

## P-wave velocity structure at geothermal fields in North-Western Kuju Volcano, Kyushu, Japan

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The northwestern area of Kuju Volcano is one of the most active geothermal fields in Japan, where seismic swarms have been observed. The  $V_p/V_s$  ratio changes with time and increases before the seismic swarm.

On the other hand, a temporal change of travel time of P-wave was able to be detected. Travel time of P-wave before April 1996 was slower than after the time. It indicates that P-wave velocity changed with time in this area.

Kuju Volcano in the central Kyushu came to life with a phreatic ash eruption on 11 October 1995. So this change with time of travel time seems to be associated with this eruption and the interaction of geothermal fluids inside the volcano. Now P-wave velocity structure is determined using local earthquakes.