

SMSSD Logic Tree

Slip rate (SR) branches					Recurrence Interval (R) and earthquake magnitude branches (Leonard 2010 scaling relationships)				
Fault type	Component of rift extension (i.e. α_{bf}/n_{bf} or α_{if}/n_{if})	Rift extension rate (v , mm yr ⁻¹)	Projection of slip azimuth (θ) into regional extension direction (φ)	Fault dip (δ)	Fault (L_{fault}) or section (L_{sec}) length (km)	C_1 (m ^{1/3})	$C_2 \times 10^{-5}$	Logic tree outcome	
Intra-basin Fault (IF)	Upper: $0.5/n_{if}$	Upper	$\cos(\theta_{fault}-\varphi)$	Upper: 65°	L_{fault}	Lower: 12	Lower: 1.5	Upper IF SR Lower IF magnitude and R	
			$\cos(\theta_{sec}-\varphi)$	Upper: 65°	L_{sec}	Lower: 12	Lower: 1.5	Upper IF section SR Lower IF section magnitude and R	
		Intermediate: $0.3/n_{if}$	Intermediate	$\cos(\theta_{fault}-\varphi)$	Intermediate: 53°	L_{fault}	Intermediate: 17.5	Intermediate: 3.8	Intermediate IF SR Intermediate IF magnitude and R
				$\cos(\theta_{sec}-\varphi)$	Intermediate: 53°	L_{sec}	Intermediate: 17.5	Intermediate: 3.8	Intermediate IF section SR Intermediate IF section magnitude and R
	Lower: $0.1/n_{if}$	Lower	$\cos(\theta_{fault}-\varphi)$	Lower: 40°	L_{fault}	Upper: 25	Upper: 12	Lower IF SR Upper IF magnitude and R	
			$\cos(\theta_{sec}-\varphi)$	Lower: 40°	L_{sec}	Upper: 25	Upper: 12	Lower IF section SR Upper IF section magnitude and R	
		Upper: $0.9/n_{bf}$	Upper	$\cos(\theta_{fault}-\varphi)$	Upper: 65°	L_{fault}	Lower: 12	Lower: 1.5	Upper BF SR Lower BF magnitude and R
				$\cos(\theta_{sec}-\varphi)$	Upper: 65°	L_{sec}	Lower: 12	Lower: 1.5	Upper BF section SR Lower BF section magnitude and R
	Intermediate: $0.7/n_{bf}$		Intermediate	$\cos(\theta_{fault}-\varphi)$	Intermediate: 53°	L_{fault}	Intermediate: 17.5	Intermediate: 1.5	Intermediate BF SR Intermediate BF magnitude and R
				$\cos(\theta_{sec}-\varphi)$	Intermediate: 53°	L_{sec}	Intermediate: 17.5	Intermediate: 3.8	Intermediate BF section SR Intermediate BF section magnitude and R
	Lower: $0.5/n_{bf}$	Lower	$\cos(\theta_{fault}-\varphi)$	Lower: 40°	L_{fault}	Upper: 25	Upper: 12	Lower BF SR Upper BF magnitude and R	
			$\cos(\theta_{sec}-\varphi)$	Lower: 40°	L_{sec}	Upper: 25	Upper: 12	Lower BF section SR Upper BF section magnitude and R	