

HOTVOLC: an open-access webGIS platform for real-time volcanic plume monitoring

Mathieu GOUHIER, OPGC, France

HOTVOLC is a space borne monitoring system using thermal infrared sensors onboard geostationary satellites. It is dedicated to the real-time detection and continuous tracking of volcanic products released on the ground (e.g., lava flows, lava dome collapse, lava fountains, lava lakes, etc.) and emitted in the atmosphere (e.g., ash and SO₂ clouds) every 15 minutes. The system has been launched five years ago, just after the Eyjafjallajökull 2010 eruption (Iceland). It was displayed in a basic form (static web) and providing a small number of deliverables. After several years of development including scientific validation, data processing and storage works, as well as on-line dissemination improvements, we finally make available a new open-access webGIS platform. Firstly, it allows a large variety of volcanic products to be displayed as raster images in a full webGIS interface and downloaded interactively in PNG format for simple preview or GEOTIFF format for geo-referenced images. Animation tools have been implemented on every products hence allowing visual assessment of the eruption dynamics. Secondly, we provide time series of key parameters (e.g., spectral radiance, lava discharge rate, SO₂ cloud area, etc.) that can be downloaded in a digital format (CSV, TXT, XLS). Then, numerous GIS interactive tools can be used for direct data enhancement such as layer opacity, cloud area and distance calculations, customisation options, satellite or map projection. In practice, HOTVOLC currently uses MSG-SEVIRI satellite and allows the monitoring of about 50 volcanic targets in real-time. However, we are also acquiring data from GOES E/W and MTSAT satellites hence making possible, in the end, the monitoring of every volcanoes on Earth. Currently, a 2-year archive can be examined from the user, but the back-processing led currently should allow an access to the data from 2010.

Keywords: Volcanic plume monitoring, satellite, real-time, HOTVOLC