



THE ASTARTE PROJECT

Maria Ana BAPTISTA¹, Ahmet YALCINER², Miquel CANALS³ and the ASTARTE Team

Tsunamis are low frequency but high impact natural disasters. In 2004, the Boxing Day tsunami killed hundreds of thousands of people from many nations along the coastlines of the Indian Ocean. Tsunami run-up exceeded 35 m. Seven years later, and in spite of some of the best warning technologies and levels of preparedness in the world, the Tohoku-Oki tsunami in Japan dramatically showed the limitations of scientific knowledge on tsunami sources, coastal impacts and mitigation measures.

The North East Atlantic, Mediterranean and Adjacent Seas region (called NEAM by IOC/UNESCO) is known to be exposed to tsunamis and, like other regions of the world, faces increasing levels of risk due to i) continuous development of coastal areas with critical infrastructure and accumulated values, and ii) year-round presence of millions of tourists.

ASTARTE (Assessment Strategy And Risk for Tsunami in Europe), a 36-month FP7 project aims to develop a comprehensive strategy to mitigate tsunami impact in this region. To achieve this goal, an interdisciplinary consortium has been assembled. It includes all CTWPs of NEAM and expert institutions across Europe and worldwide.

The ultimate goals of ASTARTE are to reach a higher level of tsunami resilience in the North-East Atlantic (NEAM) region, which includes the Mediterranean Sea, to improve preparedness of coastal populations and, ultimately, to help saving lives and assets. The main objectives are:

(i) Assessing long term recurrence of tsunamis; (ii) Improving the identification of tsunami generation mechanisms; (iii) Developing new computational tools for hazard assessment; (iv) Ameliorate the understanding of tsunami interactions with coastal structures; (v) Enhance tsunami detection capabilities, forecast and early warning skills in the NEAM region; (vi) Establishing new approaches to quantify vulnerability and risk and to identify the key components of tsunami resilience and their implementation in the NEAM region.

ASTARTE consists of 10 work packages (WPs). Following WP1, which is devoted to Project coordination and management, WPs 2-5 focus on tsunami recurrence, generation mechanisms, modeling and coastal impacts. Altogether these WPs will provide an up-to-date knowledge background to the Project. They involve dedicated fieldwork, including research cruises, in locations that are considered highly significant to obtain new critical background information. Most ship time costs will be provided in kind by the Consortium partners, with only a very small amount charged to the Project. WPs 6-8 focus on detection and communication infrastructures, early warning and forecast and risk assessment. These WPs open into WP9, which aims at building tsunami resilient societies in Europe, and WP10, which is devoted to the dissemination and exploitation of results. ASTARTE considers 9 test sites in the Mediterranean and Northeast Atlantic where interconnections between WPs will be implemented, interactions with stakeholders and the society at large will take place, and practical applications will be tested.

ASTARTE will result in: (i) an improved knowledge on tsunami generation involving novel empirical data and statistical analyses so that the long-term recurrence and associated hazards of large events in sensitive areas of the NEAM could be established; (ii) the development of numerical techniques for tsunami simulation concentrating in real-time codes and novel statistical emulations, and (iii) refined methods for the assessment of tsunami hazard, vulnerability and risk. ASTARTE will also provide better forecast and warning tools for candidate tsunami watch providers (CTWPs) and national tsunami warning centers (NTWCs), and guidelines

¹ Professor, IPMA, Lisbon, mavbaptista@gmail.com

² Professor, METU, Ankara, yalciner@metu.edu.tr

³ Professor, University of Barcelona, miquelcanals@ub.edu

for tsunami Eurocodes and decision makers so that sustainability and resilience of coastal communities could be increased. In summary, ASTARTE will develop critical scientific and technical elements required for a significant enhancement of the Tsunami Warning System (TWS) in the NEAM region in terms of monitoring, early warning and forecast, governance and resilience. Overall, this will lead to the goal of the European/NEAM Horizon 2020 strategy: to foster tsunami resilient communities.

ASTARTE Team PIs and Institutions are: M. A. Baptista (IPMA, Portugal), L.M.Matias (FFCUL, Portugal), A. Yalciner (METU, Turkey), N. Özel (Bogazici U., Turkey), H. Hebert (CEA, France), F. Lavigne (CNRS, France), S. Tinti (U. Bologna, Italy), S. Lorito (INGV, Italy), M. Gonzalez (U. Cantabria, Spain), M. Canals (U. Barcelona, Spain), C. Synolakis (TUC, Greece), M. Sachpazi (NOA, Crete), J. Behrens (U. Hamburg, Germany), A. Rudloff (GFZ, Germany), A. Kopf (U. Bremen, Germany), C. Harbitz (NGI, Norway), F. Dias (UCD, Ireland), P. Talling (NERC, UK), D. Fuhrman (DTU, Denmark), C. Ionescu (INCDFP RA, Romania), A. Zaytsev (SRB AMR RAS, Russian Federation), A. El Mouraouah, (CNRST, Morocco), V. Titov (NOAA, USA), P. Lynett (USC, USA), K. Satake (U. Tokyo, Japan), Y. Kuriyama (PARI, Japan).

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