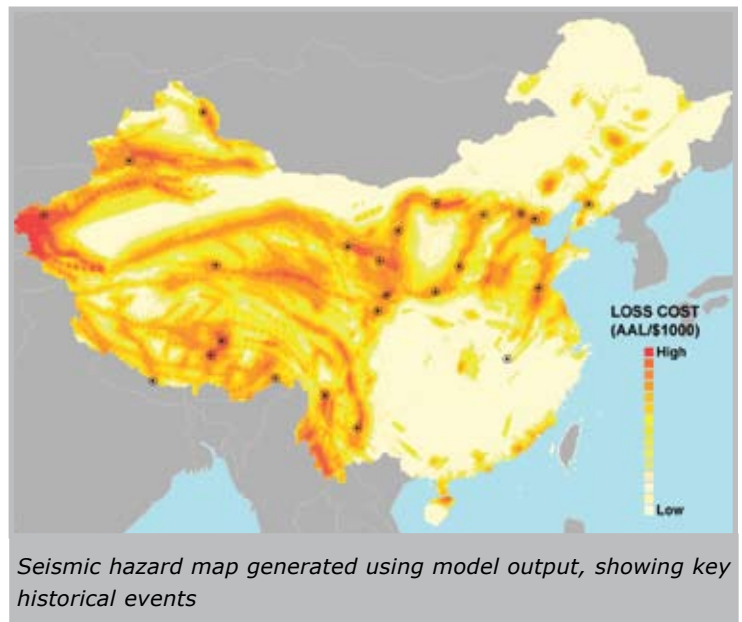


With over 2,000 years of chronicled history, Chinese scientists have access to knowledge about the spatial and temporal occurrence of historical earthquakes seldom granted to seismic researchers worldwide. RMS has partnered with the leading Chinese earthquake institute to incorporate this knowledge into a detailed and fully probabilistic earthquake loss estimate model covering the whole of China.

## China Earthquake

### THE RMS & IEM PARTNERSHIP

The global earthquake modeling expertise of RMS is supported and strengthened through a partnership with China's leading scientific institution in the field of earthquake study, The Institute of Engineering Mechanics (IEM). Through working with IEM, RMS has been able to tap into the breadth of knowledge on the seismicity of China, access detailed geotechnical understanding, and draw from the existing research on building vulnerability. This partnership spans a broad host of initiatives designed to promote greater awareness and understanding of natural hazard risk and exposure throughout China.



### MODELING CHINA'S EARTHQUAKE HAZARD

The seismicity of China is most active in a zone of deformation that fans out across northern and northeastern China, into Mongolia, and toward the Korean peninsula. This includes the region around the capital city of Beijing, which has a dense population of over 15 million people. The RMS® China Earthquake Model is capable of assessing seismic risk throughout the entire country, including Macao and Hong Kong. A separate model is also available for Taiwan.

RMS has developed a probabilistic set of over 85,000 simulated earthquakes that capture the potential for both moderate and large magnitude earthquakes, including key historical events such as the devastating 1976 Tangshan Earthquake. The seismic source model underlying the event set stems from IEM's unique experience in the development of the hazard zonation maps for China. A proprietary RMS geographic indexing system called variable resolution grid (VRG) has been implemented to efficiently store detailed geotechnical hazard data, digitized from soil maps of the whole of China, in grid sizes as small as 500 meters. Calculating the amplification of different soil types is one of the stages in the spectral response methodology implemented in the model.

## CHINESE BUILDING INVENTORY AND VULNERABILITY MODELING

The RMS China Earthquake model includes building classes that represent the unique seismic behavior of the Chinese building stock. Users have the choice of entering building attributes on a risk-by-risk basis, or, when this information is not available or when entering aggregate data, retrieving the building inventory assumptions from databases RMS has included in the model.

RMS' spectral response methodology provides the most advanced approach available for modeling



Construction site of the main stadium for the 2008 Summer Olympic Games to be hosted in Beijing

property vulnerability in this high-risk region. This approach provides a robust link between ground motion and building damage, and is especially relevant for the modeling of the high-rise buildings that increasingly populate Chinese cities.

In addition to the standard residential and commercial property risks, companies can license additional builders risk and industrial facilities models for estimating potential losses to these vulnerable exposures. An earthquake casualty model for China will also be released in 2007, allowing life insurers to estimate fatalities and injury levels resulting from earthquake events.

### APPLICATIONS OF THE RMS® CHINA EARTHQUAKE MODEL

As insured exposures in China increase year on year, the need to understand and manage the risk to natural hazards, such as earthquakes, also increases. Results gathered using the RMS® China Earthquake Model allow insurers to track exposures, manage portfolios, and optimize the purchase of reinsurance.

The model comes at a time when market regulators and rating agencies are increasingly looking at how companies implement risk management. The availability of a detailed loss model capable of modeling policy level risks allows stable growth of local insurance companies, and aids foreign companies in entering and expanding into the Chinese market place with a balanced and profitable portfolio.

## Model Specs

### GEOGRAPHIC SCOPE

China, including Hong Kong and Macau; Taiwan available in a separate model

### GEOCODING RESOLUTION

Postal Code, County/District, Prefecture, CRESTA, and Province Resolutions

### LINES OF BUSINESS AND COVERAGES

Building, contents, and business interruption losses calculated for over 30 residential, commercial, and industrial occupancies

### SPECIAL FEATURES

Additional models for Builders Risk, Industrial Facilities, and Earthquake Casualty