



Community tsunami inundation maps for selected ICG/CARIBE EWS member states

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The Intergovernmental Coordination Group for the Tsunami and other Coastal Hazards Warning System for the Caribbean and Adjacent Regions (ICG/CARIBE EWS) was established in 2005 as a subsidiary body of the IOC-UNESCO with the purpose of providing efficient assistance on tsunami risk reduction to Member States in the Caribbean region after the lessons learnt from the 2004 Indian Ocean tsunami.

The aim of the work that we present here, is strengthen the capacities of early warning and response for tsunamis in the Caribbean through the development of community-level tsunami inundation maps for select coastal communities and a technical guide; both to support their preparation for and response to tsunamis. The selected communities under study are in Antigua and Barbuda, Barbados, Dominican Republic, St. Vincent and the Grenadines, and Trinidad and Tobago.

To this end, we use Tsunami-HySEA model, developed by EDANYA Group, which implements in the same code the three phases of an earthquake generated tsunami: generation, propagation and coastal inundation. At the same time it is implemented in nested meshes with different resolution and multi-GPU environment, which allows much faster than real time simulations. Due to this advantage it can produce a 4 h simulation in a 60 arcsec resolution grid for the whole Caribbean Sea in less than 4 min with a single general-purpose GPU.

Once provided the seismic parameters to reproduce the main scenarios that could affect to the nominated communities, and the topobathymetry data available from the study area, an

exhaustive process of construction of 4 levels nested meshes was performed for each localization. Secondly, the events are simulated in order to obtain, among others, maximum depth in coast inundation with 5 meters resolution. Finally, all of these data allow us to make a detailed inundation map as a contribution to furthering tsunami risk assessment.

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