

Comparison of Preliminary Draft NGA-West2 GMPEs

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

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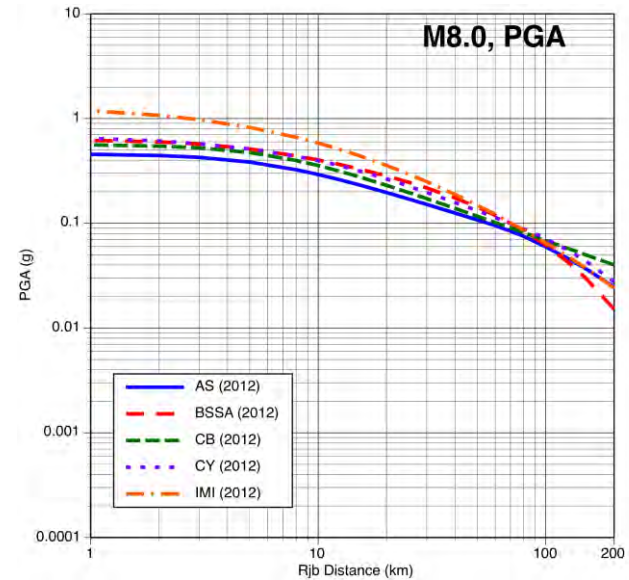
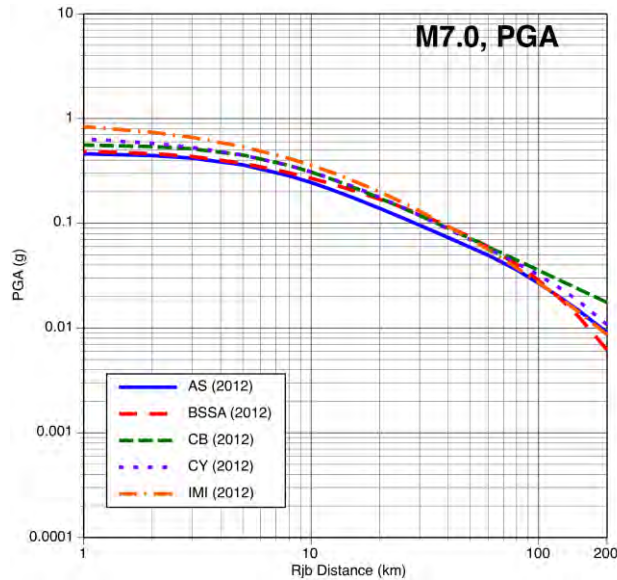
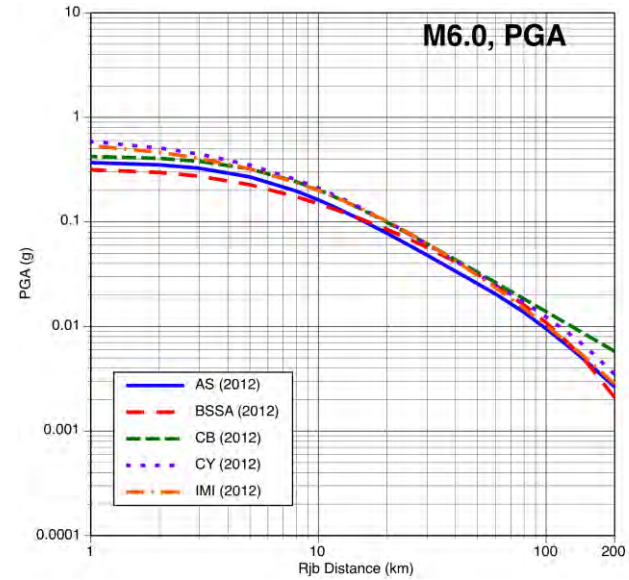
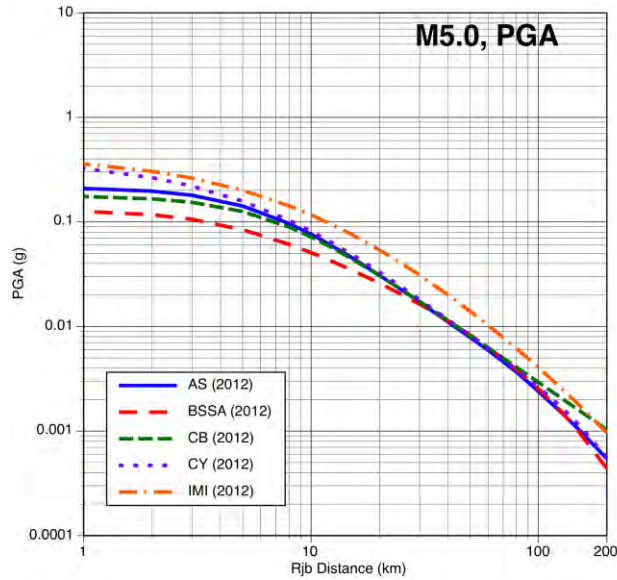
Model Parameters

Parameter	AS	BSSA	CB	CY	IMI
Magnitude	Mw	Mw	Mw	Mw	Mw
Top of Rupture	Z_{tor}		Z_{tor}	Z_{tor}	
Style of Faulting	RV,NM,SS	RV,NM,SS	RV,NM,SS	RV,NM,SS	RV,NM,SS
Dip	Yes		Yes	Yes	
Downdip Fault Width	Yes		Yes		
Closest Distance to Rupture	R_{rup}		R_{rup}	R_{rup}	R_{rup}
Hor Dist. to Surface Proj.	R_{jb}	R_{jb}	R_{jb}	R_{jb}	
Hor Dist. perpendicular to Strike	R_x, R_y		R_x	R_x	
Hanging Wall Model	Yes	(R_{jb})	Yes	Yes	
Vs30m	Vs30	(760m/s)	Vs30, (S_j)	Vs30	Vs30 \geq 450
Depth to Vs	$Z_{1.0}$		$Z_{2.5}$	$Z_{1.0}$	
Hypocentral Depth			H_{hyp}		
Vs30m for Reference Rock	1100	760	1100	1130	

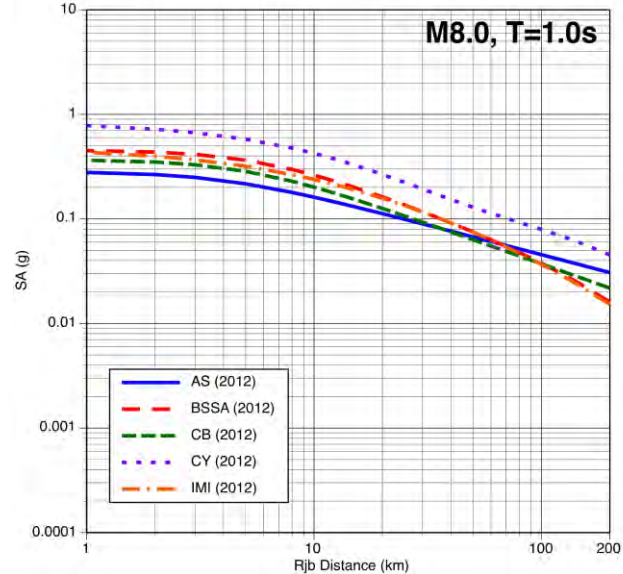
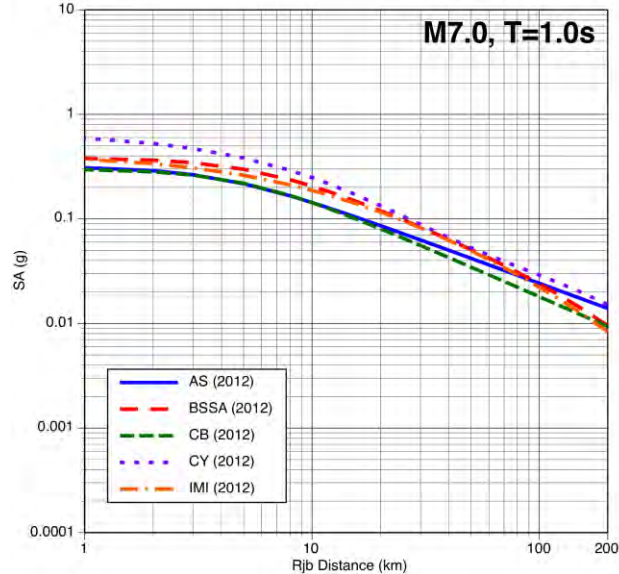
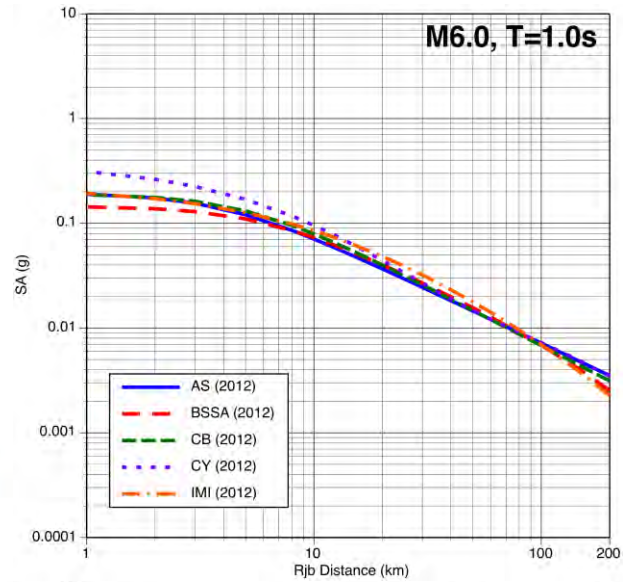
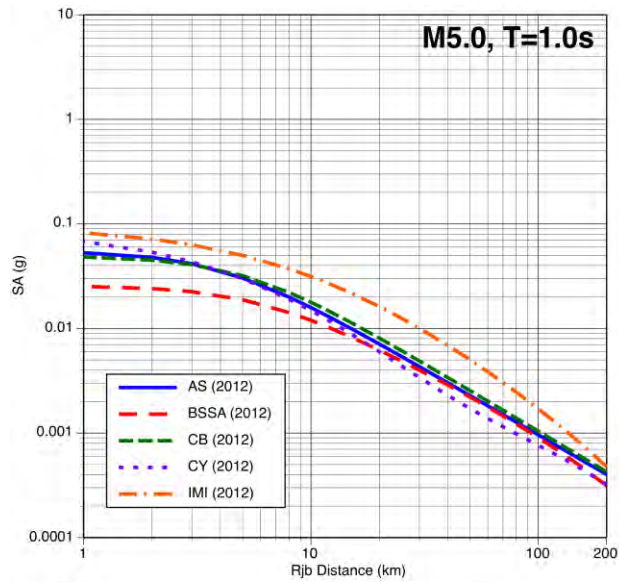
Vertical Strike-Slip

- Magnitude = 5, 6, 7, and 8
- Distance = 1 – 200 km
- Dip = 90
- Width = 3.2 (M5), 10 (M6), 15 (M7,8) km
- Hypocentral Depth = 8 km
- Top of Rupture = 6(M5), 3(M6), 1(M7), 0(M8)
- $V_{s30m} = 760$ m/sec

Vertical Strike-Slip: PGA



Vertical Strike-Slip: T=1.0sec



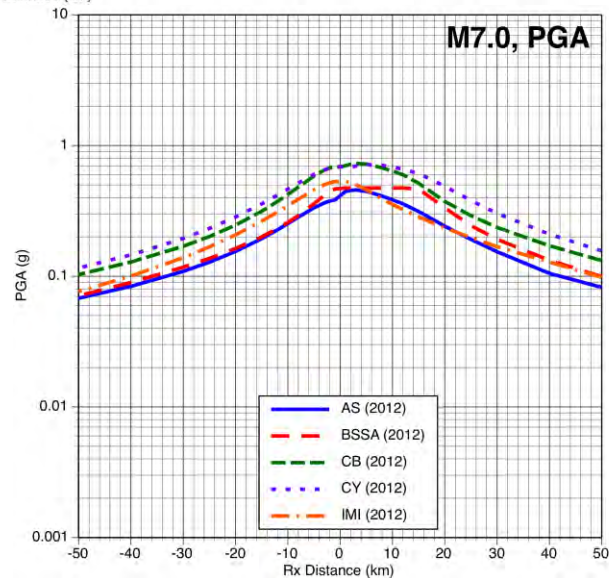
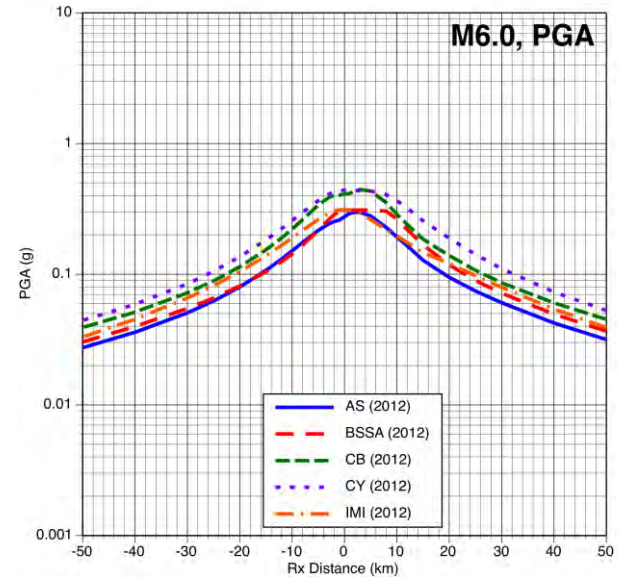
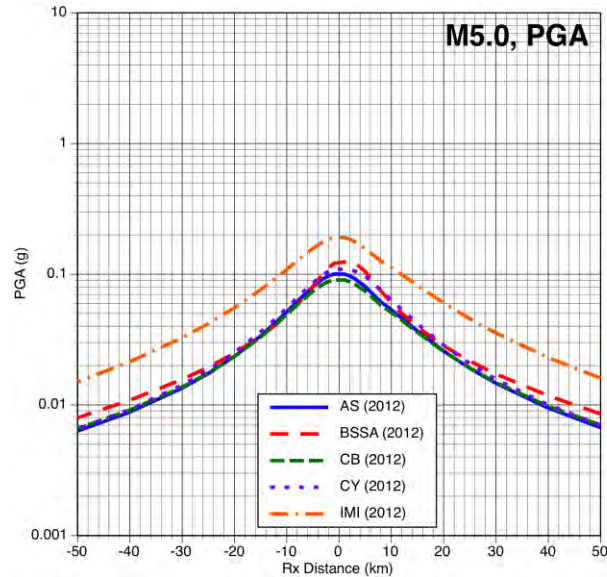
Dipping Reverse Buried Fault

← Rx(negative) | Rx(positive) →

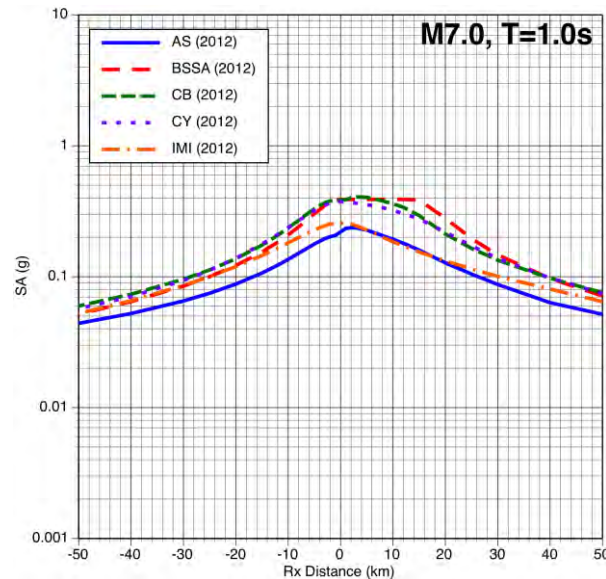
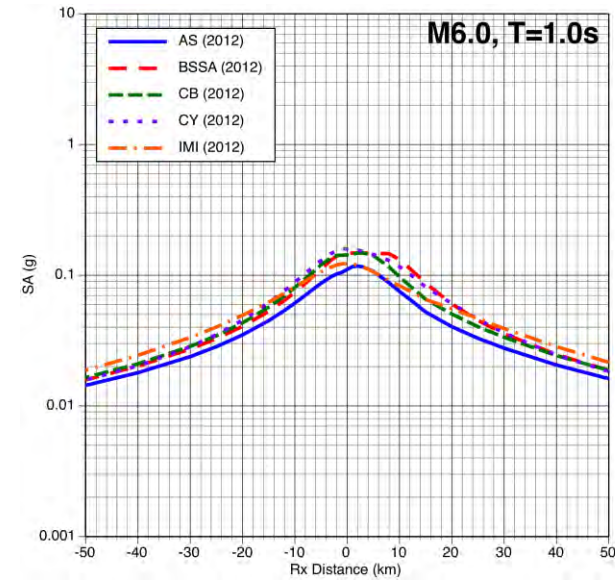
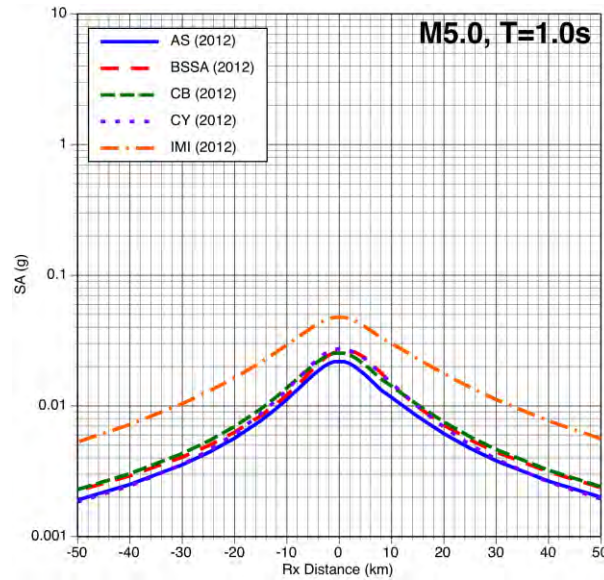
- Magnitude = 5, 6, and 7
- Distance = 1 – 50 km
- Dip = 45
- Downtip Width = 3.2 (M5), 10 (M6), 20 (M7) km
- Hypocentral Depth = 75% Fault Width
- Top of Rupture = 6 km
- Vs30m = 760 m/sec



Dipping Reverse Buried Fault: PGA



Dipping Reverse Buried Fault: $T=1.0\text{sec}$



Sigma Values

