



Probabilistic TSUunami Hazard MAPS for the NEAM
 Region (TSUMAPS-NEAM)
 ECHO/SUB/2015/718568/PREV26
 First Progress Report - 29 September, 2016



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2. Project objectives, partnership and expected deliverables.

Title of the project: Probabilistic **TSU**unami Hazard **MAPS** for the **NEAM** Region.

Acronym: **TSUMAPS-NEAM**.

TSUMAPS-NEAM is a Prevention Project, Priority 3, External Budget item.

This is the first progress report, which considers activities carried out in the first seven months of the project, from January 1 to July 31, 2016. The total duration of the project is 18 months.

Partnership:

INGV	NGI	IPMA	GFZ	METU	UB	NOA	CNRST	INM
Italy	Norway	Portugal	Germany	Turkey	Spain	Greece	Morocco	Tunisia
Member State	Participating Member State	Member State	Member State	Enlargement	Member State	Member State	Neighbourhood Policy	Neighbourhood Policy

The partnership of the project includes research institutions established in EU countries, as well as in Enlargement and Neighbourhood Policy countries. Geographically, these countries are spread all across the European continent with coastlines facing the North-Eastern Atlantic, the Mediterranean, and connected Seas (NEAM region), thereby bearing significant exposure to potential tsunami hazard.

Nonetheless, a thorough probabilistic tsunami hazard assessment (PTHA) is not yet available for the NEAM region. The main general objective of the TSUMAPS-NEAM project is thus to fill this gap by producing the first region-wide long-term homogenous PTHA from earthquake sources and thereby triggering a common tsunami risk management strategy.

The specific objectives of the project are tackled by the following four consecutive actions: 1) Design the methodology and produce a state-of-the-art, standardized, and updatable PTHA with full uncertainty treatment; 2) Review the entire process with international experts; 3)

Put into practice the above two points to produce the final PTHA, its database, and the documentation of the followed procedures; and 4) Publicize the results through an awareness raising and education phase, and a capacity building phase. Publicity will be particularly oriented toward Enlargement and Neighbourhood Policy countries.

Expected deliverables are as follows, with the initially scheduled month of delivery indicated in parenthesis:

- D1. First Progress Report (M9) - **This document**
- D2. Second Progress Report (M15)
- D3. Final Technical Report (M20)
- D4. Online Tsunami Hazard Database (M11)
- D5. Tsunami Hazard and Probability Maps (M11)
- D6. Experts' Review and Sanity Check (M9)
- D7. Methods and Data Documentation (M16)
- D8. Project Website (M1) - **DELIVERED**
- D9. Awareness and Education Materials (M12)
- D10. Guidelines and Training Tools (M15)
- D11. Layman's Report (M18)

The PTHA products in the above list of deliverables are meant to serve as a basis for future local and national PTHA efforts and be the first step to include tsunamis in multi-hazard and multi-risk assessments.

3. General summary of project implementation process

The project was conceived as a cascade of activities, starting with the setup of a probabilistic hazard model (Task B), which includes the elicitation of internal and external experts to make critical choices and assign weights to alternative models; followed by a thorough peer-review process including sanity checks and documentation of the performed calculations (Task C), all accompanied by publicity and dissemination (Task D). Task A is devoted to project management and reporting.

The formalization of the consortium was slightly slower than expected so that several activities had a slightly delayed start with respect to the initial plans. Conversely, the Task C activities have started earlier than initially planned, together with other tasks. A few changes in the time schedule of some deliverables have been deemed necessary for ensuring the quality of the products, or for improving them, with respect to the initial plans (see more details in sections 5 and 6 and the updated Gantt chart attached).

Most of the scientific framework, input data and part of the technical platform for the hazard assessment, are based on resources already acquired by partner institutions in previous or concurrent projects (including but not limited to EU-funded projects), such as the EU FP7 ASTARTE project. Therefore, the efforts to pursue the project-specific objectives mainly rely on human resources (personnel) and the need of frequent meetings and peer-to-peer exchange visits to ensure the collaboration of the various specialists and the coordination of the activities.

Although the hazard assessment is thought to be homogenous, this aspect has to be regarded as the application, as uniform as possible, of a methodology. The dearth of homogenous input datasets, such as seismic catalogues and seismogenic sources (e.g. crustal faults and subduction zones), prevents the hazard assessment to be thoroughly homogeneous and uncertainty of the results will reflect uncertainty of the input data.

4. Evaluation of project management/implementation process

The cooperation between and among the institutions forming the core group has been very fruitful and seamless. The positive response of international experts (several of which participated to the technical review meeting held in Athens on 28/06-01/07/2016) and of the Italian Civil Protection Authority (CPA) to participating in the elicitation procedure and in the technical/scientific review of the hazard assessment is a good indicator that the TSUMAPS-NEAM results may become a useful benchmark for future risk mitigation plans (a letter from the Italian CPA is attached to this report).

It is to be noted that the ASTARTE EU FP7 project, from which much of the theoretical framework for TSUMAPS-NEAM is borrowed, has been extended to April 2017. This will increase the potential opportunities for collaborations between the two projects, with mutual benefits. Also a new opportunity, in addition to those already envisaged in the original project proposal, is the development of the Global Tsunami Model network (GTM). Notice that GTM has been endorsed by UN-ISDR and GFDRR in the spirit of the Sendai Framework for Disaster Reduction (2015-2030). The collaboration with the GTM may become one of the preferential ways to leave a legacy of this project for future initiatives, and make the EU being one of the main players in the international effort toward the creation of standards and good practices for tsunami hazard assessment and risk mitigation.

The project management has had to address the cooperation with institutions that so far have had only limited previous collaboration in EU projects. To this end, part of the work has been carried out during peer-to-peer exchange visits. The organized meetings have also been an excellent way to deal with this initial issue and strengthened the collaborative attitude of all partners toward a common goal. An administrative point remains with one of the partner institution (CNRST). Solutions are being sought to minimize the impact onto technical results and quality of products.

5. Activities

The progress in each task has been checked and discussed in three major formalized meetings, and more informally by using the Google Groups and teleconferences at more frequent intervals:

- 1) Technical Kick-off Meeting, held in Rome, Italy, on 10-11 February 2016.
- 2) Splinter Meeting, held in Vienna, Austria, c/o EGU 2016, on 22 April 2016.
- 3) Technical Review Meeting, held in Athens, Greece, from 29 June to 1 July 2016.

Meeting 1) was held about two weeks later than the initially scheduled period. The other two meetings were held at the scheduled time.

In consideration of the willingness of the project partners to produce a more robust and complete hazard assessment, the engagement of the international panel of reviewers, and the opportunity to interface with other concurrent projects and research networks (e.g., ASTARTE, GTM), the coordinator proposes to align the deadlines of Deliverables D4, D5, D6 and D9 at the end of the second reporting period (M13). This will allow the project to better incorporate the external experts' evaluations and recommendations into the main technical data products of the project (i.e. hazard online database and maps, as well as the associated documentation and dissemination material) while leaving the Commission ample time to familiarize with these results well ahead of the project conclusion.

The new deadlines for these deliverable are listed below and reported in the updated T2 form.

- D4. Online Tsunami Hazard Database (M13)
- D5. Tsunami Hazard and Probability Maps (M13)

- D6. Experts' Review and Sanity Check (M13)
- D9. Awareness and Education Materials (M13)

More specifically, D4 and D5 will be initially published in the project website under password protection. The content of these deliverables will be disclosed to all project partners, the external reviewers, a selection of end users, and the Commission for examination. We expect to receive feedback from these actors, and then update these deliverables accordingly before final publication, open to anyone, at the end of the project.

As part of the monitoring of activities, the main milestone was Meeting 3) during which the practical implementation plan of the tsunami hazard assessment has been thoroughly revised. The minutes of Meeting 3) are attached to this report.

6. Presentation of the technical results and deliverables

6.1. Deliverable D1

This deliverable corresponds to the first progress report and coincides with this document.

6.2. Deliverable D8

This deliverable is composed by three main items: website and included links to social media, Google Groups, and repository. The website was completed on April 4, 2016, and since then has been used to present and advertise the project itself and its activities. Including, but not limited to, project meetings objectives and agenda. The website is open to the public and accessible through the URL: <http://www.tsumaps-neam.eu/> and it will be maintained, also after the end of the project for accessing the Tsunami Hazard products (database and maps), and distribute their documentation, and dissemination and educational materials.

The Google Groups is a service from the Google Company that provides a platform for collaboration among people sharing common interests. We use it for internal organization, discussions, and preparation of project documents in combination with the Google Drive service.

The repository is a data-sharing environment (cloud server) with 4 TB storage capacity and auto backup system. The repository is accessible to all project partners from anywhere through any device (Web Browser, Desktop app, Android, iOS). This repository is being used to store data, data products, and documentation as they are finalized. This repository will serve as a persistent storage of the project documentation.

7. Evaluation of the technical results and deliverables

The project layout was conceived as a very ambitious challenge. The current results and the feedback received from stakeholders and end users who participated at the organized meetings are encouraging. One of the main strengths of this effort is the involvement of the international community in a participatory manner. The realization of the first tsunami hazard map, although in a preliminary release, will be the turning point for the project activity and its publicity. Particular care should be devoted to a clear presentation of the tsunami hazard metrics adopted, the communication of the inherent limitations of the hazard maps, and the prevention of potential misuse of the hazard products.

8. Follow-up

The follow-up measures envisaged in the project are pursued as originally planned. An additional effort is being made by attentively following the development of the Global Tsunami Model network (www.globaltsunamimodel.org).