

Introduction to the scoping meeting towards a Global Tsunami Model (GTM)

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1 – NGI, 2 – Geoscience Australia, 3 – INGV, 4 – IPMA, 5 – GFZ Potsdam, 6 – USGS

Provisional Agenda

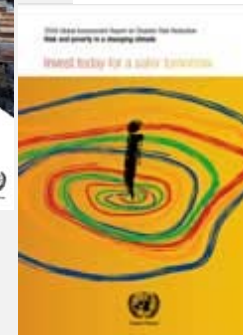
- ↪ 10.30-10.50 Welcome, introduction, and outline
- ↪ 10.50-11.20 Interest / slides from partners
- ↪ 11.20-12.00 Round table discussion (scientific!)
- ↪ 12.00-12.20 Presentations by GEM and GVM
- ↪ 12.20-12.45 Organization issues (if time)
- ↪ 12.45-13.00 Wrap up and conclusion

Objectives of this meeting

- ↷ Evaluate interest for going forward with GTM
 - Attendance and number of positive responses already indicate broad interest
 - Feasibility for a broad and joint effort by the tsunami community
- ↷ Discuss the scientific scope
 - Must be agreed before going forward with further organizational issues, structure, leadership, funding (next meeting)
- ↷ Define an initial project / scope
 - Start with PTHA only, earthquake and non-seismic?
- ↷ Define the time and place for the next meeting

Background - previous global tsunami hazard assessments: input to Global Assessment Reports «GAR»

- Issued by UN-ISDR every second year from 2009-2015
- Provides comparative basis for the risk posed by various natural hazards and joint mapping tools
- **Broad scientific involvement, including the global models (GEM, GVM)**
- Proposes policy initiatives to address gaps and challenges
- Scope and time for next version not yet decided – will be oriented towards Sendai Framework of Action (SFA)
- **Work towards GAR has motivated the initiative for a GTM**



Historical review of past global tsunami hazard and risk assessments for the GAR

➤ GAR09 (NGI)

- **Method:** Simple (crude) scenario based approach, partly global coverage
- **Joint collaboration:** Email requests.

➤ GAR13 (NGI, GA)

- **Method:** Scenario based approach. Some PTHA
- **Joint collaboration:** NGI and GA. Email requests.
- **Request for contributions:** Preliminary attempt for “GTM” like collaboration – proposed at Town Hall meeting at AGU 2012 (prior to GAR15)

➤ GAR15 (NGI, GA, CIMNE, URS, INGV, IPMA, USGS)

- **Method:** PTHA
- **Multi institutional collaboration:** Main work by NGI, GA, CIMNE, assistance on sources and PTHA from other collaborators

➤ **Beyond GAR15 – Increase multilateral collaboration through the Global Tsunami Model and expand the scientific topic beyond GAR**

How will a **Global Tsunami Model** improve our understanding of the present risk situation?

- Involving the full **tsunami hazard and risk community** may:
- Harmonize efforts and products
- Develop standardized and open source tools for hazard and risk analysis
- Develop guidelines and good practices
- Integrate datasets from other providers
- Become a term of reference for regional efforts (standards)
- Validation of methods – improve our understanding of the risk drivers

Interplay between local, regional, and global models

- ↷ Different degree of sophistication on different scales
- ↷ Global and regional model should provide the same mean characteristics as the more sophisticated ones
- ↷ Presently (GAR) we have only the global model
- ↷ Interactive development
 - Local or regional model
 - Update – calibrate global model
- ↷ On project level and ongoing activities
 - National, local and regional projects and efforts
 - **Where (geographically) can your institution contribute**
 - **Utilize ongoing activities (local projects, stakeholders, data etc)**
 - Harmonized efforts (e.g. ASTARTE compilation of tsunami sources for NEAM, proposal submitted for NEAM regional PTHA)
 - Update / calibrate global models
- ↷ Emphasize collaboration with the GEM and GVM!

Example objectives for PTRA in GTM – subject for discussion – to be updated

- ↗ Development of tools for doing
 - PTHA (probabilistic hazard)
 - PTRA (probabilistic risk)
- ↗ PTHA
 - For earthquakes (large subduction zone earthquakes, local sources, background seismicity)
 - Non-seismic sources (landslides, volcanoes)
 - Regional run-up and exposure
- ↗ Understanding and quantifying uncertainty in PTHA and PTRA
 - Process and sensitivity studies (e.g. heterogeneous slip effects, fault parameter sensitivity)
 - Epistemic uncertainty of long term recurrence for earthquakes
- ↗ Improving fundamental datasets (not necessarily to be generated by GTM)
 - High accuracy and resolution global bathymetry and elevation data
 - Improved subduction zone geometry, slip-rate and coupling models (interaction with GEM)
 - Landslide deposits, unstable slopes, geophysical data, layering etc.
 - Vulnerabilities
- ↗ Model development and benchmarking
- ↗ Validation of tsunami hazard and risk models

Points to be discussed today

- ↪ **Scientific topics**
- ↪ **Additional objectives**
- ↪ **Define an initial project / scope**

- ↪ **Preliminary organizers? MoU?**
- ↪ Next meeting: where, when, topics?
- ↪ (Other projects to be included – geographical coverage)
- ↪ (Organizational aspects)

Suggested topics - grouped

- ↗ 1a) Seismic source (probability and modeling)
- ↗ 1b) Non Seismic source (probability and modeling)
- ↗ 1c) Tsunami modeling
- ↗ 1d) PTHA: framework
- 1e) PTHA+: uncertainty, validation, testing
- ↗ 2) Vulnerability (Fragility, mortality++)
- ↗ 3a) PTRAs: framework
- 3b) PTRAs+: uncertainty, validation, testing
- ↗ 4) Tools (models, formats, DB, validation/verification)
- ↗ 5) Organization (boards, website)

Organizational aspects

- ↷ Identify partners having leadership activities
 - It is not necessarily NGI that will lead
 - Leadership should preferably to be spread across organizations
- ↷ Platform for exchange, webpage, data, models ++
- ↷ Need to define initial projects with limited scope (realistic)
- ↷ Identify possible funding agencies for global model (such as ideal funds, re-insurance industry, EU-projects, World Bank ++)
- ↷ To be discussed further



Extras