



On the impact of different volcanic hot spot detection methods on eruption energy quantification

Nicola Pergola (1), Irina Coviello (2), Alfredo Falconieri (1), Teodosio Lacava (1), Francesco Marchese (1), and Valerio Tramutoli (2)

(1) National Research Council, Institute of Methodologies of Environmental Analysis, C. da S. Loja, 85050 Tito Scalo (Pz) - Italy, (2) University of Basilicata, School of Engineering, Via dell'Ateneo Lucano 10, 85100 Potenza - Italy

Several studies have shown that sensors like the Advanced Very High Resolution Radiometer (AVHRR) and the Moderate Resolution Imaging Spectroradiometer (MODIS) may be effectively used to identify volcanic hotspots. These sensors offer in fact some spectral channels in the Medium Infrared (MIR) and Thermal Infrared (TIR) bands together with a good compromise between spatial and temporal resolution suited to study and monitor thermal volcanic activity. Many algorithms were developed to identify volcanic thermal anomalies from space with some of them that were extensively tested in very different geographical areas. In this work, we analyze the volcanic radiative power (VRP) representing one of parameters of major interest for volcanologists that may be estimated by satellite. In particular, we compare the radiative power estimations driven by some well-established state of the art hotspot detection methods (e.g. RSTVOLC, MODVOLC, HOTSAT). Differences in terms of radiative power estimations achieved during recent Mt. Etna (Italy) eruptions will be evaluated, assessing how much the VRP retrieved during effusive eruptions is affected by the sensitivity of hotspot detection methods.