

Is the WUS-CEUS GMPE Boundary in the Right Place?

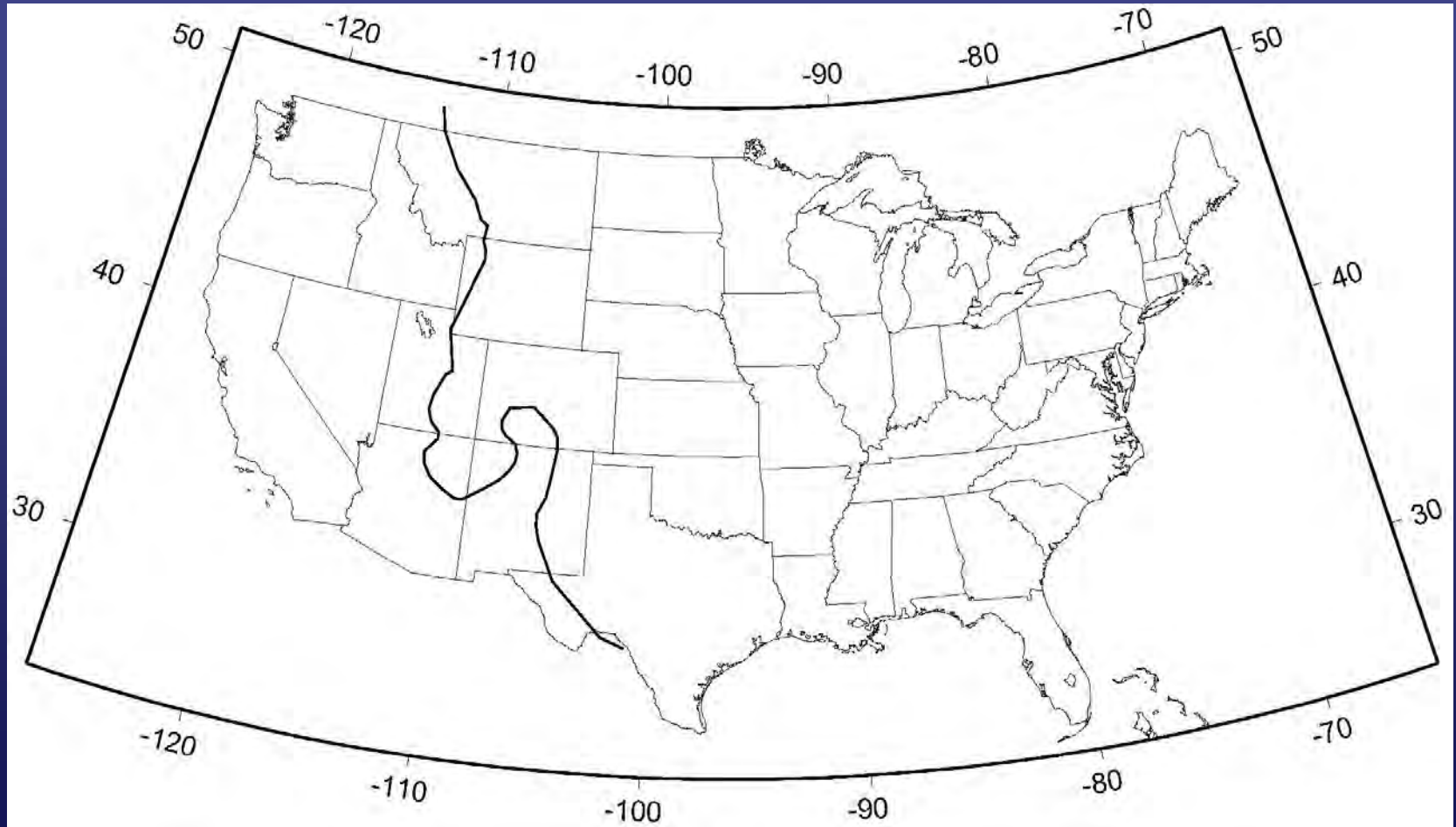
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**USGS National Seismic Hazard Map Workshop on
Ground Motion Prediction Equations for the 2014 Update**

12-13 December 2012

WUS & CEUS Attenuation Zones

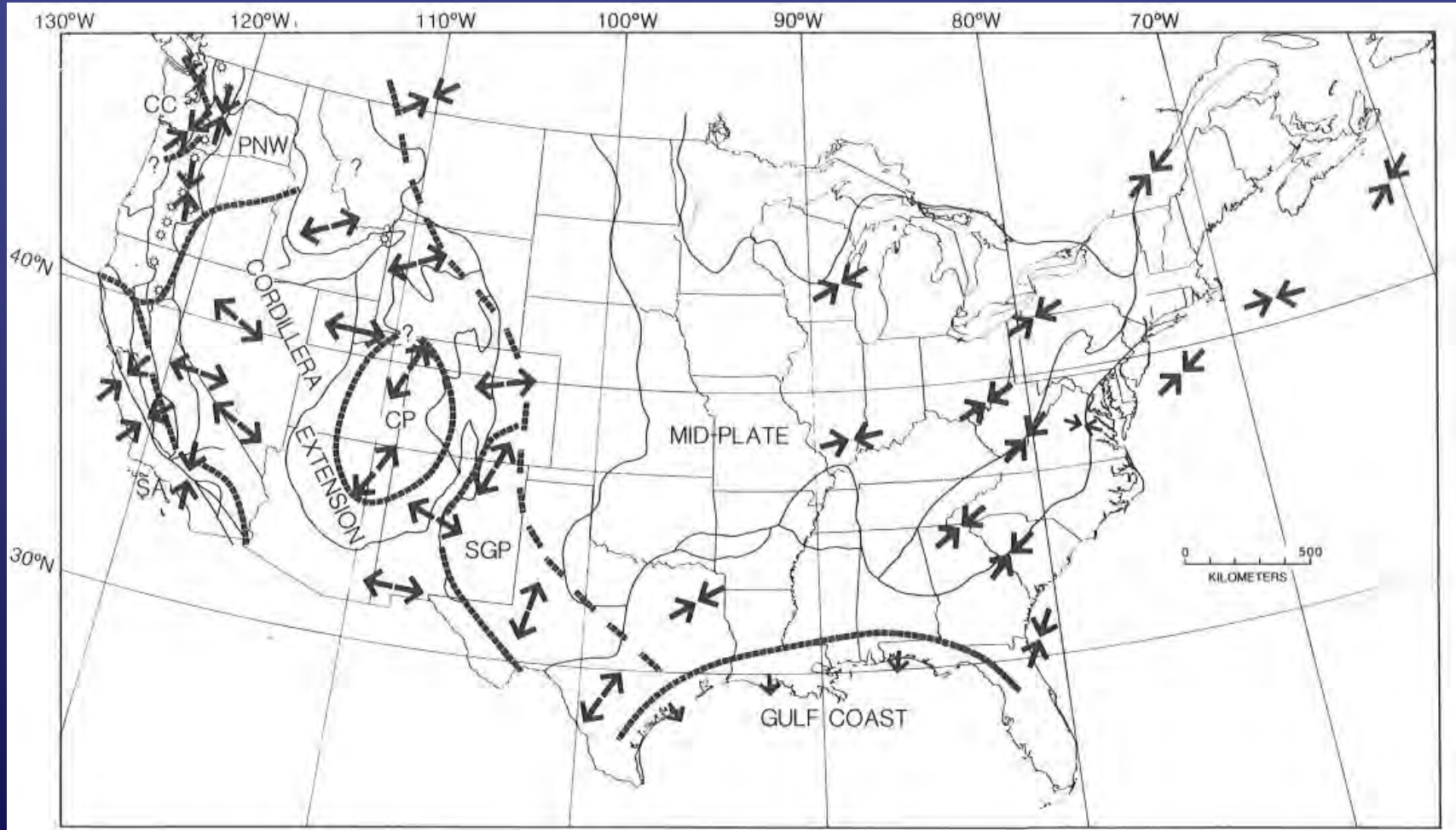


Source: Frankel et al. (1996)

Basis for Boundary Introduction

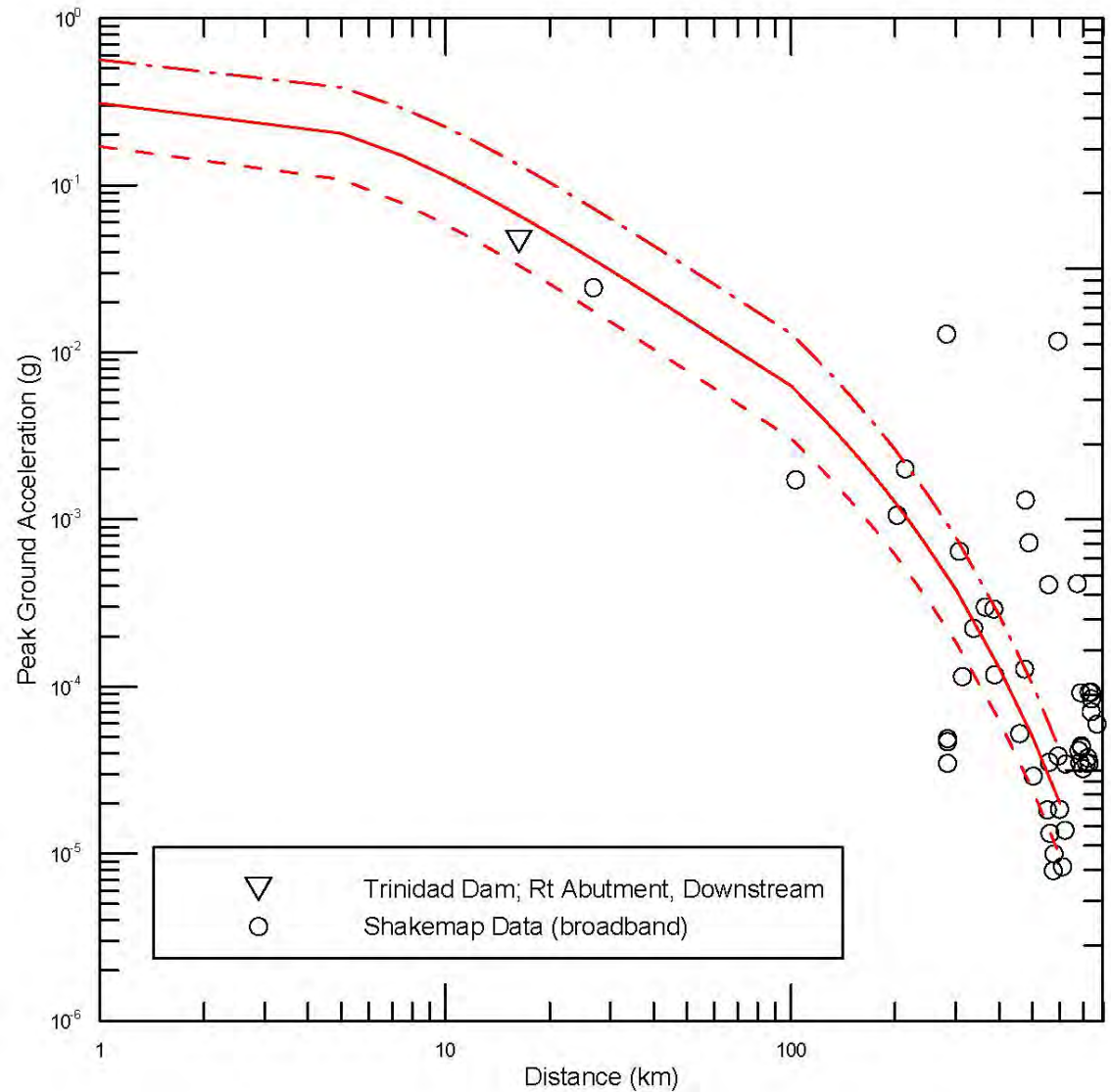
“As in 1996 and 2002, we include the northern and central Rocky Mountains and the Colorado Plateau in the CEUS region since earthquake stress drops and the attenuation parameter Q are poorly constrained in these areas” (Petersen et al., 2008).

Stress Map for Conterminous U.S.



Source: Zoback and Zoback (1989)

M 5.3 Trinidad, CO Earthquake



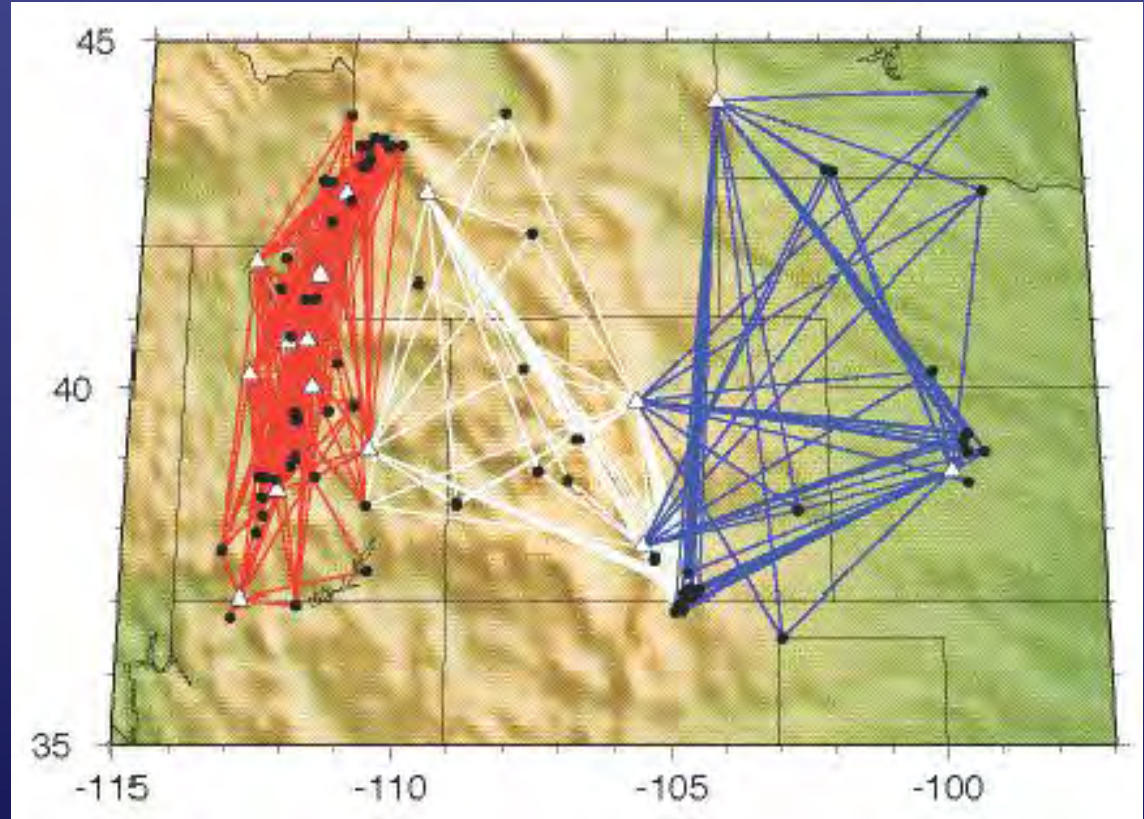
M5.3
Normal faulting
Dip = 55.0
 $V_{s30} = 310.0$ (m/s)

Abrahamson & Silva (2008)

— Median
- - - 84th Percentile (+1 sigma)
- · - 16th Percentile (-1 sigma)

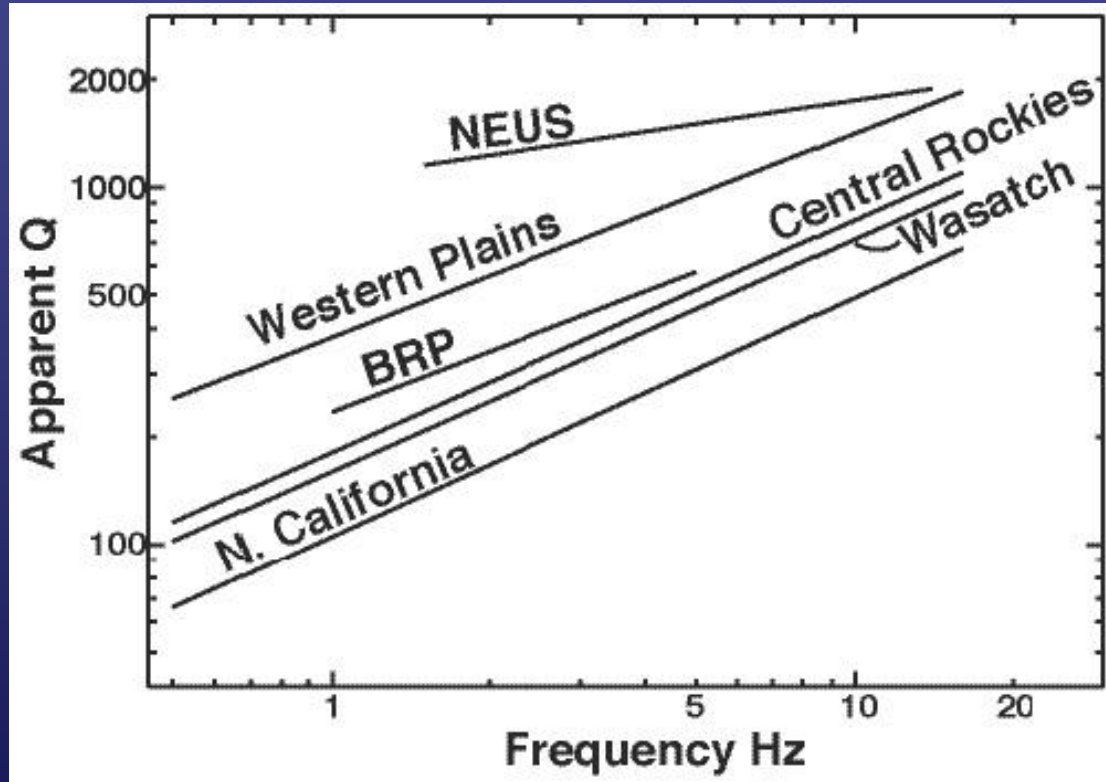
Lg Raypaths

Red = Wasatch
White = Central Rockies
Blue = Western Plains



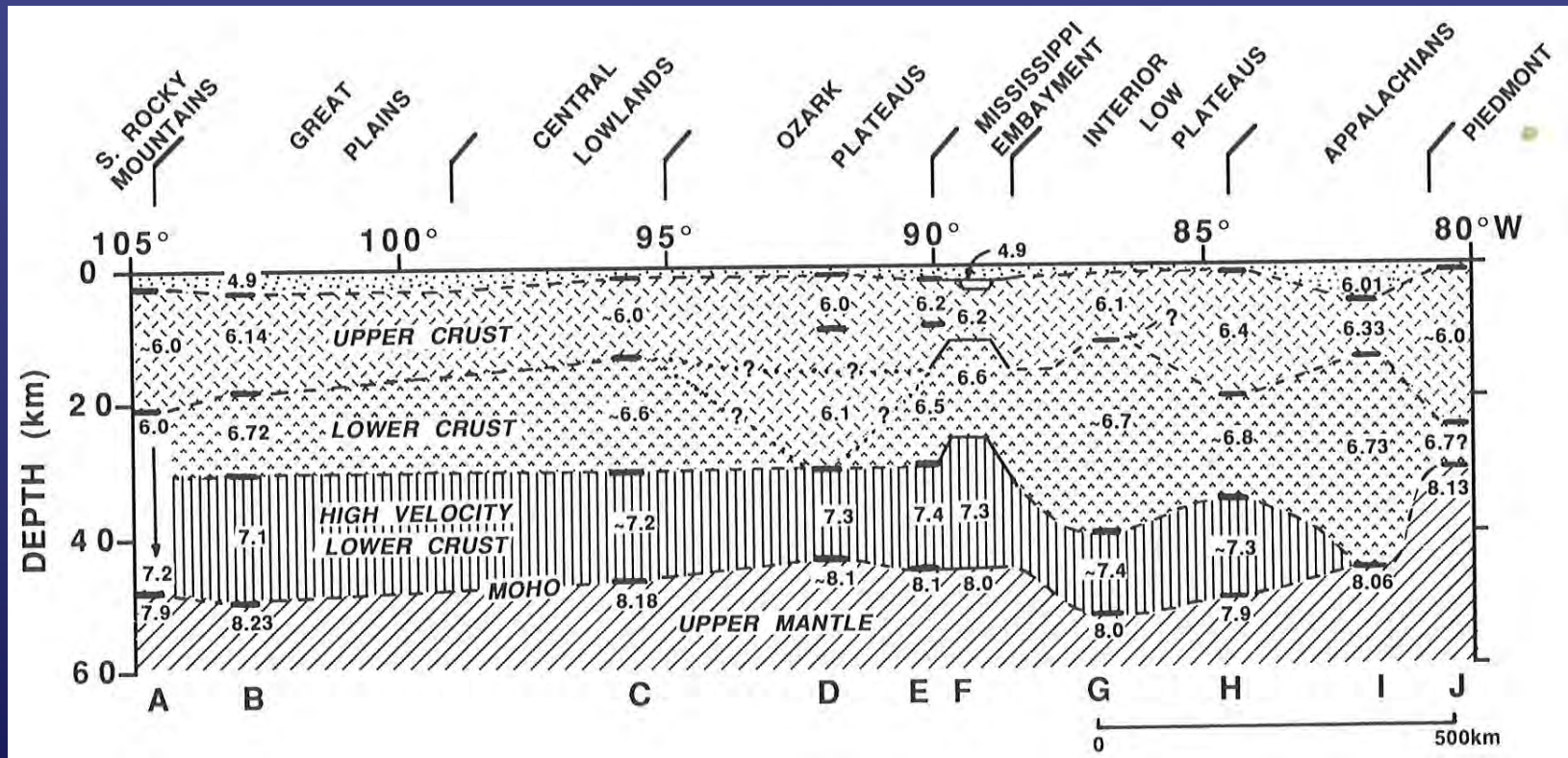
Source: McNamara et al. (2012)

Q Estimates for Different Regions



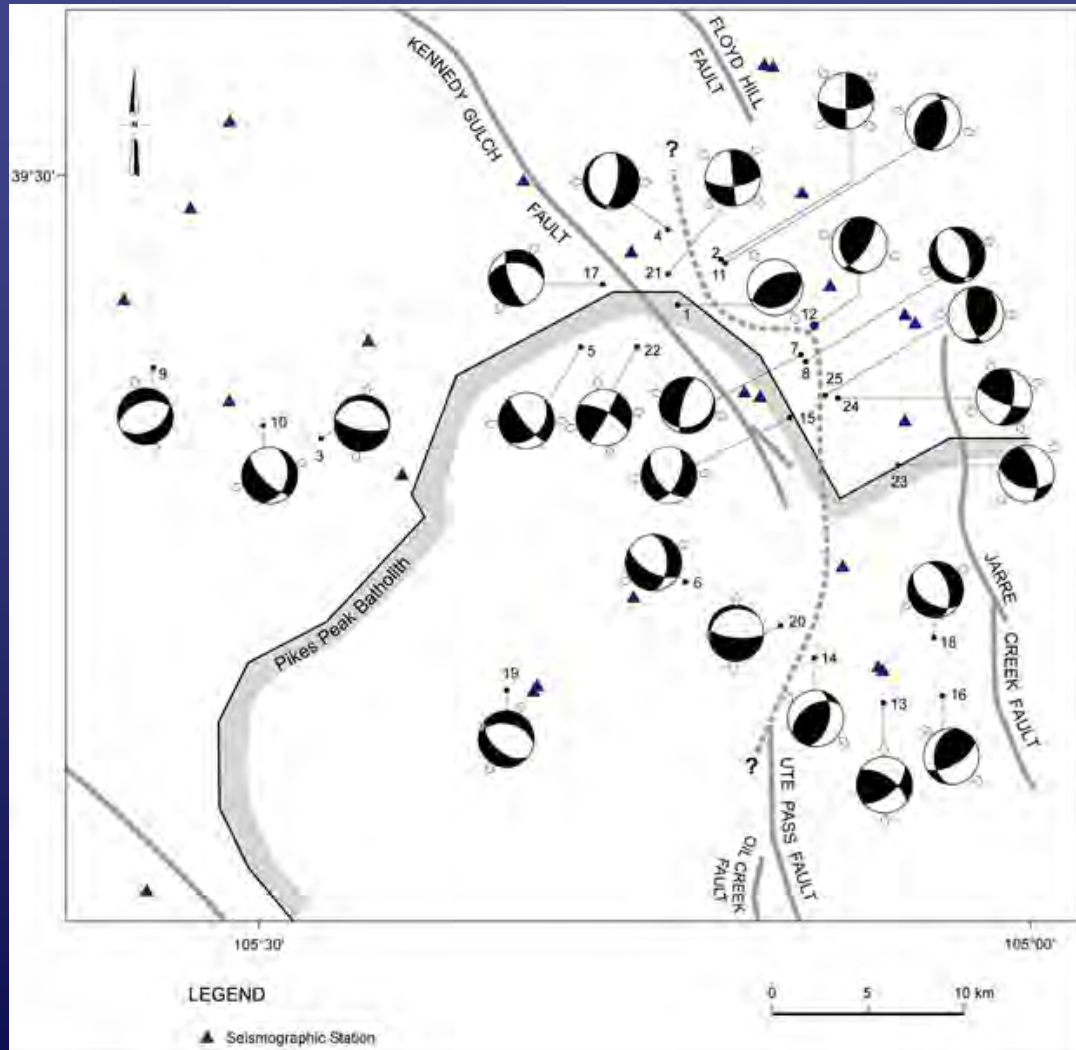
Source: McNamara et al. (2012)

Crustal Structure Across Central U.S.



Source: Braile (1989)

Schematic Focal Mechanisms



Source: Bott et al. (in prep)