



MODERN METHODS OF MANAGING GEODESY, CARTOGRAPHY

K.R.Khakimova

Associate Professor of Fergana Polytechnic Institute

Kh.T.Murodilov

Ferghana Polytechnic Institute, Master's student of Geodesy, Cartography and Cadastre.

Abstract: *Geodesy and cartography have come a long way from the traditional methods of manual measurement and map-making to modern technological methods. This article explores the modern methods of managing geodesy and cartography, including remote sensing, geographic information systems (GIS), and global navigation satellite systems (GNSS).*

Keywords: *geodesy, cartography, remote sensing, GIS, GNSS.*

Аннотация: Геодезия и картография прошли долгий путь от традиционных методов ручного измерения и составления карт до современных технологических методов. В данной статье исследуются современные методы управления геодезией и картографией, включая дистанционное зондирование, географические информационные системы (ГИС) и глобальные навигационные спутниковые системы (ГНСС).

Ключевые слова: геодезия, картография, дистанционное зондирование, ГИС, ГНСС.

Introduction: Geodesy and cartography play a crucial role in various fields, including urban planning, resource management, and disaster management. In recent years, the traditional methods of manual measurement and map-making have been replaced by modern technological methods. This article aims to explore these modern methods in detail. Uzbekistan has been making significant strides in the field of geodesy and cartography in recent years, with a focus on modern technological methods. This article explores the modern methods of managing geodesy and cartography in Uzbekistan, including remote sensing, geographic information systems (GIS), and global navigation satellite systems (GNSS).

Modern Cartography Tools

Today's cartography tools have taken mapmaking to new heights, mostly in terms of detail and accuracy, but sometimes quite literally.

Mapmaking can employ a huge variety of methods and tools. Here we'll cover a few of the most common tools: aerial photography, sensors, GPS, satellites, and [GIS](#).



Aerial Photography. Folks have been trying to get cameras into the sky for as long as those same cameras have existed. Early attempts at aerial photography included balloons, kites, and even rockets.

In 1860, the oldest surviving aerial photograph was taken by James Wallace Black, tethered in a hot air balloon 2,000ft above Boston.

Modern aerial photography now relies on advanced technology like helicopters and unmanned aerial vehicles (UAVs) - more colloquially known as drones.

Methods: Remote sensing is a method of collecting data about the Earth's surface without physically being present at the site. This method uses satellites, airplanes, and drones to capture images from the Earth's surface and then processes the images to create maps and other applications. Geographic information systems (GIS) are computer-based tools used to manage, analyze, and visualize geographic data. These systems enable the integration of various data sources, including geospatial data, socioeconomic data, and environmental data, to create comprehensive maps and other applications. Global navigation satellite systems (GNSS) are a network of satellites that provide signals to GNSS receivers on the Earth's surface to determine exact locations with high accuracy.

Results: Remote sensing has revolutionized the field of geodesy and cartography by providing high-resolution images of the Earth's surface. These images have enabled the creation of accurate and detailed maps and other applications. GIS has also played a significant role by enabling the integration of various data sources, leading to the creation of comprehensive maps and other applications. GNSS has provided accurate location information, making it possible to track vehicles, create navigation systems, and monitor the movement of tectonic plates and other natural phenomena (figure 1).

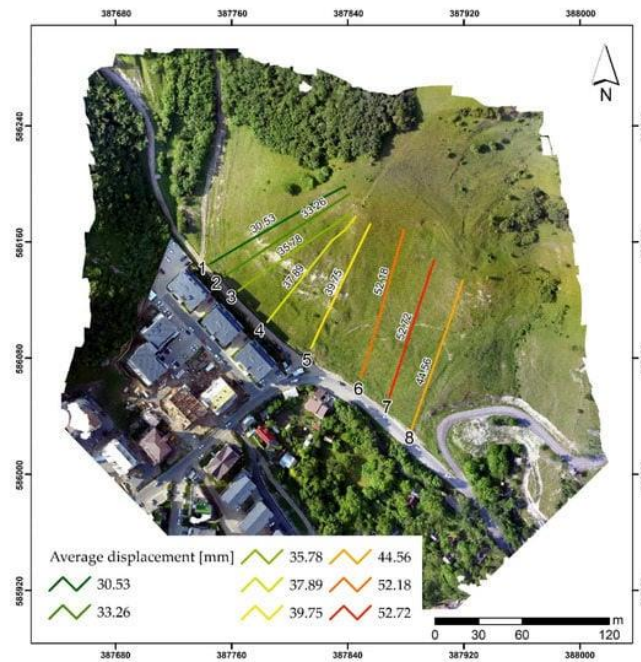


Figure 1. picture for an example of modern methods of managing geodesy, cartography.

Discussion: The modern methods of managing geodesy and cartography have numerous benefits. These methods have enabled the creation of accurate and detailed maps, making it easier to plan and manage urban areas, natural resources, and disaster responses. The integration of various data sources has also made it possible to create comprehensive maps and other applications, leading to better-informed decisions. Moreover, the accurate location information provided by GNSS has made it possible to track vehicles, create navigation systems, and monitor natural phenomena such as earthquakes and tsunamis.

Conclusion: The traditional methods of managing geodesy and cartography have been replaced by modern technological methods such as remote sensing, GIS, and GNSS. These methods have revolutionized the field of geodesy and cartography, enabling the creation of accurate and detailed maps and other applications that have numerous benefits in various fields. It is clear that the future of geodesy and cartography lies in the continued development of these modern methods. Uzbekistan has been making significant efforts in the field of geodesy and cartography using modern technological methods such as remote sensing, GIS, and GNSS. These methods have revolutionized the field of geodesy and cartography in Uzbekistan, enabling the creation of accurate and detailed maps and other applications that have numerous benefits in various fields. It is clear that the future of geodesy and cartography in Uzbekistan lies in the continued development of these modern methods.



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