

Volcanic activity and lava activity detection using MODIS data

TSUTSUMI, Rika^{1*}, HATTORI, Katsumi¹

¹Graduate School of Science, Chiba University

There are a lot of active volcanoes in the world. But it is difficult to monitor all volcanoes because of costs. However, we can monitor efficiently a lot of volcanoes using satellite remote sensing technologies, because a volcanic activity will cause the increase in surface temperature and satellite (whose sensor can observe the surface temperature) remote sensing can cover a large area on surface. Therefore, our purpose of this study is to create an adequate algorithm detecting thermal anomalies related to volcanic activities (especially lava activity which causes serious damages involve human lives) using satellite data. The developed algorithm investigates the difference temperature behavior between a target point and reference points. Therefore, removing cloud is essential in our algorithm.

The developed algorithm has been applied to Mt. Merapi (Indonesia), Mt. Shinmoedake (Japan) and so on and we found the effectiveness of it and reduction of faint changes due to clouds. The details will be shown in our presentation.

Keywords: MODIS, surface temperature, volcanic and lava activity, Cloud detection, Mt. Shinmoedake, Mt. Merapi