



## **Seismic tomography and dynamics of geothermal and natural hydrothermal systems in the south of Bandung, Indonesia**

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The structure and the dynamics of geothermal reservoirs and hydrothermal systems allows us to better assess geothermal resources in the south of Bandung. A large variety of intense surface manifestations like geysers, hot-steaming grounds, hot water pools, and active volcanoes suggest an intimate coupling between volcanic, tectonic and hydrothermal processes in this area. We deployed a geophysical network around geothermal areas starting with a network of 30 seismic stations including high-dynamic broadband Guralp and Trillium sensors (0.008 - 100 Hz) and 4 short-period (1 Hz) sensors from October 2012 to December 2013. We extended the network in June 2013 with 16 short-period seismometers. Finally, we deployed a geodetic network including a continuously recording gravity meter, a GPS station and tilt-meters.

We describe the set-up of the seismic and geodetic networks and we discuss observations and results. The earthquakes locations were estimated using a non-linear algorithm, and revealed at least 3 seismic clusters. We perform joint inversion of hypo-center and velocity tomography and we look at seismic focal mechanisms. We develop seismic ambient noise tomography. We discuss the resulting seismic pattern within the area and relate the structure to the distribution of hydrothermal systems. We aim at searching possible structural and dynamical links between different hydrothermal systems. In addition, we discuss possible dynamical implications of this complex volcanic systems from temporal variations of inferred parameters. The integration of those results allows us achieving a better understanding of the structures and the dynamics of those geothermal reservoirs. This approach contributes to the sustainable and optimal exploitation of the geothermal resource in Indonesia.