THE PUERTO RICO AND THE VIRGIN ISLANDS
MMS/USGS “NEEDS”

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Background...

TsunamiReady® in Puerto Rico/U.S. Virgin Islands

47 TsunamiReady Communities*: 44 Municipios (Puerto Rico), 3 Islands (U.S. Virgin Islands)

NATIONAL WEATHER SERVICE
TECTONIC SETTING
NEED 1: SOURCE GEOMETRY
NEED 2: Standardized Catalogs
TELESEISMIC SOURCE SCENARIOS

LISBON 1755 TSUNAMI
M. BAPTISTA SCENARIO 5 (BARKAN et al., 2008)
16 MIN RESOLUTION

LISBON 1755 TSUNAMI
MAXIMUM ENVELOPE OF HIGHEST WATER (M)
M. BAPTISTA SCENARIO 5 (BARKAN et al., 2008)
16 MIN RESOLUTION
NEED: 3  BATHYMETRIC DATA AND GRIDS
A new modeling approach using 3D-2D coupled methodology:
- TSUNAMI3D (submarine landslide generation)
- NEOWAVE (propagation and inundation)
- Higher bathymetry resolution (1 - 1/3 arcsecond)
NEED 5: Tsunami – Volcanic Hazard

MONTSERRAT/Soufriere Hill Volcano
NEED 6: PALEOTSUNAMI Research

- Azua, DR
  - rip-up clast
  - erosive contact
- Eastern PR
  - drastic change in environment
  - erosive contact
- St. Thomas, USVI
  - several shell hash
  - mud cap
  - heavy minerals
- Anegada, BVI
  - microbial mat
  - mud
  - muddy shelly unit

(domestic territory)

(dominican republic)

(puerto rico)

(virgin islands)
Short term PR/USVI needs

(With respect to tsunami sources)
• Continued interpretation of tsunami deposit record to assess the probability of tsunamis from anticipated regional sources that are not historically documented
• Establish if, in addition to being a source itself, does the PR Trench act afford some protection against incoming distant regional tsunamis?
• Establish the reliability of boulder deposits in identifying tsunami events in a region where strong hurricanes may just as well be implicated.

(General needs):
• Understanding/planning for impacts of tsunami currents in heavily invested harbors
• Improving evacuation mapping facilitated by improved bathymetry for all modeling activities
• Waking/fleeing modeling and exercises for tsunamis from nearby sources
• Improving knowledge-based maritime tsunami preparedness.