



## **The seismicity of Marapi volcano, West Sumatra.**

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Marapi is one of the active volcanoes in West Sumatra. It is a stratovolcano with an edifice that is elongated in the ENE-WSW direction. Its elevation is about 2,900 m a.s.l. The summit area is characterized by a caldera that contains some active craters aligned along the ENE-WSW direction. The Marapi volcano is an attractive region for tourists and hosts many small communities its surrounding areas.

The recent history of Mt. Marapi is characterized by explosive activity at the summit craters. No lava flows have passed the rim of the summit caldera in recent times. The last eruption occurred on August 5, 2004, and consisted of moderate explosive activity from the central crater. In 1975 an eruption with magmatic and phreatic explosive phases and mudflows and lahars occurred that caused fatalities in the surrounding areas. Since 1980 other eruptions have occurred at Marapi volcano. Even if the explosive intensities of those eruptions have been small to moderate, in some cases, there were fatalities.

A cooperation project started between Italy and Indonesia (COVIN) for the monitoring of volcanoes in West Sumatra. In the context of this project a monitoring centre has been set up at the Bukittinggi Observatory and a seismological monitoring system for Marapi volcano has been realized. This system is based on a broadband seismic network including 4 three-component stations. The data acquired by the broadband network of Marapi volcano are continuous recordings of the seismic signals starting from 19/10/2006. Volcano-Tectonic and Long Period events of Marapi volcano together with regional and teleseismic earthquakes are recorded. Several events of high magnitude located at short distances from the network were also recorded such as on March 6, 2007, when two events of Magnitudes  $M_w$  6.4 and 6.3 were recorded with the epicentres near the Marapi volcano. During the following days, there was a sequence of hundreds of aftershocks. The preliminary analysis of the seismicity of the Marapi Volcano indicates that the broadband network installed under the joint Italy-Indonesia project provides great help for its study and for the monitoring of this active volcanic and seismogenic area.