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Changes of seismic structure beneath Jailolo region during June-July 2017 inferred from P-Wave Tomography

At the end of 2015, seismic swarm occurred in Jailolo region, West Halmahera, Indonesia. GFZ Germany collaborate with BMKG Indonesia to monitoring seismic activities in Jailolo by installing temporary 35 seismic stations network. Here we present the results of local earthquake tomographic inversion beneath Jailolo region corresponding to two time periods, June and July 2017. About 6,000 phases of P-wave from 567 events were used to invert for the 3-D P-velocity structure of the crust beneath Jailolo region. The calculations were based on tomographic inversion of P arrival time data using the local earthquake tomography code LOTOS. We performed thorough analysis of the results in each of the time periods to comparing it. The resulting tomographic images shows differences on each period. In June period shows low P-velocity anomalies in 4-14 km depth with anomalies value up to -6%. However in July period the anomalies has lower value than June period, P-velocity anomalies value up to -1.5% in 7-10 km depth. Low P-velocity anomalies can be associated with high content of fluids and partial melts or magma reservoir within the crust beneath long-dormant Jailolo volcano. This magmatic activities are assumed as a source of seismic swarm activities in Jailolo region.

Primary author: TRI FRISTIYAN NANDA, Bayu Merdeka (NDC Meteorology Climatology and Geophysics Agency (BMKG))

Presenter: TRI FRISTIYAN NANDA, Bayu Merdeka (NDC Meteorology Climatology and Geophysics Agency (BMKG))

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