

ANALYSIS OF TECHNOLOGIES FOR SOLVING ENVIRONMENTAL PROBLEMS BASED ON SATELLITE COMMUNICATION SYSTEMS

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Annotation: *We know that the environment is a crucial part of our lives. Our climate is changing, and we are experiencing terrible weather conditions, global warming. Crops are dying, because the weather is unpredictable. Many glacial fields are melting. Urban pollution began to reach a high level. In particular, the level of pollution in the capital of the Republic, Tashkent, recorded a record level in 2023. Scientists around the world have tried hard to solve these problems, but there is still a lot to do. The development of modern Information Systems gives us many opportunities to improve the level of the environment. If we use satellite communication systems technology, we can solve more. This article provides information on the analysis of technologies for solving environmental problems based on satellite communication systems.*

Keywords: *environment, satellite, communication systems, problems, Infrastructure, monitoring*

INTRODUCTION

Large-scale environmental problems have become a major byproduct of the interaction between human activities and the biophysical environment in which they occur. Some of these problems are, for example, seasonal thinning of the stratospheric ozone layer, marine dead zones, urban pollution, and spikes. In all these cases, attempts to solve related problems require international (often global) responses that require cross-border cooperation and often require the development of regulatory measures aimed at limiting or even prohibiting human actions. In recent decades, international environmental regimes have emerged to address such problems.

Satellite communications infrastructure refers to a network of satellites, ground stations and related equipment that provide data, voice and video signal transmission over long distances. Not only does satellite communication provide many advantages such as global coverage and high-speed connectivity, they are also widely used to solve the problems of the art of environment.

Main part. In connection with the increase in the scale of anthropogenic influence on nature, the relevance of objective environmental monitoring is brought. The use of satellite images, in this case, makes it possible to fully cover a huge area and conduct an environmental assessment not only within the framework of individual observation points,

but also in any selected area, regardless of its distance and land use. In addition, satellite images are available for different years, making it possible to detect changes by comparing images from the same area at a given time frame.

Satellite images also come in different sizes. For example, high resolution images are used to observe local problems that require more object detailing, where medium and low resolution images are used to observe larger areas to view the entire image. Satellite images can also be obtained in the visible part of the electromagnetic spectrum, as well as in ultraviolet, infrared and other parts of the spectrum, which allows you to see various details and nuances depending on the object of study. Thanks to satellites, information can be obtained about weather conditions, floods, fires, humidity levels and many other phenomena and parameters.

Today, the market offers a variety of software that uses satellite image analysis to help solve global problems on Earth, including carbon emissions, water shortages, soil degradation, etc.

Satellites are the perfect tool not only to observe the global picture, but also to detect features and phenomena that are hidden or invisible to the human eye. And one of the biggest benefits they offer is related to environmental monitoring. Including: identification of solid household waste, illegal storage of industrial waste; monitoring and mapping of subsoil infrastructure; study of the dynamics of negative processes in mining areas; identification and mapping of soil contaminated areas caused by industrial and agricultural waste; In agriculture, land management (crop monitoring, agricultural land mapping, etc.); monitoring the processes of land degradation (erosion, salinity, water pollution, etc.); monitoring water pollution; monitoring environmentally hazardous objects (industrial enterprises, mining facilities, wastewater treatment facilities, electricity and transport facilities); determining and monitoring oil spills; logging and identifying and monitoring its causes, etc.

In conclusion, we must assume that at present, the emergence of various environmental problems in our republic will seriously harm the state economy and the health of the population. To avoid these problems, the training of high-tech satellite communication systems, the implementation of them in the broad arm, will have a much higher effect on solving environmental problems.

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