

Land motion and deformation from GNSS in SE Asia: Past, present and future

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ABSTRACT

Majority of Southeast Asia makes up a single tectonic block (Sundaland) which comprises of Indochina, Thailand, Peninsular Malaysia, parts of Sumatra, Java and Borneo. Significant deformation at boundaries (elastic loading include vertical motions). Sundaland moves (absolutely) around 3 cm/yr to the east and southeast. Sundaland also (relatively) rotates clockwise 7 ± 1 to 10 ± 1 mm/yr with respect to Eurasia. Southeast Asia has been (co-seismically) deformed in 2004, 2005, 2007 and 2012 from measured (real-time) with GPS and geophysical models available which rate up to 5 m displacements (near-field), for Thailand/Malaysia/Vietnam between 1-25 cm. Significant ongoing (vertical) post-seismic deformation in SE Asia still ongoing for years, for example internally NE/SW stretching of Thailand by 60 cm or more.

Keywords: Land motion, Deformation, GNSS