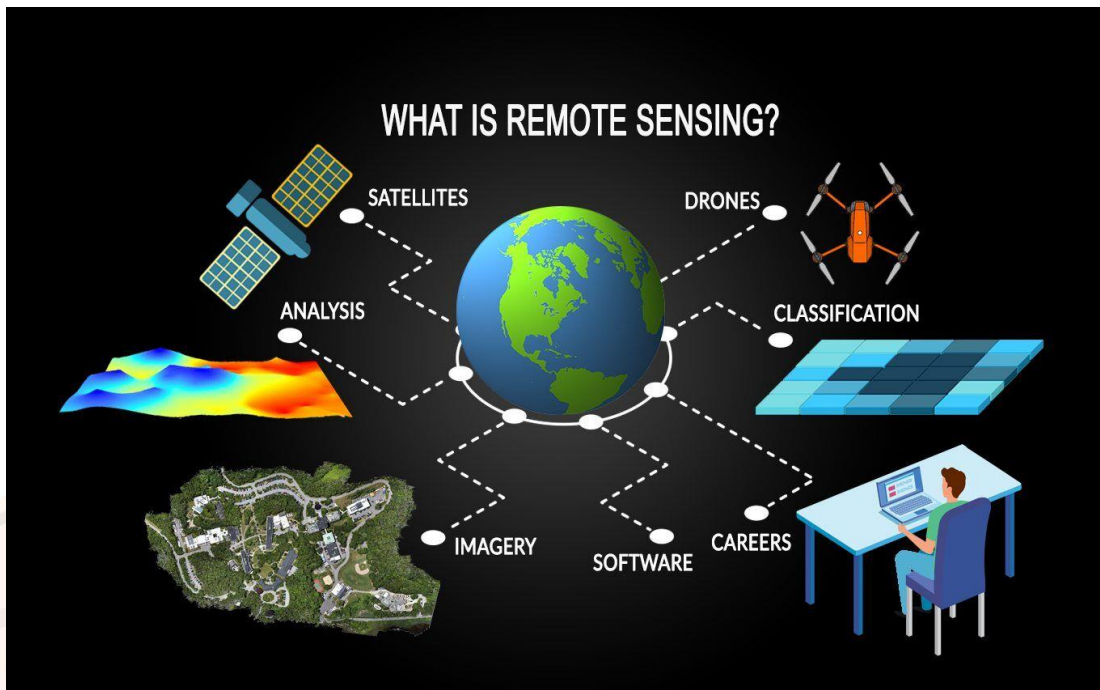
Figure 1. *answer for remote sensing Methods.*

The data used in this article is obtained from various remote sensing sources, including satellite and aerial imagery. The data collected is analyzed and interpreted using remote sensing software such as ArcGIS and QGIS.

Remote sensing data is collected using various methods, including satellite imagery, aerial photography, and LiDAR technology. These methods provide different types of data and have different applications.

Satellite Imagery:

Satellite imagery is obtained by sensors mounted on satellites orbiting the Earth. The sensors capture images of the Earth's surface at different spectral bands, including visible and near-infrared. These images can be used for a wide range of applications, including environmental monitoring, disaster response, and urban planning. The data collected by satellite imagery can be accessed through various platforms, including Google Earth Engine and Landsat.

Aerial Photography:

Aerial photography is obtained by sensors mounted on aircraft. The sensors capture images of the Earth's surface at high resolution, making it useful for applications such as agriculture and forest monitoring. Aerial photography can be used to create orthophotos, which are maps that correct for any distortions caused by the angle of the sensor.

LiDAR:

LiDAR (Light Detection and Ranging) is a remote sensing technology that uses

laser pulses to measure the distance between the sensor and the Earth's surface. The data collected by LiDAR can be used to create 3D models of the Earth's surface, making it useful for applications such as urban planning and infrastructure management.

In addition to these methods, remote sensing data can also be processed and analyzed using various software, including ArcGIS and QGIS. These software allow users to visualize and analyze the data, perform geospatial analysis, and create maps and other visualizations. Overall, the methods used for remote sensing data collection and analysis are constantly evolving, with new technologies and software being developed to improve the quality and accessibility of the data.

Results.

Remote sensing data is being used for a variety of applications across the globe. In China, remote sensing data is used for agricultural monitoring, including crop type classification and yield estimation. In Brazil, remote sensing data is used for forest monitoring and protection. In India, remote sensing data is used for disaster management, including flood forecasting and tracking cyclones. In the United States, remote sensing data is used for urban planning and infrastructure management. The applications of remote sensing data are not limited to these examples. In fact, remote sensing data is being used across the globe for various applications, including climate change monitoring, natural resource management, and military surveillance.

Remote sensing data has proven to be an effective tool for a wide range of applications across the globe. By utilizing various remote sensing methods, including satellite imagery, aerial photography, and LiDAR technology, data can be collected and analyzed to monitor the environment, agriculture, disaster response, and urban planning. International experiences of remote sensing data have demonstrated its effectiveness in various applications, such as monitoring deforestation in the Amazon rainforest, tracking the spread of wildfires in California, and mapping land use changes in China. These applications have provided valuable insights to decision-makers, researchers, and other stakeholders.

The use of remote sensing data has also led to the development of new technologies and software that make it easier to collect, process, and analyze the data. For example, Google Earth Engine is a platform that provides access to a vast amount of remote sensing data and allows users to analyze and visualize the data using a variety of tools. However, using remote sensing data is not without its challenges. Limitations of spatial resolution and

data accuracy, as well as issues related to data accessibility and infrastructure, may hinder the full potential of remote sensing data. Addressing these challenges will require ongoing efforts to improve remote sensing technology and infrastructure, as well as collaboration among stakeholders to ensure the effective use of remote sensing data for the benefit of society. Overall, the results of remote sensing data have shown its potential to provide valuable insights and solutions to a variety of issues across the globe, from environmental monitoring to disaster response and urban planning.

Discussion.

Remote sensing data has proven to be a valuable tool for various applications across the globe. The data can be used for environmental monitoring, agriculture, disaster response, and urban planning. The use of remote sensing data has become increasingly important in light of growing environmental concerns, such as climate change and natural disasters. However, there are challenges associated with remote sensing data, including limitations of spatial resolution and data accuracy. Additionally, some countries may not have access to the necessary technology and infrastructure to collect and use remote sensing data effectively.

Conclusion.

Remote sensing data is a valuable tool for various applications across the globe. Its applications range from environmental monitoring to agriculture, disaster response, and urban planning. International experiences of remote sensing data demonstrate its effectiveness in various applications, but there are also challenges associated with it. Further development of remote sensing technology and infrastructure will be necessary to continue utilizing the full potential of remote sensing data.

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