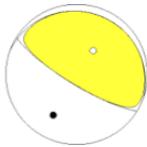


M7.4 Oaxaca, Mexico Earthquake

March 20, 2012
(12:02:48 PM, Local Time)

Centroid Depth ~ 15 – 25 km

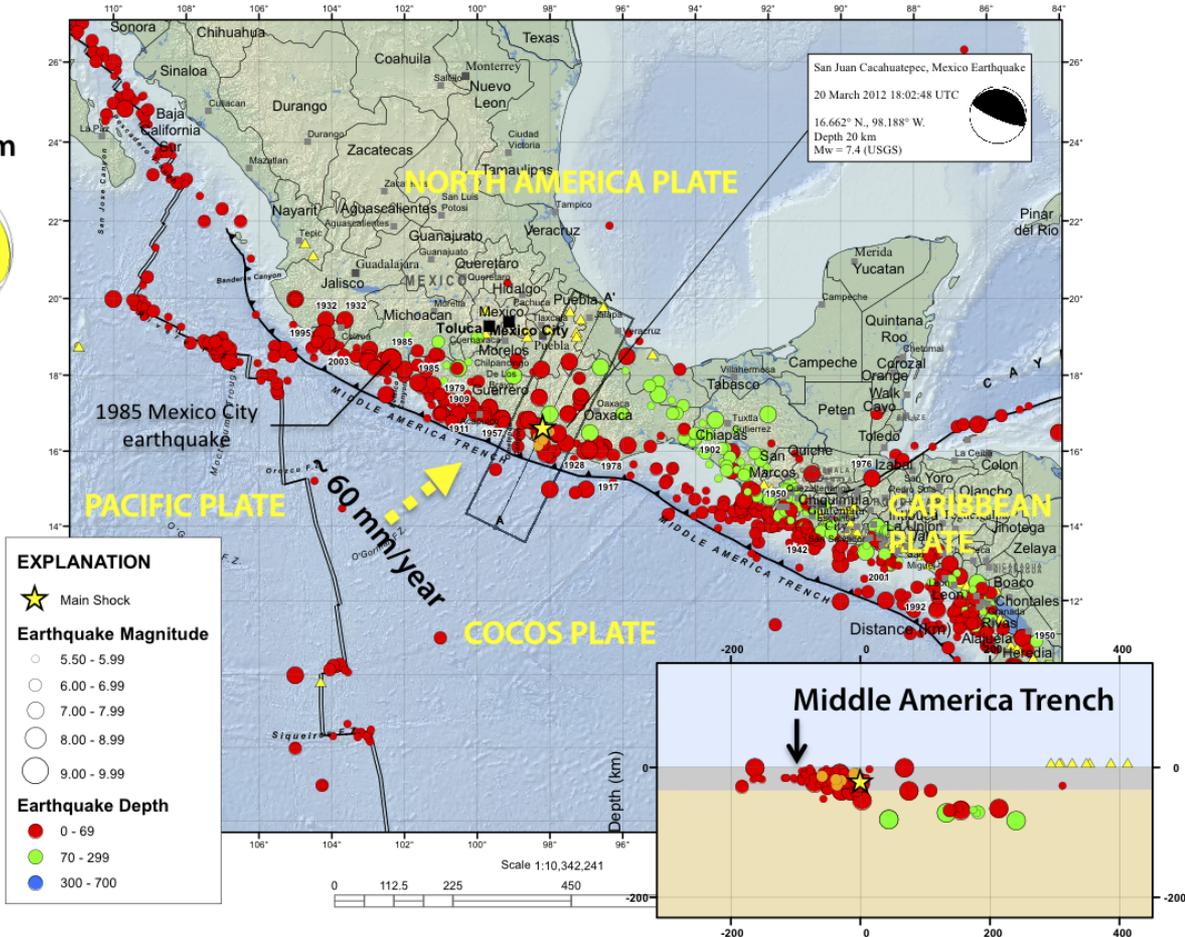
Thrust-faulting



Epicenter: 16.539 -98.215
MW 7.4

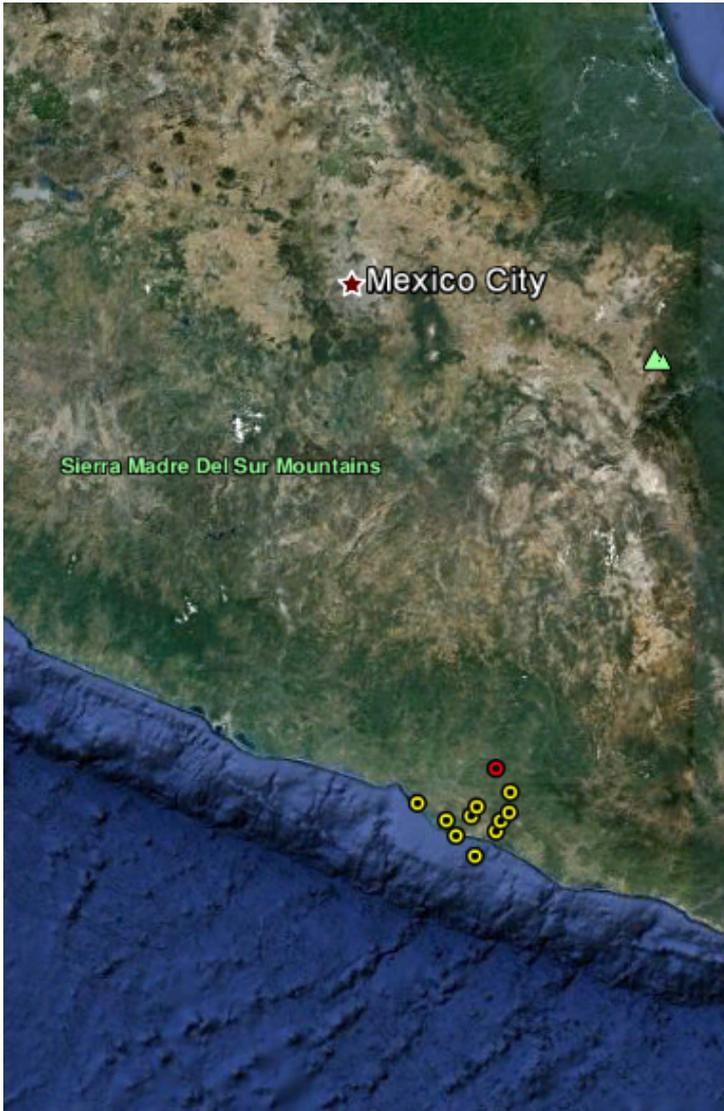
USGS CENTROID MOMENT TENSOR
12/03/20 18:03:14.00
Centroid: 16.822 -97.990
Depth 21 No. of sta: 142
Moment Tensor; Scale 10**20 Nm
Mrr= 0.70 Mtt=-0.56
Mpp=-0.15 Mrt= 1.39
Mrp=-0.88 Mtp= 0.25
Principal axes:
T Val= 1.80 Plg=56 Azm= 35
N -0.04 2 301
P -1.76 34 210

Best Double Couple:Mo=1.8*10**20
NP1:Strike=122 Dip=79 Slip= 92
NP2: 289 12 78

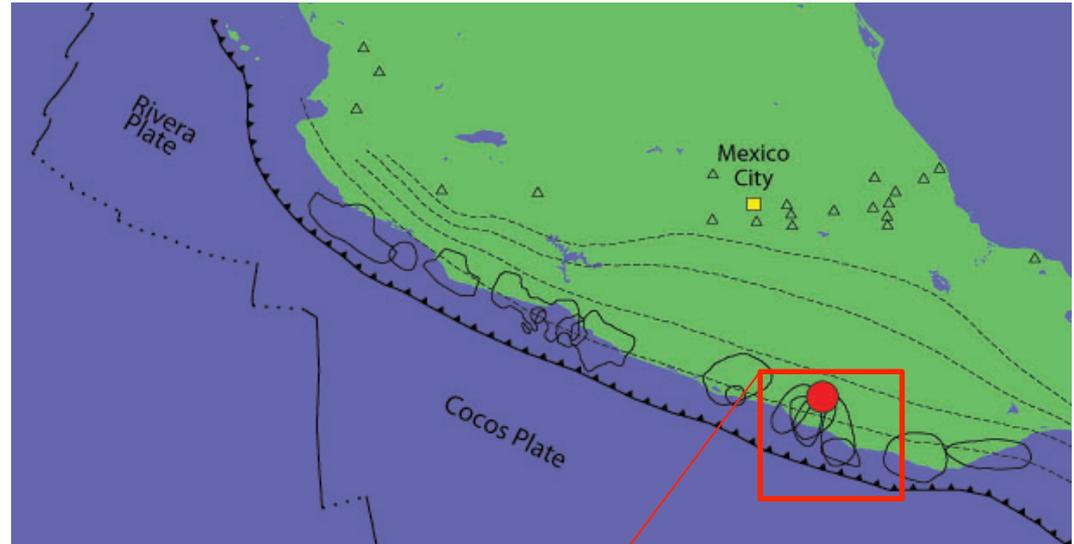


From U.S. Geological Survey

M7.4 Oaxaca, Mexico Earthquake

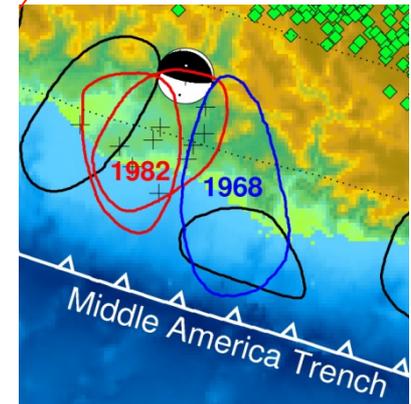


Aftershock activity in the first 8 hour after the mainshock (IRIS)



This regional view integrates plate boundaries, divergent (solid line), transform (dotted line), convergent (line with triangles), volcanoes (triangles), large megathrust earthquakes over the last ~70 years (black outlines), subducting slab contours (dashed), and this earthquake (red circle).

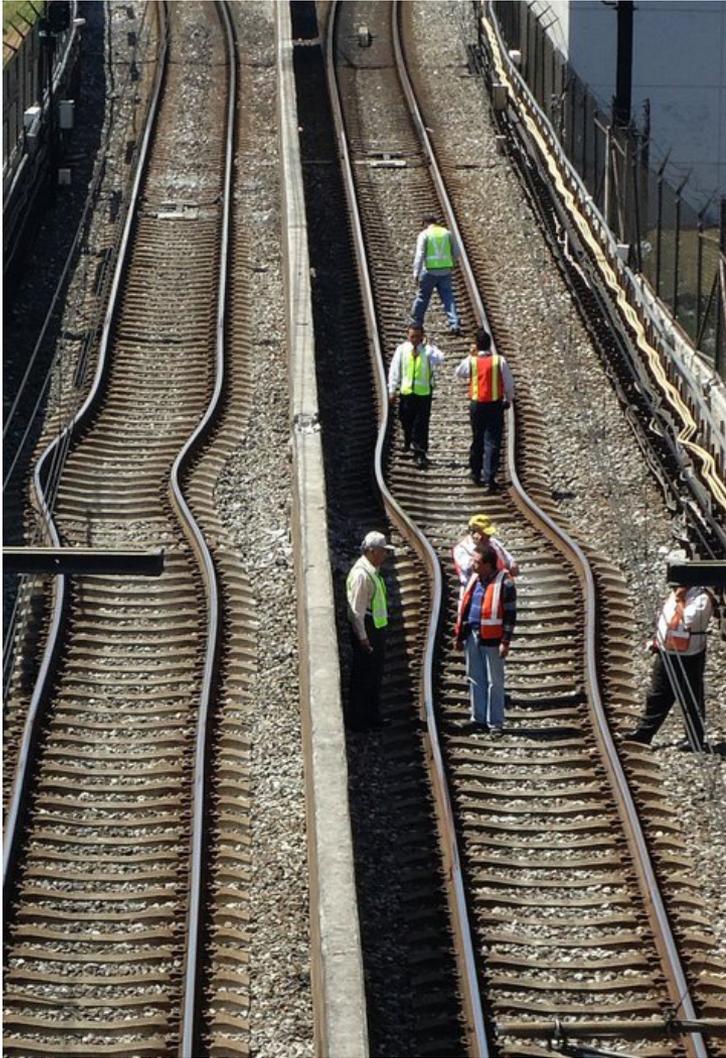
Image courtesy Mike Brudzinski



The zone of rupture defined by this earthquake and it's aftershocks overlaps both the zones ruptured in 1982 and 1968.

From IRIS Teachable Moments

M7.4 Oaxaca, Mexico Earthquake



Firefighters work to remove a cement beam that fell from a pedestrian bridge onto a public bus after an earthquake was felt in Mexico City. There were no passengers in the mini-bus and the driver suffered minor injuries, according to firefighters.

(AP Photo/Alexandre Meneghini)

March 20, 2012, Mexico City, Mexico - Workers inspect the damaged on the rail tracks of the subway caused by an 7.6 magnitude earthquake. Damaged in the structures and the tracks cause by the earthquake without victims have been reported by the authorities.

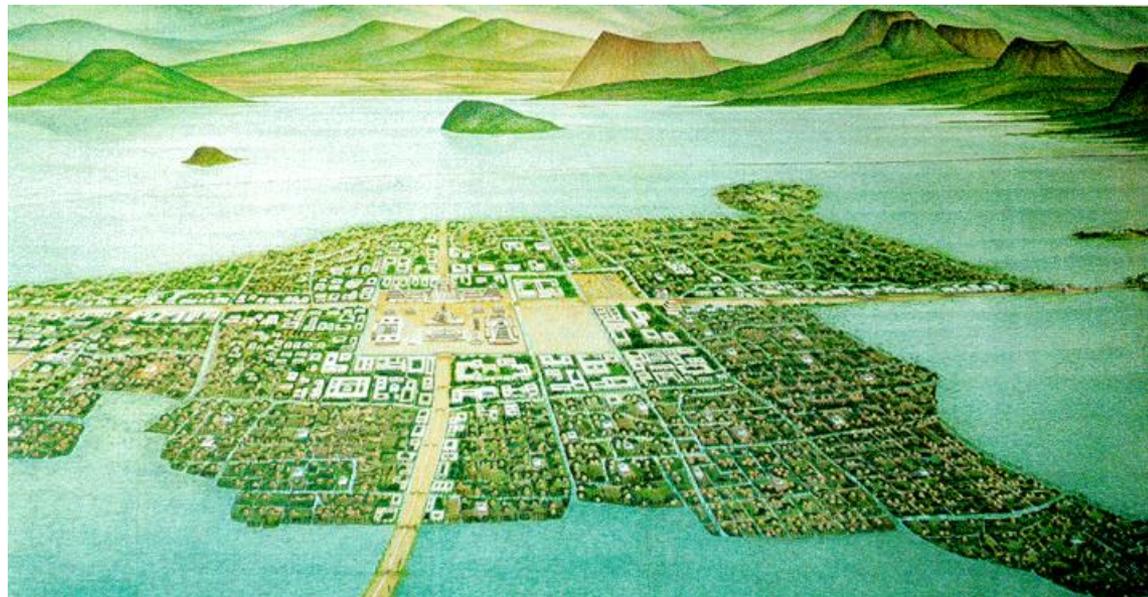
(ZUMA24.com/Carlos Castillo)

“Unusually long and strong” are words that dominate the news reports of this earthquake from Mexico City. The shaking was widely felt in Mexico City and the duration of shaking was many seconds, despite the 322 km distance. This was fairly strong shaking for a magnitude 7.4 earthquake at that distance, almost certainly due to the fact that portions of Mexico City are built on young unconsolidated sediments where seismic waves are amplified.



Mexico City

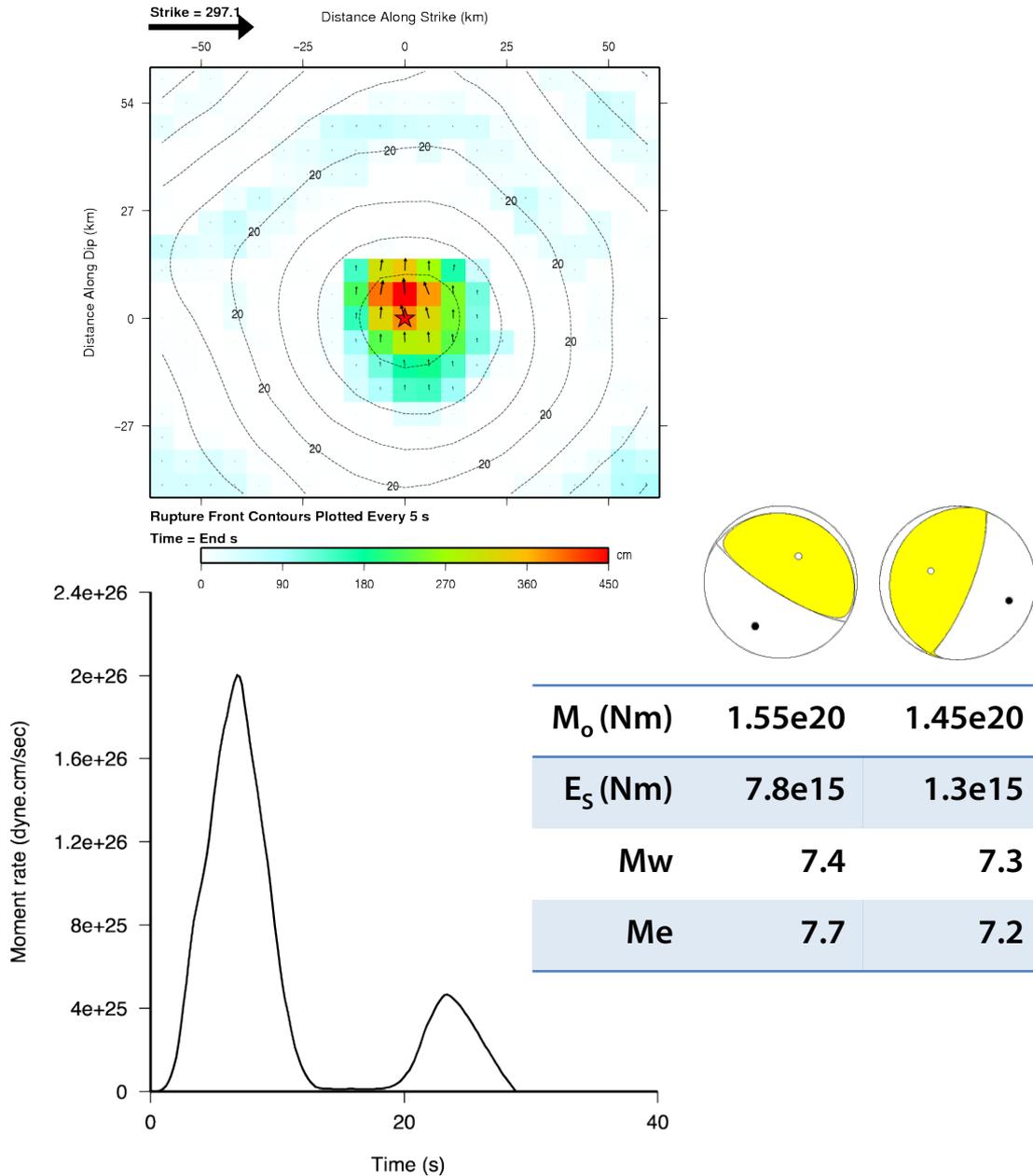
The capital of the Aztec empire was Tenochtitlan, built on an island in Lake Texcoco. Mexico City was built by the Spanish on the ruins of Tenochtitlan. Both the Aztecs and the Spaniards extended the island; the Aztecs first to create fertile land for planting, and the Spaniards eventually draining the lake to allow the city to grow.



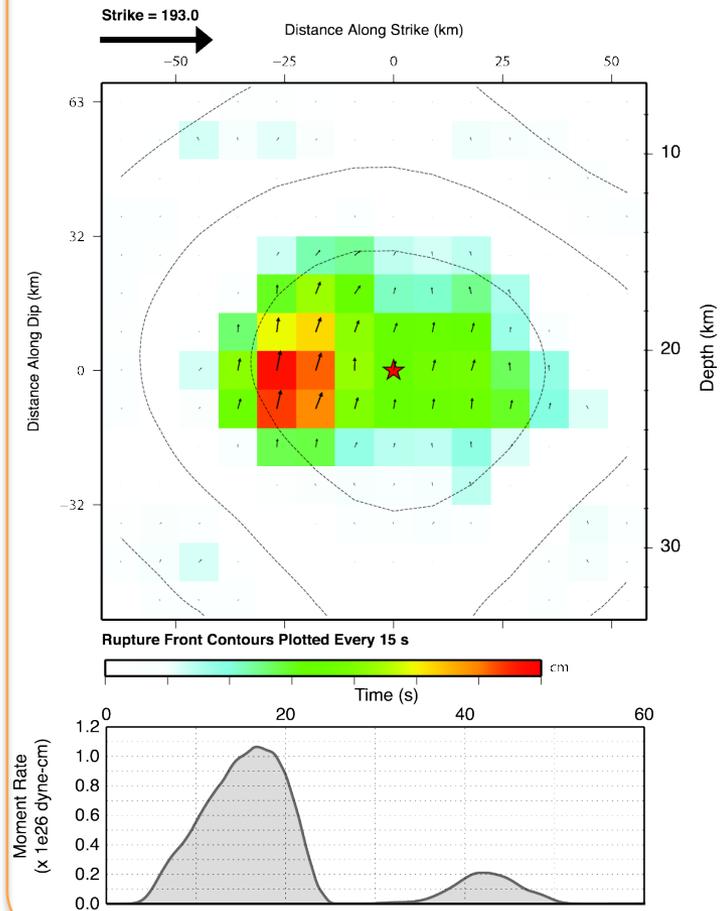
Tenochtitlan- from *The Broken Spears*, Miguel León-Portilla

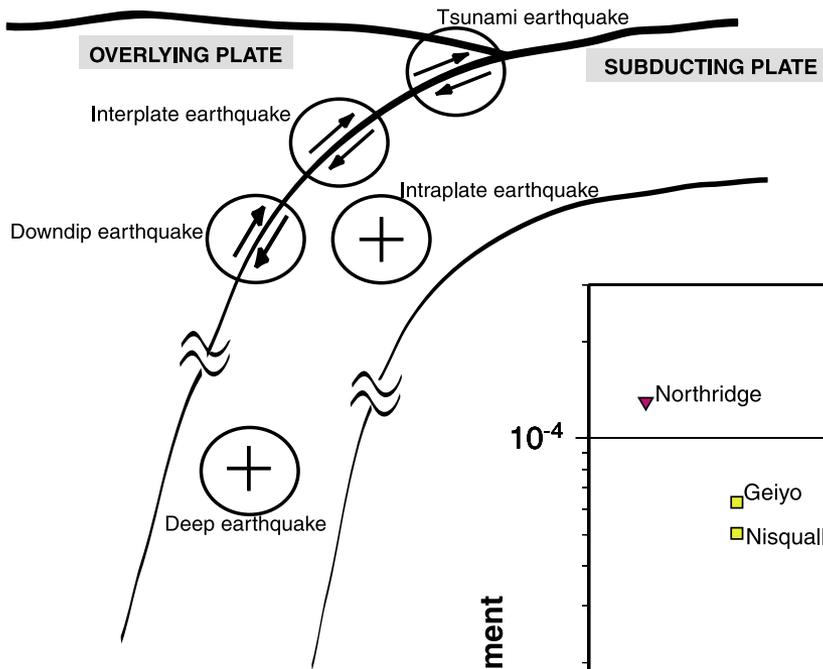
M7.4 Oaxaca, Mexico Earthquake

Preliminary Finite Fault Model by U.S. Geological Survey

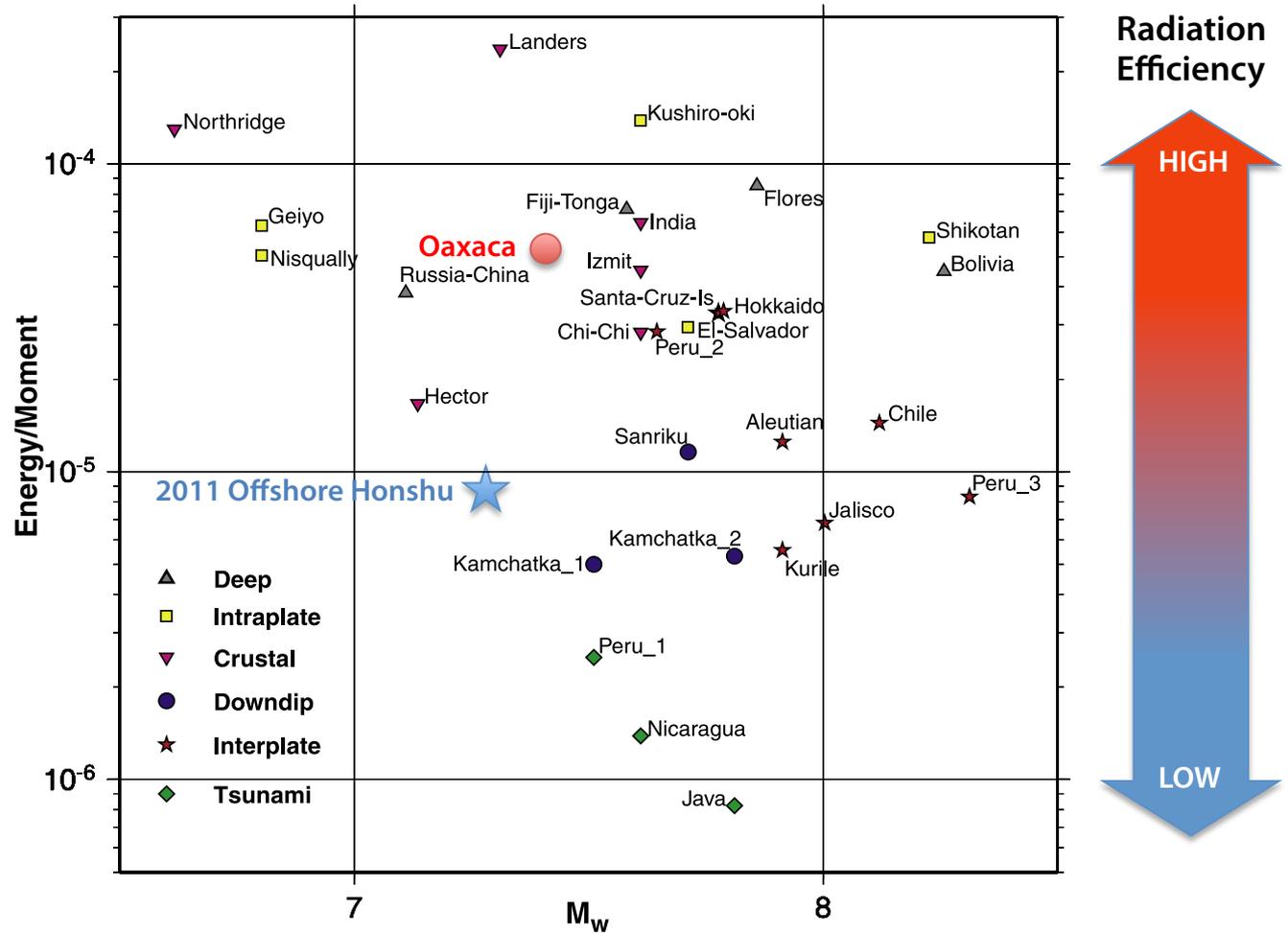


M7.3 Offshore Honshu, Japan on March 9 2012





Quick View of Scaled Energy



from Venkataraman and Kanamori (2004)