The SCEC Phase III Strong-motion Database

Jamison H. Steidl and Yajie Lee

Submitted to Bulletin of the Seismological Society of America
June 2000, revised August 2000

ABSTRACT

As part of the Southern California Earthquake Center (SCEC) Phase III effort to include site effects in hazard models for southern California, a regional database of strong-motion observations was developed. The observations consist of the peak ground acceleration (PGA) and 5% damped response spectral accelerations (SA) at 0.3, 1.0-, and 3.0-second period from 28 earthquakes and 281 stations. A total of 449 pairs of horizontal PGA and SA observations that were taken from the SCEC Strong Motion Database (SMDB) are presented here. The phase III database includes earthquakes with moment magnitudes larger than 5.0 and stations in southern California, with locations between 32° and 36° North latitude. Observations from buildings with more than two stories, and dam abutments or crests are excluded from the database. Observations with distances of 150 km or greater were also excluded. The agencies that provided the data to SMDB are the U.S. Geological Survey, California Strong Motion Instrumentation Program, University of Southern California, and the Los Angeles Department of Water and Power.

The database also contains site classification information for each station. A first general classification is based on the 1:750,000 California map of Quaternary, Tertiary, and Mesozoic geologic units by Jennings (1977) as modified by Park and Elrick (1998).

A second more detailed classification is based on Quaternary mapping in the Los Angeles region by Tinsley and Fumal (1985) as modified by Park and Elrick (1998). A third classification is based on the correlation of surface geology with shear-wave velocity in the upper 30 meters (*Wills et al.*, 2000). An arbitrary "depth-to-basement" parameter is assigned to stations that are located within the boundary of the 3-D velocity model used by Olsen (2000), which is based on the SCEC 3-D velocity model (version 1). This parameter is defined as the depth to the 2.5km/s velocity isosurface. Special parameters associated with particular attenuation relations, such as different distance measures, a hanging wall flag, and fault type flag are also assigned to each observation. These data are all presented within the tables and figures of this paper, and also have been made available via a downloadable file on the Internet (http://smdb.crustal.ucsb.edu/~phase3).

PHASE III DATABASE OUTLINE

The database presented in this paper is divided into three tables. Table 1 represents the event information, listing the parameters of earthquakes from which ground motion observations are used. Table 2 represents the station information, listing the site parameters associated with each strong motion station. Table 3 represents the ground motion information, listing the observed ground motion levels and distance measures for each observation. The studies which use this data directly are Field (2000), Lee and Anderson (2000), and Steidl (2000). Rather than present the data in each of these papers, a single reference is compiled here which contains all the information used in these three studies.

EVENT INFORMATION

Table 1 lists the 28 earthquakes that produced strong ground motion observations in Southern California, which are compiled in this database. Figure 1 shows the locations of these 28 events plotted as open circles where the radius of the circle is proportional to the event magnitude. The Southern California region is defined here in a somewhat arbitrary manner, where all events located below 36° North latitude and above 32° North latitude have been selected. There is no physical boundary or scientific justification for choosing this region. The choice was a practical one, to satisfy the SCEC master model task of predicting hazard for the Southern California region. The event date (Table 1, yr-mo-dy) and event name (Table 1, Event_name) fields in this database come directly from the SMDB. The magnitude field (Table 1, Mag) is the moment magnitude as given from SMDB with the exception of a few of the smaller events where the moment magnitude field was empty in SMDB and the magnitude field was used instead. In either case, the reference source for these magnitudes is given in SMDB. The lower magnitude cut off of 5.0 is used as this covers the range of magnitudes that have engineering interest in terms of damage potential. The event locations (Table 1, Lat & Lon) are from SMDB and the source is listed in the event reference field of SMDB for each earthquake. The style of faulting factor (Table 1, Style) is taken directly from the values given in Sadigh et al. (1993 and 1997). The number of observations (Table 1, Nobs) for each event is the number of observations listed in Table 3 for each of the 28 earthquakes listed in Table 1.

STATION INFORMATION

Table 2 lists, in alphabetical order by station ID, 281 stations that provided strong motion observations from the 28 events listed in Table 1. Figure 1 shows the locations of these stations plotted as black triangles. The station ID (Table 2, SID), station coordinates (Table 2, Lat. and Long.), and station location (Table 2, Station Location), are taken directly as given in SMDB under "Station parameters". The instrument location (Table 2, Sensor Location) is taken from the "Accelerogram parameters" in SMDB, and correlates to the location of the sensor which provides the data listed in Table 3, for the particular station. As some stations have multiple instrument locations, in order to make the data selection and referencing unambiguous, this field is needed.

The general geological classification for each station (Table 2, Gg) is taken from the digital 1:750,000 scale geologic map of California (*Jennings,* 1977, as modified by *Park and Elrick*, 1998), and is now also listed as one of the "Station parameters" in SMDB. The detailed geologic classification for each station (Table 2, Tg) is taken from the digital map of Quaternary Geology (*Tinsley and Fumal*, 1985, as modified by *Park and Elrick*, 1998), and is now also listed as one of the "Station parameters" in SMDB. The "NEHRP equivalent" site class for each station (Table 2, Class) is from the correlation of surface geology with near-surface shear-wave velocity for the state of California by Wills et al. (2000) where the classification scheme is described in detail.

The station owner (Table 2, Sowner) is the organization that provides the data and maintains the strong motion station. The station number (Table 2, Snum) is taken from SMDB and is the number assigned to the station by the owner. The free field classification (Table 2, F/FF?) is used to delineate between sites where the instrument housing is a small shelter or is a single story building (Table 2, FF) or, sites in a two story

building (Table 2, FF ?). We removed any obvious large two story structures which would not be considered free field sites (like the Caltech Athenaeum) from the SCEC Phase III database, however, many of the stations are in small two story churches or schools, which have been left in the database, but are flagged with the FF ? to distinguish them from the single story and small shelter free field sites. The FF ? flag is there to allow potential users to make their own choice between single story or two story building in defining “free field” recordings when working with this database.

It should be noted that the selection criteria for what is or is not a free field station varies from author to author in the existing attenuation relations. For example, recordings from embeded buildings may have the high frequency ground motions altered due to soil structure interaction (SSI). Certainly large multi-story buildings will have significant SSI, and for this reason, no data from buildings greater than two stories are included in this data compilation. There remain a small number of observations from one or two story buildings where the “sensor location” (Table 2) is in the basement of the building. Any potential users of this data compilation should be aware that previous studies (*Campbell*, 1997) have excluded this basement data for PGA analysis. The information in Table 2 is as detailed as possible (given the available information in the SMDB) in order to give potential users the freedom to choose their particular definition of free field.

Each station that falls within the 3D velocity model used by Olsen (2000) is assigned a “depth to basement” parameter (Table 2, D2.5) that corresponds to the depth (in meters) to the 2.5 km/s shear-wave velocity isosurface. These values are based on the SCEC 3-D velocity model (version 1) and are updated from the original Magistrale et al. (1996) basin model for Los Angeles. Stations that have a zero for the D2.5 parameter are where the 2.5 km/s isosurface from the velocity model has come up to the surface. Stations that have no value for the D2.5 parameter are located outside of the basin model.

The near-surface shear-wave velocity (in m/s) for some stations is listed (Table 3, V30) by using nearby measured velocity profiles from boreholes. These data come from a compilation of Wills and Silva (1998). Only data using borehole methods is given (the choice of this selection criteria is described in Steidl (2000) where the shear-wave velocity data are compared to site response estimates). The borehole velocity measurements are not always collocated with the strong-motion stations, so we also list the distance (in km) to the actual measurement (Table 2, DV30). We have restricted these data to measurements within 1km from the strong motion sites, and where the surface geology is the same at the borehole and strong-motion station.

GROUND MOTION INFORMATION

Table 3 lists in chronological order from oldest to most recent, the ground motion parameters associated with the stations in Table 2 and Figure 1, and the events in Table 1 and Figure 1. The station ID (Table 3, SID) is the same as discussed for Table 2. The event data (Table 3, Edate) is the year and Julian day in yyyy.ddd format. The magnitude is the same as discussed for Table 1. The faulting type (Table 3, ftype) is listed where ss=strike slip faulting, rs=reverse-strike slip or oblique faulting, and r=reverse or thrust faulting.

The distance measures listed in Table 3 are for various attenuation relations, and are defined in detail in Abrahamson and Shedlock (1997). The closest distance to the fault rupture (Table 3, Rrup), the distance to the surface projection of fault plane (Table 3, dJBF), and the distance to seismogenic rupture (Table 3, Sdist) are determined using the fault parameters from Lee et al. (Table 3, 2000) for finite faults with known fault

plane locations. For the smaller or older earthquakes without fault plane parameters, hypocentral distance is used for Rrup, epicentral distance used for dJBF, and hypocentral distance used for Sdist.

There is large variability in the distance criteria used for previous attenuation relations, ranging from near-source relations which exclude all data at distances greater than 60 km (*Campbell*, 1997), to relations which include data out to distances greater than 200 km (*Abrahamson and Silva*, 1997; *Sadigh et al.*, 1997). The near-source data certainly is the main contributor to the hazard estimation for Southern California (*Field and Petersen*, 2000), however, data out to distances of 150 km is included in this compilation in order to allow potential users to select their particular criteria for distance cutoff. In addition, some segments of the southern San Andreas fault are quite distant from the Los Angeles region. In some cases dynamic energy release could be located at distances of 100-150 km and still contribute significant long period motion in the basins. Damage in the Marina district of San Francisco from the 1989 Loma Prieta earthquake certainly provides some justification that distances of 100 km can be significant in terms of engineering interest.

In addition to the style of faulting factor, the differences in hanging wall vs. footwall ground motions are accounted for in the Abrahamson and Silva (1997) attenuation relation by a hanging wall effect term. In order to distinguish between an observation recorded on the hanging wall or footwall of the event, a hanging wall classification is assigned to each observation (Table 3, HW) where HW=0 for footwall and HW=1 for hanging wall. Note that the definition of hanging wall and footwall in this case is different from the traditional geological definition. Sites that are off the ends of the fault, or beyond the surface projection of the fault plane are considered footwall sites (*Abrahamson and Silva*, 1997).

The actual ground motion levels are listed in Table 3 for PGA and SA at 0.3, 1.0, and 3.0 second oscillator period. These values are taken directly from SMDB. The response spectral values are calculated as absolute response spectral acceleration as defined by Hudson (1979) and by Jennings (1983). The response of a single-degree-of-freedom damped oscillator to the earthquake acceleration, with damping at 5% are used as the SA values and defined as:

$$S_A(\omega,\zeta) = |\ddot{x}(t) + \ddot{z}(t)|_{\max}$$

where $S_A(\omega,\zeta)$ is absolute spectral acceleration, ω is the natural frequency of the oscillator, and ζ is the damping (5% for values in Table 3), *x(t)* is the motion of the oscillator, *z(t)* is the motion of the ground due to the earthquake, and the double dot represents the second derivative with respect to time. Most attenuation relations use pseudo-response spectral acceleration instead of absolute spectral acceleration as defined above. The differences between these two spectral estimates is minor (<5%) for the 0.3, 1.0, and 3.0-second periods. The two estimates tend to agree over most of the usual frequency and damping ranges (Hudson, 1962; Hudson, 1979, Jennings, 1983). Absolute SA is used in this compilation, as this is the parameter reported to the SCEC SMDB in the Volume III data releases from CDMG.

The values of PGA are listed first in Table 3 where the pga_1 and pga_2 represent the two orthogonal horizontal components of ground motion. Likewise, for SA at 0.3, 1.0, and 3.0 second oscillator period, the values are given in Table 3 as sa03s-1, sa03s-2, sa1s-1, sa1s-2, sa3s-1, and sa3s-2 respectively for the two components of motion and different oscillator periods. In the case of the 3.0 second SA data (Table 3, sa3s-1 and sa3s-2) there are many observations for which the instrument response at the long period was not sufficient to provide accurate data. In these cases, the sa3s-1 and sa3s-2 are left blank in Table 3. There are a few cases where one of the two horizontal components

contained reliable data at long period, and in that case the second component is listed as zero instead of blank.

In many of the observations, processed data is available from the station owner, which includes response spectral acceleration at 5% damping as defined above. If available this data is used. The reporting agencies also give a “usable bandwidth” for the data on each component, which is used to determine if the data is valid at 3.0 second oscillator period, mentioned above. In some of the older events, processed data is not available, and the “usable bandwidth” is not reported, but is left to the discretion of the user. In these cases the Fourier spectra of the observations were calculated and used to determine the “usable bandwidth”. The absolute SA were then calculated for the portion of the data that was considered usable.

When searching through SMDB to pull out all the appropriate records within 150 km distance, many records were returned by the search which were partial records of the ground motion, sometimes as short as only a few seconds. These partial records were thrown out and are not included in this database. There are however, some older records that triggered on the S-wave and these were included. There may be some question as to the largest part of the ground motion being recorded on these stations, however these data were not thrown out as the remaining portion of the ground motion was well recorded and may indeed contain the peak ground shaking motions. The restriction to data from the Southern California region limited the number of observations so these older events were kept in the SCEC phase III database.

OBSERVATIONS VS PREDICTED INPUT PGA, DISTANCE, AND DEPTH TO BASEMENT

It is useful to examine the details of the SCEC phase III database with respect to certain key parameters in order to determine what if any are the controlling earthquakes in the database. At a first glance it is obvious that the Northridge and Whittier Narrows earthquakes are dominant in terms of the number of observations from these events, with the Landers, North Palm Springs, Imperial Valley, and San Fernando earthquakes also being large contributors (Table 1, Nobs). The distribution of observations with respect to general site geology (Table 2, Gg) and input PGA motion as predicted by the Sadigh rock attenuation relation (Sadigh et al., 1993, 1997) is shown in Figures 2 and 3 in magnitude vs. predicted rock PGA input plots. The dominance of observations on Quaternary geology (Figure 2E&F, diamonds) is clear. The Mesozoic (Figure 2A&B, triangles) and Tertiary (Figure 2C&D, circles) observations are under represented in the SCEC phase III database compared with the Quaternary. In Figure 3, the distribution of observations at the different magnitude levels with respect to predicted input PGA is shown for the detailed geology (Table 2, Tg), by subdividing the Quaternary units into younger and older units. The sub-classification separates younger and older Quaternary, Qy and Qo respectively with Tertiary sediments sites added to the Qo class; thus; Qy includes Qyf, Qym, Qyc, and Qyvc and Qo includes Qof, Qom, Qoc, Qovc, and Tss (*Park and Elrick*, 1998). The choice of including the Tss (Tertiary sediments) class sites into the Qo category was based on the expected similarity in seismic response of the older Quaternary sediments and the Tertiary sediments, while the Tsb (Tertiary basement) class sites would be expected to behave more like rock sites. The individual site class is listed in Table 2 so that other users may group the classes differently if desired. Figure 3A&B shows the Qy subclass and Figure 3C&D shows the Qo subclass. The restriction to data in the region mapped by Tinsley and Fumal (1985) reduces the number of observations significantly (Figure 3A-D), especially in the very large and very small input motion

ranges. Thick dashed lines in Figure 2 and Figure 3 denote 0.05g, 0.1g, and 0.2g for reference.

Similar plots of Magnitude vs. closest distance to the fault (Table 3, Rrup) are shown in Figures 4A-F and 5A-D. The paucity of data on the M and T class sites (Table 2, Gg, Figure 4A-D) is also clear in these plots. In addition, the lack of data at very close distances (less than 10km) is shown for this particular distance scale (Table 3, Rrup). In fact, the dominant event in southern California for very close strong motion observations is still the 1979 Imperial Valley earthquake. Magnitude is plotted vs. the closest distance to rupture for the younger Quaternary (Qy, Figure 5A&B) and older Quaternary (Qo, Figure 5C&D) subclasses and the reduction in the number of observations when limited to this smaller region is clear.

The distribution of observations with respect to the “depth to basement” parameter is shown in Figures 6&7. As expected, the M class data (Figure 6A&B) show zero or very small values for the depth to the 2.5 km/s shear-wave isosurface. The T class data (Figure 6B&C) show a range of values from zero to just under 4 km for the depth to the isosurface. The Q class data (Figure 6E&F) show a range of values from zero to just over 6 km for the depth to the isosurface. It is possible that a few of the stations on or near to the edge of the basins in the 3D velocity model are miss-classified on the larger scale map, though those same stations would also be miss-classified in the detailed Quaternary map of Tinsley and Fumal (1985) as these stations also show up with zero depth to the isosurface in Figures 7A-D. This large range in the “depth to basement” parameter for the Quaternary data suggests that site classifications based on surface geology alone may be insufficient to characterize the site response of a particular site. This is consistent with the results of Steidl (2000) and Lee and Anderson (2000) that find a lack of correlation between site response factors and the detailed surface geology for

classifications based on surface geology alone. The results of Field (2000) do show a correlation in the site response vs. site class when the detailed surface geology is combined with sub-surface shear-wave velocities to determine site classification (Wills et al., 2000), highlighting the importance of including sub-surface information into site classification.

CONCLUDING REMARKS

The database presented in this paper represents a "snapshot" of the SMDB taken on October 27, 1999, when the data were extracted using the selection criteria previously discussed. The SMDB changes with time as new ground motion records are included and as errors are found and corrected. This "snapshot" which represents the phase III database will be archived and made available at (http://smdb.crustal.ucsb.edu/~phase3) so that potential users will have access to exactly the same data used in the Field (2000), Lee and Anderson (2000), and Steidl (2000) studies presented in this issue of BSSA.

ACKNOWLEDGEMENTS

Reviews by Ken Campbell, Dave Boore, and C.B. Crouse were helpful in pointing out some of the ambiguities and possible pitfalls in the database compilation and greatly improved the manuscript. Grant Lindley and Ned Field caught many errors in the initial database. Norm Abrahamson, Ken Campbell and John Anderson provided useful comments based on their history and familiarity in working with the older strong motion records. Ralph Archuleta, Alla Tumarkin, and Alexei Tumarkin along with the support of SCEC started the task of creating the relational strong motion database and making it available on the World Wide Web. This research was supported by the Southern

California Earthquake Center. SCEC is funded by NSF Cooperative Agreement EAR-8920136 and USGS Cooperative Agreements 14-08-0001-A0899 and 1434-HQ-97AG01718. The SCEC contribution number for this paper is 513. Institute for Crustal Studies contribution number 0369-110EQ.

REFERENCES

Abrahamson, N. A. and K. M. Shedlock (1997). Overview, *Seis. Res. Let.*, **68**, 9-23.

Abrahamson, N. A. and W. J. Silva (1997). Empirical response spectra attenuation relations for shallow crustal earthquakes, *Seis. Res. Lett.*, **68**, 94-109.

Campbell, K. W. (1997). Empirical near-source attenuation relationships for horizontal and vertical components of peak ground accelerations, peak velocity, and Pseudo-absolute acceleration response spectra, *Seis. Res. Lett.*, **68**, 154-179.

Field, E. H. (2000). A modified BJF-1997 attenuation relationship for southern California: Customized with respect to detailed site classification and a basin-depth effect added, *Bull. Seism. Soc. Am.*, this issue.

Field, E. H., and M. D. Petersen (2000). Accounting for site effects in probabilistic seismic hazard analysis of southern California, *Bull. Seism. Soc. Am.*, this issue.

Field, E. H., and the SCEC phase III working group (2000). Accounting for site effects in probabilistic seismic hazard analysis of southern California: Overview of the SCEC phase III effort report, *Bull. Seism. Soc. Am.*, this issue.

Hudson, D. E. (1962). Some problems in the application of spectrum techniques to strong-motion earthquake analyses, *Bull. Seism. Soc. Am.*, **52**, 417-430.

Hudson, D. E. (1979). Reading and interpreting strong motion accelerograms, *EERI monograph series*, Earthquake Engineering Research Institute, Berkeley, CA, 112 pp.

Jennings, C. W. (1977). 1:750,000 geologic map of California, Calif. Div. Mines Geology.

Jennings, P. C. (1983). Engineering Seismology, in Earthquakes: Observation, Theory, and Interpretation, *Proceeding of the International School of Physics "Enrico Fermi"*, ed. H. Kanamori, Italian Physical Society, 138-173.

Lee, Y., J. G. Anderson, and Y. Zeng (2000). Evaluation of empirical ground motion relations in southern California, *Bull. Seism. Soc. Am.*, 2000.

Lee, Y. and J. G. Amderson (2000). Potential for improving ground motion relations in southern California by incorporating various site parameters, *Bull. Seism. Soc. Am.,* this issue.

Magistrale, H., K. McLaughlin, and S. Day (1996). A geology-based 3D model of the Los Angeles basin sediments, *Bull. Seism. Soc. Am.,* **86**, pp 1161-1166.

Olsen, K. B. (2000) Site Amplification in the Los Angeles Basin from 3D Modeling of Ground Motion, *Bull. Seism. Soc. Am.,* this issue.

Park, S. and S. Elrick (1998). Predictions of shear-wave velocities in Southern California using surface geology, *Bull. Seism. Soc. Am.*, **88**, 677-685.

Sadigh, K. R. (1993). A review of attenuation relationships for rock site conditions from shallow crustal earthquakes in an interplate environment, *Proceedings of the International Workshop on Strong Motion Data*, **2**, 179-236, Menlo Park, CA.

Sadigh, K., C. Y. Chang, J. A. Egan, F. Makdisi, and R. R. Youngs (1997). Attenuation relationships for shallow crustal earthquakes based on California strong-motion data, *Seis. Res. Lett*., **68**, 180-189.

SMDB (1998). Strong motion data base (SMDB) of the Southern California Earthquake Center (SCEC), http://smdb.crustal.ucsb.edu.

Steidl, J. H. (2000). Site response in southern California for probabilistic seismic hazard analysis, *Bull. Seism. Soc. Am.,* this issue.

Tinsley, J. C., T. E. Fumal (1985). Mapping Quaternary sedimentary deposits for areal Angeles region-an earth-science perspective, *U. S. Geol. Surv. Profess. Pap.*, 1360, 101-125.

Wills, C., and W. Silva (1998). Shear wave velocity characteristics of geologic units in California, *Earthquake Spectra,* **14**, 535-558.

Wills C. J., M. Petersen, W. A. Bryant, M. Reichle, G. J. Saucedo, S. Tan, G. Taylor, and J. Treiman (2000). A site conditions map for California based on geology and shear wave velocity, *Bull. Seism. Soc. Am.,* this issue.

FIGURE CAPTIONS

Figure 1). Map showing locations of earthquakes (red open circles), and strong-motion stations (black triangles) used in the SCEC Phase III strong motion database. Also shown is topography (shaded relief), and Quaternary faults (colored lines).

Figure 2). Magnitude vs. predicted rock PGA input motion. a). Mesozoic geology data for PGA and 0.3-, and 1.0-second SA. b). Mesozoic geology data for 3.0-second SA. c). Tertiary geology data for PGA and 0.3- and 1.0-second SA. d). Tertiary geology data for 3.0-second SA. e). Quaternary geology data for PGA and 0.3- and 1.0-second SA. f). Quaternary geology data for 3.0-second SA. Thick dashed lines represent the averaging bins used in Steidl (2000).

Figure 3). Magnitude vs. predicted rock PGA input motion. a). Qy geology data for PGA and 0.3- and 1.0-second SA. b). Qo geology data for 3.0-second SA. c). Qo geology data for PGA and 0.3- and 1.0-second SA. d) Qo geology data for 3.0-second SA. Thick dashed lines represent the averaging bins used in Steidl (2000).

Figure 4). Magnitude vs. distance to rupture. a). Mesozoic geology data for PGA and 0.3- and 1.0-second SA. b). Mesozoic geology data for 3.0-second SA. c). Tertiary geology data for PGA and 0.3- and 1.0-second SA. d). Tertiary geology data for 3.0-second SA. e). Quaternary geology data for PGA and 0.3- and 1.0-second SA. f). Quaternary geology data for 3.0-second SA.

Figure 5). Magnitude vs. distance to rupture. a). Qy geology data for PGA and 0.3- and 1.0-second SA. b). Qo geology data for 3.0-second SA. c). Qo geology data for PGA and 0.3- and 1.0-second SA. d) Qo geology data for 3.0-second SA.

Figure 6). Magnitude vs. depth to 2.5 km/s isosurface. a). Mesozoic geology data for PGA and 0.3- and 1.0-second SA. b). Mesozoic geology data for 3.0-second SA. c). Tertiary geology data for PGA and 0.3- and 1.0-second SA. d). Tertiary geology data for 3.0-second SA. e). Quaternary geology data for PGA and 0.3-, and 1.0-second SA. f). Quaternary geology data for 3.0-second SA.

Figure 7). Magnitude vs. depth to 2.5 km/s isosurface. a). Qy geology data for PGA and 0.3- and 1.0-second SA. b). Qo geology data for 3.0-second SA. c). Qo geology data for PGA and 0.3- and 1.0-second SA. d) Qo geology data for 3.0-second SA.

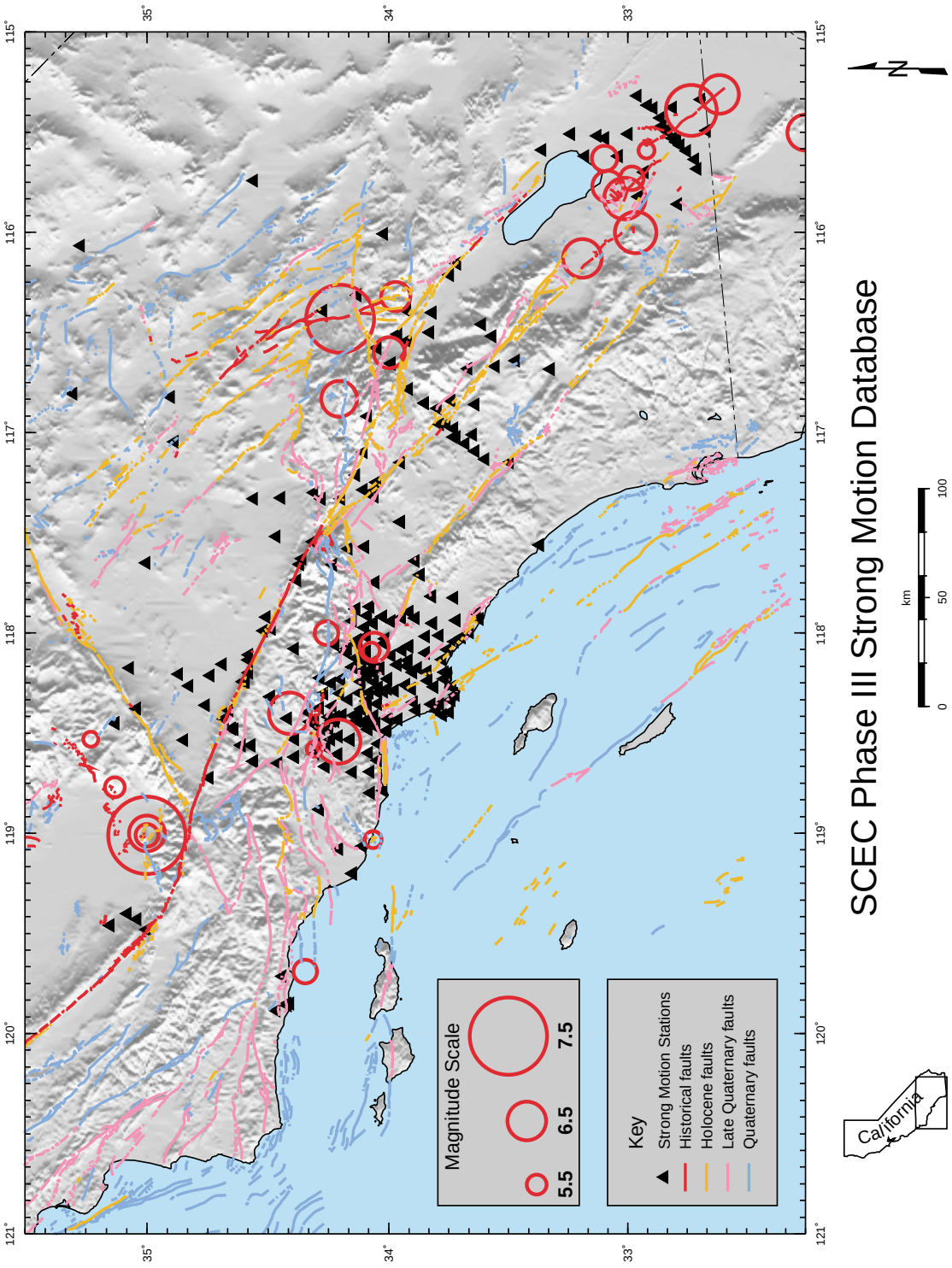
SCEC Phase III Strong Motion Database
Magnitude Scale
7.5
6.5
5.5
Key
Strong Motion Stations
Historical faults
Holocene faults
Late Quaternary faults
Quaternary faults
California
km
0
50
100
N
115°
116°
117°
118°
119°
120°
121°
35°
34°
33°

Figure 1.

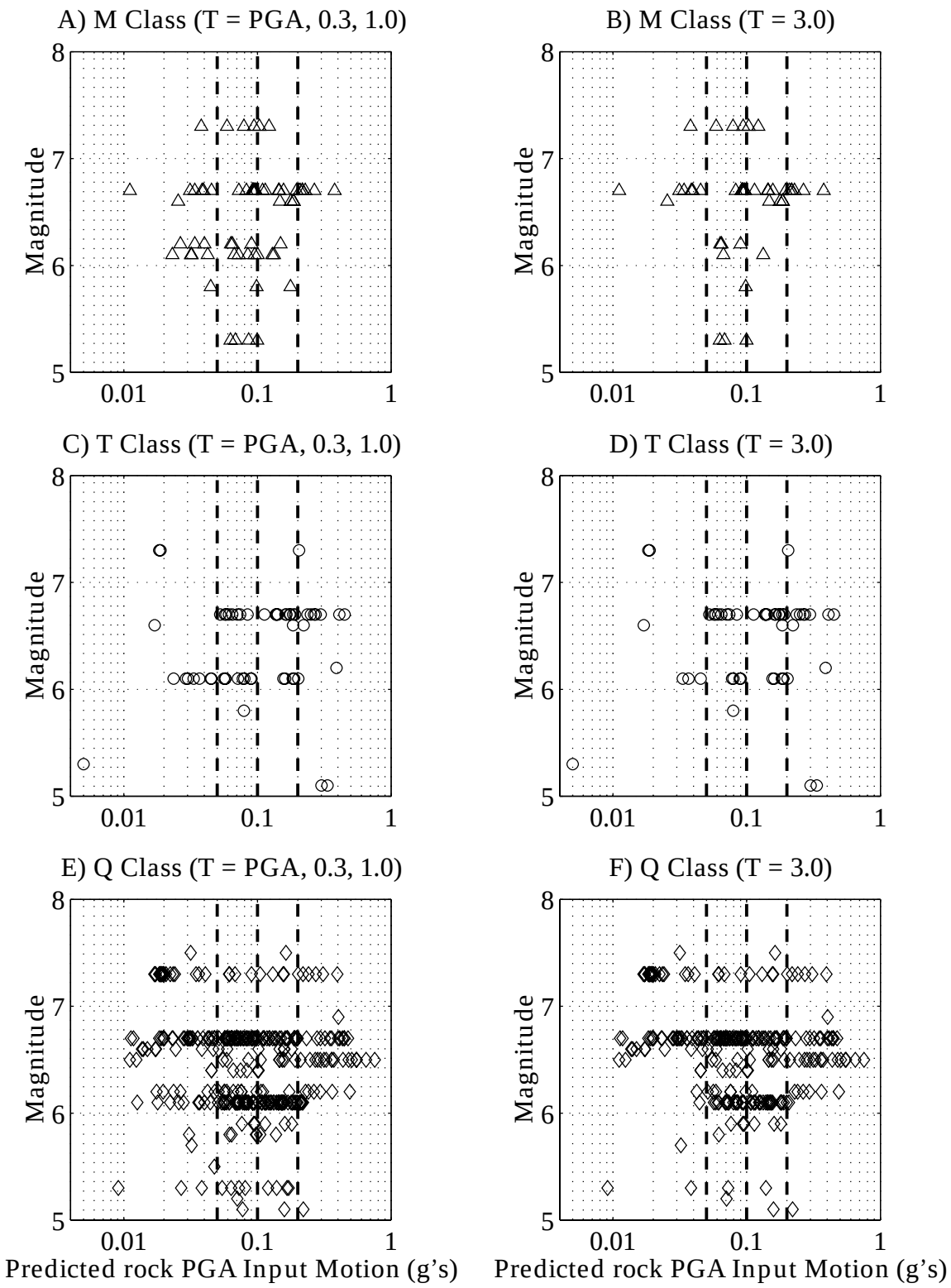
A) M Class (T = PGA, 0.3, 1.0)
B) M Class (T = 3.0)
C) T Class (T = PGA, 0.3, 1.0)
D) T Class (T = 3.0)
E) Q Class (T = PGA, 0.3, 1.0)
F) Q Class (T = 3.0)
Magnitude
8
7
6
5
0.01
0.1
1
Predicted rock PGA Input Motion (g's)

Figure 2.

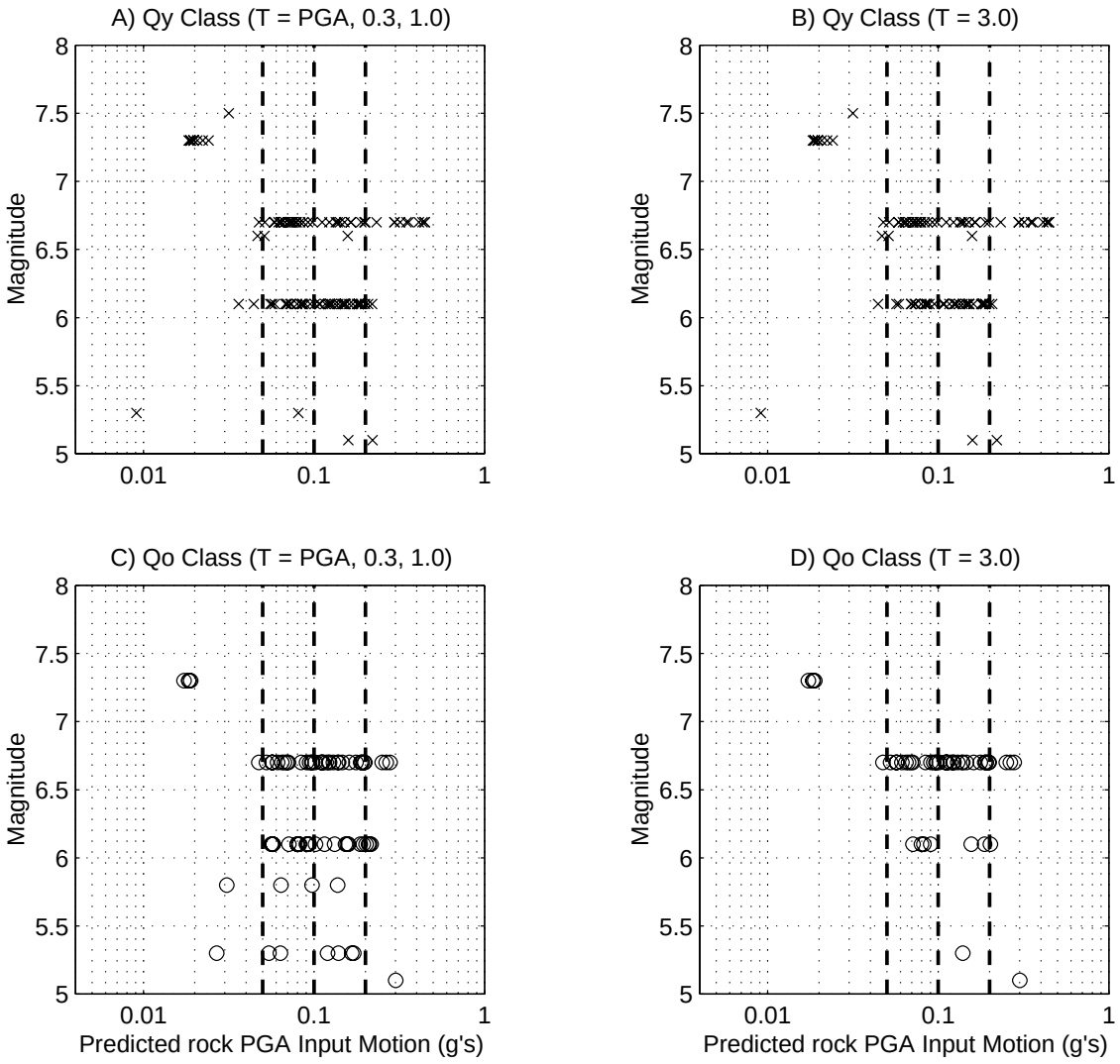
A) Qy Class (T = PGA, 0.3, 1.0)
B) Qy Class (T = 3.0)
C) Qo Class (T = PGA, 0.3, 1.0)
D) Qo Class (T = 3.0)
Magnitude
Predicted rock PGA Input Motion (g's)
8
7.5
7
6.5
6
5.5
5
0.01
0.1
1

Figure 3.

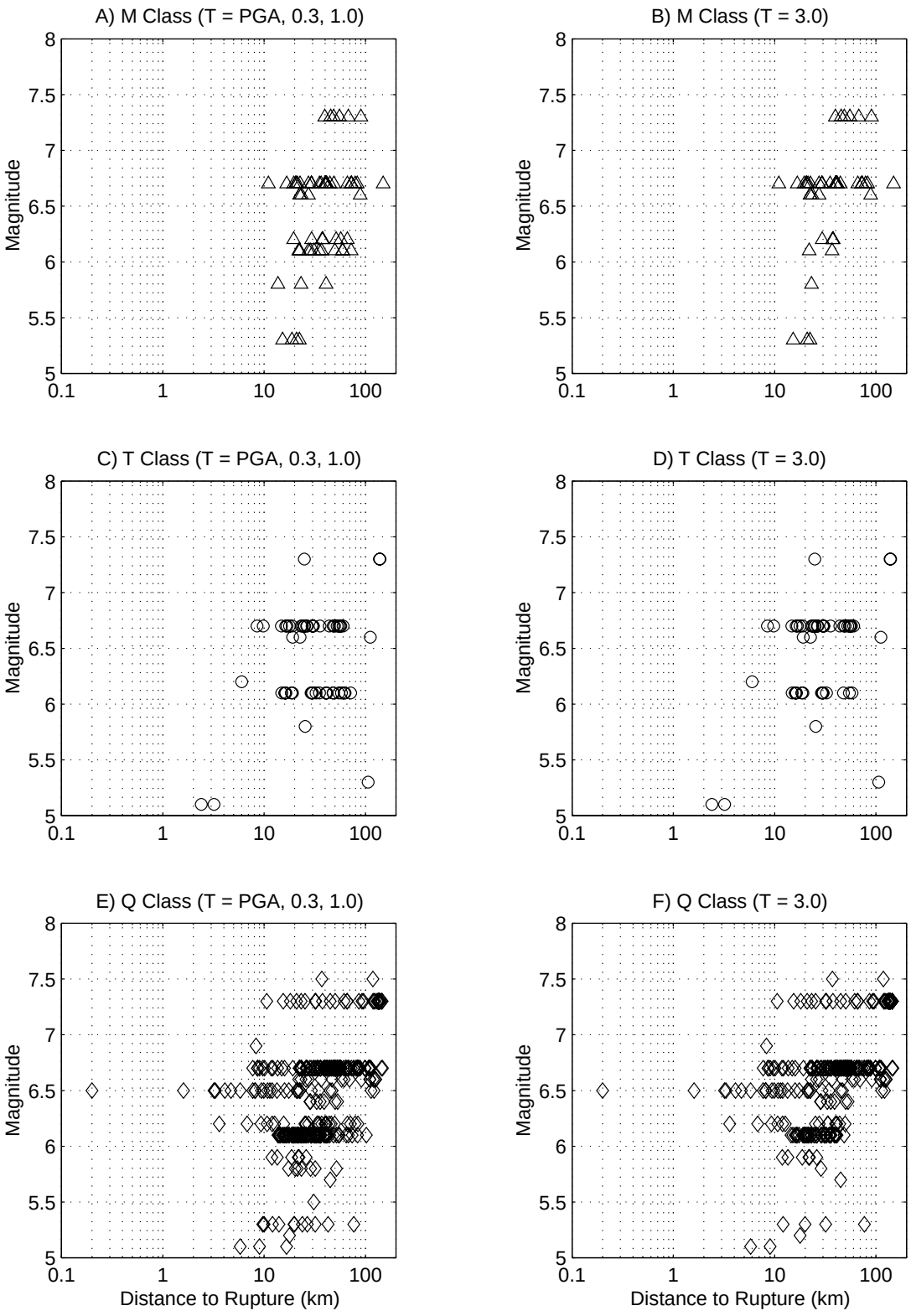
A) M Class (T = PGA, 0.3, 1.0)
B) M Class (T = 3.0)
C) T Class (T = PGA, 0.3, 1.0)
D) T Class (T = 3.0)
E) Q Class (T = PGA, 0.3, 1.0)
F) Q Class (T = 3.0)
Magnitude
Distance to Rupture (km)
8
7.5
7
6.5
6
5.5
5
0.1
1
10
100

Figure 4.

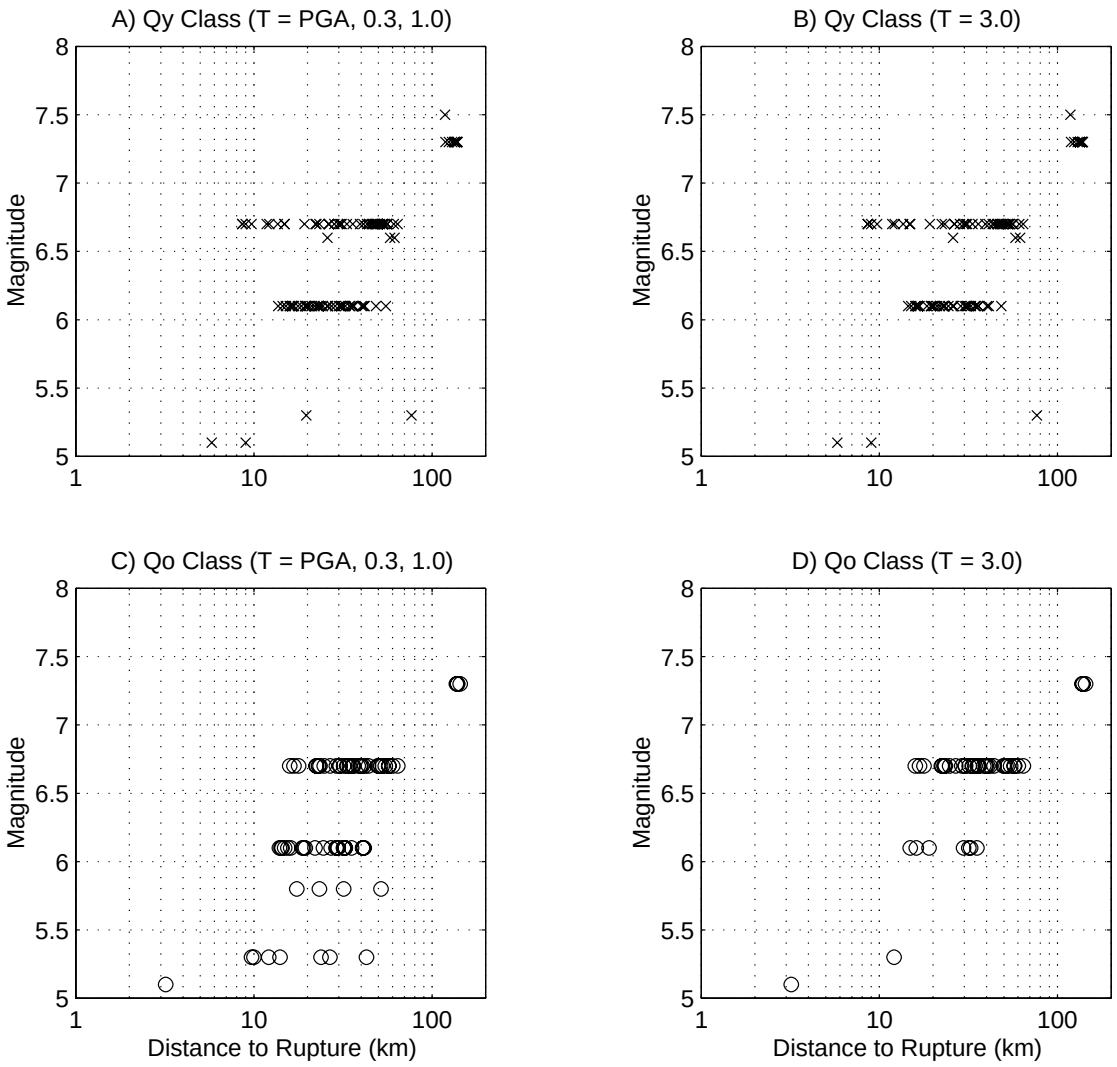
A) Qy Class (T = PGA, 0.3, 1.0)
B) Qy Class (T = 3.0)
C) Qo Class (T = PGA, 0.3, 1.0)
D) Qo Class (T = 3.0)
Magnitude
Distance to Rupture (km)
8
7.5
7
6.5
6
5.5
5
1
10
100

Figure 5.

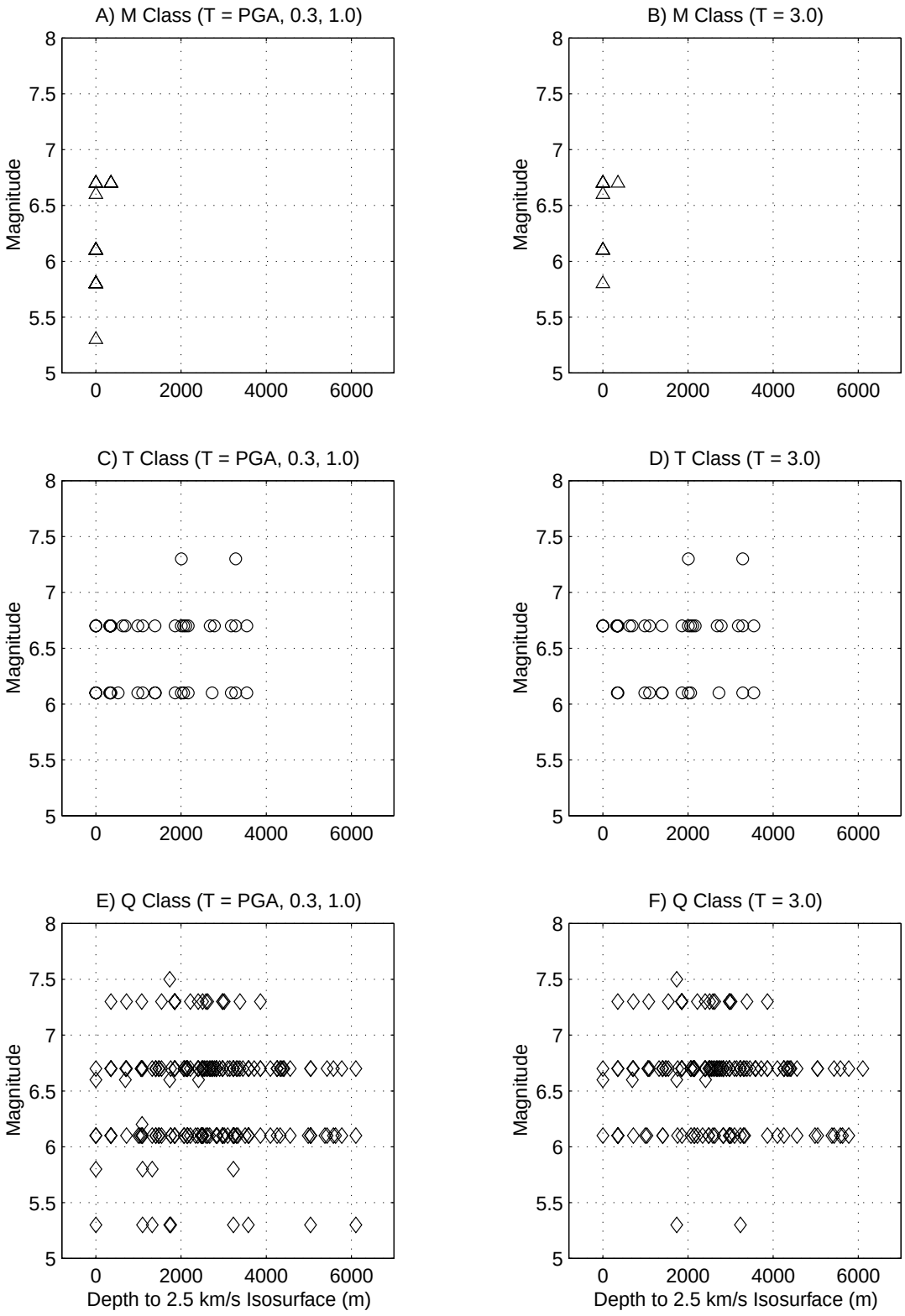
A) M Class (T = PGA, 0.3, 1.0)
B) M Class (T = 3.0)
C) T Class (T = PGA, 0.3, 1.0)
D) T Class (T = 3.0)
E) Q Class (T = PGA, 0.3, 1.0)
F) Q Class (T = 3.0)
Magnitude
Depth to 2.5 km/s Isosurface (m)
8
7.5
7
6.5
6
5.5
5
0
2000
4000
6000

Figure 6.

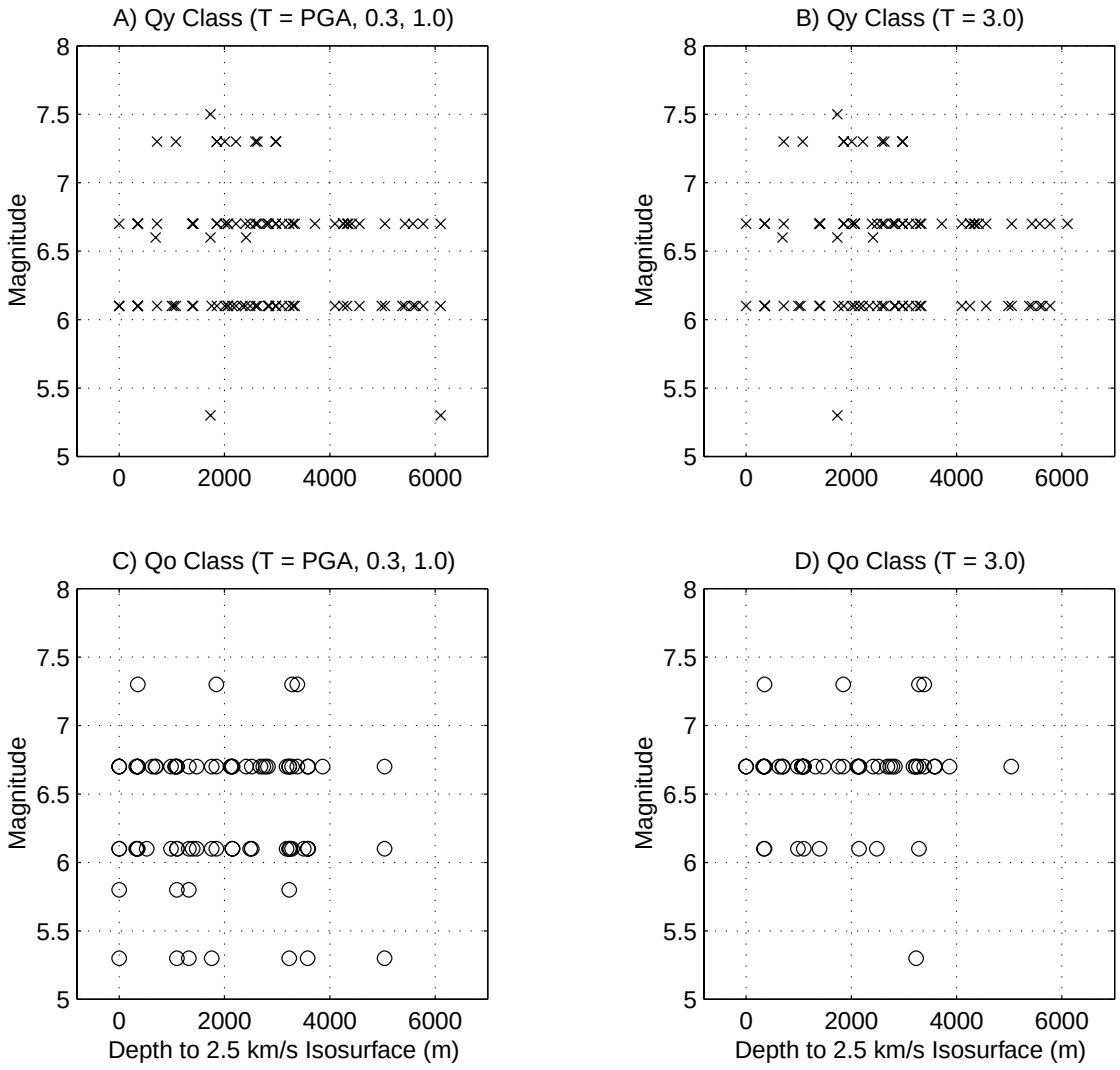
A) Qy Class (T = PGA, 0.3, 1.0)
B) Qy Class (T = 3.0)
C) Qo Class (T = PGA, 0.3, 1.0)
D) Qo Class (T = 3.0)
Magnitude
Depth to 2.5 km/s Isosurface (m)
8
7.5
7
6.5
6
5.5
5
0
2000
4000
6000

Figure 7.

Event #	yr-mo-dy	Event_name	Mag	Lat	Lon	Style	Nobs
1	34-12-30	Baja	6.4	32.25	-115.5	1	1
2	40-05-18	El Centro	6.9	32.733	-115.39	1	1
3	42-10-21	Borrego Valley	6.6	32.967	-116	1	1
4	51-01-23	Imperial Valley	5.8	32.983	-115.73	1	1
5	52-07-21	Kern County	7.5	35	-119.01	1.09	2
6	52-07-21	Kern County After1	5.1	35.23	-118.53	1.09	1
7	52-07-21	Kern County After2	5.5	35.13	-118.77	1.09	1
8	52-07-21	Kern County After3	6.4	35	-119	1.09	1
9	54-01-12	Wheeler Ridge	5.7	35	-119.01	1.2	1
10	55-12-16	Imperial County	5.2	32.922	-115.59	1	1
11	68-04-08	Borrego Mountain	6.5	33.19	-116.13	1	3
12	70-09-12	Lytle Creek	5.3	34.27	-117.54	1.09	6
13	71-02-09	San Fernando	6.6	34.41	-118.4	1.2	21
14	73-02-21	Point Mugu	5.3	34.065	-119.03	1.09	1
15	78-08-13	Santa Barbara	5.8	34.347	-119.69	1.09	3
16	79-10-15	Imperial Valley	6.5	32.614	-115.31	1	25
17	81-04-26	Westmoreland	5.9	33.098	-115.63	1	6
18	86-07-08	North Palm Springs	6.2	33.999	-116.6	1.09	31
19	87-10-1	Whittier Narrows	6.1	34.061	-118.07	1.2	106
20	87-10-1	Whittier Narrows After1	5.3	34.073	-118.09	1	9
21	87-11-24	Lmore Ranch Fault	6.2	33.083	-115.77	1	1
22	87-11-24	Superstition Hills	6.6	33.013	-115.83	1	1
23	91-06-28	Sierra Madre	5.8	34.259	-118	1.2	7
24	92-04-23	Joshua Tree	6.1	33.97	-116.32	1	5
25	92-06-28	Big Bear	6.4	34.206	-116.83	1	43
26	92-06-28	1992 Landers	7.3	34.201	-116.43	1	5
27	94-01-17	Northridge	6.7	34.209	-118.54	1.2	161
28	94-01-29	Northridge After1	5.1	34.31	-118.58	1.2	4

SID	Lat.	Long.	Station Location	Sensor Location	Gg	Tg	Class	Sowner	Snum	F/FF?	D2.5	DV30	V30
12A	34.571	-118.560	ELIZABETH LAKE	GROUND LEVEL	T		C	CDMG	24607	FF		0.04	612.0
AHM	33.817	-117.951	ANAHEIM	GROUND LEVEL	Q		D	USC	5388	FF	-3865		
ALF	34.070	-118.150	ALHAMBRA	GROUND LEVEL	Q	QOM	CD	CDMG	24461	FF		0.90	283.0
ALT	34.070	-118.150	ALHAMBRA	GROUND LEVEL	Q	QOM	CD	SCEC		FF		0.90	283.0
AMB	34.560	-115.743	AMBOY	GROUND LEVEL	Q		D	CDMG	21081	FF			
ANB	34.758	-118.361	ANTELOPE BUTTES	GROUND LEVEL	Q		BC	CDMG	24310	FF			
ANV	34.580	-118.199	ANAVERDE VALLEY	GROUND LEVEL	Q		D	CDMG	24576	FF			
ARC	34.130	-118.036	ARCADIA	GROUND LEVEL	Q	QYM	D	USC	5393	FF	-1858		
ARM	33.640	-116.860	ANZA ARRAY	GROUND LEVEL	M		B	USGS	5224	FF			
ARS	33.570	-116.520	ANZA ARRAY	GROUND LEVEL	M		B	USGS	5230	FF			
ATL	33.470	-116.640	ANZA ARRAY	GROUND LEVEL	Q		B	USGS	5231	FF			
AUB	34.420	-119.860	AUBURN	GROUND LEVEL	Q		D	USBR	1135	FF			
AZF	33.556	-116.670	ANZA ARRAY	GROUND LEVEL	Q		B	USGS	5160	FF			
BAD	33.889	-117.926	BREA DAM	DOWNSTREAM	Q	QYM	CD	USGS/ACOE	951	MIX			
BAP	33.847	-118.018	BUENA PARK	GROUND LEVEL	Q	QYM	D	USC	5386	FF	-4417		
BCR	32.693	-115.338	BONDS CORNER	GROUND LEVEL	Q		D	USGS	5054	FF		0.00	249.7
BCY	34.204	-118.302	BURBANK	GROUND LEVEL	M	MXB	CD	USC	5359	FF	0		
BGC	33.965	-118.158	BELL GARDENS	GROUND LEVEL	Q	QYM	D	USC	5394	FF	-5046		
BKR	35.272	-116.066	BAKER	GROUND LEVEL	Q		D	CDMG	32075	FF			
BPK	34.100	-117.974	BALDWIN PARK	GROUND LEVEL	Q	QYM	CD	USC	5369	FF	-2627		
BRA	32.998	-115.509	BRAWLEY	GROUND LEVEL	Q		D	USGS	5060	FF			
BRC	34.307	-118.603	BROWNS CANYON ROAD		T		C	SCEC		FF			
BRN	35.002	-117.650	BORON	GROUND LEVEL	Q		D	CDMG	33083	FF			
BRS	34.887	-117.047	BARSTOW		Q		CD	CDMG	23559	FF?			
BTS	34.286	-118.225	BIG TUJUNGA STATION	GROUND LEVEL	M		BC	USC	5361	FF	0		
BWP	34.168	-118.332	BURBANK	GROUND LEVEL	Q	QYC	D	USC	5312	FF	-1037		
CAB	33.918	-116.782	CABAZON	GROUND LEVEL	Q		D	USGS	5073	FF			
CAL	33.130	-115.520	CALIPATRIA	GROUND LEVEL	Q		D	USGS	5061	FF?		0.00	202.8
CAS	33.812	-118.270	CARSON	GROUND LEVEL	Q	QOF	CD	USC	5340	FF?	-2148		
CBP	34.087	-117.915	COVINA	GROUND LEVEL	Q	QYM	D	USC	5370	FF	-2585		
CBS	34.151	-118.696	CALABASAS	GROUND LEVEL	T		CD	USC	5352	FF	-2729		
CC4	33.360	-115.590	COACHELLA CANAL STA 4	GROUND LEVEL	Q		D	USGS	5066	FF			
CCS	34.078	-117.870	COVINA	GROUND LEVEL	Q	QOM	D	USC	5368	FF	-1472		
CCY	34.419	-118.426	CANYON COUNTRY	GROUND LEVEL	T		D	USC	5357	FF	-1859		
CDA	33.836	-118.239	CARSON	GROUND LEVEL	Q	QYM	D	USC	5381	FF?	-3230		
CFR	33.740	-116.840	ANZA ARRAY	GROUND LEVEL	Q		D	USGS	5157	FF			
CHC	34.459	-118.650	CASTAIC	GROUND LEVEL	Q		C	CDMG	24277	FF			
CLN	34.060	-117.320	COLTON	GROUND LEVEL	Q		CD	USGS	113	FF		0.65	308.2

SID	Lat.	Long.	Station Location	Sensor Location	Gg	Tg	Class	Sowner	Snum	F/FF?	D2.5	DV30	V30
CMO	34.208	-119.079	CAMARILLO	GROUND LEVEL	Q		D	CDMG	25282	FF			
COM	33.899	-118.196	COMPTON	GROUND LEVEL	Q	QYM	D	USC	5378	FF?	-5774		
CPC	34.212	-118.605	CANOGA PARK	GROUND LEVEL	Q	QYM	D	USC	5353	FF	-2825		
CSM	34.280	-117.330	CEDAR SPRINGS	BASEMENT	M		BC	CDMG	111	FF		0.51	821.8
CSN	34.240	-118.532	NORTHRIDGE (CSUN CAMPUS)		Q	QYF	D	SCEC		FF			
CSP	34.310	-117.300	CEDAR SPRINGS	GROUND LEVEL	Q		BC	CDWR	112	FF			
CWP	34.259	-118.573	CHATSWORTH	GROUND LEVEL	Q	QYM	D	SCEC		FF			
CXO	32.669	-115.492	CALEXICO	GROUND LEVEL	Q		D	USGS	5053	FF			
DCF	34.200	-117.330	DEVIL CANYON	GROUND LEVEL	M		BC	CDWR	116	FF		0.96	555.1
DGR	33.650	-117.010	DOMENIGONI VALLEY RESEVOIR	2M BELOW SURFACE	M		BC	CIT		FF			
DOW	33.924	-118.167	DOWNEY	GROUND LEVEL	Q	QYM	D	CDMG	14368	FF	-6105		
DSP	33.962	-116.509	DESERT HOT SPRINGS	GROUND LEVEL	Q		D	CDMG	12149	FF			
DUA	34.150	-117.939	DUARTE	GROUND LEVEL	M	QYC	CD	USC	5367	FF	-352		
DWY	33.920	-118.137	DOWNEY	GROUND LEVEL	Q	QYM	D	USC	5379	FF	-5579		
E01	32.960	-115.319	EL CENTRO ARRY STA 1	GROUND LEVEL	Q		D	USGS	5056	FF			
E02	32.916	-115.366	EL CENTRO ARRY STA 2	GROUND LEVEL	Q		D	USGS	5115	FF		0.00	243.5
E03	32.894	-115.380	EL CENTRO ARRY STA 3	GROUND LEVEL	Q		D	USGS	5057	FF		0.00	165.2
E04	32.864	-115.430	EL CENTRO ARRY STA 4	GROUND LEVEL	Q		D	USGS	955	FF		0.19	207.7
E05	32.855	-115.470	EL CENTRO ARRY STA 5	GROUND LEVEL	Q		D	USGS	952	FF		0.37	205.2
E06	32.839	-115.490	EL CENTRO ARRY STA 6	GROUND LEVEL	Q		D	USGS	5158	FF		0.28	201.9
E07	32.829	-115.500	EL CENTRO ARRY STA 7	GROUND LEVEL	Q		D	USGS	5028	FF		0.37	212.5
E08	32.811	-115.530	EL CENTRO ARRY STA 8	GROUND LEVEL	Q		D	USGS	5159	FF		0.19	207.7
E10	32.780	-115.567	EL CENTRO ARY STA 10	GROUND LEVEL	Q		D	USGS	412	FF		0.00	204.0
E11	32.752	-115.594	EL CENTRO ARY STA 11	GROUND LEVEL	Q		D	USGS	5058	FF		0.00	197.4
E12	32.718	-115.637	EL CENTRO ARY STA 12	GROUND LEVEL	Q		D	USGS	931	FF		0.00	205.3
E13	32.709	-115.683	EL CENTRO ARY STA 13	GROUND LEVEL	Q		D	USGS	5059	FF		0.00	251.6
ECP	34.177	-118.096	ALTADENA	GROUND LEVEL	Q	QOM	CD	CDMG	24402	FF	0		
EDA	32.796	-115.535	EL CENTR	GROUND LEVEL;6 INSTRUMENT	Q		D	USGS	5165	FF		0.00	190.6
ELC	32.794	-115.549	EL CENTRO ARRY STA 9	GROUND LEVEL	Q		D	USGS	117	FF?		0.00	213.3
ELZ	34.662	-118.387	ELIZABETH LAKE	GROUND LEVEL	M		D	CDMG	24575	FF			
EMC	34.093	-118.018	EL MONTE	GROUND LEVEL	Q	QYM	D	USC	5366	FF?	-2978		
FFP	34.088	-116.919	FOREST FALLS	GROUND LEVEL	M		CD	USGS	5075	FF			
FVP	33.719	-117.938	FOUNTAIN VALLEY	GROUND LEVEL	Q		D	USC	5302	FF	-3013	0.73	203.1
FVR	33.925	-116.389	FUN VALLEY	GROUND LEVEL	Q		D	USGS	5069	FF			
FYP	33.869	-117.709	FEATHERLY PARK	GROUND LEVEL	Q		D	CDMG	13122	FF	-1541		
GGS	33.790	-118.012	GARDEN GROVE	GROUND LEVEL	Q		D	USC	5385	FF	-4395		
GLF	34.200	-118.231	GLENDALE	GROUND LEVEL	Q	QYC	CD	USC	5363	FF	-354		
GMC	34.137	-117.882	GLENDORA	GROUND LEVEL	Q	QYC	D	USC	5365	FF	-717		

SID	Lat.	Long.	Station Location	Sensor Location	Gg	Tg	Class	Sowner	Snum	F/FF?	D2.5	DV30	V30
GPK	34.120	-118.300	LOS ANGELES	GROUND LEVEL	M	MXB	BC	USGS	141	FF		0.11	771.4
GSC	35.302	-116.806	GOLDSTONE LAKE	ISOLATED CONCRETE SLAB	M		B	CIT		FF			
H01	33.599	-117.132	MURRIETA HOT SPRINGS	GROUND LEVEL	M		BC	CDMG	13198	FF			
H02	33.640	-117.094	WINCHESTER	GROUND LEVEL	M		B	CDMG	13199	FF			
H03	33.681	-117.056	WINCHESTER	GROUND LEVEL	Q		BC	CDMG	13200	FF		0.69	383.2
H04	33.718	-117.022	WINCHESTER	GROUND LEVEL	Q		D	CDMG	5003	FF			
H05	33.729	-116.979	HEMET FIRE STATION	GROUND LEVEL	Q		D	CDMG	12331	FF			
H06	33.760	-116.960	SAN JACINTO	GROUND LEVEL	Q		D	CDMG	12202	FF			
H08	33.797	-116.880	SAN JACINTO	GROUND LEVEL	Q		CD	CDMG	5006	FF			
H10	33.851	-116.852	SILENT VALLEY	GROUND LEVEL	M		B	CDMG	12206	FF			
HBS	33.727	-118.044	HUNTINGTON BEACH	GROUND LEVEL	Q		D	USC	5383	FF	-3143		
HCP	33.670	-116.680	ANZA ARRAY	GROUND LEVEL	M		D	USGS	5043	FF			
HES	34.448	-117.327	HESPERIA	GROUND LEVEL	Q		CD	CDMG	5147	FF			
HIH	34.136	-117.213	HIGHLAND	GROUND LEVEL	Q		CD	USGS	5161	FF			
HLC	34.088	-118.365	HOLLYWOOD	GROUND LEVEL	Q	QYF	D	USC	5318	FF	-1402		
HNB	33.664	-117.997	HUNTINGTON BEACH	GROUND LEVEL	Q		CD	CDMG	13197	FF	-2671		
HRA	33.731	-117.023	HEMET	GROUND LEVEL	Q		D	CDMG	13660	FF			
HSL	34.090	-118.339	LOS ANGELES	GROUND STA	Q	QYF	D	CDMG	24303	FF	-2067	0.37	322.6
HUB	33.697	-118.023	HUNTINGTON BEACH	GROUND LEVEL	Q		D	USGS	5288	FF	-2905		
HVP	32.812	-115.377	HOLTVILLE	GROUND LEVEL	Q		D	USGS	5055	FF		0.00	201.0
IGU	33.905	-118.279	INGLEWOOD	GROUND LEVEL	Q	QOM	CD	CDMG	14196	FF	-3578		
INI	33.717	-116.156	INDIO	GROUND LEVEL	Q		D	CDMG	12026	FF			
INO	33.747	-116.214	INDIO	GROUND LEVEL	Q		D	USGS	5294	FF			
IVW	33.097	-115.530	IMPERIAL WILDLIFE	GROUND LEVEL	Q		D	USGS	5210	FF			
JST	34.131	-116.314	JOSHUA TREE	GROUND LEVEL	Q		CD	CDMG	22170	FF			
L01	34.680	-118.430	LAKE HUGHES STA 1	GROUND LEVEL	M		BC	CDMG	24271	FF			
L04	34.640	-118.480	LAKE HUGHES	GROUND LEVEL	M		BC	CDMG	126	FF			
L09	34.610	-118.560	WARM SPRINGS	GROUND LEVEL	M		BC	CDMG	24272	FF		0.25	824.9
L12	34.570	-118.560	ELIZABETH LAKE	GROUND LEVEL	T		C	CDMG	128	FF		0.09	612.0
L4B	34.650	-118.477	LAKE HUGHES	GROUND LEVEL	M		BC	CDMG	24523	FF		0.36	370.3
L4N	34.650	-118.478	LAKE HUGHES	GROUND LEVEL	M		D	CDMG	24469	FF		0.29	370.3
LAJ	34.081	-118.188	LOS ANGELES	GROUND LEVEL	T	TSS	CD	USGS	5244	FF	-1396		
LAS	33.929	-118.260	LOS ANGELES	GROUND LEVEL	Q	QOM	CD	CDMG	14403	FF	-5038		
LAW	33.897	-118.346	LAWNDALE	GROUND LEVEL	Q	QOF	CD	USC	5345	FF	-2516		
LBC	33.881	-118.176	LONG BEACH	GROUND LEVEL	Q	QYM	D	USC	5380	FF	-5628		
LBG	33.768	-118.196	LONG BEACH	GROUND LEVEL	Q	QOM	CD	CDMG	14560	FF?		0.26	355.8
LBH	33.754	-118.200	LONG BEACH	GROUND LEVEL	Q	WAT	DE	CDMG	14395	FF			
LBL	33.840	-118.194	LONG BEACH	GROUND LEVEL	Q	QOM	D	CDMG	14242	FF	-3592		

SID	Lat.	Long.	Station Location	Sensor Location	Gg	Tg	Class	Sowner	Snum	F/FF?	D2.5	DV30	V30
LBR	33.778	-118.133	LONG BEACH	GROUND LEVEL	Q	QOM	CD	CDMG	14241	FF	-3504		
LCA	34.238	-118.253	LA CRESCENTA	GROUND LEVEL	Q	QYV	CD	USC	5360	FF ?	-354		
LCI	34.053	-118.171	LOS ANGELES	GROUND LEVEL	T	TSS	CD	CDMG	24592	FF	-2782		
LCN	34.063	-118.418	LOS ANGELES	GROUND LEVEL	Q	QOM	CD	CDMG	24389	FF	-3227	0.28	302.0
LCS	34.062	-118.416	LOS ANGELES	GROUND LEVEL	Q	QOM	CD	CDMG	24390	FF	-3249	0.15	302.0
LDH	34.082	-118.298	LOS ANGELES	GROUND LEVEL	Q	TSB	CD	USC		FF			
LDR	34.274	-116.392			Q		D	CDMG		FF			
LDS	34.088	-118.222	LOS ANGELES	GROUND LEVEL	T	QYC	D	USC	5333	FF	-1388		
LF1	34.115	-118.244	LOS ANGELES	GROUND LEVEL	T	QYC	CD	USC	5334	FF ?	-354		
LF2	34.111	-118.189	LOS ANGELES	GROUND LEVEL	T	QOM	CD	USC	5332	FF	-1099		
LF3	34.042	-118.553	PACIFIC PALISADES	GROUND LEVEL	T	TSS	CD	USC	5349	FF	-3180		
LF4	34.146	-118.413	STUDIO CITY	GROUND LEVEL	Q	QYF	D	USC	5310	FF	-999		
LF5	34.127	-118.405	LOS ANGELES	GROUND LEVEL	T	TSS	C	USC	5314	FF	-340		
LF6	34.132	-118.439	LOS ANGELES	GROUND LEVEL	T	TSS	CD	USC	5313	FF ?	-984		
LHO	33.946	-117.924	LA HABRA	GROUND LEVEL	T	QOF	CD	USC	5374	FF ?	-3283		
LNF	34.739	-118.214	LANCASTER	GROUND LEVEL	Q		D	CDMG	24475	FF			
LPK	34.109	-119.065	POINT MUGU	GROUND LEVEL	T		CD	CDMG	25148	FF			
LPS	34.043	-118.271	LOS ANGELES	GROUND LEVEL	Q	QYF	D	CDMG	24612	FF	-2781	0.59	321.6
LRB	34.486	-117.980	LITTLEROCK	GROUND LEVEL	Q		BC	CDMG	23595	FF			
LRP	34.520	-117.990	LITTLEROCK	GROUND LEVEL	Q		D	USGS	5030	FF		0.88	429.0
LSR	33.976	-118.289	LOS ANGELES	GROUND LEVEL	Q	QYM	D	USC	5323	FF ?	-5378		
LSS	34.046	-118.355	LOS ANGELES	GROUND LEVEL	Q	QYF	D	USC	5391	FF ?	-3094		
LST	34.045	-118.298	LOS ANGELES	GROUND LEVEL	Q	QOM	CD	USC	5320	FF	-2114		
LTH	34.059	-118.246	LOS ANGELES	GROUND LEVEL	T	TSS	CD	CDMG	24611	FF	-2684	0.62	375.0
LUH	34.062	-118.198	LOS ANGELES	GROUND LEVEL	Q	TSS	CD	CDMG	24605	FF	-2410	0.28	313.4
LV1	34.594	-118.242	LEONA VALLEY STA A	GROUND LEVEL	M		CD	CDMG	24305	FF			
LV2	34.595	-118.243	LEONA VALLEY STA B	GROUND LEVEL	M		CD	CDMG	24305	FF			
LV3	34.596	-118.243	LEONA VALLEY STA C	GROUND LEVEL	M		CD	CDMG	24307	FF			
LV4	34.598	-118.242	LEONA VALLEY STA D	GROUND LEVEL	M		CD	CDMG	24308	FF			
LV5	34.600	-118.241	LEONA VALLEY STA E	GROUND LEVEL	M		D	CDMG	24055	FF			
LV6	34.604	-118.244	LEONA VALLEY STA F	GROUND LEVEL	M		CD	CDMG	24309	FF			
LVS	34.005	-118.279	LOS ANGELES	GROUND LEVEL	Q	QYM	D	USC	5322	FF ?	-4562		
LWD	33.846	-118.099	LAKEWOOD	GROUND LEVEL	Q	QYM	D	USC	5384	FF	-5428		
LWE	34.114	-118.380	LOS ANGELES	GROUND LEVEL	M	MXB	BC	USC	5317	FF ?	0		
LWS	34.089	-118.435	LOS ANGELES	GROUND LEVEL	M	MXB	CD	USC	5316	FF ?	0		
MA1	35.000	-119.480	MARICOPA ARRAY STA 1	GROUND LEVEL	T		C	USGS/CDWR	1041	FF			
MA2	35.040	-119.430	MARICOPA ARRAY STA 2	GROUND LEVEL	Q		C	USGS/CDWR	1042	FF			
MA3	35.080	-119.400	MARICOPA ARRAY STA 3	GROUND LEVEL	Q		C	USGS/CDWR	1043	FF			

SID	Lat.	Long.	Station Location	Sensor Location	Gg	Tg	Class	Sowner	Snum	F/FF?	D2.5	DV30	V30
MBF	33.886	-118.388	MANHATTAN BEACH	GROUND LEVEL	Q	QOM	CD	USC	5346	FF	-2130		
MBS	34.001	-118.430	LOS ANGELES	GROUND LEVEL	Q	QYF	D	USC	5354	FF	-2836		
MCN	34.078	-118.693	MALIBU CANYON	GROUND LEVEL	T		C	USGS	5080	FF			
MCS	34.390	-118.079	MILL CREEK	GROUND LEVEL	M		BC	USC	5362	FF	0		
MEC	34.024	-118.787	MALIBU	GROUND LEVEL	T		CD	USC	5351	FF	0		
MJO	35.042	-118.377	MOJAVE	GROUND LEVEL	M		D	CDMG	34237	FF			
MJV	35.070	-118.175	MOJAVE	GROUND LEVEL	Q		D	CDMG	34093	FF			
MLC	34.046	-118.637	MALIBU	GROUND LEVEL	T		C	USC	5350	FF	0		
MPK	34.288	-118.881	MOORPARK	GROUND LEVEL	Q		D	CDMG	24283	FF			
MSM	34.086	-118.481	LOS ANGELES	GROUND LEVEL	M	MXB	C	USC	5315	FF	0		
MTB	34.233	-117.661	MT BALDY	GROUND LEVEL	M		CD	CDMG	23572	FF			
MTL	33.990	-118.114	MONTEBELLO	GROUND LEVEL	Q	QOM	CD	USC	5311	FF ?	-3865		
MTW	34.224	-118.057	MT WILSON		M		BC	CDMG	24399	FF ?			
MVF	34.048	-116.577	MORONGO VALLEY	GROUND LEVEL	Q		CD	USGS	5071	FF			
NBC	33.623	-117.931	NEWPORT BEACH	GROUND LEVEL	Q		CD	CDMG	13610	FF	-2697		
NBI	33.634	-117.902	NEWPORT BEACH	GROUND LEVEL	Q		CD	CDMG	13160	FF	-2739		
NEE	34.848	-118.536	NEENACH	GROUND LEVEL	Q		D	CDMG	24586	FF			
NHW	34.194	-118.411	NORTH HOLLYWOOD	GROUND LEVEL	Q	QYC	D	USC	5309	FF	-1408		
NIH	33.915	-118.066	NORWALK	GROUND SITE NORTH	Q	QYM	D	USGS/BECH	5239	MIX			
NIL	33.240	-115.510	NILAND	GROUND LEVEL	Q		D	CDMG	724	FF			
NOH	34.410	-119.850	SANTA BARBARA	GROUND LEVEL	Q		CD	CDMG	5093	FF			
NPS	33.924	-116.543	NORTH PALM SPRINGS	GROUND LEVEL	Q		D	USGS	5295	FF			
NRG	34.209	-118.517	NORTHRIDGE	GROUND LEVEL	Q	QYM	D	USC	5303	FF ?	-3302		
NWH	34.390	-118.530	NEWHALL	GROUND LEVEL	Q		D	CDMG	24279	FF	-1487		
NWK	33.917	-118.067	NORWALK	SOUTH & NORTH GROUND SITE	Q	QYM	D	USGS/BECH	634	FF			
NWS	34.391	-118.621	NEWHALL	GROUND LEVEL	T		CD	USC	5356	FF	-3545		
OBG	34.037	-118.178	LOS ANGELES		Q	QOM	CD	CDMG	24400	FF			
ORR	34.560	-118.640	CASTAIC	GROUND LEVEL	T		CD	CDMG	24278	FF		0.88	564.6
PAL	34.581	-118.135	PALMDALE	GROUND LEVEL	Q		D	CDMG	24521	FF			
PAN	34.222	-118.442	PANORAMA CITY	GROUND LEVEL	Q	QYM	D	USC	5307	FF ?	-2150		
PAS	34.148	-118.171	PASADENA	PASADENA TERRASCOPE	M		BC	CIT		FF		0.30	969.4
PCD	34.334	-118.396	PACOIMA DAM	downsteam	M	MXB	BC	CDMG	24207	MIX			
PDL	34.580	-118.110	PALMDALE	GROUND LEVEL	Q		D	USGS	262	FF		0.92	487.0
PDS	34.077	-118.800	MALIBU		T		CD	CDMG	24396	FF ?			
PEL	34.090	-118.340	LOS ANGELES	GROUND LEVEL	Q	QYF	D	USGS	135	FF	-2067	0.42	322.6
PFO	33.612	-116.459	PINYON FLAT OBSERVATORY		M		B	CIT		FF			
PHE	34.467	-117.520	PHELAN	GROUND LEVEL	Q		D	CDMG	23597	FF			
PHN	34.150	-119.200	PORT HUENEME	GROUND LEVEL	Q		D	CDMG	25281	FF			

SID	Lat.	Long.	Station Location	Sensor Location	Gg	Tg	Class	Sowner	Snum	F/FF?	D2.5	DV30	V30
PKC	34.288	-118.375	PACOIMA	GROUND LEVEL	T	MXB	CD	CDMG	24088	FF	-2168	0.95	304.2
PLC	33.324	-116.683	PUERTA LA CRUZ	GROUND LEVEL	M		CD	CDMG	12168	FF			
PLS	32.790	-115.860	PLASTER CITY	GROUND LEVEL	Q		D	USGS	5052	FF			
PMC	34.251	-118.420	PACOIMA	GROUND LEVEL	Q	QYC	D	USC	5305	FF	-2342		
PPP	34.508	-117.922	PEARBLOSSOM	BSMT;GRND;MAIN LEVEL	Q		CD		585	FF		0.26	522.0
PRD	33.890	-117.641	PRADO DAM	DOWNSTREAM	Q		D	USGS/ACOE	969	MIX		0.22	140.0
PSA	33.829	-116.501	PALM SPRINGS	GROUND LEVEL	Q		D	CDMG	12025	FF			
PSL	34.150	-118.170	PASADENA	BASEMENT	Q	MXB	BC	USGS/CIT	266	FF?	0	0.45	419.9
PSW	34.136	-118.127	PASADENA	GROUND LEVEL	Q	QOM	CD	USGS	5296	FF	-353	0.53	419.9
PTS	32.930	-115.700	EL CENTRO	GROUND LEVEL	Q		D	USGS	5051	FF		0.00	367.4
PVC	33.746	-118.396	RANCHO PALOS VERDES	GROUND LEVEL	T	TSS	C	CDMG	14404	FF	0		
PVE	33.801	-118.387	PALOS VERDES ESTATES	BASEMENT	Q	QYM	CD	USGS	411	FF?	-693	0.11	253.3
PVS	33.776	-118.411	PALOS VERDES ESTATES	GROUND LEVEL	T	TSS	CD	USC	5342	FF	-523		
PWS	34.021	-116.009	TWENTYNINE PALMS	GROUND LEVEL	M		B	CDMG	22161	FF			
RDC	34.169	-117.579	RANCHO CUCAMONGA	GROUND LEVEL	Q		BC	CDMG	23598	FF	-712		
RES	34.297	-118.551	RESEDA		T	TSS	CD	SCEC		FF			
RGR	34.827	-118.265	ROSAMOND	GROUND LEVEL	Q		D	CDMG	24274	FF			
RHE	33.787	-118.356	ROLLING HILLS ESTATES	GROUND LEVEL	T	TSS	CD	CDMG	14405	FF	-688		
RNC	34.100	-117.570	RANCHO CUCAMONGA		Q		D	CDMG	23497	FF	-1083		
ROS	34.870	-118.206	ROSAMOND	GROUND LEVEL	Q		D	CDMG	24092	FF			
RPV	33.740	-118.335	RANCHO PALOS VERDES	GROUND LEVEL	T	TSS	CD	USC	5344	FF	-323		
RRS	34.281	-118.478	LOS ANGELES RESEVOIR		Q		D	DWP/POWER	5968	FF			
RVA	33.951	-117.446	RIVERSIDE AIRPORT	GROUND LEVEL	Q		CD	CDMG	13123	FF			
SBC	34.441	-119.715	SANTA BARBARA	GROUND LEVEL	Q		D	CIT		FF			
SBE	34.065	-117.292	SAN BERNARDINO	GROUND LEVEL	Q		CD	CDMG	23542	FF			
SBF	34.410	-119.850	SANTA BARBARA	BASEMENT	Q		CD	USGS	282	FF			
SBG	34.106	-117.287	SAN BERNARDINO	GROUND STATION EAST	Q		D	USGS	5245	MIX		0.66	457.0
SCT	34.106	-118.454	STONE CANYON RES DAM	GROUND	T	MXB	C	SCEC		FF			
SFS	33.944	-118.087	SANTA FE SPRINGS	GROUND LEVEL	Q	QYM	D	USC	5377	FF	-4328		
SFY	34.236	-118.439	SAN FERNANDO VALLEY	GROUND LEVEL	Q	QYC	D	CDMG	24087	FF	-2393		
SGS	34.091	-118.093	SAN GABRIEL	GROUND LEVEL	Q	QOM	CD	USC	5319	FF	-1846		
SJF	33.787	-116.958	SAN JACINTO	GROUND LEVEL	Q		D	CDMG	12673	FF			
SLB	33.757	-118.084	SEAL BEACH	GROUND LEVEL	Q		CD	CDMG	14578	FF	-3453		
SMC	34.005	-118.485	SANTA MONICA	GROUND LEVEL	Q	QOM	CD	USC	5348	FF	-2486	0.99	402.7
SMG	34.011	-118.490	SANTA MONICA	GROUND LEVEL	Q	QOM	CD	CDMG	24538	FF	-2827		
SMI	34.264	-118.666	SIMI VALLEY	GROUND LEVEL	Q	QYF	D	USC	5355	FF	0		
SND	34.743	-118.724	SANDBERG	GROUND LEVEL	M		BC	CDMG	24644	FF			
SNM	34.115	-118.130	SAN MARINO		Q	QOC	CD	CDMG	24401	FF?			

SID	Lat.	Long.	Station Location	Sensor Location	Gg	Tg	Class	Sowner	Snum	F/FF?	D2.5	DV30	V30
SNV	34.235	-118.366	SUN VALLEY	GROUND LEVEL	Q	QYC	D	USC	5308	FF	-354		
SNY	33.950	-117.150	SUNNYMEAD	GROUND LEVEL	Q		D	USGS		FF			
SON	33.370	-117.560	SAN ONOFRE	GROUND LEVEL	Q		CD	SCE	280	FF			
SPP	33.722	-118.309	SAN PEDRO	GROUND LEVEL	T	TSS	CD	CDMG	14159	FF	-629		
SUN	34.269	-118.303	SUNLAND	GROUND LEVEL	T	QYC	CD	USC	5358	FF	-2062		
SUP	32.955	-115.823	SUPERSTITION MTN	GROUND LEVEL	Q		B	USGS	286	FF			
SVD	34.106	-117.098	SEVEN OAKS DAM	VAULT ON CONCRETE FLOOR	Q		BC	CIT		FF			
SVG	34.221	-118.421	SUN VALLEY	GROUND LEVEL	Q	QYM	D	USC	5306	FF?	-2487		
SYH	34.326	-118.444	SYLMAR	GROUND LEVEL	Q	QYC	CD	CDMG	24514	FF		0.84	470.4
SYL	34.306	-118.438	SYLMAR	GROUND LEVEL	Q	QYM	D	USC	5301	FF	-4985	0.43	372.8
TAF	35.150	-119.460	TAFT	TUNNEL	Q		D	USGS	1095	FF		0.38	405.1
TAR	34.160	-118.534	TARZANA	GROUND LEVEL	Q	TSS	CD	CDMG	24436	FF	-1322		
TEH	35.130	-118.450	TEHACHAPI	GROUND LEVEL	Q		D	CDMG	1319	FF			
TEM	33.496	-117.149	TEMECULA	GROUND LEVEL	Q		CD	CDMG	13172	FF			
TLI	33.770	-118.230	LONG BEACH	BASEMENT	Q	QYF	DE	USGS	130	FF	-2410		
TMI	33.736	-118.269	TERMINAL ISLAND	GROUND LEVEL	Q	WAT	Water	USC	5382	FF	-1406		
TOP	34.084	-118.599	TOPANGA	GROUND LEVEL	T	TSS	CD	USGS	5081	FF	0		
TOR	33.823	-118.356	TORRANCE	GROUND LEVEL	Q	QYF	CD	USC	5338	FF	-1756		
TPP	33.820	-116.400	THOUSAND PALMS	GROUND LEVEL	Q		D	USGS	5068	FF			
TUS	33.728	-117.824	TUSTIN	GROUND LEVEL	Q		D	USC	5389	FF	-2403		
ULA	34.068	-118.439	LOS ANGELES	GROUND LEVEL	Q	QOM	CD	CDMG	24688	FF	-1060	0.15	437.0
USB	34.422	-119.851	GOLETA	GROUND LEVEL	Q		D	CDMG	25091	FF			
VCS	34.004	-118.230	VERNON	BASEMENT	Q	QYM	D	USC	5325	FF	-4099		
VLA	34.063	-118.463	LOS ANGELES	GROUND LEVEL	Q	QOM	CD	USGS/VA	638	FF	-700		
VLL	34.050	-117.249	LOMA LINDA	GROUND SITE NORTH	Q		D	USGS/VA	5229	MIX		0.99	309.0
VPS	33.821	-117.818	VILLA PARK	GROUND LEVEL	Q		CD	USC	5390	FF	-2507	0.79	575.3
VRP	34.490	-118.320	VASQUEZ ROCK PARK	GROUND LEVEL	M		CD	CDMG	24047	FF	0		
VSP	34.249	-118.478	SEPULVEDA VA HOSP	GROUND LEVEL	Q	QYF	D	USGS/VA	637	FF	-4353		
VTV	34.561	-117.330	VICTORVILLE		Q		CD	CIT		FF			
VWD	34.053	-118.452	LOS ANGELES	GROUND SITE SOUTH	Q	QOM	CD	USGS/VA	5082	MIX		0.69	448.0
WJF	34.381	-117.737	WRIGHTWOOD	GROUND LEVEL	M		C	CDMG	23590	FF			
WLF	33.180	-115.620	SALTON SEA	GROUND LEVEL	Q		D	USGS	5062	FF		0.00	168.3
WND	34.020	-118.053	WHITTIER NARROWS DAM	UPSTREAM	Q	QYM	D	USGS/ACOE	289	MIX			
WNR	34.314	-117.545	WRIGHTWOOD	GROUND LEVEL	M		CD	CDMG	23573	FF			
WSM	33.040	-115.620	WESTMORLAND	GROUND LEVEL	Q		D	CDMG	11369	FF		0.43	195.5
WTW	34.360	-117.630	WRIGHTWOOD	GROUND LEVEL	M		CD	USGS	290	FF?		0.32	488.1
WWS	34.369	-117.658	WRIGHTWOOD	GROUND LEVEL	M		BC	CDMG	23574	FF			
WWT	33.989	-116.655	WHITEWATER CYN	GROUND LEVEL	T		D	USGS	5072	FF			

SID	Lat.	Long.	Station Location	Sensor Location	Gg	Tg	Class	Sowner	Snum	F/FF?	D2.5	DV30	V30
XAR	34.127	-118.059	ARCADIA		Q	QYM	D	USC		FF ?			
XBR	33.916	-117.896	BREA		Q	QOF	CD	USC		FF ?			
XGL	34.467	-119.885	GOLETA		T		CD	SCE	9022	FF ?			
XHA	33.990	-117.942	HACIENDA HEIGHTS		T	QYM	CD	USC		FF ?	-2008		
XLA	34.688	-118.156	LANCASTER	GROUND LEVEL	Q		D	CDMG	24526	FF			
XLP	34.026	-117.918	LA PUENTE		Q	QYF	CD	USC	72	FF ?			
XLV	34.022	-118.293	LOS ANGELES		Q	QYF	D	USC	96	FF ?			
XPA	34.171	-118.079	PASADENA		Q	QOC	CD	USC	95	FF ?			
XPD	33.960	-118.432	PLAYA DEL REY		Q	QOM	CD	USC	47	FF ?	-2153		
XPO	34.056	-117.748	POMONA	GROUND LEVEL	Q	QYM	D	CDMG	23525	FF	-1076		
XPS	34.171	-118.079	PASADENA		Q	QOC	CD	USC	95	FF ?			
XSY	34.326	-118.444	SYLMAR		Q	QYC	CD	CDMG	24514	FF		0.84	470.4
XWA	34.015	-118.029	WHITTIER		T	TSB	CD	USC	75	FF ?			
XWC	34.064	-117.952	WEST COVINA		Q	QYM	D	USC	71	FF ?			
YER	34.903	-116.823	YERMO	GROUND LEVEL	Q		D	CDMG	22074	FF			

SID	Edate	Mag	ftype	Rrup	dBJF	Sdist	HW	pga-1	pga-2	sa03s-1	sa03s-2	sa1s-1	sa1s-2	sa3s-1	sa3s-2
ELC	1934.364	6.4	ss	33.0	33.0	33.2	0	180.8	165.6	382.2	376.8	152.7	208.1	23.9	34.4
ELC	1940.140	6.9	ss	8.3	8.3	8.8	0	349.8	218.5	721.3	435.8	514.9	274.1	114.1	140.9
ELC	1942.294	6.6	ss	46.8	46.3	46.8	0	48.5	68.8	106.8	187.6	52	52.2	17.6	13.7
ELC	1951.024	5.8	ss	28.7	26.9	28.7	0	29.9	32.9	91.2	79.2	40.7	40.3	9	10.9
TAF	1952.203	7.5	rs	37.1	37.0	38.6	0	192.7	173.3	408	370.4	157.7	177.9	47.5	42.9
PEL	1952.203	7.5	rs	118.2	116.5	118.2	0	60.5	42.9	147.8	141.2	115.8	101.5	24	52.9
TEH	1952.203	6.4	rs	53.1	52.1	53.1	0	83.7	71.3	186.8	168.3	42.8	47.1	8.9	29
TEH	1952.203	5.5	rs	30.8	29.1	30.8	0	13.6	23.5	21.4	23.4	18.7	11.6		
TEH	1952.203	5.1	rs	16.6	13.3	16.6	0	61.5	55.2	114.4	161.2	97.7	51.8		
TAF	1954.012	5.7	r	44.8	44.2	44.8	0	70.3	74.7	188.8	128.6	53.9	45	6.7	5.5
ELC	1955.351	5.2	ss	17.8	14.7	17.8	0	76.7	66.8	114.7	101.2	38.3	37.8	13.8	9.2
CLN	1968.100	6.5	ss	121.4	121.4	121.4	0	23.4	30.6	49.9	60.1	21.9	31.1	9	7.1
SON	1968.100	6.5	ss	113.8	113.8	113.8	0	40.9	47	104.1	129.8	40.7	51	12.2	13
ELC	1968.100	6.5	ss	44.7	44.7	44.8	0	139.4	59.2	222.9	140.8	179.2	129.2	78.5	70
ORR	1970.255	5.3	rs	106.2	105.9	106.2	0	23.6	24.9	39.4	52.4	10.9	20.5	1.3	2.4
WTW	1970.255	5.3	rs	15.2	13.0	15.2	0	142.5	199.8	369.2	443.7	84.8	56	7.6	4.5
CSM	1970.255	5.3	rs	20.9	19.3	20.9	0	55.7	82.8	62.6	183.7	7.9	25.6	3.3	6.5
DCF	1970.255	5.3	rs	22.3	20.8	22.3	0	174.3	160.5	152.4	246.7	20.2	22.3	3.2	5.7
PEL	1970.255	5.3	rs	76.7	76.3	76.7	0	19.8	20	60.6	47.1	8.5	5.6	2	1.9
CLN	1970.255	5.3	rs	31.9	30.8	31.9	0	44.3	38.4	133	94.8	17	14	4.1	1.7
TAF	1971.040	6.6	r	119.8	119.3	119.8	0	9.1	13.1	29.9	36.3	15.5	14.1	5.2	7.3
MA3	1971.040	6.6	r	110.8	110.2	110.8	0	9.4	8.3	27.6	21.9	11.1	9.7	6.1	9.4
MA2	1971.040	6.6	r	110.2	109.7	110.3	0	10.4	15.9	40.4	37.1	8.9	20.7	5.5	12.3
MA1	1971.040	6.6	r	111.5	111.0	111.5	0	10.3	7.9	37.6	20.6	16.6	13.9	5	5.3
L01	1971.040	6.6	r	27.4	25.0	27.4	0	149.3	112.3	249.2	225.1	375	165.6	24.6	18.6
L04	1971.040	6.6	r	23.4	20.5	23.4	0	155.2	195.1	193.4	316.8	117.7	74.8	10.5	11.4
L09	1971.040	6.6	r	22.4	19.4	22.4	0	126.4	139.8	165.7	251.5	41.5	48.1	8.8	6.6
PDL	1971.040	6.6	r	27.5	25.1	27.5	0	147.2	114.1	371.8	245.1	124.4	161.8	23.9	29.6
L12	1971.040	6.6	r	19.1	15.6	19.1	0	366.2	282.1	640.1	901.5	159.2	62.3	14.9	20.8
ORR	1971.040	6.6	r	22.6	20.1	22.6	0	280.9	327.6	421.3	747.3	341.9	169.2	42.9	25
PPP	1971.040	6.6	r	36.5	34.7	36.5	0	99.9	145.3	131.9	161.1	36.3	46.6	15.5	11.1
SBF	1971.040	6.6	r	124.4	124.4	125.5	0	16.5	18.2	47.9	52.7	33.9	45.2	13.5	18.2
CSP	1971.040	6.6	r	91.0	90.3	91.0	0	29.7	24.5	103	84.6	26.1	16.8	5.8	4.9
CSM	1971.040	6.6	r	88.7	88.0	88.7	0	20.6	15.8	38.4	35.5	24.5	18.5	6.9	5.1
PHN	1971.040	6.6	r	69.5	69.5	71.7	0	25.5	26.5	82.3	127.9	63.5	56.8	26.3	44.4
PSL	1971.040	6.6	r	23.1	23.1	25.4	0	92.9	198.5	205.5	483.7	65.2	151.8	18.1	20.1
GPK	1971.040	6.6	r	22.5	22.4	25.7	0	173.7	183.7	313.7	491.2	274.1	325.9	26.8	61.9
PEL	1971.040	6.6	r	25.9	25.8	29.2	0	211.2	183.2	540.9	374.6	246.8	155.1	94.1	42.9

SID	Edate	Mag	ftype	Rrup	dBJF	Sdist	HW	pga-1	pga-2	sa03s-1	sa03s-2	sa1s-1	sa1s-2	sa3s-1	sa3s-2
PVE	1971.040	6.6	r	58.1	58.1	61.2	0	24.9	41.8	74.4	88	45	48	22.2	20.2
TLI	1971.040	6.6	r	61.6	61.6	64.5	0	28.7	28.9	95.3	111.4	35.8	35.7	42.9	33.6
SON	1971.040	6.6	r	126.2	126.2	128.1	0	15.6	13.3	53.2	29.7	22.6	21.8	6.5	8.3
PHN	1973.052	5.3	rs	19.9	18.3	19.9	0	74.1	126.1	133.1	196	57	226.9	7.3	20.8
XGL	1978.225	5.8	rs	25.4	22.3	25.4	0	236.8	285.4	552.4	432.8	43.3	128.1	10.1	14.2
AUB	1978.225	5.8	rs	21.3	17.6	21.3	0	360.9	286.2	726.9	399.7	640	291.8		
NOH	1978.225	5.8	rs	20.3	16.3	20.3	0	277.7	410.6	844	822.8	131.2	344.4		
CC4	1979.288	6.5	ss	46.7	46.7	46.8	0	125.6	113.5	317.7	256.4	103.8	105	22.1	20.8
NIL	1979.288	6.5	ss	34.4	34.4	34.6	0	68.4	107.8	221.1	355	69.9	140.8	35	43.3
CAL	1979.288	6.5	ss	22.5	22.5	22.7	0	129.1	77.3	372.6	231.8	87.9	106.9	60.8	41.7
WSM	1979.288	6.5	ss	11.4	11.4	11.8	0	74.4	109.9	177.7	128	90.7	94.4	84.7	61.5
BRA	1979.288	6.5	ss	10.8	10.8	11.2	0	163.1	217.8	455.1	692.7	209.5	286.8	156.1	91.7
E01	1979.288	6.5	ss	22.4	22.4	22.6	0	141.7	137.6	293.9	273	102	69	49.5	26.1
SUP	1979.288	6.5	ss	20.9	20.9	21.1	0	112	197.4	147.2	255.2	25.5	45.1	15.5	14.9
PTS	1979.288	6.5	ss	9.4	9.4	9.9	0	201.8	108.7	235.2	189.3	134.9	108.1	58.3	64.5
E02	1979.288	6.5	ss	15.9	15.9	16.2	0	312	402.2	837.3	473	260.1	84	95	92.6
E03	1979.288	6.5	ss	13.4	13.4	13.8	0	263	220	661.8	361.9	269.7	128.9	169.6	120.1
E04	1979.288	6.5	ss	7.7	7.7	8.3	0	478.6	361.2	976.3	452.3	535.5	486.3	95.4	338.4
E05	1979.288	6.5	ss	4.1	4.1	5.2	0	521.3	373.4	959.1	1081.5	408.6	669.8	227.5	425.2
E06	1979.288	6.5	ss	1.6	1.6	3.5	0	443	444.3	891.5	852.6	428.6	597.9	499.6	288.5
E07	1979.288	6.5	ss	0.2	0.2	3.1	0	334.4	459	613	726.7	649.9	659.5	181.1	415.7
HVP	1979.288	6.5	ss	8.2	8.2	8.8	0	253.5	217.8	761.9	775.2	338.7	259.2	173.8	195.9
E08	1979.288	6.5	ss	3.3	3.3	4.5	0	607.1	469.3	899.6	561.1	363.4	340.8	141.7	183.8
EDA	1979.288	6.5	ss	4.7	4.7	5.6	0	346.4	476.8	866	970.2	245	488.4	215	85.4
ELC	1979.288	6.5	ss	5.8	5.8	6.6	0	231.7	208.1	393.4	399.4	355.9	417	234.6	101.3
PLS	1979.288	6.5	ss	29.3	29.3	29.5	0	43.4	58.3	75.5	180.8	21.3	58.5	14.2	13.6
E10	1979.288	6.5	ss	8.1	8.1	8.7	0	226.9	172.2	577.8	482.4	300.9	196.3	146	180.3
E11	1979.288	6.5	ss	12.0	12.0	12.4	0	372.7	360.7	1258	1184.2	223.4	245	84.2	169
E12	1979.288	6.5	ss	17.5	17.5	17.8	0	143.3	118.5	323.4	318.7	189.5	155.6	68.9	70.8
E13	1979.288	6.5	ss	21.5	21.5	21.7	0	114.9	136	296.6	434.3	146.1	71.4	51.1	51.7
BCR	1979.288	6.5	ss	3.2	3.2	4.4	0	582.5	763.2	1154.6	2162	422.3	440.5	109	52.8
CXO	1979.288	6.5	ss	9.9	9.9	10.4	0	271.5	200.1	583.9	517	182.8	153.8	55.5	51.4
NIL	1981.116	5.9	ss	21.7	19.3	21.7	0	177.8	103.1	224.3	211.8	51.2	34.6	11	13.1
WLF	1981.116	5.9	ss	13.5	9.1	13.5	0	192.7	181.1	382.3	660.3	209.7	165.8	23.4	32.1
WSM	1981.116	5.9	ss	11.9	6.5	11.9	0	486.4	370.8	637.7	820.7	469.8	738.1	81.3	45.9
BRA	1981.116	5.9	ss	18.7	15.8	18.7	0	154.1	166.8	315.8	311.2	102.1	73.6	37.2	18.4
SUP	1981.116	5.9	ss	26.0	24.0	26.0	0	82.2	103.9	95.2	181.9	27.2	66.9	11.5	18.5
PTS	1981.116	5.9	ss	22.1	19.7	22.1	0	149.9	225.3	362.4	476.3	320.7	236.3	102.4	182.7

SID	Edate	Mag	ftype	Rrup	dBJF	Sdist	HW	pga-1	pga-2	sa03s-1	sa03s-2	sa1s-1	sa1s-2	sa3s-1	sa3s-2
HES	1986.189	6.2	rs	78.9	77.7	78.9	0	37.2	42.3	77.7	111.7	16.5	24.8		
LDR	1986.189	6.2	rs	34.8	31.9	34.8	1	81.5	99.2	146.5	128.2	36.2	30.2		
JST	1986.189	6.2	rs	25.9	21.8	25.9	0	65.3	51	142.4	145.2	56.4	62.2		
RNC	1986.189	6.2	rs	84.2	84.1	84.2	0	20.3	21.8	33.7	34.7	15.5	11.1		
MVF	1986.189	6.2	rs	12.0	3.0	12.0	1	219.7	211.2	548.7	308	528.6	352	63.7	137.1
WWT	1986.189	6.2	rs	6.0	0.0	6.1	1	604	479.9	1207.4	1018.9	312.2	276.1	31.1	49.3
DSP	1986.189	6.2	rs	6.8	0.0	6.8	1	320.8	268.4	1044	742.6	368.6	206.3	58.3	40
RVA	1986.189	6.2	rs	71.1	71.0	71.1	0	39.2	50.5	29.2	50.4	10.1	7.5		
SNY	1986.189	6.2	rs	43.8	43.7	43.8	0	96.5	121	185.6	396.1	38.8	67	7.9	6.2
FVR	1986.189	6.2	rs	12.7	11.0	12.7	0	123.8	126.3	142.4	149.8	119.6	85.6	13	9.3
NPS	1986.189	6.2	rs	3.6	0.0	3.6	1	674	686.2	1510.8	1265.7	281.9	837.8	48.8	89
CAB	1986.189	6.2	rs	10.7	10.2	10.7	0	205.3	218.1	667.6	370.1	117.9	106.8	26.5	18.9
H10	1986.189	6.2	rs	19.5	19.3	19.5	0	117.2	141.9	150.2	172.1	40.6	19.1		
PSA	1986.189	6.2	rs	9.3	8.7	9.3	0	195.4	159	354.9	244.3	151.2	183.1	26.1	30.6
H08	1986.189	6.2	rs	25.2	24.9	25.2	0	237.2	248.5	261.6	394.9	157.5	70.2	7.3	11.8
H06	1986.189	6.2	rs	33.4	33.3	33.4	0	62.9	69.4	116.5	146.5	46.1	47.9	6.6	5.6
INO	1986.189	6.2	rs	33.5	33.4	33.5	0	114.8	60	238.8	124.2	218	69.1	27.5	24.1
CRR	1986.189	6.2	rs	27.5	27.3	27.5	0	128.4	174.3	185.6	276.6	104.3	123.7	7.5	11.5
H05	1986.189	6.2	rs	36.9	36.8	36.9	0	133.5	146.2	196.8	108.4	57.5	119.4		
H04	1986.189	6.2	rs	40.8	40.6	40.8	0	108.1	106.8	244.2	204.9	60.4	77.4		
INI	1986.189	6.2	rs	39.8	39.7	39.8	0	51.4	55.6	115.2	109	59.9	73.4	19.7	19.8
H03	1986.189	6.2	rs	45.8	45.7	45.8	0	73.2	87.8	101.8	57.6	12.6	7.3		
HCP	1986.189	6.2	rs	29.4	29.2	29.4	1	180.9	224.7	395.8	438.2	72.9	47.8	6.9	4.1
H02	1986.189	6.2	rs	51.4	51.3	51.4	0	94.3	70.3	88.6	45.4	18.3	16.7		
ARM	1986.189	6.2	rs	37.9	37.8	37.9	0	116	94.3	119.2	148	36.6	37.7	3.4	5.2
H01	1986.189	6.2	rs	57.0	56.9	57.0	0	53	49.9	38.5	40.9	15.5	12.8		
ARS	1986.189	6.2	rs	37.3	37.1	37.3	0	112.7	81.9	88	61.1	33.9	9.3	3.4	2.4
AZF	1986.189	6.2	rs	41.1	41.0	41.2	1	114.6	61.1	227.8	131.6	26.6	41.3	3.6	4
TEM	1986.189	6.2	rs	66.3	66.2	66.3	0	99.4	105	266.4	494	95.9	48.7		
ATL	1986.189	6.2	rs	49.6	49.4	49.6	0	94.3	103	252.4	295.3	68.3	55	4.5	4.5
PLC	1986.189	6.2	rs	66.2	66.1	66.2	0	58.8	75.3	41.2	103.3	10.5	15.5		
RGR	1987.274	6.1	r	83.5	81.6	83.5	0	73.8	50.4	146	187.2	38.5	24.5		
XLA	1987.274	6.1	r	67.7	65.4	67.7	0	59.6	59.4	228.3	159.7	15.3	18.5		
L01	1987.274	6.1	r	72.1	69.9	72.1	0	38.4	26.4	113.7	71	20.4	22		
LV6	1987.274	6.1	r	59.6	56.9	59.6	0	32.7	47.3	121.5	111.7	8.2	10.8		
LV5	1987.274	6.1	r	59.1	56.4	59.1	0	51.2	50.7	155.8	171.5	19.5	11.4		
ORR	1987.274	6.1	r	71.3	69.1	71.3	0	67.2	65.4	231.3	153.9	59.1	29.8		
VRP	1987.274	6.1	r	49.8	46.6	49.8	0	54.3	61.7	106.8	109.8	11	11		

SID	Edate	Mag	ftype	Rrup	dBJF	Sdist	HW	pga-1	pga-2	sa03s-1	sa03s-2	sa1s-1	sa1s-2	sa3s-1	sa3s-2
CHC	1987.274	6.1	r	64.4	62.0	64.4	0	38.6	29.5	93.3	86.7	30.5	23.7		
CCY	1987.274	6.1	r	47.8	44.5	47.8	0	94.6	113.1	229.5	367.9	52.1	42.3	6.1	0
NWS	1987.274	6.1	r	57.9	55.2	57.9	0	85.2	58.6	232.5	200	27.5	32	4.2	0
NWH	1987.274	6.1	r	51.7	48.6	51.7	0	57.2	44.8	193.1	115.6	46.6	30.7		
MCS	1987.274	6.1	r	36.8	32.3	36.8	1	90.7	72.7	162.9	133.4	40.6	35	3.9	0
XSY	1987.274	6.1	r	41.9	38.0	41.9	0	55.8	50.3	122.5	138.2	30.3	39.2		
SYL	1987.274	6.1	r	40.2	36.2	40.2	0	42.8	55.9	126.5	149.2	42.3	38.4	3.9	4.8
MPK	1987.274	6.1	r	73.9	71.8	73.9	0	45.7	47.2	155.8	107.8	28.8	21.6		
PKC	1987.274	6.1	r	35.2	30.5	35.2	0	152.4	154.9	434.1	317.5	73	74.9		
BTS	1987.274	6.1	r	28.5	22.4	28.5	0	179.1	122.5	242.3	168.3	28.9	18.8		
SUN	1987.274	6.1	r	30.1	24.4	30.1	0	96	90.2	160.9	155.4	62.4	43.9	6.2	5.4
SMI	1987.274	6.1	r	55.1	52.2	55.1	0	2.1	22.2	5.8	38.5	2.1	10.4		
PMC	1987.274	6.1	r	35.8	31.2	35.8	0	122.1	116.5	333.7	254.8	45.1	82.3	3.8	7.3
LCA	1987.274	6.1	r	25.8	18.9	25.8	0	134.7	133.9	301	225.6	119.8	85.1	7.9	0
SFY	1987.274	6.1	r	36.4	31.9	36.4	0	87.1	84.2	234.2	185.2	42.6	78.6		
SNV	1987.274	6.1	r	31.5	26.1	31.5	0	72.1	71.1	162.8	143	31.1	28.7	4.4	0
MTW	1987.274	6.1	r	22.4	14.0	22.4	1	121.3	171.3	123.5	135.2	46.4	28.1		
PAN	1987.274	6.1	r	36.0	31.4	36.0	0	108.2	95.5	313.1	315.1	77.7	58.8	6.5	7.8
SVG	1987.274	6.1	r	34.4	29.6	34.5	0	225.4	197.6	563.3	502.3	65.6	62.5	7.2	6.4
CPC	1987.274	6.1	r	48.4	45.1	48.4	0	112.8	122.6	471	516.3	56	51.3	4.2	5.6
NRG	1987.274	6.1	r	41.2	37.2	41.2	0	146.8	111.9	551.6	193.1	45.6	80.5	7.8	8.4
GLF	1987.274	6.1	r	22.7	14.3	22.7	0	299.4	168.6	424.1	343.4	73	71	9.2	0
NHW	1987.274	6.1	r	32.6	27.5	32.6	0	205.8	116.5	612.9	312.6	71.8	82.1	5.7	6.7
ECP	1987.274	6.1	r	19.4	8.8	19.4	1	299.3	157.9	639.9	389.1	121.5	45.5		
XPS	1987.274	6.1	r	19.0	8.1	19.0	1	228.6	247.7	475	572.4	114.2	81.3	10.6	12.5
BWP	1987.274	6.1	r	26.1	19.7	26.2	0	171.3	198.2	615	654.5	88.4	130.3	10.7	13.6
TAR	1987.274	6.1	r	41.1	37.4	41.1	0	397.5	526.9	2136.4	2312.8	73.2	93.8		
CBS	1987.274	6.1	r	54.6	52.0	54.6	0	24.3	40.7	75.5	141.3	14.4	19.4	0	2.9
LF4	1987.274	6.1	r	31.0	26.1	31.0	0	205.9	222.3	513.9	693.9	93.3	118.9	10	9.9
GMC	1987.274	6.1	r	20.3	12.1	20.3	0	87.3	105.5	236.8	216.6	60.2	72.9	0	8.5
LF6	1987.274	6.1	r	32.5	28.2	32.5	0	136.1	91.5	394.6	170.6	62.7	53.8	0	3.5
ARC	1987.274	6.1	r	16.4	3.6	16.4	1	168.9	286.3	448.8	1229.3	45.7	196.7	0	26.4
LF5	1987.274	6.1	r	29.7	25.1	29.7	0	131.5	81.9	390.2	179.2	46.4	37.9	2.8	0
GPK	1987.274	6.1	r	21.9	15.4	21.9	0	133.8	121.4	256.3	257	75.8	152	6	11.4
LF1	1987.274	6.1	r	18.5	10.2	18.5	0	204.2	177	453.6	430.7	182	244	11.2	18.2
SNM	1987.274	6.1	r	15.5	1.9	15.6	1	183.8	136.5	297.9	196	201.9	47.1		
LWE	1987.274	6.1	r	27.4	22.6	27.4	0	33.4	43.6	72.7	72.1	12.8	10.7		
LF2	1987.274	6.1	r	16.1	5.2	16.1	0	175.9	134.4	254	242.6	188.4	76.9	14.7	8.6

SID	Edate	Mag	ftype	Rrup	dBJF	Sdist	HW	pga-1	pga-2	sa03s-1	sa03s-2	sa1s-1	sa1s-2	sa3s-1	sa3s-2
RNC	1987.274	6.1	r	42.7	40.1	42.7	0	45.3	55.4	75.7	47.6	22.7	19.8		
BPK	1987.274	6.1	r	15.1	2.9	15.1	0	62.7	127.9	132.1	304.5	87.8	85.7	0	20.6
EMC	1987.274	6.1	r	14.5	0.0	14.5	1	130.4	232.6	300.2	1039.8	71.3	191.4	7.6	37.7
SGS	1987.274	6.1	r	14.4	0.0	14.4	1	205.2	254.1	657.2	525.8	69	282.4		
HSL	1987.274	6.1	r	23.7	18.8	23.7	0	201.3	103.7	273.4	173.5	117.6	107.8		
LWS	1987.274	6.1	r	31.1	27.6	31.1	0	46.7	56.6	65	125.3	25.5	28.7		
LDS	1987.274	6.1	r	16.4	8.0	16.4	0	152.1	128.3	247.2	253.4	110	146.3	6.8	9.1
CBP	1987.274	6.1	r	16.5	8.3	16.5	0	129	75.7	327	207.2	83.6	83.1	11.4	0
MSM	1987.274	6.1	r	34.9	31.9	34.9	0	37.1	17.9	115.2	56	23.5	10.2		
LDH	1987.274	6.1	r	20.6	15.0	20.6	0	187.5	201.4	244.4	656.7	80.9	99.1	7.4	5.8
LAJ	1987.274	6.1	r	14.9	4.9	14.9	0	214.2	327.1	387.7	772.5	99.3	166.4	10.7	25.5
CCS	1987.274	6.1	r	18.7	12.4	18.7	0	73.3	57.7	200.4	250.7	92	66.6		
PDS	1987.274	6.1	r	62.8	61.3	62.8	0	42.5	46.3	134.3	117.6	29.3	31.6		
ALF	1987.274	6.1	r	13.9	1.4	13.9	0	286.2	374.3	680.1	624.3	334.2	203.8		
XWC	1987.274	6.1	r	14.5	4.9	14.5	0	134.1	128	404.3	198.8	143	24.4	24.7	0
LCN	1987.274	6.1	r	29.4	26.1	29.4	0	63.4	97.5	143.1	160.7	40.1	66.8		
LCS	1987.274	6.1	r	29.3	25.9	29.3	0	67.2	57.6	135.2	75.9	56	46.1		
XPO	1987.274	6.1	r	27.3	23.7	27.3	0	68.4	49.1	90.2	97.8	24.9	21.5		
MLC	1987.274	6.1	r	48.2	46.3	48.2	0	63.9	53.5	119.7	111.4	12.6	13.2		
LSS	1987.274	6.1	r	24.4	20.3	24.4	0	100.7	137	294.2	169.5	49.3	50.8	6.3	9.8
LF3	1987.274	6.1	r	40.8	38.5	40.8	0	64.7	35.3	98.5	116.4	13.2	21.9		
OBG	1987.274	6.1	r	14.2	4.1	14.2	0	399.1	420.1	711.5	525.3	237.2	251.9		
XLP	1987.274	6.1	r	15.9	8.3	15.9	0	114.9	139.5	349.6	352.2	33.9	55.3	0	9.3
MEC	1987.274	6.1	r	61.6	60.1	61.7	0	42.6	30.4	108.7	101.3	31.1	22.9		
WND	1987.274	6.1	r	13.7	2.9	13.9	1	225.4	291.2	669.5	672.2	113.6	82.6		
SMC	1987.274	6.1	r	35.3	32.6	35.3	0	32.1	38.2	96.7	67.3	27	50.5	0	4.6
LVS	1987.274	6.1	r	19.5	14.0	19.5	0	152.6	181.8	388.1	432.8	108	110.9	8.7	0
VCS	1987.274	6.1	r	16.8	9.9	16.8	0	160.6	168.8	221.1	286.5	149.4	131.3	17.1	10.6
MBS	1987.274	6.1	r	30.8	27.6	30.8	0	57.6	45.1	57.4	55.7	28.3	19.7	5.7	3.6
XHA	1987.274	6.1	r	16.0	8.5	16.0	0	180.8	193.5	536.8	299.4	47.1	49.7	9.8	0
LSR	1987.274	6.1	r	21.1	16.2	21.1	0	149.1	170.4	335.8	326.1	131	279.3	17.1	17.4
BGC	1987.274	6.1	r	16.4	9.2	16.4	0	89.8	215.9	123.3	393.3	30.8	324	0	35.2
XPD	1987.274	6.1	r	32.0	29.0	32.0	0	32	24.4	79.9	68.9	30.2	31.1		
RVA	1987.274	6.1	r	54.3	52.6	54.3	0	38.4	56.8	67.5	61.9	2.9	6.9		
LHO	1987.274	6.1	r	19.0	13.4	19.0	0	118.3	163.7	302	431.6	57.2	101.8	9.9	23.3
SFS	1987.274	6.1	r	17.7	11.3	17.7	1	429.2	444.4	1368.9	686.7	157.9	315.2		
LAS	1987.274	6.1	r	22.0	17.4	22.0	0	383.9	253.4	590	474.3	183.3	231.3		
DOW	1987.274	6.1	r	19.4	13.8	19.4	0	193.2	150.7	508.6	216.6	389.1	190.1		

SID	Edate	Mag	ftype	Rrup	dBJF	Sdist	HW	pga-1	pga-2	sa03s-1	sa03s-2	sa1s-1	sa1s-2	sa3s-1	sa3s-2
DWY	1987.274	6.1	r	19.5	14.0	19.5	0	239.2	334	461.8	884.5	105.4	449	15.8	42.4
NWK	1987.274	6.1	r	19.9	14.3	19.7	1	89.3	234.9	249.7	272.2	109.4	238.4	4.9	15.8
IGU	1987.274	6.1	r	24.6	20.5	24.6	0	246.1	219.3	403.8	363.6	59.7	236.2		
COM	1987.274	6.1	r	21.9	17.2	21.9	0	312.1	306.5	698.7	514	406.9	146.2	23.7	7.8
LAW	1987.274	6.1	r	28.9	25.5	28.9	0	58.3	52.8	172	150.8	79.4	96.5		
BAD	1987.274	6.1	r	23.2	18.9	23.2	0	312.7	169.5	743.5	456.4	60	39.4	14	10.7
LBC	1987.274	6.1	r	23.1	18.7	23.1	0	152.5	221.5	347.2	643.4	170	443.2	10.9	32
FYP	1987.274	6.1	r	36.2	33.6	36.3	0	76.7	77	397.9	331.2	25.3	26.5		
LWD	1987.274	6.1	r	26.0	22.2	26.0	1	174.6	291.4	394.6	635.5	119.9	369.1	14.4	29.2
LBL	1987.274	6.1	r	27.1	23.5	27.1	0	233.1	143.8	567.4	472.4	214.6	232.3		
CDA	1987.274	6.1	r	28.6	25.2	28.6	0	108.6	94.2	391.4	231.5	140.7	155.5	10.4	10.8
TOR	1987.274	6.1	r	34.8	32.0	34.8	0	47.8	30.5	143.8	89.6	40.5	47.5	5.7	7
VPS	1987.274	6.1	r	33.2	30.3	33.2	0	72.6	41.2	183.5	66.1	20.8	12.3		
AHM	1987.274	6.1	r	29.2	25.9	29.2	0	50.7	69.8	151.2	182.8	42.9	51.8	0	14.2
CAS	1987.274	6.1	r	31.8	28.8	31.8	0	56.7	37.8	66.4	109.8	56.2	41.1	0	9.2
LBR	1987.274	6.1	r	32.6	29.7	32.6	1	53.8	57.2	116.6	84.3	102.9	36.6		
PVS	1987.274	6.1	r	41.6	39.3	41.6	0	6.9	6.4	29.5	20.3	5	10.9		
LBH	1987.274	6.1	r	35.5	32.9	35.6	0	48.2	68.9	111.7	120.5	79.2	86.9		
RPV	1987.274	6.1	r	40.9	38.6	40.9	0	20.9	17.5	45.6	40.7	51.3	46.3		
TMI	1987.274	6.1	r	38.9	36.5	38.9	0	37.8	42.3	151.5	178.8	53.2	77.4	6.5	13.7
H05	1987.274	6.1	r	101.9	101.0	101.9	0	30	33.9	55.1	67.8	17.4	17.1		
FVP	1987.274	6.1	r	39.2	36.8	39.2	0	59.5	73.4	158.4	106	65.5	29.8	17.7	8.2
HNB	1987.274	6.1	r	44.4	42.3	44.4	0	37.8	43	128.4	83.7	30.4	17.2		
MTW	1987.277	5.3	ss	18.8	17.0	18.8	0	142.5	136	296.3	195	18.8	16.2		
ECP	1987.277	5.3	ss	14.0	11.5	14.0	0	266	187.9	465.1	391.4	76.2	53.8		
TAR	1987.277	5.3	ss	42.8	42.0	42.8	0	69.9	75.1	126.1	148.6	14.2	22.9		
SNM	1987.277	5.3	ss	10.0	5.9	10.0	0	137.2	193.4	565.7	782.4	91	106.5		
ALF	1987.277	5.3	ss	9.7	5.5	9.7	0	210	175	414	365.8	71	85.3		
OBG	1987.277	5.3	ss	12.1	9.0	12.1	0	333.3	308.6	739.4	547.3	84	200.7	8.9	21.3
LAS	1987.277	5.3	ss	23.8	22.4	23.8	0	147	133.2	270	300	95.3	82.3		
DOW	1987.277	5.3	ss	19.7	18.0	19.7	0	56.3	59.3	118.8	127.3	57.1	56.9		
IGU	1987.277	5.3	ss	26.7	25.5	26.7	0	127.1	111.4	241.5	163.7	79	64.4		
IVW	1987.328	6.6	ss	21.9	22.0	22.7	0	179.5	201.1	365.4	565.9	191.9	436.9		
IVW	1987.328	6.2	ss	15.6	14.8	15.6	0	125.2	126	283.4	244.1	83.4	93.8		
VRP	1991.179	5.8	r	40.8	39.0	40.8	0	122.9	96.1	110.3	215.2	15.3	14.4		
MTW	1991.179	5.8	r	13.7	6.5	13.7	0	196.2	270.6	444.5	943	50.2	82.4		
ECP	1991.179	5.8	r	17.4	12.7	17.5	0	438.9	175.6	1479.7	309.3	252.3	61.8		
TAR	1991.179	5.8	r	51.7	50.3	51.7	0	75.6	96.3	133.4	194.6	25.9	19.3		

SID	Edate	Mag	ftype	Rrup	dBJF	Sdist	HW	pga-1	pga-2	sa03s-1	sa03s-2	sa1s-1	sa1s-2	sa3s-1	sa3s-2
PSL	1991.179	5.8	r	23.1	19.8	23.1	0	273.8	172.6	624.3	685.9	162.4	82.5	15.9	10.7
SNM	1991.179	5.8	r	23.3	19.9	23.3	0	166.1	134.7	424.3	371.2	97.3	88.8		
OBG	1991.179	5.8	r	31.9	29.5	31.9	0	216.3	224.8	502.7	870.6	82.1	62.7		
MVF	1992.114	6.1	ss	21.4	21.0	21.4	0	65.6	127.4	158.4	274.6	107.9	115.1	6.6	13.1
WWT	1992.114	6.1	ss	29.0	28.7	29.0	0	187.9	210.5	560.3	524.9	28.4	83.1	8	10
NPS	1992.114	6.1	ss	21.5	21.1	21.5	0	168.3	158.5	413.1	455.9	58.9	112.6	13.6	16.6
TPP	1992.114	6.1	ss	17.4	16.8	17.4	0	191.3	200.1	470.9	311.1	147	157.1	16	35.3
INO	1992.114	6.1	ss	24.9	24.6	25.0	0	204.4	400.1	440.6	742.1	119.6	731.5	25.2	60.1
GSC	1992.180	7.3	ss	67.7	67.1	67.7	0	60.9	52.3	132.8	109.5	91.4	62.7	54.5	14.9
BKR	1992.180	7.3	ss	86.2	85.2	86.2	0	105.6	103.6	216.1	257.8	86.8	108.6	25.7	28.2
BRN	1992.180	7.3	ss	92.5	92.5	92.7	0	88.4	116.6	210.2	244.5	219.2	149.8	15.5	18.8
YER	1992.180	7.3	ss	25.3	25.0	25.4	0	148.6	240	447.2	356.8	320.1	492.2	67.9	123.1
BRS	1992.180	7.3	ss	37.6	37.6	37.8	0	129	132.6	271.6	241.1	221.1	188	81.2	76.6
AMB	1992.180	7.3	ss	65.7	64.8	65.7	0	143.2	112.7	351.9	293.9	219	183.7	75.7	109.4
XPA	1992.180	7.3	ss	138.6	138.6	138.9	0	52.4	59.7	133.8	115.4	89.1	66.9	23.8	17.1
GMC	1992.180	7.3	ss	124.3	124.3	124.6	0	37.2	60	86	151.5	80.9	81.9	21	28.3
JST	1992.180	7.3	ss	10.6	9.3	10.8	0	268.3	278.4	676.7	699.4	397.3	521.8	46.4	116.5
ARC	1992.180	7.3	ss	137.1	137.1	137.4	0	51.3	47.9	138.9	110.8	81.3	89.2	47.6	41.2
XAR	1992.180	7.3	ss	139.1	139.1	139.4	0	27	25.6	48.1	41.6	44.4	73.7	27	26.7
SVD	1992.180	7.3	ss	61.5	61.5	61.9	0	134.4	176.7	510	343	69.4	43.4	22.8	20.1
BPK	1992.180	7.3	ss	133.7	133.7	134.0	0	31.9	24	37.2	34.1	46.7	70.5	35.2	47.9
EMC	1992.180	7.3	ss	137.6	137.6	137.9	0	33.7	41.4	68.3	79.3	82.2	80.7	41.5	65.3
SGS	1992.180	7.3	ss	143.8	143.8	144.1	0	34.7	48.5	69.2	73.7	47.4	86.4	45.3	38.6
FFP	1992.180	7.3	ss	45.3	45.3	45.7	0	87	113.1	159.5	234.7	88.3	171.1	19.3	27.1
CBP	1992.180	7.3	ss	129.8	129.8	130.1	0	45.3	64	105.5	111.4	75.2	122.2	23.7	47.8
XWC	1992.180	7.3	ss	134.0	134.0	134.3	0	43	52.5	101.7	79.8	118.3	79.5	55.3	30.9
XPO	1992.180	7.3	ss	119.0	119.0	119.3	0	65.5	43.2	221.2	111.2	102.6	105.4	38.2	25.1
MVF	1992.180	7.3	ss	15.4	15.4	15.9	0	161.4	216.1	358.1	415.9	177.9	260.4	63.1	47.3
XLP	1992.180	7.3	ss	133.7	133.7	134.0	0	42.1	34.2	94.7	95.2	70.8	48.2	56	31.3
PWS	1992.180	7.3	ss	39.7	38.6	39.7	0	59.1	78.7	127.5	101	26.6	24.6	19.9	20
XHA	1992.180	7.3	ss	137.7	137.7	138.0	0	45.4	48.2	165.6	90.8	97.3	102.7	39.3	17.7
WWT	1992.180	7.3	ss	24.9	24.9	25.3	0	123.7	124.9	388	181.2	142.3	112.9	28.4	15.4
DSP	1992.180	7.3	ss	18.1	18.1	18.5	0	151	167.4	373.9	373.9	334.9	226.7	48.5	46.3
RVA	1992.180	7.3	ss	95.5	95.5	95.8	0	40.4	41.8	78	104.1	37.3	28.5	13.8	12.3
LHO	1992.180	7.3	ss	139.1	139.1	139.4	0	39.1	44.2	91.7	95.6	92.2	112.4	57.5	36.8
FVR	1992.180	7.3	ss	20.9	20.8	21.0	0	212.6	203.6	835.2	1032.2	237	209.6	18.7	19.5
NPS	1992.180	7.3	ss	23.2	23.2	23.6	0	137.3	137.1	277.6	285.9	223.6	140.4	46.6	41.5
XBR	1992.180	7.3	ss	137.1	137.1	137.4	0	40.5	41.1	84.3	79	63.1	91.4	62	45.4

SID	Edate	Mag	ftype	Rrup	dBJF	Sdist	HW	pga-1	pga-2	sa03s-1	sa03s-2	sa1s-1	sa1s-2	sa3s-1	sa3s-2
FYP	1992.180	7.3	ss	121.2	121.2	121.5	0	50	51	170.3	196.4	89.6	62.2	17.3	12.1
H10	1992.180	7.3	ss	48.6	48.6	48.9	0	48.9	39.4	64.8	49.6	24.7	28.6	17.5	13.7
PSA	1992.180	7.3	ss	31.9	31.9	32.1	0	87.2	74.2	185.1	186.8	212.9	221.1	55.2	66.4
VPS	1992.180	7.3	ss	132.2	132.2	132.5	0	36.7	27.9	70.7	53.9	63.1	41.5	35.4	34.1
TPP	1992.180	7.3	ss	32.3	32.3	32.4	0	113.8	98.6	307.9	201.4	208.4	190	68.1	71
AHM	1992.180	7.3	ss	144.2	144.3	144.5	0	37.1	47.9	115.2	155	130.8	118	36.6	67
INO	1992.180	7.3	ss	44.8	44.4	44.8	0	126	301.7	268.3	401.1	216.3	462.2	48	96.9
H05	1992.180	7.3	ss	66.1	66.1	66.4	0	95.2	79.8	161.3	140.4	101.6	77.7	12.2	11.1
TUS	1992.180	7.3	ss	135.7	135.7	136.0	0	39.7	39.9	87.9	116.8	77.4	107.2	31.4	56.5
FVP	1992.180	7.3	ss	146.0	146.0	146.3	0	61.1	68.8	135.6	124.4	108.7	168.9	47.7	81.4
INI	1992.180	7.3	ss	50.2	49.7	50.3	0	101.9	107.3	188.6	194.7	116.2	169.5	32.8	83.4
PFO	1992.180	7.3	ss	55.3	55.3	55.4	0	47.5	26	73.8	62.9	39.8	21.4	36.3	7.5
PLC	1992.180	7.3	ss	90.2	90.2	90.4	0	43.4	45.6	54.9	66.9	17.3	24.6	9	5.1
HIH	1992.180	6.4	ss	28.6	26.7	28.6	0	108.6	160.4	323.3	427.5	87.1	64.3	18.9	11.9
SBE	1992.180	6.4	ss	35.7	34.1	35.7	0	90.4	98.8	226.4	303.8	202.9	123.5	41.4	28.4
MVF	1992.180	6.4	ss	28.3	27.9	28.3	0	116.7	143.8	286.1	423.7	160.1	243.3	19	61.2
FVR	1992.180	6.4	ss	50.2	49.9	50.2	0	112.5	100.6	158.2	236.2	70.8	93.4	4.3	8.5
NPS	1992.180	6.4	ss	39.0	38.7	39.0	0	138	126.8	430.5	316.7	159.9	127.4	23.4	38.6
MJV	1994.017	6.7	r	88.5	88.1	88.5	0	36.6	51.7	95.9	201.5	129	65.1	5.5	6.3
MJO	1994.017	6.7	r	78.9	78.5	78.9	0	58.2	49.4	138.5	99.4	24.2	40.2	4.3	4.2
ROS	1994.017	6.7	r	67.9	67.5	67.9	1	38.8	73.6	131.7	265.3	48.7	33.5	8.8	3.7
NEE	1994.017	6.7	r	55.1	54.6	55.1	0	54.7	67.8	146.4	86.9	54.9	116.8	47.5	32
ANB	1994.017	6.7	r	50.2	49.6	50.2	0	67	44.9	69.4	116.2	50.4	31.6	8.7	13.5
SND	1994.017	6.7	r	44.5	43.9	44.5	0	89.1	96.5	200.4	231.7	197.2	72.8	30.3	16.7
LNF	1994.017	6.7	r	55.3	54.8	55.3	1	62.7	79.8	163.8	111	74.6	121.3	12.1	15.5
L01	1994.017	6.7	r	39.8	39.1	39.8	0	75.2	84.9	217.2	246.1	165.7	229.7	12.5	15.9
ELZ	1994.017	6.7	r	39.9	39.2	39.9	0	151.8	111.7	468.9	451.5	110.5	109.1	16.8	16.7
L4B	1994.017	6.7	r	35.2	34.4	35.2	0	35.8	61.7	76.7	126.2	50.3	34.4	6.1	9.6
L4N	1994.017	6.7	r	35.2	34.4	35.2	0	56.4	82.4	183.5	252.2	82.8	33.6	9.5	11.3
L09	1994.017	6.7	r	29.2	28.2	29.2	0	221.2	154.5	466	251.6	31.7	32	19.6	14.7
LV6	1994.017	6.7	r	41.4	40.7	41.4	1	128.4	174.1	344.1	420.7	158	76.9	16	20.6
LV5	1994.017	6.7	r	41.2	40.5	41.2	1	89.9	143.7	291.8	281.6	149.4	356.4	30.4	22.7
LV4	1994.017	6.7	r	40.9	40.2	40.9	1	77.6	55.6	137	157.9	261	112	20.9	28.8
LV3	1994.017	6.7	r	40.7	40.0	40.7	1	103.8	82.6	165.1	137.3	50.4	176.2	23.4	19
LV2	1994.017	6.7	r	40.6	39.9	40.6	1	62.1	89.3	113.6	138.9	39.8	153.2	21.8	16.3
LV1	1994.017	6.7	r	40.6	39.9	40.6	1	71.8	87.2	184.3	132	47	147.5	21.6	16.2
PAL	1994.017	6.7	r	44.9	44.2	44.9	0	65.5	60.2	126.9	180.2	146.7	160	14.6	11.6
ANV	1994.017	6.7	r	41.4	40.7	41.4	0	43.3	59.1	135.9	163	61.3	146.7	17.1	13.8

SID	Edate	Mag	ftype	Rrup	dBJF	Sdist	HW	pga-1	pga-2	sa03s-1	sa03s-2	sa1s-1	sa1s-2	sa3s-1	sa3s-2
12A	1994.017	6.7	r	25.1	23.9	25.1	0	171	252.7	384.9	256.7	42.6	78.5	29.8	14.9
VTV	1994.017	6.7	r	107.1	106.8	107.1	0	49.8	55.4	88.4	119.8	18.2	28.3	2.7	3.7
ORR	1994.017	6.7	r	23.8	22.5	23.8	0	504.2	557.1	1398.6	1155.8	952.4	524.4	96.3	92.8
LRP	1994.017	6.7	r	50.2	49.6	50.2	0	120.5	163.5	353.2	308.1	214.5	134.5	10.9	11.9
VRP	1994.017	6.7	r	27.4	26.3	27.4	1	137.4	148	228.5	387.7	201.4	189.6	32.1	29.1
LRB	1994.017	6.7	r	49.1	48.5	49.1	0	70.6	59	150.7	186.6	144.6	78.5	11	15
PHE	1994.017	6.7	r	87.6	87.3	87.6	0	46.2	56	111.9	130.7	71.2	92.4	14.4	19.7
SBC	1994.017	6.7	r	99.1	97.0	99.1	0	30.6	41.8	73.6	105.9	42.1	81.3	14.9	7.8
USB	1994.017	6.7	r	110.7	108.9	110.7	0	76.1	67.6	263.2	161.1	83.8	99.8	9.4	16.2
CCY	1994.017	6.7	r	16.3	14.5	16.3	1	389.1	446.8	835.6	1111.8	372.7	634.9	103	77.6
NWS	1994.017	6.7	r	8.5	3.8	8.5	0	348.2	411.3	506.1	742	563.6	904.1	177.5	374.6
NWH	1994.017	6.7	r	10.1	6.7	10.1	1	571.6	578.2	2375.6	1917.5	724.3	1149	152.5	182.8
WJF	1994.017	6.7	r	66.2	65.8	66.2	0	55.4	36.2	146	82.7	94.8	79.3	8.2	6.8
WWS	1994.017	6.7	r	73.1	72.7	73.1	0	46.3	58.5	104.3	262.1	39.3	53.5	4.8	4.8
PCD	1994.017	6.7	r	11.0	8.0	11.0	1	407.1	425.6	968.6	736.3	237.1	366.2	76.2	71.9
SYH	1994.017	6.7	r	9.0	4.9	9.0	1	592.6	826.8	1035.1	2594.4	606.9	852.1	261.1	338.8
WNR	1994.017	6.7	r	82.8	82.5	82.8	0	41	41.2	100.2	125.4	28.9	35.6	5.3	4.6
MPK	1994.017	6.7	r	25.9	18.6	25.9	0	286.2	189.3	675.8	548.2	227.6	224.1	39	42.5
PKC	1994.017	6.7	r	9.8	6.3	9.9	0	295.2	424.2	947.4	842.6	491.3	523.4	107	87
BTS	1994.017	6.7	r	21.3	19.9	21.3	0	242.4	161.7	416.6	562.6	170.2	112.6	9.7	8.5
RRS	1994.017	6.7	r	7.7	0.0	7.7	1	825.5	471	1722.8	1724.3	1788.1	808.1	246.3	258.5
SUN	1994.017	6.7	r	14.8	12.7	14.8	0	151.1	127.3	296.3	342	414.3	201.9	26.5	37.2
SMI	1994.017	6.7	r	13.6	0.0	13.6	1	503.4	713.1	1358.5	1327.6	680.9	724.6	42.3	50.4
VSP	1994.017	6.7	r	8.6	0.0	8.6	1	922.7	738.2	2797	1231.8	621	1122.9	253	112.6
LCA	1994.017	6.7	r	19.2	17.7	19.3	0	136.7	200.8	277	333.2	90.1	135.8	8.8	0
SFY	1994.017	6.7	r	8.6	2.3	8.6	0	337.3	302	782	631.9	516.9	289.1	64.7	128.8
MTB	1994.017	6.7	r	72.2	71.8	72.2	0	78	68.4	184.9	204.8	46.2	42.8	4	3.1
MTW	1994.017	6.7	r	36.5	35.7	36.5	0	130.7	228.5	230.5	301.2	45.7	55.7		
SVG	1994.017	6.7	r	9.7	4.6	9.7	0	262.1	430.5	616.9	778.4	358.2	592.9	81.1	117.2
CPC	1994.017	6.7	r	14.9	0.7	15.0	1	343.2	381	1014.6	746	296.4	484.7	96.7	135.5
NRG	1994.017	6.7	r	12.2	0.0	12.2	1	444.1	319.4	1252.9	960	805.5	304.7	113.4	106.1
CMO	1994.017	6.7	r	42.1	37.0	42.1	0	122.3	118.2	207	300.6	188.7	167.2	66.1	38.1
BCY	1994.017	6.7	r	16.7	14.9	16.7	0	152.8	106.7	471.8	344	85.6	84.1	16.2	21.3
GLF	1994.017	6.7	r	22.2	20.9	22.2	0	167.3	329.8	551	681.7	56.9	65.8		
NHW	1994.017	6.7	r	11.8	6.9	11.9	0	248.4	296	563.3	493.7	375.9	272.7	97.8	81.7
XPA	1994.017	6.7	r	35.9	35.1	35.9	0	256	185.9	664.2	639.1	97.7	88.3	10	16
RDC	1994.017	6.7	r	80.5	80.1	80.5	0	70.1	50.4	190.1	155.3	43.6	47.1	5.2	6.6
TAR	1994.017	6.7	r	15.9	2.2	15.9	1	1744.5	970.7	3512	2366.3	777.8	497.1	122	109.4

SID	Edate	Mag	ftype	Rrup	dBJF	Sdist	HW	pga-1	pga-2	sa03s-1	sa03s-2	sa1s-1	sa1s-2	sa3s-1	sa3s-2
PHN	1994.017	6.7	r	53.1	49.2	53.2	0	101.1	84.1	294.4	231.5	151.2	116.7	82.7	47.7
DUA	1994.017	6.7	r	48.7	48.1	48.7	0	78.5	26	143.4	77.9	39.7	24.5		
PAS	1994.017	6.7	r	29.4	28.4	29.4	0	52.3	101.4	128.9	224.4	36.5	52	14.3	6.2
GMC	1994.017	6.7	r	54.1	53.6	54.1	0	44.5	89.2	99.7	251	57.2	58.4	0	8.6
PSW	1994.017	6.7	r	33.5	32.6	33.5	0	161.1	142.9	460.7	269.8	106.4	80	11.7	25.3
LF6	1994.017	6.7	r	16.8	8.4	16.8	0	477.1	434.4	1220.5	873	912.9	1018.3	100.6	106.9
ARC	1994.017	6.7	r	41.2	40.5	41.2	0	112.4	87.1	426.6	235.6	130.1	52.7	35.6	22.6
XAR	1994.017	6.7	r	39.4	38.7	39.4	0	87.6	90.4	227.4	222.8	72	154.8	22.3	0
LF5	1994.017	6.7	r	17.8	11.4	17.8	0	434.4	576.9	1192.7	1578	236.6	344.7	27.6	46.4
GPK	1994.017	6.7	r	22.6	20.0	22.6	0	162.9	282.1	467.3	512.6	246.1	357.5	26.1	17
SNM	1994.017	6.7	r	34.4	33.5	34.4	0	122.5	148.2	292.9	301.8	121	79.6	15.1	10.7
LF1	1994.017	6.7	r	26.3	24.6	26.3	0	240.8	167.1	376.8	390.7	167.5	212.9	21	26.7
LWE	1994.017	6.7	r	19.6	14.1	19.6	0	156.2	101.6	337.5	175.8	170.6	92	16.9	0
LF2	1994.017	6.7	r	30.2	29.1	30.2	0	128.5	155	285.4	301.6	108.9	75.7	16.8	11.4
LPK	1994.017	6.7	r	43.9	39.0	43.9	0	218.7	131.8	805.1	432.8	110	95.2	8.6	7.1
SBG	1994.017	6.7	r	108.0	107.8	108.0	0	38.7	35.7	75	76.9	47.2	54.8	11.9	13.3
SCT	1994.017	6.7	r	18.9	9.4	18.9	0	256.7	371.5	803.1	1072.2	225.2	310.2	25.1	28.3
RNC	1994.017	6.7	r	82.7	82.4	82.7	0	45.3	70.8	92.6	129.4	52.4	50.4		
BPK	1994.017	6.7	r	47.6	47.0	47.6	0	92	131.6	215.1	225.1	43.5	55.9	0	13.9
EMC	1994.017	6.7	r	44.4	43.7	44.4	0	122.6	155.2	302.5	381	104.6	93.6	59.7	17.6
SGS	1994.017	6.7	r	38.5	37.8	38.6	0	233.8	135.3	336.5	359.6	151.4	135.3	14.7	0
HSL	1994.017	6.7	r	23.3	18.7	23.3	0	227	381.4	447.8	694.7	227.8	447.6	52.7	26.4
LWS	1994.017	6.7	r	20.6	11.9	20.6	0	272.6	257.3	469.6	506.2	157.4	348.9	26.1	28.7
LDS	1994.017	6.7	r	29.7	27.9	29.7	0	150.8	204.4	269.4	355.2	83.8	158.9	12.8	0
HLC	1994.017	6.7	r	22.4	16.8	22.4	0	244.9	132.2	377.5	446.9	565.9	166.4	48.9	50.3
CBP	1994.017	6.7	r	53.1	52.6	53.1	0	100.5	80	216.4	185	73.6	92.6	0	18.1
MSM	1994.017	6.7	r	20.5	10.2	20.5	0	176.2	207.3	372.7	471.2	313.3	196.7	49.7	24.8
TOP	1994.017	6.7	r	23.1	12.5	23.1	1	326.9	191.7	1161.7	490	117.4	77.7	35.4	18.5
LDH	1994.017	6.7	r	25.9	22.3	25.9	0	409.4	322.4	1100.4	1054.9	142.5	189.2	20.6	0
CCS	1994.017	6.7	r	57.3	56.8	57.3	0	64.2	71.1	218.6	176	79	62.4	19.9	0
MCN	1994.017	6.7	r	26.7	17.6	26.7	1	180.4	160.9	291.1	333.9	112.7	49.2	17.1	12.6
PDS	1994.017	6.7	r	30.5	22.9	30.5	1	127.2	91.9	353.8	172.6	89.5	99.4	25.4	23.8
ALF	1994.017	6.7	r	35.7	34.6	35.7	0	99.1	78.3	177.5	153.6	132.1	70.3	22.2	20.7
ALT	1994.017	6.7	r	35.7	34.6	35.7	0	98.2	97.9	203.5	193	88.5	128.6	22.2	20.7
ULA	1994.017	6.7	r	22.3	13.6	22.3	0	272.4	464.6	494.3	536	212.5	234.5	44.4	53.7
SBE	1994.017	6.7	r	108.5	108.2	108.5	0	94	82.9	249.3	146.3	72	66.2	14.3	11.4
XWC	1994.017	6.7	r	51.1	50.6	51.1	0	63.8	61.5	204.9	134	92	95.4	9.9	18.1
LCN	1994.017	6.7	r	23.1	15.2	23.1	0	250.7	217.3	574	414.3	264.1	417.9	81.1	46.3

SID	Edate	Mag	ftype	Rrup	dBJF	Sdist	HW	pga-1	pga-2	sa03s-1	sa03s-2	sa1s-1	sa1s-2	sa3s-1	sa3s-2
VLA	1994.017	6.7	r	22.5	13.1	22.5	0	161.7	183.8	285.2	318.1	263.5	204.1	49.8	41.1
LUH	1994.017	6.7	r	33.2	31.3	33.2	0	483.3	209.7	990.4	438.5	218.7	94	12.6	19.9
LTH	1994.017	6.7	r	30.5	27.8	30.5	0	123.7	180.1	431.1	334.7	106.8	211.7	31.8	15.4
LCI	1994.017	6.7	r	35.6	34.0	35.6	0	258	310.1	723.9	722	122.7	165.3	20.1	21.9
VWD	1994.017	6.7	r	23.5	14.6	23.5	0	297.2	381.6	497.8	648.6	346.9	256.6	65.4	58.5
VWD	1994.017	6.7	r	23.5	14.6	23.5	0	250.3	251.5	315.5	546.3	256.6	211.1	65.4	58.5
VLL	1994.017	6.7	r	112.7	112.4	112.7	0	55.7	44.7	173.1	91.3	68.8	74.5	9.8	10
VLL	1994.017	6.7	r	112.7	112.4	112.7	0	42.2	55.6	116.8	144.1	60	71.1	9.8	10
LSS	1994.017	6.7	r	26.4	20.4	26.5	0	433.2	420.3	762	1112.2	339.2	480.8	39.8	35.6
LST	1994.017	6.7	r	29.0	24.6	29.0	0	166.8	95.7	289.6	366.1	176.6	158.4	29.9	40.7
LPS	1994.017	6.7	r	30.5	26.8	30.5	0	182.6	100.9	229.8	214.5	144.7	109.7	25.2	33.6
LF3	1994.017	6.7	r	24.8	14.9	24.8	0	187.9	437.8	443.5	1157.6	119.8	179.1	35.2	40.2
OBG	1994.017	6.7	r	36.3	34.4	36.3	0	347.9	399.7	649.2	1213.6	126.9	286.3	36.3	16.6
XLP	1994.017	6.7	r	55.9	55.3	55.9	0	92.1	114.4	292.4	246.2	42.1	92.5		
XLV	1994.017	6.7	r	31.1	26.5	31.2	0	131	62.9	331.7	138	146	49.2	30.9	21
XWA	1994.017	6.7	r	48.0	47.3	48.0	0	43.3	72.7	165	200.2	42.5	126.5	5.8	7.6
SMG	1994.017	6.7	r	26.8	18.1	26.8	0	362.6	866	688.5	1603.5	335.8	321.9	78.9	124.8
LVS	1994.017	6.7	r	33.3	28.7	33.3	0	271.1	245.6	544.7	1018.4	134.6	225.7	15.4	32.9
VCS	1994.017	6.7	r	35.9	32.3	35.9	0	141.6	117.2	284	402.3	118.5	109.7	15.4	17.8
MBS	1994.017	6.7	r	28.3	20.6	28.3	0	433.4	324.3	670.8	707.8	147	344.3	47.3	66.2
XHA	1994.017	6.7	r	56.1	55.5	56.1	0	73.7	47.2	162.3	122.9	70.7	49.2	0	13.3
MTL	1994.017	6.7	r	44.0	42.1	44.0	0	163.3	119.9	586.1	233.3	69.7	115.7	11.9	14.4
BGC	1994.017	6.7	r	43.2	40.2	43.2	0	98.3	61.8	166	193.6	106.4	158.7	14.4	22.2
XPD	1994.017	6.7	r	31.9	24.8	31.9	0	139.3	68.3	253.1	208.2	188.2	166.8	60.4	58.9
RVA	1994.017	6.7	r	98.6	98.3	98.6	0	57.6	62.3	96.8	152.5	18.1	23.8	2.4	4.2
LHO	1994.017	6.7	r	60.2	59.5	60.3	0	198.2	105	489.5	325.9	128.5	63.6	16.1	12
SFS	1994.017	6.7	r	49.2	47.0	49.2	0	128.7	131.3	300.9	452.9	76	53	14.7	15.7
LAS	1994.017	6.7	r	40.6	35.9	40.6	0	194.1	139.2	301.8	282.7	149.6	124.8	26.2	32.8
DOW	1994.017	6.7	r	45.9	42.4	45.9	0	173.6	218.4	541.2	638.7	151.4	141.4	31.1	22.8
DWY	1994.017	6.7	r	48.0	44.8	48.0	0	139.4	155.7	381.9	353.9	113.4	107.2	14	24.3
NWK	1994.017	6.7	r	52.6	50.2	52.6	0	73.4	70.3	218.1	246.9	59.4	93.2	8.9	18.2
NWK	1994.017	6.7	r	52.6	50.2	52.6	0	85.7	54.7	262.3	153.5	90.4	78.9	8.9	18.2
XBR	1994.017	6.7	r	64.3	63.5	64.3	0	95.3	100.2	217.7	271.5	56.9	129	8.5	12.4
NIH	1994.017	6.7	r	52.8	50.4	52.8	0	51.3	62.4	180.3	196.4	73.1	106	9.2	19.5
IGU	1994.017	6.7	r	41.8	36.9	41.8	0	88.9	99.2	154.6	210.8	97.4	125.9	24.2	29.1
COM	1994.017	6.7	r	46.4	42.3	46.4	0	81.5	116.7	294.6	226.2	96.1	95	30.6	20.4
LAW	1994.017	6.7	r	39.8	34.4	39.8	0	77.3	139.6	205.3	254.6	141.9	115.1	24.2	39.8
PRD	1994.017	6.7	r	85.3	85.0	85.3	0	182.5	189.5	535.1	774.1	104.9	79.2	14.3	6.8

SID	Edate	Mag	ftype	Rrup	dBJF	Sdist	HW	pga-1	pga-2	sa03s-1	sa03s-2	sa1s-1	sa1s-2	sa3s-1	sa3s-2
BAD	1994.017	6.7	r	64.1	62.8	64.1	0	119.2	190.7	368.3	546.2	57.4	78.1	8.6	13.5
MBF	1994.017	6.7	r	39.4	33.9	39.4	0	155.1	120.3	327.9	372.4	149.3	134.2	46.3	26.7
FYP	1994.017	6.7	r	81.2	80.9	81.2	0	97.8	102.2	307.3	336.6	61.5	95.2	5.5	7.5
BAP	1994.017	6.7	r	61.0	58.4	61.0	0	92	146.5	315.3	304.9	129.4	116.1	20.8	15
LWD	1994.017	6.7	r	56.1	52.8	56.1	0	129.2	119.1	295.1	381.3	135.1	129	21.2	24.7
LBL	1994.017	6.7	r	51.4	47.3	51.4	0	68	63.4	215	158.5	112.7	83	23.8	17.1
CDA	1994.017	6.7	r	49.5	45.2	49.5	0	85	85.2	242.6	273.3	118.1	99.1	23.9	0
VPS	1994.017	6.7	r	76.4	75.2	76.4	0	37.3	43	103.7	128.2	22.3	36.8	0	13.2
AHM	1994.017	6.7	r	67.6	65.3	67.6	0	64.7	72.1	210.3	246.8	112	80.8	17.9	11.1
CAS	1994.017	6.7	r	50.2	46.0	50.2	0	89.6	93.5	180	163.6	53.5	53.1	13.5	14.1
GGS	1994.017	6.7	r	65.8	62.9	65.8	0	101.4	103.2	529.6	357.4	129	106.5	34.3	31.8
SJF	1994.017	6.7	r	147.1	146.9	147.1	0	79.3	97.1	197	230.4	74.5	125.3	14.3	21.8
RHE	1994.017	6.7	r	49.5	45.2	49.5	0	113.5	103.7	340.5	388.7	67.6	75	11.7	10.3
LBG	1994.017	6.7	r	57.3	53.7	57.3	0	50.2	35.8	153.9	111.7	53.6	64	19.4	24.6
SLB	1994.017	6.7	r	64.1	60.9	64.1	0	60.1	82.3	128.8	267.3	80.3	67.5	25.2	24.7
PVC	1994.017	6.7	r	52.6	48.6	52.6	0	52.7	71.1	173.9	156.7	54.4	60.9	9.3	6.9
RPV	1994.017	6.7	r	54.6	50.8	54.6	0	121	150.2	349	717.8	96.5	87.4	8	8.9
TMI	1994.017	6.7	r	57.1	53.5	57.1	0	145.1	178.7	550.8	583.4	107.6	122	20	23.5
HRA	1994.017	6.7	r	144.0	143.8	144.0	0	62.6	45.2	178.2	156.3	39.5	39.7	3.8	3.9
TUS	1994.017	6.7	r	82.7	80.6	82.7	0	69.7	66.1	229.7	152.4	47.4	47.3	8.3	9.7
HBS	1994.017	6.7	r	68.8	65.8	68.8	0	86.7	74.2	183.3	193.1	48	63.7	25.4	28.9
SPP	1994.017	6.7	r	57.1	53.5	57.1	0	98.9	93.1	417.4	204.3	64.3	89.4	5.7	7.5
HUB	1994.017	6.7	r	72.5	69.6	72.5	0	109.5	117.5	264.9	335.2	56.5	116.6	21.4	22.4
HNB	1994.017	6.7	r	76.6	74.0	76.6	0	68.4	88.9	217.9	135.3	48	86.8	20.9	14.5
DGR	1994.017	6.7	r	149.1	148.9	149.1	0	13.1	21.8	45.7	71.2	9.9	11.1	1.9	3.3
NBI	1994.017	6.7	r	84.7	82.3	84.7	0	59.5	40.4	157.7	135.6	55.3	51.7	28.3	19.4
NBC	1994.017	6.7	r	83.8	81.4	83.8	0	103.5	79.4	398.1	191.9	67.7	60.2	17.8	23.5
BRC	1994.029	5.1	r	2.4	2.1	2.4	0	770.8	684.6	1034.4	1425.3	418.5	143.6	48.2	15.8
RES	1994.029	5.1	r	3.2	3.0	3.2	0	207.3	257	329.9	613.5	81.2	61	23.9	20.8
CWP	1994.029	5.1	r	5.8	5.7	5.8	0	174	158.1	327.6	334.9	138.2	99.5	24.5	17.7
CSN	1994.029	5.1	r	9.0	8.9	9.0	0	105.9	121.7	276.8	369.5	154.7	138	27.5	32.7