

GEM Request for Proposal: Global Geodetic Strain Rate Model

Posting date: 15 May 2009
Submission deadline: 15 July 2009
Expected Decision: 15 September 2009
Target budget: 250,000€
Target duration of project: 18 months

In the assessment of seismic hazard, the seismic catalogue and active faults provide complementary means for identifying zones of earthquake hazard, and the geodetically measured secular strain rate provides an independent benchmark for crustal deformation and thus the recurrence of large earthquakes. Where all three datasets are rich, one can assess whether the estimated fault slip rates and earthquake activity rates are consistent with the long-term strain accumulation measured from GPS (or derived from InSAR).

Specific tasks and deliverables expected for this project include:

T1. Establish a common set of definitions, standards, quality criteria and formats for the compilation of strain rates models.

T2. Compile and critically review the global and regional studies and models of geodetic strain rates produced since the Global Strain Rate Mapping Project of the International Lithosphere Program (GSRM, 2004).

T3. Update the Global Strain Rate Model by significantly increasing the amount of geodetic data used in GSRM 2004, i.e. by including some of the 3000 continuous global GPS sites and post-2004 campaign data to better constrain velocities. If possible, increase the model resolution and decrease the 50x50km² cell size of GSRM (2004), to allow comparing with models based on seismic source and individual active faults.

T4. Develop a database system and associated web portal to enable scientists to easily contribute new geodetic models and strain rates, and keep the database updated. Propose criteria and procedures to ensure quality control in building the database.