

# Analisis Pendekatan Empiris Nilai PGA (Peak Ground Acceleration) Untuk Memahami Potensi Akselerasi Tanah di Kawasan Universitas Indonesia, Depok, Jawa Barat = Empirical Analysis of PGA (Peak Ground Acceleration) Values to Understand Ground Acceleration Potential in the University of Indonesia Area, Depok, West Java

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## Abstrak

Telah dilakukan penelitian tentang “Analisis Pendekatan Empiris Nilai Peak Ground Acceleration Untuk Memahami Potensi Akselerasi Tanah di Kawasan Universitas Indonesia, Depok, Jawa Barat”. Di Indonesia, belum tersedia fungsi atenuasi yang fokus untuk wilayah tersebut, termasuk wilayah Kampus Universitas Indonesia. Adanya keterbatasan peralatan di kawasan studi juga mendorong penggunaan empat model empiris, antara lain rumus empiris Donovan (1973), Boore-Atkinson (2014), Campbell-Bozorgnia (2014), dan Chiou-Youngs (2014) untuk mendapatkan estimasi nilai percepatan tanah maksimum. Data yang digunakan meliputi riwayat gempa bumi, informasi sesar aktif, dan zona shallow crustal sekitar lokasi studi. Analisis melibatkan proses dari klasifikasi sumber gempa, konversi magnitudo, perhitungan PGA, hingga evaluasi nilai RMS error dari masing-masing model empiris. Adapun hasil dari RMS Error tersebut adalah Donovan: 4,026, Boore-Atkinson (2014): 1,23, Campbell-Bozorgnia (2014): 2,97, dan Chio-Youngs (2014): 0,56. Hasil penelitian menunjukkan bahwa dari keempat rumus empiris tersebut, model Chiou-Youngs (2014) memberikan hasil yang paling akurat untuk kawasan Universitas Indonesia dengan nilai RMS error terendah.

.....A study titled "Empirical Approach Analysis of Peak Ground Acceleration Values to Understand the Potential for Soil Acceleration in the Universitas Indonesia Area, Depok, West Java" has been conducted. In Indonesia, there are no available attenuation functions specifically focused on this region, including the Universitas Indonesia Campus area. The limitations of equipment in the study area prompted the use of four empirical models, namely the Donovan (1973), Boore-Atkinson (2014), Campbell-Bozorgnia (2014), and Chiou Youngs (2014) empirical formulas, to estimate the peak ground acceleration (PGA) values. The data used included earthquake history, information on active faults, and shallow crustal zones around the study location. The analysis involved processes such as earthquake source classification, magnitude conversion, PGA calculation, and evaluation of RMS error values for each empirical model. The RMS error results were Donovan: 4.026, Boore-Atkinson (2014): 1.23, Campbell-Bozorgnia (2014): 2.97, and Chiou-Youngs (2014): 0.56. The results of the study indicate that among the four empirical formulas, the Chiou-Youngs (2014) model provides the most accurate results for the Universitas Indonesia area, with the lowest RMS error value.