## WHAT IS ASTARTE ?

ASTARTE (Assessment, STrategy And Risk Reduction for Tsunamis in Europe), an international project on tsunamis funded by EC-FP7 (Contract No. 603839), begun in November 1, 2013. The project was organized to foster tsunami resilience in Europe, through innovative research on scientific problems critical to enhance forecast skills in terms of sources, propagation and impact.

1755 Lisbon Tsunami

On the 1st November 1755, a massive submarine earthquake occurred in the North East Atlantic offshore Portugal.
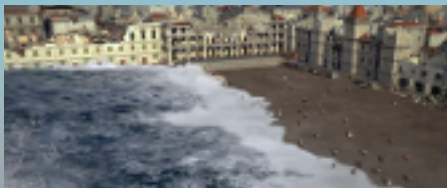
1956 Aegean Tsunami

A strong tsunami occurred on 9 July 1956, caused by a M7.5 tectonic earthquake in Cyclades Islands, South Aegean Sea.

PROJECT PARTNERS

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TEST SITES

ASTARTE considered 9 test sites in the Mediterranean and Northeast Atlantic. Locations of the ASTARTE test sites were chosen to be representative in terms of potential tsunami sources, vulnerability and diversity of landscapes and socioeconomic elements. The selected test sites:

- LYNGEN, Norwegian coast, NE Atlantic;
- SINES, Portuguese coast, NE Atlantic;
- TANGIER, Moroccan coast, Strait of Gibraltar, NE Atlantic;
- COLONIA SANT JORDI, Baleares coast, Western Mediterranean;
- NICE-ANTIBES, French coast, Western Mediterranean;
- SIRACUSA, Sicily coast, Ionian Sea;
- HERAKLION, Cretan coast, Eastern Mediterranean;
- GULLUKBAY, Turkish coast, Eastern Mediterranean;
- HAYDARPASA , Turkish coast, Marmara Sea.

ACHIEVEMENTS

ASTARTE:

Completed a general assessment of potential tsunami sources (seismic and nonseismic) in the NEAM (NE Atlantic, the Mediterranean, and Connected Seas), including uncertainty treatment, and tsunami sensitivity to source parameter values.

Presented new methods for inverse modeling, novel forecasting techniques

Performed Physical experiments to address the tsunami structure interaction on rubble mound breakwaters.

Developed a smart phone app for disaster management FIND – Finding People in Natural Disasters

Developed new methods to cover the assessment chain from tsunami hazard to tsunami vulnerability and risk, and the application to the specific test sites of the NEAM region, and, for some segments of the chain, to wide basins like the NE Atlantic and the Black Sea.

Contributed to the implementation of TEWS in the NEAM region

Paved the road for the ambitious implementation of the first ever probabilistic tsunami hazard curves for the NEAM Region through TSUMAPS-NEAM Project

The success of the test site approach in ASTARTE has helped to (1) highlight the diversity of settings, boundary conditions, assets and risk that apply to different locations in Europe in terms of tsunami hazard; (2) make tangible, at specific locations, key concepts and approaches and their practical implementation, and (3) evidence differences in background information that is critical to address site specific analyses and propose prevention and mitigation schemes. Contributed to the implementation of TEWS in the NEAM region.

One of the major added values of ASTARTE had been the gathering of many of the best tsunami experts, from different disciplines and viewpoints, from Europe and beyond. This gathering was by itself a major achievement and it would be highly convenient for the benefit of the European society to take action to maintain and foster it for a lively tsunami science targeting future major advances.

All these efforts at the end led Europe to be more knowledgeable and better prepared against tsunami hazard.
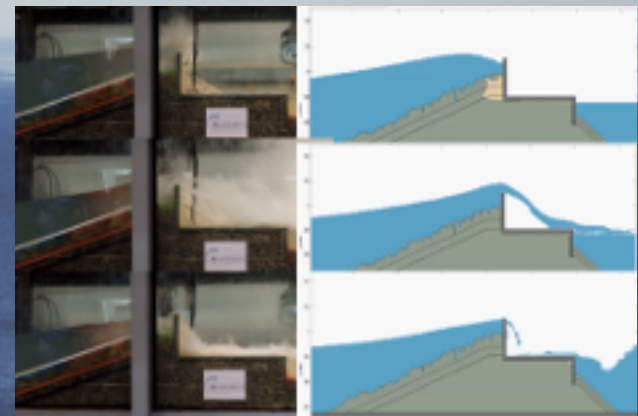
Comparison of the physical and numerical model experiments performed in ASTARTE (courtesy to UC) (top)

IH-Tsunamis System (IH-Tsusy) is an online tool that calculates the propagation of actual tsunamis. (courtesy to IH-cantabria) (bottom)