

## عنوان مقاله:

Seismic Hazard Determination for the Coastal Region of South China II: Generic Crustal Modelling

## محل انتشار:

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## خلاصه مقاله:

This paper extends a rational seismological modeling approach for earthquake response spectra in a moderate seismicity region, using the Coastal Region of South China as the example, by incorporating into the model the regional crustal effects on bedrock earthquake ground motions. Such crustal effects cause significant modifications to peak ground motion predictions and hence have an important influence on the amplitudes of spectral responses (accelerations, velocities and displacements) developed in the form of design response spectra associated with a range of return periods from 500 to 2,500 years. The concept of the Characteristic Response Spectrum (CRS) is introduced. The CRS, which is solely a function of the crustal properties and the assumed Maximum Credible Earthquake (MCE) magnitude, has been found to dictate the seismic hazard of the subject region. The adopted approach emphasizes the importance of studying the composition and the structure of the earth's crust in modelling the seismic hazard in regions of moderate seismicity. It is found that the predictions made by the seismological model based on characteristic magnitude-Distance (M-R) combinations are very consistent with current code provisions in the velocity-controlled period range. However, significant discrepancies have been identified in other period ranges. In addition, the empirical modelling methodology based on adapting the properties of western United States (primarily Californian) seismic data, as used by some previous researchers to predict peak ground motions (for engineering purposes) for the South China region, appears to give overly conservative results when extrapolated to large magnitude characteristic events.

## کلمات کلیدی:

Seismic Hazard, Earthquake Ground Motion, Response Spectrum, Seismological Model, acceleration, Velocity, Displacement, South China, Hong Kong

## لینک ثابت مقاله در پایگاه سیویلیکا:

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