



Use of Radiance value from MSG SEVIRI data: An application for the Early warning on volcanic area

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This work is addressed to the analysis of volcanic area by means of thermal infrared data of Spinning Enhanced Visible and Infra-Red Imager (SEVIRI) onboard the geostationary satellite Meteosat Second Generation (MSG). In this paper are presented the results obtained investigating datasets regarding the Mt Etna and Stromboli volcanoes both in the Sicily (South Italy).

The Spinning Enhanced Visible and Infrared Imager sensor (SEVIRI) mounted on the Meteosat Second Generation (MSG) satellite produces 11 channels images every 15 minutes and the image processor, presented in this paper, provides radiance data with the same time rate.

This work is emphasize the capability of MSG-SEVIRI data for the estimation of parameter suitable for the volcanic monitoring. Measurements are made every 15 min, allowing to follow the event evolution in near real time. The spectral radiance emitted by hot spots, reaches its maximum in the region of mid infrared (MIR, around 3 micron). Consequently, MSG 4th channel (centred at 3.9 micron), can be widely used for surface thermal monitoring, despite its relatively ground resolution cell (3 km nadir view).

Investigating different data sets, regarding Mt Etna eruption (September 2004, July 2006, November 2006, November 2007) and Stromboli volcano eruption (February 2007), it has been pointed out that the beginning of new eruption is marked by a sudden increase of radiance value (up ten times) associated to the pixels centred over the crater (July 2006, November 2007, February 2007). The 3.9 micron MIR channel is saturated at 2.4 Watt/sr*m²*micron. The system proposed allows us to set up an early warning system dedicated to the impending eruption.