Earthquake Report: 2017.03.06
M 4.0 Mendocino

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USGS Google Earth

Depth to Slab (km)

0 50 100 150 200 250 300 350 400 450 500 550 600 650 700

Plate Boundaries: Divergent, Transform, Convergent, Other

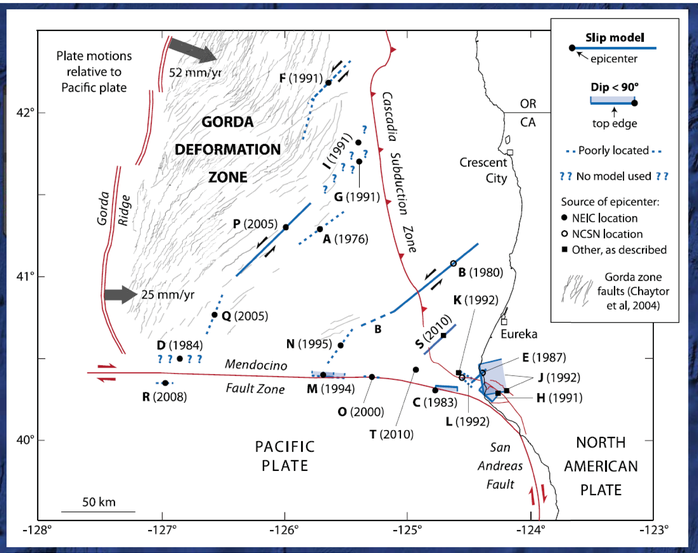
Plate Motion: Plate motion vectors related based on the direction of plate movement

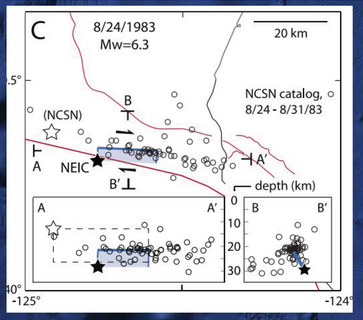
Normal Fault | Thrust Fault | Strike-Slip Fault

Top View / Side View / Side View

INTENSITY	I	II-III	IV	V	VI	VII	VIII	IX	X+
Shaking	Not felt	Weak	Light	Moderate	Strong	Very Strong	Severe	Violent	Extreme
Damage	None	None	None	Very slight	Light	Moderate	Moderate/ heavy	Heavy	Very heavy
Peak Acc	<0.17	0.17-1.4	1.4-3.9	3.9-9.2	9.2-18	18-34	34-65	65-124	>124
Peak Vel	<0.1	0.1- 1.1	1.1- 3.4	3.4- 8.1	8.1- 16	16 - 31	31 - 60	60-116	>116

Peak Acc = Peak ground acceleration (g), Peak Vel = Peak ground velocity (cm/s)





Rollins and Stein, 2010

Dengler et al., 1995

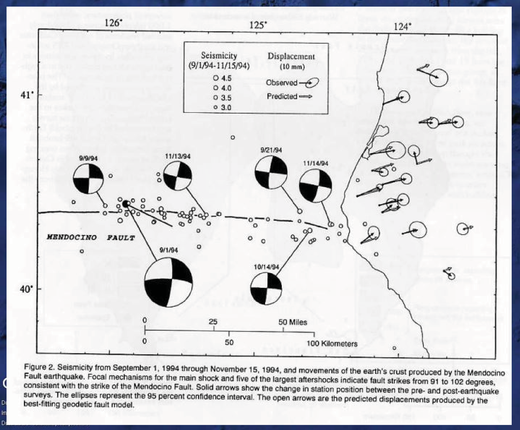


Figure 2. Seismicity from September 1, 1994 through November 15, 1994, and movements of the earth's crust produced by the Mendocino Fault earthquake. Focal mechanisms for the main shock and five of the largest aftershocks indicate fault strikes from 81 to 102 degrees, consistent with the strike of the Mendocino Fault. Solid arrows show the change in station position between the pre- and post-earthquake surveys. The ellipses represent the 95 percent confidence interval. The open arrows are the predicted displacements produced by the best-fitting geodetic fault model.

Juan de Fuca plate

Blanco fracture zone

Pacific plate

Gorda Rise

Cascadia subduction zone

North America plate

Gorda plate

1983.08.24
M 5.5

2017.03.06
M 4.0

Mendocino fault

Pacific plate

San Andreas fault

Maacama fault

Bartlett Springs fault

200 km

N

Magnitude
8 7 6 5 4 3 2 1

Depth (km)
0 - 33
33 - 70
70 - 150
150 - 300
300 - 500
500 - 800

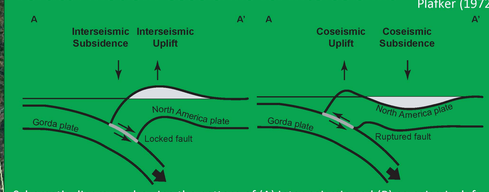
Cascadia subduction zone

Chaytor et al. (2004)
Nelson et al. (2004)

Plate configuration for the Cascadia subduction zone (CSZ). The Juan de Fuca and Gorda plates are subducting northeastwardly oblique beneath the North America plate at ~36 mm/yr in the Humboldt Bay region. Paleoseismic core sites (marine and terrestrial) are plotted as circles.

Vertical Motion: Coseismic vs. Interseismic

Plafker (1972)



Schematic diagrams showing the pattern of (A) inter-seismic and (B) co-seismic deformation associated witha subduction zone earthquake during an earthquake deformation cycle. Adapted from Plafker (1972) to reflect the spatial pattern of tectonic deformation during the earthquake cycle in Cascadia.

USGS

N

60 km