

# RMS® Colombia Earthquake Model

Local Knowledge Combined with Advanced Earthquake Modeling Science



## KEY HIGHLIGHTS

- Region-wide stochastic event catalog consisting of more than 134,000 events
- Model approved for use by the Colombian insurance regulator
- Manage cross-border seismic risk using a single event set across eight South American countries
- Differentiate risk based on local site conditions and building characteristics
- Model industrial risks using an advanced Industrial Facilities Model
- Run streamlined analyses using aggregate data
- Hazards: shake, liquefaction

### Approved by the Colombian Insurance Regulator

The RMS® Colombia Earthquake Model provides comprehensive coverage for modeling seismic risk in the country, incorporating advanced techniques applied to each model component. In developing the model, RMS collaborated with leading regional seismology and engineering experts from the Universidad de Los Andes and the Instituto Colombiano de Geología y Minería.

The Colombia model can be used as a single country model or as part of a combined South America suite that also includes Argentina, Bolivia, Brazil, Chile, Ecuador, Peru, and Venezuela. Together, the models provide (re)insurers with a tool for understanding and managing earthquake risk in all seismically active countries in the region.

As a testament to the scientific rigor of the Colombia model, RMS has been approved by the insurance regulator, Superintendencia Financiera de Colombia (SFC), to offer catastrophe modeling services for national and global insurance companies writing earthquake risk in the country. Firms can only use SFC-approved catastrophe models to calculate their probable maximum loss, average annual loss, and capital reserves.

### Latest Scientific View of Seismic Hazard

The Colombia model incorporates the latest scientific understanding of earthquake hazard for the country, leveraging local, regional and international studies about the location, recurrence and maximum magnitudes of crustal and subduction zone seismic sources. The South America stochastic catalog consists of more than 134,000 events, over 25,000 of which can potentially cause loss to onshore and offshore exposures in Colombia.

### Differentiate Risk with Confidence

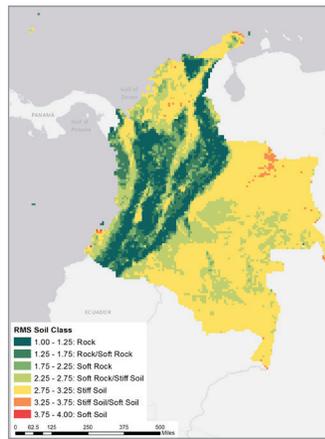
The Colombia model enables users to differentiate risk based on the effects of local site conditions on earthquake ground motions.

To support this feature, RMS developed a high-resolution, country-wide database of soil characteristics using 90m resolution topographic data and geologic maps. Ground motion amplification at a site is determined as a function of multiple

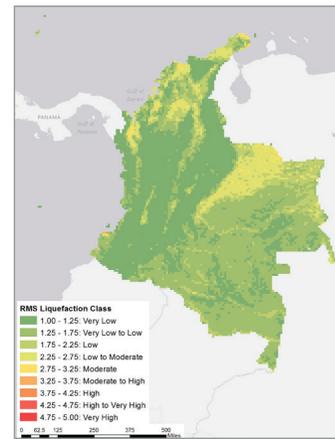
parameters, including local site conditions, event source type and magnitude, distance to fault and peak ground acceleration. Countrywide coverage for liquefaction is included in the modeled losses.

The model also enables risk differentiation based on building characteristics, such as construction class and height. This is made possible through the incorporation of more than 8,900 Colombia-specific vulnerability curves for building and contents damage (not including additional curves time element coverage). These vulnerability curves were developed considering the unique design and construction practices in Colombia and account for the evolution of the building code in the country.

The vulnerability model has been validated against damage and loss reports from key historical events affecting Colombia. Where appropriate, RMS also considered data and studies from other countries and incorporated advice from local experts.



RMS soil class values across Colombia



RMS liquefaction susceptibility values across Colombia

## RMS

7575 Gateway Blvd.  
Newark, CA 94560 USA

### For sales inquiries:

+1.510.505.2500  
+44.20.7444.7600  
sales@rms.com  
www.rms.com



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.

©2017 Risk Management Solutions, Inc. RMS is a registered trademark and the RMS logo is a trademark of Risk Management Solutions, Inc. All other trademarks are property of their respective owners.

## Leverage Specialized Models for Industrial Facilities and Aggregate Data

An advanced Industrial Facilities Model can be used to define and analyze the potential for damage of industrial occupancies, reflecting the diversity of these risks in Colombia – from oil refineries and pipelines, to mining and electronics. RMS also offers an Aggregate Loss Model for users who prefer to run streamlined analyses using aggregate information about building locations and characteristics.

### Find out more

Ask your RMS sales or customer services representative for more information about the RMS Colombia Earthquake Model, or email [sales@rms.com](mailto:sales@rms.com).