

Velocity Structure of P-Wave Beneath The Java Region, Indonesia Using Simultaneous Seismic Tomography Method: A Preliminary Result

Tuesday, 20 June 2023 11:31 (1 minute)

Java Island is an area with high earthquake activity, one of these activities is caused by the impact of the Indo-Australian Plate, which hits the Eurasian Plate, causing a subduction zone along Java Island. Besides the subduction route, Java Island also has earthquake sources from active faults. This study aims to image tectonic patterns based on the structure of wave velocity models. The data used are the travel time of P waves from 9238 earthquakes from January 2009 to December 2020 captured by 128 seismic sensor networks. The initial velocity model used in this study is the one-dimensional (1-D) global velocity model AK135. For the simultaneous inversion process, we used SIMULPS12 code. The results of the tomographic inversion show several tectonic patterns. In addition, earthquakes were detected due to volcanic activity and shallow earthquakes associated with the fault line. The horizontal tomogram activity successfully depicts the distribution of volcanic structure under the volcanic array in the study area. The vertical tomogram successfully depicts a slab field that sharpens at a depth of <250 km and a partial melting structure under the volcano.

E-mail

muftiputramaulana@gmail.com

Promotional text

Seismic tomographic imaging is a relevant technique to be applied about the dynamic evolution of the earth, so we applied the method to delineate the subsurface structure beneath Java island.

Oral preference format

online live

Primary author: Mr MAULANA, Mufti Putra (Indonesian Agency for Meteorological, Climatological and Geophysics (BMKG))

Co-authors: RAMDHAN, Mohamad (National Research and Innovation Agency of Indonesia (BRIN)); WANDONO, Wandono (Indonesian School of Meteorology Climatology and Geophysics (STMKG))

Presenter: Mr MAULANA, Mufti Putra (Indonesian Agency for Meteorological, Climatological and Geophysics (BMKG))

Session Classification: Lightning talks: P1.2-2

Track Classification: Theme 1. The Earth as a Complex System: T1.2 The Solid Earth and its Structure