



Empirical Relationship between JMA Instrumental Seismic Intensity and Ground Motion Parameters Considering the Effect of Earthquake Magnitude

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ABSTRACT: The purpose of this paper is to propose an empirical relationship for estimating Japan Meteorological Agency instrumental seismic intensity from ground motion parameters such as PGA, PGV and the product of PGA and PGV. Using the strong ground-motion records during recent major earthquakes from the Hyogo-ken Nambu Earthquake in 1995 to the Iwate-Miyagi Nairiku Earthquake in 2008, we examine the effect of earthquake magnitudes on the relationship. We also compare two regression models, i.e., simple liner regression model and second-order polynomial regression model, to determine which of the models is fitted the actual relationship better in the higher intensity range such as intensity 5 upper or more by using the Akaike's Information Criterion (AIC). Considering these results, we develop the empirical relationship for estimating instrumental seismic intensity from ground motion parameters and earthquake magnitude.

Key Words: Instrumental Seismic Intensity, Peak Ground Acceleration, Peak Ground Velocity, Magnitude, AIC