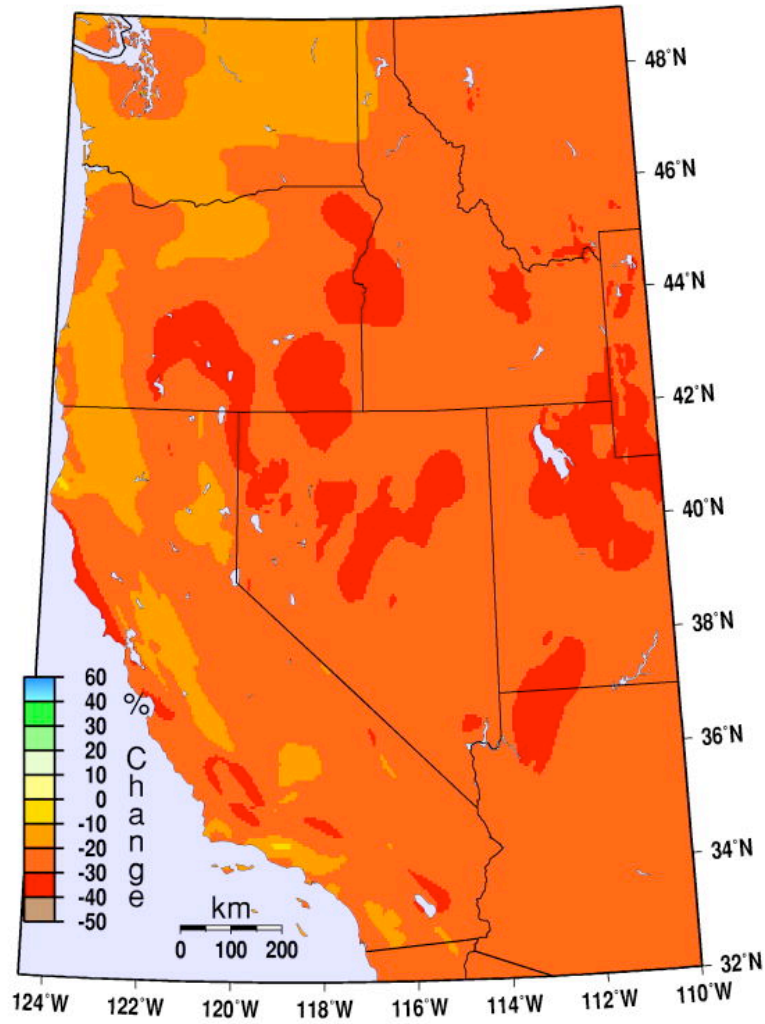


Workshop on Implementation of Attenuation Equations in the National Seismic Hazard Maps of the Western U.S.

Participants: NGA developers,
USGS review team, Expert panel

September 25-26, 2006

%Change NGA4 vs 2002-4 1-Hz SA w/2%PE50yr. Vs30=760



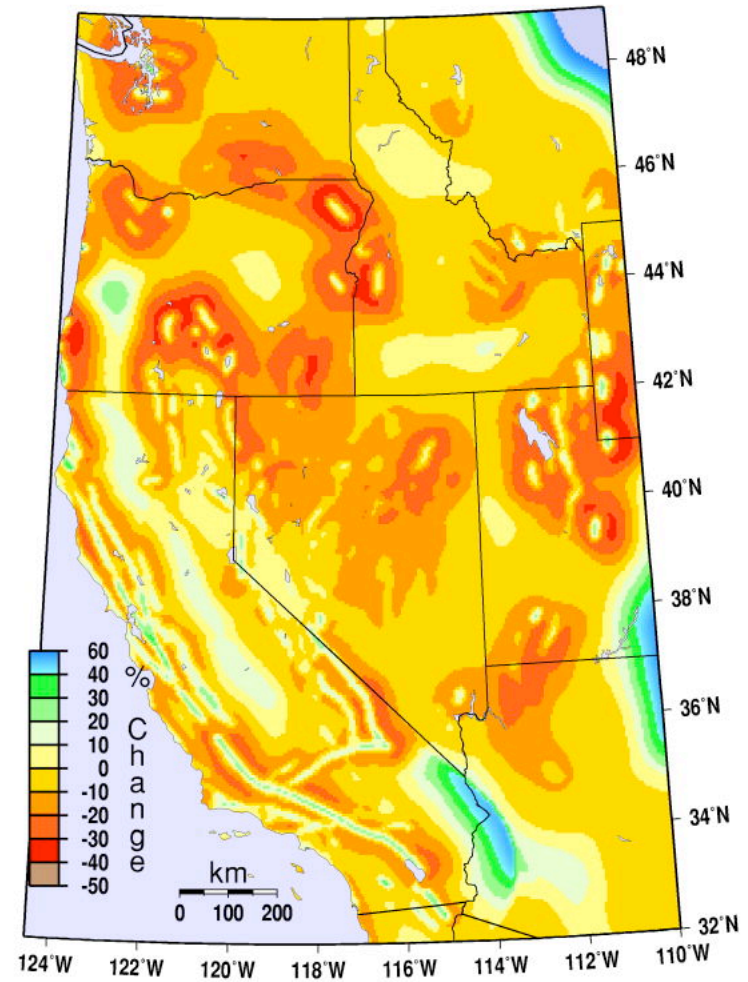
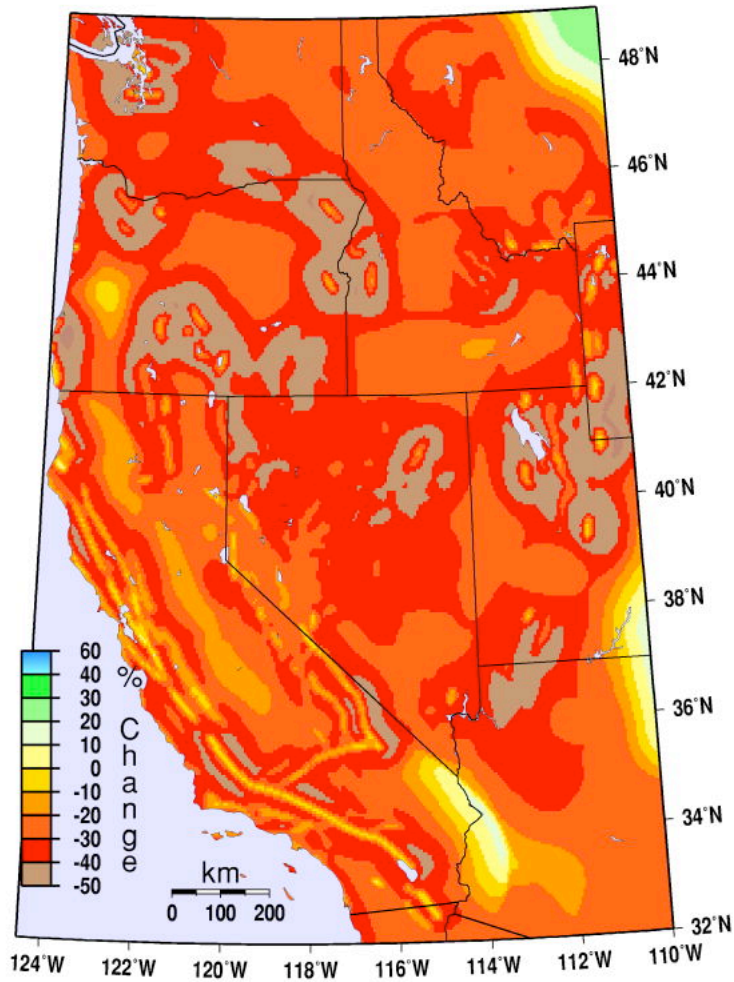
Difference between NGA and equations used in 2002 maps

1. Definition of firm rock (760 m/s V_{s30})
 - a. CB corrected rock eqn. using Boore et al. factor
 - b. Boore et al. used V_{s30} directly
 - c. Sadigh et al. and AS used rock equations
2. Analysis of data used in NGA equations suggests that rock equations have a mean V_{s30} of *520m/s?* instead of *760 m/s*. Therefore, we overestimated the ground motions by about 20-30% for 1s SA and 10% for 0.2s SA for the Sadigh et al. and the AS equations.
3. New data (especially $M > 7.3$), new formulations and parameters (hanging wall, depth of rupture)

Ratio of Chiou and Youngs (NGA 1hz) and Sadigh et al. for 760 m/s and for 520 m/s Vs30

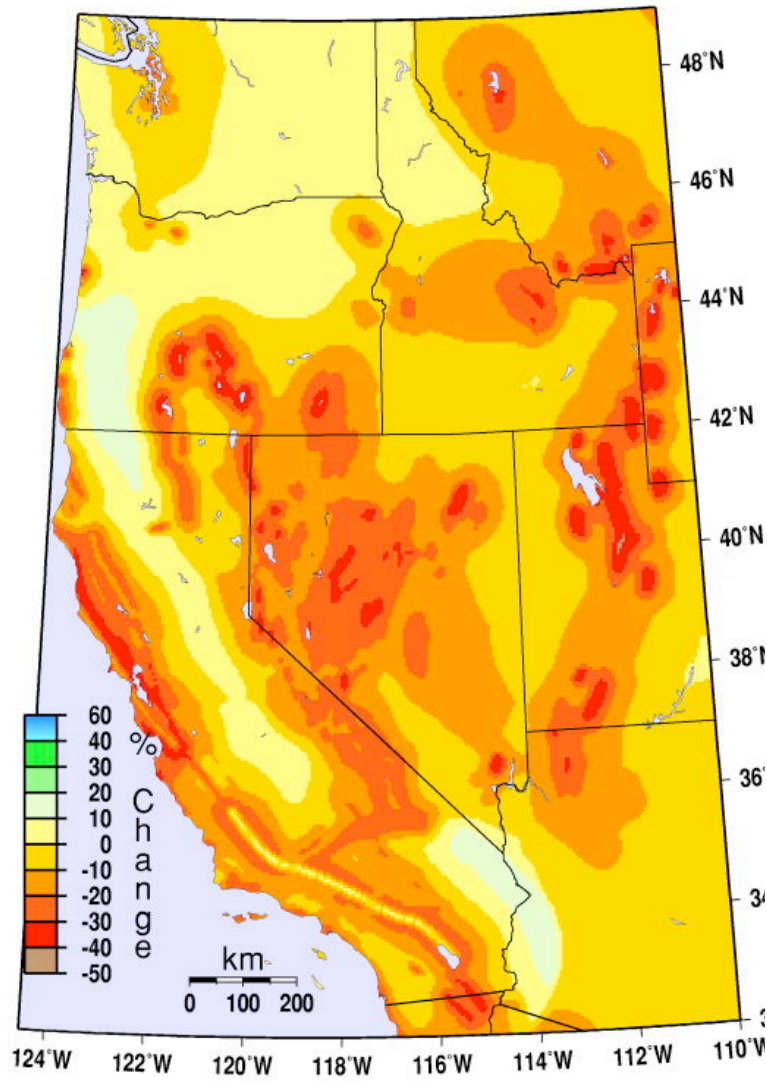
%Change CY vs Sadigh ea 1-Hz SA w/2%PE50Y. 760 m/s Rock

%Change CY vs Sadigh ea 1-Hz SA w/2%PE50yr. Rock 520m/s

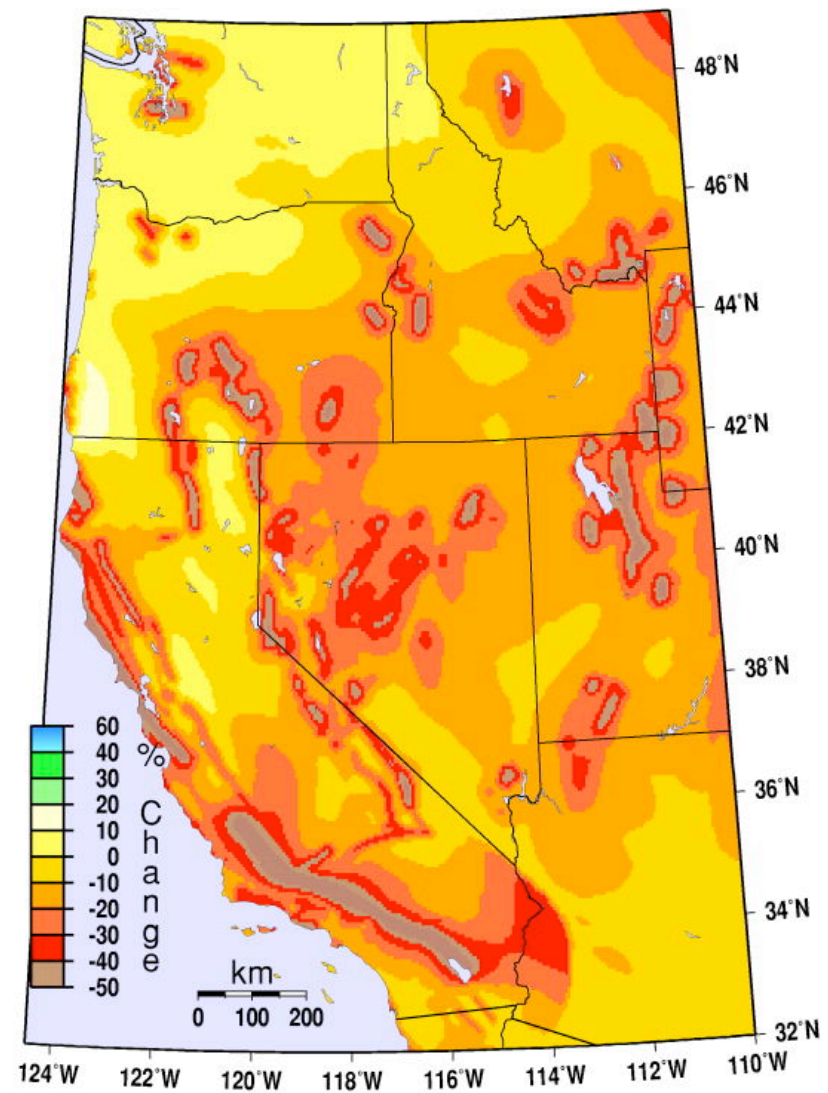


Ratio of new NGA equations and old equations used in 2002 maps

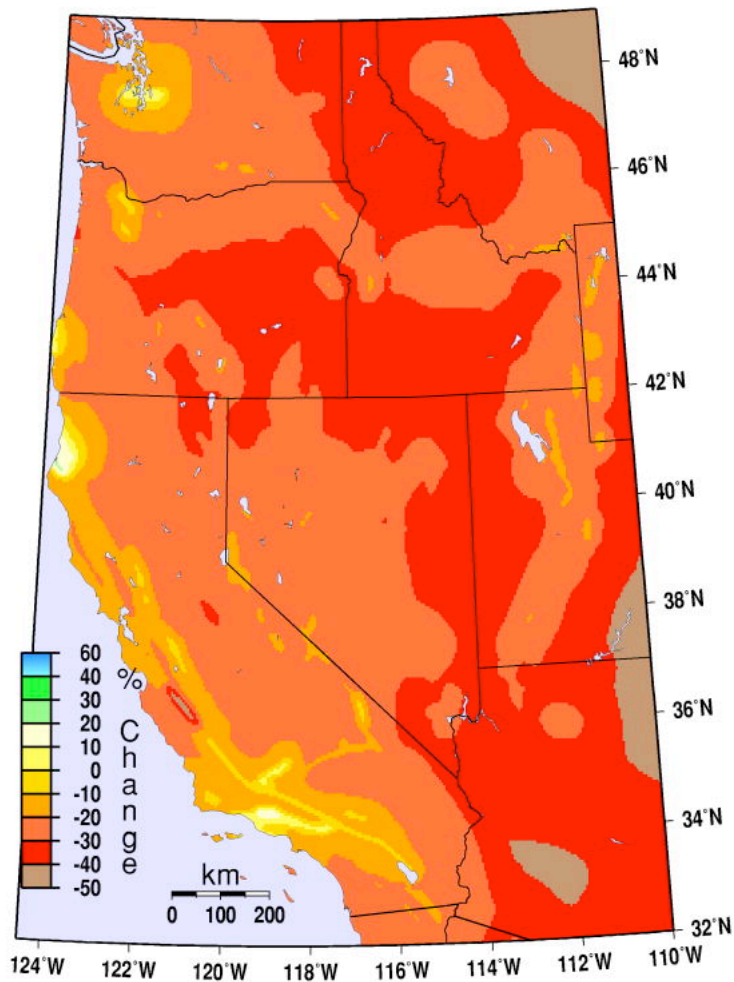
%Change CB06 vs CB03 1-Hz SA w/2%PE50yr



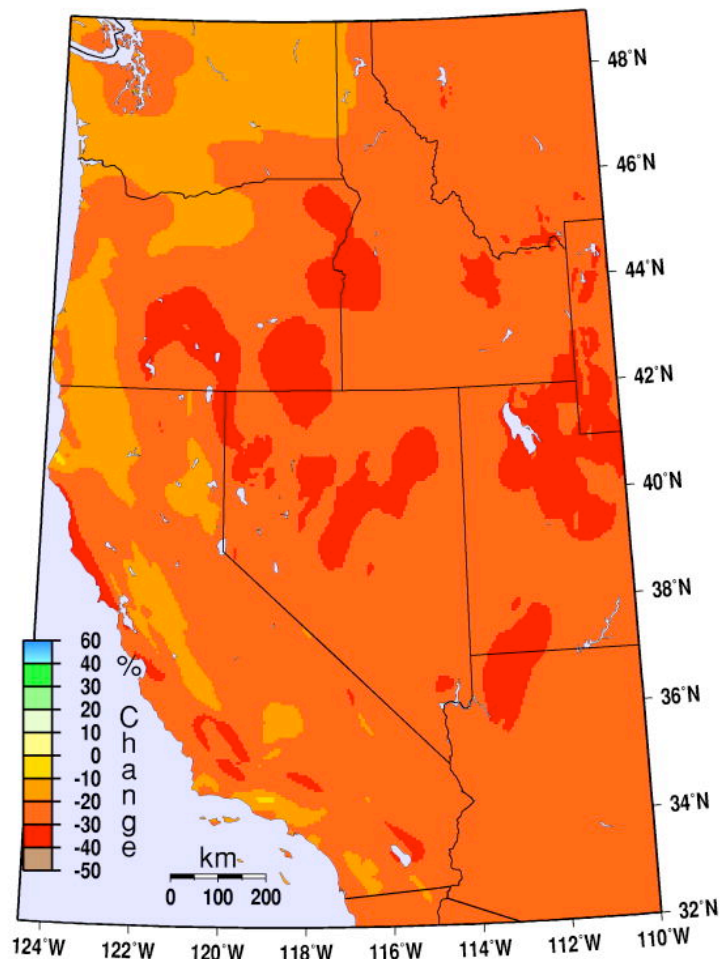
%Change BA vs BJK 1-Hz SA w/2%PE50yr



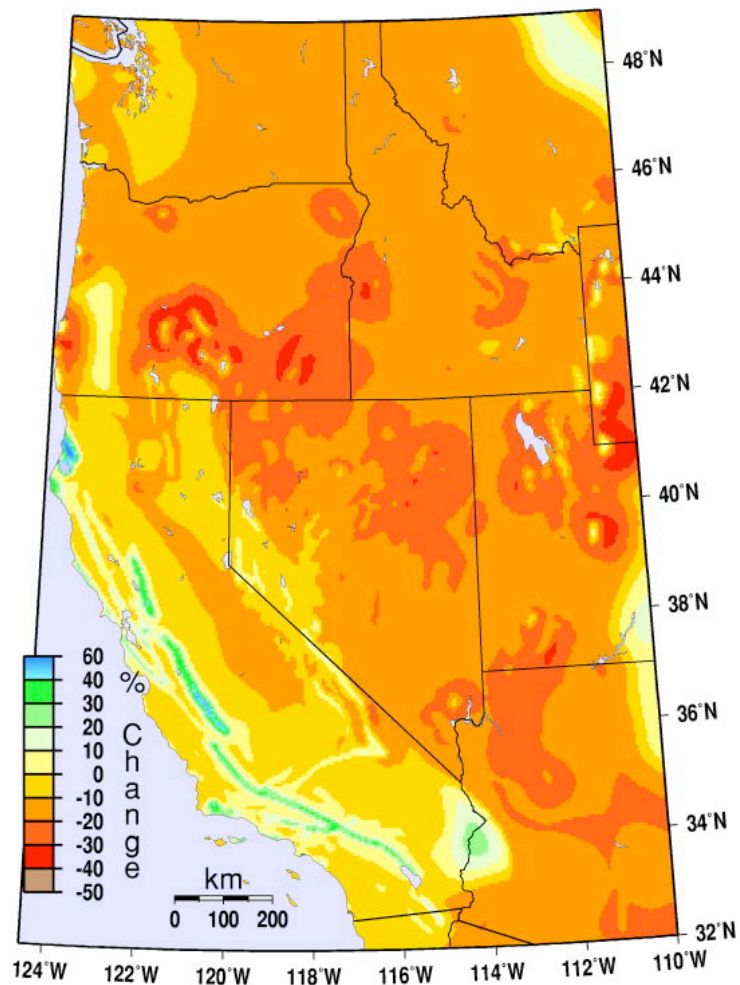
%Change AS nga vs AS97 1-Hz SA w/2%PE50yr



%Change NGA4 vs 2002-4 1-Hz SA w/2%PE50yr. Vs30=760

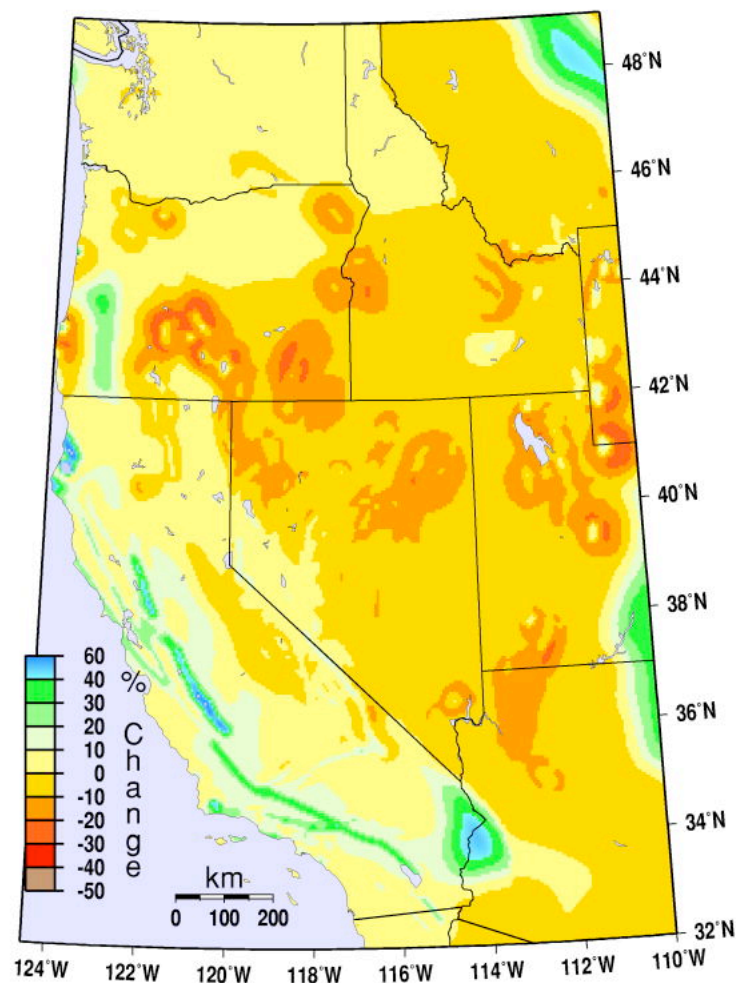


%Change CY vs Sadigh ea 5-Hz SA w/2%PE50yr



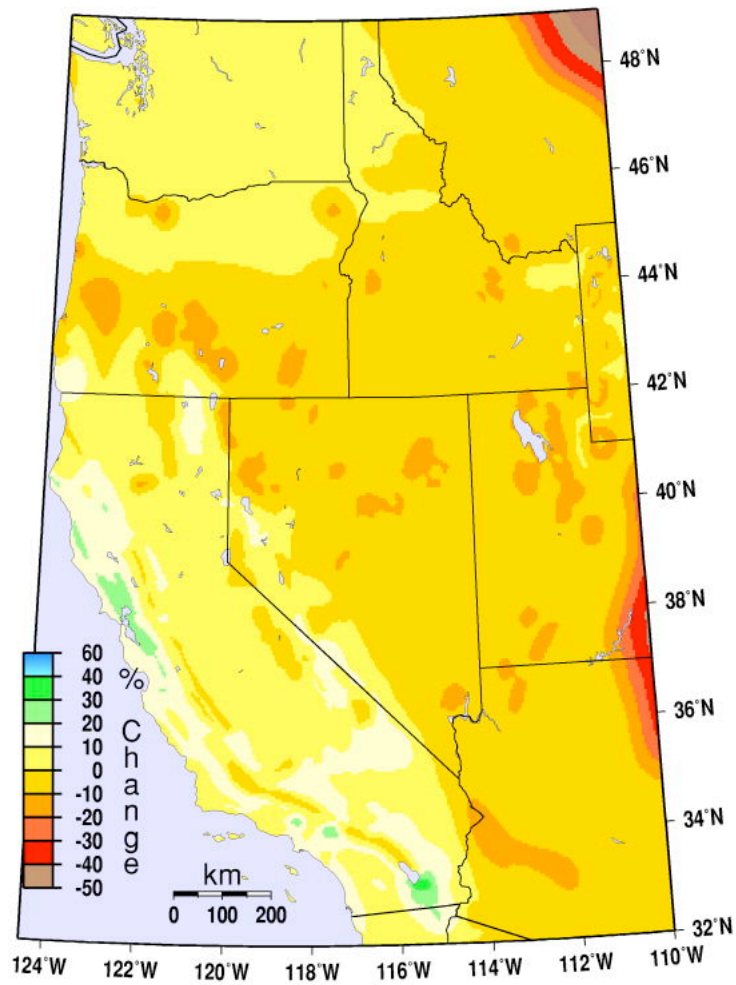
GMT Sep 21 11:47 PRELIM PSHA WUS crustal sources. 5hz 2% in 50 yr PE. Use CY9/2006 model in numerator, >0 implied new est > old estimate

%Change CY vs Sadigh ea 5-Hz SA w/2%PE50yr. 520m/s Rock

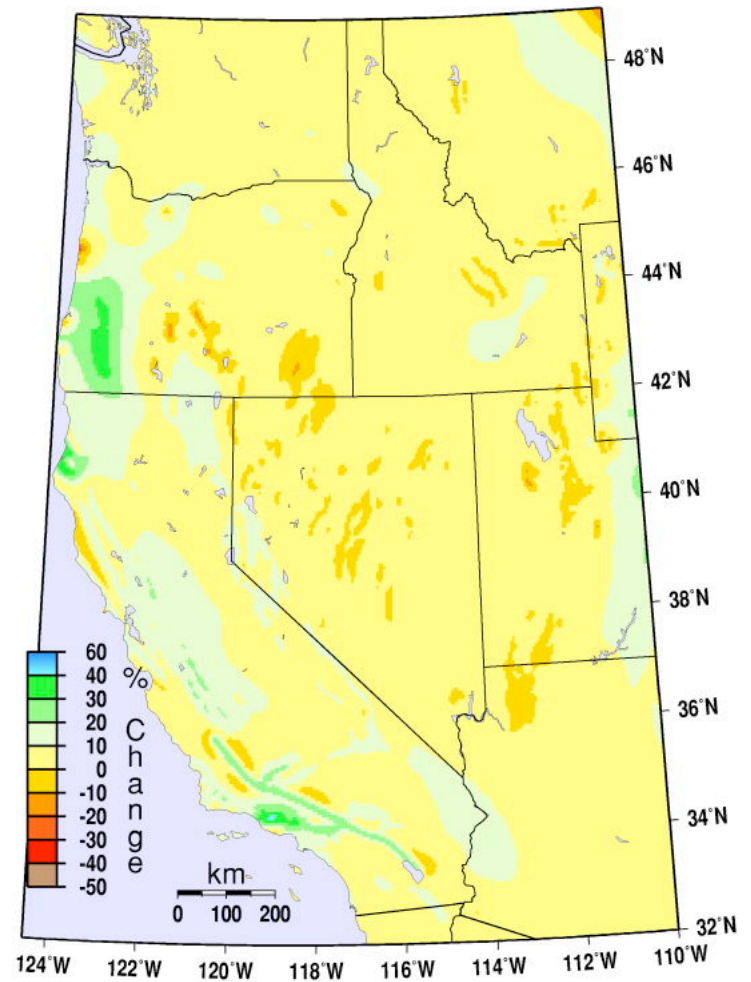


GMT Sep 21 13:42 PRELIM PSHA WUS crustal sources vs30 is 520 ms. 5-hz 2% in 50 yr PE. Use CY9/2006 model in numerator, >0 implied new est > old estimate

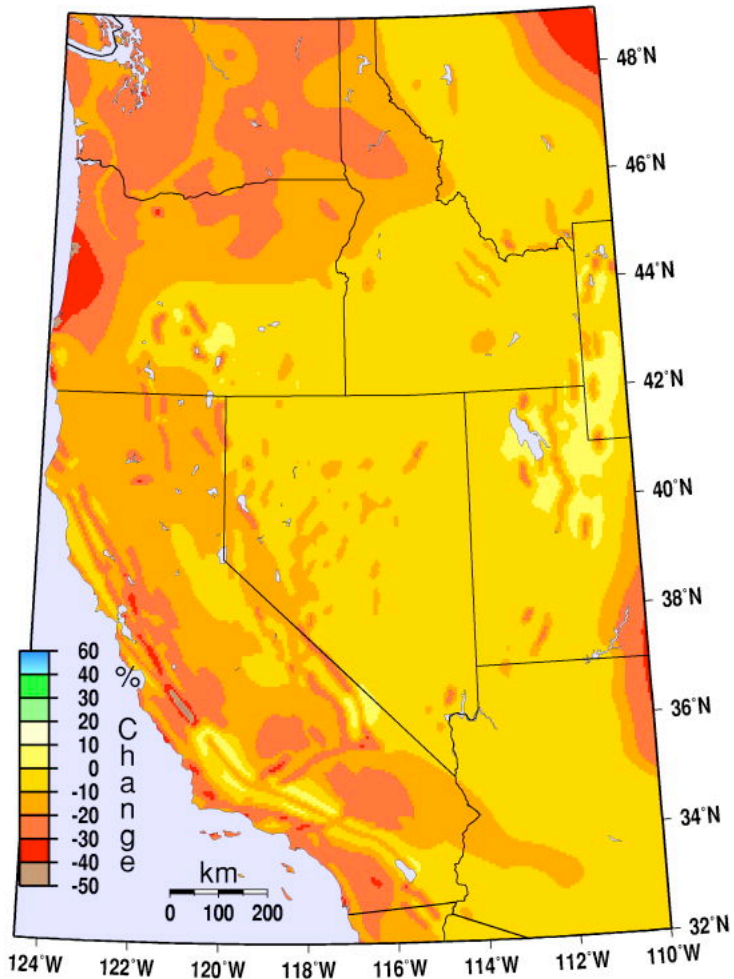
%Change BA vs BJF 5-Hz SA w/2%PE50yr



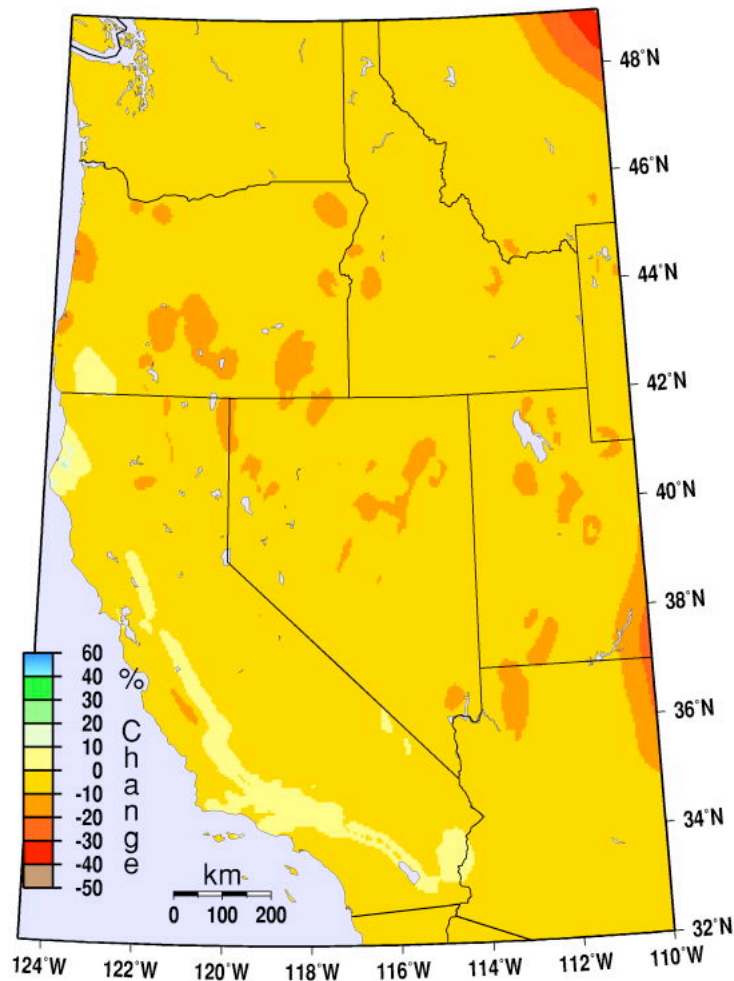
%Change CB06 vs CB03 5-hz SA w/2%PE50yr



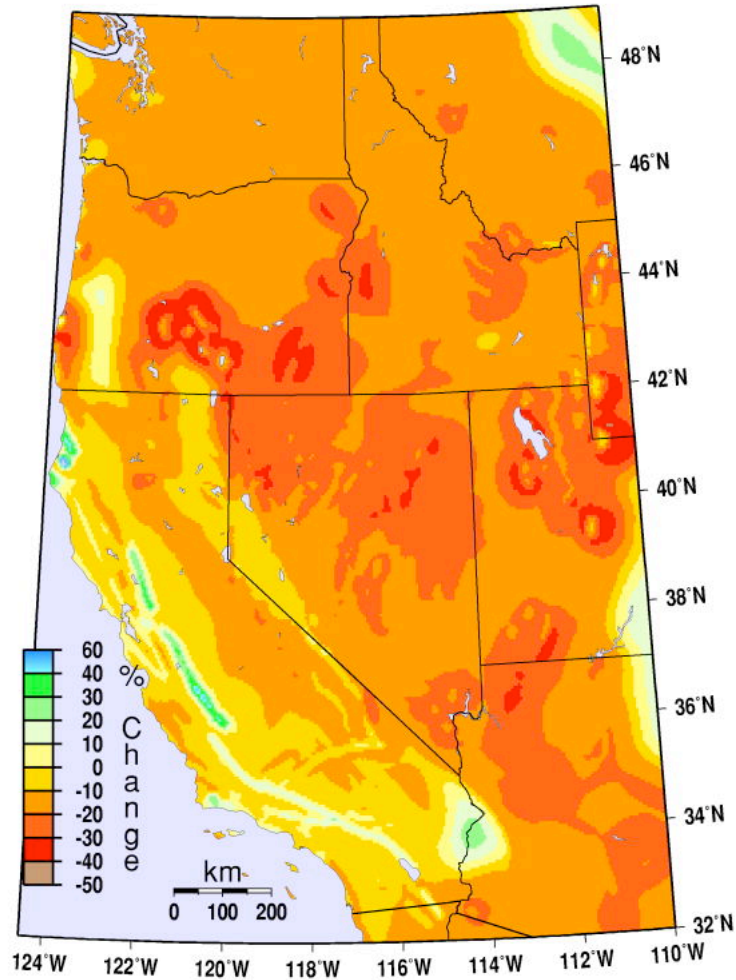
%Change AS nga vs AS97 5-hz SA w/2%PE50yr



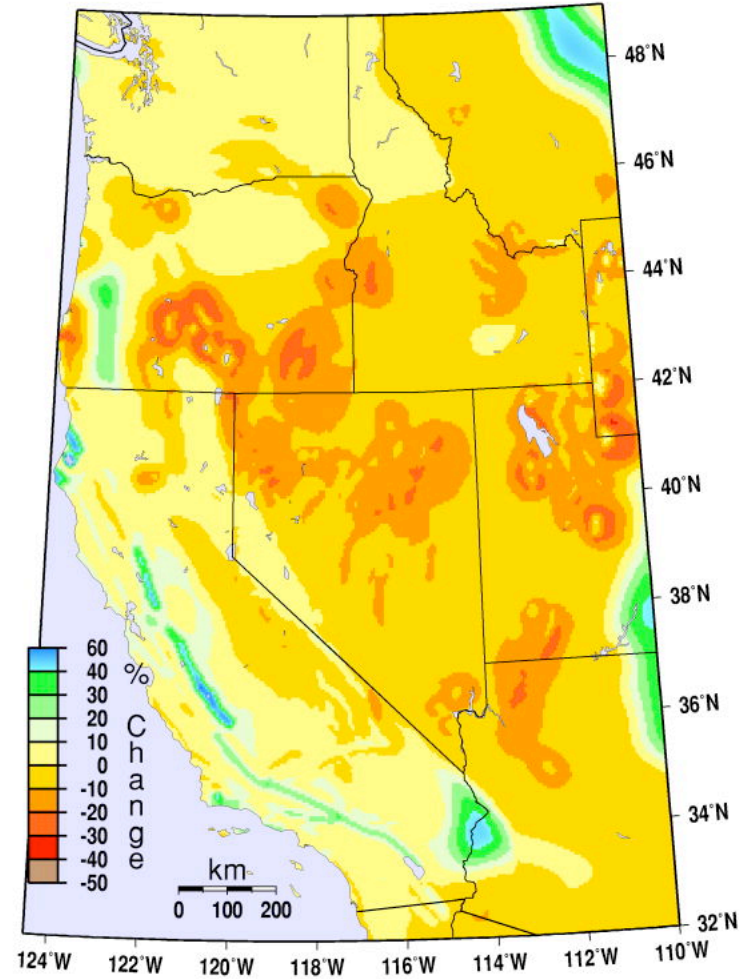
%Change NGA4 vs 2002-4 5-Hz SA w/2%PE50yr. Vs30=760



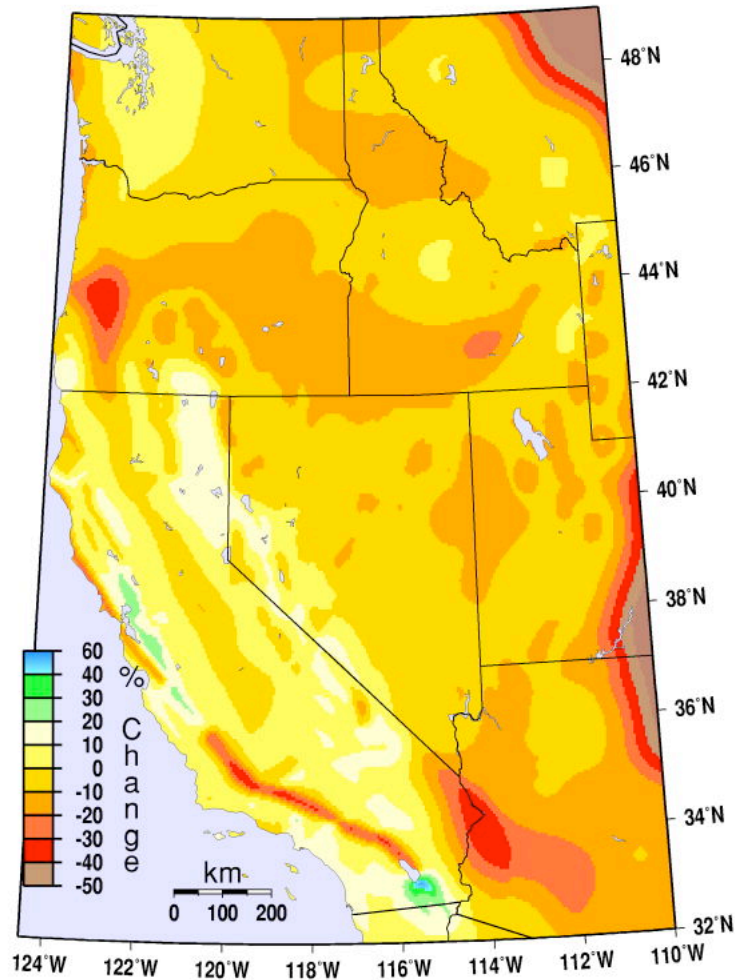
%Change CY vs Sadigh PGA w/2%PE50yr. Rock 760 m/s



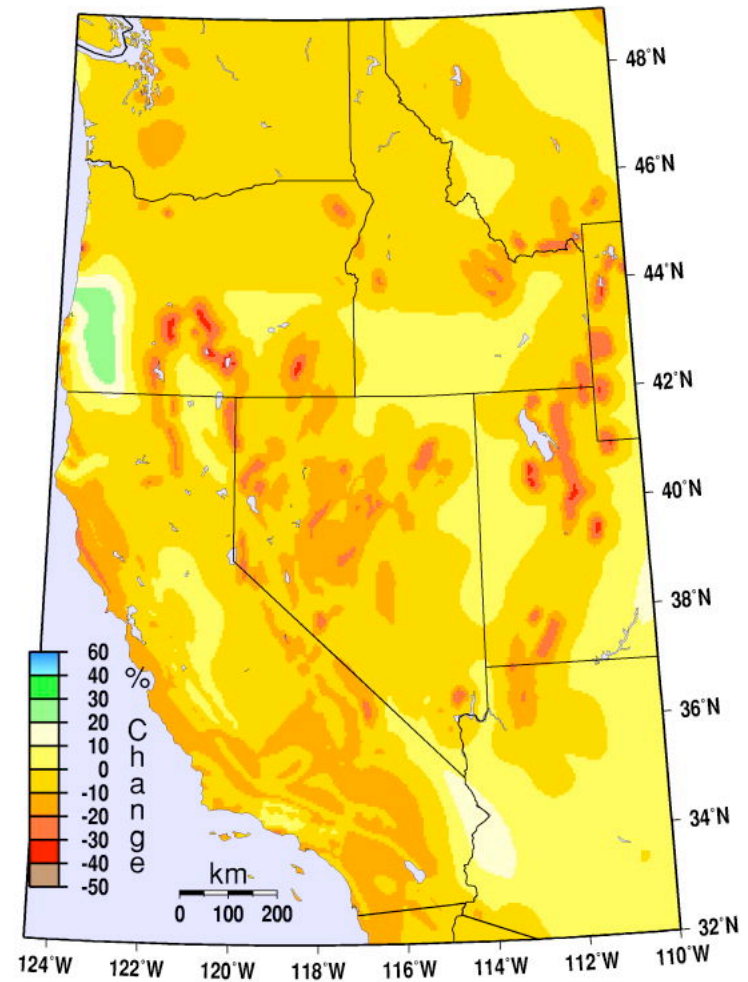
%Change CY vs Sadigh PGA w/2%PE50yr. 520m/s Rock



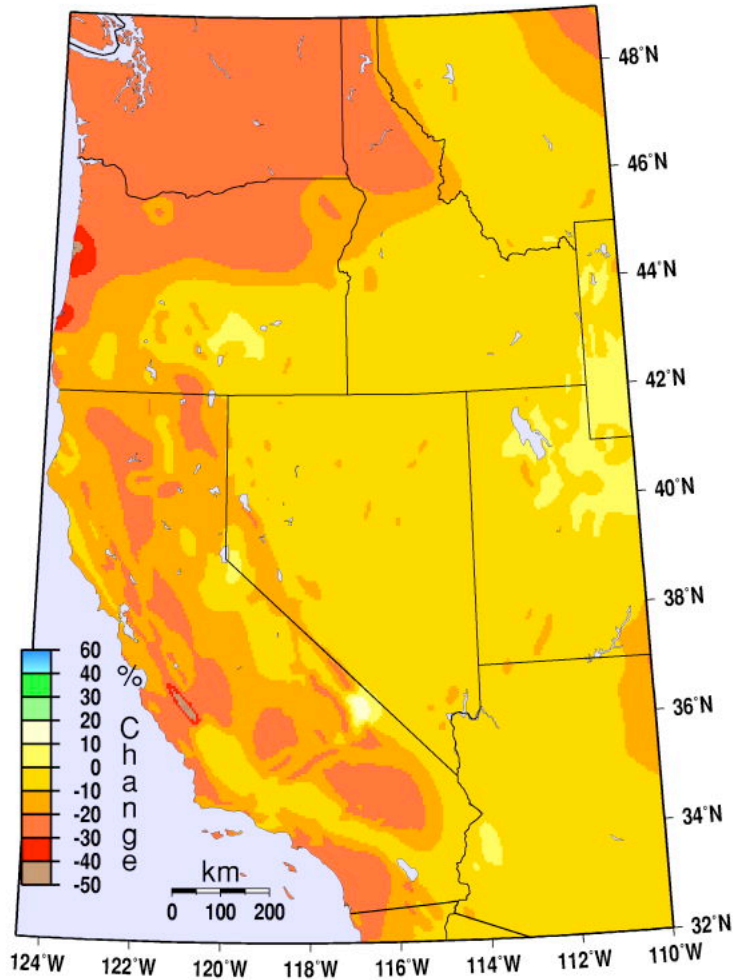
%Change BA vs BJF PGA w/2%PE50yr



%Change CB06 vs CB03 PGA w/2%PE50yr. Vs30=760



%Change AS05 vs AS97 PGA w/2%PE50yr. Vs30=760



change NGA4 vs 2002-4 PGA w/2%PE50yr. Vs30=760

