



A Rapid Deployment System for volcano gas monitoring

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Volcanic eruptions represent a major natural hazard with more than 500 active volcanoes around the world. Continuous monitoring of these volcanoes is an important task and early warning systems are in operation at many volcanoes. Nevertheless, due to economic constraints, many dangerous volcanoes remain unmonitored or sparsely monitored.

One recently developed instrument, the Scanning mini-DOAS, capable of automatic, time-resolved monitoring of total SO₂ gas emission from volcanoes has proven valuable for volcano risk assessment. Based on this instrument a global network, NOVAC (Network for Observation of Volcanic and Atmospheric Change), has been established with support from European Union. This network today comprises 56 instruments installed on 23 volcanoes in Europe, Africa and Latin America. These are all fixed installations providing real-time data to the observatories.

We here present a mobile gas monitoring system, based on NOVAC type instruments, but intended for rapid temporary deployment at any given volcano in connection with an upcoming crisis or scientific field campaign. The system comprises 3 scanning mini-DOAS instruments specially tailored for rapid and robust deployment, powered by foldable Solar panels and connected to a local communication and processing unit using radio-links. From the communication unit data is transmitted in real-time to any location using a satellite internet link.

The system has been tested during 3 months at Telica volcano in Nicaragua, as well as during a 3 weeks field campaign at Popocatepetl volcano in Mexico.

The system and its performance characteristics will be described and discussed in relation to its usability as a mobile early warning system for volcanic hazards.