

Use of space system «Vulkan» in interests of supervision over forest fires

Vasily Lukjashchenko, A.A. Astashkin, D.V. Kozeev, V. K. Saulsky

Central Research Institute for Machine-Building (TSNIIMASH)

margun@tsniimash.ru

In 2002 of scientific research institute of electromechanics in cooperation with coauthors has developed the outline sketch on space system of the operative short-term forecast of earthquakes «Vulkan». The module of film-making systems is included in structure of a complex of the scientific equipment of small space vehicles «Vulkan» seen and IR ranges "MSS- Vulkan ". High efficiency of global supervision due to the big number of satellites in it to a space grouping (18 space vehicle the bottom circle and 6 space vehicle the top circle), and also presence in film-making systems of spectral channels seen and IR ranges allows to solve the following problems of supervision over the large forests, connected with fires: 1. Delimitation a snow cover and terms of approach of a fire-dangerous season in multiwood areas. 2. Definition of a degree of humidifying of wood fuel. 3. Revealing storm and resource overcast. 4. The early prevention of occurrence of forest fires (detection of the centers of burning). 5. The control of dynamics of forest fires. 6. An estimation of a damage rate of the plantings gone by fire. 7. Definition of zones of smoke blanketing from forest fires. In frameworks developmental work «Vulkan» in 2003 the technical project on creation of the module of film-making systems for the decision of additional problems of space system of the short-term forecast of earthquakes has been developed and authorized. The module is intended for use as the regular equipment in structure space vehicle «Vulkan» of space system of the operative short-term forecast of the earthquakes, created in the Russian Federation, and will allow to receive the information on existential distribution of a field of spectral power brightness of a spreading surface in seen and IR a range of a spectrum in 5 spectral ranges, switching 3 channels seen, one channel near and one channel of average IR a range. "MSS-Vulkan" - wide-cut space multispectral optical-electronic film-making system of the average sanction. Concerning foreign space systems of supervision over forest fires it is necessary to note two European projects of space monitoring systems of vegetative fires FUEGO and BIRD which occurrence in many respects was stimulate the Russian development and attraction of the Russian experts - foresters at a stage of development of the concept of system. FUEGO - the first foreign project of the specialized space monitoring system of forest fires FFEW (Forest Fire Earth Watch) which is initially aimed at the decision of an industrial problem, information support of struggle against forest fires.