

# Volcano monitoring using satellite thermal infrared imagery of CIRC (Compact Infrared Camera)

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Although volcanic activities are monitored by various approaches, it is difficult to observe some volcanoes in Japan using ground equipment (e.g. remote islands or submarine volcanos). In such case, satellite imagery is one of the powerful tools to monitor them. Satellite can observe extensive area simultaneously, including many volcanos. Thus, we can capture geothermal activities; lava flow, pyroclastic flow or heat of crater even at night.

To prevent or to mitigate volcanic disaster, the disaster management agencies needs ready-to-use dataset; information extracted from satellite imagery. Therefore, we developed “Volcano Monitoring System” (released in Sep 2018; <https://kazan.jaxa.jp/>); which system provides such information and visualized satellite infrared imagery of CIRC and other satellites. CIRC is uncooled microbolometer thermal infrared sensor for the earth observation and it is on board ALOS-2 satellite (Advanced Land Observing Satellite 2). On the Volcano Monitoring System, we can browse satellite RGB or infrared imagery as a map and get the variation of volcanic activity’ s indices automatically extracted from satellite imagery. To produce concrete indices for volcano monitoring, we are studying several approaches of satellite infrared data processing in cooperation with the disaster management agencies. In such study, we are focusing on 12 volcanoes which are defined among us. In this presentation, we introduce “Volcano Monitoring System” and some volcanic events captured by CIRC.

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