

Earthquake Disaster Assistance Team

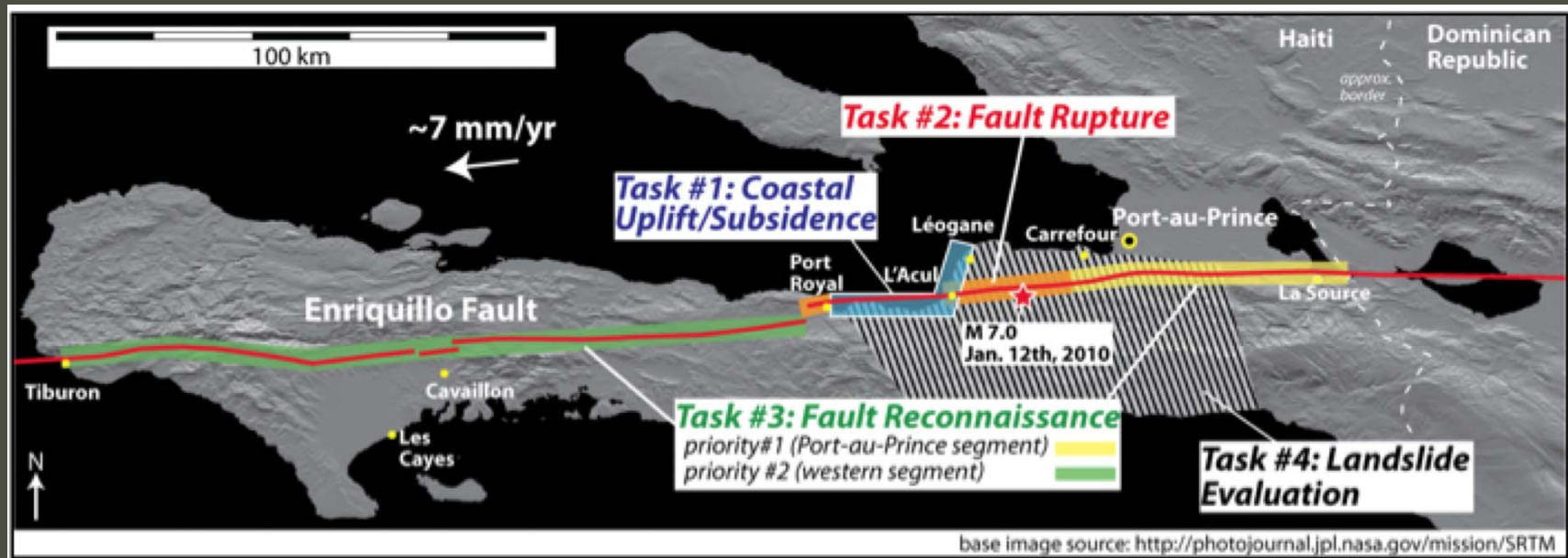
- Formalizes long-standing relationship with USAID's Office of Foreign Disaster Assistance.
- Purposes:
 - Support OFDA's response activities.
 - Make USGS experts or scientific services available to assist local geological agencies.
 - Conduct rapid assessment of earthquake, tsunami, and landslide hazards and impacts.
 - Provide advice and training to build capacity in monitoring, hazard asmt., microzonation, etc.
- Can also support capacity-building projects.

EDAT Process

- EDAT members drawn from USGS staff, depending on needs. “Suitcase-ready.”
- Activation of EDAT requires a request for assistance from a developing country.
- OFDA and USGS agree upon scope of work, time frame, deliverables and budget.
- Key: Coordination & capacity-building.
- Work is done in collaboration with local experts.

EDAT Haiti

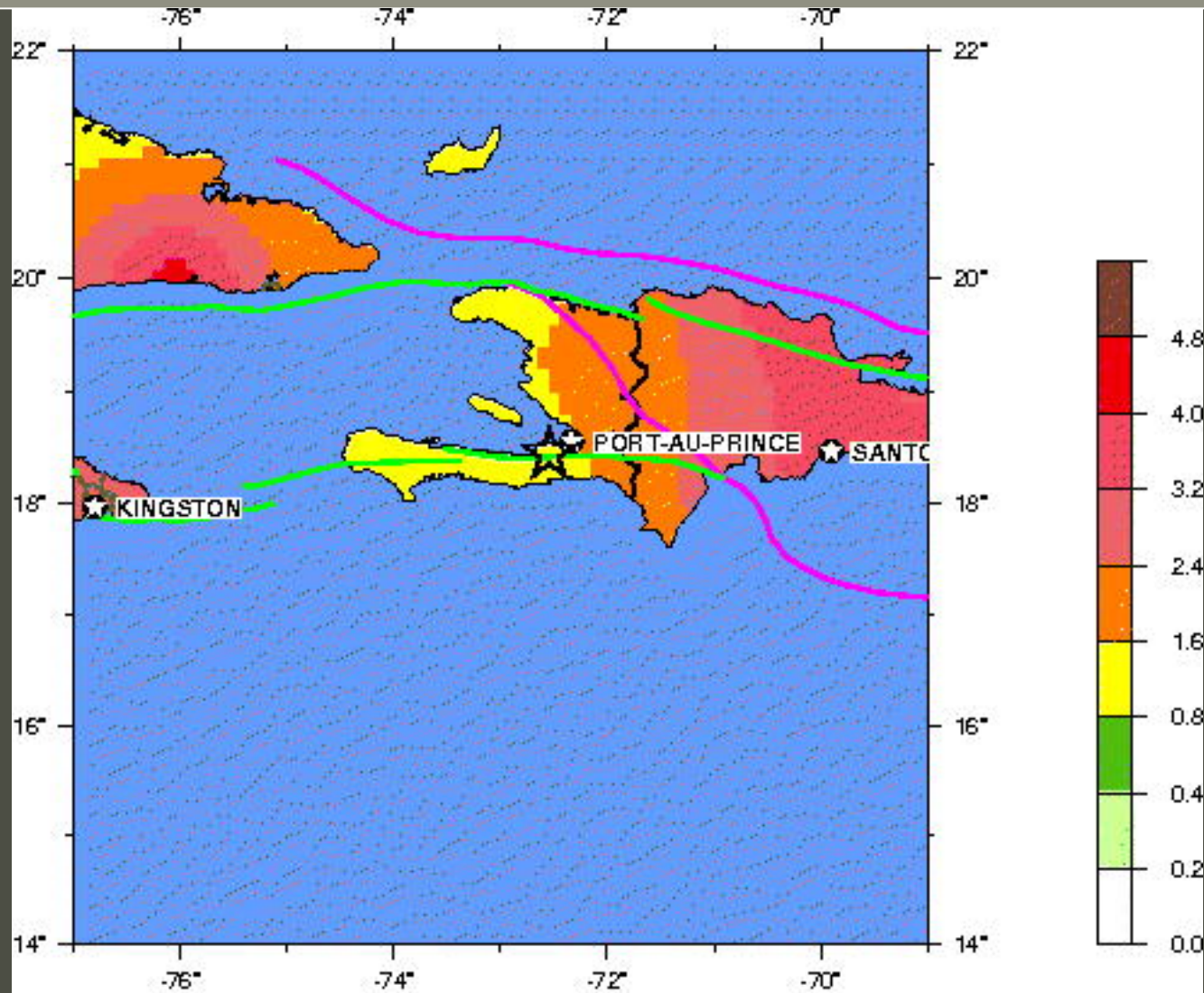
- Paucity of government, expertise, knowledge.
- Faults poorly known, mainshock poorly recorded.
- Many needs identified.
- Phase 1 EDAT: Fault, landslides, seismology, seismic hazard map, site effects, time-dependance.



Collaboration on seismic monitoring



Existing hazard map (GSHAP)



HAITI REGION

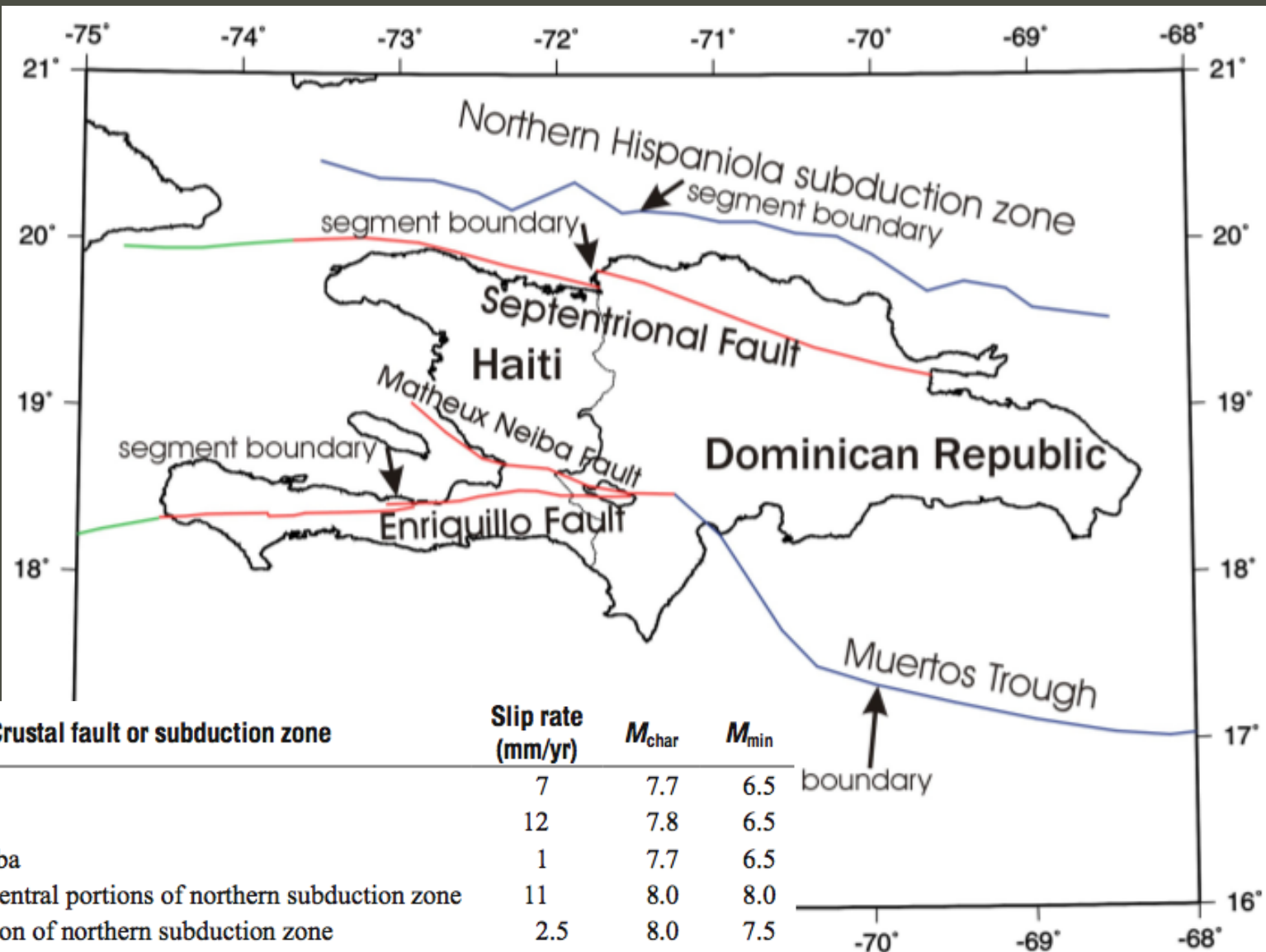
2010 01 12 21:53:10 UTC 18.44N 72.54W Depth: 13 km, Magnitude: 7.0

Peak Ground Acceleration (m/s²) with 10% Probability of Exceedance in 50 Years

Seismic Hazard Mapping

- Good seismic hazard analysis was lacking.
- Purpose: create seismic hazard maps for crisis management and to inform rebuilding.
- Strategy: Use NSHMP PSHA method.
 - 1) Create preliminary maps using existing data.
 - 2) Improve maps when improved information exists.
- Sources of hazard:
 - Crustal faults & subduction zones.
 - Spatially smoothed seismicity (shallow & Benioff zone).
 - Assuming WUS (NGA) attenuation.
- Maps for firm rock & maps using estimated V_s30 .

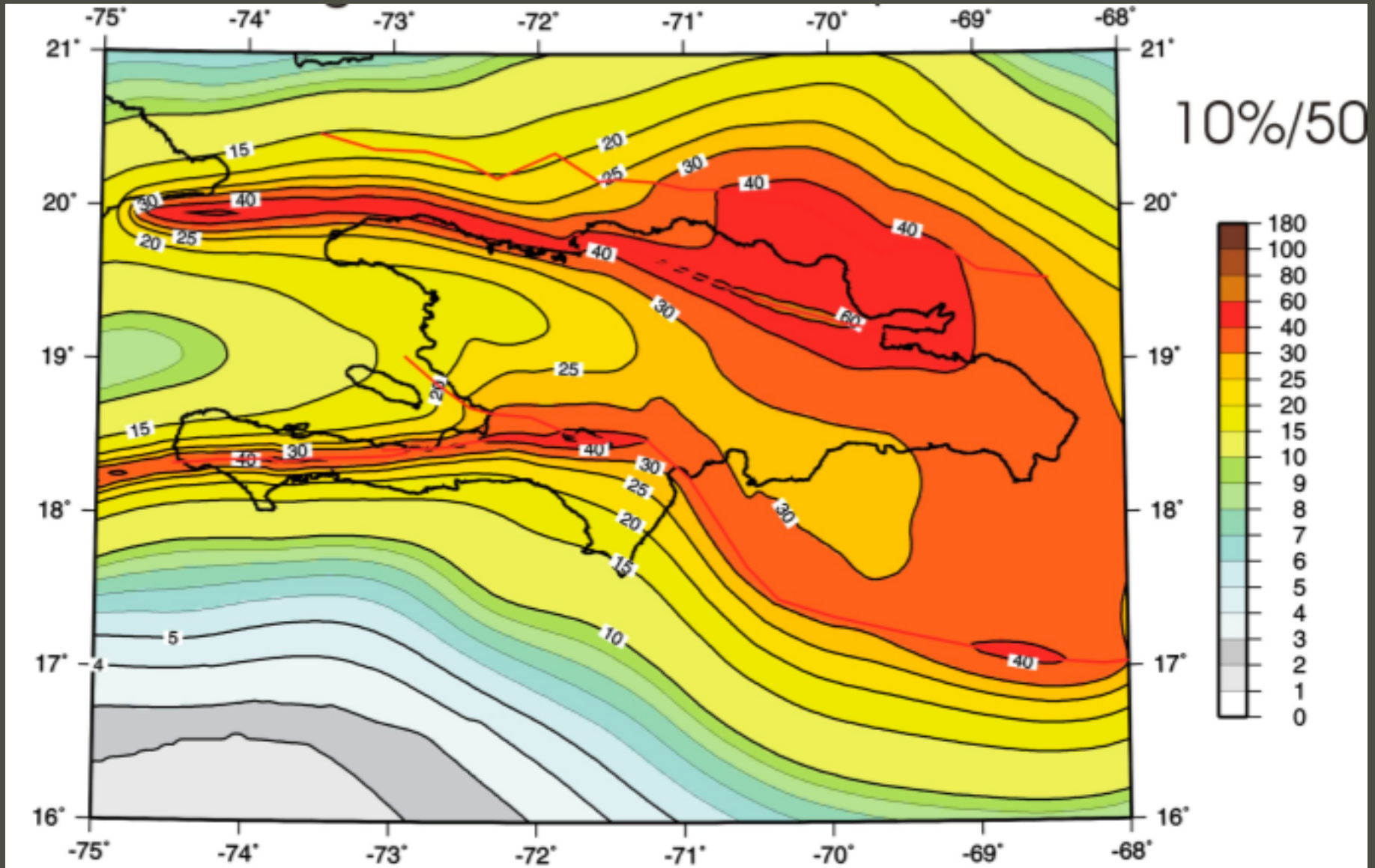
Hazard mapping: Fault sources



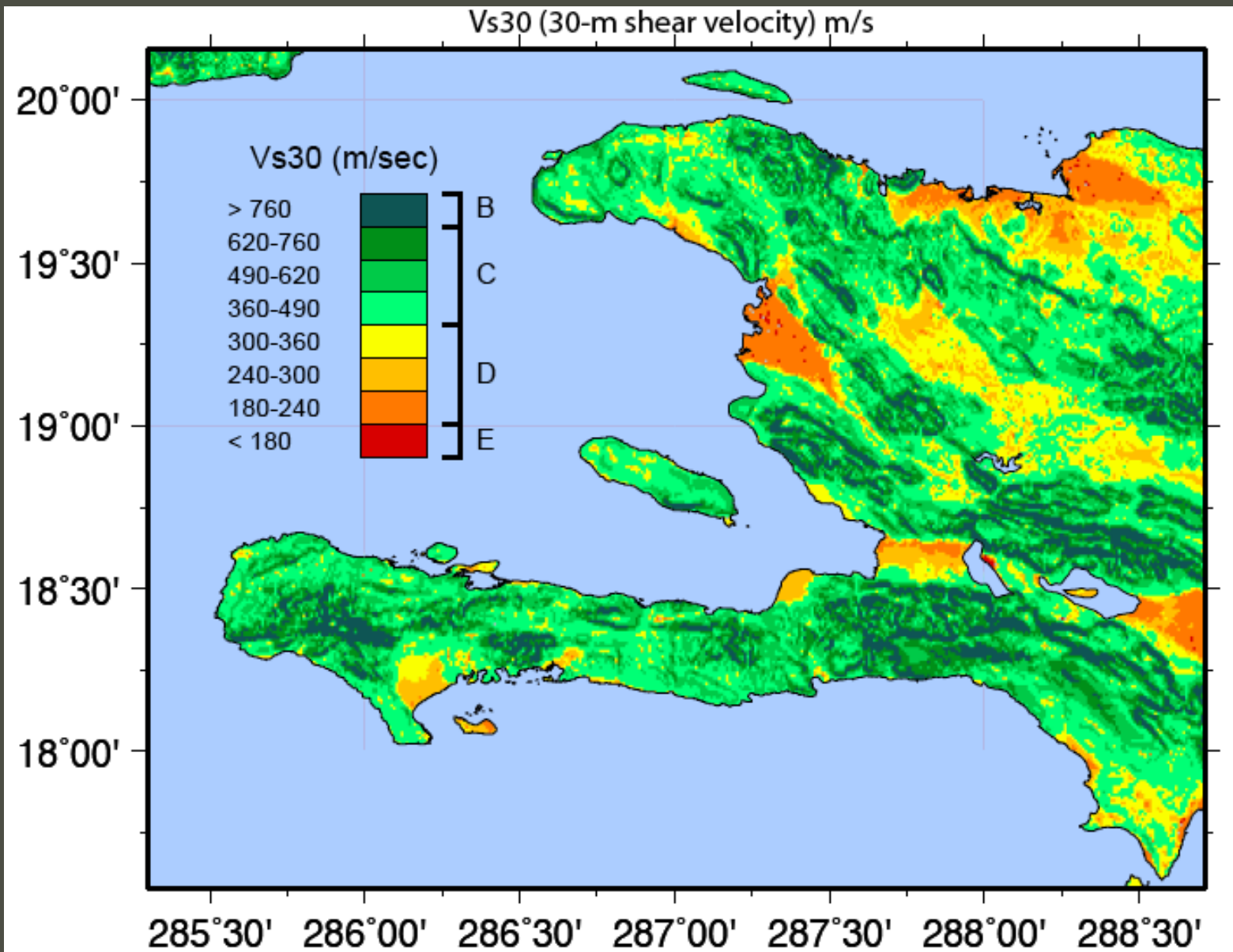
Crustal fault or subduction zone	Slip rate (mm/yr)	M_{char}	M_{min}
Enriquillo	7	7.7	6.5
Septentrional	12	7.8	6.5
Matheux Neiba	1	7.7	6.5
Eastern and central portions of northern subduction zone	11	8.0	8.0
Western portion of northern subduction zone	2.5	8.0	7.5
Muertos Trough subduction zone, Neiba segment	7	8.0	7.5
Muertos Trough subduction zone central segment	7	8.0	7.5

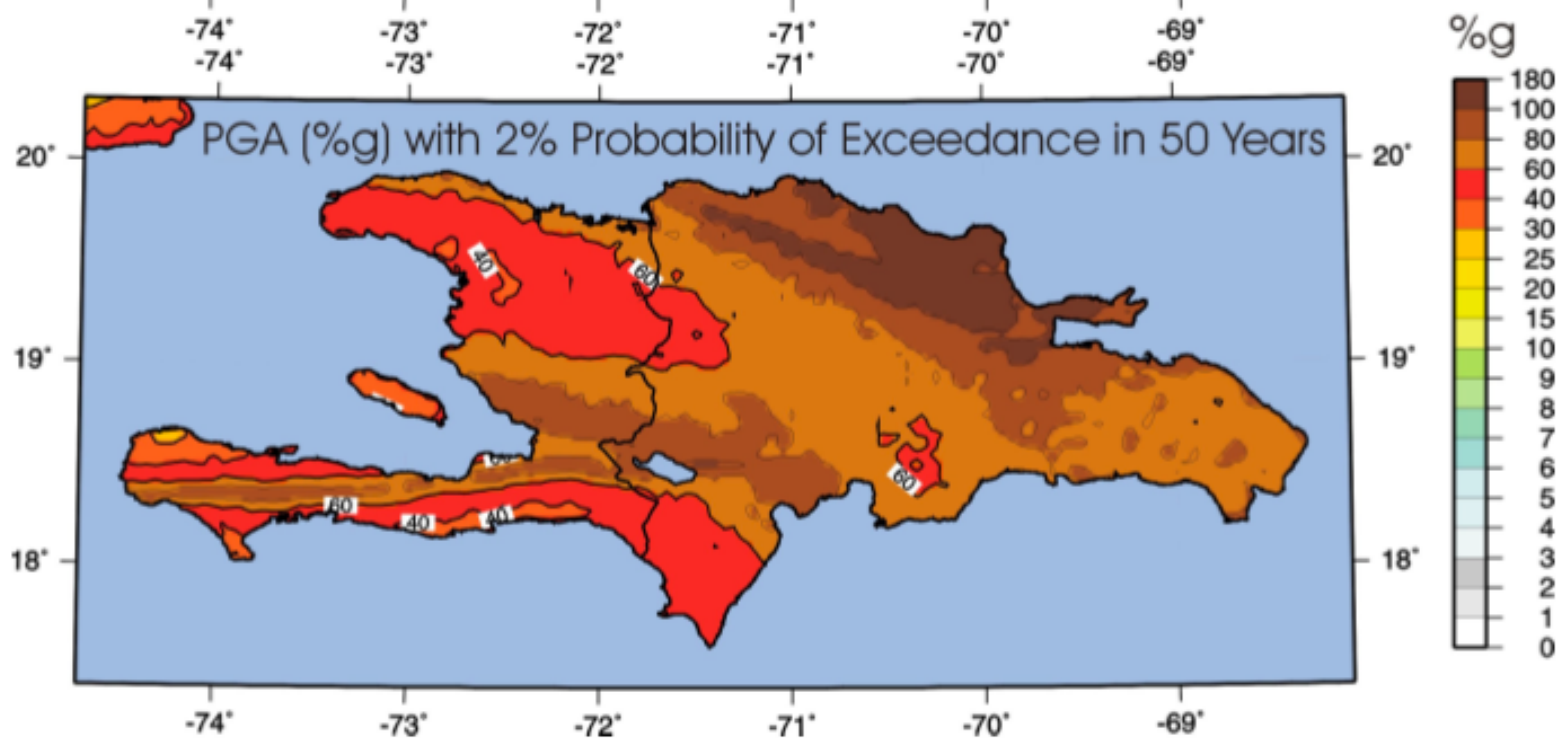
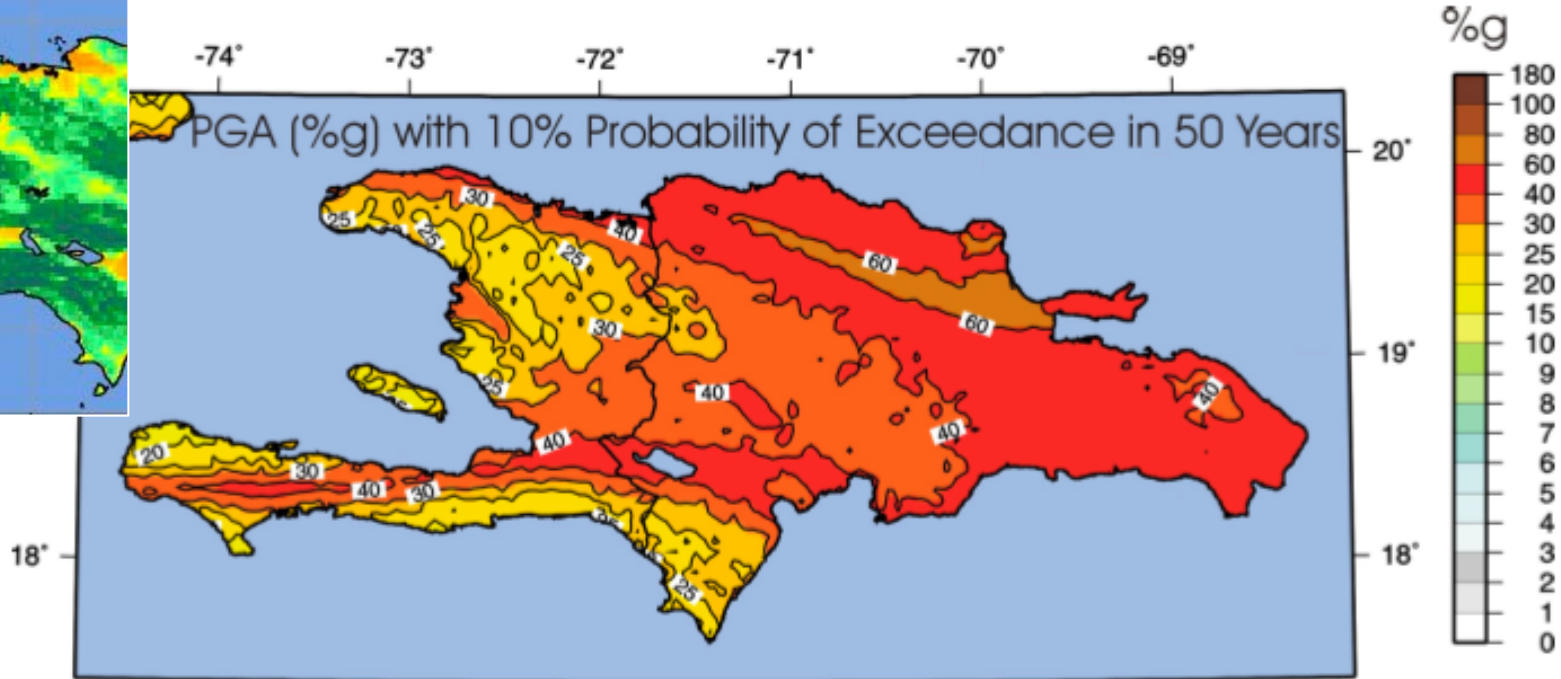
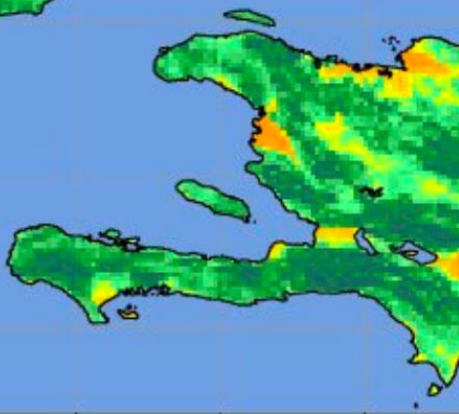
boundary

EDAT seismic hazard map



Preliminary site response map





Key Areas of Need

- Seismic monitoring: planning, deployment, operation and maintenance, capacity-building.
- Site effects, microzonation, land-use planning.
- Seismic intensity (how much did the ground shake?)
- Ground-motion attenuation.
- Investigations of active faults.
- Improved seismic hazard map for Hispaniola.
- Urban seismic hazard map for PaP.
- Earthquake scenarios for planning.
- Development of outreach materials.
- Training of Haitian geologists & seismologists.