

## **A note on the proposed Global Tsunami Model network on probabilistic tsunami hazard and risk for the IOC UNESCO TOWS working group**

Various institutes (NGI, Geoscience Australia, INGV, IPMA, USGS) have proposed to form a Global Tsunami Model (GTM) network to work jointly across disciplines and regions on tsunami hazard and risk. The initiative emerges from the joint work of these institutions have conducted for the Global Assessment Report (GAR) on probabilistic hazard and economic loss. The hazard and risk results for the GAR reports are aimed towards establishing overall loss calculations on a national scale, and due to limitation based on the global scale of the applied methods it is presently not suitable towards local assessment such as the development of evacuation zones in conjunction to tsunami early warning. GTM will partly build on the GAR work, at least initially, but the overarching ambition of the proposed GTM is wider than for GAR. If successful, the GTM may provide the framework and tools needed to assist risk based decisions for incorporating the low probability high consequence in various applications, probabilistic hazard based evacuation maps being one of them.

The first GTM scoping meeting was held 29. June 2015, with about 20 different scientific, private, and governmental organisations attending, providing a relative broad global geographical coverage. In addition, more than 10 other organisations that could not attend have expressed their interest to participate. Moreover, the two other global models, the Global Earthquake Model (GEM) and the Global Volcano Model (GVM) provided presentations at the GTM meeting. It was agreed that collaboration between the different models would be of value, and that the borderlines should be discussed further. The purpose of the first scoping meeting was to discuss the scientific content of the GTM. The outcome of the meeting was that the GTM should provide a platform to join the different work done by the various organisation working towards probabilistic tsunami hazard and risk. GTM should further not only provide tsunami hazard and risk maps on the global scale as a term of reference, but also provide tools, guidelines, and standards. To this end, it was proposed that the GTM should:

- ↴ 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

The scientific topics should encompass the main emphasis, namely tsunami hazard and risk. This would include topics such as the mechanics and probability of sources, both earthquakes and non-seismic sources (landslides and volcanoes), use of tsunami modelling in tsunami hazard and risk assessment, tsunami vulnerability and fragility, probabilistic tsunami hazard and risk framework, the treatment of uncertainties emerging both through data and expert judgement, as well as dissemination and geoethics of hazard and risk results and their use in practical applications. In the short term, it was proposed that the GTM should focus on probabilistic tsunami hazard assessment (PTHA) including the non-seismic sources. Based on the quite broad interest apparent ahead of and after the first scoping meeting, it was decided to follow up with additional meetings to discuss also the organisational aspects of the GTM. It is likely that such a meeting will be held late fall / early winter 2015.