1-carib\_0.jpg. DEM of Caribbean Plate. N. boundary steps left across Cayman Spreading Center. To E, Oriente fault is close to SE coast of Cuba; bends ESE to cross northern Hispaniola as Septentrional fault and also joins Puerto Rico trench and subduction zone. E of Cayman Spreading Center, a second strike-slip boundary extends E across Jamaica and Hispaniola; the Gonâve Microplate lies between the two left-slip boundaries. To E, offshore Hispaniola, thrust symbols locate Muertos trough, where plate boundary may be flipping from S-dipping against Atlantic Crust to N-dipping S of Hispaniola against Caribbean oceanic plateau. The Caribbean plateau, including the Great Arc of the Caribbean, is shallower and more buoyant than normal oceanic crust. Lesser Antilles comprise a N-S Aves Ridge on west, giving way eastward to island-arc volcanoes. Southern part of Antillean forearc is the Barbados accretionary prism, consisting largely of reworked sediments derived from the Orinoco River to S. Southern plate boundary in northern South America is predominantly right lateral; offshore to N, the Leeward Antilles are in the upper plate of a S-dipping thrust. A western equivalent of this thrust is N of Panamá. Chortís block is composed of continental rocks, a nuclear core of Central America. White arrows represent plate rates with respect to the Caribbean Plate. Image source: <http://www.geographynetwork.com/> and compilation by [García-Casco el al. (2006)](http://dialnet.unirioja.es/servlet/fichero_articulo?articulo=1959005&orden=71531?articulo=1959005&orden=71531).

2-Greater Antilles tectonics.jpg. Gonâve Microplate is bounded on N by Oriente-Septentrional fault and on S by Walton fault W of Jamaica and Plantain Garden-Enriquillo fault E of Jamaica. Right step of these faults across Jamaica puts Jamaica in a restraining bend, uplifting the island. Enriquillo fault follows Tiburon Peninsula in western Haiti, suggesting a component of uplift; this fault gives way E to offshore Muertos trough, which is an incipient trench that may express flipping of subduction zone from S-dipping on N to N-dipping on S. Septentrional fault is stepped left from Oriente fault and is a hazard to cities in northern Dominican Republic; Oriente fault is a hazard to Cuban cities of the coastal Sierra Maestra, including Guantánamo. Bahama Platform consists of continental crust that is colliding with the Greater Antilles. To the east, North America crust follows a passive margin into oceanic North America crust. Depths of -8350 m are the greatest depths in the Atlantic Ocean. Dates locate significant earthquakes. Note that epicenter of 2010 Port au Prince earthquake is very close to that of 1770 earthquake, which was part of a westward-migrating sequence.

3-Gonâve Microplate.png. Seismicity (red circles) and bathymetry, extending to Cayman Spreading Center, which marks the western end of the Gonâve Microplate. West of spreading center (double vertical lines and E-W arrows), the plate boundary is the Swan Islands transform, extending onshore as the Motagua fault in Guatemala. The absence of earthquakes on the plate boundary in northern Hispaniola suggest that this part of the boundary is building up toward a large earthquake.

4-3506cay1.jpg. DEM of western Caribbean Plate showing Swan Island transform extension into Central America as Motagua fault. Triangles: Central American volcanoes. NE trending, SE facing boundary extending from SE Nicaragua to Haiti is Hess Rise, which is on trend with a right step in the distribution of Central American volcanoes.

5-3506\_10s.jpg. Black smoker from Cayman Spreading Center in Caribbean.

6-lant.gif. Eastern Caribbean Plate focused on Lesser Antilles arc. East of broad Venezuelan basin is N-S trending Aves Ridge. Farther E, past the Grenada basin, is the Lesser Antillean arc, consisting of a volcanic arc and, in its northern half, an arc underlain by carbonate rocks. South of 14° N, eastward bulge of forearc is underlain by Barbados accretionary prism. East of trench, E-W ridges are part of subducting Atlantic crust. West of 296° E, southern plate boundary is an incipient S-dipping subduction zone that is expressed at surface as NW-trending islands, including the Dutch West Indies.

7-Hispaniola\_srt\_2010013.jpg. Tectonic setting of 12 January 2010 Léogâne (Port au Prince) earthquake. N boundary of Gonâve microplate is Oriente fault S of Cuba, stepping left to Septentrional fault in Hispaniola. S boundary is Plantain Garden-Enriquillo fault that extends along Tiburon Peninsula to zone of aftershocks SW of Port au Prince. The mainshock (large circle) was strike-slip, but most aftershocks were reverse faults. The presence of faults along axis of Tiburon Peninsula suggests that the peninsula was uplifted along reverse faults. From NASA Earth Observatory.

8-hispaniola.jpg. DEM of island illustrating faults in the previous image. Tiburon Peninsula is controlled by Enriquillo fault, which extends west to Plantain Garden fault of Jamaica. In NE Dominican Republic, the Cibao Valley contains the Septentrional fault, which has not had a major earthquake in a millennium and poses a major threat in the near future. Source: TTI Production.

9-Venezuela.jpg. DEM illustrating high elevations in Mérida Andes, where Boconó fault is in restraining bend, as compared to E-W strike along coast to E, where the fault is close to strike slip. One of these E-W faults, the El Pilar fault, accounts for the historical surface ruptures. These faults continue E into Trinidad. The lowlands to S are the lower Orinoco River, which supplies sediment to the Barbados accretionary prism. NW-trending islands to north are Leeward Antilles, including the Dutch West Indies. Source: TTI Production.

10-Panama Bowen.jpg. Oblique view from S. of Panama NE across Caribbean Plate. Source California Geographical Survey, William Bowen, Calif. State Northridge.