1. Tectonic Setting and Seismological Records

According to the USGS interpretation of the seismological data the location and focal mechanism of the Honduras earthquake of May 28, 2009, imply that the shock occurred as the result of left-lateral strike-slip faulting. This event was located on the Swan Islands Transform Fault, a segment of the boundary between the North America and Caribbean plates. It has been estimated that in this region the plate boundary has a 20 mm/yr slip. (USGS, 2009)

The North America/Caribbean plate boundary has generated strong earthquakes before; thirty three years ago the 1976 Guatemala earthquake, M 7.5, produced more than 23,000 fatalities. The 1976 earthquake occurred on the Motagua fault, a segment of the plate boundary that lies about 400 kilometers southwest of the 2009 Honduras offshore hypocenter.

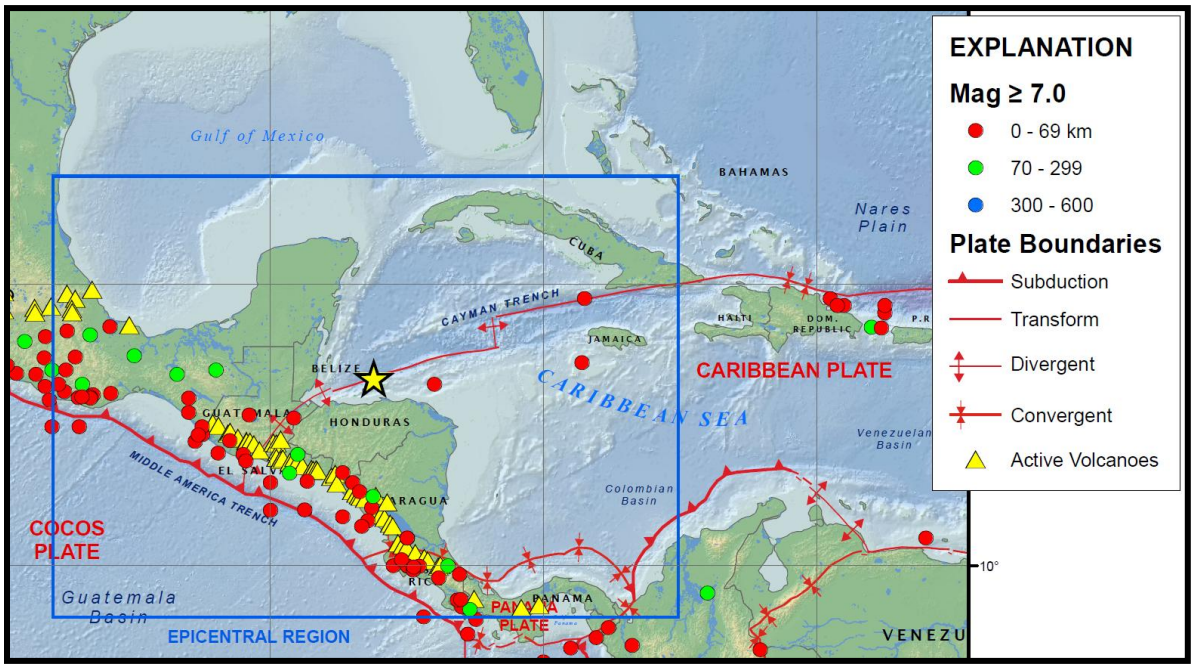

Figure 1 – Tectonic Setting (USGS (2009))

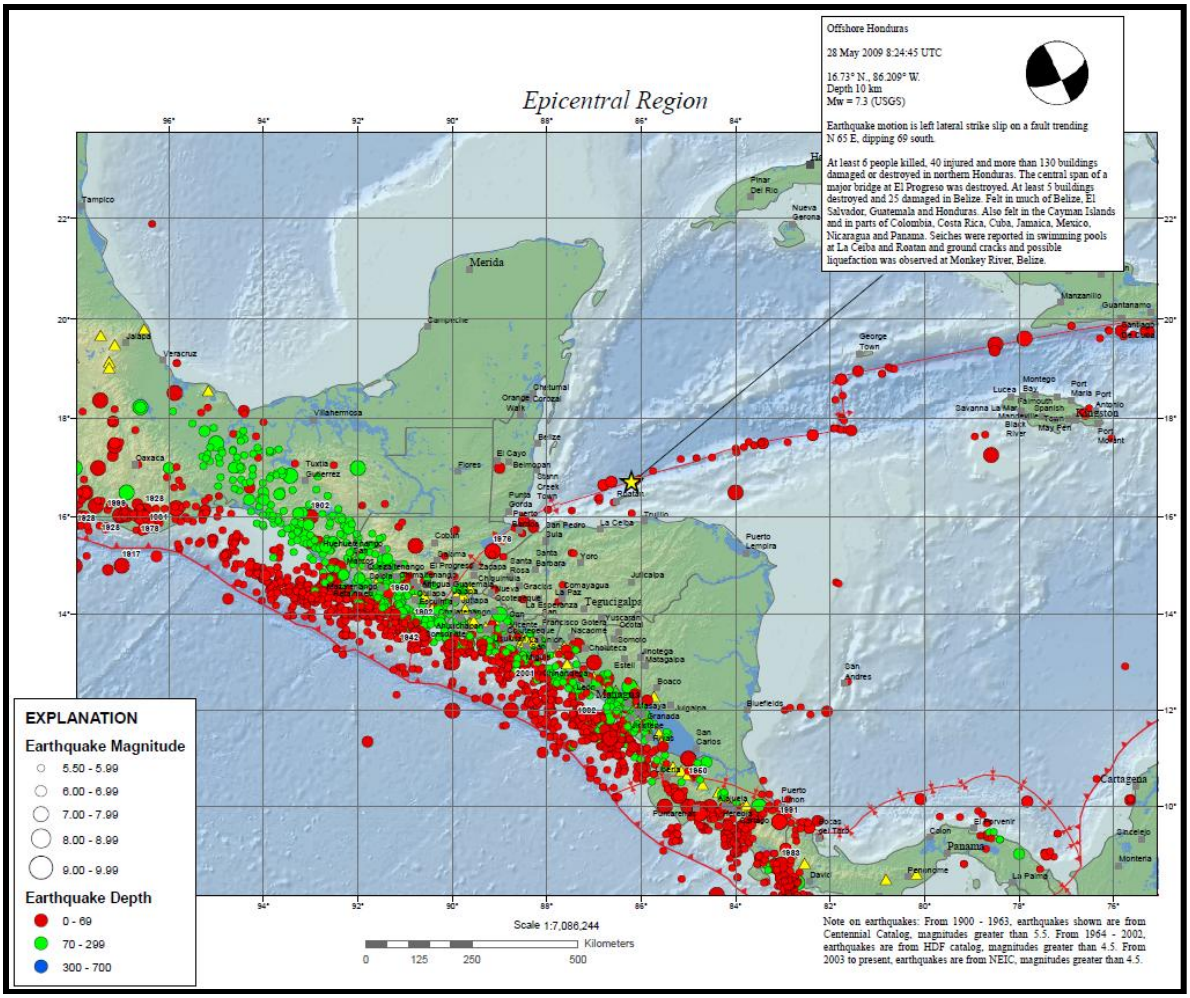

Figure 2 – Epicentral Region (USGS, 2009)

The seismological records in Honduras are scarce. A recent station was installed by the USGS in Tegucigalpa, the capital city. The record from this station is more than 310 km away from the epicenter. Another seismograph has been in operation for some time now at the El Cajon dam site about 260 km away from the epicenter. Both seismograph instruments recorded data and preliminary review indicates low quality records. The few stations that have been installed are monitored and supported by the INETER from Nicaragua. Additionally, three accelerographs are also installed at the dam at the base and other two within the concrete structure, the records were obtained from Rolando Rodriguez, dam safety engineer.