

Unmanned observation robot demonstration test in preparation for the Izu Oshima eruption

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In the case of a volcanic eruption, in order to carry out evacuation guidance, it is important to observe the changing situation from just after the eruption to the completion of evacuation. In the 1986 eruption of Izu-Oshima, the explosive eruptions occurred at the unexpected points such as caldera floor and outside of a caldera. Therefore, volcanologists could not approach the vents and the opportunity of observation to gain the precious data for scientific understanding of the eruption phenomenon or disaster mitigation was lost. Moreover, during the evacuation from the island, the situation of the eruption had not been announced correctly to residents, and the mistaken information that the lava flow cut off the traffic between Okada-Motomachi was spread. Today, 20 years or more pass since a previous eruption in Izu-Oshima, and it has become the time to prepare the next eruption. In order to improve the situation at the time of the next eruption, development of the new observation robot which can respond immediately to an eruption and the establishment of an operation framework are required. From such a viewpoint, the author started Izu-Oshima Unmanned Observation Robot Symposium in 2009. This symposium is intended to bring together experts developing unmanned observation robots from different study fields such as volcanology, space engineering, and disaster relief to Izu-Oshima and to provide them the opportunity of field tests and exchange of knowledge to make them accelerate the development of the robots and the establishment of the operation framework. For these four years, many participants gathered to perform field test and to have an active information exchange. 8 UGV and 2 UAV from 9 research groups (2009), 5 UGV and 2 UAV from 5 groups (2010), 13 UGV and 3 UAV from 9 groups (2011), and 13 UGV and 6 UAV from 10 groups (2012) participated in the symposium. In the 2013 fiscal year, Izu-Oshima was hit by the 27th typhoon of the year just before the symposium. While an open lecture meeting was canceled, 5 UGV and 1 UAV from 6 groups performed field tests. In the 2014 fiscal year, 6 UGV and 1 UAV from 5 groups performed field tests. Because some robots have already been reached practical range, we will present the ability of the robots and the results of our activity so far and excavate a new observation requests.

For further detail of the symposium in the current fiscal year please refer to the following URL (<http://www.volcano-robot.org/index.html>). Since 2013, our activity has been supported by an accommodation of the research funds from the specific joint research B of Earthquake Research Institute of the University of Tokyo.

Keywords: Izu Oshima, unmanned observation robot, UAV, UGV