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Space monitoring for nature and anthropogenic disasters

Abstract

By the present time a great experience has been accumulated to use space imaging of the Earth for monitoring various disasters as well as the changes related to such phenomena as the global warming of the climate caused by the growth of the concentration of hotbed gases in the atmosphere and the ozone layer depletion.

Wide scope of applications of space data of satellite remote sensing of the Earth, their high resolution, reliability and exclusive promptitude (actually onlineliness) enable the traditional problems of natural study to be solved in addition to fast-speed processes, including natural and technogenic catastrophes, being explored.

The paper deals with the peculiarities of application of long-term manned orbital stations for monitoring the Earth's surface. Space monitoring of tropical cyclones (KATRINA, PHILIPPE and RITA) as well as tsunamis and their consequences are discussed. The effects of the Kolka glacier collapse (the Karmadon gorge, Russia) are considered.

The monitoring results of the dynamics of the coastal line and landscape changes around the Aral Sea are presented.

The research results of the eruption process of volcanoes are illustrated by a series of pictures of ETNA eruption (Italy), they give a comprehensive idea of the eruption development. It has been discovered that the basic seismic center is a vent rather than the main crater. The hazardous effects of the volcanic activity on the international airlines are analyzed.

Keywords: Space monitoring; Satellite remote sensing of the Earth, Natural and technogenic catastrophes.