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Detection of thermal changes associated with volacanic lava activity and discrimination of faint changes from MODIS data

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There are many reports in natural disasters such as volcanic activity and earthquakes. To mitigate these disasters, monitoring of the crustal activity is very important. But it is difficult to monitor all volcanoes on the ground. On the other hand, satellite remote sensing on temperature anomaly is one of the most effective methods to monitor volcanic activity, because it can monitor in a wide area at a time and with a high frequency on a day.
We use the nighttime infrared data of MODIS sensor on board AQUA satellite. MODIS sensor has 36 different bands. The band20 is able to measure surface temperature. Using the historical data of Band31 and Band32, we can use to remove the influence of clouds as a reference.
In this paper, we examine to extract possible temperature anomalies associated with volcanic activities at Mt. Merapi and Mt. Kelut in Indonesia, and we apply developed algorithm to Mt. Mayon in Philippine and Mt. Asama in Japan. Algorithm and result will be present in the presentation.

Keywords: thermal anomaly, MODIS, remote sensing