

## ABSTRACT

An earthquake *hazard* analysis in the province of West Sulawesi is important because some areas are close to earthquake source of an active earthquake fault. Seismicity in West Sulawesi is classified as active so that mitigation efforts are needed that aim to reduce the potential victims and impacts construction of building and non-building infrastructure and earthquake disaster. The method used in this research Probabilistic Seismic Hazard Analysis (PSHA) and the maximum likelihood method. From the PSHA method, hazard map will be obtained in the form of peak ground acceleration and spectral acceleration in bedrock. The maximum likelihood method is used to obtain seismic parameters, that is  $a$  and  $b$  value,  $a$  value indicating the seismicity of the research area and  $b$  value indicating the tectonics of the research area. The earthquake catalogs data is taken from the BMKG, IRIS, ISC, and USGS. The author uses a probability of exceeding 2% and 10% in 50 years of the building's life. The results seismic parameters value is  $a$ -value 4,91 and  $b$ -value 0,557, the probability of exceeding 2% and 10% in 50 years the peak ground acceleration each values is 0,15 g up to 0,85 g, and 0,08 g up to 0,6 g, and for the spektra acceleration  $T=0,2$  s with a probability of exceeding 2% and 10% in 50 years each values is 1.4 g up to 2.5 g and 0,4 g up to 2.5 g whereas for the spektra acceleration  $T=1,0$  s with a probability of exceeding 2% and 10% in 50 years with each value is 0,2 g up to 1,0 g and 0,17 g and 0,7 g with the highest dominant in the northern part of Majene regency, Mamuju and North Mamuju regency. Based on the results of research, the level of earthquake *Hazard* in West Sulawesi is strongly influenced by the Palu Koro fault, which is relatively very active in the northwest-north direction which passes through sedimentary rocks, lava flows, and the impact of its motion causing the Majene-Mamuju local fault and the presence of micro-faults in Pasangkayu which is local subduction moving east to southeast in Mamuju.

**Keywords** : Probabilistic seismic hazard analysis, peak ground acceleration, spektra acceleration