

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 |
| Chingale Step fault: central section (Intrabasin fault) | Upper: 0.5/5=0.1 | Upper: 2.53 | Upper: cos(292-85) = 0.89 | Upper: 65° | $L_{fault} =$ 38.0 km | Lower: 12 | Lower: 1.5 | Upper IF SR = 0.53 mm/yr $M_w = 6.4, \bar{D} = 0.3$ m Lower IF R = 638 years |
| | | | Upper: cos(288-85) = 0.92 | Upper: 65° | $L_{sec} =$ 9.6 km | Lower: 12 | Lower: 1.5 | Upper IF SR = 0.55 mm/yr $M_w = 5.5, \bar{D} = 0.1$ m Lower IF section R = 196 years |
| | Intermediate: 0.3/5=0.06 | Inter- mediate: 0.88 | Intermediate: cos(292-73) = 0.78 | Intermediate: 53° | $L_{fault} =$ 38.0 km | Intermediate: 17.5 | Intermediate: 3.8 | Intermediate SR = 0.07 mm/yr $M_w = 6.9, \bar{D} = 1.0$ m Intermediate IF R = 15200 years |
| | | | Intermediate: cos(288-73) = 0.81 | Intermediate: 53° | $L_{sec} =$ 9.6 km | Intermediate: 17.5 | Intermediate: 3.8 | Intermediate SR = 0.07 mm/yr $M_w = 5.9, \bar{D} = 0.3$ m Intermediate Section IF R = 4600 years |
| | Lower: 0.1/5=0.02 | Lower: 0.2 | Lower: cos(292-61) = 0.63 | Lower: 40° | $L_{fault} =$ 38.0 km | Upper: 25 | Upper: 12 | Lower IF SR = 0.003 mm/yr $M_w = 7.4, \bar{D} = 3.9$ m Upper IF R = 1196000 years |
| | | | Lower: cos(288-61) = 0.68 | Lower: 40° | $L_{sec} =$ 9.6 km | Upper: 25 | Upper: 12 | Lower IF SR = 0.004 mm/yr $M_w = 6.4, \bar{D} = 1.2$ m Upper Section IF R = 351000 years |