

# Using local short-period array to investigate seismic distributions of Mindoro, Philippines

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Mindoro island locates on where the Palawan Continental Block (PCB) indented into the Philippine mobile belt (PMB) and where the southern Manila trench terminates due to transition from subduction to collision. The high seismic activities in and around Mindoro are a manifestation of the transition processes. There are two main faults in the region: the Sibuyan Verde Passage Fault (SVPF) and the East Mindoro Fault (EMF). SVPF branches out of the Philippine Faults near Masbate and continues westward passing through offshore north Mindoro to the Manila trench. EMF, on the other hand, is a NS trending fault transecting Mindoro. The most recent hazardous earthquake in the region is the 1994 Mw 7.1 Mindoro earthquake with predominantly strike-slip movements on the Aglubang fault in NE Mindoro and accompanied by tsunami hazard.

In order to better understanding the seismic distributions in and around Mindoro, we deployed an array of ten short-period stations since April, 2010. The collected data were built into database using Antelope Package. We hand-picked the arrival times of *P* and *S* waves. Although the numbers of functional stations vary from time to time, we locate those events with at least three *P* and one *S* arrivals, using 1-D global velocity model and grid searching the optimal source parameters that fit the data.

We have analyzed data from Apr. 2010 to Feb. 2012. A total of 1125 events were obtained. Results show a linear trend of shallow seismicity westward along SVPF, suggesting that the fault remains active near the Manila trench and probably goes through south of the Lubang island. On Mindoro inland, the shallow earthquakes mostly occur to the west of EMF, while intermediate-depth ones occur in a broad region beneath central Mindoro (or even to the south), suggesting existence of past subducting slab.