



Multi-discipline monitoring network at Piton de la Fournaise volcano, Ile de la R

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Piton de la Fournaise (PdF), the active volcano at Reunion Island in the western Indian Ocean, is in terms of number of eruptions probably the most active volcano in the world. PdF produced an average of more than one eruption per year within the last two centuries. Since 1998, a particularly intense activity is observed with 28 eruptions, amongst which probably the most important one ever observed, in April 2, 2007, that produced >130xMm³ and triggered the collapse of the Dolomieu crater floor, forming a small caldera on April 5, 2007.

For research on volcanology and forecasting of eruptions the "Piton de la Fournaise observatory" (OVPF/IPGP) maintains seismic and deformation networks as well as a miniDOAS network under the european NOVAC program, which measures permanently SO₂ around Piton de la Fournaise.

The seismic network is composed of about twenty 1Hz and broad band seismic stations; the deformation network is composed of sixteen permanent GPS, seven tiltmeter and three extensometer stations; the miniDOAS network is composed by three 60° permanent stations on the Fouqué caldera rim.

These different networks allow us to follow up in real time long term precursors of eruptions (seismic and GPS), as well as short term precursors of magmatic intrusions and to determine from seismic and tiltmeter data locations of eruptions and to follow their intensities and evolutions.

The miniDOAS network allows us to follow up for the first time at PdF the gas emission during eruptions.

Most of the data are visible on our internal OVPF/IPGP Website and a survey is possible via Internet from everywhere where high debit Internet is available.

The OVPF/IPGP networks allowed us to forecast all eruptions since 1980, date of the creation of the observatory, sometimes up to 3 months in advance and since 2008 to monitor the SO₂ output, attaining values of 100 up to 2000 tons/day (example Dec. 2008 to Jan. 2009).