

**GEM Request for Proposal: Global Historical Earthquake Catalogue and Database**

**Posting date:** 15 May 2009  
**Submission deadline:** 15 July 2009  
**Expected Decision:** 15 September 2009  
**Target budget range:** 400,000€  
**Target duration of project:** 24 months

The record of past earthquakes is among the most important means to evaluate earthquake hazard, and the distribution of damage associated with past earthquakes is a key to assessment of seismic risk. The instrumental seismic record has only a 100-yr span, and yet no plate boundary is so active that this period is sufficient to capture the full range of seismic behavior. Extending the record of large damaging earthquakes several hundred years longer, and in exceptional cases by 1,000 years, is thus extremely valuable. This requires damage descriptions to be converted to numerical intensity scales, and the estimation of magnitude, location and their uncertainties. GEM seeks the best and most efficient way to make use of the historical earthquake record, honoring its uncertainties and regional differences in quality and extent.

Specific tasks and deliverables expected for this project include:

T1. Establish a common set of definitions, strategies, standards, quality criteria and formats for the compilation of databases of intensity data and historical earthquakes.

T2. Compile a global database of pre-existing historical reports and associated source citation information in a homogenized format that makes it accessible for further analysis.

T3. Compile a first global catalogue of historical earthquakes by incorporating results from recent regional and local catalogues or programs or compilations that have focused on historical seismicity. Critically assess the quality and uncertainty in the regional catalogues and databases used to compile the global catalogue.

T4. Compile and review the intensity attenuation models used for the regional compilations around the globe, with the goal of assessing the homogeneity and completeness of historical magnitude assessments. Submit a first compilation of regional intensity attenuation models and of their regions of application already within 6 months from the project start.

T5. Draw the plans for a global effort towards a harmonized, distributed archive of intensity information, taking advantage of on-going regional and national efforts. Develop the database system and associated web portal to enable scientists to easily contribute new intensity data, and keep the database updated. Propose criteria and procedures to ensure quality control in building the database.