



Crustal deformation and interplate coupling from GPS observation in the West-Java Indonesia

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The Sunda trench plate boundaries along Sumatra have the potential to generate large thrust-type earthquakes. While less frequent and smaller events occur along Java where subduction of older seafloor takes place relatively aseismically. This latest need further investigation since 3 deadly earthquakes occurred for the last 4 years. The first one is the Yogyakarta May 2006 Earthquake then the Pangandaran July 2006 tsunami earthquake and the last one West Java 2009 earthquake. Java trench might have a unique earthquake potential. Therefore, more research is needed related to the 2009 earthquake in West Java to obtain a deep understanding of the mechanisms of subduction beneath the Java Island and its surrounding areas.

We have conducted four times GPS campaign observation in West Java, 2006 (December), 2007 (August), 2008 (August) and 2009 (June and August). The activity of local fault; sinistral motion of Cimandiri fault and Lembang fault control the deformation pattern in West Java. Using simple elastic half-space model we estimate geodetic slip-rate of Cimandiri fault is 5mm/yr and 3mm/yr for Lembang fault. By assuming BAKO station as a fixed station, almost all GPS stations move to the north with velocity less than 1 cm/yr. This suggests that the interplate coupling is very weak or if any it only extend at very shallow portion.