



# RMS Southeast Asia Earthquake Models

A single, regional source model-based solution for seismic risk assessment and pricing for locations and portfolios across six countries.



## KEY FEATURES

- Analyze stochastic, user-defined and historical events for Indonesia, Malaysia, Philippines, Singapore, Thailand, and Vietnam
- High-resolution geotechnical information for hazard amplification, including landslide and liquefaction
- Country-specific vulnerability functions (> 1,000) with design code regions included. Additional Options:
  - Industrial Facilities Module (IFM)
  - Builders Risk Module (BRM)
- Building inventory database differentiates among rural, suburban, urban, and highly urbanized districts for each country
- Assess losses from a wide range of financial positions and policy types:
  - Exceedance probability curves based on occurrence or aggregate annual losses, and tail conditional expectation (TCE)
  - Post-event loss amplification explicitly included for larger events

To help (re)insurers safely expand their business in this fast-growing regional market, the RMS® Southeast Asia Earthquake Models identify the level of earthquake risk for appropriate pricing based on stochastic events and their losses. The stochastic events, based on a single source model, provide a comprehensive risk assessment from both spatial and frequency/severity perspectives, and capture the correlation of loss from location up to portfolio level, across regional and national boundaries. The models provide probabilistic risk assessment in accordance with the latest scientific knowledge and global best practices.

## A Comprehensive View of Seismic Hazard Across Southeast Asia

Nearly 550 million people – including approximately 55 million in two of the top five global megacities – are subject to high earthquake risk. However, the growth of earthquake insurance is held back due to a perceived lack of data and knowledge around the risks and their diversification. If you cannot model the correlation and diversification of risk across and between countries, you could be miscalculating portfolio accumulations, reinsurance capacity, capital requirements, and the risk to large accounts. To solve this problem, the Southeast Asia Earthquake Models enable event-based risk assessment using the latest global ground-motion prediction equations across regional and national boundaries and capturing the correlation of seismic risk across the region to provide users with the latest scientific view of earthquake risk.

## More Accurate Risk Differentiation Using Spectral Response-Based Vulnerability

Losses from earthquakes should not be estimated using seismic risk alone, since building characteristics such as height can greatly impact shaking and building damage. Failure to account for this effect (spectral response) that differentiates the risk between short and tall buildings means that important variations in estimated losses are not captured. Furthermore, these spectral responses are strongly dependent upon local soil conditions that can amplify particular frequencies of ground shaking. The Southeast Asia Earthquake Models account for spectral response using the latest ground-motion prediction equations, assessment of local site amplification, and coded building characteristics to more accurately represent the spatial variations of damage from each event.

## SUPPORTED SOLUTIONS

### RiskLink® and RiskBrowser® Version 17

- Detailed Loss Module (DLM) accepts high-resolution exposure data for residential, commercial, and industrial business, including detailed address information, construction and occupancy descriptions, contents, and time-based risk coverages
- Aggregate Loss Module (ALM) is available for residential, commercial, and industrial business, generating CRESTA or province-level model losses

### Client support

- Global Client Support from expert support staff, with fulfillment and deployment services and training
- Comprehensive, transparent documentation, including model methodology and validation, and detailed descriptions of result changes in Indonesia and the Philippines
- Event Response Team provides accurate information about potential impacts of a major catastrophe within agreed peril-specific timelines

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RMS is the world's leading catastrophe risk modeling company. From earthquakes, hurricanes, and flood to terrorism and infectious diseases, RMS helps financial institutions and public agencies understand, quantify, and manage risk.

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## Extended Solutions for Risk Management

The Southeast Asia Earthquake Models bring together multiple sources of loss resulting from earthquakes and across many lines of business, taking into account the unique and rapidly changing landscape throughout the region. Rapid regional urbanization and development produces a wide range of building types and exposure. Incorrect pricing and risk management can occur if variations in risk due to exposure type and the earthquake vulnerability of structures is not captured. Over a thousand vulnerability functions per country are included within the RMS vulnerability module to evaluate losses per coverage type. RMS provides additional solutions for underwriting industrial facilities, buildings under construction, and marine cargo and specie risks. The financial model includes additional losses from landslide and liquefaction hazards, and the effects of post-event loss amplification (PLA), to reflect the impact of more extreme loss-causing events.

## A Consistent Approach from Underwriting to Portfolio Management

Limited seismic hazard data is used by many insurers for policy-level underwriting and pricing, but not for portfolio management. Using RMS products for underwriting and pricing together with the Southeast Asia Earthquake Models for portfolio, reinsurance, and solvency management provides consistency across decision-making processes for developing a diversified portfolio while meeting strategic growth objectives.

## High-Quality Calibration and Documentation to Meet Regulatory Requirements

RMS has over 25 years' experience building earthquake models that are subject to regulatory review, addressing regulatory pressures to understand risk models and own your view of risk. With a strict development process, RMS individually calibrates and validates every model component with extensive quality assessment and acceptance testing processes for consistency between model components and overall losses, and full transparency for regulatory requirements. RMS documentation also provides important information to clients to ensure they understand model assumptions as part of their validation process and can develop their own view of risk.

## Find out more

Ask your RMS sales or customer services representative for more information on RMS Southeast Asia Earthquake Models, or call **+44.207.444.7600** or send an email to [sales@rms.com](mailto:sales@rms.com).