



Monitoring Fukutoku – Okanoba submarine volcano, Japan, with satellite remote sensing

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Monitoring submarine volcano is not an easy task compared with land volcano because it is covered by seawater and located in remote area. Satellite remote is a powerful tool for monitoring submarine volcanic activities such as discolored seawater, floating material and volcanic plume. Fukutoku-Okanoba submarine volcano (24°17'0"N, 141°29'6"E), which is located 1,300 km south of Tokyo, is one of the most active submarine volcanoes in Japan. Discolored seawater has been frequently observed at Fukutoku-Okanoba with Landast TM, Terra ASTER, ALOS AVNIR-2 and other satellite remote sensing systems. ASTER observed the discolored seawater and the floating materials within the 40 km form the submarine volcano on July 5, 2005, three days after the Fukutoku-Okanoba 2005 eruption. At the most dense discolored seawater area, reflectance of ASTER band 1 is 3 % higher the surrounding seawater. The floating materials are similar in ASTER VNIR reflectance spectra to clouds, however, the floating materials can be separate from clouds using their shape and stereo image features. It is possible to estimate the scale of submarine eruption using the quantitative data derived from satellite remote sensing.