

Study on methods for extracting volcanic ash distribution by using ALOS imagery

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After volcanic ashes are fall, the mud flow will be generated easily by the rainfall. Therefore, it is necessary to extract the volcanic ash distributions immediately to assess the danger of the mud flow generation around the volcano. However, time and the labor are required to extract these realities because it cannot investigate the locale directly when the volcanic eruption occurs. If these can be extracted from satellite data, these can be used for prompt mud flow assessment. In this research, we developed and examined the methods for extracting volcanic ash distributions by using AVNIR-2 and PALSAR data of ALOS.

The images of AVNIR-2 had enough accuracy to understand the volcanic ash distributions. But it was able hardly to apply the distinction on these images when time had passed since the eruption or enough volcanic ash didn't fall such this research cases. However, vegetation seemed to have received some influences by the volcanic ash newly fall, so the distribution was able to be seen faintly through the NDVI (normalized difference vegetation). On the other hand, the distribution of pyroclastic flow was able to be seen in the image of PALSAR. In oblique aerial photograph taken immediately after generation of pyroclastic flow, the area of pyroclastic flow changes the white overall due to be covered with the volcanic ash. It is thought that the roughness of surface decreases compared with before, so it was possible to detect it. Moreover, pyroclastic flow distribution was able to be understood to have obtained the images of PALSAR at once after it erupts. However, volcanic ash distribution was not able to be extracted. Because enough volcanic ash didn't fall, so we cannot identify the decrease of back scatter factors.