

On the Development of Deformation Model for the Indonesian Geospatial Reference System (IGRS) 2013

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SUMMARY

On 11 October 2013, Geospatial Agency of Indonesia launched a new geocentric datum named the Indonesian Geospatial Reference System 2013 (IGRS 2013). This new datum is a semi-dynamic datum in nature, which uses the global ITRF2008 reference frame, with a reference epoch of 1 January 2012. A deformation (velocity) model is used to transform coordinates from an observation epoch to or from this reference epoch. For its initial implementation, the model considers an initial deformation model setting based on 4 tectonic plates, 7 tectonic blocks, and 126 earthquakes. At present, the velocity model of IGRS 2013 is mainly realized using the GPS-derived rates at survey mode (sGPS) stations and continuous GPS stations, covering the period from 1993 to 2014. These GPS data are managed by the Geospatial Agency of Indonesia (BIG), Land Agency of Indonesia (BPN), and the Sumatran GPS Array (SUGAR). The GPS data is reprocessed and analysed using the GAMIT/GLOBK 10.5 processing software suite. The derived velocities field shows the spatial variation of velocity direction and magnitude, which represents various plates or blocks tectonic motion in Indonesia region. This information is useful for development of the deformation model of IGRS 2013.

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