



## **On the Development of Co-seismic Deformation based on GPS Time Series Coordinates for Indonesian Geospatial Reference System 2013**

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Indonesian Geospatial Reference System 2013 (IGRS2013) is a new semi dynamic datum for Indonesia, launched on October 11st 2013. The reference epoch for IGRS2013 was defined at 1 January 2012 (2012.0) that connected to International Terrestrial Reference Frame 2008 (ITRF2008). The coordinates change of geodetic control network due to tectonic plate motion and earthquakes was accommodate by a deformation model. The deformation model consists a linear velocity and co-seismic displacement. At present, several significant earthquakes with magnitude > 8 Mw have been occurred in Indonesia region. By using time series coordinates from GPS stations and earthquake parameters, we estimate co-seismic displacement due to several significant earthquakes. Our result shows that the misfits of residual co-seismic displacement are 4 - 140 mm and 5 - 178 mm for East and North component respectively. The co-seismic displacement is required to correct the coordinates transformation from an observations epoch to or from IGRS reference epoch.

Keywords: Indonesia, IGRS2013, semi dynamic datum, co-seismic deformation