Appendix G: Paleoseismic Sites Recurrence Database

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# Introduction

As part of the Uniform California Earthquake Rupture Forecast, version 3 (UCERF3), an effort was made to identify new sites with earthquake recurrence data and to update or revise the UCERF2 database where new data made this appropriate. The results of this compilation are summarized in table G1, and the complete dataset can be found in tables G2 (all new and revised data) and table G3 (superseded data). These tables contain the same information that was included in the Excel spreadsheet entitled: “UCERF3Paleosites\_V2” that was distributed early in the UCERF3 process for subsequent analysis, including the development of recurrence intervals and associated formal uncertainties, as described in other appendixes (especially appendix H, this report). To keep clear exactly what has changed since UCERF2 (largely presented in appendix B, this report), we separated the data into tables G2 and G3 here and there are tabs in the Excel input file labeled “OLD” for the original UCERF2 data that is no longer being used, and “NEW” that contain the updated data used in the current analysis.

This appendix also includes two derivative tables (tables G4 and G5) and a methodology for estimating the probability of overlap between sites from rupture offset, either measured or estimated from the recurrence intervals. Table G4 shows how many of the dated age ranges of paleo-earthquakes from sites along the same fault overlap, and table G5 allows a comparison of recurrence intervals determined by dating paleo-earthquakes with recurrence intervals calculated by dividing average offset per event (data from appendix R, this report) by slip rate, and estimates of the likelihood of events correlating between sites on the same fault, based on likely rupture extent associated with average offset. Initially, it was hoped that these data would be directly used in the inversion, but due to limitations in time, they were not formally incorporated; however, they did serve as useful checks on the inversion results, and led to small changes in the inversion parameters to better match the recurrence and displacement per event data.

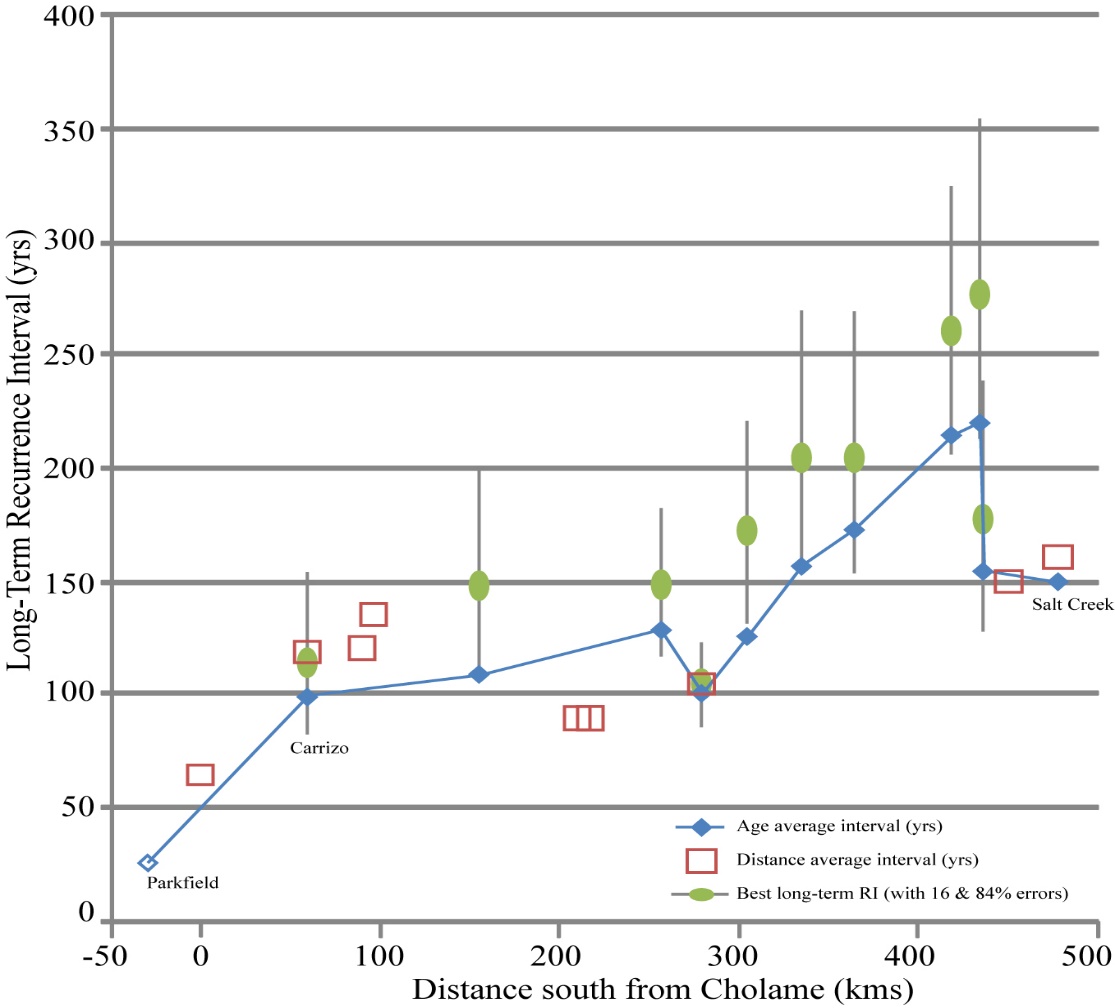
# Paleoseismic Sites Recurrence Database

This appendix is, in part, an update to the paleoseismic recurrence database used in UCERF2 (Dawson and others, 2008b). We have retained the format used by Dawson and others (2008), retaining the entries that have not been superseded and adding new entries for new and revised sites. Within tables G2 and G3, each site has its own sub-table or worksheet, and includes information regarding site locations, event ages, uncertainties, and the average interval of time between earthquakes, calculated simply as the time period spanned by the record divided by the number of complete intervals (excluding open intervals). Event ages are reported as calendar ages or years before present, where “*Old”*is the start of the age range and “*Young”* is the end of the event age range. *Open* refers to the open interval since the most recent event.

An uncertainty range of the interval between events is also reported, with the minimum interval (*Min Interval*) as the time between the oldest constraining age of the youngest event and the youngest constraining age of the oldest event. Where the event ages overlap, this is reported as zero years. The maximum interval (*Max Interval*) is reported as the time between the youngest age of the younger event and the oldest age of the older event. *Mid (aka “preferred”)* is typically the middle of the reported interval range, unless the mean age was calculated from a probability density function (PDF) that has a most likely value, and is commonly referred to in the literature as the *preferred* time interval. It should be noted that, because the earthquakes that define the intervals could have occurred at anytime during their reported age range, the mid-point of the interval range may not be a meaningful number. While Bayesian analysis programs such as OxCal are able to generate actual PDFs of event ages and intervals, we did not always have direct access to the radiocarbon dates that are necessary to construct quantitative models that would provide the PDFs. Thus, the *Mid* should not be considered a statistically determined mean for the range of the interval. However, in the absence of a full PDF, the *Mid* can be used if one decides to assign a Gaussian-shaped PDF to the range. For example, at the Indio paleoseismic site, Biasi and others (2009) only had the reported age ranges of Sieh (1986) to use, so they assigned Gaussian-shaped PDFs for each event age. We therefore include the *Mid* values for convenience if someone wishes to generate similar PDFs.

For most sites we report a recurrence interval calculated by the *average interval* method (total time of closed paleoseismic intervals divided by the number of observed intervals) used in UCERF2. *Time max* and *Time min* are reported in years and are taken from the dates that constrain the paleoseismic record. *AI max* and *AI min* represent the range of recurrence calculated from the constraining ages. *AI preferred* is the middle of the range reported for recurrence (with the same caveats as *Mid*). Because the paleoseismic data were compiled for UCERF3 in order to generate recurrence estimates using more statistically-based methods (see appendix H, this report), we did not systematically update this data for all of the newer and revised entries. However, we include these estimates in the table where they already existed or we added them as a point of comparison to recurrence estimates generated by other methods.

There are relatively few faults where there are enough data to compare different methods of calculating recurrence intervals or where one can compare the event rate along strike, to see how rapidly intervals vary. The best place to make this comparison is along the southern San Andreas fault, shown in figure G1. The average recurrence interval increases fairly systematically to the south with steps associated with the major fault junctions with the San Jacinto and eastern California fault zones, where one might expect the recurrence interval to change because the slip rate does. Recurrence intervals calculated from the data and assuming a log-normal recurrence distribution model (green points with error bars) tend to be longer because the average interval approach does not include the long open interval and may under sample rare long intervals in our short event series. Recurrence intervals calculated from average offsets and the geologic slip rate (red squares) agree well with those determined from the average dated intervals. This agreement suggests that the geologic slip rate, displacement per event, and recurrence intervals based on the ages of paleo-earthquakes are internally consistent. This agreement is important because it suggests that difficulties satisfying both the slip rates and recurrence intervals encountered in the “Grand Inversion” are likely due to other factors in the inversion.



1. Comparison of three methods for calculating recurrence intervals. Green ovals are from appendix H (this report), calculated with a log-normal distribution model, with 16% and 84% confidence ranges. Blue diamonds, connected by the blue line, are recurrence intervals for paleoseismic sites calculated as the average time interval between observed events. Red squares are recurrence intervals calculated by dividing the average slip per event (from appendix R, this report) by the geologic slip rate of the fault at that point. Given the limitations of the methods and very short event series, agreement is quite good. Interestingly, the average recurrence interval varies quite smoothly along the fault, suggesting that the data are quite robust. The steeper steps in this trend are at the junction with the San Jacinto fault, at kilometer ~280, and the Eastern California shear zone, at kilometer ~430, where the slip rate on the San Andreas fault changes.

# Correlations Between Paleoseismic Sites

Traditionally, and in previous working groups, correlation of paleo-earthquakes between sites along a fault was inferred by overlap of the ages of paleo-earthquakes and the geometry of the fault between sites. If the geometry was simple and the ages overlapped, continuity in rupture was usually assumed, and if the geometry was complex or ages did not overlap, a segment boundary was inferred. In UCERF2, faults with adequate recurrence information (called “A-faults”) were thus segmented (Weldon and others, 2008; Dawson and others, 2008a; Wills and others, 2008). While segmentation is not explicitly assumed in UCERF3, correlation between sites can provide a powerful test of the validity of the model; if the model predicts many (or few) overlaps in rupture between sites, we should see many (or few) overlaps in age in the paleo-earthquakes at the sites. For this reason we compiled age overlap data in table G4. We determined the common time interval for all pairs of sites along faults with multiple sites, recorded the number of events at each site in the common interval, and then recorded the number of events with overlapping age. While age overlap only permits correlation, lack of overlap in age precludes correlation, and differences in the number of events in a common time interval provide a minimum estimate of non-overlapping events. The overlap numbers in table G4 provided a qualitative estimate of overall correlation between sites that were compared with the model results as part of the overall assessment of the grand inversion model.

The fact that seismic ruptures have a significant spatial extent means that at least semi-quantitative methods can be proposed to estimate probabilities of correlation based on independent observations of paleoseismic rupture displacements. For this reason we compiled in table G5 the distances between sites along faults with multiple paleoseismic and average displacement per event sites, and used the average displacement per rupture, either measured (from appendix R, this report) or calculated from the average recurrence interval and slip rate at the site, to estimate the probability that rupture will extend between the site pairs.

We consider two cases under which a probability of correlation of ground rupture can be estimated. In the first case displacements *d1* and *d2* are assumed to be available at two paleoseismic sites, *S1* and *S2*. In the second case we consider what might be done if the data consist only of average displacements *da1* and *da2* are available at their respective sites. In both cases the uncertainties are large, such that the results are perhaps best interpreted as informed expectations.

## Case 1: Observed Displacements at S1 and S2.

For this case we assume that the dates of displacements *d1* and *d2* are uncertain, but in such a way as to allow correlation but not to prove it. We also assume that the dates of any other paleoseismic events in either site chronology are sufficiently separated that if the events correlate, only one match is allowed.

The probability of correlation based on observed displacement involves three components. First, *P(L|d)* (fig. G2; Biasi and Weldon, 2006; Biasi and others, 2011) is the probability of rupture length *L* associated with observed displacement *d*. A subscript indicating the paleoseismic site may be added where the association of *d* or *L* is required for clarity. A general correlation of L with average rupture displacement is well established (for example, Wells and Coppersmith, 1994). The relationship of an observed displacement to the rupture average is more complex because it depends on where the observation site is within the rupture, on rupture displacement variability within ruptures, and on the assumed distribution of ground rupture sizes. For example, a 2-meter displacement is more likely to be near the center of a *M*6.8 rupture, and near the ends of a larger event, say a *M*7.6. At the same time, natural variability of rupture displacements within a given rupture means that a 2-meter displacement might occur in the middle of the *M*7.6, even though 3.5 meters might be more typical. Biasi and Weldon (2006) describe the process of inverting observed rupture variability relating *d* to rupture average displacement *da*, and use Wells and Coppersmith (1994) to relate *da* to *L*. The inversion depends on the magnitude-frequency distribution considered to span the space of possible sources of ground rupture. Figure G2 assumes that earthquakes of any magnitude are equally likely at the observation point. Comparable relations assuming characteristic and Gutenberg-Richter (GR) magnitude-frequency distributions produce, respectively, somewhat longer and shorter correlation lengths (Biasi and Weldon, 2006).

The second component, *P(S2|L1(d1))*, refers to the probability that site 2 is within a rupture of length *L1*. If the rupture known at *S1* is assumed to extend at random in either direction along the fault, the probability that it reaches to *S2* can be suggested from geometric considerations. This probability should increase with *L1* and increase as the separation between *S1* and *S2* decreases. Technically it has to reach with enough displacement there to be detected, but considering the rate of decay of slip at the ends of most ruptures, neglecting this detail should not substantially affect the probabilities. For the limited information case assumed here, *L1* is assumed to be a function of *d1*. Figure G3 gives the probability of a rupture reaching to an adjacent site 2 as a function of rupture length if site 1 occurs at random within the rupture.

The third component, *P(d2 at S2)*, is the probability that displacement is detected at site 2. For the present case observation of d2 is assumed and *P(d2 at S2)* is assumed to be 1.

The three components contributing to the probability of event correlation given observations of displacements d1 and d2 is then:

Eqn. 1: Pc = P(correlation; S1, S2|d1,d2) = P(L1|d1) \*P(S2| L1(d1)) \* P(d2 at S2).

Figure G4 summarizes Equation 1 for various observed displacements d1. Plainly each component in Equation 1 has substantial uncertainty. On the other hand, the functional forms of the curves in figure G4 are fairly intuitive. Ruptures with large displacements extend farther and are more likely to involve multiple sites. Small observed displacements have less predictive power about what may be present down the fault.

The joint probability of correlation given observations of both *d1* and *d2* and date correspondence is higher than if the correlation is taken either displacement separately. With the probability of non-correlation *Pc1’ = (1-Pc1)*, the joint probability is *(1-probability that both miss)*. The “*misses*” based on *Pc1* and *Pc2* are uncorrelated, so we have the probability of correlation as:

Eqn. 2: Pc12 = (1-Pc1’\*Pc2’).

Thus, if the probability at *S1* given *d1* is 70% and the probability at *S2* given *d2* is 60%, we have the probability of correlation *Pc12 = (1-0.3\*0.4) = 88%*. Equation 2 applies when the event date probability distribution functions overlap and have the resolution to say that if they correlate, only this correlation is allowed.

## Case 2: Average Displacements at S1 and S2.

Case 2 differs from Case 1 in two respects. First, *P(L|d)* will differ when average displacement *da* is used in place of *d*. Second, event dating is not available, so consideration of correlation depends on displacements alone. Qualitatively, the lack of dating evidence for correlation decreases probabilities of correlation and confidence in them.

Probability *P(L|d)* (fig. G2) was developed assuming that *d* was drawn at random from within the rupture that caused it. How exactly to adjust *P(L|d)* for use with average site displacements (that is, *P(L|da)*), is less clear. Associating average displacement *da* with *d* in *P(L|d)* could underestimate rupture length because *P(L|d)* includes the case where the observation comes from a peak displacement of a small rupture. It might also be that *P(L|d)* ~ *P(L|da)* since, as an average, lengths will be distributed around the mean. Finally, if we examine variability in normalized ruptures, more of the rupture length is above the average than below it (appendix F, this report). In this case *P(L|da)* may slightly overestimate *L*. The adjustment of *P(L|d)* will also depend on the assumed magnitude distribution (Biasi and Weldon, 2006). Resolving this in detail is a research question beyond the scope of UCERF3. For now, *P(L|da)* is assumed to be similar to *P(L|d)* in figure G2.

Probabilities of correlation between sites with average displacements interact with the event rates or recurrence intervals (RIs) of the sites being compared. The site with the lower recurrence interval is more influential because it sets an upper limit on the rate of events seen at both sites. Specifically the correlation shouldn't predict over 100-percent. With this in mind, we estimate the correlation rate from a weighted average of the separate predicted correlation rates, with as a check, that the predicted fraction doesn't exceed 100-percent of the lower RI site.

Eqn. 3: Pc12(da1, da2) = (1-Pc1’\*Pc2’)\* max(RI1, RI2)/min(RI1, RI2).

Results are given in the right side of the matrices in table G5. As discussed above for table G4, these results were used as a “reality check” on the results of the inversion. Model overlap frequencies were compared with expected overlap for individual faults and large discrepancies were identified and investigated. We believe that the kinds of constraints developed in tables G4 and G5 could (and should) be used directly in future inversions but time constraints on UCERF3 did not permit the approach to be developed adequately to be formally included.



1. Probability of rupture length given an observed displacement. Modified from Biasi and Weldon (2006) for the case that ruptures of any size are equally likely. P(L|dobs) assumes ignorance about where dobs is in the rupture, so 2 meters, say, could be a peak in an *M*6.8 rupture, or a tail of an *M*8. Probabilities cross at small probabilities because of the fine scale structure of probability of displacement given magnitude, p(d|M). See Biasi and Weldon (2006) for details.

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1. Probability that a rupture observed at site 1 and associated with some rupture length will reach to a second site. Site 1 is assumed to be located at random inside the rupture. Contour lines correspond to various separations between site 1 and site 2, in 20 km increments. Figure modified from Biasi and others (2011).

site_correl_final.pdf

1. Convolution of above to give probability of correlation given an observed displacement and site separation.

# Acknowledgments

We greatly appreciate reviews by David Schwartz, Gordon Seitz, and Tom Rockwell and discussion with many members of the UCERF3 team, especially Ned Field and Morgan Page. We thank Kevin Milner for some technical assistance, and Keith Knudsen and Tran Huynh for help editing and keeping us on schedule. This project was supported in part by SCEC grants 157576 and 119939.

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1. Paleoseismic sites used in UCERF3.

| UCERF3 Fault Section | Site | Comments | Reference |
| --- | --- | --- | --- |
| Calaveras (No) 2011 CFM | Welch/Leyden Creeks | Used in UCERF2 | Kelson and others (1996), Simpson and others (1999) |
| Compton | Stanford Ave | New site | Leon and others (2009) |
| Elsinore (Coyote Mountains) | Coyote Mts | New site | Rockwell and others (1986) |
| Elsinore (Glen Ivy) rev | Glen Ivy | Used in UCERF2 | Rockwell and others (1986); Rockwell (written communication, 2007); Dawson and others (2008) |
| Elsinore (Julian) | Lake Henshaw | New site | Thorup (1997) |
| Elsinore (Julian) | Julian | Used in UCERF2 | Thorup (1997) |
| Elsinore (Temecula) | Temecula | Used in UCERF2 | Vaughan and others (1999) |
| Garlock (Central) | El Paso Peaks | Used in UCERF2 | Dawson and others (2003) |
| Garlock (Central) | Central Searles | New site | McGill (1992) |
| Garlock (Western) | Twin Lakes | Used in UCERF2 | Madden-Madugo and others (2012); Madden and Dolan (2004) |
| Green Valley 2011 CFM | Lopes Ranch | New site | Lienkaemper and others, submitted to BSSA 3/1/2012 |
| Green Valley 2011 CFM | Mason Road | New site | Lienkaemper and others, submitted to BSSA 2/1/2012 |
| Hayward (No) 2011 CFM | Mira Vista | Used in UCERF2 | HPEG (1999); Dawson and others (2008) |
| Hayward (So) 2011 CFM | Tule Pond | Revised | Lienkaemper and others (2010) |
| Little Salmon (Onshore) | College of the Redwoods | New site | Carver and Burke (1988) |
| Little Salmon (Onshore) | Little Salmon Creek | New site | Carver and Burke (1988) |
| North Frontal (West) | Marble Canyon | New site | Anderson (2002) |
| North Tahoe 2011 CFM | North Tahoe Basin | New site | Smith and others (2013); Brothers and others (2009); Seitz and others (2006); Seitz and others (2004). |
| Panamint Valley | Goler Wash | New site | McAuliffe and others (2010) |
| Puente Hills | Santa Fe Springs | New site | Dolan and others (2003) |
| Rodgers Creek-Healdsburg 2011 CFM | Triangle G | New site | Budding and others (1991); Hecker and others (2005) |
| Rodgers Creek-Healdsburg 2011 CFM | Triangle G | Used in UCERF2 | Budding and others (1991); Hecker and others (2005);  Schwartz and others (1992) |
| San Andreas (Big Bend) | Frazier | New site | Scharer and others, Unpublished data |
| San Andreas (Carrizo) | Bidart | Revised | Akçiz and others (2009) |
| San Andreas (Coachella) | Coachella | New site | Philibosian and others (2011) |
| San Andreas (Coachella) | Indio | Used in UCERF2 | Sieh (1986) |
| San Andreas (Coachella) | Thousand Palms | Used in UCERF2 | Fumal and others (2002) |
| San Andreas (Mojave S) | Pallett Creek | Revised | Scharer and others (2011) |
| San Andreas (Mojave S) | Wrightwood deep | Revised |  |
| San Andreas (Mojave S) | Wrightwood deep | New, deeper section | Scharer and others (2007) |
| San Andreas (North Coast) 2011 CFM | Alder Creek | New site | Baldwin (1996) |
| San Andreas (North Coast) 2011 CFM | Vendanta | Used in UCERF2 | Zhang and others (2006); Zhang and others (2005); Zhang and others (2003a); Zhang and others (2003b); Niemi and others (2002) |
| San Andreas (Offshore) 2011 CFM | Offshore | Used in UCERF3 | Goldfinger and others (2007) |
| San Andreas (Peninsula) 2011 CFM | Filoli | New site | Hall and others (1999) |
| San Andreas (San Bernardino N) | Pitman Canyon | Revised | Seitz and others (1996); Seitz and others (2000) |
| San Andreas (San Bernardino N) | Plunge Creek | Used in UCERF2 | McGill and others (2002) |
| San Andreas (San Bernardino S) | Burro Flat | Used in UCERF2 | Yule and Sieh (2001); Yule and others (2006) |
| San Andreas (Santa Cruz Mountains) 2011 CFM | Arano | Revised | Fumal (written communication, 2007); Dawson and others (2008). |
| San Andreas (Santa Cruz Mountains) 2011 CFM | Hazel Dell | New | Streig and others (2013) |
| San Andreas (Santa Cruz Mountains) 2011 CFM | Mill Canyon | Revised | Fumal (2012) |
| San Cayetano | Piru | New site | Dolan and Rockwell (2001) |
| San Gorgonio Pass | Cabazon | New site | Ramzan and Yule (2011) |
| San Gregorio (North) 2011 CFM | Seal Cove | Revised | Simpson and others (1997) |
| San Jacinto (Anza) | Blackburn Canyon | New site | Salisbury and others, 2012; Buga and others, 2011 |
| San Jacinto (Anza) | Hog Lake | Used in UCERF2 | Rockwell and others (2006); Rockwell (personal communication, 2013); Dawson and others (2008) |
| San Jacinto (Claremont) | Mystic Lake | New site – added during review, not used for RI in UCERF 3 | Onerdonk and others (2013) |
| San Jacinto (Clark) | Lute Ridge | New site | Salisbury and others (2012) |
| San Jacinto (Superstition Mtn) | Superstition Mt | Used in UCERF2 | Gurrola and Rockwell (1996) |
| Sierra Madre | San Dimas | New site | Tucker and Dolan (2001) |
| Whittier | Whittier | Used in UCERF2 | Patterson and Rockwell (1993); Tom Rockwell (written communication, 2007) |

1. Paleoseismic event ages and intervals used in UCERF3.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Calaveras (No) 2011 CFM | | | | | | | | | | Lat: 37.51039 | | | | | Lon: -121.8346 | | |
| Welch/Leyden Creeks | | | | | | | | | | | | | | | | | |
| Event | | Calendar Age (Calibrated 2-sigma) | | | (AD unless noted otherwise) | | Interval ID | | Min Interval (yrs) | | Max Interval (yrs) | | Mid (aka "preferred") | | |
|  | | | Old | | | Young | |  | |  | |  | | |  | | |
|  | | |  | | |  | | **OPEN** | | 581 | | 846 | | | 713.5 | | |
| Y | | | 1160 | | | 1425 | |  | |  | |  | | |  | | |
|  | | |  | | |  | | **I1** | | 0 | | 1015 | | | 507.5 | | |
| X | | | 410 | | | 1280 | |  | |  | |  | | |  | | |
|  | | |  | | |  | | **I2** | | 0 | | 1148 | | | 574 | | |
| W | | | 132 | | | 640 | |  | |  | |  | | |  | | |
|  | | |  | | |  | | **I3** | | 0 | | 1160 | | | 580 | | |
| V (old is BC) | | | 520 | | | 380 | |  | |  | |  | | |  | | |
|  | | |  | | |  | | **I4** | | 0 | | unconstrained | | |  | | |
| U | | | unconstrained | | | 0 | |  | |  | |  | | |  | | |
| RI (time/intervals method) | | | | | | | | | | | | | | | | | |
| Time max (yrs) | Time min (yrs) | | | Intervals | | | Intervals Max | | RI Max (yrs) | | RI Min (yrs) | | | RI Preferred (yrs) | | |
| 2381 | | | 1861 | | | 4 | | 5 | | 595 | | 372 | | | 484 | | |

Constraining date: 520 BC - 0

Published RI 250-800 yrs (Kelson used different method) MRE a combo of published data. Low bound from Kelson and others, 1996; upper constraint from Simpson and others, 1999. This was used in WG02

Other event ages from Leyden Creek site (Kelson and others, 1996)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Compton | | | | | | | | | | | | | | Lat: 33.965991 | | | | Lon: -118.262921 | | | | | |
| Stanford Avenue | | | | | | | | | | | | | | | | | | | | | | | |
| Event | Thousands of years before present (ka) | | | Need heading here | | | preferred | | Interval ID | | | Min Interval (ka) | | | | Max Interval (ka) | | | | Mid (aka "preferred") | | |
|  | | Old | | | Young | | |  | | |  | | |  | | |  | | | |  | | |
|  | |  | | |  | | |  | | | **OPEN** | | | 0.7 | | | 1.75 | | | | 1.225 | | |
| Event 1 | | 1.75 | | | 0.7 | | |  | | |  | | |  | | |  | | | |  | | |
|  | |  | | |  | | |  | | | **I1** | | | 0 | | | 2.7 | | | |  | | |
| Event 2 | | 3.4 | | | 0.7 or 1.9 | | |  | | |  | | |  | | |  | | | |  | | |
|  | |  | | |  | | |  | | | **I2** | | | 2.2 | | | 6.5 | | | |  | | |
| Event 3 | | 7.2 | | | 5.6 | | |  | | |  | | |  | | |  | | | |  | | |
|  | |  | | |  | | |  | | | **I3** | | | 0 | | | 2.8 | | | | 1.4 | | |
| Event 4 | | 8.4 | | | 5.4 | | |  | | |  | | |  | | |  | | | |  | | |
|  | |  | | |  | | |  | | | **I4** | | | 1.9 | | | 7.1 | | | | 4.5 | | |
| Event 5 | | 12.5 | | | 10.3 | | |  | | |  | | |  | | |  | | | |  | | |
|  | |  | | |  | | |  | | | **I5** | | | 0 | | | 3.4 | | | | 1.7 | | |
| Event 6 | | 13.7 | | | 10.3 | | |  | | |  | | |  | | |  | | | |  | | |
| RI (time/intervals method)  (time/intervals method) | | | | | | | | | | | | | | | | | | | | | | | |
| Time max (yrs) | Time min (yrs) | | Intervals | | | RI Max (yrs) | | | | RI Min (yrs) | | | RI Preferred (yrs) | |  | | | |  | | |
| 13,000 | | 8,550 | | | 5 | | | 2,600 | | | 1,710 | | | 2,155 | | |  | | | |  | | |

Note: Grant and others (1997) conducted cone penetrometer testing (CPT) across the Newport-Inglewood fault and find that the Newport-Inglewood fault has the same event history as the Compton fault (Grant and others, 1997).

|  |
| --- |
| Elsinore - Coyote Mountains |
| No constrained event ages for Coyote Mts. |
| Open interval: ~100 years (fault may have ruptured during Laguna Salada earthquake?) |
| 3 events in 2000 years |

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| Elsinore (Glen Ivy) | | | | | | | | | | | | Lat: 33.7701 | | | | | Lon: -117.4909 | | | | | |
| Glen Ivy | | | | | | | | | | | | | | | | | | | | | | |
| Event | Calendar Age range (Calibrated 2-sigma) | | | | AD, unless noted otherwise | | | Interval | | | Min Interval (yrs) | | Max Interval (yrs) | | | | | | Mid (aka "preferred") | | |
|  | | | Old | | | Young | | |  | | |  | | | |  | | | |  | | |
|  | | |  | | |  | | | OPEN | | | 96 | | | | 96 | | | | 96 | | |
| E1 | | | 1910 | | | 1910 | | |  | | |  | | | |  | | | |  | | |
|  | | |  | | |  | | | I1 | | | 53 | | | | 283 | | | | 168 | | |
| E2 | | | 1627 | | | 1857 | | |  | | |  | | | |  | | | |  | | |
|  | | |  | | |  | | | I2 | | | 39 | | | | 417 | | | | 228 | | |
| E3 | | | 1440 | | | 1588 | | |  | | |  | | | |  | | | |  | | |
|  | | |  | | |  | | | I3 | | | 21 | | | | 305 | | | | 163 | | |
| E4 | | | 1283 | | | 1419 | | |  | | |  | | | |  | | | |  | | |
|  | | |  | | |  | | | I4 | | | 0 | | | | 189 | | | | 94.5 | | |
| E5 | | | 1230 | | | 1290 | | |  | | |  | | | |  | | | |  | | |
|  | | |  | | |  | | | I5 | | | 114 | | | | 327 | | | | 220.5 | | |
| E6 | | | 963 | | | 1116 | | |  | | |  | | | |  | | | |  | | |
| RI (time/intervals method) | | | | | | | | | | | | | | | | | | | | | | |
| Time max (yrs) | | Time min (yrs) | | Intervals | | | RI Max (yrs) | | | RI Min (yrs) | | | | RI Preferred (yrs) | | | |  | | |
| 947 | | | 794 | | | 5 | | | 189 | | | 159 | | | 174 | | | | |  | | |

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| Elsinore Fault (Julian) | | | | | |  | | | | Lat: 33.2071 | | | | | | Lon: -116.7273 | | | | | |
| Julian | | | | | | | | | | | | | | | | | | | | | |
| Event | | Age yrs bp | | | | | Need heading here | Interval | | | | Min Interval (yrs) | | | Max Interval (yrs) | | Mid (aka "preferred") | | |
|  | | | |  | |  | | | |  | | |  | | |  | | |  | | |
|  | | | |  | |  | | | | **OPEN** | | | 1500 | | | 2000 | | | 1750 | | |
| MRE | | | | 1500 | | 2000 | | | |  | | |  | | |  | | |  | | |
|  | | | |  | |  | | | | **I1** | | | 1000 | | | 2000 | | | 1500 | | |
| PEN | | | | 3000 | | 3500 | | | |  | | |  | | |  | | |  | | |
| RI (time/intervals method) | | | | | | | | | | | | | | | | | | | | | |
| Time max (yrs) | | Time min (yrs) | | Intervals | | | | RI Max (yrs) | | RI Min (yrs) | | | RI Preferred (yrs) | | | |  | | |
| 2000 | | | | 1000 | | 1 | | | | 2000 | | | 1000 | | | 1500 | | |  | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Elsinore Fault (Julian) | | | | | | | | | Lat: 33.35683 | | | | Long: -117.0097 | |
| Lake Henshaw | | | | | | | | | | | | | | |
| Event | Age yrs bp | | Need heading here | | Interval | | Min Interval (yrs) | | | Max Interval (yrs) | | Mid (aka "preferred") | |
|  | |  | |  | |  | |  | | |  | |  | |
|  | |  | |  | | **OPEN** | | 700 | | | 1700 | | 1200 | |
| MRE | | 1700 | | 700 | |  | |  | | |  | |  | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Elsinore (Temecula) | | | | | | | | Lat: 33.41 | | | Lon: -117.04 | | | | |
| Temecula | | | | | | | | | | | | | | | |
| Event | Age in Calendar Years for MRE (Calibrated 2-sigma) | | Need heading here | | Interval | | Min Interval (yrs) | | | Max Interval (yrs) | | | Mid (aka "preferred") | |
| X | | 1655 | | 1810 | | **OPEN** | | | 196 | | | 351 | | 273.5 | |
| Incomplete record until Event T | | | | | |  | | |  | | |  | |  | |
|  | | **In years B.P. below** | |  | |  | | |  | | |  | |  | |
|  | | **Young** | | **Old** | |  | | |  | | |  | |  | |
| Event T | | 2700 | | 3300 | |  | | |  | | |  | |  | |
|  | |  | |  | | **I1** | | | 0 | | | 800 | | 400 | |
| Event P | | 3000 | | 3500 | |  | | |  | | |  | |  | |
|  | |  | |  | | **I2** | | | 0 | | | 1500 | | 750 | |
| Event L | | 3500 | | 4500 | |  | | |  | | |  | |  | |
|  | |  | |  | | **I3** | | | 500 | | | Unconstrained | | Unconstrained | |
| Event H | | 4500 | | >4500 | |  | | |  | | |  | |  | |

Event H reported as shortly before 4500 yrs. Can use this as a minimum recurrence interval between L and H.

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| RI (time/intervals method) | | | | | | | | | | | | |
| Time max (yrs) | Time min (yrs) | Intervals | | RI Max (yrs) | | RI Min (yrs) | | RI Preferred (yrs) | |  |
| >1800 | 1200 | | 3 | | >600 | | 400 | | 500 | | |  |

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| Garlock (Central) | | | | | | | | | Lat: 35.4441 | | | | | | Lon: -117.6815 | | | | | |
| El Paso Peaks | | | | | | | | | | | | | | | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | | | AD unless noted otherwise | | | Interval ID | | | Min Interval (yrs) | | | Max Interval (yrs) | | | | Mid (aka "preferred") | |
|  | | | Old | | | Young | | |  | | |  | | |  | | |  | | |
|  | | |  | | |  | | | **OPEN** | | | 366 | | | 556 | | | 461 | | |
| E1 | | | 1450 | | | 1640 | | |  | | |  | | |  | | |  | | |
|  | | |  | | |  | | | **I1** | | | 500 | | | 965 | | | 732.5 | | |
| E2 | | | 675 | | | 950 | | |  | | |  | | |  | | |  | | |
|  | | |  | | |  | | | **I2** | | | 200 | | | 700 | | | 450 | | |
| E3 | | | 250 | | | 475 | | |  | | |  | | |  | | |  | | |
|  | | |  | | |  | | | **I3** | | | 0 | | | 450 | | | 225 | | |
| E4 | | | 25 | | | 275 | | |  | | |  | | |  | | |  | | |
|  | | |  | | |  | | | **I4** | | | 2955 | | | 3615 | | | 3285 | | |
| E5 (yrs in BC) | | | 3340 | | | 2930 | | |  | | |  | | |  | | |  | | |
|  | | |  | | |  | | | **I5** | | | 1330 | | | 2070 | | | 1700 | | |
| E6 (yrs in BC) | | | 5000 | | | 4670 | | |  | | |  | | |  | | |  | | |
| RI (time/intervals method) | | | | | | | | | | | | | | | | | | | | |
| Time max (yrs) | | Time min (yrs) | | | Intervals | | | RI Max (yrs) | | | RI Min (yrs) | | | RI Preferred (yrs) | |  | | | |
| 6640 | | | 6120 | | | 5 | | | 1328 | | | 1224 | | | 1276 | | |  | | |

Event ages from Dawson and others (2003)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Garlock (Central) | | | | | | | | Lat: 35.523424 | | | | Lon: -117.372841 | | | |
| Searles Valley | | | | | | | | | | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | | AD unless noted otherwise | | preferred | | Interval ID | | Min Interval (yrs) | | Max Interval (yrs) | | Mid (aka "preferred") | |
|  | | Old | | Young | |  | |  | |  | |  | |  | |
|  | |  | |  | |  | | **OPEN** | |  | | 522 | |  | |
| MRE | | 1490 | |  | |  | |  | |  | |  | |  | |

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| Garlock(Western) | | | | | | | | | Lat: 34.9868 | | | | | | Lon: -118.508 | | | | | |
| Twin Lakes | | | | | | | | | | | | | | | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | | | | AD unless noted otherwise | | Interval ID | | | Min Interval (yrs) | | | Max Interval (yrs) | | | Mid (aka "preferred") | | |
|  | | | Old | | | Young | | |  | | |  | | |  | | |  | | |
|  | | |  | | |  | | | OPEN | | | 156 | | | 486 | | | 321 | | |
| Event A | | | 1520 | | | 1850 | | |  | | |  | | |  | | |  | | |
|  | | |  | | |  | | | I1 | | | 0 | | | 1250 | | | 625 | | |
| Event C | | | 600 | | | 1550 | | |  | | |  | | |  | | |  | | |
|  | | |  | | |  | | | I2 | | | 0 | | | 1390 | | | 695 | | |
| Event E | | | 160 | | | 620 | | |  | | |  | | |  | | |  | | |
|  | | |  | | |  | | | I3 | | | 2260 | | | 3920 | | | 3090 | | |
| Event I (yrs in BC) | | | 3300 | | | 2100 | | |  | | |  | | |  | | |  | | |
|  | | |  | | |  | | | I4 | | | 0 | | | 1400 | | | 700 | | |
| Event K (yrs in BC) | | | 3500 | | | 2400 | | |  | | |  | | |  | | |  | | |
| RI (time/intervals method) | | | | | | | | | | | | | | | | | | | | |
| Time max (yrs) | | Time min (yrs) | | Intervals | | | | RI Max (yrs) | | | RI Min (yrs) | | | RI Preferred (yrs) | | |  | | |
| 5350 | | | 3920 | | | 4 | | | 1338 | | | 980 | | | 1159 | | |  | | |

\*Time determined by oldest constraining date

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Green Valley 2011 CFM | | | | | | | | | | | | | | | Lat: 38.132456 | | | | | Lon: -122.122902 | | | | |
| Lopes Ranch | | | | | | | | | | | | | | | | | | | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | | | | AD unless noted otherwise | | | preferred | | | Interval ID | | | Min Interval (yrs) | | | Max Interval (yrs) | | | | Mid (aka "preferred") | | |
|  | | | Old | | | Young | | |  | | |  | | |  | | |  | | | |  | | |
|  | | |  | | |  | | |  | | | **OPEN** | | | 291 | | | 502 | | | | 403 | | |
| E1 | | | 1510 | | | 1721 | | | 1609 | | |  | | |  | | |  | | | |  | | |
|  | | |  | | |  | | |  | | | **I1** | | | 1188 | | | 1574 | | | | 1371 | | |
| E2 | | | 147 | | | 322 | | | 238 | | |  | | |  | | |  | | | |  | | |
|  | | |  | | |  | | |  | | | **I2** | | | 93 | | | 413 | | | | 256 | | |
| E3 | | | -91 | | | 54 | | | -18 | | |  | | |  | | |  | | | |  | | |
| RI (time/intervals method)  (time/intervals method) | | | | | | | | | | | | | | | | | | | | | | | | |
| Time max (yrs) | | Time min (yrs) | | Intervals | | | RI Max (yrs) | | | RI Min (yrs) | | | RI Preferred (yrs) | | |  | | |  | | | |
| 1,812 | | | 1,456 | | | 2 | | | 906 | | | 728 | | | 817 | | |  | | | |  | | |

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| Green Valley 2011 CFM | | | | | | | | | | | | | | | Lat: 38.240934 | | | | | Lon: -122.163795 | | | | | |
| Mason Road | | | | | | | | | | | | | | | | | | | | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | | | | AD unless noted otherwise | | preferred | | | Interval ID | | | Min Interval (yrs) | | | | Max Interval (yrs) | | | | Mid (aka "preferred") | | |
|  | | | Old | | | Young | | |  | | |  | | | |  | | |  | | | |  | | |
|  | | |  | | |  | | |  | | | **OPEN** | | | | 240 | | | 573 | | | | 407 | | |
| E1 | | | 1439 | | | 1772 | | | 1605 | | |  | | | |  | | |  | | | |  | | |
|  | | |  | | |  | | |  | | | **I1** | | | | 24 | | | 527 | | | | 280 | | |
| E2 | | | 1245 | | | 1415 | | | 1325 | | |  | | | |  | | |  | | | |  | | |
|  | | |  | | |  | | |  | | | **I2** | | | | 40 | | | 295 | | | | 161 | | |
| E3 | | | 1120 | | | 1205 | | | 1164 | | |  | | | |  | | |  | | | |  | | |
|  | | |  | | |  | | |  | | | **I3** | | | | 45 | | | 278 | | | | 151 | | |
| E4 | | | 927 | | | 1075 | | | 1013 | | |  | | | |  | | |  | | | |  | | |
|  | | |  | | |  | | |  | | |  | | | |  | | |  | | | |  | | |
| RI (time/intervals method)  (time/intervals method) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Time max (yrs) | | Time min (yrs) | | Intervals | | | | RI Max (yrs) | | | RI Min (yrs) | | | RI Preferred (yrs) | | | |  | | | |  | | |
| 845 | | | 364 | | | 3 | | | 282 | | | 121 | | | | 201 | | |  | | | |  | | |

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| Hayward (No) 2011 CFM | | | | | | | | | Lat: 37.9306 | | | Lon: -122.2977 | | | |
| Mira Vista | | | | | | | | | | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | | AD unless noted otherwise | | Interval ID | | Min Interval (yrs) | | | Max Interval (yrs) | | | Mid (aka "preferred") | |
|  | | Old | | Young | |  | |  | | | |  | |  | |
|  | |  | |  | | **OPEN** | | 230 | | | | 356 | | 293 | |
| E1 | | 1650 | | 1776 | |  | |  | | | |  | |  | |
|  | |  | |  | | **I1** | | 220 | | | | 706 | | 463 | |
| E2 | | 1070 | | 1430 | |  | |  | | | |  | |  | |
|  | |  | |  | | **I2** | | 120 | | | | 610 | | 365 | |
| E3 | | 820 | | 950 | |  | |  | | | |  | |  | |
|  | |  | |  | | **I3** | | 30 | | | | 420 | | 225 | |
| E4 | | 530 | | 790 | |  | |  | | | |  | |  | |
|  | |  | |  | | **I4** | | 0 | | | | 690 | | 345 | |
| E5 | | 100 | | 650 | |  | |  | | | |  | |  | |
|  | |  | |  | | **I5** | | 0 | | | | 700 | | 350 | |
| E6 | | -50 | | 500 | |  | |  | | | |  | |  | |
|  | |  | |  | | **I6** | | 0 | | | | 750 | | 375 | |
| E7 | | -250 | | -40 | |  | |  | | | |  | |  | |
|  | |  | |  | | **I7** | | 0 | | | | 350 | | 175 | |
| E8 | | -390 | | -180 | |  | |  | | | |  | |  | |
| RI (time/intervals method)  (time/intervals method) | | | | | | | | | | | | | | | |
| Time max (yrs) | | Time min (yrs) | | Intervals | | RI Max (yrs) | | RI Min (yrs) | | | RI Preferred (yrs) | | |  | |
| 2166 | | 1830 | | 7 | | 309 | | 261 | | | 401 | | |  | |

Oldest constraining date: 410 BC - 240 BC

Record may be incomplete, Open-file report states “at least four, and possibly seven or more surface faulting earthquakes occurred during a 1630-2130 year interval”. Data& interval taken from Hayward Fault Working Group, OxCal model by Dawson and others(2008)

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Hayward (So) 2011 CFM | | | | | | | | | | | | | Lat: 37.5563 | | | | Lon: -121.9739 | | | | | | |
| Tule Pond | | | | | | | | | | | | | | | | | | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | | | AD unless noted otherwise | | | preferred | | | Interval ID | | | | | Min Interval (yrs) | | | Max Interval (yrs) | | | Mid (aka "preferred") | |
|  | | | Old | | | Young | | |  | | |  | | | |  | | |  | | |  | |
|  | | |  | | |  | | |  | | | **OPEN** | | | | 144 | | | 144 | | | 144 | |
| E1 | | | 1868 | | | 1868 | | | 1868 | | |  | | | |  | | |  | | |  | |
|  | | |  | | |  | | |  | | | **I1** | | | | 83 | | | 211 | | | 143 | |
| E2 | | | 1657 | | | 1785 | | | 1725 | | |  | | | |  | | |  | | |  | |
|  | | |  | | |  | | |  | | | **I2** | | | | 0 | | | 249 | | | 96 | |
| E3 | | | 1536 | | | 1737 | | | 1629 | | |  | | | |  | | |  | | |  | |
|  | | |  | | |  | | |  | | | **I3** | | | | 0 | | | 352 | | | 154 | |
| E4 | | | 1385 | | | 1585 | | | 1475 | | |  | | | |  | | |  | | |  | |
|  | | |  | | |  | | |  | | | **I4** | | | | 0 | | | 347 | | | 158 | |
| E5 | | | 1238 | | | 1408 | | | 1317 | | |  | | | |  | | |  | | |  | |
|  | | |  | | |  | | |  | | | **I5** | | | | 0 | | | 403 | | | 183 | |
| E6 | | | 1005 | | | 1269 | | | 1134 | | |  | | | |  | | |  | | |  | |
|  | | |  | | |  | | |  | | | **I6** | | | | 8 | | | 356 | | | 177 | |
| E7 | | | 913 | | | 997 | | | 957 | | |  | | | |  | | |  | | |  | |
|  | | |  | | |  | | |  | | | **I7** | | | | 14 | | | 240 | | | 135 | |
| E8 | | | 757 | | | 899 | | | 822 | | |  | | | |  | | |  | | |  | |
|  | | |  | | |  | | |  | | | **I8** | | | | 75 | | | 260 | | | 162 | |
| E9 | | | 639 | | | 682 | | | 660 | | |  | | | |  | | |  | | |  | |
|  | | |  | | |  | | |  | | | **I9** | | | | 107 | | | 316 | | | 216 | |
| E9.5 | | | 366 | | | 532 | | | 444 | | |  | | | |  | | |  | | |  | |
|  | | |  | | |  | | |  | | | **I10** | | | | 36 | | | 363 | | | 197 | |
| E10 | | | 169 | | | 330 | | | 247 | | |  | | | |  | | |  | | |  | |
|  | | |  | | |  | | |  | | | **I11** | | | | 0 | | | 319 | | | 156 | |
| E11 | | | 11 | | | 172 | | | 91 | | |  | | | |  | | |  | | |  | |
| RI (time/intervals method) | | | | | | | | | | | | | | | | | | | | | | | |
| Time max (yrs) | | Time min (yrs) | | | Intervals | | | RI Max (yrs) | | | RI Min (yrs) | | | RI Preferred (yrs) | | | | | |  | | | | |
| 1857 | | | 1696 | | | 11 | | | 169 | | | 154 | | | | 162 | | |  | | |  | |

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| Little Salmon (Onshore) | | | | | | | Lat: 40.698423 | | | | Lon: -124.19822 | | | |
| College of the Redwoods | | | | | | | | | | | | | | |
| Event | Calendar age (AD unless otherwise noted) | | preferred | | | Interval ID | | Min Interval (yrs) | | Max Interval (yrs) | | Mid (aka "preferred") | |
|  | | Old | | Young |  | |  | |  | |  | |  | |
|  | |  | |  |  | | **OPEN** | | 212 | | 500 | | 356 | |
| MRE | | 1512 | | 1800 |  | |  | |  | |  | |  | |

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| Little Salmon (Onshore) | | | | | | | Lat: 40.655487 | | | Lon: -124.18929 | | | |
| Little Salmon Creek | | | | | | | | | | | | | |
| Event | Calendar age (AD unless otherwise noted) | | preferred | | | Interval ID | | Min Interval (yrs) | Max Interval (yrs) | | Mid (aka "preferred") | |
|  | | Old | | Young |  | |  |  | |  | |  | |
|  | |  | |  |  | | **OPEN** | 212 | | 500 | | 356 | |
| MRE | | 1512 | | 1800 |  | |  |  | |  | |  | |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| North Frontal (West) | | | | Lat: 34.360201 | | Lon: -116.871608 | |
| Marble Canyon | | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | Negative is BC | preferred | Interval ID | Min Interval (yrs) | Max Interval (yrs) | Mid (aka "preferred") |
|  | Old | Young |  |  |  |  |  |
|  |  |  |  | **OPEN** |  | 11232 |  |
| MRE | -9220 |  |  |  |  |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| North Tahoe 2011 CFM | | | | | | | | Lat: 39.249051 | | | | Lon: -119.963709 | | | |
| N Tahoe Basin | | | | | | | | | | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | | AD unless noted otherwise | | preferred | | Interval ID | | Min Interval (yrs) | | Max Interval (yrs) | | Mid (aka "preferred") | |
|  | | Old | | Young | |  | |  | |  | |  | |  | |
|  | |  | |  | |  | | **OPEN** | |  | | 512 | |  | |
| MRE | | 1500 | |  | |  | |  | |  | |  | |  | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Panamint Valley | | | | | | | | Lat: 35.858286 | | | | Lon: -117.169492 | | | |
| Goler Wash | | | | | | | | | | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | | AD unless noted otherwise | | preferred | | Interval ID | | Min Interval (yrs) | | Max Interval (yrs) | | Mid (aka "preferred") | |
|  | | Old | | Young | |  | |  | |  | |  | |  | |
|  | |  | |  | |  | | **OPEN** | | 512 | | 612 | | 562 | |
| MRE | | 1400 | | 1500 | |  | |  | |  | |  | |  | |

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| Puente Hills | | | | | | | | | | | Lat: 33.905282 | | | | | | Lon: -118.110351 | | | |
| Santa Fe Springs - City of Bellflower | | | | | | | | | | | | | | | | | | | | |
| Event | Years ago (Calibrated 2-sigma) | | | | | preferred | | | Interval ID | | | Min Interval (yrs) | | | | Max Interval (yrs) | | Mid (aka "preferred") | |
|  | | | Old | | Young | | |  | | |  | | |  | | |  | |  | |
|  | | |  | |  | | |  | | | **OPEN** | | | 200 | | | 300 | | 250 | |
| Y | | | 300 | | 200 | | |  | | |  | | |  | | |  | |  | |
|  | | |  | |  | | |  | | | **I1** | | | 2700 | | | 6100 | | 4400 | |
| X | | | 6300 | | 3000 | | |  | | |  | | |  | | |  | |  | |
|  | | |  | |  | | |  | | | **I2** | | | 300 | | | 5200 | | 2750 | |
| W | | | 8200 | | 6600 | | |  | | |  | | |  | | |  | |  | |
| RI (time/intervals method) | | | | | | | | | | | | | | | | | | | | | |
| Time max (yrs) | | Time min (yrs) | | Intervals | | | RI Max (yrs) | | | RI Min (yrs) | | | RI Preferred (yrs) | |  | | | | |
| 8000 | | | 6300 | | 2 | | | 4000 | | | 3150 | | | 3575 | | |  | |  | |

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| Rodgers Creek-Healdsburg 2011 CFM | | | | | | | Lat: 38.2725 | | | | | | Lon: -122.546 [Triangle G] | | | | | |
| Triangle G/Beebe Ranch | | | | | | | | | | | | | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | | AD unless noted otherwise | | | Interval ID | | | Min Interval (yrs) | | Max Interval (yrs) | | | Mid (aka "preferred") | | |
|  | | Old | | Young | | |  | | |  | | |  | | |  | | |
|  | |  | |  | | | **OPEN** | | | 230 | | | 366 | | | 298 | | |
| E1 | | 1640 | | 1776 | | |  | | |  | | |  | | |  | | |
|  | |  | |  | | |  | | |  | | |  | | |  | | |
| RI (time/intervals method) | | | | | | | | | | | | | | | | | | |
| Time max (yrs) | Time min (yrs) | | Intervals | | RI Max (yrs) | | | RI Min (yrs) | | | | RI Preferred (yrs) | | |  | | |
| 783 | | 447 | | 2 | | | 391.5 | | | 223.5 | | | 307.5 | | |  | | |

Constraining dates: 520 BC - 0 993-1193 AD 1640-1776 (historical)

3 earthquakes total during past 1100 years.

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| Rodgers Creek-Healdsburg 2011 CFM | | | | | | | | | | Lat: 38.272446 | | | Lon: -122.545763 | | | |
| Triangle G | | | | | | | | | | | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | | AD unless noted otherwise | | preferred | | Interval ID | | Min Interval (yrs) | | Max Interval (yrs) | | | Mid (aka "preferred") | |
|  | | Old | | Young | |  | |  | |  | |  | | |  | |
|  | |  | |  | |  | | **OPEN** | |  | | 322 | | | 297 | |
| MRE | | 1690 | |  | | 1715 | |  | |  | |  | | |  | |

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| San Andreas (Big Bend) | | | | | | | | | | | | | | | Lat: 34.8122 | | | | | Lon: -118.9034 | | |
| Frazier Mountain | | | | | | | | | | | | | | | | | | | | | | |
| Event | | Calendar Age (Calibrated 2-sigma) | | | AD unless noted otherwise | | | preferred | | Interval ID | | | | Min Interval (yrs) | | | Max Interval (yrs) | | Mid (aka "preferred") | | |
|  | | | Old | | | Young | | |  | | |  | | |  | | |  | |  | | |
|  | | |  | | |  | | |  | | | **OPEN** | | | 155 | | | 155 | | 155 | | |
| 1857 | | | 1857 | | | 1857 | | | 1857 | | |  | | |  | | |  | |  | | |
|  | | |  | | |  | | |  | | | **I1** | | | 32 | | | 177 | | 103 | | |
| EQ2 | | | 1680 | | | 1825 | | | 1754 | | |  | | |  | | |  | |  | | |
|  | | |  | | |  | | |  | | | **I2** | | | 60 | | | 272 | | 171 | | |
| EQ3 | | | 1553 | | | 1620 | | | 1583 | | |  | | |  | | |  | |  | | |
|  | | |  | | |  | | |  | | | **I3** | | | 0 | | | 90 | | 21 | | |
| EQ4 | | | 1530 | | | 1599 | | | 1562 | | |  | | |  | | |  | |  | | |
|  | | |  | | |  | | |  | | | **I4** | | | 0 | | | 90 | | 24 | | |
| EQ5 | | | 1509 | | | 1570 | | | 1538 | | |  | | |  | | |  | |  | | |
|  | | |  | | |  | | |  | | | **I5** | | | 62 | | | 242 | | 145 | | |
| EQ6 | | | 1328 | | | 1447 | | | 1393 | | |  | | |  | | |  | |  | | |
|  | | |  | | |  | | |  | | | **I6** | | | 118 | | | 339 | | 229 | | |
| EQ7 | | | 1108 | | | 1210 | | | 1164 | | |  | | |  | | |  | |  | | |
|  | | |  | | |  | | |  | | | **I7** | | | 8 | | | 253 | | 133 | | |
| EQ8 | | | 957 | | | 1100 | | | 1031 | | |  | | |  | | |  | |  | | |
| RI (time/intervals method) | | | | | | | | | | | | | | | | | | | | | | |
| Time max (yrs) | Time min (yrs) | | | Intervals | | | RI Max (yrs) | | | | RI Min (yrs) | | RI Preferred (yrs) | | |  | | | | |
| 900 | | | 757 | | | 7 | | | 129 | | | 108 | | | 119 | | |  | |  | | |

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| San Andreas (Carrizo) | | | | | | | | |  | | | Lat: 35.23428 | | | | | | Lon: -119.78871 | | | | |
| Bidart Fan | | | | | | | | | | | | | | | | | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | | | | AD unless noted otherwise | | | preferred | | | Interval ID | | | Min Interval (yrs) | | | Max Interval (yrs) | | Mid (aka "preferred") | | |
|  | | | Old | | | Young | | |  | | |  | | |  | | |  | |  | | |
|  | | |  | | |  | | |  | | | **OPEN** | | | 155 | | | 155 | | 155 | | |
| A | | | 1857 | | | 1857 | | | 1857 | | |  | | |  | | |  | |  | | |
|  | | |  | | |  | | |  | | | **I1** | | | 34 | | | 226 | | 144 | | |
| B | | | 1631 | | | 1823 | | | 1713 | | |  | | |  | | |  | |  | | |
|  | | |  | | |  | | |  | | | **I2** | | | 0 | | | 243 | | 99 | | |
| C | | | 1580 | | | 1640 | | | 1614 | | |  | | |  | | |  | |  | | |
|  | | |  | | |  | | |  | | | **I3** | | | 0 | | | 130 | | 49 | | |
| D | | | 1510 | | | 1612 | | | 1565 | | |  | | |  | | |  | |  | | |
|  | | |  | | |  | | |  | | | **I4** | | | 35 | | | 162 | | 103 | | |
| E | | | 1450 | | | 1475 | | | 1462 | | |  | | |  | | |  | |  | | |
|  | | |  | | |  | | |  | | | **I5** | | | 0 | | | 115 | | 45 | | |
| F | | | 1360 | | | 1452 | | | 1417 | | |  | | |  | | |  | |  | | |
| RI (time/intervals method) | | | | | | | | | | | | | | | | | | | | | | |
| Time max (yrs) | | Time min (yrs) | | Intervals | | | RI Max (yrs) | | | RI Min (yrs) | | | RI Preferred (yrs) | | |  | | | | |
| 497 | | | 405 | | | 5 | | | 99.4 | | | 81 | | | 90 | | |  | |  | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| San Andreas (Coachella) | | | | | | | | | |  | | | | Lat: 33.727354 | | | | | | | Lon: -116.170074 | | | | |
| Coachella | | | | | | | | | | | | | | | | | | | | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | | | | AD unless noted otherwise | | | | preferred | | | | Interval ID | | | Min Interval (yrs) | | | Max Interval (yrs) | | | Mid (aka "preferred") | |
|  | | | Old | | | Young | | | |  | | | |  | | | |  | | |  | |  | | |
|  | | |  | | |  | | | |  | | | | **OPEN** | | | | 299 | | | 355 | | 322 | | |
| Coa-1 | | | 1657 | | | 1713 | | | | 1690 | | | |  | | | |  | | |  | |  | | |
|  | | |  | | |  | | | |  | | | | **I1** | | | | 0 | | | 125 | | 60 | | |
| Coa-2 | | | 1588 | | | 1662 | | | | 1630 | | | |  | | | |  | | |  | |  | | |
|  | | |  | | |  | | | |  | | | | **I2** | | | | 99 | | | 342 | | 210 | | |
| Coa-3 (poss.) | | | 1320 | | | 1489 | | | | 1420 | | | |  | | | |  | | |  | |  | | |
|  | | |  | | |  | | | |  | | | | **I3** | | | | 0 | | | 214 | | 120 | | |
| Coa-4 | | | 1275 | | | 1347 | | | | 1300 | | | |  | | | |  | | |  | |  | | |
|  | | |  | | |  | | | |  | | | | **I4** | | | | 123 | | | 257 | | 160 | | |
| Coa-5 | | | 1090 | | | 1152 | | | | 1140 | | | |  | | | |  | | |  | |  | | |
|  | | |  | | |  | | | |  | | | | **I5** | | | | 75 | | | 193 | | 150 | | |
| Coa-6 (poss.) | | | 959 | | | 1015 | | | | 990 | | | |  | | | |  | | |  | |  | | |
|  | | |  | | |  | | | |  | | | | **I6** | | | | 0 | | | 109 | | 60 | | |
| Coa-7 | | | 906 | | | 961 | | | | 930 | | | |  | | | |  | | |  | |  | | |
| RI (time/intervals method) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Time max (yrs) | | Time min (yrs) | | Intervals | | | | RI Max (yrs) | | | | RI Min (yrs) | | | | | RI Preferred (yrs) | | |  | | | | |
| 807 | | | 696 | | | | 6 | | | | 134.5 | | | | 116 | | | 125.5 | | |  | | | | |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| San Andreas (Coachella) | | | | | | | | | | | | Lat: 33.741128 | | | | | Lon: -116.186175 | | | |
| Indio | | | | | | | | | | | | | | | | | | | | |
| Event | | Mean age (calendar years) | | | Sqrt(var) | | | Median | | | Interval ID | | | Min Interval (yrs) | | Max Interval (yrs) | | Mid (aka "preferred") | |
|  | | |  | | |  | | |  | | |  | | |  | |  | |  | |
|  | | |  | | |  | | |  | | | **OPEN** | | |  | |  | |  | |
| Indio1 | | | 1680 | | | 23 | | | 1675 | | |  | | |  | |  | |  | |
|  | | |  | | |  | | |  | | | **I1** | | |  | |  | |  | |
| Indio2 | | | 1480 | | | 58 | | | 1475 | | |  | | |  | |  | |  | |
|  | | |  | | |  | | |  | | | **I2** | | |  | |  | |  | |
| Indio3 | | | 1300 | | | 45 | | | 1295 | | |  | | |  | |  | |  | |
|  | | |  | | |  | | |  | | | **I3** | | |  | |  | |  | |
| Indio4 | | | 1020 | | | 10 | | | 1015 | | |  | | |  | |  | |  | |
| RI (time/intervals method) | | | | | | | | | | | | | | | | | | | | |
| Time max (yrs) | Time min (yrs) | | | Intervals | | | RI Max (yrs) | | | RI Min (yrs) | | | RI Preferred (yrs) | | |
| 693 | | | 627 | | | 3 | | | 231 | | | 209 | | | 220 | |  | |  | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| San Andreas (Coachella) | | | | | | | | | | | | Lat: 33.836807 | | | | | | | | Lon: -116.308798 | | | | | |
| Thousand Palms Oasis | | | | | | | | | | | | | | | | | | | | | | | | | |
| Event | Mean age (calendar years) | | | Sqrt(var) | | Median | | | | | Interval ID | | | | Min Interval (yrs) | | | | Max Interval (yrs) | | | Mid (aka "preferred") | | |
|  | | |  | |  | | |  | | | |  | | | |  | | | |  | | |  | | |
|  | | |  | |  | | |  | | | | **OPEN** | | | |  | | | |  | | |  | | |
| TP1 | | | 1683 | | 34 | | | 1674 | | | |  | | | |  | | | |  | | |  | | |
|  | | |  | |  | | |  | | | | **I1** | | | |  | | | |  | | |  | | |
| TP2 | | | 1503 | | 25 | | | 1494 | | | |  | | | |  | | | |  | | |  | | |
|  | | |  | |  | | |  | | | | **I2** | | | |  | | | |  | | |  | | |
| TP3 | | | 1230 | | 29 | | | 1223 | | | |  | | | |  | | | |  | | |  | | |
|  | | |  | |  | | |  | | | | **I3** | | | |  | | | |  | | |  | | |
| TP4 | | | 982 | | 79 | | | 978 | | | |  | | | |  | | | |  | | |  | | |
|  | | |  | |  | | |  | | | | **I4** | | | |  | | | |  | | |  | | |
| TP5 | | | 824 | | 29 | | | 830 | | | |  | | | |  | | | |  | | |  | | |
| RI (time/intervals method) | | | | | | | | | | | | | | | | | | | | | | | | | |
| Time max (yrs) | | Time min (yrs) | | | | | Intervals | | | RI Max (yrs) | | | | RI Min (yrs) | | | | RI Preferred (yrs) | | | | | |
| 922 | | | | 796 | | | | | 4 | | | | 231 | | | | 199 | | | | 215 | | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| San Andreas (Mojave S) | | | | | | | | | | | | | Lat: 34.45584 | | | | | Lon: -117.887651 | | | | |
| Pallett Creek | | | | | | | | | | | | | | | | | | | | | | |
| Event | | Calendar Age (Calibrated 2-sigma) | | | AD unless noted otherwise | | | preferred | | | Interval ID | | | Min Interval (yrs) | | | Max Interval (yrs) | | | Mid (aka "preferred") | |
|  | | | Old | | | Young | | | |  | | |  | | |  | |  | | |  | |
|  | | |  | | |  | | | |  | | | **OPEN** | | | 155 | | 155 | | | 155 | |
| 1857 | | | 1857 | | | 1857 | | | | 1857 | | |  | | |  | |  | | |  | |
|  | | |  | | |  | | | |  | | | **I1** | | | 13 | | 141 | | | 44 | |
| 1812 | | | 1716 | | | 1844 | | | | 1813 | | |  | | |  | |  | | |  | |
|  | | |  | | |  | | | |  | | | **I2** | | | 148 | | 387 | | | 305 | |
| V | | | 1457 | | | 1568 | | | | 1508 | | |  | | |  | |  | | |  | |
|  | | |  | | |  | | | |  | | | **I3** | | | 95 | | 268 | | | 169 | |
| T | | | 1300 | | | 1362 | | | | 1339 | | |  | | |  | |  | | |  | |
|  | | |  | | |  | | | |  | | | **I4** | | | 76 | | 231 | | | 158 | |
| R | | | 1131 | | | 1224 | | | | 1181 | | |  | | |  | |  | | |  | |
|  | | |  | | |  | | | |  | | | **I5** | | | 1 | | 163 | | | 79 | |
| N | | | 1061 | | | 1130 | | | | 1102 | | |  | | |  | |  | | |  | |
|  | | |  | | |  | | | |  | | | **I6** | | | 60 | | 239 | | | 145 | |
| I | | | 891 | | | 1001 | | | | 957 | | |  | | |  | |  | | |  | |
|  | | |  | | |  | | | |  | | | **I7** | | | 47 | | 254 | | | 152 | |
| F | | | 747 | | | 844 | | | | 805 | | |  | | |  | |  | | |  | |
|  | | |  | | |  | | | |  | | | **I8** | | | 0 | | 146 | | | 77 | |
| D | | | 698 | | | 754 | | | | 728 | | |  | | |  | |  | | |  | |
| RI (time/intervals method) | | | | | | | | | | | | | | | | | | | | | | |
| Time max (yrs) | | | Time min (yrs) | | | Intervals | | RI Max (yrs) | | | RI Min (yrs) | | | RI Preferred (yrs) | | | |
| 1159 | | | 1103 | | | 8 | | | | 145 | | | 138 | | | 141 | |  | | | | |

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| --- | --- | --- | --- | --- | --- | --- | --- |
| San Andreas (Mojave S) | | | | | |  |  |
| Wrightwood (Young section) | | | | | | | |
| Event | Mean age (calendar years) | Sqrt(var) | Median | Interval ID | Min Interval (yrs) | Max Interval (yrs) | Mid (aka "preferred") |
|  |  |  |  | **OPEN** |  |  |  |
| Historical | 1857 |  |  |  |  |  |  |
|  |  |  |  | **I1** |  |  |  |
| Historical | 1812 |  |  |  |  |  |  |
|  |  |  |  | **I2** |  |  |  |
| W3 | 1685 | 18 | 1681 |  |  |  |  |
|  |  |  |  | **I3** |  |  |  |
| W4 | 1536 | 13 | 1531 |  |  |  |  |
|  |  |  |  | **I4** |  |  |  |
| W5 | 1487 | 18 | 1478 |  |  |  |  |
|  |  |  |  | **I5** |  |  |  |
| W5T | 1360 | 7 | 1361 |  |  |  |  |
|  |  |  |  | **I6** |  |  |  |
| W6 | 1264 | 29 | 1257 |  |  |  |  |
|  |  |  |  | **I7** |  |  |  |
| W7 | 1116 | 37 | 1111 |  |  |  |  |
|  |  |  |  | **I8** |  |  |  |
| W8 | 1016 | 27 | 1007 |  |  |  |  |
|  |  |  |  | **I9** |  |  |  |
| W9 | 850 | 20 | 852 |  |  |  |  |
|  |  |  |  | **I10** |  |  |  |
| W10 | 781 | 18 | 782 |  |  |  |  |
|  |  |  |  | **I11** |  |  |  |
| W11 | 722 | 11 | 722 |  |  |  |  |
|  |  |  |  | **I12** |  |  |  |
| W12 | 697 | 16 | 688 |  |  |  |  |
|  |  |  |  | **I13** |  |  |  |
| W13 | 634 | 31 | 628 |  |  |  |  |
|  |  |  |  | **I14** |  |  |  |
| W14 | 533 | 69 | 527 |  |  |  |  |
| RI (time/intervals method) | | | | | | | |
| Time max (yrs) | Time min (yrs) | Intervals | RI Max (yrs) | RI Min (yrs) | RI Preferred (yrs) |  |  |
| 1393 | 1255 | 14 | 99.5 | 89.6 | 95 |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| San Andreas (Mojave S) | | | | | | Lat: 34.370541 | | | | Lon: -117.668229 | | | |
| Wrightwood deep section | | | | | | | | | | | | | |
| Event | Age - 95% range (calendar years BC) | | Mean age (calendar years BC) | | Interval ID | | Min Interval (yrs) | | Max Interval (yrs) | | Mid (aka "preferred") | |
|  | Old | Young | |  | |  | |  | |  | |  | |
|  |  |  | |  | |  | |  | |  | |  | |
| W610 | 1635 | 1362 | | 1503 | |  | |  | |  | |  | |
|  |  |  | |  | | **I1** | | 8 | | 380 | | 185 | |
| W600 | 1742 | 1627 | | 1688 | |  | |  | |  | |  | |
|  |  |  | |  | | **I2** | | 40 | | 237 | | 86 | |
| W594 | 1864 | 1702 | | 1774 | |  | |  | |  | |  | |
|  |  |  | |  | | **I3** | | 50 | | 241 | | 88 | |
| W592 | 1943 | 1814 | | 1862 | |  | |  | |  | |  | |
|  |  |  | |  | | **I4** | | 68 | | 163 | | 54 | |
| W590 | 1977 | 1875 | | 1916 | |  | |  | |  | |  | |
|  |  |  | |  | | **I5** | | 0 | | 261 | | 133 | |
| W570 | 2136 | 1988 | | 2049 | |  | |  | |  | |  | |
|  |  |  | |  | | **I6** | | 48 | | 196 | | 79 | |
| W550.2 | 2184 | 2088 | | 2128 | |  | |  | |  | |  | |
|  |  |  | |  | | **I7** | | 0 | | 226 | | 125 | |
| W520 | 2314 | 2198 | | 2253 | |  | |  | |  | |  | |
|  |  |  | |  | | **I8** | | 67 | | 175 | | 56 | |
| W460 | 2373 | 2247 | | 2309 | |  | |  | |  | |  | |
|  |  |  | |  | | **I9** | | 0 | | 314 | | 194 | |
| W410 | 2561 | 2450 | | 2503 | |  | |  | |  | |  | |
|  |  |  | |  | | **I10** | | 0 | | 220 | | 107 | |
| W402 | 2670 | 2569 | | 2610 | |  | |  | |  | |  | |
|  |  |  | |  | | **I11** | | 69 | | 173 | | 47 | |
| W390 | 2742 | 2601 | | 2657 | |  | |  | |  | |  | |
|  |  |  | |  | | **I12** | | 47 | | 206 | | 89 | |
| W380 | 2807 | 2695 | | 2746 | |  | |  | |  | |  | |
|  |  |  | |  | | **I13** | | 0 | | 279 | | 169 | |
| W350 | 2974 | 2883 | | 2915 | |  | |  | |  | |  | |
|  | | | | | | | |  | |  | |  | |
| RI (time/intervals method) | | | | | | | | | | | | | |
| Time max (yrs) | Time min (yrs) | Intervals | | RI Max (yrs) | | RI Min (yrs) | | RI Preferred (yrs) | | | |  | |
| 1612 | 1248 | 13 | | 124 | | 96 | | 110 | |  | |  | |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| San Andreas (North Coast) 2011 CFM | | | | Lat: 38.981221 | | Lon: -123.676995 |
| Alder Creek | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | AD unless noted otherwise | Interval ID | Min Interval (yrs) | Max Interval (yrs) | Mid (aka "preferred") |
|  | Old | Young |  |  |  |  |
|  |  |  | **OPEN** | 106 | 106 | 106 |
| MRE | 1906 | 1906 |  |  |  |  |
|  |  |  | **I1** | 303 | 1226 | 764.5 |
| 2 | 680 | 1603 |  |  |  |  |
| RI (time/intervals method) | | | | | | |
| Time max (yrs) | Time min (yrs) | Intervals | RI Max (yrs) | RI Min (yrs) | RI Preferred (yrs) |  |
| 1226 | 303 | 1 | 1226 | 303 | 764.5 |  |

Note: 4.9 meters offset in 1906, 3.1-4.6 meters in penultimate, used 4.3 meters as average displacement in table G5.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| San Andreas (North Coast) 2011 CFM | | | | Lat: 38.032 | | | Lon: -122.7891 |
| Vedanta | | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | AD unless noted otherwise | Interval ID | | Min Interval (yrs) | Max Interval (yrs) | Mid (aka "preferred") |
|  | Old | Young |  | |  |  |  |
|  |  |  | **OPEN** | | 100 | 100 | 100 |
| E1 | 1906 | 1906 |  | |  |  |  |
|  |  |  | **I1** | | 166 | 236 | 201 |
| E2 | 1670 | 1740 |  | |  |  |  |
|  |  |  | **I2** | | 230 | 390 | 310 |
| E3 | 1350 | 1440 |  | |  |  |  |
|  |  |  | **I3** | | 0 | 150 | 75 |
| E4 | 1290 | 1380 |  | |  |  |  |
|  |  |  | **I4** | | 60 | 240 | 150 |
| E5 | 1140 | 1230 |  | |  |  |  |
|  |  |  | **I5** | | 0 | 130 | 65 |
| E6 | 1100 | 1165 |  | |  |  |  |
|  |  |  | **I6** | | 215 | 345 | 280 |
| E7 | 820 | 885 |  | |  |  |  |
|  |  |  | **I7** | | 110 | 235 | 172.5 |
| E8 | 650 | 710 |  | |  |  |  |
|  |  |  | **I8** | | 430 | 780 | 605 |
| E9 | -70 | 220 |  | |  |  |  |
|  |  |  | **I9** | | 50 | 570 | 310 |
| E10 (BC) | -350 | -120 |  | |  |  |  |
|  |  |  | **I10** | | 0 | 510 | 255 |
| E11 (BC) | -630 | -240 |  | |  |  |  |
|  |  |  | **I11** | | 30 | 750 | 390 |
| E12 (BC) | -990 | -660 |  | |  |  |  |
| RI (time/intervals method) | | | | | | | |
| Time max (yrs) | Time min (yrs) | Intervals | RI Max (yrs) | | RI Min (yrs) | RI Preferred (yrs) |  |
| 2896 | 2566 | 11 | 263 | | 233 | 248 |  |

\*Event ages taken from Zhang and others (2006)

Note: Earthquake intervals in Zhang and others (2006) differ from Zhang (2005) Ph.D. thesis which states “The northern San Andreas fault (SAF) ruptured in 1906 and generated the Great San Francisco Earthquake. This study involves collection and interpretation of paleoseismic data from the North Coast segment of the northern SAF at Vedanta marsh, Olema, California, to determine the timing of prehistoric large earthquakes, coseismic slips, and earthquake recurrence on this fault segment. These important parameters will test the existing earthquake models and add new data to the San Francisco Bay Area earthquake probability analysis. Late Holocene sediments deposited at Vedanta marsh preserve a continuous record of prehistoric earthquakes. Excavations into the marsh provided exposure of the sediments across the SAF zone. Well-defined marsh stratigraphy and abundant in situ organic material allow the determination of the first long, high-resolution, event-by-event record of earthquakes for the northern SAF. Evidence for twelve earthquakes, including the 1906 earthquake, have been identified from the main fault zone based on fault outward splays, fault upward termination, fissures, colluvial wedges, and soft-sediment deformation. All of these features occurred since the deposition of a unit that is approximately 3000 years old. The age of eleven pre-1906 seismic events are well bracketed by radiocarbon dates and age modeling using the OxCal radiocarbon analysis program. The average recurrence interval at the Vedanta site is ̃250 years. However, individual recurrence intervals are quite irregular, ranging from as short as 53 years to as long as 605 years. From comparisons with other sites on the northern SAF, I interpret four pre-1906 events may have ruptured the entire North Coast segment, including earthquakes in the following ranges: AD 1670 - 1740; AD 1290 - 1380; AD 1100 - 1165; and AD 650 -710. A buried paleochannel had been right-laterally offset 7.8 - 8.3 m by coseismic slip of the 1906 and the penultimate earthquakes. Historical record of the 1906 coseismic slip measured near the excavation site was ̃5 m. If we assume 5 m of 1906 slip at the marsh site, then the coseismic slip of the penultimate event is between 2.8 - 3.3 m. Timing (AD 1670 - 1740) and coseismic slip of the penultimate event indicate that the northern SAF may rupture in sequences of closely timed earthquakes on shorter segments, and does not support the assumption that the fault has failed as a single, long rupture similar to 1906 in mid 1600s.”

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| San Andreas (Offshore) 2011 CFM | | | | | Lat: 39.5167 Long: -124.333 | | |
| Noyo Canyon turbidites | | | |  | |  |  |
| Event | Calendar Age (Calibrated 2-sigma) | AD unless noted otherwise | Interval ID | Min Interval (yrs) | | Max Interval (yrs) | Mid (aka "preferred") |
|  |  |  | **OPEN** | 100 | | 100 | 100 |
| E1 | 1906 |  |  |  | |  |  |
|  |  |  | **I1** |  | |  | 137 |
|  |  |  | **I2** |  | |  | 132 |
|  |  |  | **I3** |  | |  | 155 |
|  |  |  | **I4** |  | |  | 254 |
|  |  |  | **I5** |  | |  | 248 |
|  |  |  | **I6** |  | |  | 69 |
|  |  |  | **I7** |  | |  | 235 |
|  |  |  | **I8** |  | |  | 252 |
|  |  |  | **I9** |  | |  | 232 |
|  |  |  | **I10** |  | |  | 220 |
|  |  |  | **I11** |  | |  | 129 |
|  |  |  | **I12** |  | |  | 119 |
|  |  |  | **I13** |  | |  | 176 |
|  |  |  | **I14** |  | |  | 187 |

Interval information only listed in Goldfinger manuscript.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| RI (time/intervals method) | | | | | | |
| Time max (yrs) | Time min (yrs) | Intervals | RI Max (yrs) | RI Min (yrs) | RI Preferred (yrs) |  |
| 2890 | 2690 | 14 | 206 | 192 | 199 |  |

\*Intervals from Goldfinger and others (2007)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| San Andreas (Peninsula) 2011 CFM | | | | Lat: 37.47332 | | Lon: -122.3116779 | |
| Filoli | | | | | | | |
| **Event** | **Calendar Age (Calibrated 2-sigma)** | | **AD unless noted otherwise** | **Interval ID** | **Min Interval (yrs)** | **Max Interval (yrs)** | **Mid (aka "preferred")** |
|  | Old | | Young |  |  |  |  |
|  |  | |  | **OPEN** | 106 | 106 | 106 |
| MRE | 1906 | | 1906 |  |  |  |  |
|  |  | |  | **I1** | 68 | 68 | 68 |
| 2\* | 1838 | | 1838 |  |  |  |  |
| RI (time/intervals method) | | | | | | | |
| Time max (yrs) | | Time min (yrs) | Intervals | RI Max (yrs) | RI Min (yrs) | RI Preferred (yrs) |  |
| 68 | | 68 | 1 | 68 | 68 | 68 |  |

\* Hall and others, (1999) find evidence for 1906 and a penultimate earthquake. The June 1838 earthquake is their preferred interpretation for the penultimate event based on C14 constraints and historical descriptions of the event.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| San Andreas (San Bernardino N) | | | Lat: 34.252306 | | Lon: -117.430282 | |
| Pitman Canyon | | | | | | |
| Event | Mean age (calendar years) | Sqrt(var) | Median | Interval ID | | Interval |
|  |  |  |  |  | |  |
|  |  |  |  | **OPEN** | | 200 |
| Historical | 1812 |  |  |  | |  |
|  |  |  |  | **I1** | | 119 |
| Pit1.5\* | 1693 |  |  |  | |  |
|  |  |  |  | **-** | |  |
| Pit2 | 1704 | 50 | 1706 |  | |  |
|  |  |  |  | **I2** | |  |
| Pit3 | 1559 | 78 | 1567 |  | |  |
|  |  |  |  | **I3** | |  |
| Pit4 | 1437 | 70 | 1419 |  | |  |
|  |  |  |  | **I4** | |  |
| Pit5 | 1313 | 52 | 1305 |  | |  |
|  |  |  |  | **I5** | |  |
| Pit6 | 1173 | 81 | 1180 |  | |  |
|  |  |  |  | **I6** | |  |
| Pit7 | 931 | 91 | 942 |  | |  |
| RI (time/intervals method) | | | | | | |
| Time max (yrs) | Time min (yrs) | Intervals | RI Max (yrs) | RI Min (yrs) | | RI Preferred (yrs) |
| 972 | 790 | 6 | 162 | 132 | | 147 |

\* Pit 1.5 – is an alternative interpretation based on C14 results.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| San Andreas (San Bernardino N) | | | | Lat: 34.116751 | | Lon: -117.141022 | |
| Plunge Creek | | | | | | | |
| Event | Mean age (calendar years) | Sqrt(var) | Median | Interval ID | Min Interval (yrs) | Max Interval (yrs) | Mid (aka "preferred") |
|  |  |  |  | **OPEN** |  |  |  |
| Historical | 1812 |  |  |  |  |  |  |
|  |  |  |  | **I1** |  |  |  |
| Plunge1 | 1619 | 48 | 1619 |  |  |  |  |
|  |  |  |  | **I2** |  |  |  |
| Plunge2 | 1499 | 114 | 1499 |  |  |  |  |
| RI (time/intervals method) | | | | | | | |
| Time max (yrs) | Time min (yrs) | Intervals | RI Max (yrs) | RI Min (yrs) | RIPreferred(yrs) | |  |
| 427 | 199 | 2 | 213.5 | 99.5 | 156.5 | |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| San Andreas (San Bernardino S) | | | | Lat: 33.999664 | | Lon: -116.860839 | |
| Burro Flats | | | | | | | |
| Event | Mean age (calendar years) | Sqrt(var) | Median | Interval ID | Min Interval (yrs) | Max Interval (yrs) | Mid (aka "preferred") |
|  |  |  |  | **OPEN** |  |  |  |
| Historical | 1812 |  |  |  |  |  |  |
|  |  |  |  | **I1** |  |  |  |
| FinalPDFs/Burro/ev.Burro2 | 1684 | 37 | 1673 |  |  |  |  |
|  |  |  |  | **I2** |  |  |  |
| FinalPDFs/Burro/ev.Burro3 | 1500 | 23 | 1495 |  |  |  |  |
|  |  |  |  | **I3** |  |  |  |
| FinalPDFs/Burro/ev.Burro4 | 1475 | 78 | 1478 |  |  |  |  |
|  |  |  |  | **I4** |  |  |  |
| FinalPDFs/Burro/ev.Burro5 | 1347 | 21 | 1347 |  |  |  |  |
|  |  |  |  | **I5** |  |  |  |
| FinalPDFs/Burro/ev.Burro6 | 1107 | 37 | 1098 |  |  |  |  |
|  |  |  |  | **I6** |  |  |  |
| FinalPDFs/Burro/ev.Burro7 | 774 | 48 | 774 |  |  |  |  |
| RI (time/intervals method) | | | | | | | |
| Time max (yrs) | Time min (yrs) | Intervals | RI Max (yrs) | RI Min (yrs) | RI Preferred (yrs) |  | |
| 1086 | 990 | 6 | 181 | 165 | 173 |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| San Andreas (Santa Cruz Mountains) 2011 CFM | | | | Lat: 36.909731 | | Lon: -121.62363 | |
| Arano Flat/Mill Canyon | | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | AD unless noted otherwise | Interval ID | | Min Interval (yrs) | Max Interval (yrs) | Mid (aka "preferred") |
|  | Old | Young |  | |  |  |  |
|  |  |  | **OPEN** | | 100 | 100 | 100 |
| E1 | 1906 | 1906 |  | |  |  |  |
|  |  |  | **I1** | | 116 | 186 | 151 |
| E2 | 1720 | 1790 |  | |  |  |  |
|  |  |  | **I2** | | 40 | 190 | 115 |
| E3 | 1600 | 1680 |  | |  |  |  |
|  |  |  | **I3** | | 0 | 160 | 80 |
| E4 | 1520 | 1620 |  | |  |  |  |
|  |  |  | **I4** | | 10 | 190 | 100 |
| E5 | 1430 | 1510 |  | |  |  |  |
|  |  |  | **I5** | | 0 | 110 | 55 |
| E6 | 1400 | 1470 |  | |  |  |  |
|  |  |  | **I6** | | 0 | 160 | 80 |
| E7 | 1310 | 1400 |  | |  |  |  |
|  |  |  | **I7** | | 50 | 260 | 155 |
| E8 | 1140 | 1260 |  | |  |  |  |
|  |  |  | **I8** | | 30 | 250 | 140 |
| E9 | 1010 | 1110 |  | |  |  |  |
| RI (time/intervals method) | | | | | | | |
| Time max (yrs) | Time min (yrs) | Intervals | RI Max (yrs) | | RI Min (yrs) | RI Preferred (yrs) |  |
| 896 | 796 | 8 | 112 | | 100 | 106 |  |

\*Values taken from OxCal generated model provided by T. Fumal (written comm., 2007); Dawson and others (2008).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| San Andreas (Santa Cruz Mountains) 2011 CFM | | | Lat: 37.000318 | | Lon: -121.741757 | | | |
| Hazel Dell | | | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | AD unless noted otherwise | preferred | Interval ID | | Min Interval (yrs) | Max Interval (yrs) | Mid (aka "preferred") |
|  | Old | Young |  |  | |  |  |  |
|  |  |  |  | **OPEN** | | 106 | 106 | 106 |
| Event 1 | 1906 | 1906 | 1906 |  | |  |  |  |
|  |  |  |  | **I1** | | 16 | 41 | 16 |
| Event 2 | - | - | 1890 (preferred)  or 1865 (alternative) |  | |  |  |  |
|  |  |  |  | **I2** | | 0 | 52 | 52 |
| Event 3 | - | - | 1838 (preferred)  or 1865 (alternative) |  | |  |  |  |
|  |  |  |  | **I3\*** | | 520 | 1105 | 288 |
| Event 4\* | 760 | 1318 | 1093 |  | |  |  |  |
| RI (time/intervals method) | | | | | | | | |
| Time max (yrs) | Time min (yrs) | Intervals | RI Max (yrs) | RI Min (yrs) | | RI Preferred (yrs) | |  |
| 1146 | 588 | 3 | 382 | 196 | | 289 |  |  |

\* Authors interpret a depositional hiatus between E3 and E4, record may not be complete & interval may not be accurate.

\*\* Values from Streig and others, *in press 2013,* BSSA.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| San Andreas (Santa Cruz Mountains) 2011 CFM | | | | | Lat: 36.946063 | | Lon: -121.679612 | |
| Mill Canyon | | | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | AD unless noted otherwise |  | Interval ID | Min Interval (yrs) | Max Interval (yrs) | | Mid (aka "preferred") |
|  | Old | Young | Preferred |  |  |  | |  |
|  |  |  |  | **OPEN** | 106 | 106 | | 106 |
| E1 | 1906 | 1906 | 1906 |  |  |  | |  |
|  |  |  |  | **I1** | 68 | 158 | | 68 |
| E2 |  |  | 1838 (preferred)  or 1748 (alternative) |  |  |  | |  |
|  |  |  |  | **I2** | 29 | 179 | | 152 |
| E3 | 1659 | 1719 | 1686 |  |  |  | |  |
|  |  |  |  | **I3** | 54 | 265 | | 164 |
| E4 | 1454 | 1605 | 1522 |  |  |  | |  |
| RI (time/intervals method) | | | | | | | | |
| Time max (yrs) | Time min (yrs) | Intervals | RI Max (yrs) | RI Min (yrs) | RI Preferred (yrs) | | |  |
| 452 | 301 | 3 | 150 | 100 | 377 |  | |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| San Cayetano | | | | Lat: 34.40922 | | Lon: -118.81442 | |
| Piru | | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | AD unless noted otherwise | preferred | Interval ID | Min Interval (yrs) | Max Interval (yrs) | Mid (aka "preferred") |
|  | Old | Young |  |  |  |  |  |
|  |  |  |  | **OPEN** |  | 352 |  |
| MRE | 1660 |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| San Gorgonio Pass | | | | Lat: 33.932764 | | Lon: -116.764564 | |
| Cabazon | | | | | | | |
| Event | Age (years before present) | | preferred | Interval ID | Min Interval (yrs) | Max Interval (yrs) | Mid (aka "preferred") |
|  | Old | Young |  |  |  |  |  |
|  |  |  |  | **OPEN** | 600 | 800 | 700 |
| MRE | 800 | 600 |  |  |  |  |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| San Gregorio (North) 2011 CFM | | | Lat: 37.520948 | | Lon: -122.513702 | |
| Seal Cove | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | AD unless noted otherwise | Interval ID | Min Interval (yrs) | Max Interval (yrs) | Mid (aka "preferred") |
|  | Old | Young |  |  |  |  |
|  |  |  | **OPEN** | 231 | 736 | 483.5 |
| MRE | 1270 | 1775 |  |  |  |  |
|  |  |  | **I1** | 130 | 1175 | 652.5 |
| 2 | 600 | 1400 |  |  |  |  |
| RI (time/intervals method) | | | | | | |
| Time max (yrs) | Time min (yrs) | Intervals | RI Max (yrs) | RI Min (yrs) | RI Preferred (yrs) |  |
| 1175 | 670 | 1 | 1175 | 670 | 923 |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| San Jacinto (Anza) rev | | | | Lat: 33.68501558 | | Lon: -116.8234926 | |
| Blackburn Canyon | | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | AD unless noted otherwise | preferred | Interval ID | Min Interval (yrs) | Max Interval (yrs) | Mid (aka "preferred") |
|  | Old | Young |  |  |  |  |  |
|  |  |  |  | **OPEN** |  |  | 213 |
| MRE |  |  | 1800\* |  |  |  |  |

\* MRE from Buga and others (2011).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| San Jacinto (Anza) | | | | Lat: 33.6153 | | Long: -116.7091 | |
| Hog Lake | | | | | | | |
| Event | Calendar Age range (Calibrated 2-sigma) | AD, unless noted otherwise | Interval | Min Interval (yrs) | Max Interval (yrs) | | Mid (aka "preferred") |
|  | Old | Young |  |  |  | |  |
|  |  |  | OPEN | 95 | 95 | | 95 |
| E1 | - | 1918\* |  |  |  | |  |
|  |  |  | I1 | 288 | 398 | | 343 |
| E2 | 1520 | 1630 |  |  |  | |  |
|  |  |  | I2 | 170 | 340 | | 255 |
| E3 | 1290 | 1350 |  |  |  | |  |
|  |  |  | I3 | 0 | 70 | | 35 |
| E4 | 1280 | 1350 |  |  |  | |  |
|  |  |  | I4 | 0 | 80 | | 40 |
| E5 | 1270 | 1300 |  |  |  | |  |
|  |  |  | I5 | 0 | 160 | | 80 |
| E6 | 1140 | 1290 |  |  |  | |  |
|  |  |  | I6 | 0 | 310 | | 155 |
| E7 | 980 | 1160 |  |  |  | |  |
|  |  |  | I7 | 0 | 810 | | 405 |
| E8 | 350 | 1000 |  |  |  | |  |
|  |  |  | I8 | 0 | 800 | | 400 |
| E9 | 200 | 850 |  |  |  | |  |
|  |  |  | I9 | 0 | 750 | | 375 |
| E10 | 100 | 260 |  |  |  | |  |
|  |  |  | I10 | 190 | 610 | | 400 |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| E11 (yrs B.C.) | | 350 | 90 |  |  |  |  |
|  | |  |  | **I11** | 0 | 420 | 210 |
| E12 (yrs B.C.) | | 510 | 230 |  |  |  |  |
|  | |  |  | **I12** | 100 | 650 | 375 |
| E13 (yrs B.C.) | | 880 | 610 |  |  |  |  |
|  | |  |  | **I13** | 480 | 960 | 720 |
| E14 (yrs B.C.) | | 1570 | 1360 |  |  |  |  |
| E15 | | Unconstrained |  |  |  |  |  |
| E16 | | Unconstrained |  |  |  |  |  |
| RI (time/intervals method) | | | | | | | |
| Time max (yrs) | Time min (yrs) | | Intervals | RI Max (yrs) | RI Min (yrs) | RI Preferred (yrs) |  |
| 4000 | 3500 | | 15 | 267 | 233 | 250 |  |

RI data from Rockwell and others (2006) abstract (16 Eqs in 3.5 - 4.0 ka).

\* E1 is 1918, from unpublished new work (T. Rockwell personal communication, 2013).

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| San Jacinto (Claremont) | | | | Lat: 33.900322 | | Lon: -117.089184 | | |
| Mystic Lake | | | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | AD unless noted otherwise | preferred | Interval ID | Min Interval (yrs) | | Max Interval (yrs) | Mid (aka "preferred") |
|  | Old | Young |  |  |  | |  |  |
|  |  |  |  | **OPEN** | 160 | | 269 | 219 |
| MRE | 1744 | 1853 | 1799 |  |  | |  |  |
|  |  |  |  | **I1** | 0 | | 188 |  |
| E2 | 1665 | 1820 | 1743 |  |  | |  |  |
|  |  |  |  | **I2** | 49 | | 299 |  |
| E3 | 1521 | 1616 | 1569 |  |  | |  |  |
|  |  |  |  | **I3** | 76 | | 213 |  |
| E4 | 1403 | 1445 | 1424 |  |  | |  |  |
|  |  |  |  | **I4** | 0 | | 172 |  |
| E5 | 1273 | 1419 | 1346 |  |  | |  |  |
|  |  |  |  | **I5** | 312 | | 612 |  |
| E6 | 807 | 961 | 884 |  |  | |  |  |
|  |  |  |  | **I6** | 0 | | 382 |  |
| E7 | 579 | 846 | 712 |  |  | |  |  |
| RI (time/intervals method) | | | | | | | | |
| Time max (yrs) | Time min (yrs) | Intervals | RI Max (yrs) | RI Min (yrs) | RI Preferred (yrs) | |  |  |
| 1274 | 898 | 6 | 212 | 150 | 181 | |  |  |

Values from table 3 in Onerdonk and others (2013), this fault was added during review (reference became available after compilation was complete), and was too late to integrate into the model.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| San Jacinto (Clark) | | | | Lat: 33.309305 | | Lon: -116.192930 | |
| Lute Ridge | | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | AD unless noted otherwise | preferred | Interval ID | Min Interval (yrs) | Max Interval (yrs) | Mid (aka "preferred") |
|  | Old | Young |  |  |  |  |  |
|  |  |  |  | **OPEN** |  |  | 222 |
| MRE |  |  | 1790 |  |  |  |  |
|  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| San Jacinto (Superstition Mountain) | | | | | Lat: 32.9975 | | Lon: -115.9436 | |
| Superstition Mountain | | | | | | | | |
| Event | Calendar Age range (Calibrated 2-sigma) | AD unless noted otherwise | Interval | Min Interval (yrs) | | Max Interval (yrs) | | Mid (aka "preferred") |
|  | Old | Young |  |  | |  | |  |
|  |  |  | OPEN | 366 | | 566 | | 466 |
| E1 | 1440 | 1640 |  |  | |  | |  |
|  |  |  | I1 | 0 | | 360 | | 180 |
| E2 | 1280 | 1640 |  |  | |  | |  |
|  |  |  | I2 | 0 | | 820 | | 410 |
| E3 | 820 | 1280 |  |  | |  | |  |
|  |  |  | I3 | 0 | | record likely incomplete prior to E3 | | |
| E4 | 4670 BC | 964 |  |  | |  | |  |
| RI (time/intervals method) | | | | | | | | |
| Time max (yrs) | Time min (yrs) | Intervals | RI Max (yrs) | RI Min (yrs) | | RI Preferred (yrs) | |  |
| 823 | 476 | 2 | 412 | 238 | | 325 | |  |

Constraining lower date: A.D. 817-964, RI calculated from this and E1 event age.

Event ages and recurrence from Gurrola and Rockwell, 1996

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Sierra Madre | | | | | | Lat: 34.128521 | | Lon: -117.810299 |
| San Dimas | | | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | AD unless noted otherwise | preferred | Interval ID | Min Interval (yrs) | | Max Interval (yrs) | Mid (aka "preferred") |
|  | Old | Young |  |  |  | |  |  |
|  |  |  |  | **OPEN** |  | | 15541 |  |
| MRE | 13,529 BC - 11,903 BC | | |  |  | |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Whittier | | | | Lat: 33.9303 | | | Lon: -117.8437 | |
|  | | | | | | | | |
| Event | Age in yrs BP (Calibrated 2-sigma) |  | Interval | | Min Interval (yrs) | Max Interval (yrs) | | Mid (aka "preferred") |
|  | Young | Old |  | |  |  | |  |
|  |  |  | OPEN | | 1400 | 2200 | | 1800 |
| E1 | 1400 | 2200 |  | |  |  | |  |
|  |  |  | I1 | | 800 | 2000 | | 1400 |
| E2 | 3000 | 3400 |  | |  |  | |  |
| RI (time/intervals method) | | | | | | | | |
| Time max (yrs) | Time min (yrs) | Intervals | RI Max (yrs) | | RI Min (yrs) | RI Preferred (yrs) | |  |
| 2000 | 800 | 1 | 2000 | | 800 | 1400 | |  |

1. UCERF2 paleoseismic ages and intervals superceeded by newer data.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Elsinore (Temecula) rev | | | Lat: 33.41 | | Lon: -117.04 | |
| Temecula OLD | | | | | | |
| Event | Age in Calendar Years for MRE (Calibrated 2-sigma) |  | Interval | Min Interval (yrs) | Max Interval (yrs) | Mid (aka "preferred") |
| X | 1650 | 1810 | OPEN | 196 | 356 | 276 |
| Incomplete record until Event T | |  |  |  |  |  |
|  | In years B.P. below |  |  |  |  |  |
|  | Young | Old |  |  |  |  |
| Event T | 2700 | 3300 |  |  |  |  |
|  |  |  | I1 | 0 | 800 | 400 |
| Event P | 3000 | 3500 |  |  |  |  |
|  |  |  | I2 | 0 | 1500 | 750 |
| Event L | 3500 | 4500 |  |  |  |  |
|  |  |  | I3 | 500 | Unconstrained | Unconstrained |
| Event H | 4500 | >4500 |  |  |  |  |

Event H reported as shortly before 4500 yrs. Can use this as a minimum recurrence interval between L and H.

Event ages as reported by Vaughan and others

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| RI (time/intervals method) | | | | | | |
| Time max (yrs) | Time min (yrs) | Intervals | RI Max (yrs) | RI Min (yrs) | RI Preferred (yrs) |  |
| 1800 | 1200 | 3 | 600 | 400 | 500 |  |

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Hayward (So) 2011 CFM | | | Lat: 37.5563 | | Lon: -121.9739 | |
| (Tule Pond) OLD | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | AD unless noted otherwise | Interval ID | Min Interval (yrs) | Max Interval (yrs) | Mid (aka "preferred") |
|  | Old | Young |  |  |  |  |
|  |  |  | **OPEN** | 138 | 138 | 138 |
| E1 | 1868 | 1868 |  |  |  |  |
|  |  |  | **I1** | 78 | 218 | 148 |
| E2 | 1650 | 1790 |  |  |  |  |
|  |  |  | **I2** | 0 | 260 | 130 |
| E3 | 1530 | 1740 |  |  |  |  |
|  |  |  | **I3** | 0 | 360 | 180 |
| E4 | 1380 | 1590 |  |  |  |  |
|  |  |  | **I4** | 0 | 360 | 180 |
| E5 | 1230 | 1410 |  |  |  |  |
|  |  |  | **I5** | 0 | 410 | 205 |
| E6 | 1000 | 1270 |  |  |  |  |
|  |  |  | **I6** | 0 | 360 | 180 |
| E7 | 910 | 1010 |  |  |  |  |
|  |  |  | **I7** | 10 | 260 | 135 |
| E8 | 750 | 900 |  |  |  |  |
|  |  |  | **I8** | 70 | 510 | 290 |
| E9 | 390 | 680 |  |  |  |  |
|  |  |  | **I9** | 0 | 400 | 200 |
| E10 | 280 | 640 |  |  |  |  |
|  |  |  | **I10** | 0 | 450 | 225 |
| E11 | 190 | 550 |  |  |  |  |
| RI (time/intervals method) | | | | | | |
| Time max (yrs) | Time min (yrs) | Intervals | RI Max (yrs) | RI Min (yrs) | RI Preferred (yrs) |  |
| 1678 | 1318 | 10 | 168 | 132 | 150 |  |

\*Values taken from OxCal generated model provided by Lienkaemper.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| San Andreas (Carrizo) | | |  |  |  |  |  |
| Carrizo combined | | | | | | | |
| Event | Mean age (calendar years) | Sqrt (var) | Median | Interval ID | Min Interval (yrs) | Max Interval (yrs) | Mid (aka "preferred") |
|  |  |  |  |  |  |  |  |
|  |  |  |  | **OPEN** |  |  |  |
| Historical | 1857 |  |  |  |  |  |  |
|  |  |  |  | **I1** |  |  |  |
| Carr2shv | 1571 | 116 | 1596 |  |  |  |  |
|  |  |  |  | **I2** |  |  |  |
| Carr3shv | 1384 | 77 | 1373 |  |  |  |  |
|  |  |  |  | **I3** |  |  |  |
| Carr4shv | 1277 | 103 | 1318 |  |  |  |  |
|  |  |  |  | **I4** |  |  |  |
| Carr5shv | 1078 | 82 | 1050 |  |  |  |  |
|  |  |  |  | **I5** |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| San Andreas (Mojave S) | | | |  |  |  |  |
| Pallett Creek OLD | | | | | | | |
| Event | Mean age (calendar years) | Sqrt(var) | Median | Interval ID | Min Interval (yrs) | Max Interval (yrs) | Mid (aka "preferred") |
|  |  |  |  |  |  |  |  |
|  |  |  |  | **OPEN** |  |  |  |
| Historical | 1857 |  |  |  |  |  |  |
|  |  |  |  | **I1** |  |  |  |
| Historical | 1812 |  |  |  |  |  |  |
|  |  |  |  | **I2** |  |  |  |
| V | 1547 | 31 | 1546 |  |  |  |  |
|  |  |  |  | **I3** |  |  |  |
| T | 1360 | 7 | 1361 |  |  |  |  |
|  |  |  |  | **I4** |  |  |  |
| R | 1084 | 16 | 1087 |  |  |  |  |
|  |  |  |  | **I5** |  |  |  |
| N | 1067 | 16 | 1065 |  |  |  |  |
|  |  |  |  | **I6** |  |  |  |
| I | 956 | 19 | 952 |  |  |  |  |
|  |  |  |  | **I7** |  |  |  |
| F | 842 | 17 | 846 |  |  |  |  |
|  |  |  |  | **I8** |  |  |  |
| D | 764 | 7 | 758 |  |  |  |  |
|  |  |  |  | **I9** |  |  |  |
| C | 645 | 12 | 646 |  |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| San Andreas (Mojave S) | | | | Lat: 34.252306 | | Lon: 117.430282 | |
| Pitman Canyon OLD | | | | | | | |
| Event | Mean age (calendar years) | Sqrt(var) | Median | Interval ID | Min Interval (yrs) | Max Interval (yrs) | Mid (aka "preferred") |
|  |  |  |  |  |  |  |  |
|  |  |  |  | **OPEN** |  |  |  |
| Historical | 1812 |  |  |  |  |  |  |
|  |  |  |  | **I1** |  |  |  |
| Pit2 | 1704 | 50 | 1706 |  |  |  |  |
|  |  |  |  | **I2** |  |  |  |
| Pit3 | 1559 | 78 | 1567 |  |  |  |  |
|  |  |  |  | **I3** |  |  |  |
| Pit4 | 1437 | 70 | 1419 |  |  |  |  |
|  |  |  |  | **I4** |  |  |  |
| Pit5 | 1313 | 52 | 1305 |  |  |  |  |
|  |  |  |  | **I5** |  |  |  |
| Pit6 | 1173 | 81 | 1180 |  |  |  |  |
|  |  |  |  | **I6** |  |  |  |
| Pit7 | 931 | 91 | 942 |  |  |  |  |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| San Andreas (Mojave S) | | | | Lat: 34.370541 | | Lon: 117.668229 | |
| Wrightwood OLD | | | | | | | |
| Event | Mean age (calendar years) | Sqrt(var) | Median | Interval ID | Min Interval (yrs) | Max Interval (yrs) | Mid (aka "preferred") |
|  |  |  |  | **OPEN** |  |  |  |
| Historical | 1857 |  |  |  |  |  |  |
|  |  |  |  | **I1** |  |  |  |
| Historical | 1812 |  |  |  |  |  |  |
|  |  |  |  | **I2** |  |  |  |
| W3 | 1685 | 18 | 1681 |  |  |  |  |
|  |  |  |  | **I3** |  |  |  |
| W4 | 1536 | 13 | 1531 |  |  |  |  |
|  |  |  |  | **I4** |  |  |  |
| W5 | 1487 | 18 | 1478 |  |  |  |  |
|  |  |  |  | **I5** |  |  |  |
| W5T | 1360 | 7 | 1361 |  |  |  |  |
|  |  |  |  | **I6** |  |  |  |
| W6 | 1264 | 29 | 1257 |  |  |  |  |
|  |  |  |  | **I7** |  |  |  |
| W7 | 1116 | 37 | 1111 |  |  |  |  |
|  |  |  |  | **I8** |  |  |  |
| W8 | 1016 | 27 | 1007 |  |  |  |  |
|  |  |  |  | **I9** |  |  |  |
| W9 | 850 | 20 | 852 |  |  |  |  |
|  |  |  |  | **I10** |  |  |  |
| W10 | 781 | 18 | 782 |  |  |  |  |
|  |  |  |  | **I11** |  |  |  |
| W11 | 722 | 11 | 722 |  |  |  |  |
|  |  |  |  |  |  |  |  |
| W12 | 697 | 16 | 688 |  |  |  |  |
|  |  |  |  | **I12** |  |  |  |
| W13 | 634 | 31 | 628 |  |  |  |  |
|  |  |  |  | **I13** |  |  |  |
| W14 | 533 | 69 | 527 |  |  |  |  |

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| San Andreas (Santa Cruz Mountains) 2011 CFM | | | | | Lat: 36.9415 | | Lon: 121.6729 | |
| (Arano Flat/Mill Canyon) OLD | | | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | AD unless noted otherwise | Interval ID | Min Interval (yrs) | | Max Interval (yrs) | | Mid (aka "preferred") |
|  | Old | Young |  |  | |  | |  |
|  |  |  | **OPEN** | 100 | | 100 | | 100 |
| E1 | 1906 | 1906 |  |  | |  | |  |
|  |  |  | **I1** | 116 | | 186 | | 151 |
| E2 | 1720 | 1790 |  |  | |  | |  |
|  |  |  | **I2** | 40 | | 190 | | 115 |
| E3 | 1600 | 1680 |  |  | |  | |  |
|  |  |  | **I3** | 0 | | 160 | | 80 |
| E4 | 1520 | 1620 |  |  | |  | |  |
|  |  |  | **I4** | 10 | | 190 | | 100 |
| E5 | 1430 | 1510 |  |  | |  | |  |
|  |  |  | **I5** | 0 | | 110 | | 55 |
| E6 | 1400 | 1470 |  |  | |  | |  |
|  |  |  | **I6** | 0 | | 160 | | 80 |
| E7 | 1310 | 1400 |  |  | |  | |  |
|  |  |  | **I7** | 50 | | 260 | | 155 |
| E8 | 1140 | 1260 |  |  | |  | |  |
|  |  |  | **I8** | 30 | | 250 | | 140 |
| E9 | 1010 | 1110 |  |  | |  | |  |
| RI (time/intervals method) | | | | | | | | |
| Time max (yrs) | Time min (yrs) | Intervals | RI Max (yrs) | RI Min (yrs) | | RI Preferred (yrs) | |  |
| 896 | 796 | 8 | 112 | 100 | | 106 | |  |

\*Values taken from OxCal generated model provided by T. Fumal.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| San Gregorio (North) 2011 CFM | |  | Lat: 37.5207 | | Lon: 122.5135 | |
| (Seal Cove) OLD | | | | | | |
| Event | Calendar Age (Calibrated 2-sigma) | AD unless noted otherwise | Interval ID | Min Interval (yrs) | Max Interval (yrs) | Mid (aka "preferred") |
|  | Old | Young |  |  |  |  |
|  |  |  | **OPEN** | 230 | 736 | 483 |
| E1 | 1270 | 1776 |  |  |  |  |
|  |  |  | **I1** | 0 | 1156 | 578 |
| E2 | 620 | 1400 |  |  |  |  |

1. Overlap of the age of paleoearthquakes along multi-site faults. Values in cells above and right of dash marks are the number of age overlaps for two sites. Values in cells below dash marks are the number of events in the time interval common to the 2 sites. The first number is from the site to the left, the second number is from the site above. So, for example: Whittier has a 2 event record and 2 are in a common time period with Temecula, which has 5 total events but only 3 in the common interval.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Elsinore |  |  |  |  |  |  |  |  |
|  | Latitude | Longitude | Total # of events | Whittier | Glen Ivy | Temecula | Julian - Lake Henshaw S | Julian |
| Whittier | 33.93030 | -117.84370 | 2 | - | 0 | 1 | 1 | 2 |
| Glen Ivy | 33.77010 | -117.49090 | 6 | 6, 1 | - | 1 | 1 | 0 |
| Temecula | 33.41000 | -117.04000 | 5 | 3, 2 | 2, 6 | - | 0 | 1 |
| Julian - Lake Henshaw S | 33.218126 | -116.73993 | 1 | 1, 1 | 1, 6 | 1, 1 | - | 1 |
| Julian | 33.20710 | -116.72730 | 2 | 2, 2 | 1, 6 | 2, 3 | 1, 1 | - |

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| San Jacinto |  |  |  |  |  |  |  |
|  | Latitude | Longitude | Total # of events | Clark Rev (Blackburn Canyon) | Hog Lake | Clark Rev (Lute Ridge) | Superstition Mt |
| Clark Rev (Blackburn Canyon) | 33.615300 | -116.709100 | 1 | - | 1 | 1 | 0 |
| Hog Lake | 33.685016 | -116.823493 | 16 | 16, 1 | - | 1 | 4 |
| Clark Rev (Lute Ridge) | 33.309305 | -116.192930 | 1 | 1, 1 | 1, 1 | - | 0 |
| Superstition Mt | 32.997500 | -115.943600 | 4 | 1, 1 | 4, 16 | 0, 0 | - |

Southern San Andreas

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Latitude | Longitude | Total # of events | Carrizo Bidart Fan | Frazier | Pallett Creek | Wrightwood | Pitman Canyon | Plunge Creek | Burro Flats | Thousand Palms Oasis | Indio | Coachella |
| Carrizo Bidart Fan | 35.23428 | -119.78871 | 6 | - | 5 | 4 | 5 | 4 | 2 | 3 | 2 | 2 | 3 |
| Frazier | 34.8122 | -118.9034 | 8 | 8, 6 | - | 6 | 6 | 5 | 3 | 4 | 4 | 4 | 5 |
| Pallett Creek | 34.45584 | -117.887651 | 9 | 4, 6 | 7, 8 | - | 8 | 5 | 2 | 5 | 5 | 2 | 3 |
| Wrightwood | 34.370541 | -117.668229 | 15 (29 incl.deep section) | 6, 6 | 9, 8 | 12, 9 | - | 7 | 3 | 7 | 5 | 4 | 5 |
| Pitman Canyon | 34.252306 | -117.430282 | 6 | 6, 6 | 8, 8 | 8, 8 | 8, 10 | - | 3 | 6 | 4 | 4 | 6 |
| Plunge Creek | 34.116751 | -117.141022 | 3 | 3, 6 | 3, 6 | 3, 3 | 3, 5 | 3, 5 | - | 3 | 2 | 2 | 2 |
| Burro Flats | 33.999664 | -116.860839 | 7 | 5, 6 | 6, 8 | 7, 8 | 7, 12 | 7, 8 | 4, 3 | - | 3 | 3 | 4 |
| Thousand Palms Oasis | 33.836807 | -116.308798 | 5 | 2, 6 | 4, 8 | 5, 8 | 5, 11 | 5, 8 | 2, 3 | 5, 7 | - | 4 | 3 |
| Indio | 33.741128 | -116.186175 | 4 | 2, 6 | 4, 8 | 4, 5 | 4, 9 | 4, 8 | 2, 3 | 4, 6 | 4, 4 | - | 4 |
| Coachella | 33.727354 | -116.170074 | 7 | 3, 6 | 7, 8 | 7, 7 | 7, 9 | 7, 8 | 3, 3 | 7, 6 | 7, 4 | 4, 6 | - |

Northern San Andreas

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Latitude | Longitude | Total # of events | North Coast Alder Creek | North Coast Vendanta | Peninsular Filoli | Hazel Dell | Mill Canyon | Arano Flat |
| North Coast Alder Creek | 38.981331 | -123.676995 | 2 | - | 2 | 1 | 2 | 2 | 2 |
| North Coast Vendanta | 38.032 | -122.7891 | 12 | 8, 2 | - | 1 | 1 | 2 | 6 |
| Peninsula Filoli | 37.47332 | -122.3116779 | 2 | 2, 1 | 2, 1 | - | 2 | 2 | 1 |
| Hazel Dell | 37.000318 | -121.741757 | 4 | 4, 2 | 4, 2 | 3, 2 | - | 3 | 2 |
| Mill Canyon | 36.946053 | -121.679612 | 4 | 4, 2 | 3, 2 | 2, 2 | 4, 4 | - | 4 |
| Arano Flat | 36.909731 | -121.62363 | 9 | 9, 2 | 9, 6 | 1, 2 | 5, 4 | 5, 4 | - |

Hayward

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Latitude | Longitude | Total # of events | Mira Vista | Tyson Lagoon |  |  |  |  |  |  |  |  |
| Mira Vista | 37.9306 | -122.2977 | 7 | - | 6 |  |  |  |  |  |  |  |  |
| Tyson Lagoon | 37.5563 | -121.9739 | 12 | 12, 6 | - |  |  |  |  |  |  |  |  |

Garlock

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Latitude | Longitude | Total # of events | Twin Lakes | El Paso Peaks | Searles Valley |  |  |  |  |  |  |  |
| Twin Lakes | 34.9868 | -118.508 | 5 | - | 4 | 1 |  |  |  |  |  |  |  |
| El Paso Peaks | 35.4441 | -117.6815 | 6 | 5, 5 | - | 1 |  |  |  |  |  |  |  |
| Searles Valley | 35.523424 | -117.372841 | 1 | 1, 2 | 1, 1 | - |  |  |  |  |  |  |  |

Little Salmon

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Latitude | Longitude | Total # of events | College of the Redwoods | Little Salmon Creek |  |  |  |  |  |  |  |  |
| College of the Redwoods | 40.698423 | -124.19822 | 1 | - | 1 |  |  |  |  |  |  |  |  |
| Little Salmon Creek | 40.655487 | -124.18929 | 1 | 1, 1 | - |  |  |  |  |  |  |  |  |

Green Valley

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | Latitude | Longitude | Total # of events | Mason Road | Lopes Ranch |  |  |  |  |  |  |  |  |
| Mason Road | 38.240934 | -122.163795 | 4 | - | 1 |  |  |  |  |  |  |  |  |
| Lopes Ranch | 38.132456 | -122.122902 | 3 | 1, 4 | - |  |  |  |  |  |  |  |  |

1. **Table G5.** Probability of rupture overlap along multi-site faults based on average paleoearthquake offset. Values below the gray boxes are distances between sites (km), values above gray boxes are probability of offset between two sites. So: Whittier is 37.19 km from Glen Ivy, and there is a 0.28 probability of rupture being shared between Glen Ivy and Whittier. Bold values are measured; non-bold values are calculated.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Elsinore** |  |  |  |  |  |  |  |  |  |  |  |
| Site | Slip Rate (mm/yr) | Average interval (yrs) | Average offset (m) | Latitude | Longitude | Whittier | Glen Ivy | Temecula | Julian-5 | Julian - Lake Henshaw S | Julian |
| Whittier | **3** | **1600** | 4.80 | 33.930300 | -117.843700 | 1.00 | 0.28 | 0.32 | 0.06 | 0.38 | 0.43 |
| Glen Ivy | **5** | **174** | 0.87 | 33.770100 | -117.490900 | 37.19 | 1.00 | 0.35 | 0.09 | 0.09 | 0.08 |
| Temecula | **5** | **500** | 2.50 | 33.410000 | -117.040000 | 95.04 | 57.85 | 1.00 | 0.59 | 0.73 | 0.68 |
| Julian-5 | **3** | 283 | **0.85** | 33.243444 | -116.786003 | 125.01 | 87.82 | 29.97 | 1.00 | 0.95 | 0.95 |
| Julian - Lake Henshaw S | **3** | **1200** | 3.60 | 33.218126 | -116.739925 | 130.14 | 92.95 | 35.10 | 5.13 | 1.00 | 0.99 |
| Julian | **3** | **1625** | 4.88 | 33.207100 | -116.727300 | 131.83 | 94.64 | 36.79 | 6.82 | 1.69 | 1.00 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **San Jacinto** |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| Site | Slip Rate (mm/yr) | Average interval (yrs) | Avg offset (m) | Latitude | Longitude | Hog Lake | Anza-1 | Clark Black-burn Canyon | Anza-5 | Clark-0 | Clark-1 | Clark-4 | Clark (Lute Ridge) | Super-stition Mt |
| Hog Lake | **14** | **250** | 3.50 | 33.685016 | -116.823493 | 1.00 | 0.99 | 0.84 | 0.75 | 0.70 | 0.66 | 0.42 | 0.32 | 0.57 |
| Anza-1 | **14** | 136 | **1.90** | 33.676686 | -116.812736 | 1.36 | 1.00 | 0.91 | 0.65 | 0.59 | 0.57 | 0.17 | 0.23 | 0.28 |
| Clark (Black-burn Canyon) | **14** | **94** | 1.32 | 33.615300 | -116.709100 | 13.14 | 11.78 | 1.00 | 0.71 | 0.68 | 0.58 | 0.23 | 0.20 | 0.15 |
| Anza-5 | **14** | 154 | **2.15** | 33.510107 | -116.547197 | 32.16 | 30.80 | 19.02 | 1.00 | 0.89 | 0.82 | 0.50 | 0.43 | 0.30 |
| Clark-0 | **8** | 281 | **2.25** | 33.4691300 | -116.479585 | 39.91 | 38.55 | 26.77 | 7.75 | 1.00 | 0.89 | 0.62 | 0.56 | 0.36 |
| Clark-1 | **8** | 313 | **2.50** | 33.4278580 | -116.411539 | 47.72 | 46.36 | 34.58 | 15.56 | 7.81 | 1.00 | 0.71 | 0.65 | 0.42 |
| Clark-4 | **4** | 325 | **1.30** | 33.3127287 | -116.205162 | 70.77 | 69.41 | 57.63 | 38.61 | 30.86 | 23.05 | 1.00 | 0.99 | 0.40 |
| Clark (Lute Ridge) | **4** | **222** | 0.89 | 33.309305 | -116.192930 | 71.97 | 70.61 | 58.83 | 39.81 | 32.06 | 24.25 | 1.2 | 1.00 | 0.40 |
| Super-stition Mt | **6** | **325** | 1.95 | 32.997500 | -115.943600 | 113.58 | 112.22 | 100.44 | 81.42 | 73.67 | 65.86 | 42.81 | 41.61 | 1.00 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Southern San Andreas** | | | | |
| Site name | Abbreviation | Slip Rate (mm/yr) | Average interval (yrs) | Average offset (m) | | Latitude | Longitude |
| Cholame-8 | CH | **34** | 65 | **2.20** | | 35.65162 | -120.20197 |
| Carrizo Bidart | CB | **34** | **99** | 3.37 | | 35.23428 | -119.78871 |
| Carrizo-1 | C1 | **34** | 119 | **4.05** | | 35.23846 | -119.78729 |
| Carrizo-5 | C5 | **34** | 121 | **4.10** | | 35.04907 | -119.56036 |
| Carrizo-6 | C6 | **34** | 135 | **4.60** | | 35.00640 | -119.49824 |
| Frazier | FZ | **34** | **109** | 3.71 | | 34.81220 | -118.90340 |
| Mojave S-2 | M2 | **32.5** | 89 | **2.90** | | 34.63846 | -118.34692 |
| Mojave S-3 | M3 | **32.5** | 89 | **2.90** | | 34.61433 | -118.28205 |
| Pallett Creek | PA | **32.5** | **128** | 4.17 | | 34.45584 | -117.88765 |
| Wrightwood | WW | **32.5** | **101** | **3.28** | | 34.37054 | -117.66823 |
| Pitman Canyon | PI | **19** | **147** | 2.39 | | 34.25231 | -117.43028 |
| Plunge Creek | PL | **13** | **157** | 2.03 | | 34.11675 | -117.14102 |
| Burro Flats | BF | **13** | **173** | 2.25 | | 33.99966 | -116.86084 |
| Thousand Palms | TP | **10** | **215** | 2.15 | | 33.83681 | -116.30880 |
| Indio | IN | **10** | **220** | 2.20 | | 33.74113 | -116.18618 |
| Coachella | CO | **20** | **155** | 3.09 | | 33.72735 | -116.17007 |
| Coachella-4 | C4 | **20** | 150 | **3.00** | | 33.63701 | -116.06091 |
| Salt Creek | SC | **23** | **~150** | 3.45 | | 33.44564 | -115.84040 |
| Coachella-10 | C10 | **20** | 160 | **3.20** | | 33.43470 | -115.81447 |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Site | CH | CB | C1 | C5 | C6 | FZ | M2 | M3 | PA | WW | PI | PL | BF | TP | IN | CO | C4 | SC | C10 |
| CH | 1.00 | 0.56 | 0.61 | 0.44 | 0.45 | 0.19 | 0.08 | 0.07 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 |
| CB | 59.6 | 1.00 | 0.99 | 0.81 | 0.79 | 0.46 | 0.22 | 0.21 | 0.17 | 0.12 | 0.07 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 |
| C1 | 60.1 | 0.48 | 1.00 | 0.85 | 0.81 | 0.47 | 0.25 | 0.24 | 0.18 | 0.11 | 0.08 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 |
| C5 | 89.6 | 30.0 | 29.5 | 1.00 | 0.98 | 0.66 | 0.35 | 0.34 | 0.28 | 0.16 | 0.11 | 0.06 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 |
| C6 | 97.0 | 37.3 | 36.9 | 7.4 | 1.00 | 0.70 | 0.41 | 0.38 | 0.29 | 0.19 | 0.14 | 0.08 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 |
| FZ | 155.3 | 95.7 | 95.2 | 65.8 | 58.4 | 1.00 | 0.68 | 0.63 | 0.48 | 0.34 | 0.23 | 0.13 | 0.09 | <.05 | <.05 | <.05 | <.05 | <.05 | <.05 |
| M2 | 209.7 | 150.1 | 149.6 | 120.2 | 112.8 | 54.4 | 1.00 | 0.99 | 0.74 | 0.56 | 0.31 | 0.23 | 0.13 | 0.07 | 0.06 | 0.07 | <.05 | <.05 | <.05 |
| M3 | 216.3 | 156.6 | 156.2 | 126.7 | 119.3 | 60.9 | 6.5 | 1.00 | 0.75 | 0.61 | 0.34 | 0.24 | 0.15 | 0.09 | 0.07 | 0.08 | 0.06 | <.05 | <.05 |
| PA | 256.5 | 196.8 | 196.4 | 166.9 | 159.5 | 101.1 | 46.7 | 40.2 | 1.00 | 0.87 | 0.70 | 0.53 | 0.37 | 0.20 | 0.18 | 0.18 | 0.15 | 0.12 | 0.12 |
| WW | 278.7 | 219.1 | 218.6 | 189.1 | 181.7 | 123.4 | 69.0 | 62.5 | 22.3 | 1.00 | 0.81 | 0.58 | 0.40 | 0.10 | 0.17 | 0.21 | 0.17 | 0.13 | 0.14 |
| PI | 304.2 | 244.6 | 244.1 | 214.6 | 207.3 | 148.9 | 94.5 | 88.0 | 47.8 | 25.5 | 1.00 | 0.52 | 0.45 | 0.21 | 0.18 | 0.22 | 0.19 | 0.15 | 0.14 |
| PL | 334.8 | 275.2 | 274.7 | 245.3 | 237.9 | 179.5 | 125.1 | 118.6 | 78.4 | 56.1 | 30.6 | 1.00 | 0.69 | 0.30 | 0.23 | 0.30 | 0.26 | 0.20 | 0.17 |
| BF | 363.8 | 304.2 | 303.7 | 274.2 | 266.9 | 208.5 | 154.1 | 147.6 | 107.4 | 85.1 | 59.6 | 29.0 | 1.00 | 0.48 | 0.40 | 0.46 | 0.36 | 0.30 | 0.27 |
| TP | 418.0 | 358.3 | 357.9 | 328.4 | 321.0 | 262.6 | 208.2 | 201.7 | 161.5 | 139.3 | 113.7 | 83.1 | 54.1 | 1.00 | 0.83 | 0.85 | 0.78 | 0.58 | 0.50 |
| IN | 433.5 | 373.9 | 373.4 | 343.9 | 336.5 | 278.2 | 223.8 | 217.3 | 177.1 | 154.8 | 129.3 | 98.7 | 69.7 | 15.6 | 1.00 | 0.99 | 0.83 | 0.68 | 0.64 |
| CO | 435.6 | 376.0 | 375.5 | 346.1 | 338.7 | 280.3 | 225.9 | 219.4 | 179.2 | 156.9 | 131.4 | 100.8 | 71.8 | 17.7 | 2.1 | 1.00 | 0.86 | 0.74 | 0.74 |
| C4 | 449.9 | 390.3 | 389.8 | 360.3 | 352.9 | 294.5 | 240.1 | 233.6 | 193.4 | 171.2 | 145.7 | 115.1 | 86.1 | 31.9 | 16.4 | 14.3 | 1.00 | 0.85 | 0.76 |
| SC | 475.8 | 416.2 | 415.7 | 386.2 | 378.8 | 320.5 | 266.1 | 259.5 | 219.3 | 197.1 | 171.6 | 141.0 | 112.0 | 57.8 | 42.3 | 40.2 | 25.9 | 1.00 | 0.99 |
| C10 | 478.5 | 418.9 | 418.4 | 388.9 | 381.5 | 323.2 | 268.8 | 262.2 | 222.0 | 199.8 | 174.3 | 143.7 | 114.7 | 60.5 | 45.0 | 42.9 | 28.6 | 2.7 | 1.00 |

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| **Northern San Andreas** | | |  |  |  |  |  |  |  |  |  |
| Site | Slip Rate (mm/yr) | Average interval (yrs) | average offset (m) | Latitude | Longitude | North Coast Alder Creek | North Coast Vendanta | Peninsula Filoli | Hazel Dell | Mill Canyon | Arano Flat |
| North Coast Alder Creek | **24** | 179 | **4.3** | 38.981331 | -123.676995 | 1.00 | 0.60 | 0.26 | <.05 | <.05 | <.05 |
| North Coast Vendanta | **24** | **248** | 5.95 | 38.032000 | -122.789100 | 130.68 | 1.00 | 0.58 | 0.28 | 0.27 | 0.24 |
| Peninsular Filoli | **17** | **87** | 1.48 | 37.473320 | -122.311678 | 205.43 | 74.75 | 1.00 | 0.28 | 0.23 | 0.19 |
| Hazel Dell | **17** | **115** | 1.96 | 37.000318 | -121.741757 | 278.21 | 147.53 | 72.78 | 1.00 | 0.92 | 0.78 |
| Mill Canyon | **17** | **123** | 2.08 | 36.946053 | -121.679612 | 286.37 | 155.69 | 80.94 | 8.16 | 1.00 | 0.96 |
| Arano Flat | **17** | **106** | 1.80 | 36.909731 | -121.623630 | 292.78 | 162.10 | 87.35 | 14.57 | 6.41 | 1.00 |

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| **Hayward** |  |  |  |  |  |  |  |
| Site | Slip Rate (mm/yr) | Average interval (yrs) | average offset (m) | Latitude | Longitude | Mira Vista | Tyson Lagoon |
| Mira Vista | **9** | **401** | 3.61 | 37.930600 | -122.297700 | 1.00 | 0.57 |
| Tyson Lagoon | **9** | **160** | 1.44 | 37.556300 | -121.973900 | 50.35 | 1.00 |

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| **Garlock** |  |  |  |  |  |  |  |  |  |  |  |
| Site | Slip Rate (mm/yr) | Average interval (yrs) | Average offset (m) | Latitude | Longitude | Twin Lakes | West-10 | West-12 | El Paso Peaks | Searles Valley | Central-15 |
| Twin Lakes | **6** | **1159** | 6.95 | 34.986800 | -118.508000 | 1.00 | 0.86 | 0.78 | 0.65 | 0.39 | 0.24 |
| West-10 | **7.6** | 454 | **3.45** | 35.13590678 | -118.219538 | 31.05 | 1.00 | 0.86 | 0.68 | 0.43 | 0.35 |
| West-12 | **7.6** | 461 | **3.50** | 35.20431919 | -118.091091 | 44.98 | 13.93 | 1.00 | 0.73 | 0.55 | 0.43 |
| El Paso Peaks | **7** | **1276** | 8.93 | 35.444100 | -117.681500 | 90.72 | 59.67 | 45.74 | 1.00 | 0.83 | 0.63 |
| Searles Valley | **7** | **522** | 3.65 | 35.523424 | -117.372841 | 120.03 | 88.98 | 75.05 | 29.31 | 1.00 | 0.86 |
| Central-15 | **7** | 443 | **3.10** | 35.56946148 | -117.149948 | 140.84 | 109.79 | 95.86 | 50.12 | 20.81 | 1.00 |

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| **Little Salmon** |  |  |  |  |  |  |  |
| Site | Slip Rate (mm/yr) | Average interval (yrs) | Average offset (m) | Latitude | Longitude | College of the Redwoods | Little Salmon Creek |
| College of the Redwoods | **4.5** | **356** | 1.60 | 40.698423 | -124.198220 | 1.00 | 0.96 |
| Little Salmon Creek | **4.5** | **356** | 1.60 | 40.655487 | -124.189290 | 4.83 | 1.00 |
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| **Green Valley** |  |  |  |  |  |  |  |
| Site | Slip Rate (mm/yr) | Average interval (yrs) | Average offset (m) | Latitude | Longitude | Mason Road | Lopes Ranch |
| Mason Road | **4** | **201** | 0.80 | 38.240934 | -115.840508 | 1.00 | 0.74 |
| Lopes Ranch | **4** | 506 | **2.03** | 38.132456 | -122.122902 | 12.58 | 1.00 |