

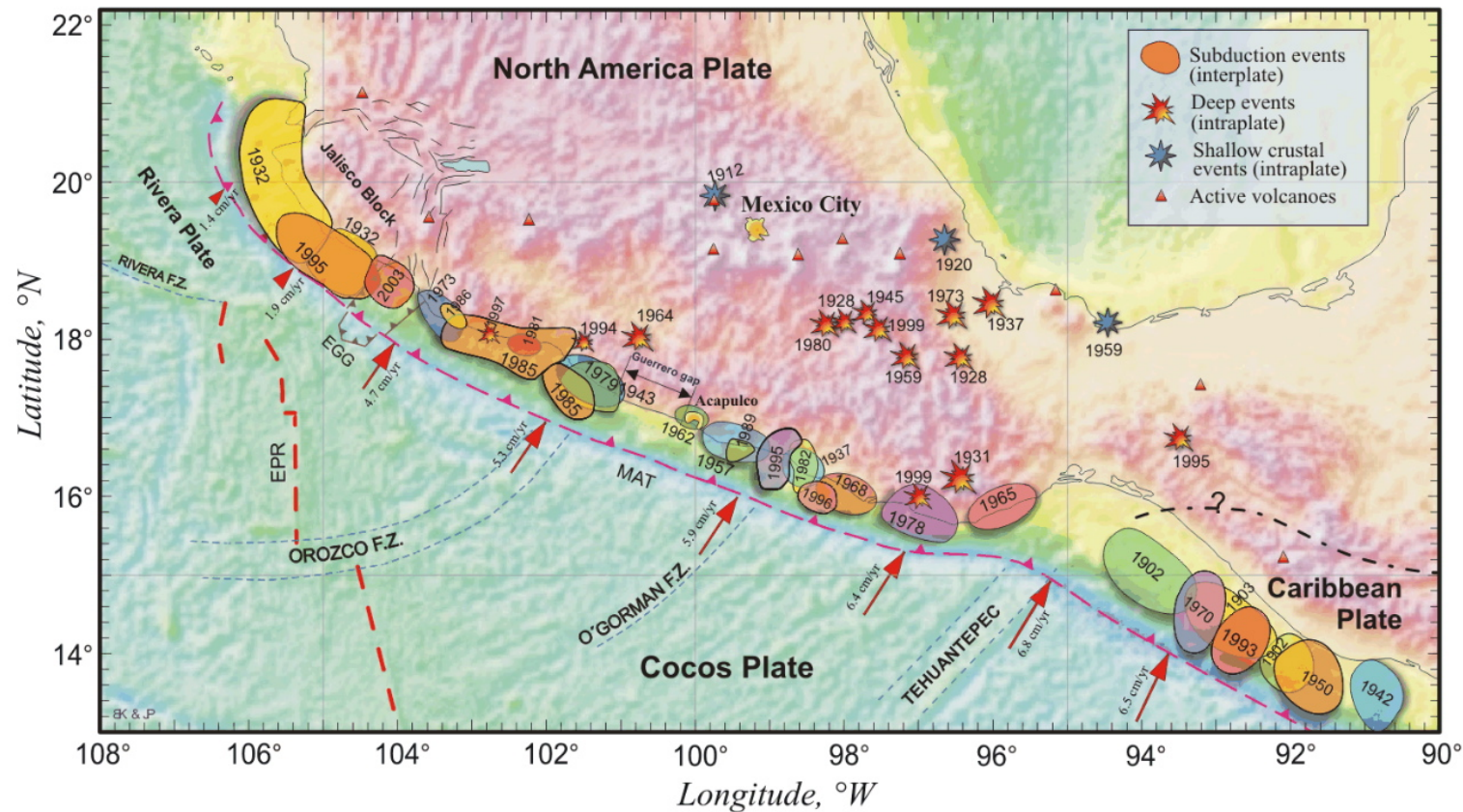
震源特性と地震動

京都大学防災研究所

伊藤喜宏

Megathrust Earthquakes and Seismic Gaps in Mexico

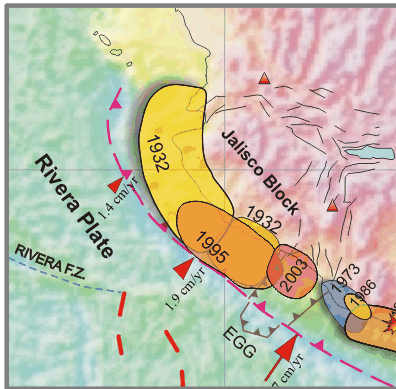
The seismic gap is mature and has potential for a megathrust rupture



Kostoglodov and Pacheco, 1999

M8.2 Earthquake of June 3, 1932, in Jalisco

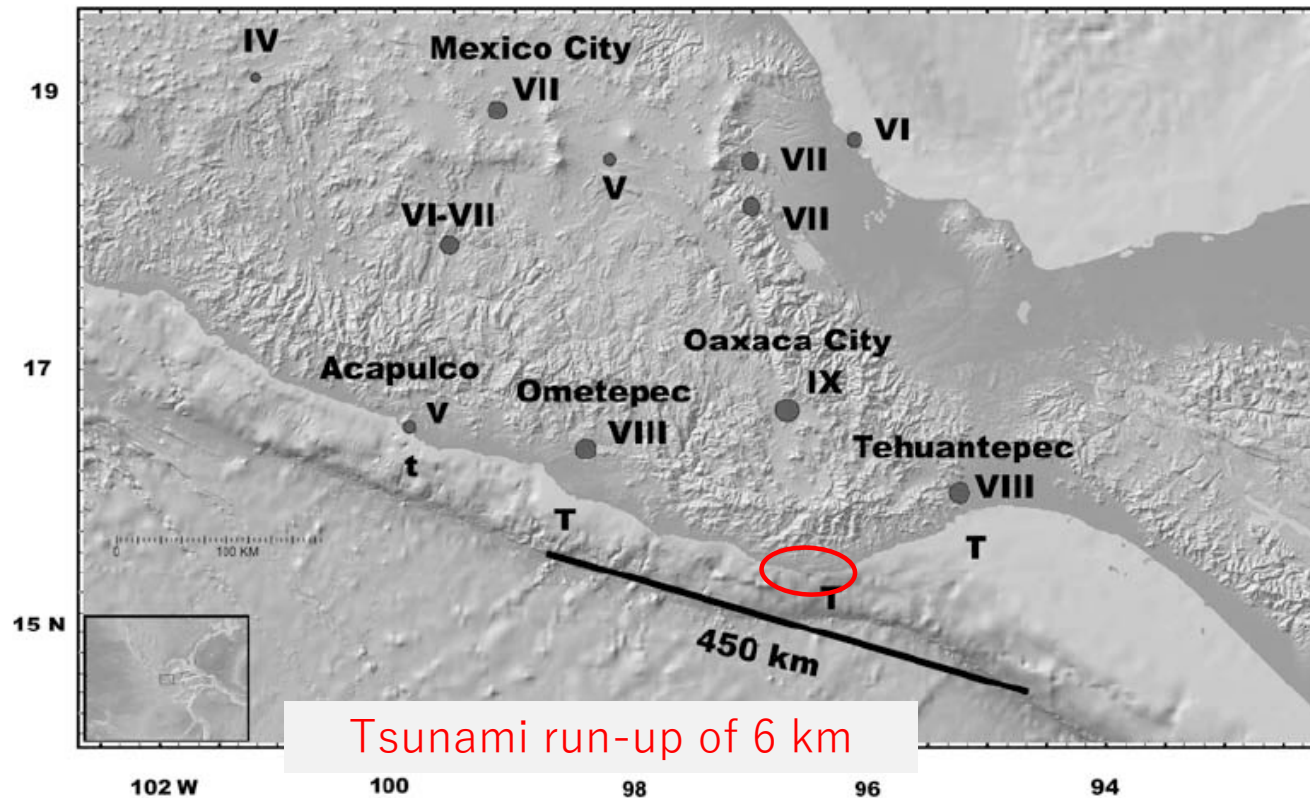
Waves of 9 to 10 m height that killed 50 people in Cuyutlán



At least 55 Tsunamis have beaten the coasts of Mexico in the last 250 years

~M8.6 Earthquake of March 28, 1787, in Oaxaca

A Tsunamis with 6 km run-up over the coast of Pochutla (Puerto Angel)



Suárez and Albi, 2009

M8.0 Earthquake of September 19, 1985, in Michoacán

More than 15,000 deaths in Mexico city



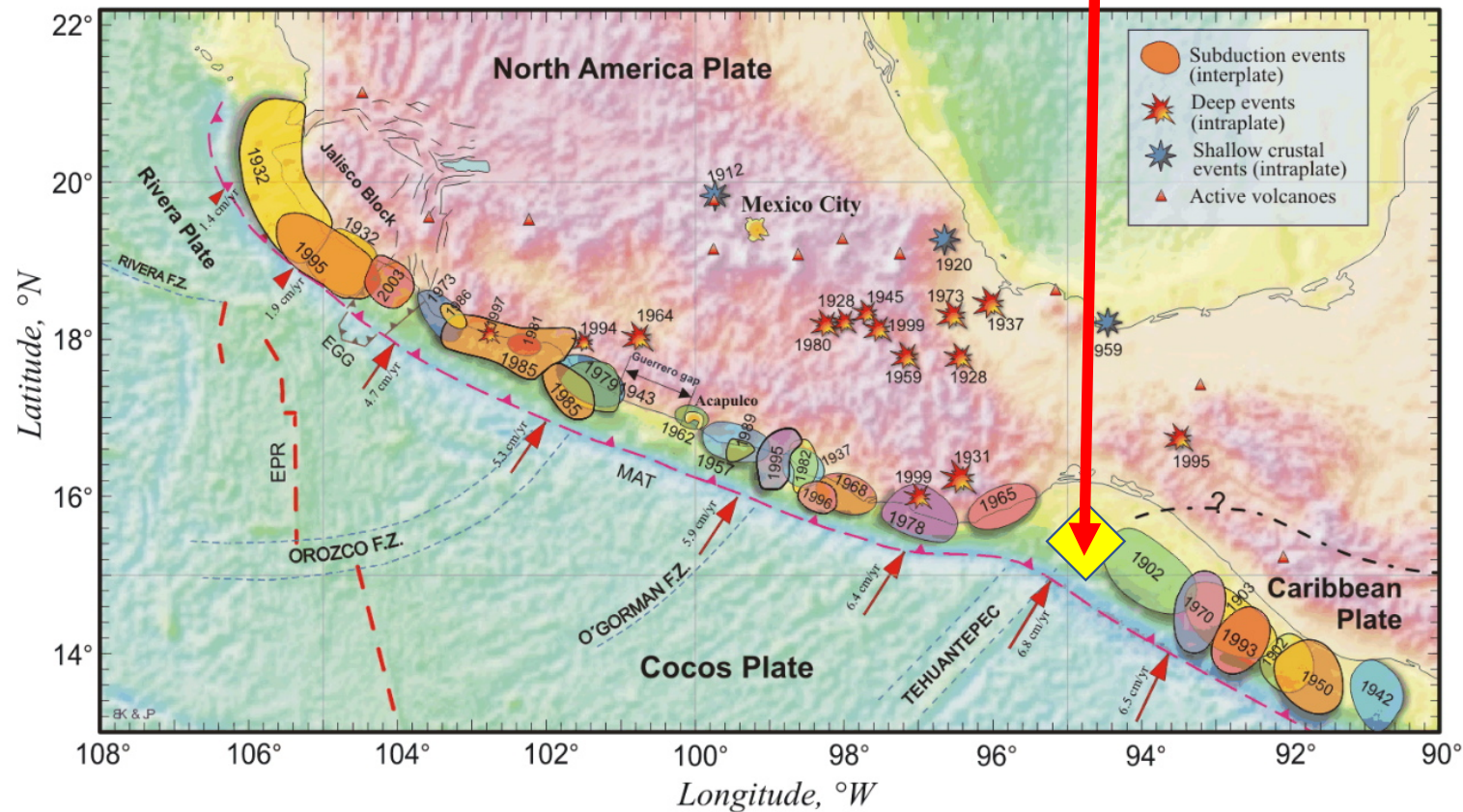
Nuevo León building, Tlatelolco, Mexico city

2017年9月に発生した2つの地震

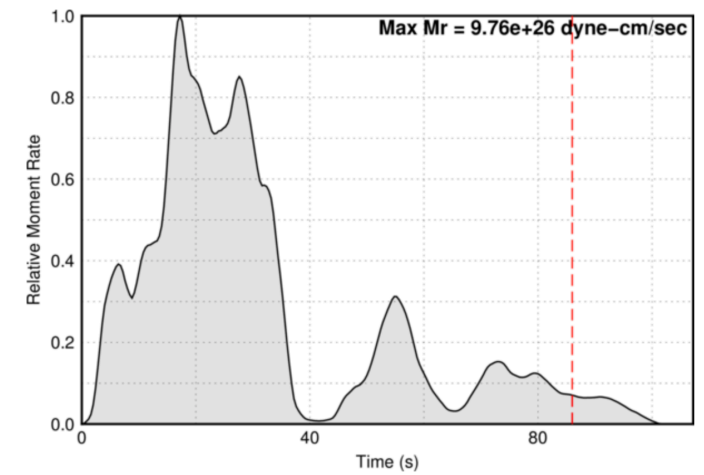
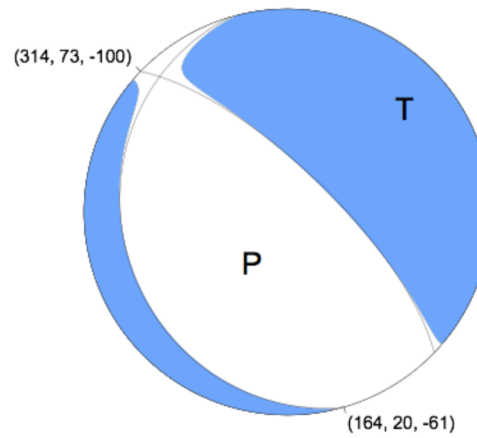
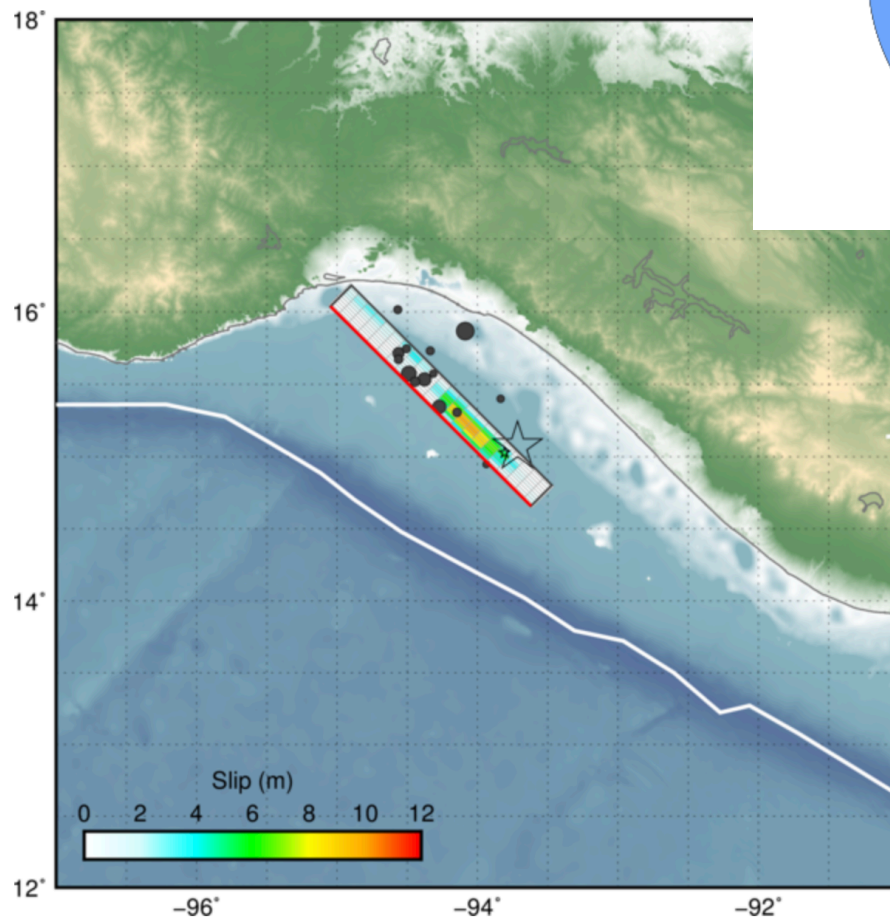
- 9月7日 現地時間 11:49 (9/8 04:49 UTC) M 8.1 Depth 50 km
- 9月19日 現地時間 01:14 (9/19 18:14 UTC) M 7.1 Depth 51 km

The two large earthquakes last September

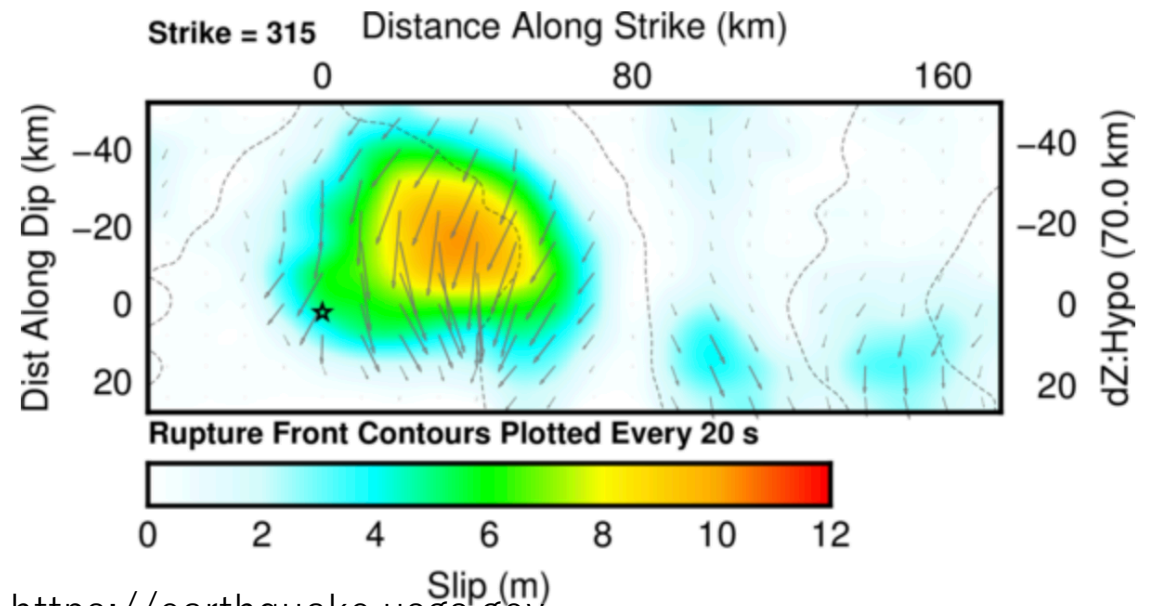
The 2017 M 8.1 Chiapas Earthquake



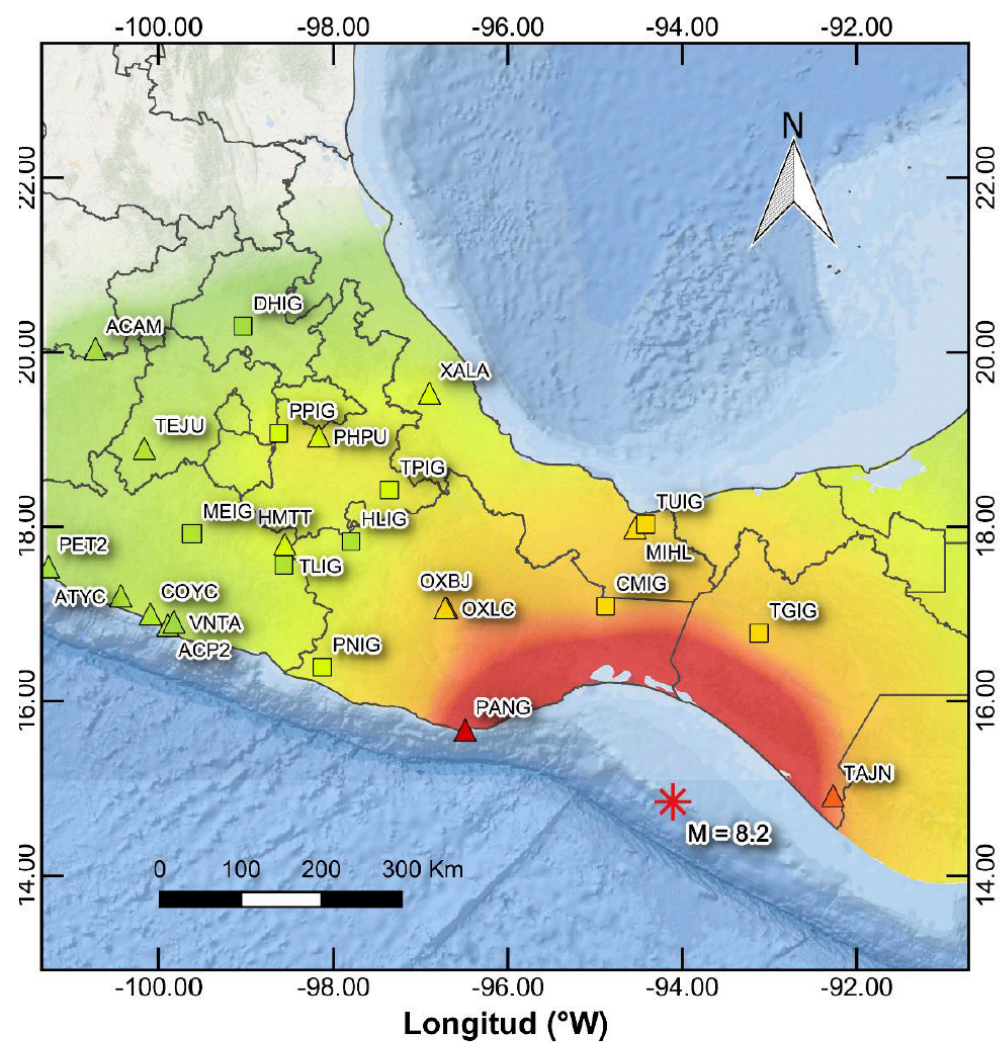
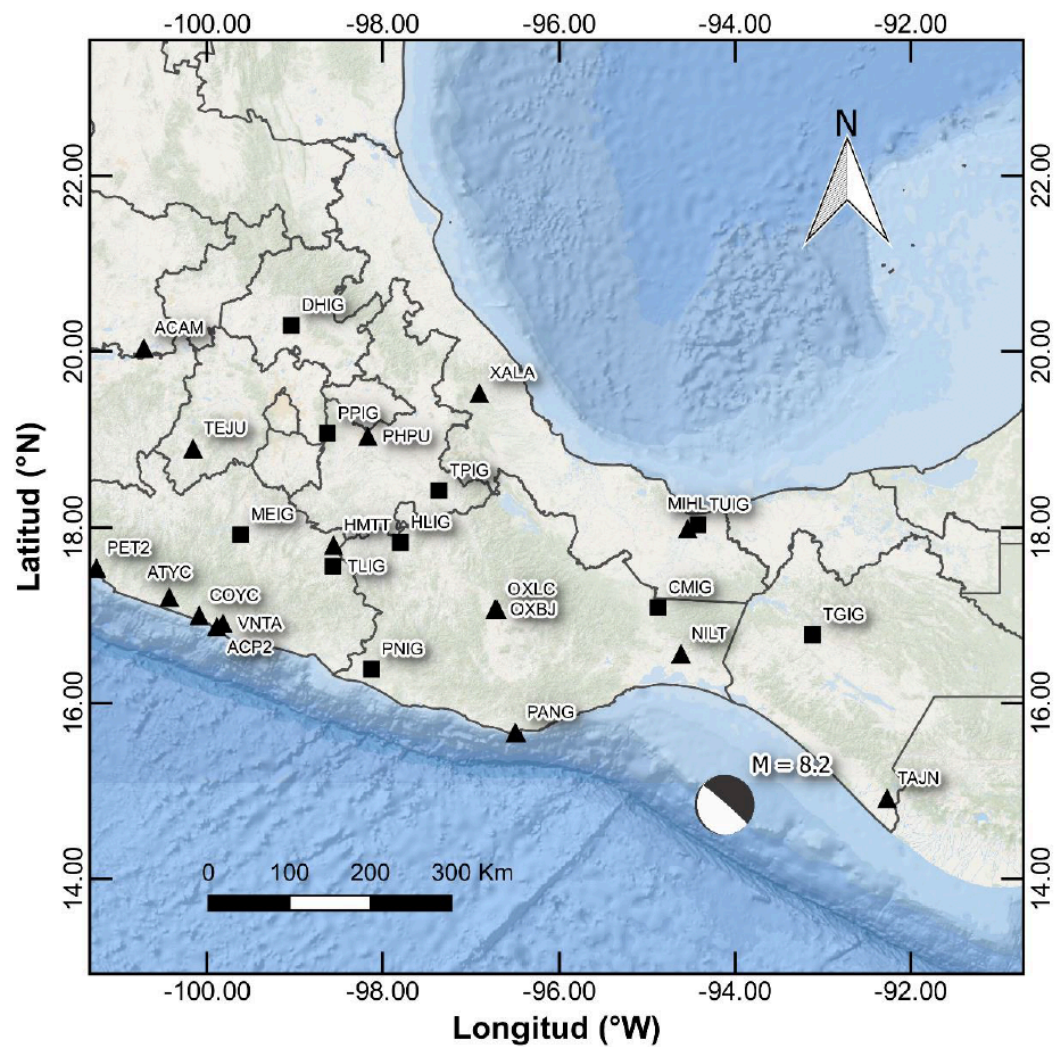
Kostoglodov and Pacheco, 1999



Cross-section of slip distribution



<https://earthquake.usgs.gov>

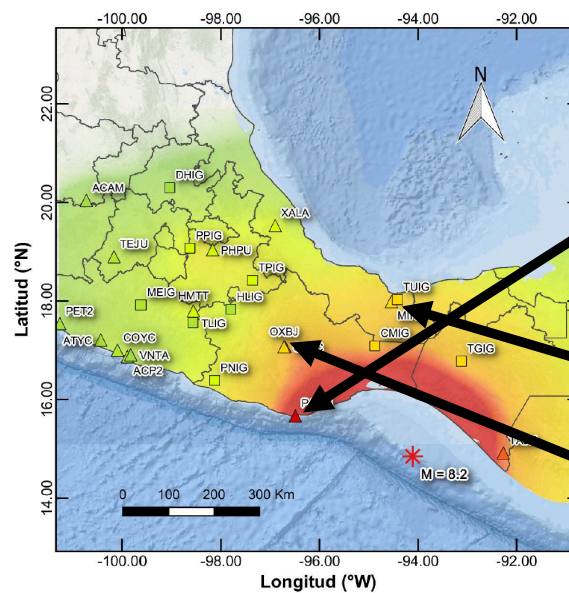


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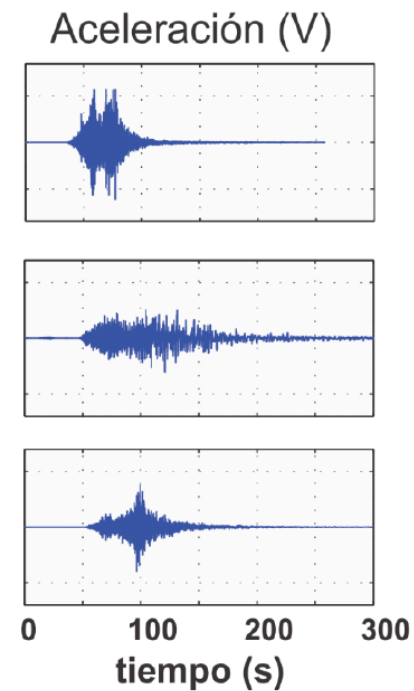
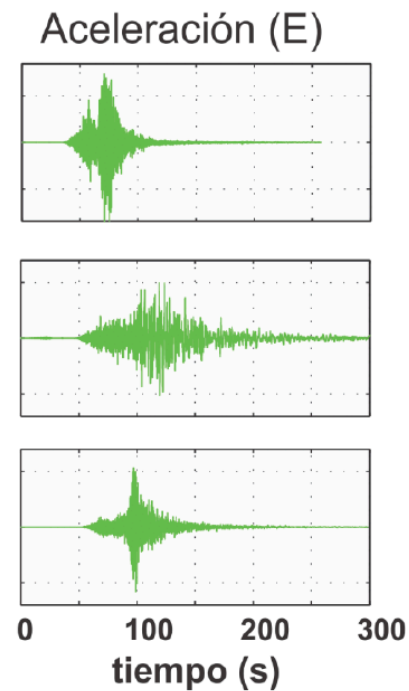
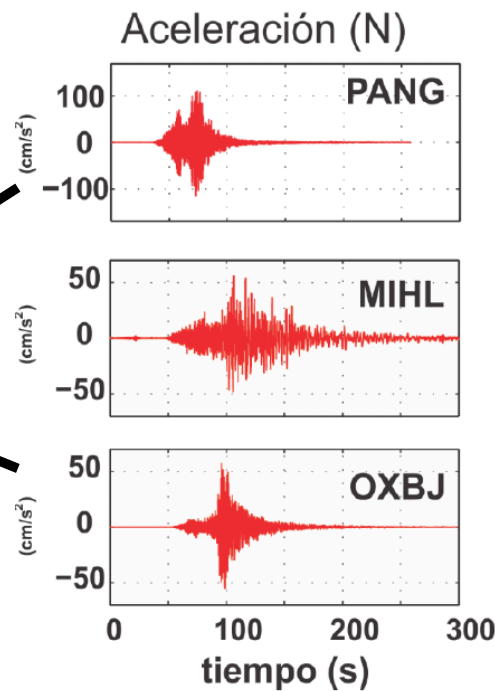
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PGA (cm/s ²)	<1	2	4	11	30	90	110	130	>150
Percepción del movimiento	Leve			Moderado			Fuerte		



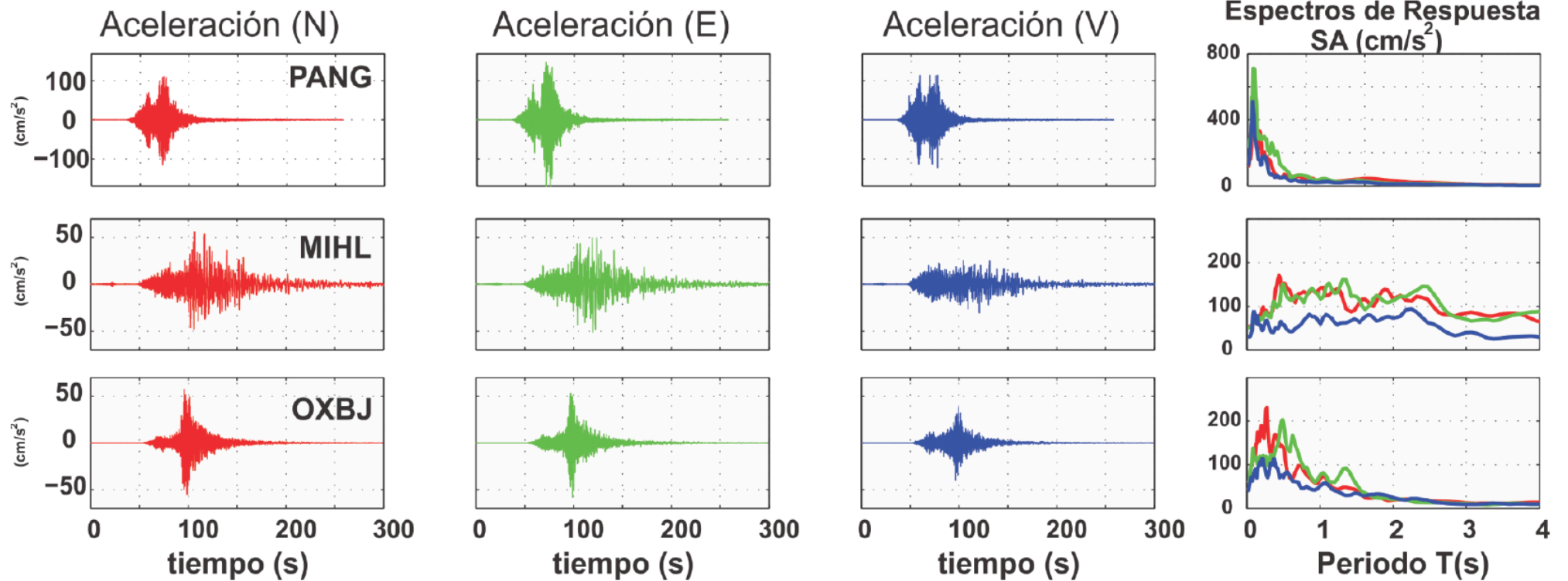
PGA (cm/s ²)	<1	2	4	11	30	90	110	130	>150
Percepción del movimiento	Leve				Moderado				Fuerte



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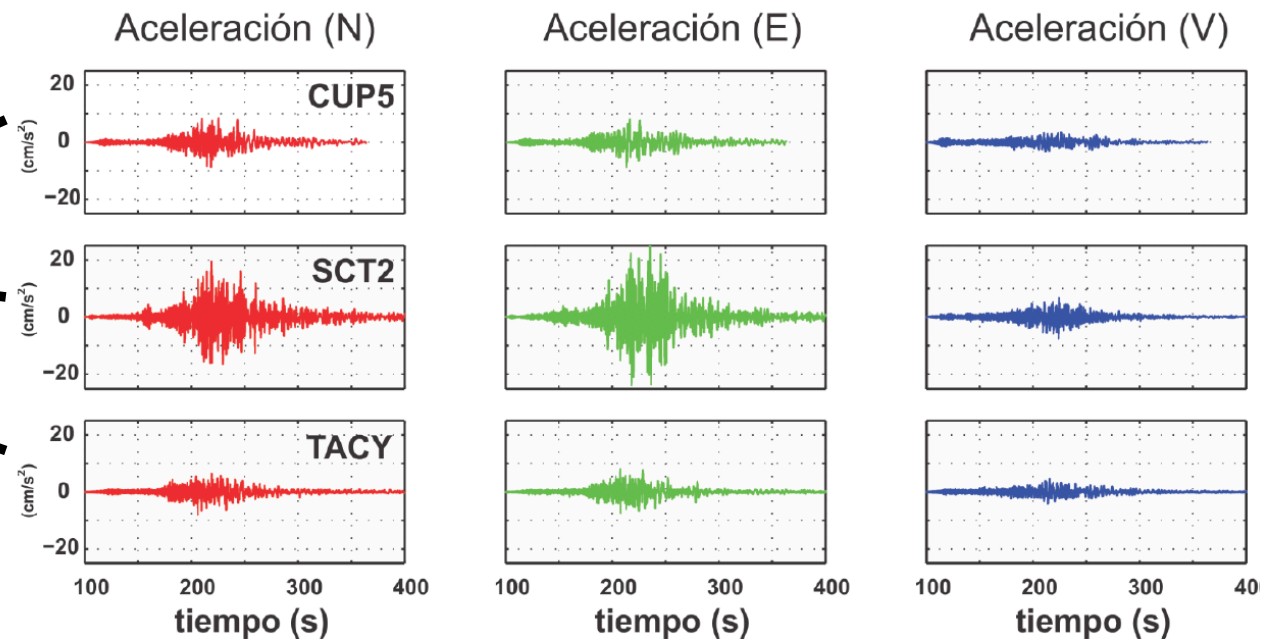
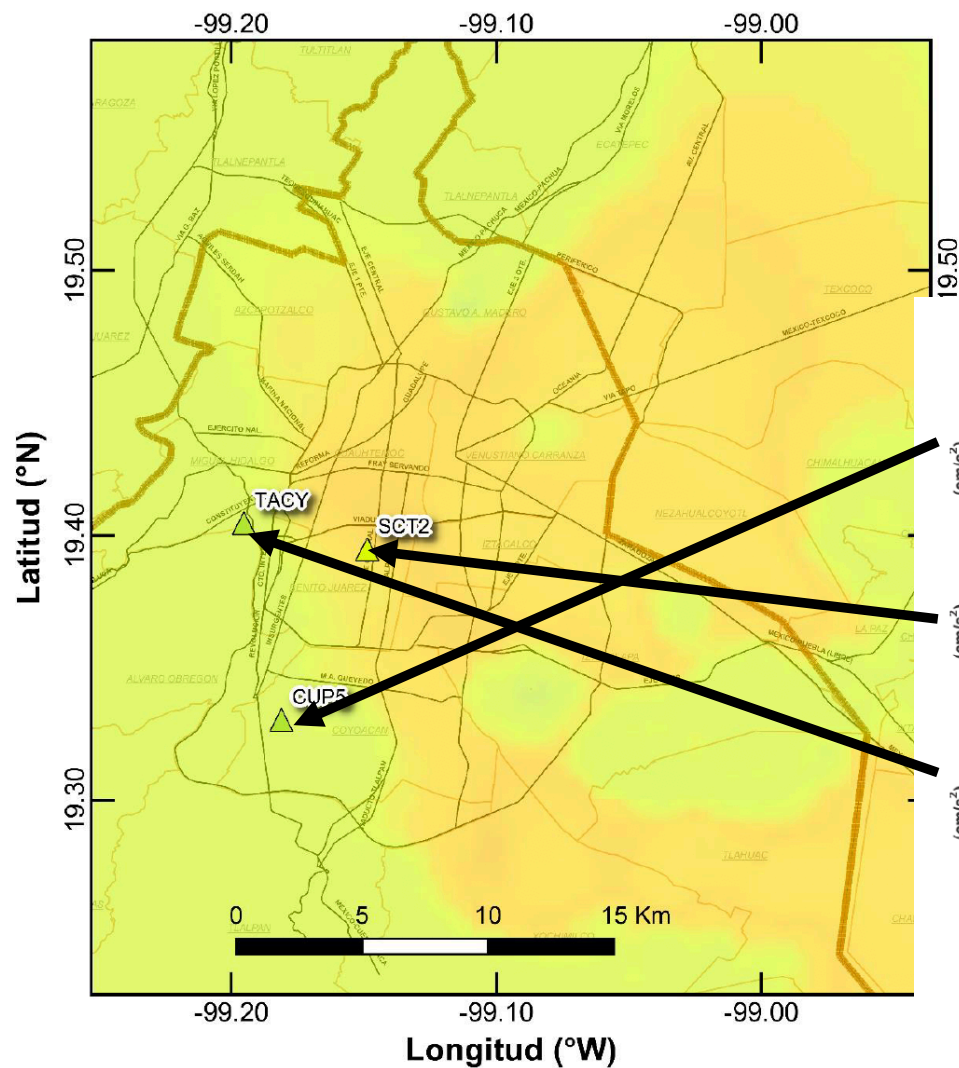
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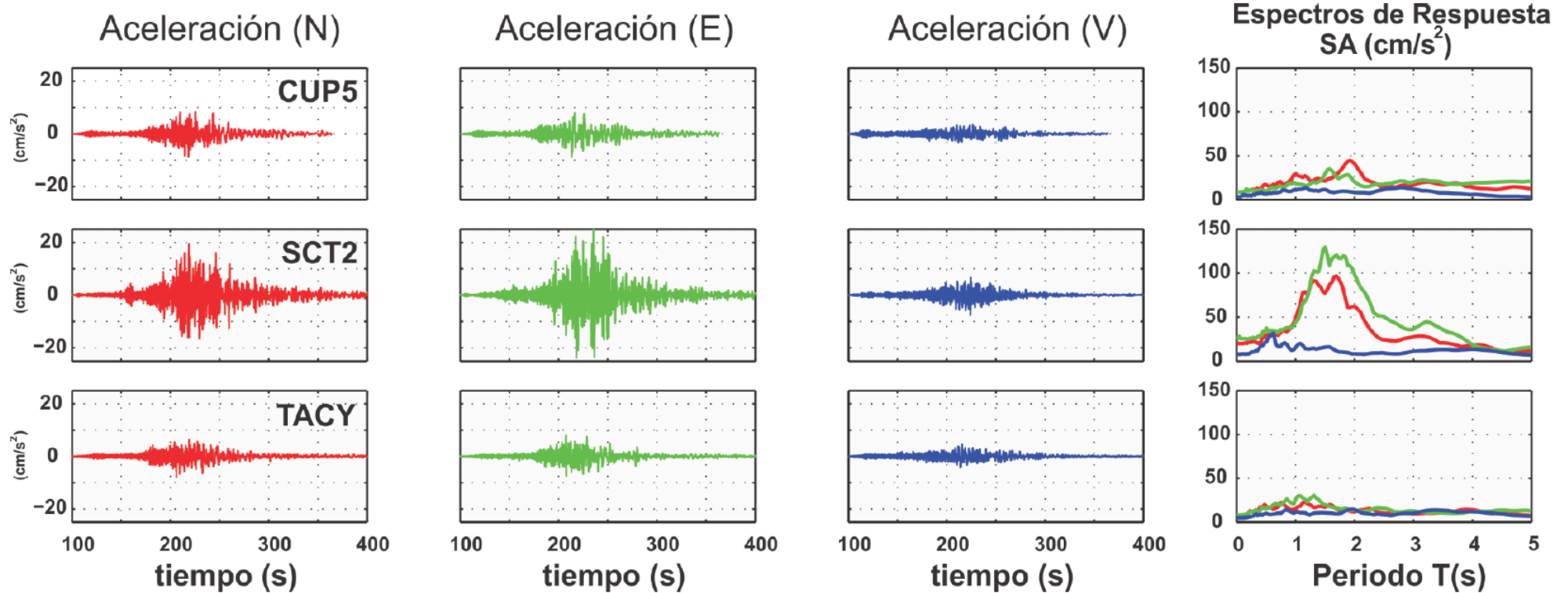
PGA (cm/s^2)	<1	2	4	11	30	90	110	130	>150
Percepción del movimiento	Leve			Moderado			Fuerte		



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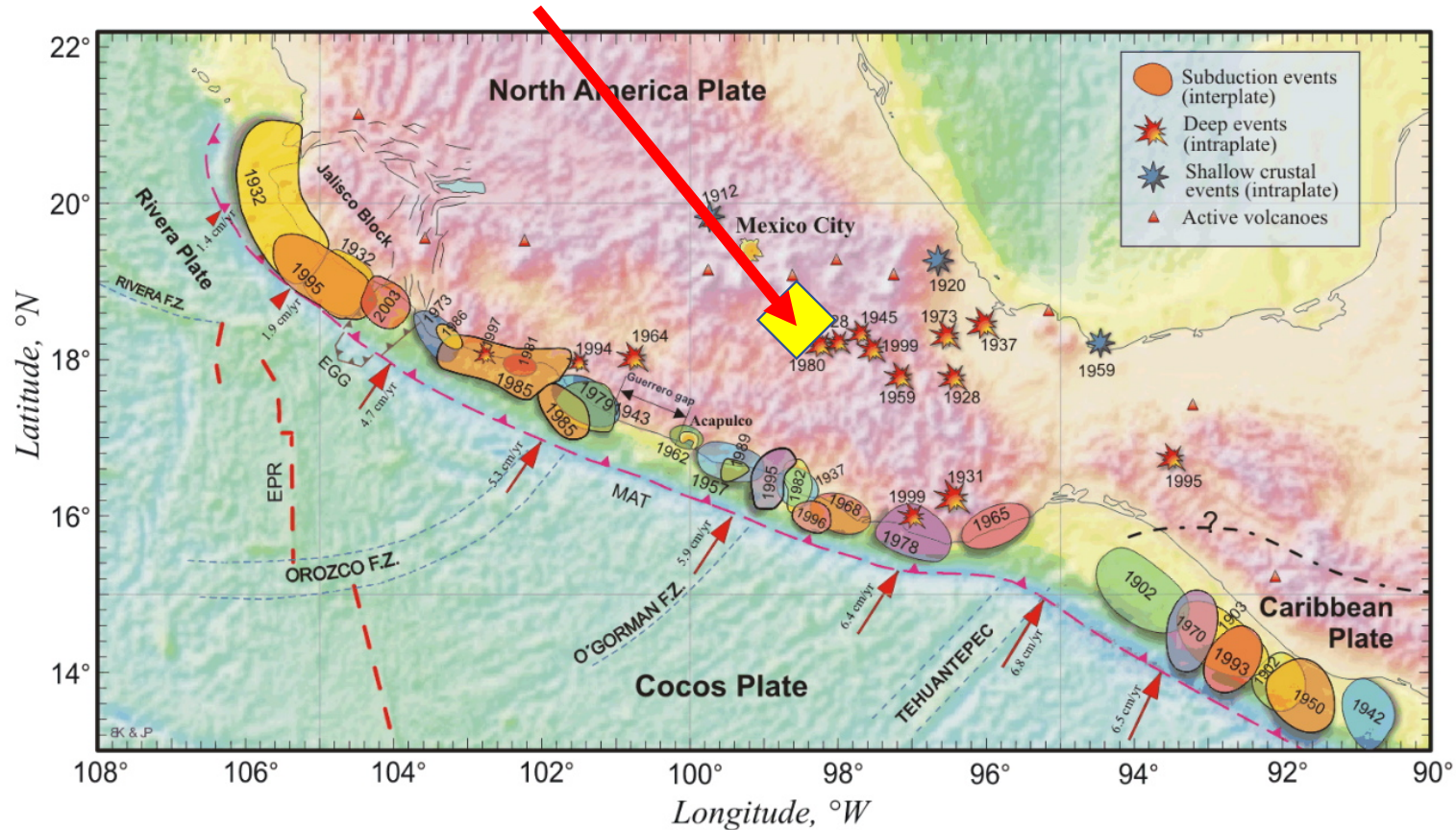
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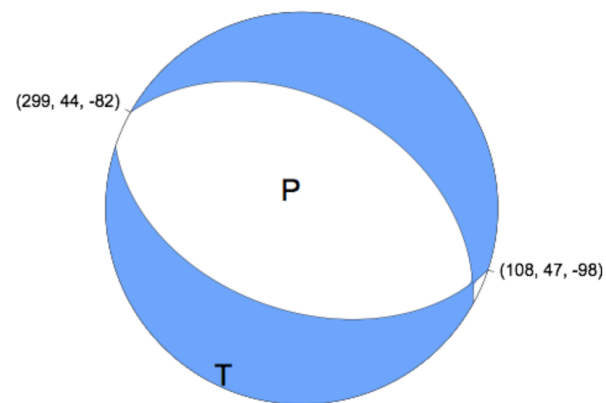
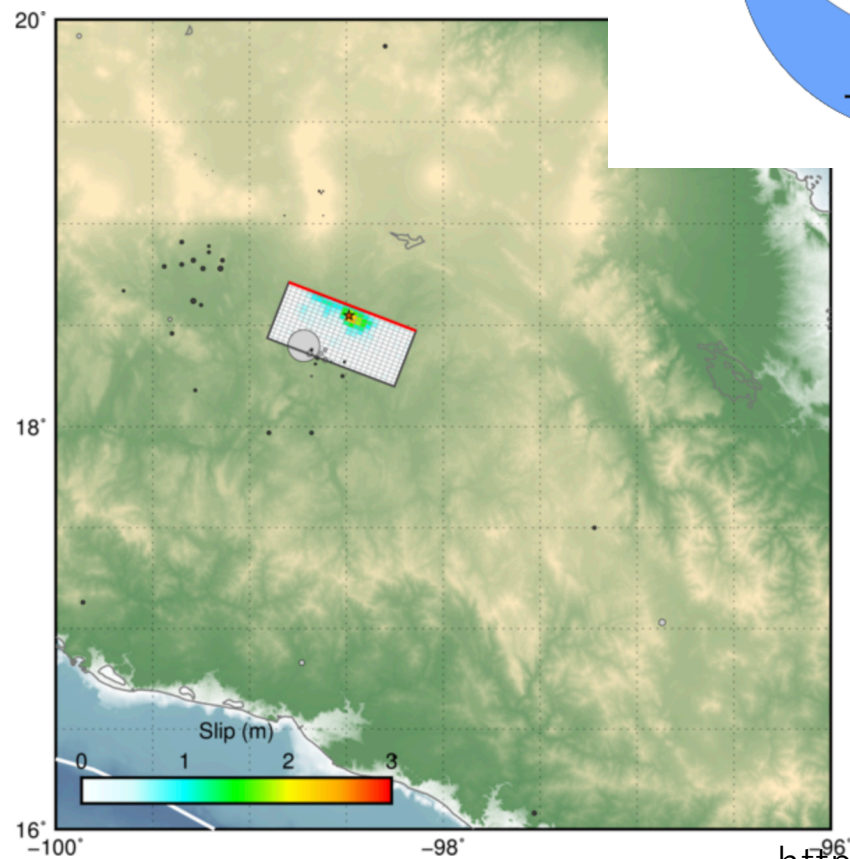
www.uis-iiunam.mx

Two Large earthquakes last September

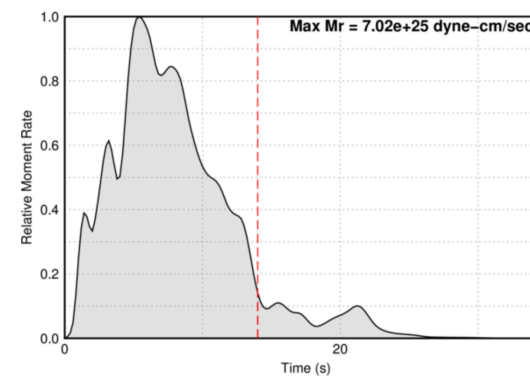
The 2017 M 7.1 Puebla Earthquake



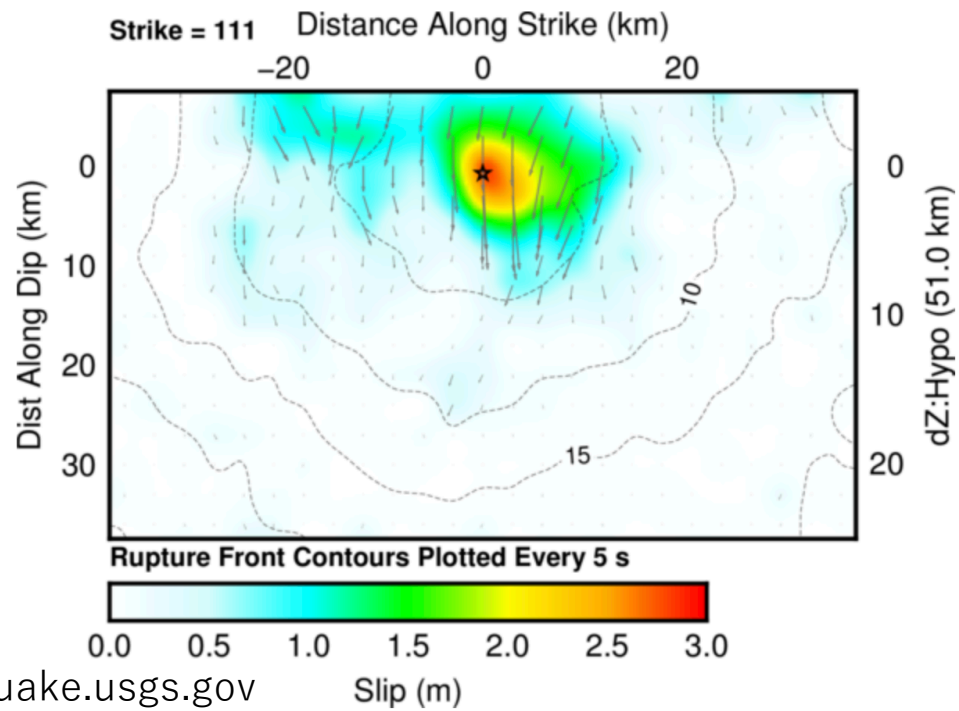
Kostoglodov and Pacheco, 1999



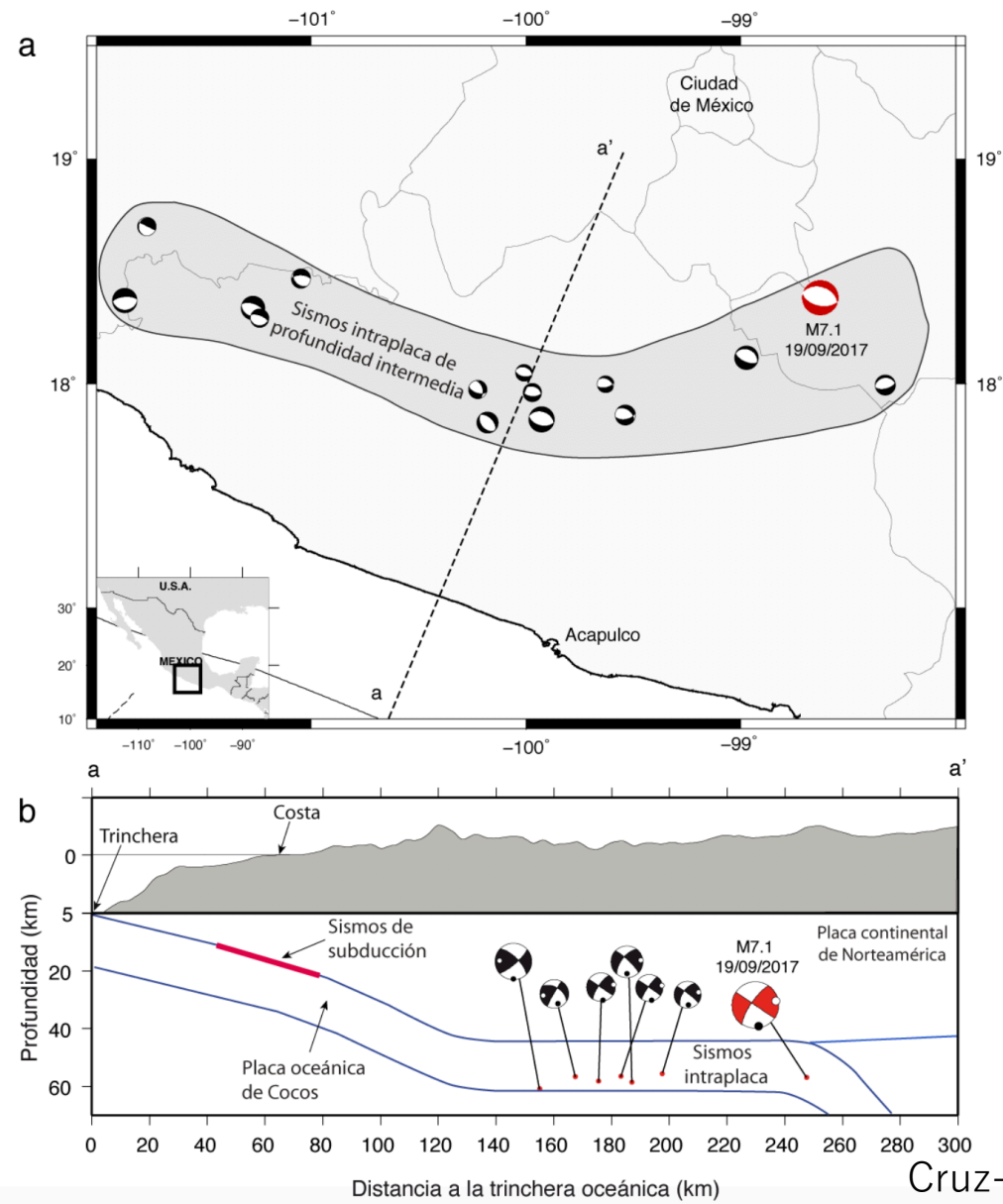
Moment Rate Function



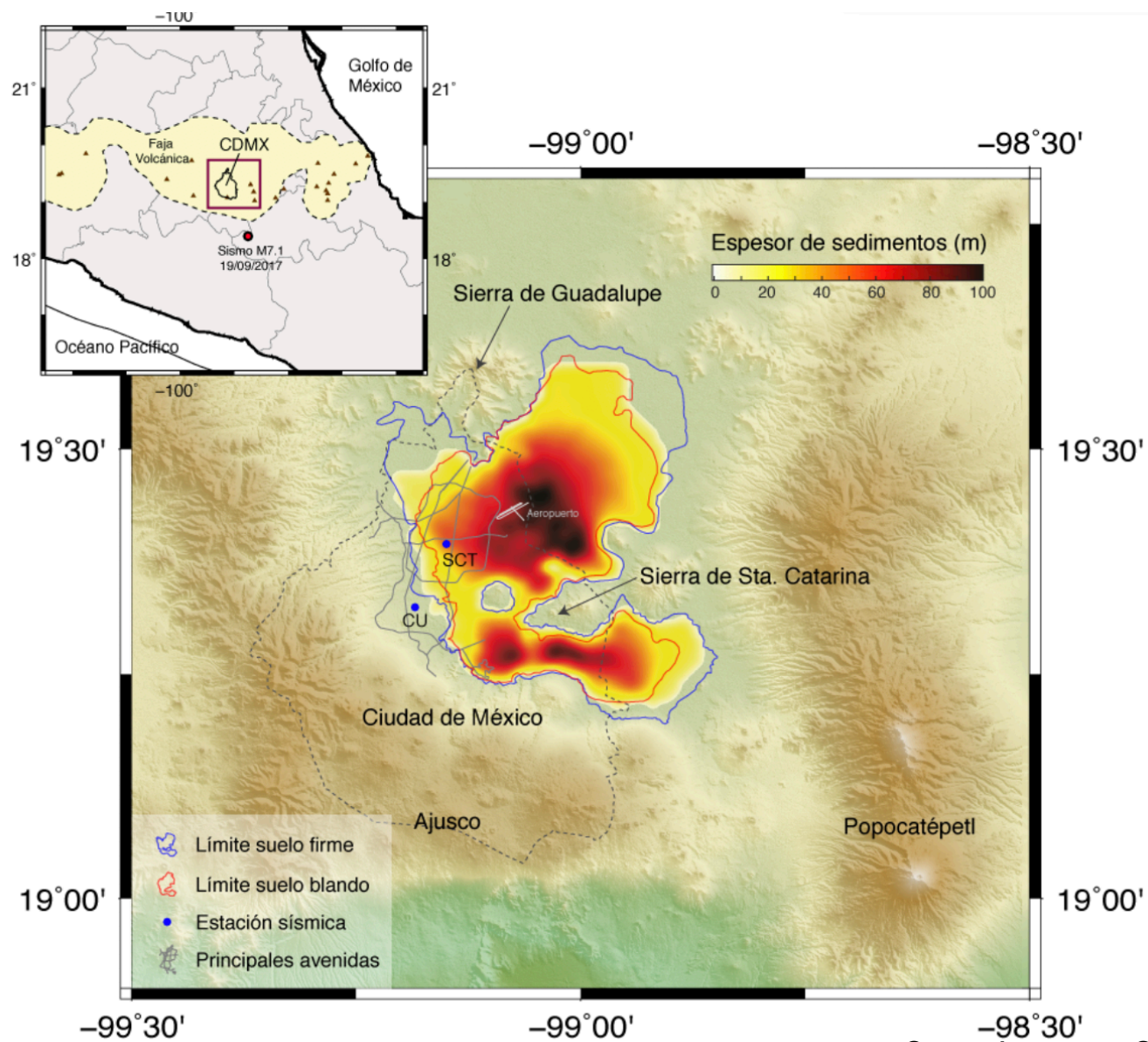
Cross-section of slip distribution



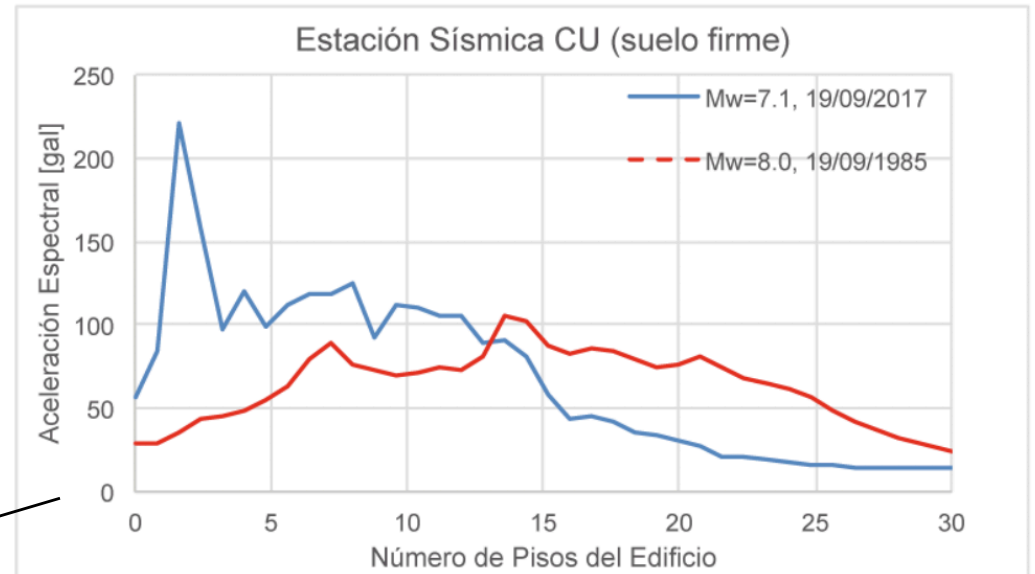
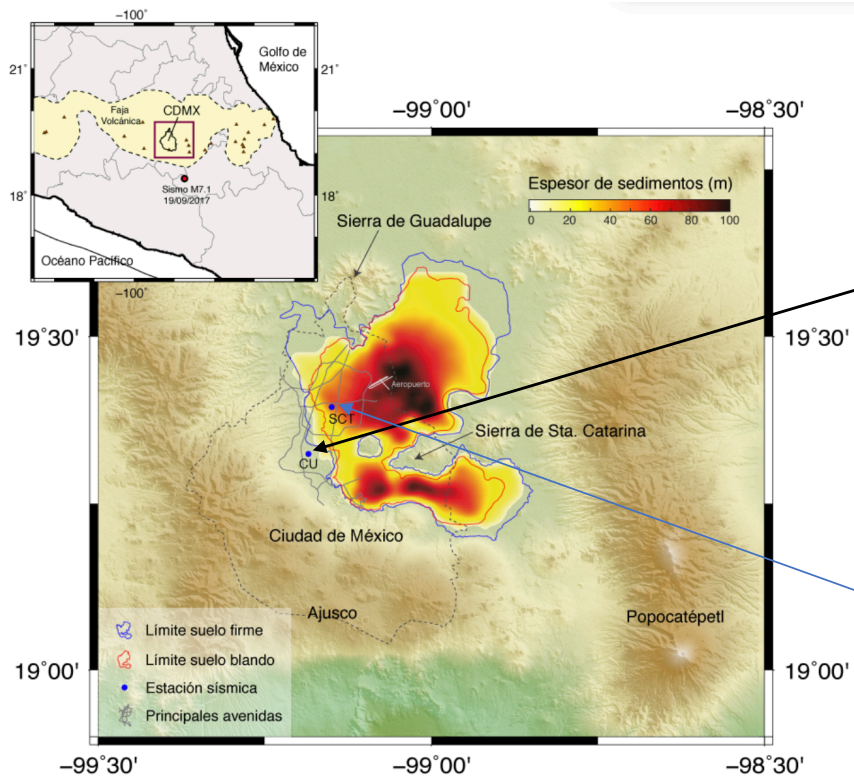
<https://earthquake.usgs.gov>



Cruz-Atienza, Singh, Schroeder (2017)



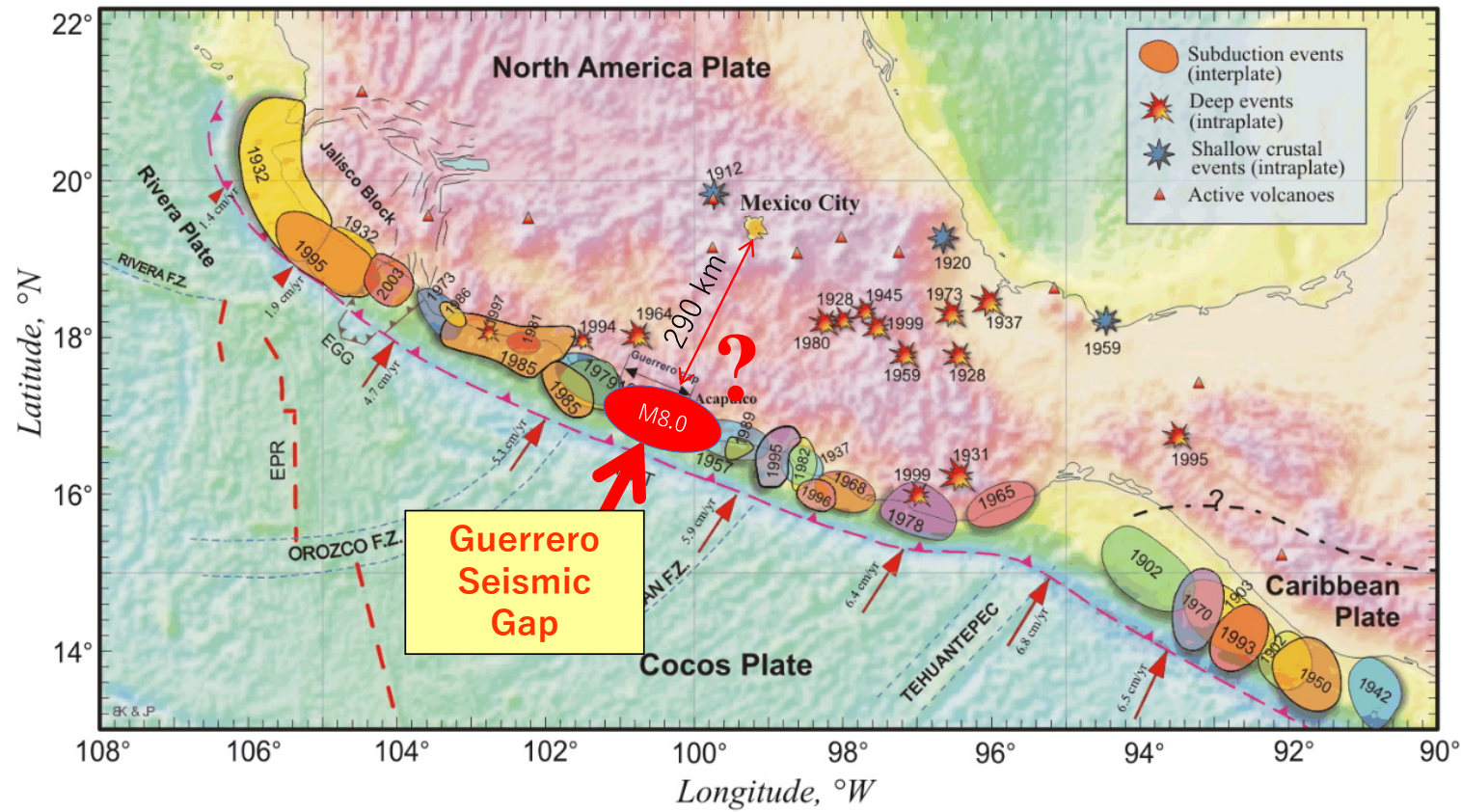
Cruz-Atienza, Singh, Schroeder (2017)



Cruz-Atienza, Singh, Schroeder (2017)

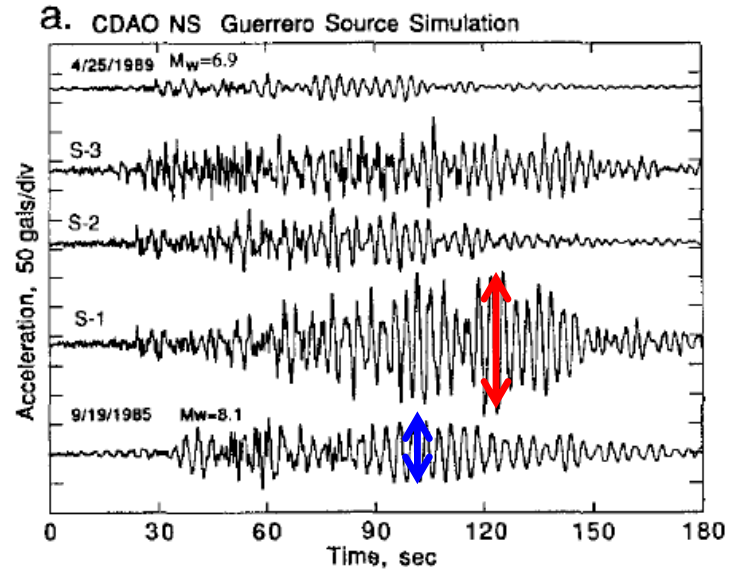
Guerrero Seismic Gap (G-Gap)

109 years since the last $M > 7$ earthquake



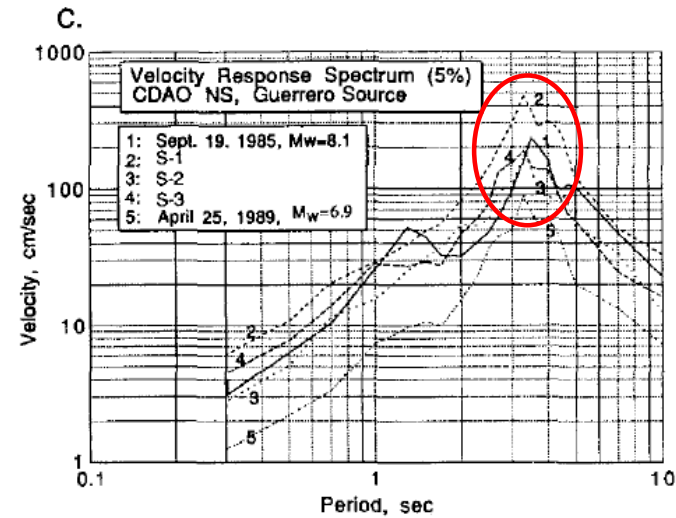
Kostoglodov and Pacheco, 1999

Ground Motion Prediction for a M8.0 in the G-Gap

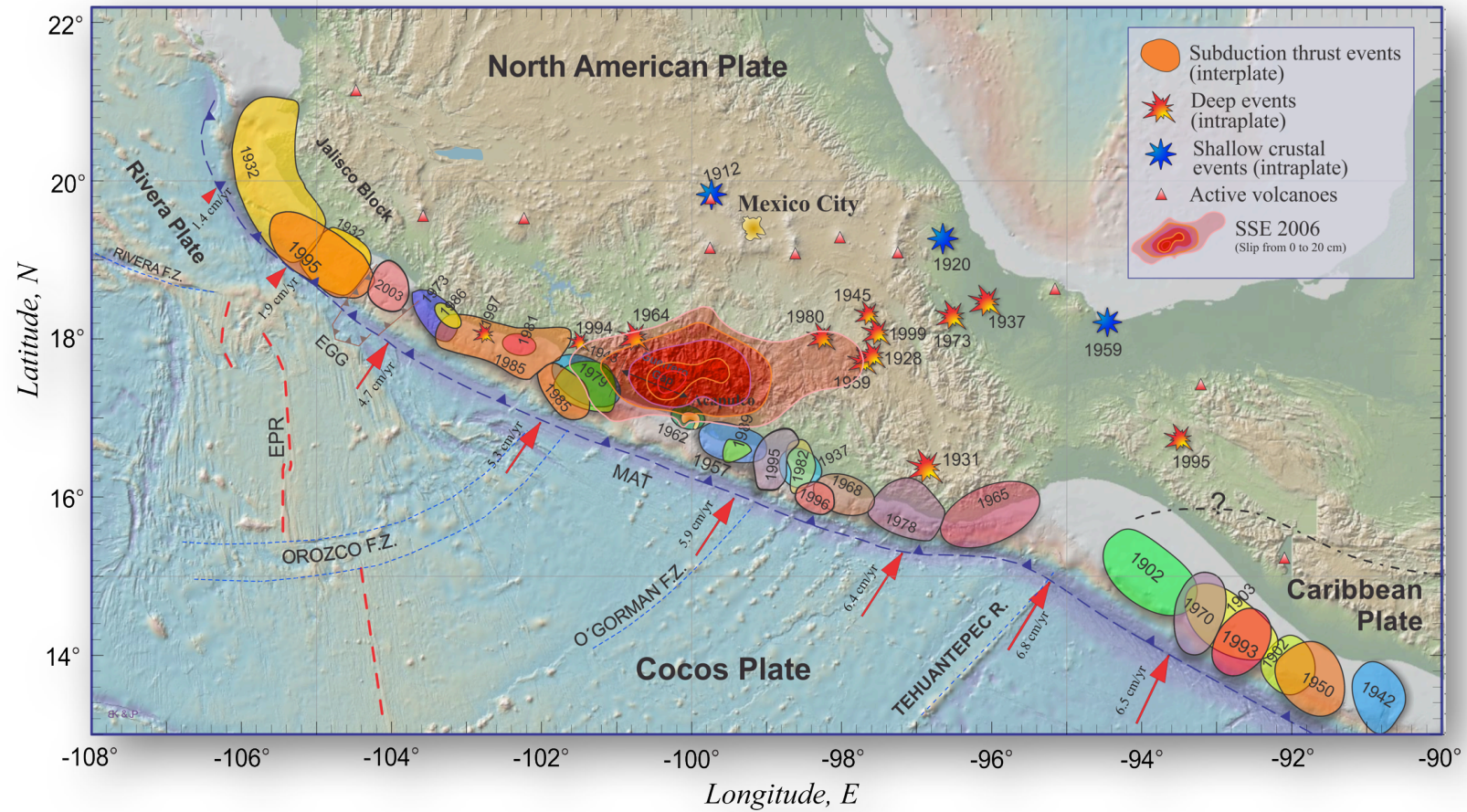


Ground shaking in MC 2 to 3 times
larger than observed for the
devastating M8.0 Michoacán
earthquake

Kanamori et al., BSSA, 1993



Slow slip in the Gurrero Seismic Gap



Cavalié et al., *EPSL* 2013