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A preliminary comparison of RST and MODVOLC techniques for satellite monitoring of thermal volcanic activity

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The potential of satellite sensors working in middle infrared (MIR) region of the electromagnetic spectrum for the detection of hotspots related to active lava flows has been largely demonstrated. Among current available sensors useful for such an application, MODIS (Moderate Resolution Imaging Spectroradiometer), on board NASA-EOS satellites, offers a good compromise between spatial resolution and temporal coverage together with a high dynamic range in MIR region. Based on such satellite data, the MODVOLC algorithm has shown good performances in detecting thermal volcanic features at a global scale. This method has been implemented in an automatic processing chain for near real time monitoring of active volcanoes, with hotspot products continuously posted on the web. On the other hand, the RST (Robust Satellite Techniques) approach has already been successfully used to monitor volcanoes at different geographic locations, under different environmental and observational conditions. An advanced version of RST has recently been proposed, in order to further improve detection and monitoring of thermal volcanic features both in terms of reliability and sensitivity.
In this paper, results of a preliminary comparison between RST, implemented on MODIS data, and MODVOLC techniques will be presented. Results of this study, carried out on Mount Etna area during recent lava effusion episodes, will be analyzed and discussed also by validating satellite products with independent and detailed bulletins of eruptive activity.