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Earthquake Hazard Map of Papua, Indonesia

Sri Hidayati[1*], Athanasius Cipta[1], Jonathan Griffin[2], Cecep Sulaeman[1], Nick Horspool[3], Rahayu Robiana[1]

[1]Geological Agency of Indonesia, [2]Australia-Indonesia Facility for Disaster Reduction, [3]Geoscience Australia

Indonesia occupies a very active tectonic zone as the world's three major tectonic plates collides each other. This tectonic condition makes Indonesia an area of pronounced tectonic activity that is very prone to earthquakes. The northern part of Papua Island has experienced destructive earthquakes in the past and prone to earthquake in the future. Several destructive earthquakes occured in the region during the last decade such as Nabire (2004) and Serui (2010) has caused casualties, destruction and damage to infrastructures and buildings. Therefore, the availability of earthquake hazard map of Papua is needed, since the earthquake mitigation effort is more emphasized on pre-disaster phase.

The hazard map is created using PSHA (Probability Seismic Hazard Assessment) method and developed using EQRM (Earthquake Risk Model) computer program. This method requires inputs of earthquake sources (active fault, subduction zone and diffuse earthquake), site classes, return period and GMPE (Ground Motion Prediction Equation) for each earthquake zone should be preconcerted. As for Papua hazard map the earthquake source zone is classified into 19 zones for both active faults and subduction and 9 zones for diffuse earthquakes.

The result is PSHA map for 0.2 second spectral acceleration. The map represents the 10% probability of exceedance in 50 years (475 years return period). The Papua seismic hazard map was created based on the estimated intensity, which obtained by converting the acceleration level on 0.2 second RSA (Response Spectral Acceleration). The hazard levels are divided into four classifications, they are very low (MMI $<$ V), low (VII $>$ MMI ? V), moderate (VIII $>$ MMI ? VII), and high (MMI ? VIII) respectively.

Keywords: Earthquake Hazard Map, Papua Indonesia, PSHA