

Deformation in Agung volcano: a preliminary result from GPS measurements

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Agung is an active volcano located in Bali, Indonesia. The last eruption occurred in February 1963, after being dormant for 120 years, produced voluminous ash fall and devastating pyroclastic flows and lahars that caused extensive damage and many fatalities.

The campaign GPS measurements were conducted on Agung volcano in April and November 2012 by measuring 12 points that located around Agung volcano and 1 reference station. The network consists of five continuous stations established by United States of Geological Survey and Center for Volcanology and Geological Hazard Mitigation, 8 campaign stations established by ourselves. Continuous and campaign stations are observed during field campaigns. For observation, it used Javad TreG3th Sigma 3.4.1 receivers for continuous stations and GPS Leica Geosystem 1200 series with dual frequency using static differential methods for campaign stations.

Temporal results of GPS observations show a movement away from the crater at all stations and dominated by extension patterns. A nonlinear optimization technique was used to find the source location of April and November 2012 GPS measurements. Estimated location of source is found to be beneath the crater with depth about 2.1 km and 3.3 M m³ of volume change.