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THEMATIC MONITORING OF CHANGES IN THE STATE OF OBJECTS ON THE EARTH'S SURFACE

Abstract

The current trend in the processing of satellite imagery data is guided using fully automated methods and algorithms. This is caused by nature of routine processing of significant amounts of satellite information obtained from temporary surveys for large areas on a regular basis and the abandonment of a specially trained operator. The report presents the results of the implementation of the project to automatic support of thematic monitoring of changes in the states of the Earth's surface objects. When implementing the project, both new patent solutions were used and the following tasks were solved: automatic management of the tasks of thematic processing of different-time satellite information; automatic control and distribution of input different time satellite information; automatic detection of changes in the selected area of monitoring the earth's surface; automatic decision support for the state of the selected monitoring area. The developed methods of automatic detection of any type of changes and a multispectral-luminous description of their features in the optical range of a different-time space survey are considered. Methods for obtaining results for decision-makers on changes in the states of terrestrial objects are analyzed. Because the data of satellite constellation Canopus-B and Belarusian spacecraft (BSA) are the main source of information for the project tasks of detection changes of ground facilities, discusses ways to overcome the problems and prospects for improving various aspects of complex tasks. The functional capabilities and operational characteristics of the project for supporting thematic monitoring on changes in the state of the Earth's surface objects were checked at the Republican Center for Emergency Management and Response of the Republic of Belarus. The implemented new approaches and solutions showed their stability and sufficient efficiency in solving problems of detection and analysis of changes in ground objects. A distinctive feature of the developed project is the automation of all processes and high productivity. Time of detection of changes does not exceed thirty minutes and the degree of automation is more than 90 percent.