|  |  |  |
| --- | --- | --- |
| Cumulative Time (Years) | Delta Time (years) | Slip (cm) or Magnitude |
| 1 | 1 | 1.4 |
| 6 | 5 | 6.9 |
| 14 | 8 | 12.6 |
| 17 | 3 | 3 |
| 21 | 4 | 4.3 |
| 26 | 5 | 6.9 |
| 29 | 3 | 1.4 |
| 30 | 1 | 1.1 |
| 32 | 2 | 1.8 |
| 34 | 2 | 1.5 |
| 36 | 2 | 1.5 |
| 39 | 3 | 3.6 |
| 42 | 3 | 0.7 |
| 44 | 2 | 1.7 |
| 45 | 1 | 1.9 |
| 48 | 3 | 4.1 |
| 49 | 1 | 1.8 |
| 51 | 2 | 1 |
| 52 | 1 | 2.7 |
| 53 | 1 | 0.8 |
| 57 | 4 | 5.3 |
| 59 | 2 | 2.1 |
| 62 | 3 | 2 |
| 67 | 5 | 6 |
| 70 | 3 | 4.3 |
| 72 | 2 | 1.6 |
| 78 | 6 | 8 |
| 83 | 5 | 7.3 |
| 85 | 2 | 2.7 |
| 89 | 4 | 1.7 |
| 90 | 1 | 0.7 |
| 91 | 1 | 2.6 |
| 93 | 2 | 1.3 |
| 109 | 16 | 27.8 |
| 111 | 2 | 2.8 |
| 112 | 1 | 0.7 |
| 114 | 2 | 2.6 |
| 117 | 3 | 3.1 |
| 120 | 3 | 2.1 |
| 133 | 13 | 3.6 |
| 137 | 4 | 5.1 |
| 140 | 3 | 2.5 |
| 144 | 4 | 3.2 |
| 149 | 5 | 5.7 |
| 154 | 5 | 4.4 |
| 159 | 5 | 7 |
| 161 | 2 | 1.2 |
| 163 | 2 | 1.6 |

|  |  |  |
| --- | --- | --- |
| Slip (cm) | (N) | Log N |
| 1 |  |  |
| 3 |  |  |
| 5 |  |  |
| 7 |  |  |
| 9 |  |  |

**Examining the Frequency-Magnitude Relationship**

The Gutenberg-Richter relationship describes the relationship between the average reoccurrence rate of earthquake equal to or greater than a given magnitude.

**N** is the number of earthquakes having a magnitude ≥ magnitude **M.** Constants **a** and **b** are constants related to the stresses experienced by a body of rock. Constant **a** indicates the total seismicity rate of the region and constant **b** is generally calculated (and usually ~1).

**The Earthquake Machine**

**

Seismic Moment (Mo) = A x D x μ or Area x Displacement (Slip) x Rigidity

Moment Magnitude (Mw) = 2/3*log* Mo – 10.7