

*Federal Agency for Scientific Organizations
Russian Academy of Sciences
Far East Geological Institute FEB RAS
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Institute of Marine Geology and Geophysics FEB RAS
N.A. Shilo North-East Interdisciplinary Scientific Research Institute FEB RAS
Institute of Volcanology and Seismology FEB RAS
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Modern Information Technologies in Earth Sciences

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га. Полученные данные крайне востребованы в практике работы сахалинского Центра цунами. Практическая реализация данной разработки позволила бы сократить число как ложных тревог, так и пропусков цунами на Дальнем Востоке России.

KAMCHATKAN VOLCANIC ERUPTION RESPONSE TEAM (KVERT), RUSSIA

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Strong explosive eruption of volcanoes is the most dangerous for aircraft because in a few hours or days in the atmosphere and the stratosphere can produce about several cubic kilometers of volcanic ash and aerosols. Ash plumes and the clouds, depending on the power of the eruption, the strength and wind speed, can travel thousands of kilometers from the volcano for several days, remaining hazardous to aircraft, as the melting temperature of small particles of ash below the operating temperature of jet engines.

There are 36 active volcanoes in the Kamchatka and Northern Kuriles. Annual Kamchatkan strong explosive eruptions with ash emissions by 8-15 km above sea level represent a real threat to modern jet aviation. To reduce the risk of aircraft encounters with volcanic ash clouds in the North Pacific region, since 2002, KVERT IVS FEB RAS conduct a daily satellite monitoring of 30 Kamchatkan and 6 Northern Kuriles volcanoes, and visual and video monitoring of Klyuchevskoy, Sheveluch, Bezymianny, Koryaksky, Avachinsky, Mutnovsky and Gorely volcanoes.

KVERT assigns the Aviation Color Code and send Volcano Observatory Notice for Aviation (VONA) by email to Airport Meteorological Center (AMC) at Yelizovo Airport; and the Volcanic Ash Advisory Centers (VAAC): Tokyo, Anchorage, Washington, Montreal, and Darwin; aviation services, and scientists located throughout the North Pacific region. VONA/KVERT Releases are posted on the web-site: <http://www.kscnet.ru/ivs/kvert/>

Since 2011, experts from IVS FEB RAS, Space Research Institute RAS, Computing Center FEB RAS and the Far Eastern Planeta Research Center have operated the information system "Monitoring of Volcanoes Activity in Kamchatka and the Kuriles" (VolSatView; <http://volcanoes.smislab.ru>) that uses all available satellite data (operative and long-term archive data), weather and on-ground observations, the results of computational modeling of ash clouds and plumes trajectories to ensure continues monitoring and study of volcanic activity in Kamchatka and the Kuriles.

USING TECHNOLOGY CUDA IN NUMERICAL MODELING OF MARINE HAZARDS ON THE EXAMPLE OF CHILEAN TSUNAMIS 2014, 2015.

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Currently, the use of graphics processing units (GPU) for engineering and scientific computing is becoming increasingly popular because of the high and the available computing capability. CUDA is the leading and the most widespread technology from Nvidia. CUDA - a software technology that supports parallel computing architecture similar to OpenMP. It can significantly increase the performance of computing, thanks to the simultaneous use of hundreds and thousands of cores of one or more of the GPU.

Numerical modeling of the dangerous tsunami is the one of the tasks that are successfully solved using CUDA technology. The solution of this problem is based on the use of finite difference schemes for the various types of shallow water models and the detailed arrays of depths of the open ocean. Finite