



Global Tsunami Model (GTM)

Background, resumé of previous meetings, and present status

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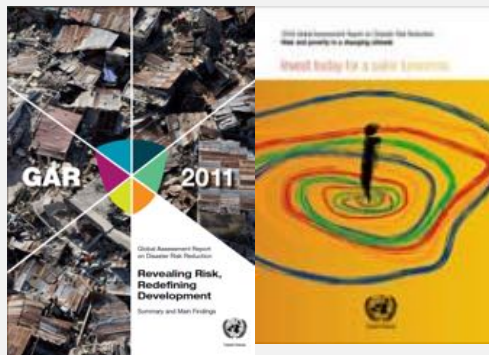
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Background and motivation – why did we take this initiative?

- Multi-institutional work on hazard and risk for the UN-ISDR (Global Assessment Report, GAR)
- **Idea:** Need to gather scientific community for
 - *Collective effort for improved understanding of global tsunami hazard and risk*
 - Improve methods, develop guidelines and standards
 - Non-exclusive initiative ↔ open for the community
- *Initiative from the tsunami community itself*
 - Proposers: NGI, GA, INGV, USGS, IPMA, GFZ
 - No owners or funding at present
- GTM should ensure relevance towards stakeholders
 - Societal relevance
 - Ambition will – to a considerable extent – depend on success in attracting external funding



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Meetings and dissemination activities so far

↗ *IUGG Prague June 2015*

- Proposed in public GTM presentation
- Scoping meeting discussing the **science content**
- Discussions with IOC UNESCO TOWS group on tsunami hazard assessment and probability vs defining largest credible magnitudes

↗ *AGU December 2015 – OAKLAND (AECOMs office)*

- Discussing **organizational structure**
- Exchange knowledge and experience from GEM
- Establishment of workgroups

↗ UNISDR S&T conference January 2015 – GTM poster (NGI)

↗ OASIS Loss Modeling Framework – webex meeting April 2015 (NGI, INGV, CIMNE)

↗ EGU 2016 (this meeting)

↗ SSA 2016 (AECOM presents GTM later this week)



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Interested organisations count > 20



Australian Government
Geoscience Australia



Also

- MMAF (Muhari)
- Univ Bologna (Tinti, Armigliato)
- MSI (Didenkulova)
- PARI (Takagawa)
- ICMMG (Giusiakov)
- Northwestern University (Okal)
- MRI/JMA (Tsushima)
- USC (Lynett)
- ITB (Latief)
- Univ Hamburg (Behrens)
- AUTH (Pitilakis)

Overall objectives (1)

- Probabilistic tsunami hazard and risk (and related disciplines)
- Develop standards and guidelines
- Harmonize efforts and products
- Develop tsunami hazard and risk (and related) products
- Integrate datasets from other providers, or, compile databases where non-existent
- Methods verification (simulation tools, hazard and risk related tools)



Overall objectives (2)

- Provide reference hazard and risk data on regional and global scale based on standardized and benchmarked methodologies
 - Enable compatibility between regional and local scale hazard and risk products
- Utilize and harmonize projects outside GTM – examples:
 - TSUMAPS-NEAM regional hazard maps for the Mediterranean
 - Generic tools for interfacing models Tsunami API – GNS Science
- Run and facilitate own projects and activities – based on funding
- Facilitate integration of results and tools from related organizations such as GEM and GVM – and assign borderlines



Brief list of the scientific objectives

- ↗ Seismic source (probability and modeling) – interface with GEM etc needed
- ↗ Non Seismic source (probability and modeling) – interface with GVM, (ICL, S4Slide)
- ↗ Tsunami (probability and modelling)
- ↗ PTHA (seismic and non-seismic → landslides and volcanoes)
- ↗ Vulnerability and fragility
- ↗ Probabilistic Tsunami Risk Assessment
- ↗ Uncertainty treatment and feasibility
- ↗ Development of standards and guidelines for tsunami hazard and risk quantification
- ↗ Unified code interfaces - harmonization
- ↗ Dissemination and geoethics (transparency – uncertainty communication)



Some simple tools available at present

- ↗ Simple GTM webpage set up by **UW**
www.globaltsunamimodel.org
- ↗ GitHub repository for files set up by **UW**
<https://github.com/GlobalTsunamiModel/GlobalTsunamiModel.github.io>
- ↗ GTM google group (including GEM and GVM) – set up by **AECOM**
<https://groups.google.com/forum/#!forum/globaltsunamimodel>
- ↗ Further suggestions by Randy LeVeque in the GTM googlegroup
- ↗ Some PTHA tools on github provided by **GA**



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- ↗ **The above structures are preliminary** – and also allow us to explore possibilities – what do we need - prior to building more extensive and complete infrastructure



Focus on three basic activities

- ↪ **Committing partners** to the GTM, through a simple process
 - Acquiring signed Letters of Intent (Lols) from own Institutions, enabling Point(s) of Contact for each Institution; Initial “loose” commitment toward GTM construction
- ↪ **Seeking for endorsement**
 - Main Contact established with UNISDR; other agreements ongoing
- ↪ joint **White Paper**, possibly on a top Journal showing
 - Commitment
 - Endorsement
 - GTM added value (standards, validation, tools, a unique broad community)



Other steps will immediately follow

- Keep working in common (pilot) Projects, e.g. TSUMAPS-NEAM, allows defining explicit scope and focus areas where we need standards
- Refine verification practices/tools (e.g. weighting of alternative models through elicitation of experts; sanity checks; comparison with observations)
- Initiation of preparation of Terms of Reference (ToR)
- Follow up workshop with re-insurance industry



For a later phase (and related to ToR)

- ↪ Coordination, Scientific and advisory boards
 - Will depend on interaction with stakeholders
- ↪ Structure/Location of secretariat
- ↪ Management of joint funding
- ↪ Decisions on size and structure of membership fee
- ↪ Open source and IPR issues
- ↪ Engagement with national authorities?

