

GEM Request for Proposal: Global Instrumental Seismic Catalogue

Posting date: 15 May 2009
Submission deadline: 15 July 2009
Expected Decision: 15 September 2009
Target budget range: 450,000€
Target duration of project: 24 months

As basis for its global reference hazard model, GEM seeks the stable quantification of seismicity for as long a time period as possible and in all regions. GEM will support the compilation of an improved reference global instrumental catalogue, covering from 1900 to the present, as the primary tool to be used to characterize the spatial distribution of seismicity, the magnitude-frequency relation and the maximum magnitude.

Specific tasks and deliverables expected for this project include:

T1. Collect and critically review the existing global instrumental catalogues and main regional catalogues, with a focus on magnitude scales, uncertainties in epicentral location and depth determination, completeness and geographical distribution.

T2. Propose a methodological approach to compile a new global instrumental catalogue covering the period from 1900 to the present. Propose measures to assess the quality and improvement in the new catalogue with respect to the existing global instrumental catalogues.

T3. Compute a new global instrumental catalogue from 1900 to the present. Improve the hypocenter locations to the extent possible, using original waveforms if necessary. Express the new catalogue in M_w ; improve upon the homogenization of M_s magnitudes in a uniform and consistent manner; preserve all magnitudes and seismic moments listed in the original catalogues. Estimate and list the uncertainties in all parameters.

T4. Provide a regionalized assessment of the magnitude of completeness of the new global catalogue.

T5. Propose an approach to merge the new global catalogue with regional catalogues, existing or under compilation, to ensure homogeneous hazard assessment at all scales around the globe.

T6. Involve international organizations (such as IASPEI or ISC) to ensure that the new catalogue obtains the required validation and global consensus as a new reference.

T7. Propose mechanisms for further upgrades of the new catalogue and for its long-term distribution and availability.