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## **RADAR METHODS IN THE VULCANOLOGY**

Today, radar systems give a way to measure the activity of the volcano eruption on the possibility in the near future. Satellite radar maps show, that volcanoes are usually deformed before the eruption.

According to statistics 46% deformed volcanoes erupted this time, when only 6% of volcanoes erupted without deformation. These data suggest, that deformation may be an indicator of the eruption. But while many factors could cause volcanic deformation and they do not always lead to eruption. Today, satellites capture radar images of volcanoes several times a year, so they can skip the short eruption cycles, in which deformation precedes the eruption itself for a few days.

Thus, measurement of deformation from space helps predict, when volcanoes will erupt. One of the effective methods of measuring deformation of the Earth's surface is radar method.

Morphological structure of the Earth's surface is reflected in the structure of the radar image, depending on the angle of radiation probing signal slopes relief. Especially detect at small angles of observation even small differences can give relief contrast images, that compare other methods of formation inactivated type slopes. The relief of the Earth's surface is reflected in the phase structure of the scattered signals, and it allows using interference processing algorithms to build three-dimensional images and to construct digital models of different morphological structural entities.

In general, radar systems have the ability to monitor and control the fugitive processes on Earth. Research in this field on the effective use of microwave techniques and studying environment are devoted by N. Armand, P. Kronberg, P. Borodin and others. Unlike optical techniques, radar systems do not depend on the weather. These data are independent on the degree of illumination, and radar beam has the ability, depending on the wavelength, get through a Earth surface, including vegetation, ice, etc.

More over, we used radars to identify lava flows on the roughness of the analyzed area. This characteristic has been used for determining the type of lava flows, and to determine the relative age of the lava, as an older structure has a smoother surface.

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