EMSEV 2012
Gotemba Kogen Resort, Gotemba, Japan
October 1–4, 2012
Abstract 2-05p

Monitoring of ash clouds over Western Pacific region by means of Multi-functional Transport Satellites (MTSAT) data

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During 26-30 January 2011 strong explosive eruptions took place at Shinmoedake volcano, located on Japan's southern island of Kyushu, emitting a significant amount of ash which caused air traffic disruption and the closure of four railroad lines around volcano. In this work, the potential of Multi-functional Transport Satellites (MTSAT) in monitoring ash clouds over Western Pacific region is investigated, by using the RST_{ASH} multi-temporal technique for detecting the plume and the brightness temperature literature method for determining variations in the height of the eruptive column. Outcomes of this work show that ash clouds may be well identified and tracked from space when proper detection algorithms are used, fully exploiting high temporal resolution of geostationary satellites. Moreover, they also show that an efficient ash cloud identification positively impact on reliability of plume height estimations and consequently on outputs of numerical methods devoted to simulate ash dispersion in the atmosphere.